THE EFFECT OF MACROECONOMIC VARIABLES AND GLOBAL OIL PRICES ON STOCK PERFORMANCE OF LISTED FIRMS IN KENYA

BY

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DECLARATION

This research project is my authentic submission and as far as I know it has not been submitted to be examined for a degree award in another university.

Kevin M Mwendwa (D63/75526/2014) _____DATE_____

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

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I would like to take this chance to recognize my project supervisor Dr. Mirie Mwangi for his continued direction, advice, patience and critique of this study. Special thanks to the lecturers who taught and shared their insights during the course of my Master of Science in Finance degree.

DEDICATION

This research project is dedicated to my family members, friends and colleagues who have always supported me in every endeavor and for their encouragement. Your support is immensely appreciated.

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LIST OF ABBREVIATIONS

APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Model
CBR	Central Bank Rate
CIF	Cost Insurance and Freight
CMA	Capital Markets Authority
CPI	Consumer Price Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IR	Interest Rate
KNBS	Kenya National Bureau of Statistics
MNC	Multinational Corporation
M2	Broad Money Supply
NASI	Nairobi Securities Exchange All Share Index
OPEC	Organization of Oil Exporting Countries
PE	Private Equity
RP	Risk Premium
SPSS	Statistical Package for Social Science
USD	United States Dollar

ABSTRACT

Kenya has one of the most vibrant stock markets in the region that has attracted a considerable amount of foreign as well as local investment capital. The correlation between investment and local macroeconomic factors including global factors of production like commodity prices such as oil is of interest for both policy makers and investors. The basis of this research was to establish the relationship between this nexus and observe this relationship for purposes of hedging against macroeconomic and global risk. Quarterly secondary data for the period of January 2008 to September 2016, consisting of 35 observations was collected from Nairobi Securities Exchange, the Kenya National Bureau of Statistics and Central Bank of Kenya. Descriptive research design was adopted for this study whose objective was to investigate the effect of macroeconomic variables and global oil prices on the stock performance of all listed firms in Kenya. Initially, the macroeconomic variables considered were GDP, Money Supply (M2), 90 day T-bill rate, exchange rate and inflation. However, there was a strong correlation between some independent variables which were M2 and GDP as well as M2 and exchange rate. In order to address the issue of multicollinearity, two independent variables M2 and GDP were dropped. Analysis of Variance was used to test the significance of the model. The critical value was F (4, 30) = 2.69.The computed F value of the research was 5.368.Considering that 5.368 > 2.69 hence there was a significant relationship between the assessed variables. The findings of the study revealed a positive correlation between the NSE All Share Index (NASI) and exchange rate and T-bill rate. A negative correlation was observed between NASI and Inflation rates as well as global oil prices. These findings were consistent with those of similar studies. The study therefore lends support to the importance of these variables in stock market performance and recommendation to policy makers and financial sector regulators is to formulate policies which will help in the growth of capital markets especially the stock market to helps us achieve our vision of transforming the country's economy into middle-income.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The key role of capital markets is usually to perform efficient financial intermediation in an economy. This involves spurring economic growth and development by mobilizing liquidity, channeling medium and long-term capital for productive corporate investment, helping in price discovery, reductions in transactions costs and risk transfers (Goldsmith, 1970). When people make an investment in securities they anticipate a rate of return that compensates them for expected inflation, period of investment and various uncertainties of the return.

In consideration of this, macroeconomic factors and their volatility would be a key determinant in measuring the performance of stocks in capital markets. Arbitrage Pricing Theory (APT) is the most common theory that incorporates the interrelation between stock performance, market performance and multiple factors affecting the economy through a multifactor model (Ross, 1976).

A number of uncertainties or risks exist, that have been proven to affect the performance of firms. Globalization creates a nexus in financial markets through the expansion of multinational corporations (MNC's), growth and adoption of technology, the burgeoning reliance of domestic markets on foreign trade, and the high correlation of regulatory, monetary and fiscal policy. Consequently, this exposes firms to various macroeconomic and external risk factors (Landefeld & Kozlow, 2013). The effect of this volatility and

subsequent relationship to firm performance is important for financing and investment decisions.

1.1.1 Macroeconomic Variables

Brinson, Singer, and Beebower (1991) defined macro-economic variables as those that are applicable to an expansive economy at a regional or national level and have an impact on the wider population in preference to a few selected individuals. Macroeconomic exposure or macroeconomic risk is defined as the risk induced by unpredictability of macroeconomic environments of all firms in a jurisdiction such as a region or country (Oxelheim & Wihlborg, 1987) .They divided macroeconomic risks into three different types: financial risk, currency risk, and country risk.

Financial risk is the probability of unexpected changes in interest rates and costs of various sources of capital in a specific currency denomination. Currency risk is the tendency of unforeseen variations in exchange rates and inflation rates relative to foreign and domestic values. Country risk is the possibility of unpredictable changes in a country's productive development, rule of law, regulations and policy management adopted by monetary and fiscal authorities (Oxelheim & Wihlborg 1987).

Kwon and Shin (1999) observe that, that a country's economy affects the performance of its organizations and by extension the most influential macro-economic variables are GDP, currency exchange rate, interest rates, inflation and market risk. GDP represents a measure of a country's total production of goods and services, normally over a fiscal year, based on market prices, precluding net income from abroad. Inflation refers to a continuous, accelerated gain in prices that is measured using a broad index, for instance

the Consumer Price Index, over a period, depicted in the analogous decrease in the currency's purchasing power.

Exchange rate is the quantity of one currency required to acquire a single unit of another country's currency. Interest rate is quantified as the percentage charged on principal, by lenders to borrowers for the use of assets. Legal and regulatory policies vary in various jurisdictions and are dependent on government policies, the existing law and the rule of law (Kwon & Shin, 1999).

1.1.2 Global Oil Prices

Price is the value that is put to a product or service. Oil prices have many variations based on the perspectives of diverse participants in the oil trade. Exporters align the price to revenues from production while importers base price on the cost, insurance and freight (CIF) import price mainly due to the oil price effect on the balance-of-payments. However, the final consumer views the value in consideration of domestic pump prices as well as utility purchase prices (Mabro, 1984).

Market-related pricing systems adopted by oil exporters during the 1986-1988 period revolutionized oil price formation. It pioneered a shift from multinational oil companies' administered prices during the 1950s and 1960s and those subsequently overseen by OPEC during the 1973-1988 periods. The major benchmarks used in the current market pricing are the Brent-crude, Dubai-Oman and West Texas Intermediate (WTI). These benchmarks are known as spot market prices, which are crucial in market pricing systems. They are principally used by oil companies and traders for contract pricing on spot transactions and futures contracts including derivative instruments like swaps; also

for taxation by governments (Fattouh, 2011). In this research, we will consider the base price of the Brent crude before CIF by Kenya.

1.1.3 Stock Performance

Stock performance is characterized by the evaluation of a stock's capability to alter its shareholders wealth. It is customarily measured by price fluctuations. An increase in the stock price is indicative of good performance, whereas a decline in stock price is suggestive of poor performance (Capozzi, 2008).The fluctuation in price or related earnings leads to a reduction or augmentation in shareholders wealth.

Firms can design a thorough performance appraisal that quantifies the value it has created and project its ability to further create worth. Furthermore, management can use the assessments to harmonize value creation term strategies in addition to board members and investors establishing if their policies and the firm's share price are pertinent. In view of the fact that only historical growth and returns on capital of a firm can be measured directly and not its future, the possibility for growth achievement and supporting returns can only be achieved through inference. Investors tend to review divergent measures of stock market performance to benchmark attainment of targets and evaluate the overall economy. The stock market can be used to deduce economic health by economists with market indexes being the preferred mode of measurement (Capozzi, 2008).

1.1.4 Relationship between Global Oil Prices and Macroeconomic Variables on Stock Performance

Alam (2013) infers that stock price is representative of the paramount economic factors notably macroeconomic and financial; for this reason, stock market performance can be

made use of as a principal indicator for economic activities both current and in the future. Considering the theoretical model explaining the homogeneity between stock market return and macro-economic factors, Capital Asset Pricing Model (CAPM) regularly depicts the link between stock market return and macro-economic variables. It highlights the linear positive relationship that exists between expected returns on a security and risk betas thereby building on mean value mode by Markowitz (1952).

Gatuhi and Irungu (2013) state theoretically that, prices of oil have numerous effects on stock prices. A firm's share price at any instant corresponds to the value at present of the firm's discounted future cash flows. A direct impact on stock price caused by changes in oil prices can be manifested directly through fluctuations in future cash flows on oil related activity and production costs or conversely by way of variations in interest rate utilized in discounting expected cash flows. A lack of substitution effects in production factors, leads to a heightened cost of doing business and a reduction in profits for non-oil companies by virtue of increased oil price. These increased costs are ordinarily transferred to consumers through higher pricing on finished products and related services, consequently leading to a decline in demand and profits.

1.1.5 Macroeconomic Variables in Kenya, Listed Firms at the NSE and Global Oil prices.

The Nairobi Securities Exchange possesses a prominent role in the process of economic advancement by means of mobilizing domestic savings leading to redistribution of dormant financial resources to engaged agents, this in turn enables investors to own shares of reputable companies, which gain by raising funds through equity, and is also a means of privatization by governments. NSE is regulated by the Capital Market Authority

(CMA) by providing oversight on the conduct of all licensed parties and protecting interests of investors. Its regulation also covers the issuance of the capital market products like shares and bonds in the Nairobi Securities Exchange. CMA has the mandate to promote market development using research on new products and institutions (NSE, 2016).

According to Berman (2016) Oil price volatility is evaluated by momentary shocks and longstanding volatility. For instance, the period of January 1999 to January 2008, the price of oil grew from below $20 to above $130 a barrel. Nonetheless, there were moments where there were declines in price over that 9 year period. Provisional inventory sharply declined amid January 2014 to July 2014 causing global prices per barrel to balance at $100. August 2014 to November 2014 experienced a soar in inventories in America precipitating a price decline to $70 trailing Organization of Oil Exporting Countries decision not to cut production. This stance proportionately led to continuous volatility in prices closing at $46 a barrel in January 2015.There was a short rally in prices of amid April 2015 to June 2015 prices to $60. Nonetheless by August 2015 prices had dipped to $38 and a low of $30 by November of the same year.

GDP in Kenya is supported by outputs of agriculture; construction; finance and insurance; real estate; Information and communication; mining and quarrying; together with wholesale and retail trade; accommodation and food services. Inflation indicators in Kenya are reflected in food, fuel and other indicators not related to food or fuel. The input of inflation indicators not related to food or fuel is predominantly guided by excise taxes. Foreign exchange volatility in Kenya is largely driven by the strengthening or weakening of the U.S dollar against the Kenya Shilling as well as by CBK monetary

policy operations, and supply factors including resilience of the remittance inflows and the narrowing of the current account deficit. Interest rates in Kenya are a financial instrument set by the Monetary Policy Committee using the Central Bank Rate (CBR) (CBK, 2015).

1.2 Research Problem

Performance of the stock market and consequently its returns is of key concern to investors' world over. There has been an inflow of foreign investment capital into emerging stock markets since the 2007/2008 financial crisis. Emerging markets are considered riskier to advanced markets. According to Markowitz (1952) Portfolio Theory, an investment portfolio should consider risk return such that the more risk an investment attracts, the return demanded by investors should be equally greater. However, despite these considerations these inflows and outflows of foreign capital do create an additional risk to emerging markets compounding on the inherent national or regional macroeconomic risks.

Gatuhi (2015) assessed the significance of macroeconomic environment on the performance of stock at the Nairobi Securities Exchange. The objectives were required to establish any effect of money supply, interest rates, inflation and Kenya Shilling to US dollar foreign exchange rates on sector specific performance on the stock of listed firms in the Kenyan stock market. Ibrahim and Aziz (2003) scrutinized within the Malaysian market, the association of industrial production, CPI, M2, stock price and forex. The conclusion was that prices of shares had positive longstanding movements relative to consumer price index and production in industries. Conversely, share prices displayed a negative movement relative to forex and M2.

Serkan (2008) inspected how macroeconomic variables impacted Turkish share price performance. The study designed a multivariate linear model with a time series covering July 1997 to June 2005. The independent components in the model included variations in consumer price indices, adjustments in M1, growth rate of production indices for industries, forex transitions, global crude oil prices and the MSCI Index.

Oil plays a critical role in global economies; as a result oil prices and their volatility are closely monitored. Ndungu (2013) scrutinizes the connection that exists on both economic growth and oil price volatility in Kenya. The research reviews responses to changes in actual price and related volatility over time. It concludes that volatility has substantial influence on economic output, also observed was that oil prices were not stagnant but dependent on previous observations. This in turn, validates the theory that rising and volatile oil prices stunt economies and lead to asset devaluation.

Yang, Hwang, and Huang (2002) declare that growing prices of oil provoke recessions in economies of net importers of the commodity, due to the negative correlation the price of oil has to economic enterprise. An escalation in price volatility of oil has piqued interests in literature for finance. However, Bernanke, Gertler and Watson (1997) are of the opinion that prices of oil are not predominantly the motivation for recession. On the contrary it is the monetary policy response of raising interest rates in response to increased oil prices by Central banks in a bid to curb inflation. Their divergent view supports the observation that oil shocks seem to hold a significance surpassing expectations on the basis of energy costs to total production cost comparisons.

Multiple studies have been undertaken in view of macroeconomic variables and stock returns relationships. In spite of this, research cases for emerging markets are limited and

lack an oil to market performance nexus. This research endeavors to demonstrate the reaction of Kenyan market performance of all listed firms to macroeconomic changes and global oil prices.

1.3 Objective of the Research

The intent of this paper is to ascertain the reaction of Kenyan stock market performance of all listed firms to macroeconomic changes and global oil prices.

1.4 Value of the Study

Emergence of globalization in business practices and partnerships such as multinationals exposes firms to various macroeconomic risk factors. The outcome of this study will be of significance to investors, analysts, governments and business strategists as it will be of help in the formulation of policies that promote portfolio formation, strategic capital budgeting decisions that are of unconditional importance in reducing volatility in the financial sector in Kenya. To researchers and academicians, the findings of this study will add on to the already existing literature. Those who wish to carry out further research in the area of effect of external macroeconomic variables and economic growth in Kenya may obtain some insight on this area.

Finally, the study will be of significance to Kenyan government which has a vision of transforming the country into middle-income level and industrializing economy by the year 2030 and with financial markets as one of the key pillars it will help in forecasting and hedging markets against extreme volatility from macroeconomic exposures should they impact negatively.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section covers theoretical review of finance to support the connection between macro-economic variables, oil prices and performance of stock. An Empirical review will also be carried out assessing previous studies in Kenya and external as well. In conclusion, an analytical assessment will be done to define a model and derive hypothesis for the study.

2.2 Theoretical Review

The section reviews the theories that guide this study, their originators and implications and also their importance to the study. The theories include: Arbitrage Pricing Theorem, Efficient Market Theory, Inflation Theory and Money Supply Theory.

2.2.1 Arbitrage Pricing Theorem

A single factor model specifically the Capital Asset Pricing Model (CAPM) was developed by Sharpe (1963). The single factor in the model was the market performance. However, CAPM could not cater for unsystematic risk that could be diversified. Consequently, Arbitrage Pricing Theorem (APT) a multifactor model was advanced for pricing of assets by (Ross, 1976) .The model describes the pricing of assets with regards to associated risks. As a multifactor model, APT is driven by multiple macroeconomic factors such as Gross Domestic Product (GDP) and Interest rate (IR) alongside the riskless interest rate as government bonds. Beta (βi) depicts the responsiveness of expectation to surplus asset returns in comparison to surplus market returns.

The model supports the premise that variability of asset returns from expected mean values are subject to multiple factors. There is however, no limitation to the quantity of factors. It is upon the person using the model to identify the factors that vary together to affect returns in a particular firm or market. Ross (1976) reveals that, to avert arbitrage, expectation on an asset return ought to be represented as linear model displaying its responsiveness to the quantity of prevalent factors. In the case of the listed commercial banks in Kenya, we will be assessing the reaction of stock performance to changes in public information with regards to inflation, exchange rate, interest rates and oil prices. We will assume that the investors in the NSE are rational, Modigliani and Miller (1961) also that the market is efficient (Fama, 1970).

2.2.2 Efficient Market Theory

Efficient market hypothesis (EMH) is a theory advanced by Eugene Fama, (1965) and is closely linked to the theory of randomness of stock prices that was developed by Louis Bachelier. Finance theory assumes that stock markets have a considerable number of actively participating investors that are rational with the core aim of profit maximization through forecasting on future share prices. The competitive environment that these rational investors conjure facilitates new information to be promptly mirrored in stock price; therefore, no participant in an efficient market possesses more superior information that can lead to arbitrage opportunities (Ndegwa & Mboya, 2015).

Fama (1970) postulates that asset prices in a market considered relatively efficient, react expeditiously and somewhat precisely to new information in the public domain, resulting in accurate pricing more often, irrespective of the investment strategies employed. The categories of efficient market elements can be classified into Operational Efficiency

where diminished transaction costs, induce security training. Allocation efficiency is achieved when the market securities traded are adequate in quantity to the point that distribution of risk is efficient. Finally, informational efficiency is accomplished in the existence of fairly priced securities that are indicative of the available collective public information.

2.2.3 Inflation Theory

According to Fisher (1930) hypothesis, common stock portrays a right to the real assets of the listed firm; and should therefore suffice as a guard opposed to inflation. In the case of validation of this assertion, investors then have the ability to trade their financial assets in exchange for real assets to hedge against prevailing inflation. In which case, the nominal price should absolutely mirror inflation expectations through a positive correlation.

The inflation illusion hypothesis of Modigliani and Cohn (1979) sets the premise that the real influence of inflation is as a result of the illusion of money. Bekaert and Engstrom (2010), postulate this illusion to proven by a rise in inflation, which stimulates an increase in bond yields, regardless of this, investors in stocks erroneously discount cash flows which are real by a nominal rate. As a consequence the stocks end up underpriced pegged on the negative correlation that would exist in relation to increased nominal returns. Feldstein‘s (1980) determined a divergent view on the stock market performance to inflation relationship in that stock performance was curtailed by inflation primarily due to asymmetric inventory depreciation and taxation regiment that diminished profit after taxes. Further to this, he detected that capital gains tax stunted share prices when inflation was high caused by the historic depreciation costs.

Fama (1981) on the premise of money demand theory ascertained a negative correlation between inflation and stock market owing to the fact that inflation reacts in a negative manner to corresponding related economic enterprise; on the contrary there is a positive correspondence between economic enterprise and performance of stock. Despite this assertion, external factors employed by firms can alter this correlation from a directly proportional one to a relatively dependent one. Hoguet (2008) asserts that firms in a bid to hedge against inflation often transfer inflation related costs to consumers; therefore the real interest rate remains unchanged. As a result, valuations of these firms using discounted cash flows are immune to changes in inflation.

2.2.4 Money Supply Theory

Stock prices are ultimately driven by the valuation of future cash flows discounted to their present value. Money supply has a strong connection to the cost of capital used to discount future cash flows during valuation. Sellin (2005) hypothesizes that market prices of stocks are only affected by money supply when there is an imminent possibility that the supply will impact monetary policy in the future. His conclusion is that there is usually anticipation by investors of toughening of future monetary policy when money supply is positive.

As a consequence, the demand for bonds rises thereby driving up the prevalent interest rates being that as interest rates rise so do the corresponding rates on the cost of capital used to discount future cash flows. This in turn reduces the present value of future cash flows and the prices on the respective stock. In addition to this, Sellin (2005) contends that rising interest rates lead to a downturn in economic activities, further to distressing stock prices. On the other hand, some economists maintain that positive movements in

money supply provoke an increment in prices of stocks. They posit that continuous variations in the supply of money actually give information on the demand for money, from future expectations. In conclusion there is a positive correlation between money supply and money demand in which an increase signals growth in the economy that supports larger cash flows and growth in stock prices (Gatuhi, 2015).

Bernanke and Kuttner (2005) postulate that stock price is a representation of a firm's monetary value and anticipated risk in owning it. Possessing a particular stock is only worth it if its monetary value is high. On the contrary, a counter with higher anticipated risk is considered unattractive. Their theory suggests that the supply of money has an impact on both the monetary value and anticipated risk of stock through its effect on interest rates. In summary stiffening of money supply raises the real rates of interest.

A policy stance that tightens money supply would increase the risk premium required to compensate investors for investment in riskier portfolio assets. This action symbolizes a slump in economic activity; as a result it curtails the capacity of firms to be profitable. In order for investors to bear greater risk in such circumstances they demand to be awarded a higher risk premium. This premium makes the stock unattractive, and devalues the stock price (Bernanke & Kuttner, 2005).

2.3 Determinants of Stock Performance

Stock performance is dependent on various divergent factors and can therefore be influenced by other factors excluding macro-economic variables and oil prices. The following are some of the other factors that affect stock performance.

2.3.1 Performance Management and Board Structure and Size

Hilderblith (2003) sought to establish the extent to which performance management is used on selected listed companies in the Kenya stock market. In the case that the use of these management techniques was identified, the objective become to assess the relationship between structurally implemented performance management and organizational performance of these listed firms. The conclusion of this study was that a high level of utilization and awareness existed on performance management concepts. In addition to which it was observed that performance management principles on NSE listed firms improve performance of employees as well as investors thereby improving organizational performance.

Ngoe (2011) infers that board structure, composition and size have varying effects on stock performance on the different sectors of listed firms on the Nairobi Securities Exchange. In his findings he ascertained that board size was significant in the agricultural sector showing a negative relationship; also the board structure in relation to the quota of executive to non-executive directors was significant in the industrial and allied sector with a positive effect. Gender balance had no significant effect on any sector of listed firms at the NSE. All in all these findings validate that board structure and composition contribute to stock performance.

2.3.2 Capital Gains Tax

Capitalization theory forecasts that with a reduction or elimination of capital gains taxes, share prices tend to rise (Collins & Kemsley, 1999). Karinga (2015) investors will invest more and will also attract more investors since more returns will be expected in future. As a result demand will increase resulting in high prices. The Lock-in effects theory state

that there will be a decline in the supply caused by charging taxes on capital gains. The implication is that at the announcement of taxes on capital gains the supply will grow as the investors tend to harvest the accumulated returns.

In Kenya, a review on the significance of capital gains tax announcements on stock market performance reveals that the declaration by government to restore these taxes on September 2015 altered market performance. According to Karinga (2015), the announcement by government to charge capital gains tax had a positive effect on the performance of stocks at the Nairobi Securities Exchange for the period until it was revoked. This provides empirical evidence for the Kenyan market that validates the theory.

2.3.3 The Inherent Health of a Firm

Capozzi (2008) posits that information on health condition of the company affects stock prices; information such as that of mergers and or acquisitions tend to drive the stock price higher, in contrast poor earnings reports persuade investors to dump a stock precipitating price erosion. Consequently the stock performance is tied to company performance .This implies that not all the stocks will move together at the same rate based on macroeconomic factors.

The divergent price movements of various stocks will therefore, be based on the performance history of the individual firm .The information on historical performance of individual firms which is essentially the health of a firm is primarily derived from the financial reports of companies. Financial reports give data used to assess the financial position, earnings and working capital of a firm. Accordingly, there exists a strong correlation between the quality of reporting and standards of reporting to investor

confidence. As a result, increased investor confidence leads to more investment into the stock of a listed firm thereby improving individual stock performance (Mutai, 2014).

2.3.4 Macroeconomic Variables

A high correlation exists between stock markets and the economy as a whole. Macroeconomic variables have a major role in asset pricing theories. Varying changes in macroeconomic variables have adverse effects on businesses by distorting usually seamless business transactions. The ability to project future trends in macroeconomic variables is insightful when forecasting stock returns. For this reason multiple attempts to empirically identify connection between macroeconomic variables and stock market volatility. Capital markets in a jurisdiction are primarily affected by the immediate local economy hence; every country has unique economic determinants that impact their stock market. As a result, there are variations to the reactions of selected macroeconomic factors on different regional stock markets (Özlen & Ergun, 2012).

Njau (2013) and Gatuhi (2015) in reference to the Kenyan market empirically determine that gross domestic product, inflation, bank lending interest rates and foreign exchange of the shilling to global reserve currencies are considered to be an accurate selection of macroeconomic factors that have the greatest influence on financial performance of firms both listed and private assed using divergent performance measures irrespective the company sector. These findings all support the importance of macroeconomic factors in financial performance.

2.4 Empirical Review

Exchange rate and its related volatility carry economic costs crucial to stable prices, profitability and local economic strength. Gavin (1989) infers that vibrant stock markets attract positive aggregate demand. In addition to this, trends in markets covering different jurisdictions can be used to analyze exchange rate patterns when there is substantial foreign investment in the local market. Patterns like this benefit MNC's in decisions to hedge their risk exposure to foreign currency denominated contracts (Dimitrova, 2005).

Adjasi, Harvey, and Agyapong (2008) established that changes in the Ghanaian exchange rate had no effect on stock returns. Kandir (2008) determined through a study on Turkish market, using a multiple regression model, that exchange rates exhibit a positive relationship with returns on market portfolios. Jefferis and Okeahalam (2000) assessed stock prices and selected economic variables for South Africa, Botswana and Zimbabwe. Their findings showed a positive correlation to GDP and the exchange rate. Gatuhi (2015) resolved in his conclusions that a positive influence existed on the exchange rate in stocks of agricultural, banking, energy and automobile sectors and a negative influence on the stocks of construction, insurance, investment and manufacturing sectors in Kenya.

Chen, Roll, and Ross (1986) pointed out that interest rates showed positive correlation to stock returns. Wongbangpo and Sharma (2002) noticed a negative correlation to interest rates in Southeast Asian countries using a sample population of the industrial sector. Rapach, Wohar and Rangvid (2005) detected from their findings that interest rate had the highest consistent reliability as a variable. Nonetheless, Chen et al (1986) measured in their findings that interest rate barely had a link to stock return. Kandir (2008) viewed the Turkish market and found a positive correlation on interest rates and stock return.

Jefferis and Okeahalam (2000) discerned stock price relationships to selected economic variables for selected Southern African countries. Their conclusions show that the stock market was negatively correlated to long-term interest rates. Gatuhi (2015) deduced that a positive influence consistently recurred based interest to stock market performance in Agricultural, Banking, Commercial, Construction, Energy, Insurance and Automobile sectors and a negative influence on Investment and Manufacturing sectors in Kenya.

Research previously carried out describes various effects of inflation on stocks. Consumer Price Index is most often used to mirror prices on basic commodities routinely used and essential to the day to day living of individuals. Numerous research studies reveal a negative relation to stock return. Liljeblom, Loflund, and Krokfors (1997) studied the Finnish market for inflation effect which they determined to be negligible.

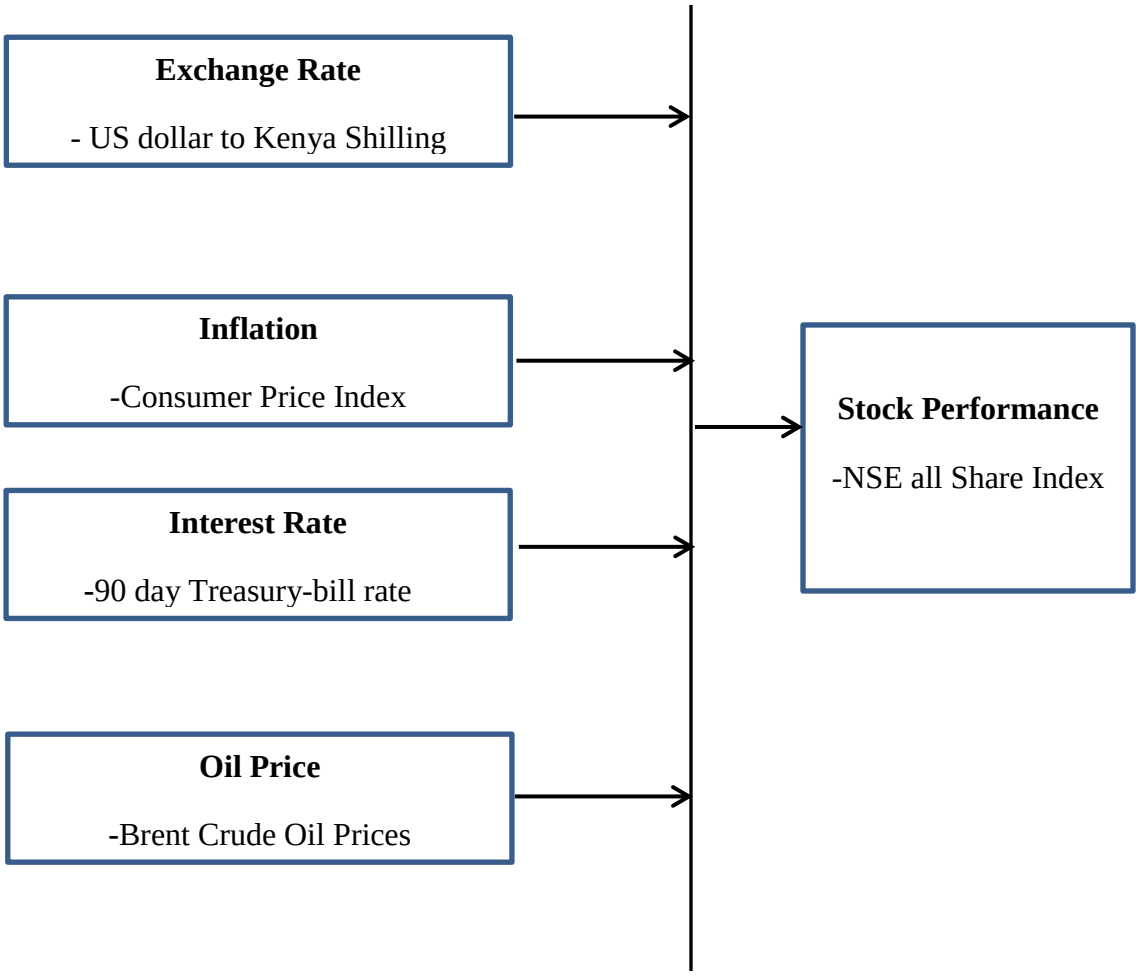
Chen et al, (1986), as well, concluded that inflation had no predictable relationship to stock return. Chinzara (2011) observed that stock market volatility is commonly affected by uncertainties in macroeconomic shifts and that global financial crises tremendously raise stock market uncertainties, and that the variables with the highest impact to stock returns and related volatility are exchange rates and momentary interest rates. Gatuhi (2015) described the stock market performance to be positively influenced by inflation in the investment sector whereas a negative influence was observed on all the other sectors on the Kenya Stock Market.

Mork, Olsen, and Mysen, (1994) established that negative effect on the economy when oil prices accelerate in an upward trend whereas downward trends have near zero effect

on economic enterprise. This phenomenon can be attributed to the slow and unbalanced response to changes in crude oil price to prices transferred to the market production defined as real oil prices that include CIF. It was analyzed that for the U.S. economy a correlation to price is nearly zero. Further, they solidified their findings on the skewness of these effects in other OECD nations. The results concluded that the US in comparison to other nations, increases in oil prices lead to economic slowdown despite its minimal dependency to oil imports when compared to European countries such as Germany, France, and Japan. Ndungu (2013) observed that Oil Price has had causal influence on return in economic growth in Kenya, the correlation was negative; increase in Oil Price causes decrease in economic growth.

2.5 Conceptual Framework

The conceptual framework summarizes the relationship between foreign exchange, interest rates, inflation and global oil prices on stock performance.



2.6 Summary of Literature Review

Research previously conducted to demonstrate the effects of macroeconomic variables on economic performance and specific sectors has been extensively carried out in Kenya. However, the emphasis has been on interest rates, inflation and exchange rates.

The review has revealed a gap in the research when considering Kenya because despite the increased investment by MNC's and globalization in commodity pricing, we have only a limited comprehension of the effect of oil prices and money supply on our stock markets or other sectors in the economy.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section on methodology discussed the manner in which the research was conducted in order to meet the research objectives previously outlined in the first chapter. The methodology section accordingly covered research design incorporating the research type; population samples, techniques employed, as well as data analysis.

3.2 Research Design

The design of the research provides the planned framework used to carry out the research in order to examine valid research questions of interest. The study used a causal research design. Causal research involves assessing cause and effect among variables. It is formulated on the argument that when there is a statistical significance between two variables, it is then possible to predict the dependent variable using the facts available on the independent variables. The relationship or effect could be negative or positive.

3.3 Population

The sample population of this research is composed of listed firms on the NSE in Kenya companies as at 30th September 2016. (See Appendix I)

3.4 Data Collection

The data used was from secondary sources. Nairobi Securities Exchange All Share Index (NASI) was used to measure stock performance, whose data was retrieved from the Nairobi Securities Exchange. Statistics concerning exchange rate, inflation rates and interest rates was acquired from the Central Bank of Kenya. The data on global Brent Crude Oil prices was obtained from the US Energy Information Administration.

3.5 Data Analysis

Data was collected, sorted, classified then collated. Descriptive statistics such as mean and standard deviation for each variable was calculated and tabulated using tables and inferential statistics. The SPSS computer software was used to statistically analyze the raw data. The data was entered into the statistical package software and thereafter analyzed using descriptive and regression analysis with the aim to measure the effect of oil prices and macroeconomic factors on market performance.

3.5.1 Analytical Model

A multivariate regression model was adopted to assess the relationship between the independent variables which were oil prices and selected macroeconomic factors on the dependent variable which was the stock performance of listed firms. A linear model regression analysis as illustrated in the equation below, consisting of time series data was used to provide empirical evidence. The period covered was between January 2008 to September 2016.

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_{4\,+}\,\varepsilon$$

Where:-

Y = Nairobi Securities Exchange All Share Index (NASI)

β_0 = Constant term (equation constant)

β_i = Beta coefficients of explanatory/Independent variables

X_1 = Inflation Rate

X_2 = Oil prices using the global Brent crude pricing

X_3 = Exchange rate of Kenya shilling against USD

X_4 = Interest rate using 90 day treasury bills

ε = Representative of the error terms introduced by variables not considered in the model such as regulatory policies and taxation regimes which are assumed to be normally distributed.

3.5.2 Test of Significance

The study utilized Analysis of Variance (ANOVA) and it was preferred in the study since it enables performance of simultaneous tests hence considered an important tool of analysis. Tests of significance will include the R^2 tests as well as F-statistics which tests the significance of the relationship between the independent and dependent variables and the best fit for the linear model.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This section presents empirical research findings and subsequent analysis. The aim of this study was to investigate the influence of selected macroeconomic variables in the economy and global oil prices on stock performance of listed firms in Kenya. The empirical tests were done using descriptive analysis, correlation analysis and regression analysis. The period analyzed was January 2008 to September 2016.

4.2 Descriptive Statistics

This is a description of the statistical variables used in the study to determine the effect of macroeconomic variables and global oil prices on stock performance of listed firms in Kenya. Table 4.1 gives an overview of the data which was collected quarterly for the period between January 2008 and September 2016 resulting in 35 observations denoted by (N), the mean and standard deviation.

Table 4:1: Descriptive Statistics

	N	Mean	Std. Deviation
NASI (Stock Performance Proxy)	35	108.9305	33.75777
Exchange Rate (USD/KES)	35	85.4161	9.85092
90 day T-bill Rate (%)	35	8.6297	3.50214
Inflation Rates (%)	35	8.8064	4.85993
Brent Crude (USD)	35	85.9706	27.51678
Valid N (listwise)	35		

Source: Research Findings

From table 4.1 there were 35 observations for all variables. These observations were representative of quarterly data of the variables between January 2008 and September 2016. The mean for NASI was 108.9305 with a standard deviation of 33.75777. The mean exchange rate was Ksh.85.4161 with a standard deviation of 9.85092 shillings. The mean rate for the 90 day Treasury bill was at 8.6297% and had a standard deviation of 3.50214. Inflation rates for the period had a mean value of 8.8064% and a standard deviation of 4.85993. Global Brent crude prices averaged at USD.85.9706 and its standard deviation for the period analyzed was 27.51678 dollars. The low values of the standard deviations are indicative of higher accuracy of the model thereby indicating less outlier's in the variable distribution.

4.3 Inferential Statistics

This section highlights the relationship between macroeconomic variables and global oil prices on stock performance of listed firms in Kenya by assessing the variables under the study.

4.3.1 Correlation Analysis

The results on table 4.2 show a significant correlation between the NASI and exchange rates measured at 0.575. Inflation rates had a moderately strong correlation to NASI at –0.433. Brent crude prices and the T-bill rates had a weak correlation to the NASI indicating a weak significance on the relationship at -0.234 for Brent crude and T-bill with the weakest correlation to NASI at 0.038. In addition to this, the exchange rate and T-bill rate had a positive correlation signifying a simultaneous movement with the NASI while Inflation rates and Brent crude prices had a negative correlation illustrating an opposite movement with the NASI.

Table 4:2: Correlations Matrix

	NASI (Stock Performance Proxy)	Exchange Rate (USD/KES)	90 day T-bill Rate (%)	Inflation Rates (%)	Brent Crude (USD)
NASI (Stock Performance Proxy)	1				
Exchange Rate(USD/KES)	.575**	1			
90 day T-bill (%)	.038	.395*	1		
Inflation Rates (%)	-.433**	-.283	.415*	1	
Brent Crude (USD)	-.234	-.418*	.095	.259	1

Source: Research Findings

4.3.2 Regression Analysis

A multivariate regression analysis was run for the analysis of the dependent variable (NASI) and the independent variables which were Forex, T-bill rate, Inflation and Brent crude oil prices. A 95% confidence interval and a 5% level of significance were considered.

Table 4:3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.646[a]	.417	.339	27.43663

a. Predictors: (Constant), Brent Crude (USD), 90 day T-bill Rate (%), Inflation Rates (%), Exchange Rate (USD/KES)

Source: Research Findings

From table 4.3, the value of R^2 is 0.417 which means that that 41.7 percent of the total variance in NASI has been explained by the independent variables under study.

Therefore, 58.3 percent influence on NASI changes was explained by other factors not included in the variables.

Table 4:4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-43.551	64.457		-.676	.504
	Exchange Rate (USD/KES)	1.957	.689	.571	2.839	.008
	90 day T-bill Rate (%)	-.856	1.897	-.089	-.451	.655
	Inflation Rates (%)	-1.775	1.260	-.256	-1.409	.169
	Brent Crude (USD)	.097	.198	.079	.490	.628

Source: Research Findings

The coefficient of determination explains the variation in the dependent variable (NASI) that can be attributed to the changes in the independent variables which were forex, T-bill rate, inflation and Brent crude oil prices. From the coefficients in table 4.4, the value of constant β0 is -43.551 the values of β1, β2, β3 and β4 are 1 .957, -0.56, -1.775, and 0.097.

4.3.3 Analysis of Variance

Analysis of Variance is a statistical method used to test differences between two or more means. Table 4.5 represents the ANOVA table.

Table 4:5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16162.890	4	4040.723	5.368	.002[a]
	Residual	22583.064	30	752.769		
	Total	38745.955	34			

a. Predictors: (Constant), Brent Crude (USD), 90 day T-bill Rate (%), Inflation Rates (%), Exchange Rate (USD/KES)

b. Dependent Variable: NASI (Stock Performance Proxy)

Source: Research Findings

From the ANOVA table 4.5, there was a statistically significance in the processed data as determined by the ANOVA (F (4, 30) = 5.368, p=0.002). Considering p< 0.05 this indicates that the model using the selected independent variables is significant to predict NASI, the dependent variable.

4.4 Interpretation of the Findings

The four independent variables used in the study explain 41.7% of the NSE all Share Index (NASI) and this is represented by R^2 of 0.417 in table 4.3 above. This means that other factors not considered in this study contribute to 58.3% of the NASI. From table 4.5, the data output had a significance level of 0.002, F (4, 30) =5.368 which is statistically significant. The coefficient of determination explains the variation in the dependent variable (NASI) that can be attributed to the changes in the independent variables.

From the coefficient table 4.4, when all the independent variables are set to zero, the dependent variable which is NASI would be at -43.551 according to the research model. This means, the NASI would decrease by a value of 43.551. The research also found that a unit increase in exchange rate will cause an increase in NASI by 1.957 points holding

other independent variables constant; a unit increase in 90 day T-bill rate will cause a decrease in NASI by a value of 0.856 holding other independent variables constant. The Analysis also found that a unit increase in inflation rates would cause a decrease in NASI by 1.775 points holding other independent variables constant and a unit increase in Brent crude prices will cause an increase in NASI by 0.097 holding other independent variables constant.

The 90 day T-bill, Inflation Rates, Brent Crude had 0.008, 0.655, 0.169 and 0.628 levels of significance respectively. Exchange rate is the most significant variable in the relationship to NASI with a significance value of 0.008 for $p< 0.05$. It's also evident that the NASI had no significant relationship with 90 day T-bill and Brent crude prices. The computed F value of the research was 5.368. Considering that $5.368 > 2.69$, the critical value from the F tables there is a significant relationship between the assessed variables.

The findings of this study are similar to those of Kandir (2008) who studied macroeconomic variables, firm characteristics and stock returns in the Turkish stock market and identified that that exchange rates exhibit a positive relationship with returns on market portfolios. Jefferis and Okeahalam (2000) also assessed stock prices and selected economic variables for South Africa, Botswana and Zimbabwe and discovered a positive correlation to exchange rate and negative correlation to long-term interest rates consistent with this study. Gatuhi (2015) studied macroeconomic factors and stock market performance in Kenya, his conclusions resolved that the stock market was positively influenced by exchange rate in the agricultural, banking, energy and automobile sectors, similar to the findings of this study.

Chen et al (1986), when studying economic forces and the stock market, measured in their findings that interest rate barely had a link to stock return and also pointed out that interest rates showed positive correlation to stock returns. This was consistent with this study where the 90 day T-bill rate had the lowest correlation at 0.038 to NASI and was the most insignificant variable at 0.655. Mork, Olsen, and Mysen, (1994) established that negative effect on the economy when oil prices accelerate in an upward trend; this was similar to the findings of this study that established a negative correlation between global Brent crude oil prices and the NASI.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section gives a summary, conclusion and recommendations from the analysis of the data collected. The conclusions, analysis and recommendations were based on the research objectives.

5.2 Summary

The aim of this research study was to establish the effect of macroeconomic variables and global oil prices on stock performance of listed firms in Kenya. Variables selected in this research were those anticipated and supported by preceding empirical studies, to have the highest perceived effects on stock performance of listed firms in Kenya were inflation rate, exchange rate, T-bill rate and global oil price. NASI was captured as the dependent input while inflation, T-bill rates, exchange rate and global oil prices were input as the independent variables. This research took into consideration an error term as an embodiment of other subordinate variables not included in the model. The period of the study was from January 2008 to September 2016 comprising every quarter, therefore consisting of 35 observations.

This research determined that NASI was greatly influenced by the selected macroeconomic variables with exchange rate giving the largest influence and T-bill rate holding the least impact. The computed R^2 was computed as 0.417 meaning that there is a moderate correlation between the selected variables and NASI. This infers that, 41.7% of

NASI is influenced by the variables while the remaining 58.3% shows that NASI is also affected by other variables not included in the regression, captured by the error term.

These findings are indicative of a strong positive relationship between the NASI and exchange rate while that with T-bill rate is positive but weak meaning price movements are in the same direction but weighted differently. Nonetheless, inflation rates and global oil prices are negatively correlated to the NASI therefore price movements are in opposite direction with correlation coefficients of -0.433 and – 0.234 respectively.

Additionally, empirical tests for significance and goodness of fit of the model were carried out. F test and ANOVA were used which displayed that from the 35 observations representing every quarter for a period of 140 months and 4 predictor variables, the critical value was F (4, 30) =2.69.The computed F value of the research was 5.368.Considering that 5.368 > 2.69 hence there exists a significant relationship between the assessed variables.

5.3 Conclusion

The study ascertains the varying degrees of influence between the independent macro-economic variables and global oil prices used for the research and financial performance of listed firms as measured by NASI. Ranking of the independent variables from those with the greatest influence to the one with the least, in terms of correlation is exchange rate inflation rate, global oil prices, and T-bill rate. The key aim of the study was to establish the effect of macroeconomic variables and global oil prices on the performance of listed firms in Kenya which was exhaustively corroborated.

Numerous studies align to the common proposition that there are uniquely identifiable effects of the selected macroeconomic variables on the stock performance though none has included global oil prices and the all share index of all listed firms. Past empirical studies already reviewed in the empirical literature include; Jefferis and Okeahalam (2000), Mork, Olsen, and Mysen, (1994), Kandir (2008) and Gatuhi (2015) among others. They all point out to existence of a relationship and consistent findings as those established in the research.

5.4 Recommendations for Policy and Practice

From this research, it's evident that the role that macroeconomic variables and global factors of production such as oil prices on stock markets cannot be ignored. Though Kenya has a well-developed financial system in place by regional standards, there is need to correlate macroeconomic factors to capital markets. It's imperative for government officials and financial sector regulators to take advantage of various studies that have been carried out in the financial sector like this one to help them in the formulation of policies that inform investment decisions and hedge against macroeconomic risk and oil price volatility.

This will go a long way in ensuring a continued growth of stock markets in Kenya and beyond. Capital markets have a significant contribution to the development of the economy through financial intermediation and as such incentives that will attract investors to the capital market should be put into place and help guard against massive erosion of market gains during economic downturns using financial instruments.

5.5 Limitations of the Study

There are factors including changes in government policy such as capital gains tax and other legal policy regulations such as board structures that could impact some changes on the stock performance of listed firms but were not captured by the scope of this research. Also there were observed variations of data from different sources of secondary data. All Macroeconomic data was sourced from CBK. The highest affected variations were in GDP due to rebasing of the Kenyan economy.

The study used time series data for a period covering 8 years and 9 months and is therefore limited to the extent of time series data limitations. The study only focused on stock markets whereas there are other areas like bond markets and money markets which would have given a complete picture on the effect on financial sector as a whole in consideration of macroeconomic factors and global oil prices.

5.6 Recommendations for Further Research

The research only concentrated on stock performance of listed firms in Kenya due to time constraints and availability of data. The research would recommend further detailed study on the Kenyan financial markets as a whole by incorporating money markets and bond markets in the study and other variables in the capital markets like market size.

The research narrowed down to the effect macroeconomic variables and global oil prices on stock performance. However, the scope can be expanded to include independent variables such as management practices, board structure, taxation and regulatory policies on the stock performance.

REFERENCES

Adjasi, C., Harvey, S. K., & Agyapong, D. A. (2008). Effect of exchange rate volatility on the Ghana Stock Exchange. *African Journal of Accounting, Economics, Finance and Banking Research, 3*(3), 28-47.

Alam, N. (2013). Macroeconomic Variables, Firm Characteristics and Stock Returns during Good and Bad Times: Evidence from SEA . *Asian Journal of Finance & Accounting, 5*(2), 159-182.

Bekaert, G., & Engstrom, E. (2010). Inflation and the Stock Market: Understanding the Fed Model. *Journal of Monetary Economics, 57*(3), 278-294.

Berman, A. (2016). *What Really Controls Oil Prices?* (Unpublished Petroluem Report). Labyrinth Energy.

Bernake, B., Gertler, M., & Watson, M. (1997). Systematic Monetary Policy and the Effects of Oil Price Shocks. *Brookings Papers on Economic Activity. 1*, pp. 91-157. Washington, D.C.: The Brookings Institute.

Bernanke, B., & Kuttner, K. (2005). What Explains the Stock Market's Reaction to Federal Reserve Policy? *The Journal of Finance, 60*(3), 1221-1257.

Brinson, G. P., Singer, B. D., & Beebower, G. L. (1991). Determinants of Portfolio Performance II: An Update. *Financial Analysts Journal*, 40-48.

Capozzi, C. (2008). *What Is Stock Performance?* Retrieved September 11, 2016, from ehow.com: http://www.ehow.com/about_7346046_stock-performance_.html

CBK. (2015). *Bank Supervision Annual Report.* Central Bank of Kenya, Bank Supervision Department. Nairobi: Central Bank of Kenya.

Chen, N.-F., Roll, R., & Ross, S. A. (1986). Economic Forces and the Stock Market. *Journal of Business, 59*(3), 383-403.

Chinzara, Z. (2011). Macroeconomic Uncertainty and Conditional Stock Market Volatility In South Africa. *South African Journal of Economics, 79*, 27-49.

Collins, J., & Kemsley, D. (1999). *Capital gains and dividend taxes in firm valuation.* University of North Carolina and Columbia;university working paper.

Dimitrova, D. (2005). The relationship between exchange rates and stock prices: Studied in a multivariate model. *Issues in Political Economy, 14*(1), 3-9.

Fama, E. (1965). The behavior of stock-market prices. *Journal of Business, 38*(1), 34-105.

Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance, 25*(2), 383-417.

Fama, E. (1981). Stock Performance, Real Activity, Inflation and Money. *American Economic Review, 71*(4), 545-565.

Fattouh, B. (2011). *An Anatomy of the Crude Oil Pricing System.* Oxford Institute for Energy Studies.

Feldstein, M., & Horioka, C. (1980). Domestic Saving and International Capital Flows. *The Economic Journal, 90*(358), 314-329.

Fisher, I. (1930). *The Theory of Interest* (1st ed.). New York: The Macmillan Company.

Gatuhi, S. K. (2015). *Macroeconomic factors and stock market performance in Kenya.* (Unpublished doctoral thesis). Jomo Kenyatta University of Agriculture and Technology.

Gatuhi, S. K., & Irungu, M. P. (2013). Influence of Oil Prices on Stock Market Performance in Kenya. *International Journal of Management & Business Studies, 3*(4), 59-65.

Gavin, M. (1989). The stock market and exchange rate dynamics. *Journal of International Money and Finance,, 8*(2), 181-200.

Goldsmith, R. (1970). Financial structure and Development. *The Economic Journal, 80*(318), 365-367.

Hilderblith, A. (2003). *Relationship between performance management principles and firm performance: A survey of companies quoted in the Nairobi stock exchange.* (Unpublished Master of Business Administration Research Project). University of Nairobi.

Hoguet, G. R. (2008). Inflation and Stock Prices. *State Street Global Advisors*, 1-10.

Ibrahim, H. M., & Aziz, H. (2003). Macroeconomic variables and the Malaysian equity market: A view through rolling subsamples. *Journal of Economic Studies, 30*(1), 6-27.

Jefferis, K., & Okeahalam, C. (2000). The Impact of Economic FundamentalOn Stock Markets in Southern Africa. *Development Southern Africa, 17*(1), 22-51.

Kandir, S. Y. (2008). Macroeconomic Variables, Firm Characteristics and Stock Returns:Evidence from Turkey. *International Research Journal of Finance and Economics, 16*, 35-45.

Karinga, E. N. (2015). *The Announcement Effect of Capital Gains Tax on Stock Performance at Nairobi Securities Exchange.* (Unpublished Master of Science Research Project). University of Nairobi.

Kwon, C. S., & Shin, T. S. (1999). Cointegration and causality between macroeconomic variables and stock market returns. *Global Finance Journal, 10*(1), 71-81.

Landefeld, S., & Kozlow, R. (2013). Globalization and Multinational Companies:What Are the Questions, and How Well Are We Doing in Answering Them? *Globalization Seminar.* Geneva: Conference of European Statisticians.

Liljeblom, E., Loflund, A., & Krokfors, S. (1997). The Benefits from International Diversication for Nordic Investors. *Journal of Banking and Finance, 21*(4), 469-490.

Mabro, R. (1984). *On Oil Price Concepts.* Oxford Institute for Energy Studies .

Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance, 7*(1), 77-91.

Modigliani, F., & Cohn, R. A. (1979). Inflation, Rational Valuation, and the Marketperformance. *Financial Analysts Journal, 35*(2), 24-44.

Modigliani, F., & Miller, M. H. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business, 34*(4), 411-433.

Mork, K. A., Olsen, O., & Mysen, H. T. (1994). Macroeconomic Responses to Oil Price Increases and Decreases in Seven OECD Countries. *Energy Journal*, *15*(4), 19-35.

Mutai, B. K. (2014). *The Effect of Adoption of International Financial Reporting Standards on Quality of Financial Reporting by companies Listed at Nairobi Securities Exchange.* (Unpublished Master of Science Research Project). University of Nairobi.

Ndegwa, J. N., & Mboya, J. K. (2015). Testing Of Consistent Trends in Stock Performance In The Nairobi Securities Exchange. *1st DBA-Africa Management Review International Conference*, 212-221.

Ndungu, P. N. (2013). *The realationship between oil price volatility and economic growth in Kenya.* (Unpublished Master of Science Research Project). University of Nairobi.

Ngoe, A. O. (2011). *The Effect of Board Structure on the Performance of Quoted Companies at the Nairobi Stock Exchange.* (Unpublished Master of Science Research Project). University of Nairobi.

Njau, D. K. (2013). *The effect of selected macroeconomic variables on the financial performance of private equity firms in Kenya.* (Unpublished Master of Science Research Project). University of Nairobi.

Olwen, T., & Omondi, K. (2011). The effect of macro-economic factors on stock return volatility in the nairobi stock exchange,Kenya. *Economics and Finance Review*, *1*(10), 34-48.

Oxelheim, L., & Wihlborg, C. G. (1989). Macroeconomic Uncertainty: International Risks and Opportunities for the Corporation. *Journal of International Business Studies, 20*, 178-182.

Özlen, Ş., & Ergun, U. (2012). Macroeconomic Factors and Stock Returns. *International Journal of Academic Research in Business and Social Sciences, 2*(9), 315-343.

Rapach, D. (2002). The long-run relationship between inflation and real stockprices. *Journal of Macroeconomics, 24*, 311-351.

Rapach, Wohar, & Rangvid. (2005). Macro Variables and International Stock Return Predictability. *International Journal of Forecasting, 21*(1), 137-166.

Ross, S. A. (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory, 13*(3), 341-360.

Sellin, P. (2005). Monetary Policy and Stock Markets: Theory and empirical evidence. *Journal of Economics Surveys, 15*(4), 491-541.

Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance, 19*(3), 425-442.

Wongbangpo, P., & Sharma, S. (2002). Stock Market and macroeconomics Fundamental Dynamic Interactions. *Journal of Asian Economics, 13*(1), 27-51.

Yang, C. W., Hwang, M. J., & Huang, B. N. (2002). An analysis of factors affecting price volatility of the US oil market. *Energy Economics, 24*(2), 107-119.

APPENDICES

APPENDIX I: LISTED FIRMS AT THE NSE

	Agricultural	33	Crown Paints Kenya Ltd
1	Eaagards Ltd	34	E.A.Cables Ltd
2	Kakuzi Ltd	35	E.A.Portland Cement Co. Ltd
3	Kapchorua Tea Co. Ltd		**Energy & Petroleum**
4	The Limuru Tea Co. Ltd	36	KenGen Co. Ltd
5	Rea Vipingo Plantations	37	KenolKobil Ltd
6	Sasini Ltd	38	Kenya Power & Lighting Co Ltd
7	Williamson Tea Kenya Ltd	39	Total Kenya Ltd
	Automobiles & Accessories	40	Umeme Ltd
8	Car & General (K) Ltd		**Insurance**
9	Marshalls (E.A.) Ltd	41	British-American Investments Co.(Kenya)
10	Sameer Africa Ltd	42	CIC Insurance Group Ltd
	Banking	43	Jubilee Holdings Ltd
11	Barclays Bank of Kenya Ltd	44	Kenya Re Insurance Corporation Ltd
12	CFC Stanbic of Kenya Holdings Ltd	45	Liberty Kenya Holdings Ltd
13	Diamond Trust Bank Kenya Ltd	46	Pan Africa Insurance Holdings Ltd
14	Equity Group Holdings Ltd		**Investment**
15	Housing Finance Co. Kenya Ltd	47	Centum Investment Co Ltd
16	I&M Holdings Ltd	48	Home Afrika Ltd
17	Kenya Commercial Bank Ltd	49	Kurwitu Ventures Ltd
18	National Bank of Kenya Ltd	50	Olympia Capital Holdings Ltd
19	NIC Bank Ltd	51	Trans-Century Ltd
20	Standard Chartered Bank Kenya Ltd		**Investment Services**
21	The Co-operative Bank of Kenya	52	Nairobi Securities Exchange
	Commercial & Services		**Manufacturing & Allied**
22	Express Kenya Ltd	53	A. Baumann & Co. Ltd
23	Kenya Airways Ltd	54	B.O.C Kenya Ltd
24	Longhorn Kenya Ltd Ord	55	British American Tobacco Kenya Ltd
25	Nation Media Group Ltd	56	Carbacid Investments Ltd
26	Standard Group Ltd	57	East African Breweries Ltd
27	TPS Eastern Africa Ltd	58	Eveready East Africa Ltd
28	Uchumi Supermarket Ltd	59	Flame Tree Group Holdings
29	Scangroup Ltd	60	Kenya Orchards
	Telecommunication & Technology	61	Mumias Sugar Co. Ltd
30	Safaricom Ltd	62	Unga Group Ltd
	Construction & Allied		
31	ARM Cement Ltd		
32	Bamburi Cement Ltd		

Source: www.nse.co.ke

APPENDIX II: RAW DATA

PERIOD	NASI	Exchange Rate	90 day T-bill	Inflation Rates	Brent Crude
2008 Q1	95.55	67.88	7.04	10.63	96.86
2008 Q2	109.57	62.65	7.61	17.53	121.20
2008 Q3	95.68	68.60	7.91	18.06	114.69
2008 Q4	71.16	77.62	8.24	18.70	55.03
2009 Q1	61.95	79.58	7.77	14.17	44.52
2009 Q2	61.34	78.45	7.37	10.21	58.88
2009 Q3	70.04	76.24	7.26	7.51	68.14
2009 Q4	68.84	75.14	7.10	5.65	74.57
2010 Q1	79.71	76.49	6.25	5.03	76.42
2010 Q2	90.90	78.94	4.12	3.68	78.49
2010 Q3	97.34	80.93	1.82	3.33	76.82
2010 Q4	99.64	80.58	2.20	3.84	86.54
2011 Q1	96.55	82.24	2.61	7.05	105.45
2011 Q2	93.08	86.12	5.85	13.16	117.01
2011 Q3	80.11	93.01	10.05	16.51	113.24
2011 Q4	69.14	93.87	16.41	19.19	109.42
2012 Q1	70.60	84.14	19.35	16.87	118.71
2012 Q2	78.03	84.12	12.43	11.78	107.75
2012 Q3	84.24	84.28	10.22	6.38	109.63
2012 Q4	91.23	85.58	9.03	3.53	110.15
2013 Q1	106.97	86.72	8.78	4.08	112.44
2013 Q2	122.08	84.61	8.68	4.37	102.56
2013 Q3	122.63	87.26	8.51	7.00	110.23
2013 Q4	134.51	85.91	9.73	7.42	109.23
2014 Q1	140.57	86.33	9.13	6.78	108.14
2014 Q2	149.05	87.25	9.14	7.03	109.69
2014 Q3	156.19	88.24	8.82	7.54	101.90
2014 Q4	161.77	89.88	8.63	6.18	76.43
2015 Q1	169.88	91.52	8.56	5.82	53.98
2015 Q2	167.56	95.84	8.31	6.99	61.65
2015 Q3	150.68	102.97	12.24	6.14	50.44
2015 Q4	142.15	102.38	14.60	7.35	43.56
2016 Q1	142.09	101.91	10.24	7.02	33.84
2016 Q2	143.71	101.04	8.11	5.36	45.57
2016 Q3	138.03	101.28	7.90	6.33	45.80

Source: Research Data