THE EFFECT OF INFLATION ON STOCK MARKET RETURNS AT THE NAIROBI SECURITIES EXCHANGE

BY

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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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DEDICATION

This Project is dedicated to my wife Soina Mopel and sons Garvin Rotiken and Eliel

Renoi and those who supported in the completion of this Project writing. Thank you

and God bless you abundantly.

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LIST OF ABBREVIATIONS

ADF   Augmented Dickey Fuller

APT   Arbitrage Pricing Theory

CAPM   Capital Asset Pricing Model

CBK   Central Bank of Kenya

CFO   Chief Finance Officer

CMA   Capital Market Authority

CPI   Consumer Price Index

EMH   Efficient Market Hypothesis

EPS   Earnings Per Share

GBP   Great Britain Pound

GDP   Gross Domestic Product

KES   Kenya Shillings

NSE   Nairobi Securities Exchange

OLS   Ordinary Least Squares

PPP   Purchasing Power Parity

SPSS   Statistical Package for Social Sciences

UK   United Kingdom

USD   United States Dollar

ABSTRACT

The causal nexus between inflation and stock market performance has received considerable attention from academicians where studies have used data from both developed and developing countries. Extant research works have documented the adverse costs of inflation on various parts of the domestic economy. Still lacking is conclusive validation of how changes in inflation affect stock market returns besides linking this evidence to specific firms. This study sought to determine the effect of inflation rates on stock market returns at the NSE. The independent variable was inflation rates as measured by monthly CPI. The control variables were exchange rates as measured by monthly exchange rate between KSH and USD 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, inflation rate and exchange rates 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 rates of inflation and foreign exchange rates as they can negatively affect stock market returns recorded at the Nairobi Securities Exchange.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The stock market has fundamental part in raising capital for both private and government entities in order to support growth in their projects. Savers are attracted to the stock market by the opportunities available for returns in terms of value increase and bonuses (Solomon, 2003). Inflation reduces the actual return on investments, hence raises fear of investors, when its level increases (Schofman & Schweitzer, 2000). Inflation has an opposing outcome on the budget with its influence extending from optimistic to destructive. The undesirable things are still more obvious and include a reduction in the actual worth of cash as well as extra financial variables over time. Earlier lessons have resolved that price rises and stock markets are diligently associated with inflation rate manipulating the market for stock hazard and instability (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 the prevailing inflation rates. This study is also based on the Fisher hypothesis developed by Irving Fisher (1930) which presuppose that shares can act as a hedge against inflation during the period of high inflation, investors acquire more of real than financial assets (Mbulawa, 2015). The proxy hypothesis which states that stock revenues are prejudiced by inflation through actual events, that are vital elements of the equity standards, is also a building theory for this study

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 increase in inflation rates. The NSE acts as the barometer for the Kenyan economy. As such, the argument has unceasingly pushed the management to generate a favorable rule outline to aid development of the budget and the private sector to improve development of the stock market (Ngugi, 2014).

1.1.1 Inflation

Shiblee (2009) concluded that inflation can be said as a constant growth in the overall charges level for merchandises, and services. It occurs when charges of properties escalate or when it desires additional cash to obtain similar substances (Saleem, Zafar & Rafique, 2013). Inflation burden can be essentially accredited to essential features such as; actual revenue decrease triggered by variation in oil income, high minimal earnings and liability responsibility in the method of expansionary financial shortage (Taofik & Omosola, 2013). Other causes of inflation are attributed to fluctuations in the demand of goods and services, as well as changes in available supplies of a product (Ariss, 2012).

Inflation is determind commonly by computing the Consumer Price Index (CPI) movement (Mohan & Chitradevi, 2014). Consumer Price Index (CPI) .Ahmad and Naseem (2011) argued that inflation in price is evaluated by the rate of inflation. This is computed using the general price index change percentage annually (Consumer price Index) over the time period. Saleem, Zafar and Rafique (2013) explain that the rate of inflation is signified by the consumer price index (CPI) that essentially shows a rise in goods prices and service prices overall. The two inflation mostly common

measures in Kenya are CPI and inflation deflator. The percentage change in a CPI is used as a measure of inflation, and can be measured monthly, quarterly or annually. The current study will use monthly CPI as a measure of inflation.

1.1.2 Stock Market Returns

Stock market profit is the produce a financier gains in a stated period. Stock market earnings require prognostic control for venture and productivity since stock market revenues are a progressive adjustable that integrates outlooks about forthcoming flows of income and rates reduction. Returns in Stock market acts as an investors and governments index in their investment making decisions. Investors of different financial capacity are able to invest in the stock market as long as they are able to get a return that is higher than their cost of capital (Wang, 2012).

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. 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).

The gain or loss of the share value is return on stock in a specific period is quoted commonly as a percentage. It comprises gains in capital and also any income received from the stock by the investor (Mugambi & Okech, 2016). The indexing of Stock market is widely applied as a measure of stock presentation. The procedures of stock market presentation comprise of capitalization of market; that is stock fair size, stock

market liquidity, which is how easier and faster can one buy and sell bonds. Others are All Share Index; which imitates the presentation and the state of the stock market, and the income ratio; which is an index of evaluation for the market liquidity score and level of business charges (Daferighe & Sunday, 2012).

The NSE presently has three major directories, the NSE 20 Share Index plus the NSE 25 Share Index which is value weighted and a complete NSE All Share Index (NASI) that is market capitalization biased. Indices based on price are usually calculated on average prices geometric mean of the constituent companies which are weighted similarly. This study will use the NSE 20 Share Index as a measure of stock performance. The index comprises of the top 20 best performing counters in terms of trade activity measures which include: market capitalization, shares traded, numbers of deals/ liquidity and turnover (NSE, 2017).

1.1.3 Effect of Inflation on Stock Market Returns

The connection between stock market performance and inflation has theoretically been explained by several authors. Fisher (1930) pursued to clarify the correlation concerning asset earnings and price rises. He clarifies that the principle of speculation is to achieve a sensible yield while conserving its buying power. To reserve the buying power of an asset while making a sensible profit calls for such a speculation to achieve earnings that are above the price rise rate lest the cost of the stock is tough time period, conceding its buying power. In support to Fisher's hypothesis, Hasan and Javed (2009) find bidirectional relationship on asset returns and inflation. Feldstein (1980) on the other hand observed that prices of stock increase when rate of inflation is at a rate which is constantly high and on the other hand prices of stock decrease

when probable rate of inflation increases. Gallager and Taylor (2002) observed stock prices to be correlated negatively significantly via supply shocks with inflation.

The "proxy hypothesis" proposed by Fama (1981) rights that the undesirable stock profit inflation relation is wrong. The abnormal stock return-inflation correlation is in datum convinced by an adverse relationship involving inflation and actual motion. Fama's theory forecasts that increasing inflation rates decreases actual financial action and claim for cash. The experimental proof of the "alternative theory" is varied and proposes that it is incomplete description. Fama (1977) hypothesizes that the association witnessed between stock returns that is real and inflation is a result of a "spurious" relationship: "negative stock returns-inflation relations are induced by the positive correlation between stock returns and real activity and the negative correlation between inflation and real activity".

Geske and Roll (1983) suggested an "inverse causality" clarification claiming a decrease in actual undertakings clues to a rise in financial shortfalls. Meanwhile the Central bank monetizes a share of financial shortfalls, the cash supply rises, and this in turn causes inflation increase. They propose that "stock prices" response in expectation of upcoming financial engagements (the Fama model) is extremely linked to income from government", so that there is experience a shortfall in the government once financial yield reduces. to stabilizes the financial plan, the Treasury act by borrowing or issuing money over the central bank, triggering increase. Thus, stock revenues and price rises are harmfully connected due to a financial and fiscal bond.

Tucker (2007) explains that inflation is known to affect the economy of a country in general. Due to the decline of the buying power of money, that is caused by inflation, the standards of living of the people tend to reduce. This means, high inflation leads

to high decline of goods to be bought within a given income. Inflation due to this, also have effects on health. Inflation can advantage owners of fortune since the worth of resources intends to grow as prices rise.

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange is registered and controlled by the Capital Markets Authority. It has the obligation to watch over the listed firms as well as to offer a platform for transacting of securities. The Nairobi Securities Exchange was established in 1954 as a deliberate securities brokers association listed under the Societies Act (Ngugi, 2005). The NSE contributes a significant function in the Kenya's economy as it facilitates the mobilization of savings, makes available a platform for the development of the economic services and increases enhanced financing source to companies (NSE, 2017).

The Nairobi Securities Exchange comprises of approximately 66 listed companies as at 31st December, 2016 with average trading capacity of above USD 7 million daily and approximately full capitalization of market of up to USD 20 billion. NSE has market sections which are usually four i.e.; the Main Investments Market Segment (MIMS), the Alternative Investment Markets Segment (AIMS), Growth Enterprise Market Segment (GEMS) and also the Fixed Income Securities Market Segment (FISMS). The MIMS is the key reference market, the AIMS offer another technique of collecting capital to medium sized small firms as well as fresh firms encountering hardship seeing the stern registering necessities of the MIMS whereas the FISMS offers an free market for stable revenue stocks such as corporate bonds, preference shares, treasury bonds, as well as debenture stocks, and short term fiscal tools like treasury bills and profitable papers (NSE, 2017).

NSE studied directory and proclaimed businesses making up the NSE Share Index in July 2007. The appraisal of 20 share index in the NSE was intended in order to certify the true indicator of the market. The All Share Index has also remained part of the 20 Share Index, moving with progression of the market, and to give additional degree of the market subtleties. In November 2011 the FTSE NSE Kenya 15 and FTSE NSE Kenya 25 directories were flung. The directories introduction was the consequence of a wide market talk procedure with native proprietors of asset and account administrators and reproduces the rising new interest in local speculation and divergence occasions in the East African state. The delayed index standards in March 2012 of the FTSE NSE Kenya 15 Index and the FTSE NSE Kenya 25 Index remained accessible on the NSE website www.nse.co.ke. The inventiveness provides savers the occasion to access existing info and offers a dependable sign of the Kenyan equity market's presentation in transacting hours (NSE, 2017).

1.2 Research Problem

The causal nexus between inflation and stock market performance has received considerable attention from academicians where studies have used data from both developed and developing countries. Extant research works have documented the adverse costs of inflation on various parts of the domestic economy. Still lacking is conclusive validation of how changes in inflation affect stock market returns besides linking this evidence to specific firms (Harcourt & Poncet, 2012). For instance, the proxy hypothesis illustrate a negative link between inflation rate and stock market returns and also stock prices (Kullaporn and Lalita, 2010) while the Fama (1981) hypothesis on the other hand, supports that the relationship between inflation and stock market performance is inverse (Mbulawa, 2015). Fisher (1930) argued that the real stock market value is resistant to pressures from inflation.

In the recent past (between 1997 and 2016), the Kenyan economy has witnessed some significant changes in inflation. Inflation has been varying between a high of 18.96 percent in September 2004 and a low of -0.44 percent in the month of January 1999. During the same period, the 20 share index has also been fluctuating. There was downward trend in the stock market index from the year 1997 to the year 2002 before it began to rise. The upward trend continued to the year 2006 and reached its peak in January 2007. The lowest level ever reached by the stock exchange was in March 2009 where the NSE 20 share index was at 2,360. The index was relatively stable in the year 2007 and a decline began in the year 2008 until 2009 when it began to rise again. Since then, stock market performance has been rising steadily with fluctuations in between. The emerging issue is whether or not the inflation shocks affect the stock market return. Thus, the need to analyze the inflation effect on stock market returns of the Nairobi securities exchange listed firms.

Empirical evidence is largely inconsistent and quite varied on inflation impact on stock market returns. Whereas other studies such as Fama and Schwert (1977) established a significant negative relationship between stock market performance and inflation, researches from Pearce and Roley (1985) and Hardouvelis (1988) instituted that there is no important connection concerning the two variables. Ilahi, Ali and Jamil (2015), in their study in Pakistan, concluded that a weak association was existing amongst macroeconomic variables and stock market revenues. Mahonye and Mandishara (2014) inspected the correlation in long-run of returns in stock and its causes in Zimbabwe and proven that price rises, actual revenue, cash flows and exchange rate are the key causes of stock market revenues. Daferighe and Sunday (2012) also examined the effect of inflation on stock market stability in Nigeria and

shown that there is little impact on observed good prevaricate touching inflation in Nigeria.

Locally, Ouma and Muriu (2014) study concluded that the stock market in Kenya was affected by the variations in the exchange rate, money supply, and inflation. Inflation and money supply continued to be a major cause of drop in the earnings at the NSE. According to examination done by Kimani and Mutuku (2013) on the effect of price rises, Central Depository System and other variables for macroeconomic on the Nairobi stock market presentation and exposed a undesirable correlation concerning inflation and stock market presentation in Kenya. Mwai (2013) examined the association concerning variables in macroeconomic and prices of share in firms quoted at the Nairobi Securities Exchange and recognized that share prices were exaggerated by numerous macroeconomic variables like the Gross Domestic Product, interest rates, inflation and exchange rates. Macroeconomic issues like foreign rates of exchange, rate of interest and rate of inflation influences the stock instability revenues at the Nairobi Stock Exchange as advocated by Olweny and Omondi (2011) .

The lack of consensus among the various scholars on the inflation impact on stock market returns is reason enough to conduct further examination on the area of study. This paper will seek to identify how inflation influence stock market returns at the NSE using monthly data for the last 5 years. It will attempt to give an explanation to the research question, what is the effect of inflation on stock market returns at the NSE?

1.3 Objective of the Study

To determine the inflation influence on stock market returns at the Nairobi Securities Exchange

1.4 Value of the Study

Findings of this study forms a future reference to researchers, scholars and learners who might seek to undertake correlated research. The research findings is also essential to researchers who have an interest in studying the same or similar topic, in getting research gap hence conducting an experimental literature to find out much about the topic.

The study will also be useful to the 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 inflation rates to ensure stability exist 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 of the economy.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the framework theoretically as applied in the research and reviews previous studies done on inflation 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 section offers the relevant theories review explaining the association between stock market returns and inflation. The theories reviewed are efficient market hypothesis, fisher effect theory and the arbitrage pricing theory.

2.2.1 Efficient Market Hypothesis (EMH)

Fama (1965, 1970) developed the EMH which rests on the premise that prices of stocks include all information available. 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 of 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 types which are the strong form, the semi-strong market efficiency form and the weak market efficiency form. The weak market efficiency form 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, this may negatively impact the performance of the market as news keep arriving and the ensuing response of traders.

2.2.2 Fisher Effect Theory

The Fisher effect concept was framed by Fisher (1930), and the philosophy presumes that minimal interest rates completely replicate accessible info about the outlooks of price rises. The philosophy is the basis for the idea that financial strategy must mainly emphasis on dealing outlooks of inflation in an effort to retain actual interest rate stable. These purposes at indorsing investments and asset (Laichena & Obwogi, 2015). The Fisher effect theory also stated that the anticipated rate of profit on

corporate stocks includes the actual yield and the anticipated rate of inflation. The actual profit on corporate stocks is presumed to be continuous throughout. It is presumed that the adverse earnings will precisely offset the optimistic actual profit, the rate of the corporate stock are consequently predictable to move step by step with the rate of inflation (Mahonye & Mandishara, 2014).

The Fisher effect presupposes that nominal rates of interest on monetary resources ought to shift one-to-one with estimated price rises. Also, amendment in both rates in short-term and rates in long term is anticipated to influence rate of reduction in the similar way during their cause on supposed rate which is risk-free (Kuwornu, 2012). Fisher hypothesis assumes that there is no relationship between real rates and monetary sector (Floros, 2004). However, the Fisher assumptions, when consider using extra actual pretty than supposed stock returns, advocate that actual stock output ought to be autonomous of price rises (Shanmugam &Misra, 2008). Generally, the Fisher theory presumes the financial assets nominal returns should rise with the inflation rate, whereas real return rates are autonomous of the rate of inflation. Thus, the Fisher effect theory as applied to stock returns presupposes opposite affiliation between stock returns to expected and unexpected inflation.

2.2.3 Arbitrage Pricing Theory

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

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

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

2.3 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:

Sloman and Kevin (2007) argued that 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.

Very evidently, the prevailing foreign currency rates directly affect the prices along with the value of securities in foreign countries. Fluctuations in currency exchange rates usually reduce or increase the cost of carrying out business in any country. This in turn affects the prices of shares of companies that carry out trade in foreign currency, for instance, banks and companies that import trade goods. Alternatively, depreciation of domestic currency boosts competitiveness of local firms, this leads to an increase in their export revenues and consequently higher stock prices. It is hard to predict the short-term exchange rate fluctuations given that they are often caused by events, announcements and futures trading, as opposed to the long-term fluctuations that are driven by the fundamental market forces of supply and demand (Kuwornu, 2012).

The increase in money supply leads to a more liquid economy with excesses which can be invested. The long-term result will be monetary policy benefiting both the economy and investors in general. On the one hand, an increase in the supply of money results in the availability of liquidity at lower rates of interest (Shiblee, 2009). Inflation is brought about by increased supply of money in the economy which increases the rate of discount at the end affecting returns. The Central Bank of Kenya (CBK) is tasked with the sole responsibility of regulating the supply and demand for money circulating in Kenyan economy. Controlling money supply affects disposable cash which in turn affect share prices and expected returns (Kirui et al., 2014).

Tobin (1969) found a clear relationship of movement between the stock market and monetary policy. 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.

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).

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.

2.4 Empirical Review

There are numerous empirical studies both locally and internationally to support the relationship between stock market returns and inflation resulting to mixed results effects from these studies.

2.4.1 Global Studies

Pinjaman and Aralas (2015) analyzed the effects of chosen macroeconomic features, like Gross Domestic Product, rate of exchange, rate of interest, rate of inflation, money contribution, financial disaster and liberalization in monetary towards stock return instability in Malaysia. The active stock outcomes, instability evaluation recognized that stock return instability is constant in character where the earlier upset will manipulate the existing stock feat. The findings of the cross-sectional time series model revealed significant relationships between gross domestic product, rate of exchange, rate of interest, rate of inflation, supply of money, crisis in economy and economic liberalization and stock return unpredictability.

Ilahi, Ali and Jamil (2015), study focused on the comparative connection that existed between the Pakistan's variables in macroeconomic and the returns in stock market.

The Pakistan Karachi 100 index stock exchange was used to represent the relationship between stock market returns and macro-economic variables as a proxy. Rate of exchange, rate of interest, and rate of inflation were the macroeconomic variables used. The study also utilized secondary data for the period of six years ending in December 2012. The multiple linear regression was adopted in the data analysis study and there existed a weak connection in the stock returns and the macro economic variables.

Saleem, Zafar and Rafique (2013) investigated the persistence correlation involving KSE 100 index output as well as rate of inflation in Pakistani economy. The research used data from quarterly periods between January 1996 to December 2011 and the Augmented Dickey Fuller (ADF) Unit Root Test to identify the immobility for the data at level or at once distinctions, the Johansen Cointegration Technique was used to resolve the long term balance correlation involving price rises rate and stock prices. The research as well applied Granger Causality Test to identify the underlying correlation involving assumed variables. Granger causality tests recognized that there was no connectivity involving KSE 100 index return as well as inflation rate in any way.

Kuwornu (2012) explored influence of macroeconomic variables on the stock market returns in Ghana by use of collected data 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, prices of crude oil and the Ghanaian stock returns thus indicating equilibrium associations in long run. This outcomes also revealed that inflation rate and Treasury bill rate influenced in the short run to a large extent the stock returns. In addition, this research 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.

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.

2.4.2 Local Studies

Mugambi and Okech (2016) studied the macroeconomic variables impact on the banks stock returns in the Nairobi Securities Exchange listing. This 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. Findings of the study revealed that interest rate, inflation, and exchange rate influence bank stock return significantly, while the impact of GDP on bank stock returns was insignificant. The study recommended that the government should ensure a stable macroeconomic environment and moderate its monetary policy interventions.

Laichena and Obwogi (2015) analyzed the macroeconomic variables effects on East Africa's stock returns. The research examined the effects of interest rates, rate of inflation, rate of currency exchange, GDP and their impacts on stock returns in East Africa. The study used a board data of three East African states, Kenya, Uganda and

Tanzania from 2005 to 2014. The conclusion of the research exposed the important affiliation involving the macroeconomic variables in the research and stock returns in East Africa. The research suggested that lawmakers in East Africa ought to strive to enhance the macroeconomic situations of the state to advance stock returns.

Barasa (2014) studied the determinants of stock market performance at the NSE. A descriptive research design was employed by the study and used secondary data for a period 2000 and 2013. The study findings revealed that the NSE 20- Share Index as well as CPI, money supply and GDP per Capita deteriorated just before, during and immediately after the general elections. The study also established that the relationship between inflation as measured using CPI and performance of stock market was contrary and not significant. This study concluded that the relationship involving inflation and stock market performance was inverse and unimportant.

Kirui, Wawire and Onono (2014) conducted an evaluation of the correlation involving GDP, rate of Treasury bill, rate of exchange, price rises and output of stock market in the NSE. This research used the Engle-Granger two-step scheme to set up the incorporating affiliation involving stock returns and the macroeconomic variables and Threshold Generalized Autoregressive Conditional Heteroscedasticity replica to record the leverage influence as well as instability perseverance at the NSE. The study findings exposed that gross domestic product, inflation and the Treasury bill rate had irrelevant relations while exchange rate demonstrated an important association with stock returns.

Ouma and Muriu (2014) study was interested in confirming the macroeconomic variables impact 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 the Arbitrage Pricing Theory (APT) and Capital Asset Pricing Model (CAPM) theories to provide a framework for their study. To test for validity of the model, Ordinary Least Square (OLS) technique was applied. The study sought to understand how stock returns are affected by the macro-economic variables. The study's outcome confirmed the impact on the stock market returns was significant in Kenya attributed to the supply of money, rate of exchange and rate of inflation. The rate of exchange was however noted to negatively impact the stock market return for the study period.

Wanjiku (2014) established the effect of selected macroeconomic variables (rate of inflation, rates of interest and rate of exchange 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 significant negative association between interest rates, exchange rates and inflation while the GDP positively influences industry returns.

2.5 Conceptual Framework

The connection involving stock market returns and inflation if at all it exists, has won the investigators as well as practitioners concentration ever since the twentieth century. The establishment of the discussion is announcement of equity stocks by the Fisher (1930). Based on the universal Fisher (1930) assumption, equity stocks stand for entitlements beside actual company resources; and this company might provide a prevaricate on price rises. In the event that this will clutch, then financiers liquidate their monitory assets in order to buy actual resources at the time anticipated inflation

is definite. In such a circumstance, the monitory value of stocks in significant conditions have to fully replicate inflation projected and the correlation connecting the two variables should be absolutely interrelated ex ante (Ioannides, Katrakilidies & Lake, 2002).

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 inflation. The independent variable is the inflation rate as measured by monthly CPI. The control variables are exchange rate as measured by KSH/USD and interest rate as measured by monthly lending rate of CBK. Stock market return will be measured by the 20 share index.

Figure 2.1: Conceptual Model

Independent variables   **Dependent Variable**

```
┌──────────────────┐
│ Inflation        │
│                  │─────────────┐        ┌──────────────────────┐
│ (CPI)            │             └───────▶│ Stock Market Returns │
│                  │                      │                      │
└──────────────────┘                      │ (20 Share Index)     │
                                          │                      │
                                          └──────────────────────┘
┌──────────────────┐
│ Exchange Rates   │
│                  │
│ (KSH/USD)        │
│                  │          Control Variables
└──────────────────┘

┌──────────────────┐
│ Interest Rates   │
│                  │
│ (CBK lending rate)│
│                  │
└──────────────────┘
```
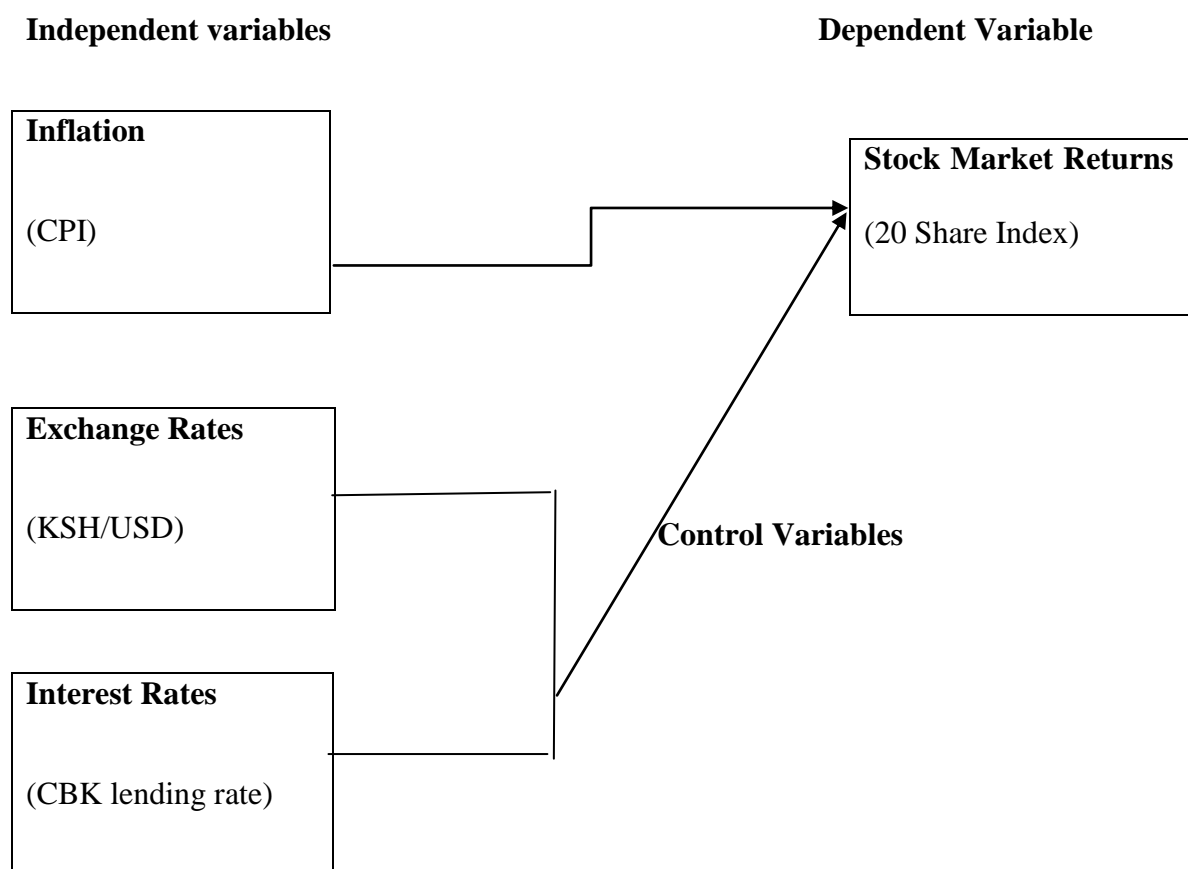
Source: Researcher (2017)

2.6 Summary of the Literature Review

Various theoretical frameworks have attempted to explain the concept of inflation rates and stock market returns. Three theories have been discussed in this theoretical review. The theories are namely: efficient market hypothesis, fisher effect theory and the arbitrage pricing 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 inflation and returns on stock market. The studies findings have also been discussed in this chapter.

The suitable way of the correlation or the objectivity involving inflation and stock market returns correlation have produced a huge contribution of facts in the experimental text and until now convergence has not been met. The relationship between inflation and stock market returns from the empirical studies review was significant (Pinjamin and Aralas, 2015; Laichena and Obwogi, 2015), insignificant (Pal and Mittal, 2011, Mugambi and Okech, 2016) or Neutral (Saleem et al., 2013). The current study seeks to contribute on this debate.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights research methods applied to objectively establish the influence of inflation on stock market returns. It also shows the population of study, research design, and collection of data and criteria of analysis.

3.2 Research Design

Research design can be defined as an outline of the actual measures, adopted by an investigator for testing the correlation involving dependent variables as well as independent variables (Khan, 2008).The study adopted descriptive design. 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. Cross-sectional study methods are done once and they represent summary at a given timeframe (Cooper & Schindler, 2008).

3.3 Data Collection

A secondary source was exclusively used in data collection. 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 indexes, 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 and the CBK lending rate were obtained from the CBK while data on inflation will be 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 Data Analysis

The collected data was sorted, classified, coded and then tabulated for easy analysis. The inferential and the descriptive statistics was used to analyze the collected data. 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 will use mean, standard deviation and scatter plot. In inferential statistics, the study used multivariate regression analysis to determine the relationship between independent variables and the dependent variable (Stock market returns): rate of Inflation, Exchange rate and Interest Rates.

3.4.1 Diagnostic Tests

Linearity show that two variables X and Y are related by a mathematical equation Y=bX where b 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 and 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.

Homoskedasticity of variance is required for multiple linear regressions and therefore is when the variance of the error term is constant over the population while the variance of y is constant and is not dependent on the x's. Otherwise, non-existence of a constant variance of the variance of error term posits heteroskedasticity. Homoskedasticity was evaluated using Cameron & Trivedi's IM-test.

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 when a linear dependence which is complete is between them and as it nears to zero then the multicollinearity becomes stronger.

3.4.2 Analytical Model

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

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$.

Where: Y = stock market returns (monthly) 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 = Inflation rate as measured by the monthly CPI

X_2 = Exchange rate as measured by the natural logarithm of monthly exchange rate between KSH and USD

X_3 = Interest rates as measured by monthly CBK lending rates

ε = error term

3.5.2 Tests of Significance

To test the statistical significance the F- test and the t – test were 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 study's results and findings established on the objectives of research. This chapter focused on collected data analysis from CMA, CBK and KNBS to establish impact of interest rates on stock market returns at the NSE. 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 as compared to the critical value of 0.05. Therefore, failure 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 in normality test. 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 test results 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.
Inflation rates	.176	120	.300	.892	120	.784
Exchange rates	.178	120	.300	.881	120	.723
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 implying that the data used in research was distributed normally and therefore the null hypothesis was rejected. This 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 -.357 as mean with a 4.646 standard deviation. Inflation had a 8.290 mean and standard deviation of 4.604. Foreign exchange rate resulted to a mean of 84.14 with a standard deviation of 11.094 while interest rates recorded a 9.40 mean 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
Inflation rate	120	2	20	8.29	4.604
Exchange rate	120	62	105	84.14	11.094
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 (, inflation rates, foreign exchange rates and interest rates). From correlation analysis, the inflation and stock market returns relationship 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 existence a weak negative correlation between foreign 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 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

		Stock returns	Inflation rate	Exchange rate	Interest rate
Stock returns	Pearson Correlation	1	-.242[**]	-.144	.056
	Sig. (2-tailed)		.008	.116	.541
	N	120	120	120	120
Inflation rate	Pearson Correlation	-.242[**]	1	-.099	.241[**]
	Sig. (2-tailed)	.008		.284	.008
	N	120	120	120	120
Exchange rate	Pearson Correlation	-.144	-.099	1	.204[*]
	Sig. (2-tailed)	.116	.284		.025
	N	120	120	120	120
Interest rate	Pearson Correlation	.056	.241[**]	.204[*]	1
	Sig. (2-tailed)	.541	.008	.025	
	N	120	120	120	120

**. 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; inflation rates, foreign exchange rates and interest rates. The study obtained the model summary statistics as illustrated in table 4.5.

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)

Basing on the outcome in table 4.5 above, value of R square was 0.113, a discovery that only 11.3 percent of the deviations in stock market return at the NSE are caused by changes in inflation rates, exchange rates and interest rates. Other variables not included in the model justify for 88.7 percent deviations in stock market returns at the NSE. Also, the results revealed that there exists a weak link among the independent variables selected 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.
1	Regression	291.503	3	97.168	4.949	.003[b]
	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 inflation rates, exchange rates, and rates of interest influence stock market returns at the NSE. Given 5% level of significance, critical value from the table is 2.74, table 4.6 above illustrate calculated F value as 4.949. This affirms that the multiple regression model in overall is significant statistically, in essence of it been a proper forecast model for enlightening how inflation rates, exchange 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
	Inflation rate	-.307	.092	-.304	-3.336	.001
	Exchange rate	-.088	.038	-.209	-2.314	.022
	Interest rate	.270	.145	.172	1.858	.066

 a. Dependent Variable: Stock market returns

Source: Research Findings (2017).

The study applied t-test in determining 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 statistical significance measure. As such, a p-value above 0.05 shows 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 inflation rate and foreign rate of exchange are stock market returns significant determinants as indicated by p values less than 0.05. Interest rate is an insignificant stock market returns determinant as indicated by a p value that is above 0.05.

The following regression equation was estimated:

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

Where,

Y = Stock market returns at the NSE

X_1 = Inflation rates

X_2 = Exchange rates

X_3 = Interest rates

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

4.6 Discussion of Research Findings

The study sought in determining the foreign rate of exchange effect on the stock market returns at the NSE. The independent variable was inflation rates as measured by monthly CPI. The control variables were exchange rates as measured by monthly exchange rate between Ksh and USD 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. Each of the independent variables effect on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed a negative and weak relationship existence between inflation and stock market returns (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 results further revealed correlation that is a weak and a negative one between rates of exchange 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 research also established the existence of a positive correlation though weak 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: inflation rates, foreign exchange 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 the multiple regression model in overall is significant statistically, as it is a fit model for prediction in explaining stock market returns at the NSE.

The study's findings are in line with Ouma and Muriu (2014) whose study was interested in confirming the impact 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 background. To test model validity, Ordinary Least Squares (OLS) technique was used. This study aimed to understand the significance of the macro-economic variables on the stock returns. Outcomes of the study concluded that there was a significant effect on the stock market returns in Kenya credited to the money supply, rate of exchange 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 macroeconomic variables influence on East Africa's stock returns. The effects of rates of interest, rate of inflation, rate of currency exchange, 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 summarizes research findings, conclusions made from the results, and the policy and practice recommendations. The chapter also discusses a few limitations encountered as well as suggestions for future research.

5.2 Summary of Findings

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

From the results of correlation analysis, a weak negative correlation was found to exist between foreign inflation rates and stock market returns at the NSE. The foreign exchange rates and stock market returns relationship at the NSE was established to be weak and negative while interest rates was concluded to have a weak and positive relationship with stock market returns at the NSE. Interest rates and exchange rates were concluded to have a relationship that is insignificant 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 meaning that about 11.3 percent of the stock market returns variation can be expounded by the three selected independent variables while 88.7 percent in the stock market returns variation 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 (inflation rates, rates of exchange and rates of interest) are rated zero, the stock returns would be 7.024. A unit increase in inflation and exchange rates would result to stock market returns decrease by -0.307 and -0.088 respectively while interest rates unit increase would cause a stock market returns increase 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, 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. Foreign exchange rates were found to be associated negatively with stock market returns at the NSE and therefore when exchange rates increases, the stock market returns decrease 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 although not to a extent that is significant.

This study concludes that independent variables selected for the study of foreign exchange rates, rates of interest and inflation results to stock market returns influence 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 variations in stock market returns imply that variables not included in the model explain 88.7% of stock market returns changes. 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 Obwogi and Laichena (2015) who evaluated the macroeconomic variables effect on East Africa's stock returns. The effects of rates of interest, rate of inflation, 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.

5.4 Recommendations

The study established that rates of inflation and rates of exchange 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 attention should be paid by policy makers 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 recognized that though having a positive influence of rates of interest 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 research scope 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

The research was based on inflation rates and stock market returns at the NSE and relied on secondary data. A research study where collection of data depends on primary data i.e. questionnaires in depth 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 each variable effect 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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