

**THE EFFECT OF MACROECONOMIC FACTORS ON PERFORMANCE OF
THE NAIROBI SECURITIES EXCHANGE**

BY

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DECLARATION

I declare that this research project does not appear either as a section or as a whole in pursuit of degree or any other qualification submitted to the University of Nairobi or any other institution

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DEDICATION

I dedicate this project to my parents, family and friends who supported me tirelessly throughout this journey. This journey could not be possible without their sincere support, both material and mental support. Special dedication goes to my lovely sister Hindia for her unrivalled contribution to my education from standard one to this level, without her support this dream could not be realized.

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LIST OF ABBREVIATIONS

- APT - Arbitrage pricing theory
- ASEA- Africa Securities Exchange Association
- CAPM - capital asset pricing model
- CBD - Central Business District
- CBK – Central Bank of Kenya
- GDP – Gross Domestic Product
- NSE - Nairobi Securities Exchange
- OMO - Open market operations
- ROI - Return on investment
- SPSS - Statistical Package for Social Sciences
- CMA: Capital Market Authority

ABSTRACT

The main purpose of the research was to find out the effect of macroeconomic factors on the performance of the Nairobi Security Exchange. More specifically, the researcher sought to determine how inflation rate (Measured by Consumer Price Index), Money Supply Growth (Measured by Change in Money Supply) and interest rate (Measured by Lending Rates) affected performance of NSE. The study adopted descriptive research design targeting all firms making up the 20 share index. Data was collected from secondary sources using data collection sheet. The collected data was analyzed using SPSS software. The results were analysed in Tables and graphs. The study established that Pearson coefficient r for inflation was -0.376 , showing that it is inversely related with performance of NSE; inflation significantly affected performance of NSE at 5% i.e. $0.000 < 0.05$, money supply growth in the economy indicated an $r=0.237$ and interest rate had Pearson correlation $r=-0.032$. The study found out that there was an inverse moderate and significant connection between inflation and performance of NSE, inflation had significant influence on performance of NSE, there exist a weak unswerving connection between money supply and performance of NSE, there was an inverse weak relationship between interest rate and performance of NSE, interest rates had significant influence on progress of NSE. The research endorses that the Central Bank of Kenya CBK should strengthen its monetary policies to regulate and control inflation to sustainable levels. There is need to balance the supply and demand for money in the economy. The management of NSE and the Capital Market Authority CMA should create awareness among investors to invest more in equities when level of interest rates in an economy are favorable.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Macro-economic variables are used as the basis for judging the economic performance of an economy (Mankiw, 2010). The variables include Gross Domestic Product (GDP), rate of exchange, level of inflation rate, level of interest, index of stock market, consumer price index as well as government spending among other government's activities such as political activities. These are important factors in economics as they largely determine the welfare of the economy. Hence, many policy makers at both the micro and macro level hope that these variables will remain constant so as to facilitate business growth (World Bank, 2014).

Macroeconomics is the subdivision of economics that study the functioning of economy as a whole, it can also be said it's the overall external environment influencing the behavior and performance of an entity. Macroeconomic factors are important in influencing the environment within which factor market such as capital and product market such as computers, clothes operate. Macroeconomic factors influence the behavior of listed companies to hire and fire, produce or stop production, make or buy. Macroeconomic factors also inform the decision of consumers to consume, borrow or save which will ultimately their level of savings and trading in equities. Government decision to cap interest, monetary policy and fiscal policy is informed by the prevailing macroeconomic conditions. Government is part of the external environment affecting organizations performance through taxes and regulations.

The study was based on two theories: Keynesian Economic theory and the market segmentation theory. Keynesian theory postulates that prices mostly wages react leisurely to variations in demand and supply. It helps explain how the performance of firms is affected by the spending of households, business, and government. The prevailing levels of overall demand and employment influence the level of firm activities hence performance. It therefore explains the factors that affect all firms in their business to influence the results posted. Market segmentation theory postulates that the pattern of behavior of short-term interest rate is totally not related to the pattern of behavior of long term interest rate. This theory is centered on the investment behavior of various companies in different industries for example insurance companies and banks. Banks like investing in securities which are short-term and insurance companies like securities which are long term. This theory helps in explaining why the prevailing macroeconomic variable parameters cannot be used to predict the future environment. It therefore helps investors in investing their resources without relying on the current market conditions.

1.1.1 Macro-economic Factors

Macroeconomic refers to the study of the economy as a whole by focusing on the behavior of an entire economy (Romer, 2012). Macroeconomic variables refer to variables that are important for the entire economy at either individual country or the world at large. These variables affect the whole inhabitants and not only have a few selected people. These variables comprise: gross domestic product (GDP), interest rates, inflation, rate of exchange, government involvement and natural calamities. They are of interest to all stakeholders ranging from business owners, consumers, the government, commercial and service firms.

Inflation is defined as existence of a persistent or sustained increase in prices of services and goods in the long term. This is caused by a rise in earning which is not proportional to the increase in production of products and services. It causes a reduction in the purchasing power of low-income earners making it difficult for them to access basic needs. Interest rate refers to the cost expressed as a percentage of the principal charged by the lender to the borrower for lending the money. Optimal interest rates are resulted by the interaction of market mechanism of money in an economy (Darfor & Agyapong, 2010).

Another macroeconomic variable include foreign exchange rate which evaluates the currency of one country to another. It defines how much of local currency is required to procure the same basket of commodities and services as in another country as it would in the local country. According to Schiller (2008), exchange rates can be expressed as either a direct or indirect quotation. Exchange rate influences the comparative value between local and international goods and the foreign appetite for local goods (Ncube & Ndou, 2011). Variations in international exchange rates can be valued in real and nominal terms but nearly all studies have utilized nominal exchange rates.

Gross Domestic Product (GDP) is the total production of a country in a specific period valued in monetary terms (Schiller, 2008). GDP per capita is a good measure for economic recession and the recovery thereafter. Wangi (2013) states that (GDP) is usually the preferred macroeconomic factor to arrive the overall economic productivity within an economy; the rate of growth of the GDP reflects the state of the economic phases. Macroeconomic factors influence the existence, behavior and performance of companies. The impact of these factors may be direct such as competitors or indirect such as business climate.

1.1.2 Stock Market Performance

Anyanwu et al. (1997), the stock market is a place where the buyers and sellers of shares and other securities interact through stock brokers. It is basically a secondary market where securities that already exist are sold and bought unlike newly issued shares. The stock exchange has effect on the general economy as fluctuations in stock prices cause variations in total consumption. Fluctuations of stock prices also cause the financing cost available to companies to fluctuate, Greenspan (1996). Numerous macroeconomic factors that affect stock market were filed without agreement among the scholars. Some of the documented works are: Lanne (2002), Donaldson and Maddaloni (2002), and Goyal (2004). Regularly referred to macroeconomic factors are rates of interest, GDP, rate of exchange, fiscal balance among others.

De Long and Olney (2009), advance that since the creation of stock market economic experts were faced with the burden of making sure financial intermediaries to be highly productive. Because stock prices are highly monitored assets prices in the general economy and are considered very sensitive to macroeconomic variable. Stock market performances combined with other macroeconomic factors are considered to be indicators of how an economy is doing in a given country. Prices of stock have also been notorious for wide fluctuations creating anxiety about the likely "bubbles" or other divergence of stock prices from essential values which may cause unfavorable economic consequences.

1.1.3 Macroeconomic Factors and Stock Market Performance

The macroeconomic factors have great impact on the financial results recorded by firms across the world (Zeitun, Kian & Teen, 2007). They determine how organizations conduct their business to ensure that they remain competitive in changing

macroeconomic settings. For instance, monetary policy has an impact on all companies as it determines the cost of capital and the accessibility of credit facility to companies. This in turn could affect the accessibility of fund to companies. When company has to grapple with high cost of capital and limited credit facility, its financial results will be greatly hampered. On the other hand if a company can access credit facility at a cheap cost it will boost its financial performance.

Fiscal policies have great impact on the cash flow of a company, cost of debt; it also influences the level of demand of its product and ultimately its competitiveness and survival. Increase in interest rate and high level of inflation makes cost of doing business higher, which definitely affects the purchasing power of consumers, when the prices are higher consumers tends to shun consumption hence increase in the risk of financial distress and level of default (Zeitun, Kian & Teen, 2007). Inflation has impact on corporate financial results because of the impact on turnover and cost of doing business; it results in more miscellaneous and unbudgeted expenditure. Another macro factor is the banks' credit facility, as credit channel theory postulates, the direct effect of monetary policy on interest rate is aggravated by fluctuations in the macroeconomic factors that influence the ability of a firm to access fund (Zeitun, Kian & Teen, 2007).

When the rate of lending is high it becomes hard for firms to facilitate their projects with loans obtained from commercial banks, this necessitates for companies to seek inexpensive but also viable equity financing. This encourages stock market through additional listings.

High-treasury bill rates have a tendency to persuade investors to purchase more government instruments. When prices persistently increase it results the cost of living going up, consumers will tend to concentrate on essential consumption and shy away from committing their strained income to investments. The appetite for market

instruments dwindle which causes the level of stock trading low. This will trigger government interference through monetary policy to curb the high rate of inflation which will enhance the risk free rate and hence increases the discount level in the model of valuation (Adam & Twenoboa, 2008).

Fluctuations in currency greatly impacts on the returns of stock. If currency value of a country goes up and the country depends on export, the result is that the country will not perform well at exporting due to not being competitive. The lack of competitiveness at its export will make domestic market to suffer because export dependent companies who are members of the Nairobi Securities Exchange will not be profitable and investors are risk averse and they tend to prefer profitable companies (Muthike & Sakwa, 2012).

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is the venue where securities are traded. Equity shares and debt securities are traded. The country started trading in stocks in the 1920's when Kenya was still under the British rule. It was listed under the Societies Act (1954) to bring together stockbrokers and to develop the securities market and regulate trading activities. In 2001, the trading platform was divided into the Main Investment (MIMS), Alternate Investment (AIMS) and the Fixed Income Securities (FISMS).

Currently it has listed sixty six companies distributed in different segments. It is a member of Africa Securities Exchange Association. The listed companies are in different industry such as investment, insurance, and construction, automobile, commercial and services, agriculture, and banking.

Macroeconomic variables in Kenya affect how organizations conduct their businesses. For instance, the prevailing interest rates determine the firm's accessibility to credit and other forms of capital. In cases where interest rates are high, investors would want to invest in bonds and thus firms may not have enough access to capital by issuing ordinary shares. High inflation increases the cost of doing business and may also reduce the demand for their products thus affecting their performance.

I.2 Research Problem

Macroeconomic factor has great influence on performance of companies (Olaka, 2017). They affect performance of companies through strategic planning because firms have to develop strategies to enable them cope with the prevailing macroeconomic environment. The macroeconomic variables will determine the demand for goods and services in an economy through various mechanisms like the level of money in circulation through monetary policies, purchasing power of the currency through inflation and the productivity of the economy at large. Proper understanding of the effect of macroeconomic variables on firms provide a basis for business to assess risk thus be able to develop appropriate risk mitigation strategies.

The Kenyan economy has been characterized with fluctuations of macroeconomic indicators such as interest rates, inflation rates, and the exchange rate (Central Bank of Kenya, 2011). A regression analysis used by Aduda, Masila and Onsongo (2012) found that no association exists between stock market growth and macroeconomic variations. Price increases and private capital flows. For example interest rate capping which came into effect in 2016 has negative effect on businesses, it has reduced availability of credit to businesses, banks make profit from the differences on interest on borrowing and interest rate on deposit. Capping shrined the difference on the interest rate borrowing and the deposit, hence the introduction of the interest capping reduced the profit of

banks which resulted to branch closure, staff reduction, relocation for some international banks, reduced credit facility towards to high risk companies which spilled over to the market for example manufacturing sector experienced low sales volume due to limited credit facility to small businesses and individuals to buy goods. Construction industry was also affected by low credit for development, low demand for housing due to limited credit availability.

Several studies have been conducted to bring to light how macroeconomic factors variation influence performance of firms. Zoa, Chet, Sheng, Lin and Shen (2014) examined how stock market performance of firms listed in Japan was affected by changes in macroeconomic variables. The findings show that all variables examined significantly impacted the performance of firms in the long term. Giri and Joshi (2017) examined the performance of Indian stock prices and macroeconomic indicators in the country. The results indicate short run and long run unidirectional causality from economic growth, Foreign Direct investment and stock prices. Nabila (2015) studied the impact that macroeconomic factors had on stock returns using data from the Bombay Stock Exchange (BSE). The findings show that interest rate, exchange rate, gold price and money supply affected the performance of stock.

Locally, Kung'u (2013) established that macroeconomic variables had the greatest positive effect on performance of firms at the NSE. However, some had positive while others presented negative effects of firm performance. Muinde (2017) examined macroeconomic volatility on price of shares at the NSE and established that inflation outweighed benefits from money supply in the long-run. There was also harmful long duration stability among money supply and stock prices which contradicted previous scholars (Ouma and Muriu, 2014; Ochieng and Oriwo, 2012). Njau (2013) examined chosen macroeconomic factors on the profitability of private equity companies that

exist in Kenya and established that GDP, inflation and interest rates had greatest impact of firm performance while exchange rates showed a negative relationship that was not significant.

From the above studies, it can be seen that the existing studies have focused on different countries with a different operating macroeconomic variables from Kenya hence limiting the application of their findings in the current study scenario. For the local studies, they focused on different periods from the current study yet the country has experienced massive changes in the macroeconomic variables including introduction interest rate capping among others. This study therefore sought to provide new knowledge in the prevailing changed macroeconomic environment on performance of the Nairobi Security Exchange, Kenya by answering one research question: What is the effect of macroeconomic factors on the performance of the Nairobi Security Exchange?

1.3 Objective of the Study

To find out the effect of macroeconomic factors on the performance of the Nairobi Security Exchange.

1.4 Value of the Study

The successful completion of this study would help market stakeholders on the level of which macroeconomic factors affect the performance of companies. The outcome of this study would enlighten stakeholders on the impact of inflation, interest rate capping and money supply. How the performance of businesses fluctuates with the fluctuations of these factors.

This study would specifically assist Kenyan government that capped interest rates and regulate the market through fiscal and monetary policy, how its regulations are attracting or keeping away investors and safe guarding the market players against negative impact of macroeconomic factors on companies hence providing enabling environment for businesses, creating employment, and growing the country's GDP.

Successful completion of this study would be useful to students pursuing finance in understanding how macroeconomic factors affect businesses performance especially listed companies.

CHAPTER TWO

LITERATURE RIVEW

2.1 Introduction

This chapter reviews the work of other scholars who researched on the impact of macroeconomic factors on the performance of the Nairobi Security Exchange. This chapter also analyzes the findings of other researchers on how macroeconomic factors fluctuates the performance of companies. It also examines the concepts on major macroeconomic factors that affect performance of companies on topics such as interest rate, inflation, and money supply by taking into accounts studies from various researchers on the same area of study.

2.2 Theoretical Review

Theoretical review has its finding based on existing theoretical study and hypothesis. is no practical experiment or practical research while empirical study has its basis on experiment and practical studies such as practical verification, experiences and observations.

2.2.1 Keynesian Economic Theory

This theory was advanced by Keynes in 1930 to help explain the effect of great depression on an economy (Keynes, 2007). The theory argues that the most important driving force of an economy comprises the overall spending by businesses, households, and a government (Gordon, 1989). However, the business environment is influenced by policies and regulations developed by Governments to define how business is conducted. Conditions of inadequate appetite for goods and services in an economy can result in prolonged unemployment (Davidson, 2009). According to this theory,

macroeconomic factors such as investment, consumption, net export and government expenditure affects the performance of an economy (Keynes, 1930). Demand is influenced by recession, harsh macroeconomic factors which suppress demand and spending. Negative macroeconomic factors results in reduced consumer confidence making them to delay spending especially on optional purchases like buying a car. The fall in demand by the consumers causes less investment spending by businesses as companies respond to poor demand for their products (Gordon, 1989). This necessitates government intervention to stabilize output.

The theory has three principals detailing how economy functions. Principal one postulates that collective demand is affected by public and private decisions (Keynes, 2007). Private sector activities can have negative impact on macroeconomic factors such as reduced consumer spending when there is recession this will bring market failure which calls for government intervention such as interest rate capping in Kenya. Keynes support government intervention in economy but mostly informed by the private sector (Davidson, 2009).

Principal two of the Keynesian theory postulates that prices mostly wages react leisurely to variations in demand and supply, this slow response brings shortages and surpluses from time to time in labor (Gordon, 1989). Keynes in his third principal suggests that variations in demand have the highest short term consequence on productivity and employment but not on prices (Keynes, 2007). Keynes suggests that since prices are rigid, fluctuations in any factors of spending; investment, government expenditures or consumption, result production to change. If spending by government increases and all other factors of spending are held constant, then production will increase.

This theory is relevant for this study because it helps explain how the performance of firms is affected by the spending of households, business, and government. The prevailing levels of overall demand and employment influence the level of firm activities hence performance. It therefore explains the factors that affect all firms in their business to influence the results posted.

2.2.2 Market Segmentation Theory

Market segmentation theory postulates that the pattern of behavior of short-duration interest rate is totally not connected to the pattern of behavior of long term interest rate (Quiry, Dallochio, Le Fur & Salvi, 2005). The theory argues that one cannot use short duration interest rates to predict with certainty future interest rates (Smithin, 2003). Short-term interest rate and long duration interest rate must be analyzed independently. That means a variation in one is not a sign that the other will also vary immediately (Terrell & Frazer, 1976).

Also long term interest rate merely suggest market expectation does not necessarily figure out that accurate outcome will result (Quiry et al., 2005). These choices lead to specific smaller market contingent upon market forces unique to each market. For instance, the market forces for short-term government and corporate bonds are influenced by companies need for short-term assets such as debtors and inventories (Smithin, 2003). While the market forces for medium and long-term maturity bonds depend on businesses financing intensive capital expenditure (Korkut, 2006). Borrowers and investors try to hedge at each maturity length, so that bond market segments operate independently of each other.

Market segmentation is also called segmented market theory (Korkut, 2006). It follows the assumption that the market for each section of bond maturities is mostly occupied by investors with a specific inclination in investing in securities with that maturity time line (Terrell & Frazer, 1976). Segmented market theory also postulates that the buyers and sellers in who are in the short term security market manifest diverse behavior and investment intentions than the majority of buyers in and sellers in the medium and long term securities, therefore, they must not be deemed interchangeably (Smithin, 2003).

This theory is centered on the behavior of various large scale investors such as companies in the insurance and banking industries. Banks prefer short-term securities and insurance companies prefer long term securities. This theory helps in explaining why the prevailing macroeconomic variable parameters cannot be used to predict the future environment. It therefore helps investors in investing their resources without relying on the current market conditions.

2.2.3 Arbitrage Pricing Theory

This is an asset pricing model, which postulate that an asset's expected yields can be guessed based on the association among the asset and various shared risk factor (Ross, 1976). Arbitrage Pricing Theory forecast the relationship between the returns of a portfolio and many independent macroeconomic variables (Black, Jensen & Scholes, 1972). Arbitrage pricing theory (APT) is considered an option to capital asset pricing model (CAPM) due to is non-rigid assumption requirements (Bower, Bower & Logue, 1984). It states where a mispriced asset is likely to be. While CAPM uses market's expected return, APT utilizes uncertain asset's expected return and risk premium of many macroeconomic factors (Connor, 1984). Arbitrageurs utilizes APT model to

make profit by utilizing mispriced securities, which is different from the theoretical price forecasted by the model (Blacket *al.*, 1972).

This theory is relevant in this study as it explains how investors can predict and extrapolate the financial performance of an organization based on the prevailing macroeconomic variable. Macroeconomic factors are vital in shaping the aggregate appetite for products in an economy therefore the level of employment, consumption and savings.

2.3 Determinant of Stock Market Performance

Stock Market performance of companies is determined by macroeconomic factor such as inflation rate, interest rate, money supply, level of competition as discussed below.

2.3.1 Inflation

Kiganda (2014) defines inflation as the general and persistent increase in price level and has negative impact on the stability of macroeconomic environment. For a stock market to perform optimally, it has to operate in a conducive environment which has stable price. Fluctuating inflation rate will have negative impact on price stability, savings and investment. It's the responsibility of central bank of Kenya to employ monetary policy to reduce the fluctuations of inflation rate by using different policies such as (OMO) Open market operations, reserves requirement and discount window.

Property manifests inflation protecting behavior, property prices are positively related to level of inflation in the long duration. Property is not sensitive to inflation and therefore it does not put investors in direct risk as a result of inflation adversity. Assets that generate long term income automatically adjust to inflation in line with Gordon growth model (Miregi & Obere, 2014).

2.3.2 Interest Rate

Bean (2017) interest is the reward for saving money in a saving account for people who had forgone consumption or it's the cost of capital for those who borrow money. There must be motivation for people to save that is high interest rate and for people to borrow there must also be motivated by low interest rate so as to reduce the cost of borrowing. According to Miregi and Obere (2014) interest rate and inflation affect housing. Borrowing costs influence the disposable income of individuals which ultimately affect their purchasing power. When lending interest is low, more individuals can access bank financing which leads high demand hence increasing property prices.

Kenyan parliament passed a bill to cap interest rate which banks offer on loan and deposit. This has affected both banks and other listed companies (Cytonn, 2016). Banks financial performance depends on the difference they pay depositors and the rate they charge borrowers. Placing restriction on interest rate has reduce the financial performance of financial institutions and other listed companies such as construction and automobile industries which was heavily dependent on bank financing to sell their products. Interest capping has negative impact on listed companies as it will deny credit facility to those companies considered high risk borrowers, banks will prefer lending government to avoid loss of defaulting by other companies.

2.3.3 Money supply

Money supply is the total currency in circulation in a country. This includes; cash, coins, saving by business and individuals. (Martin, 2014) Money supply can affect performance of companies and the entire stock market directly, when there is surplus money supply there is more money available for investment, and most people invest in stocks, business expansion and settling of debt. Excess money supply results to increase

in investments such as high demand for shares and consumption creating more demand for listed companies' product.

Money is used in daily transactions for executing company activities towards the realization of set organizational objectives (Ihsan and Anjum, 2013). As the money supply increases it will reduce interest rate this will fuel investment but if money supply reduces interest rate will increase and make investment difficult. Also increased money supply will put more disposable income in the hands of Kenyans so that they can spend on listed companies' products. This will make stock markets across the world prosper and able to buy labor, raw materials and capital expenditure. Stock market flourish as prices increase and firms issue more shares.

2.4 Empirical Review

There is a lot of work done by numerous authors researched on the outcome of macroeconomic factors on the performance of stock markets both locally and internationally. Previous researches worked on the pattern of behavior of performance of companies in relation to fluctuations of interest rate, inflation rate, and money supply. Here we will review the behavior of banking industry and construction industry in response to the macroeconomic factors.

Azemi (2009) used data from the Malaysian companies to study the consequence that macroeconomic variables had on performance of firms for a period of twenty years spanning 1988 to 2008. This study compared the performance for two periods of ten years each to see if changes in macroeconomic variables affected share prices. The dependent variable was share price for firms while the independent variables comprised real output, money supply, price level and interest rate. The study applied the Error

Correction Model in the analysis. The findings indicated that share prices were co-integrated with macroeconomic variables.

Kusa and Ongore (2013) carried out a research on the macroeconomic factors affecting the performance of the banking industry in Kenya found that: inflation, interest level and political volatility are some of the external factors that influence the performances of banks. The GDP pattern influences the demand for bank asset. Decline in GDP results in low appetite for credit, which ultimately affect the financial performance of banks adversely. The author also researched on how inflation affects banks profitability but found that the relationship of the inflation and profitability remained debatable.

Zoa (2014) examined how the stock market reacted to changes in macroeconomic variables in Japan between the years 2000 to 2012. The variables comprised: real exchange rate, inflation, real interest rate, government debt, industrial production index and stock market index in Japan. The research applied a descriptive design using monthly time series data. The tests carried out include: Augmented Dickey Fuller test, unit root test, Philip Peron Test, Johansen co-integration test, Granger Causality Test and ECM (Error Correction Model). The findings show that all variables examined significantly impacted the performance of firms in the long term.

Mohanasundaram, Karthikeya and Shanthi (2017) assessed the influence of macroeconomic variables on corporate profitability in India Between the years 2000 and 2015. The variables of the study included: liquidity, leverage, firm size, and export intensity. The dependent variable included GDP, wholesale price index, foreign exchange rate and Balance of Payment. The findings indicated that hat leverage ratio posted a significant negative relationship in both full period and pre-crisis period. Liquidity ratio and export intensity posted a positive both insignificant relationship

during the full study period. The studied macroeconomic variables did not affect the profitability of firms over the study period.

Tiryaki, Erdo an and Ceylan (2017) conducted a study with the aim of establishing the causal connection among stock returns and changes in macroeconomic factors in Turkey between 2003 and 2016. The study applied Engle-Granger causality and ARDL tests to check the relationship in the Turkey market. The independent variables comprised: Industrial production index (IPI), Balance of Payment as measured by the current account balance to export, inflation as measured by CPI, exchange rates, interest rate, and the world oil price index. The study used monthly data obtained from financial statements of the firms and the central bureau for statistics. From the findings, main determinants of stock returns included IPI, CPI, real effective exchange rate (RER), current account to export ratio (CAEX) and World Oil Price Index (OILP).

Njau (2013) examined a few selected macroeconomic variables and how they affected financial results recorded by organizations in Kenya for duration of seven years spanning 2005-2012. The independent variables in the study comprised of GDP growth rate, bank lending rates, inflation level, foreign exchange level and market risk exposure. The dependent variable was measured using return on investment (ROI). The study applied a descriptive research design on quarterly data gathered from financial reports of the identified corporations in the sample. Inferential statistics including multiple regression analysis were performed to help estimate the variations in dependent factors as a consequence of a unit variation in each of the independent factor. Examination of Variance was used to investigate the fitness of the model. The result shows that ROI for private equity firms was highly influenced by the selected macroeconomic variables. The independent variables explained 72.8% level of

variations in performance of private equity firms. In addition a positive connection exists among the dependent and independent factors.

Murungi (2014) studied the trends in insurance companies' performance based on changes in the macroeconomic variables in Kenya. The independent variables in the study included real exchange rate measured by the prevailing exchange rates against the United States Dollar (USD), GDP growth rate, annual lending rates, money supply in the economy, inflation as measured by consumer price index while performance was computed using Return on Assets (ROA). The control variables included: company size as measured by total assets and claims ratio. Data was collected from reports published by the Association of Kenya Insurers (AKI). The findings post mixed reactions to the changes in macroeconomic variables. While some posted positive and significant relationship, some had negative and insignificant relationship.

Kitatia, Zablonb and Maithyac (2015) studied the performance of NSE listed firms performance in relation to changes in the macro-economic variables. The research studied duration of five years spanning 2008-2012. Periodicity of the data was monthly. The dependent variable was stock prices while the independent variables comprised: rate of foreign exchange, interest level, inflation level on share prices. The study applied a descriptive research design using secondary data gathered from the CBK and KNBS. Simple multiple regression analysis was carried out to help estimate the extent to which independent variable changes as an outcome of a unit variation in each of independent factors studied. The findings show a mixture of reactions on the way macroeconomic variables related with stock prices at the NSE.

Ndunda (2016) studied the effect of macro-economic variables on performance results of equity market firms listed at the NSE in Kenya for ten years starting 2004 to 2015. The macro-economic variables studied included: exchange rate, inflation rate, money supply and real GDP. A descriptive research design was applied using average annual figure obtained from NSE, CBK, KNBS, and international Monetary Fund website. A multiple regression analysis was applied in estimating the extent to which dependent factor changes as outcome of a unit variation in each of the dependent variables. The result posted mixed findings as some variables showed positive and significant impact while others showed negative relationship.

Nzuve(2016) studied the profitability of Microfinance firms in Kenya which are deposit taking in relation to changes in the macroeconomic environment for a period of ten years starting 2004 to 2015. The variables included: GDP, exchange rate, employment rate. The population comprised all the licensed nine MFIs. A negative relationship was established between inflation and financial results, GDP and exchange rates showed positive relationship.

Muinde (2017) applied the Johansen co-integration methodology to scrutinize the effect of macroeconomic variable changes in share prices at the NSE. The independent variables included: inflation, exchange rate, money supply, credit spread, lending rates, and Treasury bill rates. The study was informed by the letdown of the CAPM in predicting future yields with accuracy and the inconclusive debate that have followed it. It was also based on a wide gap between different empirical scholars (Naik and Padhi, 2012; Kumar, 2013; Tangjitprom, 2012) on the impact of macroeconomic factors on stock values across the world. The study applied secondary data gathered from diverse sources including the Central Bank of Kenya website, Kenya National Bureau of Statistics Website and the individual companies' websites. The findings indicated

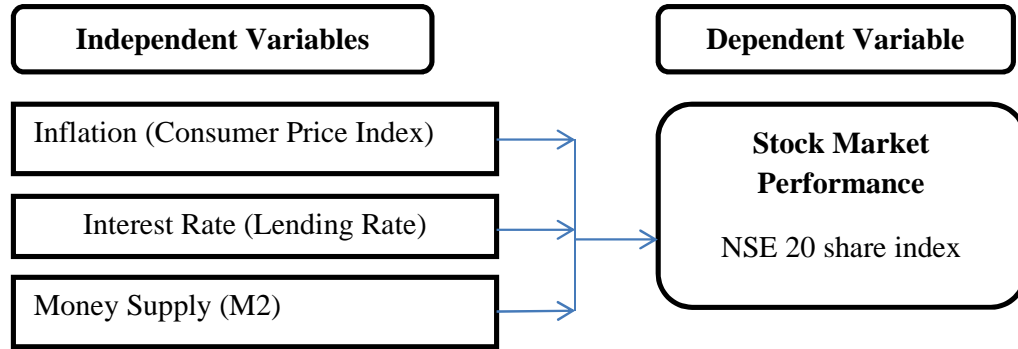
existence of a negative equilibrium association between money supply and share prices and a positive connection for exchange level and interest level in the long-duration. This research limited the number of macroeconomic variables hence limiting the application of its study findings.

2.5 Conceptual Framework

A conceptual framework is figure that expresses the interaction among the dependent and independent variables selected by a researcher. It clearly identifies the variables. The independent variables are inflation, interest rate, money supply, and the dependent variable is stock market performance. From the empirical literature above, it can be seen that these variables have different effects on stock market performance. Some have a positive relationship while others are inversely related.

Past studied have established the varied connection between macro-economic variables and performance of stocks. Azemi (2009) established that share prices were co-integrated with macroeconomic variables. Inflation affects banks profitability. Exchange rate, inflation, money supply, interest rate and government debt are expected to have a strong relationship with stock market performance. All these are well listed in the Figure 2.1 below:

Figure 2.1: Conceptual Model



Source: (Author, 2017)

2.6 Summary of Literature Review

The study examined a number of empirical studies on macroeconomic variables and stock market performance trading at security exchanges around the world. Globally, Azemi (2009); Kusa and Ongore (2013); Zoa (2014); Mohanasundaram, and Karthikeya and Shanthi (2017) examined the aspect of macroeconomic variables and performance of firms from a number of countries. Their findings are informative of the relationship although the different variables were found to influence organizational performance differently and to a varying magnitude. Because of the differences between Kenyan macroeconomic variables and the rest of the world, it makes it difficult to generalize their findings to the current study setting hence the need to undertake the current study. In addition, there is time lapse between the times the studies were undertaken and the current period hence a gap in research.

Locally, Njau (2013) Murungi (2014); Kitatia, Zablonb and Maithyac (2015); Ndunda (2016); Nzuve (2016); and Muinde (2017) examined several aspects of macroeconomic variables and performance of firms. Several measures of firm performance were adopted and the findings also vary depending on the period the study was undertaken. In addition, a lot of changes in the macroeconomic variables have occurred after the studies were conducted hence creating new information which

was not available when the studies were undertaken. This therefore presents a research gap that the current research endeavors to fill by answering one research question: What is the effect of macroeconomic factors on the performance of the Nairobi Security Exchange?

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter endeavors to clarify in conducting research, the procedure and process employed by research study. It clarifies the research, population, sample, data sources, data collection and process of the research, analysis and presentation of the data in order to achieve the research goal.

3.2 Research Design

This means the arrangement for gathering and classifying and organizing data in a way that aims to accurately simplify the findings of population sample (Prabhat & Meenu, 2015). This study adopted a descriptive research design because its main focus is extracting the data and analyzing it as it is without manipulation. In descriptive design, information on aspects of the what, where, when and how are collected to help build a profile on the issue being studied. Descriptive design was chosen because of its ability to give accurate information of the phenomenon under study

3.3 Population

The target research population was the Nairobi Security Exchange (NSE) which facilitates trade in equities for various companies as listed in appendix I. These listed companies are spread in different industries including agricultural, automobiles and accessories, banking, commercial and services, construction and allied, insurance, investment. This study included all the firms in the study hence a census. This study used the firms making up the 20- share index.

3.4 Data Collection

This research utilized secondary data got from financial records of NSE posted on their website. Data on GDP and inflation will be collected from the KNBS. Other data like foreign exchange rate and lending rates was collected from the reports of the Central Bank of Kenya. The period of the study was five years spanning from 2012-2016. Monthly average data was applied to increase the number of data points for evaluation.

3.5 Data Analysis

The research made use of Statistical Package for Social Sciences (SPSS) version 23.0 for evaluation. The analysis started by giving descriptive statistics on study variables including: Mean standard deviation, kurtosis, skewness, mean, mode and median.

3.5.1 Diagnostic Tests

The study conducted a skewness and kurtosis .

3.5.2 Analytical Model

The analysis unit was secondary data from NSE, CBK and online reports accessible on the internet. The macroeconomic variables include; inflation, interest rate and money supply.

The regression model depicted the analytical study

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

Where;

Y – is the Stock Market Performance (Measured by NSE 20 share index)

X₁ –is the Inflation rate (Measured by Consumer Price Index)

X₂ – is the Money Supply Growth (Measured by Change in Money Supply)

X₃ –is the interest rate (Measured by Lending Rates)

– is the Beta coefficient of variable i that measure the amount of the change in Y associated with a unit change in X .

While μ – stand for the error term that is assumed to be associated with the Variables

3.5.3 Test of Significance

The study applied a number of tests including evaluation of Variance to ascertain the fitness of the model in predicting changes in stock market performance based on the independent variables. The study also used T test to establish whether the variables are significant in predicting the changes in financial performance or not.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

In this chapter, the researcher presents evaluation of the collected study data. The research mainly relied on secondary data collected using data collection sheet. The period of data collection was 5 years that is 2012-2016. The researcher collected average monthly data on NSE 20 share index that measured performance, interest rate measured by average monthly lending rates, monthly inflation rates and monthly changes in money supply. The collected data was sorted and coded into SPSS software and the analysis was done descriptively and inferentially. The findings are presented in Tables and graphs.

4.2 Descriptive Statistics

This illustrates how the collected data was analyzed descriptively. The descriptive statistics used included Means and standard deviations, Skewness and Kurtosis and trend analysis on each of the study variables.

4.2.1 Means and Standard Deviations

Table 4.1 indicates the means and standard deviation of the study variables.

Table 4.1: Means and Standard Deviations

	N	Minimum	Maximum	Mean	Std. Deviation
Stock Performance	60	3.51	3.74	3.637	.062
Inflation	60	4.44	16.50	7.952	3.427
Money Supply	60	-1.77	3.72	1.045	1.086
Interest Rates	60	13.66	20.34	17.240	1.679

Source: (Research Findings, 2017)

From the findings, stock performance had minimum value of 3.51, maximum of 3.74, mean of 3.637 and standard deviation of 0.062. Inflation had a minimum value of 4.44, maximum of 16.50, mean of 7.952 and standard deviation of 3.427. Money supply indicated a minimum value of -1.77, maximum of 3.72, mean of 1.045 and standard deviation of 1.086. Interest rate had a minimum value of 13.66, maximum of 20.34, mean of 17.240 and standard deviation of 1.679.

From the above results, interest rates had the highest mean indicating that it had significant effect as macroeconomic factor on performance of the Nairobi Security Exchange followed by inflation. In view of risk as indicated by standard deviation, inflation with highest value of standard deviation seemed to be the most risky macroeconomic factor affecting performance of the Nairobi Security Exchange.

4.2.2 Skewness and Kurtosis

The research sought to examine normality of the data set. This was done using Skewness and Kurtosis.

Table 4.2: Skewness and Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Stock Performance	60	-.229	.309	-1.282	.608
Inflation	60	1.645	.309	1.331	.608
Money Supply	60	-.343	.309	.100	.608
Interest Rates	60	.025	.309	-.041	.608

Source: (Research Findings, 2017)

The findings in Table 4.2 show that stock performance had Skewness of -0.229 and Kurtosis of -1.282, inflation had 1.645 and 1.331, money supply had -0.343 and 0.100 while interest rate had 0.025 and -0.041 respectively.

Data analysis proceeds if the kurtosis and skewness is in a range of +2 and -2 as this will be a sign which means the data has a regular distribution (Kothari, 2004). From the

above findings, all values of Skewness and Kurtosis are between +2 and -2 and therefore the researcher proceeded with the analysis.

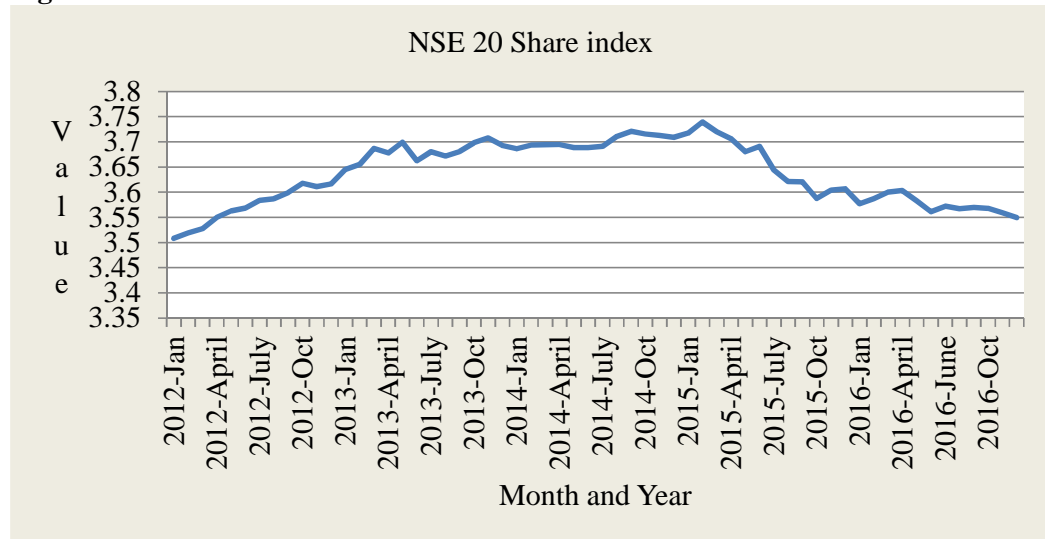
4.2.3 Trend Analysis

In this subsection, the researcher graphically describes the variables of the study to show their movement pattern over the period of consideration.

NSE 20 Share Index

The trend analysis of the NSE 20 Index is indicated in Figure 4.1.

Figure 4.1: NSE 20 Share Index



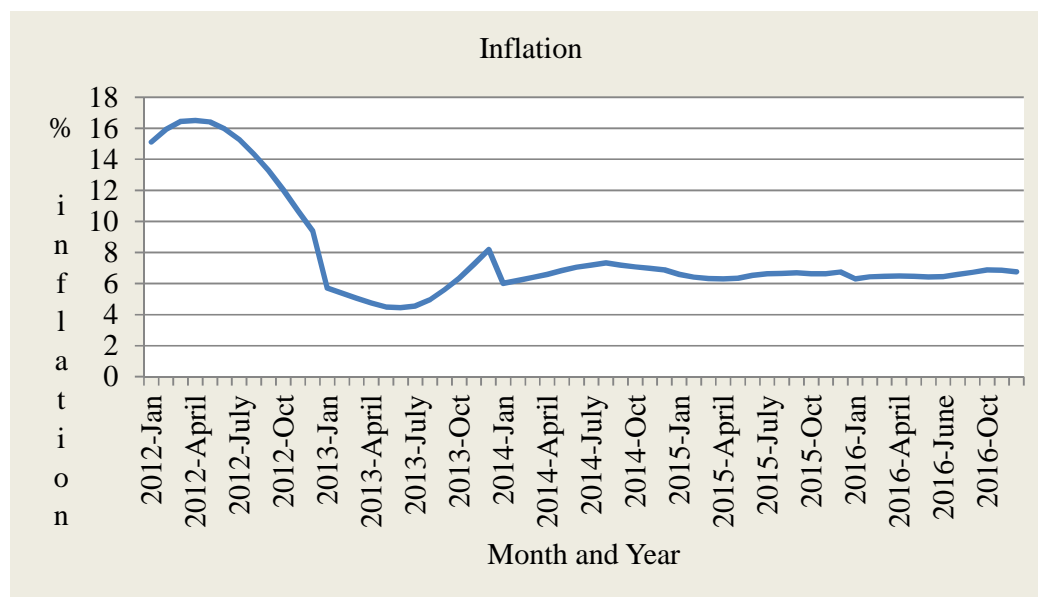
Source: (Research Findings, 2017)

Figure 4.1 describes the movement of NSE 20 share index that was used to measure performance of NSE. From the findings, there has been stability in NSE 20 share index over the 5 year period of consideration. Performance of NSE therefore has been stable.

Inflation

Figure 4.2 demonstrate the pattern of inflation of the duration 2012-2016. Inflation was measured by changes in Consumer price index.

Figure 4.2: Inflation



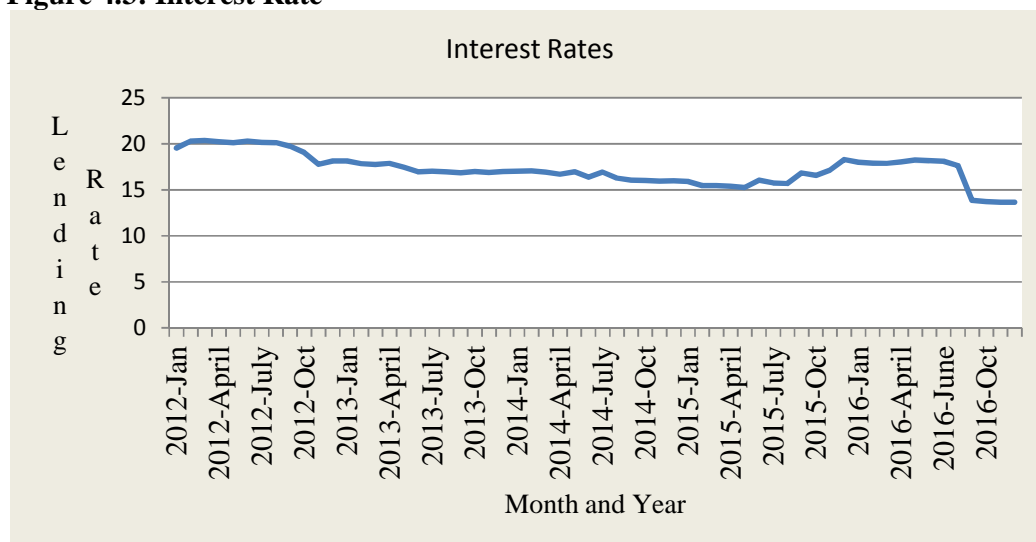
Source: (Research Findings, 2017)

From the findings, inflation has steadily decreased over the period of 2012-2016. The year 2012 saw higher inflationary pressures but was steadily contained and maintained in subsequent years. According to Kiganda (2014) fluctuating inflation rate will have negative impact on price stability, savings and investment.

Interest Rate

Interest rate was measured using lending rates. The trend analysis of this is shown in Figure 4.3.

Figure 4.3: Interest Rate



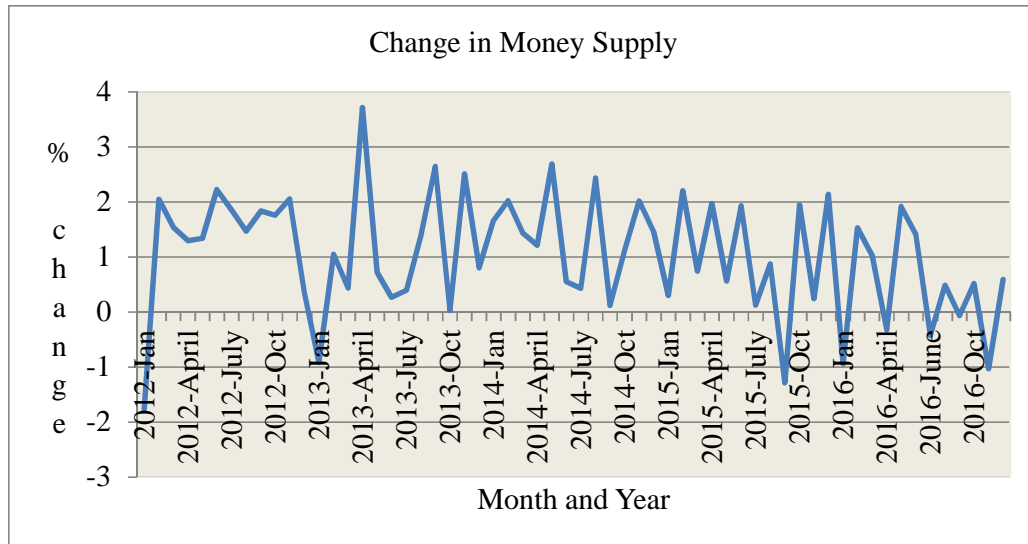
Source: (Research Findings, 2017)

From the findings, interest rates as measured by lending rates have been stable over a period of consideration. This has been made possible through existence of sound monetary policies by the Central Bank of Kenya. Kiganda (2014) notes the obligation of central bank of Kenya is to employ monetary policy to reduce the fluctuations of inflation rate by using different policies such as (OMO) Open market operations, reserves requirement and discount window

Change in Money Supply

Figure 4.4 graphically illustrated change in money supply over 2012-2016 periods.

Figure 4.4: Change in Money Supply



Source: (Research Findings, 2017)

From the findings, there has been erratic change in money supply in the economy over the period of consideration where the April 2013 had the highest supply of money. According to Martin (2014) when there is surplus money supply there is more money available for investment, and most people invest in stocks, business expansion and settling of debt.

4.3 Correlation Analysis

In order to find out the strength and pattern of the connection between the study variables, the researcher conducted correlation analysis. Strength of the relationship between the variables is either weak, moderate or strength while direction is either positive or negative. Strength of the connection between the variables is determined by Pearson coefficient r while the p values signify whether this relation is significant.

Table 4.3: Correlation Analysis

		Stock Performance	Inflation	Money Supply	Interest Rates
Stock Performance	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	60			
Inflation	Pearson Correlation	-.376	1		
	Sig. (2-tailed)	.003			
	N	60	60		
Money Supply	Pearson Correlation	.237	-.289	1	
	Sig. (2-tailed)	.018	.025		
	N	60	60	60	
Interest Rates	Pearson Correlation	-.032	-.823	.273	1
	Sig. (2-tailed)	.808	.000	.035	
	N	60	60	60	60

Source: (Research Findings, 2017)

From the findings, the Pearson coefficient r for inflation was -0.376 , showing that it is inversely related with performance of NSE. This relationship is moderate. This relationship is significant at 95% that is $0.003 < 0.05$. This indicates that increase in inflation reduces performance of NSE.

For money supply, $r=0.237$, which shows direct relationship with performance of NSE. The relationship is weak but significant at 5% level of significance that is; $0.018 < 0.05$. This implies that an increase in money supply increases performance of NSE. This is practically true as more money in the economy increases investments in shares which drive returns of listed firms and therefore performance of these firms.

Interest rate had Pearson correlation $r=-0.032$, showing that it is inversely related with performance of NSE. This relation is however insignificant at 5% level of significance i.e. $0.808 > 0.05$.

4.4 Regression Analysis

A multiple regression analysis was used to find out the effect of macroeconomic factors on the performance of the Nairobi Security Exchange. The Model Summary, ANOVA and regression coefficients are shown in subsequent sections.

Table 4. 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.731 ^a	.535	.510	.04393

Source: (Research Findings, 2017)

The Model Summary indicates the coefficient of correlation R and the coefficient of determination R square. From the findings, R was 73.1% showing strong positive correlation between the study variables. The coefficient of determination R square is 0.535 showing that the predictor variables explain 53.5% change in performance of NSE.

Table 4. 5: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.124	3	.041	21.466	.000
Residual	.108	56	.002		
Total	.232	59			

Source: (Research Findings, 2017)

At 5% level of significance, the ANOVA Table indicates F calculated 21.466 while F critical is 2.77. The overall regression model was a great fit in predicting the influence of macroeconomic factors on the performance of the Nairobi Security Exchange $21.466 > 2.77$. The p value $0.000 < 0.05$, indicates statistically significant association between the study variables.

Table 4.6: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.500	.124		36.416	.000
Inflation	-.022	.003	-1.215	-7.511	.000
Money Supply	.010	.006	.181	1.900	.063
Interest Rates	-.040	.006	-1.082	-6.721	.000

Source: (Research Findings, 2017)

The established equation becomes;

$$Y = 4.5 - 0.022X_1 + 0.01X_2 - 0.04X_3$$

Where;

Y – is the Stock Market Performance (Measured by NSE 20 share index)

X₁ – is the Inflation rate (Measured by Consumer Price Index)

X₂ – is the Money Supply Growth (Measured by Change in Money Supply)

X₃ – is the interest rate (Measured by Lending Rates)

When all the predictor variables were held constant, NSE performance would be at 4.5.

A unit increase in inflation with other factors held constant would result into 2.2% decrease in performance of NSE. The relationship between inflation and performance of NSE is significant at 5% i.e. $0.000 < 0.05$. Nzuve(2016) studied the profitability of Microfinance firms in Kenya which are deposit taking and established negative relationship between inflation and financial results.

A unit increase in money supply other factors constant would lead to 1% improvement in performance of NSE. The relationship between money supply and performance of NSE was not significant at 5% level of significance $0.063 > 0.05$. Murungi (2014) studied the trends in insurance companies' performance based on changes in the macroeconomic variables in Kenya and revealed mixed reactions to the changes in

macroeconomic variables in that while some posted positive and significant relationship, some had negative and insignificant relationship.

A unit decrease in interest rate with other factors constant would result into 4% increase in performance of NSE. The relationship between interest rate and performance of NSE is significant $0.000 < 0.05$. According to Miregi and Obere (2014) interest rate affect housing where borrowing costs influence the disposable income of individuals which ultimately affect their purchasing power.

4.5 Interpretation of the Findings

At 5% level of significance, both correlation and regression analysis indicated that inflation was a significant macroeconomic factor affecting performance of NSE, with p values less than 0.05. According to Kusa and Ongore (2013), relationship of the inflation and profitability remained debatable.

Both regression and correlation analysis further agreed on the inverse relationship between inflation and interest rates in view of how they affected performance of NSE. This shows that decrease in inflation and interest rates improves performance of NSE. Kiganda (2014) noted that fluctuating inflation rate will have negative impact on price stability, savings and investment.

The findings of correlation analysis indicated that money supply growth directly and significantly affected performance of NSE. This finding contradicts Muinde (2017) who established a negative equilibrium association between money supply and share prices and a positive connection for exchange rates and interest level in the long-duration.

According to correlation analysis, there was an inverse association between interest rate and performance of NSE which was not however not significant at 5% significance level. Miregi and Obere (2014) established that when lending interest is low, more individuals can access bank financing which leads high demand hence increasing property prices.

While correlation analysis showed that only interest rate was insignificant, for regression analysis, money supply growth had insignificant effect on performance of NSE at 0.05. These findings are consistent with Mohanasundaram, Karthikeya and Shanthi (2017) who concluded that macroeconomic variables did not affect the profitability of firms over the study period.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter contains a summary of the research results in view of the objectives of the research. The summarized discoveries have generated conclusions for the study. Recommendations of the study have relevant implication to policy makers. The chapter also provides shortcomings of the study and suggestions for more study.

5.2 Summary of the Findings

The main goal of this study was to find out the influence of macroeconomic factors on the performance of the Nairobi Security Exchange. More specifically, the researcher sought to determine how inflation rate (Measured by Consumer Price Index), Money Supply Growth (Measured by Change in Money Supply) and interest rate (Measured by Lending Rates) affected performance of NSE. The findings are summarized in subsequent sections.

5.2.1 Inflation Rates

Inflation has steadily decreased over the period of 2012-2016. The year 2012 saw higher inflationary pressures but was steadily contained and maintained in subsequent years. The findings of correlation analysis indicated that the Pearson coefficient r for inflation was -0.376 , showing that it is inversely related with performance of NSE. This relationship is moderate. This relationship is significant at 95% that is $0.003 < 0.05$. This indicates that increase in inflation reduces performance of NSE. From regression analysis, inflation significantly affected performance of NSE at 5% i.e. $0.000 < 0.05$.

5.2.2 Money Supply

From the findings, there has been erratic change in money supply in the economy over the period of consideration where the April 2013 had the highest supply of money. Correlation results indicated an $r=0.237$, showing direct relationship with performance of NSE. The relationship is weak but significant at 5% level of significance that is; $0.018 < 0.05$. This implies that an increase in money supply increases performance of NSE. From regression analysis, money supply growth had no substantial effect on performance of NSE at 5% level of significance $0.063 > 0.05$.

5.2.3 Interest Rate

The study revealed that interest rates as measured by lending rates have been stable over a period of consideration. From correlation results, interest rate had Pearson correlation $r=-0.032$, showing that it is inversely related with performance of NSE. This relation is however insignificant at 5% level of significance i.e. $0.808 > 0.05$. From regression analysis, interest rate significantly affected performance of NSE $0.000 < 0.05$.

5.3 Conclusion

There has been stability in inflationary pressure over a five year period 2012-2016. There was an inverse moderate and significant relationship between inflation and performance of NSE. Inflation had significant influence on performance of NSE.

There were erratic changes in money supply in the economy over the period of consideration i.e. 2012-2016. Existence of weak direct connection between money supply and performance of NSE was found.

There was stability in interest rates over the 5 years period of consideration. There was an inverse weak relationship between interest rate and performance of NSE. Interest rates had significant influence on performance of NSE.

5.4 Recommendations for Policy and Practice

The Central Bank of Kenya CBK should strengthen its monetary policies to regulate and control inflation to sustainable levels. Both monetary and fiscal policies should be harmonized in achieving sustainable levels of inflation.

Central bank should closely monitor the flow of money in the economy since too much flow of money could trigger inflation. There is need to balance the supply and demand for money in the economy.

The management of NSE and the Capital Market Authority CMA should create awareness among investors to invest more in equities when level of interest rates in an economy are favorable. Awareness can be created through use of seminars and workshops.

5.5 Limitations of the Study

This research depended on data from various sources including publications of NSE, CBK and KNBS. However, there were discrepancies in data reported by these sources, but the researcher overcame this by getting an average figure whenever a discrepancy arose. The researcher foresaw a challenge of collecting data to cover all the study period where data could not be found in some years. To overcome this, diverse sources of data were identified to complete some years where data could not be present in any given source.

5.6 Suggestions for Further Research

The current research was done to examine performance of NSE, future scholars need to carry out similar studies on performance of the East Africa Security Exchange EASE or a comparison of the New York Stock Exchange NYSE and that of Kenya. There are several macroeconomic variables not included in the current study like exchange rate that affect performance of NSE which future scholars should examine. Performance of NSE was measured by NSE 20 index; future studies should use other measures to determine performance for example NSE All Share Index NASI, NSE 25 share index or use of Jensen Measure of performance.

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APPENDICES

APPENDIX I: LISTED COMPANIES

Agricultural

1. Eaagads Ltd Ord 1.25 AIMS
2. Kapchorua Tea Co. Ltd Ord Ord 5.00 AIMS
3. Kakuzi Ord.5.00
4. Limuru Tea Co. Ltd Ord 20.00
5. Rea Vipingo Plantations Ltd Ord 5.00
6. Sasini Ltd Ord 1.00
7. Williamson Tea Kenya Ltd Ord 5.00

Automobiles and Accessories

8. Car and General (K) Ltd Ord 5.00
9. Sameer Africa Ltd Ord 5.00

Banking

10. Barclays Bank Ltd Ord 0.50
11. CFC Stanbic Holdings Ltd ord.5.00
12. I&M Holdings Ltd Ord 1.00
13. Diamond Trust Bank Kenya Ltd Ord 4.00
14. HF Group Ltd Ord 5.00
15. KCB Group Ltd Ord 1.00
16. National Bank of Kenya Ltd Ord 5.00
17. NIC Bank Ltd Ord 5.00
18. Standard Chartered Bank Ltd Ord 5.00
19. Equity Group Holdings Ord 0.50
20. The Co-operative Bank of Kenya Ltd Ord 1.00

COMMERCIAL AND SERVICES

21. Express Ltd Ord 5.00
22. Kenya Airways Ltd Ord 5.00
23. Nation Media Group Ord. 2.50
24. Standard Group Ltd Ord 5.00
25. TPS Eastern Africa (Serena) Ltd Ord 1.00
26. Scangroup Ltd Ord 1.00
27. Uchumi Supermarket Ltd Ord 5.00
28. Longhorn Publishers Ltd
29. Atlas Development and Support Services
30. Deacons (East Africa) Plc Ord 2.50
31. Nairobi Business Ventures Ltd

CONSTRUCTION AND ALLIED

32. Athi River Mining Ord 5.00
33. Bamburi Cement Ltd Ord 5.00
34. Crown Berger Ltd Ord 5.00
35. E.A.Cables Ltd Ord 0.50
36. E.A. Portland Cement Ltd Ord 5.00

ENERGY AND PETROLEUM

37. KenolKobil Ltd Ord 0.05
38. Total Kenya Ltd Ord 5.00
39. KenGen Ltd Ord. 2.50
40. Kenya Power & Lighting Co Ltd
41. Umeme Ltd Ord 0.50

Insurance

- 42. Jubilee Holdings Ltd Ord 5.00
- 43. Sanlam Kenya PLC Ord 5.00
- 44. Kenya Re-Insurance Corporation Ltd Ord 2.50
- 45. Liberty Kenya Holdings Ltd
- 46. Britam Holdings Ltd Ord 0.10
- 47. CIC Insurance Group Ltd Ord 1.00

Investment

- 48. Olympia Capital Holdings Ltd Ord 5.00
- 49. Centum Investment Co Ltd Ord 0.50
- 50. Trans-Century Ltd
- 51. Home Afrika Ltd Ord 1.00
- 52. Kurwitu Ventures

Investment Services

- 53. Nairobi Securities Exchange Ltd Ord 4.00

Manufacturing and Allied

- 54. B.O.C Kenya Ltd Ord 5.00
- 55. British American Tobacco Kenya Ltd Ord 10.00
- 56. Carbacid Investments Ltd Ord 5.00
- 57. East African Breweries Ltd Ord 2.00
- 58. Mumias Sugar Co. Ltd Ord 2.00
- 59. Unga Group Ltd Ord 5.00
- 60. Eveready East Africa Ltd Ord.1.00
- 61. Kenya Orchards Ltd Ord 5.00
- 62. Flame Tree Group Holdings Ltd Ord 0.825

Telecommunication and Technology

- 63. Safaricom Ltd Ord 0.05

Real Estate Investment Trust

- 64. Stanlib Fahari I-REIT

Exchange Traded Fund

- 65. New Gold Issuer (RP) Ltd

APPENDIX II: DATA COLLECTION SHEET

Period	NSE 20 share index	Inflation	Money Supply Growth	Interest Rates (Lending Rates)
2012				
2013				
2014				
2015				
2016				

APPENDIX III: RAW DATA FOR THE STUDY

Inflation	Money Supply Growth	Interest Rate	Stock Performance
4.44	-1.77	20.34	3.51
4.5	2.05	20.3	3.52
4.56	1.54	20.28	3.53
4.75	1.29	20.22	3.55
4.96	1.34	20.15	3.56
5.05	2.23	20.13	3.57
5.39	1.85	20.12	3.58
5.61	1.47	19.73	3.59
5.72	1.84	19.54	3.6
6.01	1.76	19.04	3.62
6.21	2.06	18.3	3.61
6.29	0.36	18.22	3.62
6.3	-0.91	18.18	3.65
6.31	1.05	18.15	3.66
6.33	0.44	18.13	3.69
6.34	3.72	18.1	3.68
6.39	0.72	18.04	3.7
6.42	0.27	18	3.66
6.43	0.4	17.91	3.68
6.44	1.38	17.87	3.67
6.46	2.65	17.87	3.68
6.47	0.03	17.84	3.7
6.48	2.51	17.78	3.71
6.5	0.81	17.73	3.69
6.54	1.67	17.66	3.69
6.58	2.02	17.45	3.69
6.58	1.44	17.16	3.69
6.59	1.22	17.06	3.69
6.63	2.69	17.03	3.69
6.63	0.55	17.02	3.69
6.63	0.43	17	3.69
6.65	2.44	16.99	3.71
6.69	0.12	16.97	3.72
6.72	1.13	16.97	3.72
6.74	2.02	16.96	3.71
6.77	1.46	16.91	3.71
6.85	0.3	16.91	3.72
6.87	2.2	16.89	3.74
6.88	0.74	16.86	3.72
6.88	1.98	16.82	3.71
6.97	0.57	16.7	3.68
7.05	1.93	16.58	3.69
7.08	0.13	16.36	3.64

7.19	0.88	16.26	3.62
7.19	-1.28	16.06	3.62
7.24	1.95	16.04	3.59
7.33	0.24	16	3.6
8.2	2.14	15.99	3.61
9.38	-0.94	15.94	3.58
10.67	1.53	15.93	3.59
12.04	1.03	15.75	3.6
13.29	-0.33	15.68	3.6
14.33	1.92	15.47	3.58
15.1	1.4	15.46	3.56
15.27	-0.43	15.4	3.57
15.93	0.49	15.26	3.57
15.97	-0.07	13.86	3.57
16.4	0.52	13.73	3.57
16.45	-1.03	13.67	3.56
16.5	0.59	13.66	3.55