THE EFFECT OF EXCHANGE RATE VOLATILITY ON STOCK MARKET RETURNS AT THE NAIROBI SECURITIES EXCHANGE

BY

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D63/84499/2016

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER 2017

DECLARATION

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

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

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ACKNOWLEDGEMENT

I take this opportunity to express my sincere gratitude to my supervisor Dr. Herrick Ondigo who guided me through this research project.

I also acknowledge my family for providing me with moral support in doing this research project and for their patience during this tight schedule of finalizing my project.

DEDICATION

I dedicate this work to my family and friends for their support and encouragement throughout my studies.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ATS   Automated Trading System

CBK   Central Bank of Kenya

CFO   Chief Finance Officer

CMA   Capital Market Authority

EMH   Efficient Market Hypothesis

GBP   Great Britain Pound

GDP   Gross Domestic Product

KES   Kenya Shillings

NSE   Nairobi Securities Exchange

SPSS   Statistical Package for Social Sciences

UK   United Kingdom

PPP   Purchasing Power Parity

USA   United States of America

ABSTRACT

There are number of reasons to believe that foreign exchange rate volatility should be a contributing factor in determining the stock market returns. Significant value of a nation's capital is tied up in the stock market and investors' wealth is at stake depending on how the market performs. There are cost implications on all economic agents as a result of foreign exchange market occurrences. Internationalization of capital markets has led to greater flows of money between market exchanges and in the cross-listing of firms. The appreciation of a currency reduces its ability to compete for exports; thereby hurting the domestic stock market. This study sought to determine the effect of foreign exchange rate volatility on stock market returns at the NSE. The independent variable was exchange rates as measured by monthly exchange rate between Ksh and USD. The control variables were inflation rates as measured by monthly CPI and interest rates as measured by monthly CBK lending rate. Stock market return was the dependent variable which the study sought to explain and it was measured by monthly returns computed from the 20 share index. Secondary data was collected for a period of 10 years (January 2007 to December 2017) on a monthly basis. The study employed a descriptive research design and a multiple linear regression model was used to analyze the association between the variables. Statistical package for social sciences version 21 was used for data analysis purposes. The results of the study produced R-square value of 0.113 which means that about 11.3 percent of the variation in stock market returns at the NSE can be explained by the three selected independent variables while 88.7 percent in the variation was associated with other factors not covered in this research. The study also found that the independent variables had a weak correlation with stock market returns (R=0.337). ANOVA results show that the F statistic was significant at 5% level with an F statistic of 4.949. Therefore, the model was fit to explain stock market returns at the NSE. The results further revealed that individually, exchange rates and inflation are statistically significant determinants of stock market returns at the NSE while interest rate is not a significant determiner of stock market returns. This study recommended that policy makers should pay attention to the prevailing foreign exchange rate volatility as they can negatively affect stock market returns recorded at the Nairobi Securities Exchange.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In an international context where transactions involve different currencies, foreign exchange rates variability is a potentially interesting factor which determines the stock returns level. Foreign investors benefit through the diversification of portfolios internationally through liberalization and the reduction of barriers to international investment (Li, Sarkar & Wang, 2003). The interpretation volatility as uncertainty makes it a major input portfolio design for Chief Finance Officers (CFOs). This is brought about by the critical role of volatility in pricing derivative securities. The role of financial risk management cannot be underestimated in the finance industry since the Basle accord in 1996.Financial institutions have globally adopted volatility forecasting so as to attain efficiency (Pan, Fok & Liu, 2007).

Fama (1981) in his research on the Efficient Market Hypothesis (EMH) described that the existing price of stock reflect the information acquired about an organization's value and it is difficult to make extra earnings by use of available information. The EMH theory supports this study in that the returns at the stock market reflect happenings in the exchange rates disparity. This study is also based on the International Fisher Effect theory developed by Irving Fisher (1930) which states that considering the possibility of arbitrage opportunities across financial markets of any two countries, the real interest rates of these countries should be equal. The Purchase Power Parity Theory, developed by Gustav Cassel (1918) which examines the exchange rates across different countries and how they relate is another theory that this study will be based on.

African countries have witnessed the emergence and expansion of stock markets which has greatly attracted private investments thus making them more integrated into global financial markets (Balparda, Caporale & Gil-Alana, 2015). The Kenyan stock market is among the African emerging economies. The market performance is determined to a large extent by the prevailing macroeconomic variables. Companies listed on this market are not an exception of the effects of adverse exchange rate movements. After the abolition of the fixed exchange rate system and its replacement with the floating rate system, whereby forces of demand and supply determine exchange rates, managers, shareholders and investors have registered a big concern on volatility of returns (Muriu, 2003).

1.1.1 Exchange Rates Volatility

The term exchange rate refers to the unit value of a foreign currency based on which it can be exchanged for the domestic currency (Mishkin & Eakins, 2009). Exchange rates help determine the prices of goods, services, and capital that have been valued using different currencies. In any particular economy, exchange rate volatility will be influenced by different factors that characterize that particular economy such as capital gains from domestic securities, supply and demand for these two currencies, the levels of actual inflation, future price movements, interest rates, public debt, current-account deficits, political stability and terms of trade, and the general economic performance (Howells & Bain, 2007). Since these factors are always in a state of change, the value of a currency will undergo continuous adjustments. As the exchange rate of a domestic currency depreciates, incomes and capital gains resulting from any returns will have less purchasing power (Lothian & Taylor, 1997).

The importance of exchange rate lies in the fact that it allows a self-adjustment of the rate depending on the supply and demand conditions of the foreign exchange in the economy. This self- adjustment is responsible for bringing equilibrium in the market without altering the level of reserves. It is also important in allowing countries to formulate their own monetary policies without worrying about the effects on the balance of payments. External shocks and imbalance effects usually show in the movements in the exchange rate rather than movements in the reserves or an intervention by the central bank to control the process of adjustments (Ndungu, 2001).

In a floating exchange rate system the currency price of different currencies in terms of the local currency is set by the market. In such a system, the value of any particular foreign currency is determined based on the demand and supply forces. These forces in turn are determined by several factors including interest rates, inflation, public debt, balance of trade, economic performances, political instabilities and terms of trade in a given country. The fluctuations can simply be measured by analyzing historical data on the value of different currencies at several periods (Ndungu, 2001).

1.1.2 Stock Market Returns

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

3

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

Stock return is the gain or loss of the value of a share in a particular period usually quoted as a percentage. It consists of capital gains as well as any income received by the investor from the stock (Mugambi & Okech, 2016). Stock performances are often measured using market indexing. Market capitalization is one of the measurements of stock performance; It measures stock market size and stock market liquidity which is the ease with which the investors can buy or sell securities. Others include Turnover ratio; which is an index of comparison for the level of transaction costs and market liquidity rating and the All Share Index; which reflects the performance and the condition of the stock market (Daferighe & Sunday, 2012). In Kenya, stock returns are normally calculated by the NSE 20 share index as it is often used as a benchmark for stock performance measurement.

1.1.3 Effect of Exchange Rate Volatility on Stock Market Returns

The rate of foreign exchange has been among the major financial and economic factors affecting common stocks value and cash flows. The fluctuation of currency prices begun after the fall of the post-war Bretton Woods fixed exchange rates in the 1970's (Rose, 2000). The adoption of the floating exchange rate regimes in many nations and rapid expansion of international trade has led to increased volatility of the exchange rates. Karolyi (2001) asserts that as globalization and economic integration increases every year, both the financial and non- financial firms use exchange rate movements to manage risks. Jumah (2013) opines that exchange-rate movements influence the corporate expected cash flows which intern influence stock returns, by changing foreign currency' home currency value denominated costs and revenues and the competition terms for firms and multinationals with international activities.

The extensive use of the derivatives of foreign currency and tools by corporations to protect their cash flows from sudden movements in exchange rates and the increasing need for exchange rate risk management implies that the market value of the firm is sensitive to exchange rates uncertainties. Multinational and franchised companies greatly depend on the volatility of global currency. Conversion rates could either increase or wipe profits in private investments (Jorion, 2011).

According to Hussain and Liew (2004), the traditional point of view holds that two implications could be derived from the local currency's appreciation. Firstly, a decrease or increase in the debt burden in terms of foreign denomination currency. Local firms would end up paying less or more for the debt that is foreign denominated and their cash flows would either deteriorate or improve. Secondly, an increase or decrease in costs of production, especially in growing economies in which the production process

was reliant on foreign-sourced inputs. The consequences would be a drop-off in company revenues and loss (gain) in price competitiveness.

Rey and Hau (2006) suggested that equity and foreign exchange performance bear a negative correlation due to portfolio rebalancing. This is based upon a viewpoint of a foreign institutional investor with the funds invested in the US. A rise in the US stock market relative to the foreigners market, over weights the investor with American equities. To bring back their portfolio to a favorable position, they sell and reduce their holding of US stocks and sell the US dollar for local currency. Selling of dollars leads the dollar to depreciate at the same time that American equities are outperforming other markets; tying in with the uncovered equity parity condition (Melvis & Prins, 2015).

1.1.4 Nairobi Securities Exchange

NSE was constituted as a voluntary brokers' association in 1954, it is registered under the Societies Act. It was not until 1988 that NSE was privatised. In 2006, the NSE implemented Automated Trading System (ATS) to enable live trading on the basis of first come first served. This system was also linked to the Central Depository System (CDS) and the Central Bank of Kenya to facilitate trading in Government bonds. In a bid to present investors with an ample measure of the performance of the NSE, the NSE launched the NSE All-Share Index (NASI) in February 2008. Since then, it has undergone various changes and innovations, including the abolishment of the aggregate foreign ownership cap of the NSE listed companies in 2015. The Capital Markets Authority (CMA) is the state regulatory body mandated with licensing and regulating the Nairobi Securities Exchange. Public listings and offers of securities issued and traded at the NSE are also approved by the CMA (NSE, 2017).

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

Following the adoption of the floating exchange rate system, there has been a considerable foreign exchange rate movement observed at the NSE and this has seen the Kenya Shilling (KES) depreciating against the world's major currencies. A decreasing trend has also been observed in regards to the NSE all-share-index and the NSE 20 share index. The exchange rate movements have had an implication on the prices of shares of firms listed in the exchange (Mwangi, 2013). There have been both positive and negative movements of foreign currencies affecting share prices and the overall firm value.

1.2 Research Problem

Presently, exchange rate stability is considered an indispensable foundation and econometric in analyzing a country's overall economic position. Extant research works have documented the adverse costs of exchange rate fluctuations on various parts of the domestic economy. Still lacking is conclusive validation of how changes in exchange rate affect stock market returns besides linking this evidence to specific firms (Harcourt & Poncet, 2012). A research by Chamberlain et al., (1997) concluded that a direct association exists between US based bank stock returns and foreign exchange

fluctuations. However, Elyasiani and Mansur (2005) further studied the impact of exchange rate information on Japanese bank stocks and arrived at conflicting results.

In the recent past, the Kenya shilling has been fluctuating in value. In 2011, Kenya experienced exchange rate overshooting from KES 83 to over KES 100 within span of 6 months and it rose steadily to over KES 106 in September 2015, the highest rate ever witnessed in Kenya since independence. At the same time the NSE 20 share index and all-share index have also been fluctuating. Different opinions have been given towards the fall in the indexes. The main argument is that a weak currency increases the finance cost of the listed company leading to increased debt and relatively less profit. Athi River Mining, one of the listed companies has been experiencing this problem due to the amount it owes to a Lagos-based Africa Finance Corporation (AFC). This has led its reduction in profits and share price. It would be easy to conclude that there is a positive association between exchange rate volatility and stock market returns based on this observation but some observations suggest otherwise. The main observation against this relationship is that despite the Kenya shilling weakening, stock prices have increased in some sectors of the economy e.g. the agricultural sector, whose current stock prices has increased due to cheap exports.

Empirical evidence is largely inconsistent and quite varied on the impact of foreign exchange rate volatility on stock market returns. Mishra (2004) was of the opinion that there was no clear theoretical unanimity on the interaction of foreign currency movements and stock market returns. Sekmen (2011) examined how exchange rate volatility affects United States' stock returns and revealed that United States' stock returns are negatively influenced exchange rate variations. Owoeye (2013) studied exchange rates volatility and performance of Nigerian banks and found insignificant

effect. Kolari, Moorman, and Sorin (2008) found stock returns said to be uncertain and to be very sensitive to foreign exchange risk. Solnik (1987) found a negative association between listed equities and the local unit of currency. A study by Liu (2013) in the Chinese market concluded an there is an inverse association between depreciation and stock market returns.

Locally, Cherop (2010) did a study on the fluctuations of exchange rate of tea export earnings among tea factories in Kenya which operate in small scale where she established that the exchange rate fluctuations greatly affected the earnings of smallholders at tea factories. In another paper by Omondi and Olweny (2011).The studies on foreign exchange and its effect on the market, they found that there was a low and significant magnitude of volatility. Ambunya (2012) interrogated how exchange rate movement relates with the stock market returns volatility at the NSE between January 2007 to December 2011. The results revealed that a strong correlation existed between exchange rate movement and stock market returns volatility. Makeri (2014) researched on the association between exchange rate volatility and stock market performance and noted that volatility of different macro-economic variables and exchange rate volatility had no significant effects on the performance of the stock market. Jumah (2013) examined the impact of changes in foreign exchange rate on the volatility of stock returns in which a weak correlation was established between the two variables.

The lack of consensus among the various scholars on the effect of exchange rates volatility on stock market returns is reason enough to conduct further examination on the area of study. This paper will seek to identify how exchange rates volatility influence stock market returns at the NSE. It will attempt to give an explanation to the

9

research question; what is the impact of exchange rates volatility on stock market returns at the NSE?

1.3 Objective of the study

To determine the effect of exchange rates volatility on stock market returns at the NSE.

1.4 Value of the study

The finding of the study forms a future reference to researchers, scholars and students who may aspire to take out research on the same or correlated field. The study may also be helpful to scholars and researchers in identification of further areas of research on other related studies by highlighting related topics that require further research and reviewing the empirical literature to establish study gaps.

Value of this study is to the various managers who are tasked with the management of companies listed on the NSE; this study provides useful information and recommendations to assist them in making more informed management decisions leading to shareholders' wealth maximization. The study increases the pool of knowledge available to assist both NSE listed companies and firms seeking to list in future to improve their performance and ensure sustainability.

To government and organizations such as the Capital Markets Authority and the Central Bank, in the formulation and implementation of policies and regulations governing monetary policies and exchange rates to ensure stable currency rates so as to promote economic growth and reduce its spiral effects on the economy. This will contribute to the advancement of monetary development and improvement the economy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the theoretical framework applied in the study and reviews previous studies done on exchange rates volatility and stock market returns. It contains the theoretical review, determinants of stock market returns, empirical review, and the conceptual framework

2.2 Theoretical framework

This presents review of the relevant theories that explains the relationship between exchange rate and stock market returns. The theoretical reviews covered are; Efficient Market Hypothesis, International Fisher Effect and the Purchasing power theory.

2.2.1 Efficient Market Hypothesis

Fama (1965, 1970) developed the EMH which rests on the premise that prices of stocks include all information available such as company announcements in no investment strategy utilized can result in abnormal profits. The Efficient Markets Hypothesis (EMH), presupposes that current information is immediately included in prices of shares such that no extra profits can be made using the information (Fama, 1970). EMH postulates that a market that is efficient is both internally and externally efficient; thus, the price assets at any point include all information on the asset, expected future cash flows and the uncertainty involved in investing in that security (Mgbame & Ikhatua, 2013).

The market efficiency is in three forms which are the strong form, the semi-strong form of efficiency and the weak form of efficiency market. The weak form of market

efficiency has prevailing prices of securities include every past information available including a historical sequence of prices, market return, market capitalizations and information from the market (Ilaboya & Aggreh, 2013). The semi-strong form of efficiency argues that current stock prices include all the existing informational content of historical prices and the publicly available information about corporations (Malkiel, 2005). The strong form postulates that security prices include the available information and even private information. All the participants do not have access to critical information; hence, no one makes above average profits (Wabwire et al., 2013).

EMH applies rationality to asset pricing in the markets. Prices of all securities include all available information since in an efficient financial market, Opportunities for abnormal profits are eliminated (Praptiningsih, 2011). The logic of EMH premise is that information flows fluently and immediately get included in the current share prices such that tomorrow's price changes are only affected by information that emerges tomorrow (Malkiel, 2005). From an investor's point of view, stock market participants cannot use the information they have to generate abnormal profits (Praptiningsih, 2011). Besides, the efficient market hypothesis holds, the information changes affect share prices. Thus, as stock price volatility keeps changing as new information flows into the market hence may negatively impact the performance of the market as news keep arriving and the ensuing response of traders.

2.2.2 Purchasing Power Parity Theory

Swedish economist Cassel (1918) was the originator of this theory defining the theoretical nominal exchange rate as a report between national and foreign prices, however the market value of the exchange rate could deviate from the former value (over or under deviations) of the national currency. Cassel (1918) selected various

hypotheses that needed to be fulfilled before validating the theory. These hypotheses included the working of the international arbitrage mechanism, presence of perfect competition in both home and foreign countries and capital movements free from barriers such as taxes or any other restrictions. Consequently, non- tradable goods will trade at a lower price than those in more developed countries.

According to the PPP, selling identical goods at the same price by all countries will be when there is the price level of a certain country increases resulting into the decline of exchange rate compared to other nations. This theory suggests that, when the Law of One Price holds an exchange rate change is usually offset by relative price indices/inflation. PPP functions in par with the one price law which holds that states that identical goods will be sold at similar prices in competitive markets. The PPP version relates to a specific product and its generalization. The relative PPP does not relate to absolute price levels but relates to variations in exchange rates and prices (Hau, 2002).

The assumptions for PPP to hold include; no information gaps, goods are identical and tradable, no transportation costs, no tariffs, no taxes, no trade restrictions, and relative inflation rates influence exchange rates. It is because of the violation of one price law and these restrictive assumptions that the monetary models of determining exchange rates were adopted. This is because of the consideration that exchange rates refer to asset prices that always adjust to balance between financial assets and international trade. Exchange rates are normally determined by future expectations because they are asset prices (Hosfstrand, 2006).

The PPP theorem relates prices to exchange rates therefore implying that prices of goods and services will tend to change with changes in exchange rates. Stock prices,

being not an exception from these prices described in the theory, will therefore change in relation to exchange rate changes, if the assumptions of the PPP theory are to hold. Relying on the theory, it is therefore possible to draw a correlation between exchange rate movements and stock prices, which will most certainly be followed by fluctuating returns in the stock markets.

2.2.3 International Fisher Effect Theory

The International Fisher Effect model was developed in 1930 in a book titled "The Theory of interest" by Fisher. It explains changes in exchange rates over time by use of market interest rates rather than inflation rates. This theory states that interest rate changes usually balance out exchange rates changes. The Fisher theory simply argues that with arbitrage opportunities in financial markets, the real interest rates across countries are equal. Countries with high interest rates have a high inflation rate that makes their currency's value devalue over time, best explained by the real interest rate equality.

Exchange rate volatility is best reflected by nominal interest rate differentials between two countries. Fisher (1896) observed a phenomenon referred to as the Fisher effect was supported by Giddy (1977) terming it to be having a close relationship with the international Fisher effect. According to International Fisher Effect theory, in the long-run, interest rates can determine exchange rates and vice versa. Countries with higher interest rates will tend to have lower stock prices and thus lower stock returns as compared to countries with lower interest rates. To prevent arbitrage opportunities, the currency of the country with high interest rates is expected to devalue overtime (Dimand, 2003).

2.4 Determinants of Stock Market Returns

Stock market returns is a matter of great interest to the stock market investors, in that it directly affects the wealth they hold. Key factors that are believed to play a part in the overall performance of stock markets are as follows:

2.4.1 Exchange Rates Volatility

Investors choose to buy one currency, because they believe it is going to appreciate in value against other currencies. The currency of an economy depreciates when the likelihood that it will retract are higher. The European economy was in crisis during its 2010 debt crisis when most of its nations were at risk of defaulting on their debt. This lead to a significant decline of the Euro as the investors opted for other currencies (Johnson, 2010). Dwivedi (2002) blames the foreign exchange volatility on high technological levels in the developed nations. He argued that the industrialized produced a lot of surplus commodities which increased their export volumes their foreign currency's supply in the domestic countries leading to the depreciation of the currency; This thus increased the price of the exports commodities and a subsequent reduction in value. Some currencies are perceived to be more risky than others, especially those in the developing nations. A fight to safety occurs when the fundamentals of the global economy are suspicious. Flight to safety is a situation whereby the investors only hold safe investments and avoid riskier investments.

2.4.2 Inflation

Tucker (2007) in his works describes inflation as the general increase in the standard price levels of services or goods in any given economy. Inflation is referred to as an overall rise in the average level of prices and not specifically in relation to a unit of a given product or service. Sloman and Kevin (2007) in their research paper expound that

inflation could take the form of either demand pull inflation which is brought about by increase in demand of goods or the form of cost push inflation. Demand-pull inflation arises as a result of a general rise in the market demand in general which results to higher prices and partially increases of the output in a given economy. Cost push inflation is as a result of the increase in the levels or cost of production which may affect the firms thus resulting in the companies charging the consumers more (Hendry, 2006).

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

2.4.3 Interest Rates

Monetary policy is used to stimulate or stabilize the economy. From the perspective of the firm, borrowing money to finance working capital and/or for capital expenditure will drive up their cost of debt. This will likely hamper company profits and the dividends available for shareholders. As a result, it would be expected that the share price may drop. The present value for future dividend income is reduced by higher interest rates which lead to low stock prices. From the investing side of things, high-yielding fixed income investments would tend to be more attractive and relatively safer to investors than equities (Barnor, 2014).

2.4.4 Money Supply

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

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

2.4.5 Company News and Performance

The securities markets are affected profoundly by rumors and news. The news can affect the sentiments and prospect of the investors and performance of corporations as people construe news differently depending on their own cognitive power. The enterprise particular factors that may influence the share price include: change of management; earnings news releases, profits and future projected earnings; declaration of dividends; introduction of new products; obtaining a new large contract; accounting errors or scandals; employee layoffs; and expected takeover or merger (Alanyali, Moat & Preis, 2013).

Certain enterprises are exposed more to own-industry specific circumstances as opposed to the wide conditions of the economy thus investors monitor price movements of the industry's products, entry into the industry and industry sales forecasts. An

improvement in dividends may signify the prospect that the company can certainly afford to pay more dividends. The declaration of less than anticipated incomes can lead to investors trimming their company's valuation of stock and flows. The diversities are often considered as an encouraging indicator about a company if the stripped assets isolated from the company's core business. This naturally leads to an enhanced stock demand and as a result increases stock prices (Mayo, 2016).

2.4.6 Industry Performance

The profitability and success of the industry or sector in which the company operates has a significant part to play in influencing the company's stock price. Typically, stock prices for firms in the same sector will fluctuate in tandem. Investors usually evaluate a firm owing to its earnings per share (EPS), future earning prospect and revenue. The reason for this being that conditions of the market will mainly affect companies in the same industry in a similar way. Nevertheless, the firm's stock price may at times gain from bad news in its rival if the two firms are targeting the same market (Madura, 2008).

The market share gains and losses can lead to substantial effects on a company's stock performance, depending on the economic sector's conditions. Market share is primarily a sector's total sales percentage that the firm earns. Market share shifts have a greater effect on firm performance in cyclic industries with low growth. Corporation's securities tend to track with the market and with their industry peers or sector (Acheampong, Agalega & Shibu, 2014). According to Mayo (2016) the mixture of general sector and market movements compared to a firm's performance individually predicts most of a stock price changes.

2.5 Empirical Review

There are numerous empirical studies both locally and internationally to support the relationship between exchange rates and stock market returns, but these studies have produced mixed results.

2.5.1 Global Studies

Fang (2002) looked into the effects of currency depreciation during the Asian financial crisis (1997 − 1999). Countries under observation were the markets of Thailand, Taiwan, Singapore, Hong Kong and South Korea. A bivariate GARCH model was used to ascertain the effects. Fang found statistically significant effects between currency depreciation and stock market returns. Stock returns were considerably affected and/or market volatility was increased. The exchange rate was detected to negatively impact local stock prices.

Joseph and Vezos (2006) examined the effect of foreign exchange rate movements and rates of interest on US banks' stock returns. The EGARCH model was used to record the impacts of the ARCH in every day returns. The outcomes recommended that exchange rate represented a significant portion of the fluctuation in market performance at the portfolio level and individual bank; and the level of the affect-ability of the stock performance to exchange rate fluctuations was not exceptionally maintained regardless of the utilization of high recurrence information. The study further demonstrated that ARCH impacts had an effect on measures of affectability.

Tumwebaze (2011) studied the effect done on the profitability of export companies as a result of foreign exchange rate volatility. He did this by taking a case of a multinational firm. The study targeted employees of Mairye Estate Limited and selected 63 respondents. The findings revealed that differentials in terms of trade, high levels of

inflation and interest rates, cause exchange rate volatility. While profitability levels of a company are determined by the sales volume, export companies' profitability is normally determined by the foreign exchange volatility. This implies that profits are affected negatively by unfavorable volatility while positively affected by favorable volatility.

Pal and Mittal (2011) conducted an analysis on the Indian Capital Markets and exchange rates relationship, inflation rate, gross domestic savings and interest rates of India economy which are the key macroeconomic variables. That study was conducted for a period of fourteen years commencing January 1995. The tests applied on the study were the error correction mechanism, co-integration test and the unit rate interests. The results of that analysis concluded that there was dependence relationship on indices of capital markets and rates of exchange, gross domestic savings, inflation and interest rates even though it may seem that they are not statistically significant in all the areas.

The studies by Kuwornu (2012) explored the influence of macroeconomic variables on the stock market returns in Ghana using data collected on monthly basis from Jan 1992 to Dec 2008. The Johansen multivariate co-integration procedure was employed in the study. The study's' results revealed that no co-integration existed between the exchange rate , inflation , 91-day Treasury bill rate, crude oil prices and the Ghanaian stock returns thus indicating long run equilibrium associations. The results also revealed that inflation rate and Treasury bill rate influence to a large extent the stock returns in the short run. In addition, the study found out that in the end the stock returns are largely affected by crude oil prices, inflation rate, the Treasury bill rate and exchange rate.

Alexeev and Parlapiano (2013) explored the preparedness of the European companies to unexpected changes in exchange rate and the Euro against the currency of the trade

partners of Europe: UK, Japan and the USA. Monthly data of between the periods 1999 to 2011 was used and the underlying macroeconomic fundamentals were also accounted for. The analysis covered 600 firms - constituents of the Euro Stoxx 50 and Euro Stoxx TMI. The study observed the country of origin, level of international involvement, firm and industry size associated with the exposure to 20 risks of exchange. The results indicate that the Yen has the highest impact on of European firms' market value among the 20 currency pairs analyzed. The financial sector was also noted to be the most influenced. The impact was also noted to be greater for large capitalization firms and non-exporters.

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

2.5.2 Local Studies

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

understand how stock returns are influenced by the macro-economic variables. The study's outcome confirmed that there was a significant impact on the stock market returns in Kenya attributed to the money supply, exchange rate and inflation rate. The exchange rate was however noted to negatively influence the stock market return for the period of the study. This study applied ordinary least square model while the current study will apply a multiple linear regression model.

Furukha (2014) studied the association between the volatility of foreign exchange rate and the value of multinational firms listed at Nairobi Securities Exchange. An audit on the multinational firms listed in the NSE's foreign exchange trading activities reveal the main drivers leading to a rise in the number of activities during the period of study were identified as shortening of the tenor of currency swaps, "reverse carry" deals, the use of Electronic Brokerage System (EBS) for foreign exchange trading and the preference by Kenyans to hold their wealth inform of foreign currency. The study findings showed that there was high volatility in foreign exchange rate within the first quarters. The volatility reduced, almost evened out between the second and third quarter of the year before increasing in the beginning of the third quarter. A rise in the variance of the permanent components of the process of exchange rate leads to a high variability in the profitability of the firm and growth rate, thus the establishment of the value leading to the conclusion that exchange rate volatility mattered in firms' value variations. This study concentrated on the listed multinational firms while the current study will address all the listed firms.

Wanjiku (2014) established the effect of selected macroeconomic variables (inflation rate, interest rates and exchange rate of dollar versus Kenya shillings on the Pension Funds returns in Kenya. The study had 36 data points of observations and quarterly data

for the period that ranged from 2005 to 2013 was analyzed. The study established that pension funds' industry return for the period were highly subjective to the selected macro-economic variables. There exists a negative association between interest rates, exchange rates and inflation while the GDP positively influences industry returns. This study did not address exchange rates while the current study will address exchange rate volatility.

Kirui, Wawire and Onono (2014) evaluated the link between treasury bill rate, gross domestic product, inflation, stock market return and exchange rate in the NSE. The co-integration relationship between stock returns and the macroeconomic variables as tested using the Engle-Granger two-step and the volatility persistence and leverage effects were tested using the autoregressive conditional heteroscedacity model at the NSE. The study revealed that exchange rate movements had a significant influence on stock returns. This study applied quarterly data while the current study will deal with monthly data to establish the effect of exchange rate volatility on stock market returns.

Mugambi and Okech (2016) studied the impact of macroeconomic variables on the stock returns on banks in the Nairobi Securities Exchange listing. The study employed secondary data from the CBK from 2000 to 2015. The study used correlation analysis, Unit Root test and the linear regression model to establish the relationship. The study findings revealed that interest rate, inflation, and exchange rate influence bank stock return significantly, while the impact of bank stock returns on GDP was insignificant. The study recommended that the government should ensure a stable macroeconomic environment and moderate its monetary policy interventions. This study dealt with listed banks while the current study will address all listed firms. In addition the current study will deal with volatility of exchange rate betweeen KSH/USD.

2.6 Conceptual Framework

According to Hussain and Liew (2004), from the traditional perspective, the appreciation or depreciation of a local currency has two main implications. Firstly, an increase or decrease in the debt burden in terms of foreign denomination currency. Local firms would end up paying more or less for the foreign denominated debt and their cash flows would either deteriorate or improve Secondly, changes in production costs, especially in growing economies in which the production process was reliant on foreign-sourced inputs. The consequences would be a drop-off in company revenues and loss (gain) in price competitiveness.

The conceptual framework gives a portrayal of how the factors identified are related to each other. The factors characterized here are stock market returns and foreign exchange rate volatility. The independent variable is the exchange rate volatility it is measured using the standard deviation of KSH/USD. The control variables are inflation rates volatility as measured by standard deviation of monthly CPI and volatility of interest rate as measured by monthly lending rate of CBK. Stock market return will be measured by stock market index.

Figure 2.1: Conceptual Model

Independent variables   **Dependent variable**

```
┌─────────────────────┐
│ Exchange      Rate  │──────────────────────►
│                     │
│ Volatility          │                            ┌──────────────────────┐
│                     │                            │ Stock Market Returns │
│ (KSH/USD)           │                            │                      │
└─────────────────────┘                            │ (20 share index)     │
                                                   │                      │
**Control Variables**                              └──────────────────────┘
┌─────────────────────┐
│ Interest Rates      │──────────────────►
│                     │
│ (CBK lending rate)  │──────────────────────►
│                     │
└─────────────────────┘


┌─────────────────────┐
│ Inflation Rates     │
│                     │
│ (CPI)               │──────────────────────►
└─────────────────────┘
```
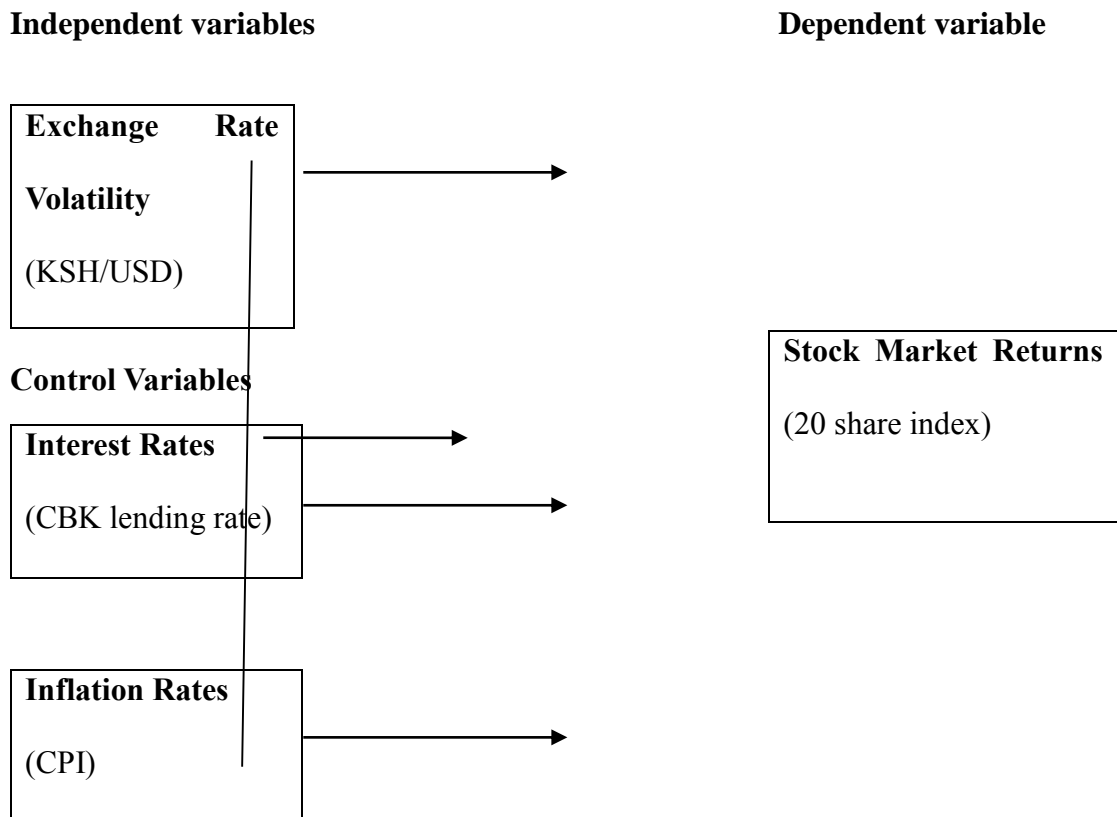
Source: Researcher (2017)

2.7 Summary of the Literature Review

Various theoretical frameworks have attempted to explain the concept of foreign exchange rate volatility. Three theories have been discussed in this theoretical review. The theories are namely: efficient market hypothesis, the international fisher effect theory and the purchasing power parity theory. Some of the key determinants of stock market returns have also been discussed in this section. Several empirical studies have been conducted both internationally and locally on exchange rates volatility and stock market returns. The findings of these studies have also been discussed in this chapter.

Most studies on exchange rate volatility have not been linked to firm stock market return. Tumwebaze (2011) explored the impact of foreign exchange volatility on export companies' profitability. Mang'oli (2013) studied the relationship that the profitability of airlines in Kenya had with their foreign exchange risk management. Obwogi and Laichena (2015) analyzed the influence of macroeconomic variables on stock returns within the East African counties. Besides, from the empirical review no general agreement underlies the theoretical relationship between fluctuations in exchange rates and stock market returns; the empirical studies of the associations are inconclusive. The basic assumption in models used in the aggregation of firms at the industry level is that there is no heterogeneity within industries. This study leveraged from this gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes methods of research applied to objectively establish the influence of exchange rates volatility on stock market returns. It also shows the population of study, research design, a test of reliability and validity, data collection and analysis criteria.

3.2 Research Design

Research design is defined as a blue print of those procedures, which are adopted by a researcher for testing the relationship between dependent variables and independent variables (Khan, 2008). Descriptive design was adopted for the study. A descriptive study involves a description of all the elements of the population. It allows estimates of a part of a population that has these attributes.

3.3 Data Collection

Data was exclusively collected from a secondary source. It is always a regulatory requirement for firms listed at the NSE to report their values annually to the Capital Markets Authority. Monthly data for ten years (July 2007 to June 2017) was collected and analyzed. As the study focused on the NSE 20 share index, the study included all the companies that have been used to determine the index for the period between July 2007 and June 2017. Data for the independent variables; exchange rate volatility and the CBK lending rate was obtained from the CBK while data on inflation was collected from the Kenya National Bureau of Statistics. Data for the independent variable; stock returns referenced by the NSE 20 share index was acquired from the NSE. The study analyzed the NSE 20 share index as it related to the quoted companies that are

considered blue chip and have superior profitability and dividend indicated in the stock return.

3.4 Diagnostic Tests

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

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

3.5 Data Analysis

The collected data was sorted, classified, coded and then tabulated for easy analysis. Collected data was analyzed using both the descriptive and the inferential statistics. SPSS computer package version 21 was used in the analysis since it's more user-friendly. The data was inputted into the SPSS and examined using descriptive, correlation and regression analyses. In descriptive statistics, the study used mean, standard deviation and scatter plot. In inferential statistics, the study used multivariate

regression analysis to determine the relationship between the dependent variable (Stock market returns) and independent variables: Exchange rate volatility, Interest Rates and Inflation Rate.

3.5.1 Analytical Model

Using the collected data, the researcher conducted a regression analysis to establish the extent of the relationship between exchange rate and stock market returns. The study applied the following regression model:

$Y= \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon.$

Where: Y = stock market returns as measured by the 20 share index

α =y intercept of the regression equation.

β_1, β_2 and β_3, =are the slope of the regression

X_1 = the exchange rate volatility for Ksh against the Dollar as measured by the monthly standard deviation

X_2 = average monthly inflation rate volatility as measured by the standard deviation of CPI

X_3 = average monthly interest rate volatility as measured by the standard deviation of CBK lending rates

ε =error term

3.5.2 Tests of Significance

To test the statistical significance the F- test and the t – test was used at 95% confidence level. The F statistic was utilized to establish a statistical significance of regression equation while the t statistic was used to test statistical significance of study coefficients.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

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

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. Cameron & Trivedi's IM-test was used to test for heteroscedasticity. The null hypothesis stated that there is no heteroscedasticity. Results in Table 4.1 show that the p-value (p=0.3629) is greater than the critical value of 0.05. Therefore, we fail to reject the null hypothesis and conclude that the variance is homogenous.

Table 4.1: Cameron & Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	18.42	17	0.3629

Source: Research Findings (2017)

Shapiro-walk test and Kolmogorov-Smirnov test was used to test for normality. The null hypothesis for the test was that the secondary data was not normal. If the p-value recorded was more than 0.05, the researcher would reject it. The results of the test are as shown in table 4.1.

Table 4.2: Normality Test

Stock market Returns	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Exchange rates	.178	120	.300	.881	120	.723
Inflation rates	.176	120	.300	.892	120	.784
Interest rates	.173	120	.300	.918	120	.822
a. Lilliefors Significance Correction						

Source: Research Findings (2017)

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

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. Table 4.2 below shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of ten years (2007 to 2016) on a monthly basis. Stock market returns had a mean of -.357 with a standard deviation of 4.646. Foreign exchange rate resulted to a mean of 84.14 with a standard deviation of 11.094. Inflation had a mean of 8.290 and standard deviation of 4.604 while interest rates recorded a mean of 9.40 with a standard deviation of 2.966.

Table 4.3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Stock market returns	120	-17.9	9.3	-.357	4.646
Exchange rate	120	62	105	84.14	11.094
Inflation rate	120	2	20	8.29	4.604
Interest rate	120	6	18	9.40	2.966
Valid N (listwise)	120				

Source: Research Findings (2017)

4.4 Correlation Analysis

Pearson correlation was employed to analyze the level of association between stock market returns at the NSE and the independent variables for this study (foreign exchange rate volatility, inflation rates and interest rates). From correlation analysis, the study showed that there exists a weak negative correlation between foreign exchange rate volatility and stock market returns (p=-.144, p>.116). This shows that exchange rates have a weak negative association with stock market returns but the association is not significant. The relationship between inflation and stock market returns was found to be weak and negative (p=-.242, p>0.008). This implies that movement in the inflation rate is negatively correlated to stock market returns and in a significant manner. The study also showed the existence of a weak positive correlation between interest rates and stock market returns (p=.056, p>.541). This goes to show that the prevailing interest rates in a country have an association with stock market returns but that association is not significant. Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity

as all the r values were less than 0.70. This implies that there was no Multicollinearity among the independent variables and therefore they can together be used as determinants of stock market returns at the NSE in regression analysis.

Table 4.4: Correlation Analysis

Correlations		Stock market returns	Exchange rate	Inflation rate	Interest rate
Stock market returns	Pearson Correlation	1			
	Sig. (2-tailed)		.116	.008	.541
Exchange rate	Pearson Correlation	-.144	1		
	Sig. (2-tailed)	.116		.284	.025
Inflation rate	Pearson Correlation	-.242**	-.099	1	
	Sig. (2-tailed)	.008	.284		.008
Interest rate	Pearson Correlation	.056	.204*	.241**	1
	Sig. (2-tailed)	.541	.025	.008	
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Research Findings (2017).

4.5 Regression Analysis

Stock market returns was regressed against three predictor variables; foreign exchange rate volatility inflation rates and interest rates. The study obtained the model summary statistics as shown in table 4.4 below.

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.337[a]	.113	.091	4.4309	1.574

a. Predictors: (Constant), Exchange rate, Inflation rate, Interest rate

b. Dependent Variable: Stock market returns

Source: Research Findings (2017)

From the outcome in table 4.4 above, the value of R square was 0.113, a discovery that only 11.3 percent of the deviations in stock market return at the NSE is caused by changes in exchange rates, inflation rates and interest rates. Other variables not included in the model justify for 88.7 percent of the variations in stock market returns at the NSE. Also, the results revealed that there exists a weak relationship among the selected independent variables and the stock market return as shown by the correlation coefficient (R) equal to 0.337. A durbin-watson statistic of 1.574 indicated that the variable residuals were not serially correlated since the value was more than 1.5.

Table 4.6: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	291.503	3	97.168	4.949	.003[b]
1	Residual	2277.371	116	19.633		
	Total	2568.873	119			

a. Dependent Variable: Stock market returns

b. Predictors: (Constant), Exchange rate, Inflation rate, Interest rate

The significance value is 0.003 which is less than p=0.05. This implies that the model was statistically significant in predicting how exchange rates, inflation rates and interest rates affect stock market returns at the NSE. Given 5% level of significance, critical value from the table is 2.74, table 4.5 above shows computed F value as 4.949. This confirms that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining how exchange rates, inflation rates and interest rates affects stock market returns at the NSE.

Table 4.7: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.024	3.302		2.127	.036
	Exchange rate	-.088	.038	-.209	-2.314	.022
	Inflation rate	-.307	.092	-.304	-3.336	.001
	Interest rate	.270	.145	.172	1.858	.066

a. Dependent Variable: Stock market returns

Source: Research Findings (2017).

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

above 0.05 indicates a statistically insignificant relationship between the dependent and the independent variables. The results are as shown in table 4.6

From the above results, it is evident that foreign exchange rate and inflation rate are significant determinants of stock market returns as indicated by p values less than 0.05. Interest rate is an insignificant determinant of stock market returns as indicated by a p value that is greater than 0.05.

The following regression equation was estimated:

$Y = 7.024 - 0.088X_1 - 0.307X_2 + 0.270X_3$

Where,

Y = Stock market returns at the NSE

X_1 = Exchange rates

X_2 = Inflation rates

X_3 = Interest rates

On the estimated regression model above, the constant = 7.024 shows that if selected dependent variables (foreign exchange rate volatility, inflation rate and interest rates) were rated zero, stock market returns would be 7.24. A unit increase in exchange rates would lead to a decrease in stock market returns by -0.088 while a unit increase in inflation rates would lead to a decrease in stock market returns by -0.307. A unit increase in interest rates would lead to an increase in stock market returns by 0.270.

4.6 Discussion of Research Findings

The study sought to determine the effect of foreign exchange rate on the stock market returns at the NSE. The independent variable was exchange rates as measured by monthly exchange rate between Ksh and USD. The control variables was inflation rates as measured by monthly CPI and interest rate as measured by CBK monthly lending

rate. Stock market returns was the dependent variable which the study sought to explain and it was measured by monthly returns of the 20 share index. The effect of each of the independent variables on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed existence of a weak negative correlation between exchange rates and stock market returns (p=-.144, p>.116). This shows that exchange rates have a weak negative association with stock market returns but the association is not significant. The relationship between inflation and stock market returns was found to be weak and negative (p=-.242, p>0.008). This implies that movement in the inflation rate is negatively correlated to stock market returns and in a significant manner. The study also showed that there exist a weak positive correlation between interest rates and stock market returns (p=.056, p>.541). This goes to show that the prevailing interest rates in a country have an association with stock market returns but that association is not significant.

The model summary revealed that the independent variables: foreign exchange rate volatility, inflation rates and interest rates explains 11.3% of changes in the dependent variable as indicated by the value of R^2 which implies that there are other factors not included in this model that account for 95.9% of changes in stock market returns at the NSE. The model was found to be fit at 95% level of confidence since the F-value of 4.949 is higher than the critical value. This implies that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining stock market returns at the NSE.

The findings of this study are in agreement with Ouma and Muriu (2014) whose study was interested in confirming the influence of the macroeconomic variables on stock

returns for the period between 2003 and 2013 in Kenya. Monthly data for the period was used and it was collected from secondary sources. The study focused on Capital Asset Pricing Model (CAPM) and applied the Arbitrage Pricing Theory (APT) to provide a framework. To test for validity of the model, Ordinary Least Squares (OLS) technique was used. The study aimed to understand the significance of the macro-economic variables on the stock returns. The findings of the study concluded that there was a significant effect on the stock market returns in Kenya attributed to the money supply, exchange rate and inflation rate. The stock market return was however noted to be negatively influenced by exchange rate.

This study is in agreement with Obwogi and Laichena (2015) who evaluated the impact of macroeconomic variables on East Africa's stock returns. The effects of interest rates, inflation rate, currency exchange rate, GDP and their impacts on East Africa's stock returns was examined in the study. Kenya, Tanzania and Uganda were examined as from 2005 to 2014. The study findings revealed a significant association between the East Africa's stock returns and the microeconomic variables used in the study. East Africa's policy makers were thus advised to work harder in order to make the macroeconomic conditions favorable so as to attain improved stock returns.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

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

5.2 Summary of Findings

The study sought to investigate the effect of foreign exchange rate volatility on stock market returns at the NSE. The independent variables for the study were foreign exchange rate volatility, inflation rate and interest rates. The study adopted a descriptive research design. Secondary data was obtained from CBK, CMA and KNBS and was analyzed using SPSS software version 21. The study used monthly data covering a period of ten years from January 2007 to December 2016.

From the results of correlation analysis, a weak negative correlation was found to exist between foreign exchange rate volatility and stock market returns at the NSE. The relationship between inflation and stock market returns at the NSE was found to be weak and negative while interest rates was found to have a weak and positive relationship with stock market returns at the NSE. Interest rates and exchange rates were found to have an insignificant relationship with stock market returns as indicated by p values that are more than 0.05 while inflation rate exhibited a significant correlation indicated by a p value of less than 0.05.

The co-efficient of determination R-square value was 0.113 which means that about 11.3 percent of the variation in stock market returns can be explained by the three

selected independent variables while 88.7 percent in the variation of stock market returns is associated with other factors not covered in this research. The study also found that the independent variables had a weak correlation with stock market returns at the NSE (R=0.337). ANOVA results show that the F statistic was significant at 5% level with a p=4.949. Therefore the model was fit to explain the relationship between the selected variables.

The regression results show that when all the selected dependent variables (interest rates, inflation rates, interest rates and exchange rates) are rated zero, the stock returns would be 7.024. A unit increase in inflation and exchange rates would lead to a decrease in stock market returns by -0.307 and -0.088 respectively while a unit increase in interest rates would lead to an increase in stock market returns by 0.270. Analysis of model coefficients revealed that both foreign exchange rate and inflation are statistically significant determinants of stock market returns while interest rate was found to be an insignificant determiner.

5.3 Conclusion

From the study findings, foreign exchange rate volatility were found to be negatively associated with stock market returns at the NSE and therefore an increase in exchange rates to a decrease in stock market returns at the NSE. The study found a positive effect of interest rates on stock market returns and therefore concludes that stock market returns at the NSE has a positive association with interest rates. The study therefore concludes that higher interest rates lead to improved stock market returns even though not to a significant extent. The study found that inflation rate had a negative correlation with stock market returns at the NSE and we can therefore conclude that higher inflation rates tends to discourage performance of firms listed at the NSE leading to low stock market returns.

This study concludes that independent variables selected for the study foreign exchange rate volatility, inflation and interest rates influence stock market returns at the NSE but not to a large extent as they only account for 11.3 percent of the changes in stock market returns. The fact that the three independent variables explain 11.3% of changes in stock market returns imply that the variables not included in the model explain 88.7% of changes in stock market returns. The overall model was found to be significant as explained by the F statistic. It is therefore sufficient to conclude that these variables significantly influence stock market returns as shown by the p value in anova summary.

This finding concurs with Ouma and Muriu (2014) whose study was interested in confirming the influence of the macroeconomic variables on stock returns for the period between 2003 and 2013 in Kenya. Monthly data for the period was used and it was collected from secondary sources. The study focused on Capital Asset Pricing Model (CAPM) and applied the Arbitrage Pricing Theory (APT) to provide a framework. To test for validity of the model, Ordinary Least Squares (OLS) technique was used. The study aimed to understand the significance of the macro-economic variables on the stock returns. The findings of the study concluded that there was a significant effect on the stock market returns in Kenya attributed to the money supply, exchange rate and inflation rate. The stock market return was however noted to be negatively influenced by exchange rate.

5.4 Recommendations for the Policy and Practice

The study found that exchange rates and inflation rates have a negative relationship with stock market returns recorded at the NSE. The variables were also found to be significant determinants of stock market returns. This study recommends that policy makers should pay attention to the prevailing rates of these selected independent

variables as they can negatively affect stock market returns recorded at the Nairobi Securities Exchange.

The study established that although there is a positive influence of interest rates on stock market returns at the NSE, the influence is not statistically significant. This study recommends that there is need for central bank to regulate the interest rate levels prevailing in the country bearing in mind that they influence stock market returns.

5.5 Limitations of the Study

The scope of this research was for ten years 2007-2016. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether similar findings would result beyond 2016. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions.

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

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

5.6 Suggestions for Further Research

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

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

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

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APPENDICES

APPENDIX I: NSE 20 Share Index stock return Jan 2007 to Dec 2016

Year	Month	Stock returns	Interest rate	Inflation rate	Exchange rate
2007	JAN	8.30	10	4.63	70.537
	FEB	- 4.38	10	3.12	69.733
	MAR	- 11.95	10	2.31	68.781
	APR	2.74	10	2	68.306
	MAY	-1.08	10	2.09	66.966
	JUN	-0.42	8.5	4.05	66.564
	JUL	1.45	8.5	5.39	67.509
	AUG	1.38	8.75	5.19	66.989
	SEP	3.75	8.75	5.45	66.971
	OCT	-7.22	8.75	5.32	67.114
	NOV	1.59	8.75	5.98	64.424
	DEC	3.21	8.75	5.6	62.675
2008	JAN	-4.35	8.75	7.93	70.561
	FEB	-4.07	8.75	11.04	68.978
	MAR	3.94	8.75	12.53	62.848
	APR	0.63	8.75	16.83	62.136
	MAY	2.53	8.75	18.7	62.029
	JUN	1.57	9	16.79	64.694
	JUL	-4.68	9	15.33	67.318
	AUG	-6.48	9	15.98	68.733
	SEP	-7.89	9	16.32	73.219
	OCT	-15.44	9	16.7	79.653
	NOV	- 1.46	9	17.56	77.881
	DEC	- 8.80	8.5	15.48	77.711
2009	JAN	3.25	8.5	13.33	79.544
	FEB	-17.91	8.5	14.62	79.687
	MAR	- 8.66	8.25	14.44	80.431
	APR	8.57	8.25	12.1	78.662
	MAY	2.48	8	9.88	78.348
	JUN	8.79	8	9.86	77.158
	JUL	6.56	7.75	10.33	76.607
	AUG	-3.03	7.75	9.76	76.233
	SEP	- 3.42	7.75	9.19	74.999
	OCT	- 2.09	7.75	8.8	75.239
	NOV	3.44	7	7.14	74.907
	DEC	1.92	7	8.02	75.82
2010	JAN	8.77	7	7.52	75.886
	FEB	3.48	7	5.18	76.897
	MAR	9.25	6.75	3.97	77.331

Year	Month				
	APR	5.65	6.75	3.66	77.266
	MAY	2.94	6.75	3.88	79.745
	JUN	0.59	6.75	3.49	81.917
	JUL	1.10	6	3.57	80.23
	AUG	5.35	6	3.22	81.071
	SEP	-0.79	6	3.21	80.778
	OCT	2.32	6	3.18	80.787
	NOV	- 1.27	6	3.84	80.974
	DEC	- 4.51	6	4.51	80.752
2011	JAN	3.77	5.75	5.42	81.272
	FEB	- 4.75	5.75	6.54	82.364
	MAR	- 7.61	6	9.19	82.989
	APR	0.33	6	12.05	83.419
	MAY	0.53	6	12.95	85.704
	JUN	- 0.28	6.25	14.48	89.864
	JULY	- 4.95	6.25	15.53	91.1
	AUG	- 6.75	6.25	16.67	93.622
	SEP	- 4.43	7	17.32	99.832
	OCT	-2.45	11	18.91	99.778
	NOV	1.74	16.5	19.72	89.721
	DEC	-7.55	18	18.93	85.068
2012	JAN	2.51	18	18.31	84.588
	FEB	-0.16	18	16.7	82.971
	MAR	4.62	18	15.61	83.056
	APR	4.20	18	13.06	83.216
	MAY	4.30	18	12.22	86.825
	JUN	1.38	18	10.05	84.233
	JULY	3.60	16.5	7.74	84.213
	AUG	0.33	16.5	6.09	84.321
	SEP	2.66	13	5.32	85.283
	OCT	2.67	13	4.14	85.178
	NOV	2.73	11	3.25	85.935
	DEC	-1.62	11	3.2	86.029
2013	JAN	7.22	9.5	3.67	87.611
	FEB	3.93	9.5	4.45	86.236
	MAR	4.16	9.5	4.11	85.639
	APR	3.81	9.5	4.14	83.821
	MAY	0.28	8.5	4.05	85.124
	JUNE	- 2.48	8.5	4.91	86.008
	JULY	-1.93	8.5	6.02	87.28
	AUG	1.75	8.5	6.67	87.597
	SEP	-1.45	8.5	8.29	86.646
	OCT	4.32	8.5	7.76	85.147
	NOV	2.37	8.5	7.36	86.993

	DEC	-2.25	8.5	7.15	86.31
2014	JAN	1.68	8.5	7.21	86.236
	FEB	-2.89	8.5	6.86	86.326
	MAR	1.48	8.5	6.27	86.441
	APR	- 0.48	8.5	6.41	86.871
	MAY	0.29	8.5	7.3	87.797
	JUN	-2.03	8.5	7.39	87.627
	JUL	1.27	8.5	7.67	87.804
	AUG	2.80	8.5	8.36	88.394
	SEP	3.84	8.5	6.6	89.279
	OCT	0.71	8.5	6.43	89.352
	NOV	-2.53	8.5	6.09	90.179
	DEC	-0.78	8.5	6.02	90.598
2015	JAN	1.44	8.5	5.53	91.674
	FEB	4.05	8.5	5.61	91.423
	MAR	- 0.59	8.5	6.31	92.335
	APR	- 4.34	8.5	7.08	94.6
	MAY	- 2.92	8.5	6.87	97.781
	JUN	-3.45	10	7.03	98.639
	JUL	- 2.79	11.5	6.62	102.521
	AUG	- 6.19	11.5	5.84	103.87
	SEP	- 3.66	11.5	5.97	105.293
	OCT	- 5.58	11.5	6.72	101.8
	NOV	- 0.94	11.5	7.32	102.114
	DEC	1.38	11.5	8.01	102.311
2016	JAN	- 3.36	11.5	7.78	102.283
	FEB	- 0.81	11.5	6.84	101.697
	MAR	3.42	11.5	6.45	101.334
	APR	0.59	11.5	5.27	101.141
	MAY	- 1.63	10.5	5	100.831
	JUNE	- 4.24	10.5	5.8	101.102
	JULY	- 4.59	10.5	6.39	101.389
	AUG	-4.70	10	6.26	101.41
	SEP	-6.18	10	6.34	101.423
	OCT	1.44	10	6.47	101.429
	NOV	0.53	10	6.68	101.381
	DEC	-3.24	10	6.35	101.323

Source (2017): Stock return- Capital Market Authority,

Interest rate and Exchange rate data- Central Bank of Kenya

Inflation rate data is from Kenya Bureau of Statistics