EFFECT OF MACRO-ECONOMIC VARIABLES ON STOCK MARKET PERFORMANCE IN KENYA

BY

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DECLARATION

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

Signature:  Date: November 18, 2022

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

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DEDICATION

I dedicate this research work to my mother for always encouraging me to continue pursuing my academics goals, I will forever remain indebted to you.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CBK	Central Bank of Kenya
CIP	Consumer Price Index
COVD-19	Corona Virus Disease of 2019
FTSE	Financial Times Stock Exchange
GDP	Gross Domestic Product
NASI	Nairobi All Share Index
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and Development
USA	United states of America
VIF	Variance Inflation Factor

ABSTRACT

Stock market performance has become an essential part of any country's economy and a strong indicator of general economic performance. The stock market growth is directly related to the economy which consists of various fundamental macroeconomic variables. The Kenyan stock market has been performing poorly in the recent years with the macroeconomic environment being very volatile. This study wanted to examine effect of macro-economic variables on stock market performance in Kenya. Descriptive research design was applied in this study. Quarterly secondary data was collected for 15 years (2006-2020). Data for Money Supply (M3) was obtained from the Central Banks, gross domestic product (GDP) from International Momentary Fund (IMF) and inflation from Kenya National Bureau of Statistics website. Data analysis was done using correlation and multiple linear regression with model significance done via F-statistics. From the descriptive statistics, the stock market performance as measured by NSE 20 share index averaged at 3792.8; GDP at 5.014%; quarterly interest rates at 14.67%; inflation at 7.4050%; and money supply at 2135.6. From the regression, GDP had an inconsequential effect; interest rate had a substantial favourable effect; inflation had an inverse effect; while money supply had an inverse effect on stock market performance. The study concludes that GDP had an inconsequential effect stock market performance in Kenya. The study also concludes that interest rate has a favourable effect stock market performance in Kenya. However, it concludes that inflation and money supply have an inverse effect on stock market performance in Kenya. The study recommends that the Kenyan government come up with monetary policies that would reduce the levels of inflation and money supply within the country. The study also recommends that the government comes up with policies that would increase the interest rates for improved stock market performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Trade in stock exchange is increasingly becoming a major player in economic development globally (Osoro, 2013). Major economic sectors access long term capital from the stock market platform therefore, critically the market supports the development and health of an economy (Craigwell & Grandbois, 1999). Due to the natural ties that the equity markets have to certain domestic economic factors, flaws in the macroeconomic setting, and bad policy formulation and execution, even if in a particular developing economy, could spread to other countries in today's globalized economy. It is generally understood that economic growth is partly influenced by macroeconomic factors like money supply, GDP, inflation and exchange rate (Aurangzeb, 2012). In the same vein, these factors have been discovered to play essential part in performance of stock markets given that movements in the stock market are influenced by economic fundamentals over time.

The survey considered some theories relevant to stock market performance which include Efficient Market theory, Arbitrage Pricing Theory (APT) and Transaction costs theory. Efficient Market theory as advanced by Fama in 1970 postulates that the market is rational and provides correct pricing as share prices reflect all available information including private information and making extra money using the existing knowledge is challenging. The Arbitrage Pricing Theory developed by Ross 1976 assumes that asset prices are shaped by numerous macroeconomic variables some of which factors make returns of security to deviate from expectation and that arbitrage process is possible. Trading Costs Theory advanced by Williamson in 1979 posits that transactions are organized in modes that minimize transaction costs, optimum organizational structures being the one that achieves economic efficiency by minimizing the costs of exchange.

The performance of Nairobi Stock Market for the last 15 years' period under study experienced fluctuations. In the year 2015 value of listed companies shrunk by 10% that is about Kshs.250 Billion (Dyer & Blair Investment Bank, 2016). The stock market shrunk further to Kshs. 259 billion in 2016. In 2019 the stock value appreciated by 43% representing Kshs.650 Billion. The Nairobi All Share Index (NASI) swayed from 92 points in year 2008 to 65 and 92 points in year 2009 and 2010 correspondingly (NSE, 2010). The year 2011 and 2012 the index declined further to 83 and 82 respectively, rising in year 2013 to 122, 166 in year 2014 before declining to 156 and 140 points in year 2014 and 2015 respectively (NSE,2017). The Nairobi Securities Exchange 20 Share index experienced a 29.6% decline from 2,654 points in 2019 to 1,868 points in 2020 whereas NASI declined from 166.41 in 2019 to 152.11 in 2020 being a decline by 8.59%.

1.1.1 Macroeconomic Variables

Macroeconomic variables are measures put in place by the Government in order to alleviate any adverse economic variations that maybe brought about by issues like inflation, unemployment and fall in value of the local currency in a country and end as monetary and fiscal policies put in place by a government in order to regulate the economy (Kitati, Evusa and Maithya,2014). The World Bank (2012) World development indicators report, indicated that a macroeconomic element is one that is important to a wide-ranging economy at the country or nationwide level and touches a great resident of a country like inflation, GDP and unemployment among others. They greatly influence the economic growth signaling the current trends in the country. Macroeconomic factors are part of the systematic risks which shape the entire market and are inherent in all securities in specific markets (Granger, Yang and Huang,

2000). The factors the study will focus on include inflation, Gross Domestic Product, interest rate and money supply.

Inflation relates to persistent increase in prices of goods and services. It influences the economy both favorably and inversely. The decrease in actual worth of currency and other monetary variables over a period of time is an inverse effect of inflation. Zhang (2013), many investors are usually active in a favourable manner towards low demand level but with increased demand-pull inflation, the economy streamlines resulting into an adverse value of the stock. Uwubanmwen and Eghosa (2015) reviewed possible influence of inflation on stock performance in Nigeria where a weak and inverse linkage was discovered hence concluding that inflation rate is not a strong predictor of stock performance. It is measured using the consumer price index (CPI) which is weighted average of prices of consumer goods and services purchased by households.

The overall sum of cash in use or in existence in an economy is referred to as the "money supply." The monetary base M1 and M2 are two of common gauges of the money supply. The total amount of money in use including reserves is referred to as the monetary basis. Regulating overall money supply has an influence on discretionary income, which has an influence on share prices and projected returns, according to Kirui et al. (2014). Osamwonyi and Evbayiro-Osagie (2012) discovered that stock market index was shaped substantially by money supply hence money is an important macroeconomic variable that influence on stock returns.

International Monetary Fund (IMF) describes GDP as the value of final goods and services in an economy measured in monetary terms. GDP is most utilized indicator of economic

growth with the level of GDP shaping profitability of firms. Since it is generally accepted that a state's financial performance influences corporate activity there, it follows that organizational value and share prices are also influenced by such a nation's economic health. Therefore, GDP could have an influence on securities market volatility and share prices. Aziz and Ibrahim (2003) held that rise in GDP will influence share prices through its effect on corporate profit. The GDP rate influences a company's profits, and thus any increase in economic production could raise predicted future profits and drive up share values (Kirui et al., 2014). In this survey it was checked via natural logarithm of real GDP.

Interest rate is compensation to an individual or organization for parting with liquidity for specified period of time (Keynes,1936). While interest rates play an important role in an economy, financial markets are shaped when variations in interest rates occur as they influence investor's decision making towards investment construction from fixed income securities leading to a decrease in prices of stock. The extant literature intimates link around rate of interest rate and economic activities which influences share prices (Sellin, 2001). Ideally, higher economic activities mean increased cash flow that pushes share prices up. The share price is only attractive when its monetary value is high. Bernanke and Kuttner (2005), the value of stock is influenced by money supply through changes in interest rate. This is because when interest rates increase their follows an equivalent raise in discount rate which results into undesirable influence on securities price making securities prices sensitive to interest rate changes hence influence security market overall performance.

1.1.2 Stock Market Performance

Stock market performance serves as a gauge of health of marketplace in general or that of particular share and alerts traders to potential prospective swings. According to Heiko (2004),

performance on stock market is basically the capability that a securities market exchange has to achieve largest value output from a given set of inputs. In other words, when a company that is involved in the securities trade realizes higher returns in relation to its initial outlays then the market is performing well. According to Robert (2004), securities exchange market performance depends on actions taken by the company to generate opportunities. Therefore, performance in this context should measure those actions that are taken to date and future expectations (Fischer & Merton, 1984).

Investors have access to stock exchange where they can exchange futures, debt instruments, and stocks. In just about all nations, the marketplace serves as a vital conduit for the inflow of foreign stock funds, tying a country towards the globalized trade (Tursoy, Gunsel & Rjoub,2008). Taking into account price changes or the convenience of trading for liquidity available in capital markets, traders evaluate the equity markets. When stock markets are active on upward trends that is share prices and the index movements show favourable trend stock market performance is said to be bullish, investors' confidence in the market rises and are willing to participate in the market while when prices are falling performance is said to be bullish with investor confidence dropping. Stock market performance acts as gauge of whole economy.

By combining all of the firms' equity markets success, that is determined by computing the overall dividends to stockholders, stocks marketplace achievement may be calculated (Dobbs and Koller,2005). Simiyu, (1992) explains that there are several measures of the performance of equity market among them include stock turnover, stock market capitalization and indexing of stock market. Stock market indexing determines the total returns for the total market aggregate where individual portfolio performance is judged by the computed returns. It

uses average indices like FTSE, NYSE and 10 S & Poor. According to Ologunde, Elumilade, and Asaolu (2006), the index that shows the returns on capital received at a specific time serves as an indicator of stock market performance.

1.1.3 Macro-Economic Variables and Stock Market Performance

Macroeconomic factors, which interplay with one another in an extremely sophisticated way and shape stock market performance in a wide range of extremely linked ways, make it challenging to pinpoint the driving forces behind the price index. Considering the significance of macroeconomic factors in shaping corporate earnings and total riskiness, the connection involving macroeconomic factors and the stock market is alluring. The concept of arbitrage pricing offers crucial theories that demonstrate the mechanism by which the behaviour of macroeconomic factors influences share values. The share prices or returns will be shaped by any anticipated or unanticipated arrival of new information regarding inflation, GDP, interest rates and exchange rate among others.

Past studies so far have discovered varying influence and linkage around macroeconomic variables and stock performance. Karitie (2010) discovered that share prices movement is related directly to some fundamentals such as government actions, performance of companies and movement in key macroeconomic factors. Lu, Metin and Argac (2001) discovered that share prices are interrelated with the disparities in the macroeconomic situation in the advanced countries with stock returns being commonly determined by the major macroeconomic dynamics like inflation, interest rates, exchange rate, GDP and money supply. The stock market plays a critical role in the economy with investors investment choices being highly swayed by prevailing macroeconomics (Osamwonyi & Evbayiro 2012).

1.1.4 Macro-Economic Variables and Stock Market Performance in Kenya

The Kenyan economy is projected to have slowed down to approximately 0.6% in 2020 from a growth of 5.4 percent in 2019 which has consequently shaped the performance of NSE (NSE,2020). The Central Bank of Kenya has been rolling out monetary policy measures to support economic recovery. In April 2020 the CBK cut central Bank rate by 25% to 7% lowest point from 2011. Inflation stood at 4.8% in October 2020 compared to 6.3% in October 2019 while commercial banks' lending rate declined to 11.9% in October 2020 from 12.4% in October 2019 reflecting largely the influence of the accommodative monetary policy implemented by CBK. Tax relief measures were also implemented on fiscal front to aid in economic recovery.

The Nairobi Securities Exchange's (NSE) stock values are influenced by macroeconomic factors, and like other developing marketplaces with varying degrees of strength, it NSE responds to announcements about macroeconomic data (Ndung'u 2014). Money supply valuation aids policy makers and analysts to frame policies or amend the existing policies in regards to increasing or reducing the supply of money (OECD, 2014). The CBK regulates the supply and demand of money in circulation in the Kenyan economy.

The main indices at the Nairobi Securities Exchange are NSE 20-Share index, Nairobi All Share Index (NASI) and FTSE NSE indices. The Index (NSE20) introduced in 1964 is a representative of NSEs top 20 stock share prices geometric mean used for equities traded in NSE as long-standing benchmark index. In February 2006, as a substitute index, NSE All Share Index was created. incorporating all daily traded shares with aim of reflecting total value of the market for all stocks traded its measure being an overall indictor of overall performance. The NSE share index declined by 20%around September 2019 and September 2020 while market

capitalization over the same period declined by 2%. In the year 2020 the NSE 20 index declined to 1,868 points from 2,654 points in 2019 being a decline of 29.6% while the NASI declined from 166.41 in 2019 to 152.11 points in 2020 being 8.59% decline.

1.2 Research Problem

Stock market performance has become an essential part of any country's economy and a strong indicator of general economic performance. The way to measure the performance of a market over time is through the stock market index which the investors use as a benchmark to comparing overall returns to the yield of the marketplace. The consistent growth or rising of the index is a sign of a growing economy while higher fluctuations or fall in the index and share prices signals instability in the economy of a country (Aduda, Masali and Onsongo, 2012). The economic system, that comprises of several essential tenets like GDP, interest rates, and inflation, primarily shapes the stocks industry's development. Every country's economic foundation is made up of such factors, and variations in those factors as well as anticipation for their prospective aspirations have an influence on share pricing. Investors generally concur on many macroeconomic factors are related to stocks turbulence, although many might possess diverse opinions and aspirations regarding the magnitude and nature underlying the connection (Lee and Rui,2002).

The NSE reacts to information on changes in macroeconomic indicators. The NSE 20 share index as well as NASI has exhibited volatility and fluctuations over the years. In the year 2010 basis points experienced a 40% increase to 4,257 from 3,027 the previous year. It declined by about 12% to 3,751 in the subsequent year and 3,735 in 2012. The year 2013 experienced an improvement by 28 percent to touch 4,788 with a peripheral increment to 5,017 basis point in 2014 (NSE,2015). The performance of the NSE in year 2015 declined leading to a reduction in

the basis point to 4,618. These fluctuations of the NSE share index makes the market unable to provide a stable and a predictable pattern hence posing great concerns to investors as they are fail to foresee or project projected results with any degree of accuracy (Kitati, Evusa and Maithya, 2015). Investors must comprehend the way macroeconomic factors, which have been elements of structural risks, connect to equity markets success in order to be able to adjust to potential anticipated adjustments because these couldn't get hedged off (Erdugan,2012).

Contradictory outcomes are supported by empirical data regarding the variables influencing stock performance. In their 2008 study, Liu and Shrestha constructed a cointegration linkages involving share pricing and macroeconomic variables, finding that over the long run, the macroeconomic performance of the stock market was favorably correlated. According to Nguyen (2016), there is a bad correlation amongst interest's rates and share pricing. Khalid (2017) looked analyzed the long- and short-term linkages across interest rates and share prices and discovered a favorable long-term association across the two. No correlation across macroeconomic variables and stock markets performances was discovered by Kazi (2004). The research shows conflicting results about the directions and link around those characteristics and stock performances. Certain investigations identified a favorable connection, certain a detrimental interaction, while others discovered no substantial affiliation, presenting an existing gap with a solid discoveredation. Reviewed studies were based on different economic set up where the stock markets are well discovered and therefore necessitating a local research using local data.

Ndege (2012), Owiti (2012) and Aduda et al (2012) in their separate studies concurred that macroeconomic variables can lead to a favourable or a detrimental link with stock market performance. Ouma and Muriu (2014) indicated stock market was shaped by variations in

inflation, money supply and exchange rate with money supply and inflation being a main cause of drop in the earnings at NSE while exchange rate displayed an adverse bearing on stock market return. Barasa (2014) and Talla (2013) concluded main macroeconomic variables relating to inflation rate, GDP and exchange rate influenced stock market returns. Some studies have similar as well as opposite outcomes and differ from economy to economy hence inconsistent. The reserach wanted to answer the question; what's effect of macro-economic variables on stock market performance in Kenya?

1.3 Objective of the Study

To examine effect of macro-economic variables on stock market performance in Kenya

1.4 Value of the Study

Stock markets are increasingly becoming an integral part in today's economy and performance of the stock in the market is a major interest to different stakeholders. Given the increasing importance of stock markets in today's economy, the results of the study are expected to benefit various parties among them Government and other policy makers.

The policy makers and regulatory authorities will find the results useful in policy formulation and implementation geared towards alleviating adverse influences of macroeconomic environment on share price and stock market performance. The government will be interested in the outcomes since stock market performance has a huge implication on investments and the overall economic development. Investors will use results to come up with better informed investment decisions and strategies that will enhance their overall investment performance. Firm managers should work towards enhancing firm value in the market, the outcomes will be useful as they need to pay attention to variables which impacts prices as they disseminate

knowledge towards the public concerning past, present, and projected performance of businesses. Scholars would consult the survey's findings and gain a deeper understanding of how macroeconomic factors affect stocks markets performances. The scholarly works backs the literature on dynamic linkages around macroeconomic indicators and stock markets within a multivariate framework context in an emerging market.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This part of the paper reviewed studies and research outcomes in relation to title. The section displayed theories, determinants of stock market performance, studies analyzing the outcomes of various researchers on topic of study, the conceptual framework presenting the linkage around the study variables and a summarization of review.

2.2 Theoretical Framework

A Theoretical framework provides an explanation about the phenomenon being explored in a study and by doing so allows us to see the linkages existing among the facts involved in the study. The theories reviewed in this study included: market efficiency theory, arbitrage pricing theory and trading cost theories.

2.2.1 Efficient Market Theory

This Theory was developed by Fama in 1970 and it wanted to explain the extent at which prices of the market reflect relevant information. Ideally, the market is said to be rational when prices of the assets reflect information available. Moreover, markets players are presumptively aware of volatile assets payoff on just a consistent basis but this may not be realized given that different participants may have different information and also access different information. Morck, Bernard and Wayne, (2000) explains that informed traders will always start trading when they may benefit greatly from the marketplace by purchasing whenever the share is inexpensive and sells whenever the share is overpriced.

Fama (1970) carried out a series of empirical tests on efficient Market hypothesis making it to be widely adopted. Fama (1970) argues that the market is efficient. Existing share prices, which are in a poor condition, accurately represent every previous data, semi strong form the price reflects both the past and all information in the public domain and strong form the present-day price reflects all information in private and public domain no investor will be capable in using such information to find underpriced stocks. The supporters of the EMH posit that by investing in a low-cost passive portfolio an investor benefits while the opponents believe that stocks can deviate from their fair market value and it is possible to beat the market. Malkiel (2000) highlighted that while it is typical for certain investors to have access to crucial info that isn't accessible to every investor, the idea of an efficient capital market is only a notion and might not remain true in practical situations. The Market Efficiency Theory is built upon principles of random walk hypothesis which holds that movement of asset prices follow an unpredictable path (Brealey & Myers, 2000).

In Tanzania, Lihoya (2006) studied the effect of market efficiency on Dar es Salam stock market where he discovered out that trading on listed shares provides an investor with some profit opportunities which indicates that the efficiency of the stock market in price discovery processes is not enhanced and therefore the market is not efficient. The EMT's contention that shares usually market at the fair valuation on markets, thereby rendering it difficult for traders to buy inexpensive shares or offer equities at exorbitant rates, is refuted by such a data. According to Nguyen, Nhan, and Bach (2013), marketplaces in poor nations generally progressed from being in a weak version to being in a semi-strong one. The theory is helpful in establishing reaction of stocks to changes in macroeconomic variables. The EMT endorsed the article's premise that stock market outcomes mirror changes in the discrepancy around

macroeconomic fundamentals which have implications of share pricing and stock market performance.

2.2.2 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed by Ross (1976) with the premise that in efficient financial markets arbitrage opportunities should not exist. APT assumes that there are 'n' factors that cause returns to vary though it does not stipulate the factors or number of the factors. According to Ross, in order to avoid manipulation, an asset's projected yield should be a linear combination of its susceptibility to a variety of macroeconomic factors. APT capture systematic risk. Payola (2006), APT is an exceptional model that assist in determination of asset prices considering other influences not on market that shape price of securities including macroeconomic factors.

Although the APT couldn't even explicitly state such economic factors, Roll and Ross (1980) discovered that considerations deduced by principal component analysis ought to be basic economic accumulations like interest rate or GNP. They therefore recommended an inquiry of economic factors which are estimate by generated variables mostly in APT. The assumption that the constant term is a risk-free rate of return is one drawback of APT model (Brahmasrene and Jiranyakul,2007). The multivariate regression approach made the assumption that certain elements, such as sector-specific and macroeconomic elements, influence overall stock market's performance (Gatuhi,2015). As per Tripathi & Seth (2015), APT evaluates if investments are valued in line with marketplace yields and analyzes the permissible risk-return based on every risk element individually.

The economic atmosphere has a substantial influence on rates of return to really be garnered on investments, according to Chen, Roll, and Ross (1986), who investigated a set

of macroeconomic factors as a structured influence on share prices and analyzed their influence on asset pricing. They came to the conclusion that anticipated and unforeseen considerations ascertain the return to be received on a resource. APT underscores that marketplace is lucrative sufficiently and that the earnings are indeed the sequential affirmation of a number of distinct considerations. Nevertheless, there is no theoretical basis for the choice of macroeconomic variables, so research authors produce varying outcomes depending on macroeconomic indicators used in the model. There is a necessity to conduct the investigation in emerging nations like Kenya because the interaction involving macroeconomic factors and stock returns has been extensively studied for many countries, primarily rich countries. The theory was pertinent to this investigation because it relates macroeconomic variables to stock market returns and can be used to predict how these factors will shape stock market performance.

2.2.3 Transaction Cost Theory

The Theory is attributed to the work of Williamson (1979) and it is one of the most important organizational theories in the sense that firms that performs well takes into consideration transaction costs (Brouthers & Brouthers, 2007). Williamson (2007), the trading cost theory looks at costs associated with dealing stocks during marketplace turbulence that shapes asset values. This suggests that stockmarket performance is shaped by both production costs and transaction costs, which have a substantial and major influence on performance. Amihud, Pederson and Mendelson (1986) examined the effect of costs associated with transaction on share prices and They demonstrated that transactions expenses might fluctuate over times, leading them to conclusion that equities with wider bid-ask margins were more profitable compared to those with smaller bid spread.

According to Amihud et al. (2005), Costs are a portrayal of the existence of real economy schisms in capital markets, in which marketplaces with elevated expenses of transactions are quite liquid than these already to minimal fees, and stockholders carrying equities for lengthier time frames of time can benefit from insolvency that surpasses the anticipated transactional fees. Based on this theory, the study shows how transaction costs are related to stock performance hence the need for stock markets to effectively manage costs in order to get profit. Williamson TCT, according to Eccles (1987), did not conceptualize the measures of the trading expenses.

According to Jones (1998) Transaction Cost Theory Deems a company as a power structure which enhances worth by saving on transactional fees. Efficiency is conceived as optimal solutions effectiveness, in which governance models are likened based on how well they can support transactions up until a juncture where it becomes unfeasible to start making another group better off without attempting to make other party look bad. The TCT posits that transaction costs should be minimized by a firm for it to perform well however it fails to operationalize the measurements of transaction costs. TCT illustrates reasons businesses might incur higher costs for transactions depending on marketplace since it is discovereded on fundamental assumptions about social behaviour and ecological features (Williamson,1981). The theory was relevant in this study as it shows how stock performance is linked to transaction costs and other changes in the environment that are not specific to the organization including macroeconomic environment.

2.3 Determinants of Stock Market Performance

Survey considered macroeconomic variables, monetary policies and fiscal policies and their influence on performance of stock market.

2.3.1 Macroeconomic Variables

The bearing of macroeconomic variables on stock market returns is systematic and therefore understanding the linkage around the two is important. According to Chen et al. (1986), cash flows are influenced by economical dynamics, and as a result, macroeconomic variables are included as risks in stock markets. The Arbitrage Pricing Theory postulates that performance of macroeconomic elements can have an influence on performance of financial equities, and suggests that there exist numerous avenues via which the sharemarket could be related to macroeconomic factor. Crowley (2007) primary macroeconomic variables that include interest rate, money supply, inflation, Gross Domestic Product (GDP) and exchange rate influence financial performance.

According to Fama (1981), by putting forth a surrogate assumption, it's indeed possible to describe the unusual adverse correlations involving hyperinflation and actual share prices. According to Ram and Spencer (1983), there is proof that hyperinflation and output growth are highly linked. There is empirical support for long-run linear linkage around macroeconomic variables and stock markets.

2.3.2 Monetary Policies

Among the main ways that policy makers frequently shape the speed and course of commercial activities in a market system includes the amount of overall production and jobs as well as the average rate at which pricing grow and decrease (Friedman, 2000). The basic goal of monetary policy is really to preserve overall pricing equilibrium, which entails preventing both hyperinflation and deflationary and fostering optimum amounts of production and jobs. Through specialized agencies like Central Bank governments carry out monetary policies. The

instruments of monetary policy include interest rate, bank reserve requirements and open market operations among others. The innovations in monetary policy through several channels greatly shape stock market performance while share prices reflect economic developments and thus should be considered by monetary authorities in conducting policy decision.

The equity market productivity not only reacts to monetary policies and influences the economy, but further offers responses to core banking institutions regarding private industry preconceptions about prospective course of major macroeconomic variables. Monetary policy shapes the real economy via financial instruments or share price (Mishkin,2001). Monetary policy can be classified broadly into contractionary and expansionary which might have bilateral influences. According to Ioannidis and Kontonikas (2007) changes in monetary policy influenced stock market returns their outcomes substantially supporting the credence that monetary policy mechanism works through the stock. Through expansionary monetary policy the government engages in open market operations creating excess liquidity which result in lower interest rates leading to lower required rate of return hence higher share prices and vice-versa. Money supply decrease might result in lower inflation leading to lower required rate of return hence higher share prices and vice-versa.

2.3.3 Fiscal Polices

A few of very main ways governments modifies its taxation and expenditure policies to track and shape a nation 's gdp is via fiscal policy and preserve its general stability and development. Due to its significance in determining economic growth, fiscal policy has a considerable influence on monetary policy. Interest rates, interest rate spreads, and exchange rates are only a few of the economic factors that fiscal policy shapes. If fiscal policy predominates, monetary policy may eventually turn submissive to fiscal policy.

According to Tanzi and Zee (1997) there are three candidate indicators of fiscal policy which include taxes, government expenditures and deficits. The empirical evidence on linkage around fiscal policy and stock markets performance is rather limited. Darrat (1998) discovered out that an inverse effect on current share prices which is substantially highly is exerted by fiscal deficit. A surge in equity exchange values is tied to fiscal changes focused on expenditures cutbacks (Ardagna, 2009).

2.4 Empirical Review

The study explores the numerous empirical literature to institute the existing linkage around the macroeconomic variables and stock market performance in Kenya and beyond. A study by Maku and Atanda (2010) investigated the linkage around macroeconomic variables and performance of stock market in Nigeria. Using ADF (Augmented Dickey Fuller) unit root data was analyzed for period 1984 to 2007 which indicated that Nigeria Stock Exchange was slightly sensitive to fluctuations in the real output, rate of inflation, money supply and rate of exchange. The macroeconomic variables were discovered to possess minor influences on performance of stock market in Nigeria.

Amtiran, Indiastuti, Nidar and Masyita (2017) studied the linkage around macroeconomic variables and stock returns in the Indonesian Capital Market using purposive sampling technique with a total sample of 80 corporations in Indonesian stock exchange market for period 2007 to 2014. Data was analyzed using OLS regression technique and result displayed that interest rate and exchange rate possess favourable linkage with stock returns while inflation has an inverse linkage with stock returns.

Kotha and Sahu (2016) studied the long-term and short-term linkage around macroeconomic variables and Indian Stock market. Utilizing Johansen's co-integration analysis and Granger - causality test and employing monthly data from 2001 to 2015 the study discovered that three of the four factors (WPI, money supply and T-bill rate) were relatively more considerable in long run link while exchange rate was in the short run. The stock returns indicated a favourable considerable linkage with inflation and money supply while interest rate displayed an inverse inconsequential linkage.

Talla (2013) scrutinized effect of macroeconomic factors had on equities prices from 1993 to 2012. According to the investigation, money supply displayed a small but considerable favorable connection with share prices, whereas interest rates had a small but significant unfavorable connection with share prices. With the exclusion of hyperinflation, that displayed a bidirectional connectivity, the Granger causality analysis discovered no bidirectional linkage across share values and any of the macroeconomic factors.

Osamwonyi and Evbayiro-Osagie (2012) examined correlation around macroeconomic variables and Nigeria Capital Market index. Researcher utilized Vector Error Correction Model to explore data from 1975 to 2005 as it wanted to establish the short run and long run correlation around stock market index and particular macroeconomic variables (GDP, inflation, interest rate, money supply, exchange rate and fiscal deficit). An effect on stock market index exited from the macroeconomic environment.

Ouma and Muriu (2014) examined influence of macroeconomic factors on stock returns. The study used the Arbitrage Pricing Theory and Capital Asset Pricing Model (CAPM) and secondary monthly data for period 2003 to 2013. The study discovered there exists a

considerable linkage around stock market returns and macroeconomic indicators. Exchange rates was discovered to possess an inverse influence on stock returns and interest rate was discovered not to be essential in determining long run returns.

Ochieng and Adhiambo (2012) examined linkage around macroeconomic variables and NSE All share index (NASI). Regression model was used to analyze secondary data from 2008 to 2012. The indicators were lending rate, 91day Treasury bill rate and inflation rate however lending rate was removed from the regression model as it is correlated to 91-day treasury bill rate. Inflation was discovered to have a weak favourable linkage with NASI while 91-day T-bill had an inverse linkage.

Barasa (2014) investigated macroeconomic determinants of stock market performance at NSE using regression model and annual secondary data for the period 2000-2013.The study discovered a weak favourable linkage around stock market performance and selected macroeconomic variables which included inflation, GDP per capita and money supply. An inconsequential inverse linkage was discovered around inflation and stock market performance while money supply and GDP per capita had a favourable but weak inconsequential linkage with stock market performance.

Ndegwa (2016) investigated the effect of macroeconomic variables on stock market returns at NSE. The paper utilized regression model and monthly secondary data of 2011 to 2016 and through data analysis it was discovered that macroeconomic variables possessed a weak favourable influences on stock market returns. The effect was varying on selected macroeconomic variables which included money supply, exchange rate and CBK rate. Money supply possessed a favourable effect on stock returns, exchange rate possessed an inverse

influence on stock returns while CBK lending rate had a weak favourable effect on stock returns.

Sangole (2012) investigated linkage around selected macroeconomic variables and stock return at NSE. Using multiple regression model and employing data from 2003 to 2011 the study discovered a strong favourable linkage around macroeconomic variables and stock returns at the NSE. The selected macro-economic variables included money market interest rate, foreign exchange, consumer price index and industrial production index where out of the four variables money market interest rates was superior in explaining the stock at the NSE.

2.5 Conceptual Framework

Kothari (2004) postulates a conceptual framework as a structure that gives the possible linkage in a study. The study wanted to establish the linkage around the dependent variable and how it was shaped by other variables that is the independent variables. The possible linkage in the study was summarized in figure below where interest rate, inflation, money supply and GDP are deemed to influence performance of stock market.

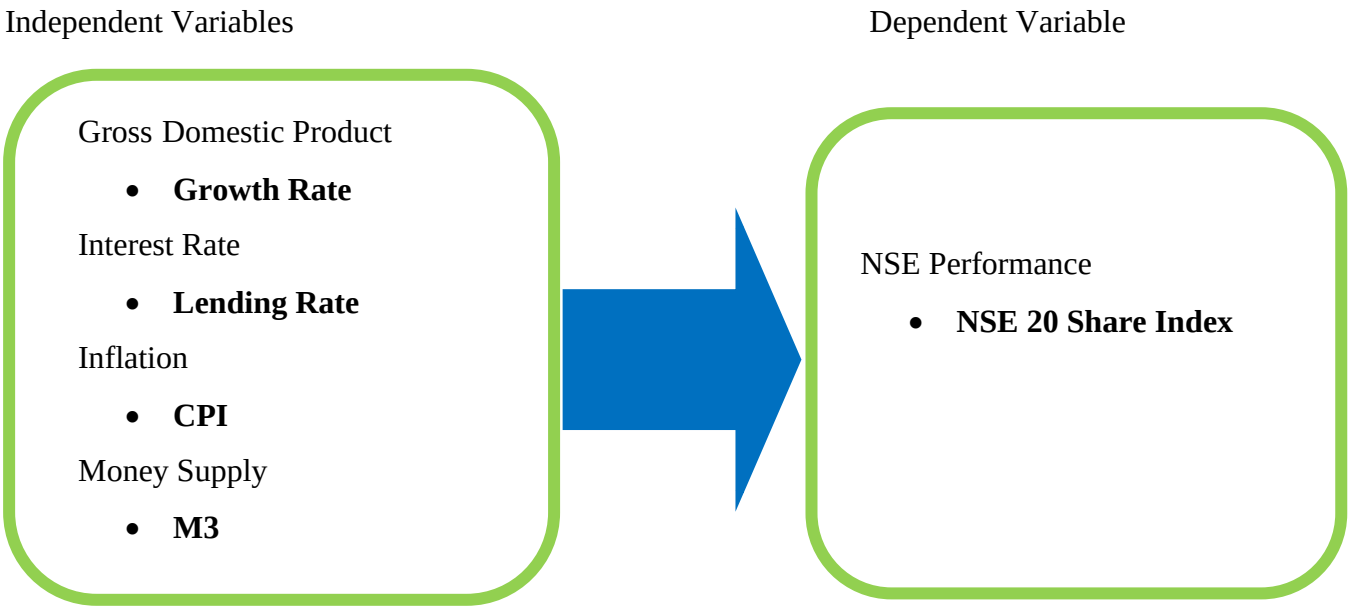

Figure 2. 1: Conceptual Model

2.6 Summary of Literature Review

In summary, the theories related to the study variables reviewed were; market efficiency theory, arbitrage pricing theory and trading cost theory. They helped in shedding light on stock markets dynamics and how the market is shaped by the variables under consideration. The review also looked at the various studies both locally and internationally to appreciate their work in relation to the current study culminating into a conceptual framework that shows the linkage. Overall, it is observed that the stock market has attracted a lot of interest because of the increasing significance in the stock markets across the world. The authors displayed varied outcomes in their investigations around macroeconomic indicators and stock market performance hence necessitating a research to investigate effect of macroeconomic variables on stock market performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research strategy that served as the study's roadmap was described in this chapter. The chapter provided instructions on how to get secondary data needed for the investigation. The researching design, population, data collection techniques, data analytics procedures were explained in this stage.

3.2 Research Design

Research design entails collection, measurement and examination of data (Mugenda & Mugenda, 2013). For this investigation it entailed a design that was descriptive in nature as applied for the investigation. Numeric data must be collected for descriptive research, whereas numerical methods must be used for analysis. As of Groves (2004) descriptive technique provides correct information of persons, events or situations

3.3 Data Collection

Flick (2009) states that the process of collecting information from the field constitutes the data collection. On factors including the money supply, inflation, and real gdp, secondary statistics were gathered. Data for Money Supply (M3) was obtained from the Central Banks, Kenyan GDP growth rate from International Momentary Fund (IMF) website while data on Consumer Price Index (CPI) was gotten from KNBS. Quarterly secondary data was obtained from a 15 years timeframe (2006-2020).

3.4 Diagnostic Tests

This study conducted various tests to determine if it is appropriate for regression and achieve the research objective. Normality test and Multicollinearity tests were conducted.

3.4.1 Normality Test

Normality tested via Shapiro-Wilk to test if data collected was normally distributed. The sig was utilized in determining significance of the correlations. The data were regularly dispersed if a Shapiro-Wilk significant level were larger than 0.05, and significantly different from normal distributions when it was less than 0.05.

3.4.2 Test for Multicollinearity

Neelam (2012) defines Multicollinearity as the presence of linear connectivity across certain of the equation's parameters. Variables being lagged values of others or sharing a common trend can cause Multicollinearity (Kennedy,2003). Multicollinearity has effect of inflating coefficients of related variables. When closely linked variable are removed from the model, VIF were utilized to discover the presence of collinearity at a 95 % confidence level.

3.5 Data Analysis

Babin, Zikmund, Carr and Griffin (2010), describes data analysis as the application of analytical knowledge in order to understand the patterns and trends provided by the data. Data analysis entails putting together the relevant details collected from the field in a systematic manner. According to Mugenda (2013), collected data should be cleaned, apply coding and subsequently apply proper analysis to reach credible outcomes. The statistical program for social studies (SPSS) version 23 was adopted in the analysis of dataset employing

multiple linear regression and correlational analytics. While multiple regressions were utilized to ascertain kind and strength of connection surrounding the research factors, Pearson correlations were used to ascertain the relationship between variables.

3.5.1 Analytical Research Model

A model was adopted to predict the correlation existing in the study variables. The researcher adopted this method because it has also been successfully used in similar studies including Osoro, (2013). The multiple regression analysis was based on following model:

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

Where:

Y = Stock market performance, gauged via quarterly Nairobi Securities Market 20 Share Index

X1 = Inflation rate indicated by quarterly percentage consumer price index

X2 = Money Supply gauged using quarterly broad money monetary base (M3)

X3 = GDP, measured as quarterly percentage GDP growth rate

X4 = Interest rate, gauged as quarterly lending rate

β = Coefficient of the various independent variables

ε= Normally distributed Error Term

Table 3. 1 Measurement of Variables

Variable	Variable Type	Measurement	Source
Stock Market Performance	Dependent	NSE 20 Share Index	Muchiri (2012)
GDP	Independent	percentage growth rate, change in total economic activity	Olweny & Kimani (2011)
Interest Rate	Independent	Average lending rate	Ochieng & Adhiambo (2012) Uddin & Alam (2007)

			Nwokoma (2002) Arango, Gonzalez, & Posada, (2002)
Inflation	Independent	Consumer price index (CPI) percentage changes	Baekaert & Engstrom (2009) Ugur & Ramazan, (2005) Turkey, Crosby & June, (2001) Floros (2004)
Money Supply	Independent	Monetary base, M3	Shrestha & Subedi (2014)

3.5.2 Tests of Significance

Researcher wanted to establish effect of macroeconomic variables on stock market performance in Kenya. The researcher adopted F-tests to establish significance.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

According to investigation's purpose and the parameters utilized in the investigation, all data are presented in this portion of this investigation. The chapter further shows and discusses analysis's outcomes. The goal of investigation was to investigate the impact of macroeconomic factors on Kenya's stock market performance. Depending on available descriptive, correlational, and regression statistics included in this investigation, statistical assessment were carried out. After a discussion of the survey findings and the results of the equation, the chapter will be brought to a conclusion.

4.2 Descriptive Statistics

This subsection details how much data were actually obtained against the amount that was expected to just be gathered. In order to provide additional information on a number of the data's major qualities, the investigation additionally attempted to analyze the data using descriptive statistics. Based on survey's goal and parameters, the data were summarized. There was 100% data collection for the parameters which ensured data adequacy.

Table 4. 1 Response Rate Table

Variable	NSE 20 Share Index	GDP	Interest Rate	Inflation	Money Supply
Data Collected	64	64	64	64	64
Unavailable data	0	0	0	0	0
Total	64	64	64	64	64
Response Rate (%)	100%	100%	100%	100%	100%

From summarized statistics, money supply varied mostly followed by the NSE Share index then inflation, GDP and interest rate respectively. The stock market performance as a measured by NSE 20 share index averaged at 3792.8 for the quarterly period of study. The index displayed a standard deviation of 1061.1 with least quarterly index being 1846.41 and a largest value of 5645.65 for the period indicating low variation in the index. The GDP had a mean of 5.014% for the period of study. It was also discovered that the quarterly GDP had stad. Dev. of 2.45% with a least of -5.70% and a largest value of 11.90%.

The quarterly interest rates displayed an average of 14.67%. Within the period interest rates had a standard deviation of 2.19% with a least interest rate of 11.88% and a largest value of 20.21%. This shows that interest rates fluctuated not that much within the study period. Inflation, nevertheless, displayed 7.41% as averaged figure, Sd=3.66%. Inflation averaged at 7% within the research period. The least inflation within the period was 3.56% with a largest value of 18.14% indicating that the inflation rates did not differ much across the period. Money supply displayed a mean figure of 2135.61 million shillings and SD of 1128.59 million shillings. Least money supply within the period was 569.6 million shillings with a largest value of 4226.713 million shillings. This shows that the money supply did not vary much within the period.

Table 4. 2 Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Stock Market Performance	64	1846.41	5645.65	3792.84	1061.13
GDP	64	-5.70	11.90	5.014	2.45
Interest Rate	64	11.88	20.21	14.67	2.19
Inflation	64	3.56	18.14	7.41	3.66
Money Supply	64	569.60	4226.71	2135.61	1128.59

4.3 Diagnostic Tests

4.3.1 Normality Test

Normality test was done to test if dataset was normally distributed. Normality test of the variable was undertaken via Shapiro-Wilk stats.

Table 4. 3 Normality Test

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Stock Market Performance	.910	64	.000
GDP	.863	64	.000
Interest Rate	.911	64	.000
Inflation	.758	64	.000
Money Supply	.928	64	.001

The indicators' significant scores for normalcy, as determined by Shapiro-Wilk check, were just under 5%. As a result, it is presumed that dataset for indicators isn't really normally distributed thus hypothesis is rejected that dataset is normally distributed is rejected.

4.3.2 Multicollinearity Test

Multicollinearity testing was carried out utilizing VIF to see if these predictors were related to one another. The test was to guide in elimination of variables that would be discovered to relate to each other. The significance level of 5% checked via variance inflation factor (VIF) was used for the study. The variables were determined not to be shaped by multicollinearity as the values of VIF obtained were all below 5.

Table 4. 4 Multicollinearity Test

Variable	Collinearity Statistics	
	Tolerance	VIF
GDP	.918	1.089
Interest Rate	.848	1.179
Inflation	.738	1.354
Money Supply	.902	1.109
Mean VIF		1.183

4.4 Correlation Analysis

From the survey outcomes, GDP was discovered to be inversely correlated with all variables except the interest rate and indicated correlations coefficient of 0.225 and a significance of 0.074. This shows that GDP possessed positive linkage with stock market performance. Nevertheless, interests rate was favourably and inversely correlated with inflation and money supply respectively and displayed a weak, favourable and considerable linkage with stock market performance. This is shown by a coefficient of 0.474 (sig.= 0.00). Inflation displayed a coefficient of 0.042 (sig=0.744). This postulates that inflation rate possess a weak, favourable and inconsequential linkage with stock market performance in Kenya.

Money supply was discovered to be inversely correlated with all the variables and displayed a coefficient of -0.648 (sig. =0.000). This specifies that money supply had an inverse and considerable linkage with stock market performance in Kenya. The test shows that most of the variables under study shape stock market performance favourably and shape each other inversely with the highest absolute correlation being around money supply and stock market performance while lowest was in money supply and GDP.

Table 4. 5 Correlation Analysis

Variable		Stock Market Performance	GDP	Interest Rate	Inflation	Money Supply
Stock Market Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	64				
GDP	Pearson Correlation	.225	1			
	Sig. (2-tailed)	.074				
	N	64	64			
Interest Rate	Pearson Correlation	.474**	.041	1		
	Sig. (2-tailed)	.000	.747			
	N	64	64	64		
Inflation	Pearson Correlation	.042	-.238	.366	1	
	Sig. (2-tailed)	.744	.059	.093		
	N	64	64	64	64	
Money Supply	Pearson Correlation	-.648**	-.011	-.144	-.301	1
	Sig. (2-tailed)	.000	.932	.257	.086	
	N	64	64	64	64	64

4.5 Regression Analysis

From the model summary, the predictor variables (money supply, GDP, interest rate and inflation) had a correlation(R) of 0.823. This illustrates that predictors possessed a strong linkage with stock market performance. R square was 0.678 indicating 67.8% contribution to stock market performance. This illustrates that money supply, GDP, interest rate and inflation are main aspects prompting performance of stock market in Kenya.

Table 4. 6 Model Summary Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823[a]	.678	.656	.18465

a. Predictors: (Constant), Money Supply, GDP, Interest Rate, Inflation

b. Dependent Variable: Stock Market Performance

Via the use of F-statistics provided by an ANOVA, the model's significance too was examined. The goal of the investigation was to determine the significance of the regression model and its applicability to data. The F-statistics from ANOVA table showed a significance value of 0.000, that was lower under 0.05. This demonstrates that regression model adequately describes the dataset and the predictors have a large impact on overall performance of Kenyan stock market.

Table 4. 7 Analysis of Variance (ANOVA)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.235	4	1.059	31.054	.000[b]
	Residual	2.012	59	.034		
	Total	6.247	63			

a. Dependent Variable: Stock Market Performance

b. Predictors: (Constant), Money Supply, GDP, Interest Rate, Inflation

With constancy around GDP, interest rate, inflation and money supply, performance of stock market was 12.264. Outcomes also displayed that an increase in GDP would not substantially increase performance stock market (B=0.016; Sig.=0.112). On other hand, interest rate had a regression coefficient of 0.070 and considerable value of 0.000. This is an indication that a unitary increment in interest rate would increase performance of stock market substantially by 0.070. However, a unitary increase in inflation would decrease performance of stock market substantially by regression coefficients of 0.026 with a significance of 0.001. Further, a unitary increment in money supply reduce performance by 0.346 with a significance of 0.000. Outcomes indicated that all the macroeconomic variables except GDP had a considerable effect on performance of stock market in Kenya.

Table 4. 8 Regression Coefficients

Coefficients[a]						
Model		Unstandardized		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.264	.625		19.623	.000
	GDP	.016	.010	.124	1.614	.112
	Interest Rate	.070	.012	.485	6.043	.000
	Inflation	-.026	.007	-.308	-3.578	.001
	Money Supply	-.346	.040	-.669	-8.598	.000

a. Dependent Variable: Stock Market Performance

4.6 Discussions of Research Outcomes

The survey wanted to establish effect of macro-economic variables on stock market performance in Kenya. The survey results in respect of GDP, interest rates, inflation, money supply and stock market performance concur and differ with other scholars. The largest

value of stock market performance was 5,645.65 as per the descriptive statistics. On other hand, the regression coefficient analysis indicated that macroeconomic environment constancy would produce stock market performance of 12.264. This finding relate to Arbitrage Pricing concept that indicates share prices are shaped by the unanticipated events in this case the macroeconomic variables. The investigation concurs with the outcomes of Gatuhi (2015) that the multifactor model assumed that macroeconomic aspects guides stock market performance.

The study outcomes approve of Efficient Market hypothesis by showing the way stock market performance responds to news on changes in macroeconomic variables. Outcomes differ with the observations of Lihoya (2006) that trading on listed shares provides an investor with some profit opportunities which indicates that efficiency of stock market in price discovery processes is not enhanced and therefore the market is not efficient but agrees with Nguyen, Nhan and Bach (2013) that in the emerging economies markets have developed past the weak form to semi strong form.

From the outcomes, GDP displayed an inconsequential regression coefficient against performance of stock market. This shows that increased GDP possess no effect on stock market performance indicating that GDP has an inconsequential effect on stock market performance. The outcomes are different from those of Osamwonyi and Evbayiro-Osagie (2012) who discovered that GDP had a considerable effect on stock market performance. They differ with Barasa (2014) who discovered that GDP had a favourable linkage with stock market performance.

The outcomes indicated that interest rate had a considerable favourable regression coefficient. This is an indication that increment in interest rate would increase stock market performance.

This indicates that interest rate possessed a positive consequence on stock market performance. The outcomes concur with Amtiran et al's (2017) interest rate had a favourable linkage with stock market performance. The outcomes differ with those of Kotha and Sahu (2016) and Talla (2013) who discovered that interest rate had an inverse inconsequential correlation with stock market performance.

The study discovered that inflation possessed a considerable inverse regression coefficient with stock market performance showing that an increment in inflation would reduce performance of stock market substantially. Hence, inflation had an inverse effect on stock market performance. The outcomes concur with those of Amtiran et al (2017) who discovered that inflation had an inverse correlation with stock market performance. However, Kotha and Sahu (2016) discovered that inflation had a favourable considerable linkage with stock market performance. Barasa (2014) discovered an inconsequential inverse linkage around inflation and stock market performance.

The outcomes displayed that money supply had a considerable inverse regression coefficient. This shows that increased money supply would reduce stock market performance. This indicates that money supply possessed an inverse influencing on stock market performance. The outcomes differed with Kotha and Sahu (2016); and Ndegwa (2016) who discovered that money supply had a favourable effect on stock market performance. Talla (2013) and Barasa (2014) who revealed an inconsequential effect of money supply on stock market performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the major outcomes of the study and their implications on field of study. It also makes conclusions and recommendations based on outcomes. It gives the limitations as well as outline the areas for further research.

5.2 Summary of Findings

The objective was to establish effect of macroeconomic variables on stock market performance. In an attempt to realize the research objective selected macroeconomic variables that were relevant to the study were considered which included GDP as measured by percentage growth rate, inflation gauged by percentage consumer price index, interest rate measured by average lending rate by commercial banks and money supply gauged via average broad money base (M3).

The study utilized descriptive research design utilizing secondary data spanning a period of 15 years around 20006 and 2020. The dataset was quarterly figures mined from Central Bank (Money supply and interest rate), International Momentary Fund website (GDP growth rate), KNBS website (CPI) and NSE website (NSE 20 Share index). There was 100% data collection which ensured data adequacy for the researcher to conclude on linkage around the variables in the study. From the descriptive statistics, the stock market performance as a gauged by NSE 20 share index averaged at 3792.8 within the study period. The GDP had a mean of 5.014% indicating that the quarterly GDP was low within the period of study. The quarterly interest

rates displayed a mean of 14.67% indicating high lending rates and inflation averaged at 7.41% while money supply displayed a mean of 2135.6 million shillings.

From the regression analysis, money supply, GDP, interest rate and inflation had a strong linkage with performance of stock markets. They caused a 67.8% to change in stock market performance within the period of study indicating that they were the major factors influencing stock market performance. From the ANOVA, predictor variables had a considerable bearing on stock market performance. Regression outcomes displayed that increase in GDP would not substantially increase performance stock market. This was shown by an inconsequential regression coefficient. On other hand, interest rate had a favourable and considerable regression coefficient; inflation had an inverse considerable regression coefficient; while money supply had an inverse regression coefficient.

The regression analysis obtained Correlation of determination (R) of 0.823 which was favourable indicating that the linkage around stock market performance and macroeconomic variables under study was favourable. Correlation Coefficient (R Squared) of 0.678 was above 0.5 indicating that the linkage around the stock market performance and macroeconomic variables was strong. P-Value 0.000 was under 5% indicating predictor variables possessing a considerable effect on performance of stock market in Kenya.

GDP had an inconsequential correlation coefficient indicating a weak, inconsequential linkage with stock markets performance in Kenya. Interests rates displayed weak, favourable and considerable coefficient with stock market performance. Inflation displayed an inconsequential coefficient indicating an inconsequential linkage. Money supply displayed a weak strong

inverse coefficient. This indicates that money supply had a strong inverse linkage with performance.

5.3 Conclusions of The Study

Researcher concludes the selected macroeconomic variables had a strong favourable effect of 82.3% on stock market performance for 2006 to 2020. GDP was discovered to possess weak favourable inconsequential effect on stock market performance. This shows that GDP did not shape the stock market performance. A conclusion is made that GDP has an inconsequential effect on stock market performance in Kenya. Hence, it's not a considerable factor in determination of stock market performance in Kenya. Interest rate had a considerable favourable regression coefficient indicating that interest rate possessed a favourable effect on stock market performance. Interest rate has a favourable effect on stock market performance in Kenya.

It was discovered that inflation had an inverse regression coefficient with stock market performance therefore illustrate that increased inflation would reduce performance of stock market substantially. Hence, a conclusion is made that inflation has an inverse effect on stock market performance in Kenya. The outcomes displayed that money supply had a considerable inverse regression coefficient indicating that increased money supply reduces stock market performance. Therefore, money supply has an inverse effect on stock market performance in Kenya.

5.4 Recommendations

Macroeconomic variables possess a considerable linkage with stock market performance in Kenya. Researcher recommends government come up with polices that would improve the

macroeconomic environment in Kenya. This would enable the stock market to perform better in terms of stock returns. The government should make sure that it implements policies which promote investment at the NSE which will in turn spur economic development in the country and attract more investors leading to higher returns.

The conclusion is that interest rate possess positive effects on stock market performance in Kenya. This means that with increased interest rate the country would experience improved stock market performance. There is need for government through CBK to increase lending rates in the country. This can be done through favourable monetary policy.

From the outcomes, the study concluded that inflation has an inverse effect on stock market performance in Kenya. This shows that if the inflation reduces in Kenya, the stock market performance would improve substantially. Government out to establish policy and measures reducing inflation within the country via favourable monetary policy like reducing the central bank rate.

This study concludes that money supply has an inverse effect on stock market performance in Kenya. This means that when the money supply in Kenya increases, the stock market performance reduces in relation to the NSE 20 index. This study recommends that the Kenyan government reduce money supply by raising the banks' reserve requirements. The Kenyan government can also sell government bonds which would reduce the money supply hence enhancing the stock market performance in Kenya.

5.5 Limitations of the Study

This research was limited by historical characteristic of secondary data. The adoption of time series data escalated the challenge. This was overcome by adopting data that covers the most recent data. The data was also limited to the NSE 20 index which assumed other firms not in the NSE index. This was overcome through recommendations for further research. It was limited by variables of macroeconomic factors and stock market performance.

5.6 Suggestions for Further Research

The researcher suggests that other researchers undertake studies to establish other macroeconomic variables such as exchange rate and international remittances among others as well as other variables influencing stock market performance other than macroeconomic variables. They can also do similar research based on NSE 25 index and NASI index other than NSE 20 index. They can also adopt different measures of macroeconomic variables in their future studies.

The study suggests future studies should explore on key factors shaping variables. For instance, further studies should aim to establish the determinants of GDP growth rate, consumer price index (CPI), inflation rate and interest rate.

Further studies should include comparison of effect of the macroeconomic variables on stock market performance in different markets to help reach a conclusion on effect of macro-economic variables on stock market performance.

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APPENDICES

Appendix I: Research Data

Year	Quarter	GDP	Money Supply	Interest rate	Inflation rate	NSE 20 share index
		%	Ksh. M	%	%	
2006	Q1	5.800	569600.000	13.267	6.713	4100.000
	Q2	6.100	599368.000	13.750	6.527	4260.000
	Q3	6.900	623544.000	13.633	6.353	4880.000
	Q4	6.300	646718.000	13.893	6.063	5645.650
2007	Q1	7.100	664853.000	13.660	5.367	5130.000
	Q2	8.900	693701.000	13.283	4.747	5150.000
	Q3	6.300	725818.000	13.067	3.930	5150.000
	Q4	7.000	754176.000	13.317	5.100	5444.830
2008	Q1	1.100	807556.000	13.893	7.710	4840.000
	Q2	2.200	848008.000	13.993	11.823	5190.000
	Q3	2.600	855074.000	13.740	16.167	4180.000
	Q4	2.500	891570.000	14.440	18.143	3521.180
2009	Q1	6.400	900498.000	14.773	17.053	3520.000
	Q2	1.900	935889.000	14.883	13.677	3810.000
	Q3	1.900	981520.000	14.763	9.980	3005.000
	Q4	2.600	1024697.000	14.797	6.887	3247.440
2010	Q1	4.800	1086504.000	14.920	5.343	3932.870
	Q2	6.100	1160438.000	14.477	4.260	4339.280
	Q3	6.000	1224547.000	14.150	3.557	4629.800
	Q4	5.600	1261646.000	13.890	3.737	4432.600
2011	Q1	5.100	1305511.000	13.957	5.637	3887.070
	Q2	3.500	1355674.000	13.903	9.393	3968.000
	Q3	4.000	1444592.000	14.417	13.663	3284.000
	Q4	5.000	1505853.000	17.920	16.910	3205.000
2012	Q1	3.500	1509222.000	20.053	17.287	3367.000
	Q2	4.400	1564306.000	20.213	14.863	3704.000
	Q3	5.000	1641032.000	20.003	10.327	3972.000
	Q4	5.500	1723781.000	18.323	6.190	4133.000
2013	Q1	6.100	1756644.000	17.900	4.210	4861.000
	Q2	4.300	1830291.000	17.430	4.073	4598.000
	Q3	6.400	1872806.000	16.947	5.770	4793.000
	Q4	5.400	1964886.000	16.960	6.783	4927.000
2014	Q1	5.200	2054901.000	17.000	7.237	4936.000
	Q2	6.000	2145172.000	16.677	6.937	4885.000
	Q3	4.600	2243258.000	16.403	6.753	5256.000

	Q4	5.600	2303108.000	15.977	6.670	5113.000
2015	Q1	5.800	2393719.000	15.620	6.310	5346.000
	Q2	5.900	2511968.000	15.573	6.453	4906.000
	Q3	6.100	2567505.000	16.083	6.437	4173.000
	Q4	5.500	2661019.000	17.347	7.003	4040.000
2016	Q1	5.300	2683630.000	17.927	6.810	3982.090
	Q2	6.200	2769771.000	18.147	6.753	3640.610
	Q3	5.200	2791347.000	16.540	6.197	3243.210
	Q4	7.200	2800571.000	13.687	6.163	3186.210
2017	Q1	5.200	2816589.000	13.653	7.657	3112.520
	Q2	4.400	2931289.000	13.660	8.613	3607.180
	Q3	4.500	2990227.000	13.680	8.850	3751.460
	Q4	5.300	3015284.000	13.677	6.923	3711.940
2018	Q1	6.200	3028338.000	13.607	5.247	3845.340
	Q2	6.000	3159841.000	13.237	4.320	3285.730
	Q3	6.400	3266532.000	12.847	4.720	2875.500
	Q4	6.000	3293292.000	12.557	5.230	2833.840
2019	Q1	5.500	3364361.000	12.493	5.253	2846.990
	Q2	5.300	3461618.000	12.480	5.253	2633.320
	Q3	5.100	3482767.000	12.440	4.627	2431.970
	Q4	5.700	3501181.000	12.350	5.117	2654.390
2020	Q1	4.900	3594689.000	12.190	5.163	1966.120
	Q2	-5.700	3779578.000	11.920	5.417	1942.120
	Q3	-1.100	3864966.000	11.877	4.877	1852.290
	Q4	1.200	3955321.000	11.997	4.803	1868.390