EFFECTS OF OIL PRICE CHANGES ON PERFORMANCE OF THE MANUFACTURING SEGMENT OF THE NAIROBI SECURITIES EXCHANGE

BY

ABDULLAHI HASSAN HAJI

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, FINANCE AT THE UNIVERSITY OF NAIROBI

DECEMBER, 2017

DECLARATION

This research study is my original work and has not been presented to any other University for Award of any Qualifications

Signature…………………….. Date……………………………

Abdullahi Hassan Haji

D61/82444/2015

This research Project has been submitted for examination with my approval as the University supervisor

Signature…………………….. Date……………………………

Dr. Duncan Elly Ochieng', PhD, CIFA

Lecturer, Department of Finance and accounting,

School of Business, University of Nairobi

DEDICATION

I would like to dedicate this research to my family especially my dear wife Hamida Mohamed, my daughter Maryam and my parents. I sincerely thank you for your support and encouragement during the research period. May Allah bless you all.

ACKNOWLEDGEMENT

I wish to thank the Almighty God for giving me good health and wisdom to conduct this study. My Sincere appreciation goes to my Supervisor, Dr. Duncan Elly for his unlimited support and guidance during the entire period of the study. His opinions, constructive criticism comments and suggestions greatly helped me shape this research to completion. To my family members, I am very grateful for the constant love, care, encouragement, financial and moral support throughout my life and career development.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

Oil is a significant contributor to the economies, and its centrality in the Kenyan energy mix cannot be overlooked. Like other developing countries, Kenya relies heavily on fuel and as a source of energy. As such, the companies in the country are heavily affected by oil prices. This study aimed at investigating effects of oil price changes on performance of the manufacturing segment of the Nairobi Securities Exchange for a period of 5 years beginning 2012 to 2016. The manufacturing industry in Kenya consists of food and beverage industry, paper manufacturing, plastic manufacturing, metal and allied industry. The sub-sector in the NSE is composed of eight companies, all of which were studied in this research, and data obtained from the NSE, CBK. The sector is dominated by subsidiaries of multi-national corporations. It contributed approximately 13% of the Gross Domestic Product (GDP) in 2004. This topic has been previously been done by other scholars including Arouri et al., (2011), Ebrahim et al., (2014), Hamilton (2008) and Mork (1989) and others who came up with different conclusions. Several theories have also been propounded and they seem to agree to the significance of oil prices in the performance.

Descriptive statistics, regression & correlation analysis, diagnostic tests and analysis of variance were employed in the analysis of data obtained analyzed with the help of statistical software EVIEWS. The variables, changes in oil prices, changes in exchange rates and changes in the interest rate were studied and its effects on financial performance as measured by stock prices of the companies as the independent variable. It was found that exchange rate is the most significant factor among the variables. Interest rates negatively affect the financial performance while interest rate also significantly increases financial performance of the companies. Of interest to note is the fact that oil prices have an insignificant negative impact on the financial performance. These variables cumulatively predict 71.2% of the stock prices. Therefore, the industry players should keep an eye on the interest rate and the exchange rates in their various economic decisions. The study further recommends that the security lending and borrowing should be introduced to enhance liquidity regarding long-term investment portfolio for manufacturing firms listed in the NSE. The major limitation of the study was the use of secondary data and the study suggests that the same is conducted using real-time data from the respective companies, and done in a longer period of time.

CHAPTER ONE: INTRODUCTION

1.1 Background

Fluctuations in oil prices serve to stifle economic activities and reduce asset values. For example, excessive rise in prices of oil has promoted economic growth in times of recession. According to Huang, Yang and Hwang (2002), higher prices of oil leads to recession among countries consuming the product. This is because there is a negative correlation between oil and economic activities of a country. An increased level of movements and fluctuations in oil prices has been a major topic of discussion among different scholars and researcher in different fields.

There are different ways which oil prize affects the economy of the world. First, as price of oil increases, the costs of producing products also go up and therefore increased prices generally. Secondly, speculations of increase in prices in future have negative impact on the financial sector and this affects other class of assets. The prices of oil can establish economic trends in domination of Gross Domestic Product growth rates. Increase in oil prices would therefore affect the wealth of the nation since it shifts the balance of trade and this is likely to affect the rate of exchange between different currencies too (Turhan et al. 2012).

The growth of the global economy measured by the growth rate has fluctuated over the period of time as a result of different reasons. These reasons include a rise in oil prices in international market leading to increased cost of production especially among industries relying on oil products. The other reason is the decline in growth of upcoming economies across the world for example China as a result of high production costs (KNBS, 2011).

The state of the economy in the country affects performance of an organization. However, stability in macroeconomic indicators determines economic performance. Some of the macroeconomic indicators include inflation rate exchange rate, GDP, return on security market and interest rates. In Kenya, the growth rate for 2008 reduced to 1.5% as compared to 7% in 2007. In the year 2009, there was growth of 2.7%, followed by 5.8% in 2010. There was a decline to 4.4% in 2011. Therefore, there have been fluctuations in GDP growth rates due to negative and positive events in the nation. Some of these negative events include post election violence in 2008, an increase in interest and inflation rates reducing availability of credit in the economy and the 2013 general elections. The positive events on the other hand refers to increased private sector credit, increase in government expenditure (KNBS, 2012).

1.1.1 Oil Price Changes

A change in oil prices is one of the issues affecting the operations of businesses. In 200, between October and November, prize of oil across the world rose about 3 times higher than in 1999 February. During mid-1990s, there was growth in economic expansion that which increased the demand for oil products.

The Organization of Petroleum Exporting Countries (OPEC) organized for meeting in different occasions in the year 1998 and came up with agreements of restraining production. There was reversal in the upward trend in production. However, compliance with agreements was not enough to deal with oil price changes. In 2000, November, there was significant fall in oil prices reflecting in the slowing of global economic activity and high oil prices (IMF Report, 2000).

Expected oil prices have effect on share returns through discount rates. The expected discount rate is made up of expected rate of inflation and expected real rate of interest (Huang et al., 2006), all that dependent on expected prices of oil (Arouri et al., 2011; Dhaoui & Khraief, 2014; Huang et al., 2006; Jones & , 1996; Narayan & Narayan, 2010).

Agyapong and Darfor (2010) gave considerations to how macroeconomic indicators affect prices of Commercial banks in Ghana and established that Ghana Stock Exchange share index affected price levels of commercial banks. However, exchange rates and inflation did not have significant influence on stock prices.

1.1.2 Market Performance

Performance of stock markets is assessing the market which is efficient. A common characteristic of the market that is efficient is liquidity that is constant, easy of new entry and exists to investors. However, these conditions need enough sizes and volumes of transactions in the market (Yartey and Adjasi, 2007). One of the integral component of a financial sector is the stock market. A well performing stock market results into low cost of equity capital among individuals and firms and this facilitates pricing and hedging. Stock market are crucial in attraction of foreign investors , enhances domestic mobilization of resources and expansion of available resources. These lead to economic growth and development.

As Yarti and Adjasi (2007) indicate, in recognition of the importance of stock market in growth of the economy, stock development programs were undertaken by bodies like ADB, IMF and World Bank among developing countries between 1980s and 1990s. It was established that considerable developments have been experienced among emerging

stock markets since early 1990s. Among emerging economies, the market capitalization has rapidly grown all along from less than $2 trillion in 1995 to about $5 trillion in 2005 (Yartey and Adjasi, 2007). Emerging markets stand at 12% and are growing steadily in relation to world capitalization (Standard and Poor, 2005).

The NSE 20 Share Index is a price weight index. In determining this index, NSE uses 20 blue chip companies with well established pre conditions. NSE updates the INSE 20 share index at the end of each working day (My Stocks, 2014). NSE 20 Share index represents geometric mean of prices of shares of blue chip companies on the NSE. Currently, there are other measures of performance that are broader for example the NSE All Share Index (NASI), aimed at capturing the market capitalization of all the NSE's listed equities traded in a day.

1.1.3 Oil Price Changes and Market Performance

In view of the Arbitrage Pricing theory, return on asset ROA dependents on numerous macroeconomic indicators for example market indices, inflation, exchange rate and interest rates. Oil price is one of the measures of production. This is because oil is a type of resource and helps in production of various goods and services just as capital and labor. Since manufacturing firms heavily rely on oil for different operations, therefore changes in oil prices affect performance of these manufacturing organizations.

There is higher efficiency in financial markets as compared to real markets. Financial markets are also more sensitive to announcements and therefore information concerning the effect of changes in oil prices is quickly absorbed by the stock market and is quickly reflected in the stock prices   (Arouri et al., 2011). The negative reaction of real stock prices to the increase in oil price is attributed, according several authors including Arouri

et al., (2011), Dhaoui and Khraief (2014), Huang et al. (2006), Jones and Kaul (1996) and Narayan and Narayan (2010) to the positive influence of increase in inflation and cash flows. Particularly for manufacturing firms, prices of oil have effect on cash flow of an organization as oil plays an important role in production. This theory is relevant in explaining the channels through which changes in oil prices influences stock prices such as through cash flows and discount rates.

1.1.4 Manufacturing Sector in Kenya

One of important sectors in Kenya is manufacturing subsector due to its contributions towards GDP (Awino, 201). Manufacturing sector has potential of generating foreign exchange rates through exportation and diversification of the economy as a whole. There has been growth in manufacturing sector over time in contributing to GDP and therefore economic growth. In typical Africa, manufacturing sector accounts to up to 8% in size. In spite of this size and its importance, manufacturing sector is still small in Kenya as compared to other industrialized nations (United Nations Industrial Development Organization (UNIDO), 1987).

Manufacturing sector plays a significant role in economic development of the country through job creation and creation of value. The sector is under a lobby group called Kenya association of Manufacturers KMA. According to KAM, manufacturing sector in Kenya contributes to about 18% in Gross domestic product and over 2.3 million people are employed in the sector. However, there has been some challenges that have reduced efficiencies and effectiveness in this sector for example high production costs, producing counterfeit products, changes in tastes and preferences of consumers and insufficient support from the government.

There was decline in growth of manufacturing industry from 3.3% in 2011 in comparison to 4.4% in 2011 (KNBS, 2012). This growth resulted from rise in prices of inputs including oil products, changes in weather conditions and depreciation of the value of Kenya shilling. The potential for instability has led policymakers to seek to understand how oil-price dynamics affect economic growth. Kenya relies heavily on fossils fuel including for electricity generation increasing both the cost of doing business and living cost (inflation) (Ombok, 2011).

The market for the manufacturing sector in Kenya is both local and foreign. Subsidiaries of multi-national corporations form substantial portion of manufacturing sector. It contributed approximately 13% of the Gross Domestic Product (GDP) in 2004.

With the introduction of the East Africa Custom Union, the manufacturing sector in Kenya has been boosted. This has opened more opportunities to investors and business owners and therefore growth in market share of the manufacturing sector (PwC).

1.2 Research Problem

A rise in prices of oil is as a result of cost of transports and costs of heating and this affects performance of an organization. This also affects stability of corporates besides their profitability and sustainability   (Li & Zhao, 2011). Changes in prices of oil and how it affects economic growth has been given lots of emphasis by scholars and researcher. According to Moradi, Salehi and Keivanfar (2010), there have been differing effect of changing prices of oil and this has affected economic growth. On the other hand, Babatunde, Adenikinju and Adenikinju (2013) notes that features of an economy in each nation are important in association to oil prices and performance of stock markets.

13

A study was done by Bukola (2010) on how oil prices affect manufacturing firms in Nigeria. The study established that many problems surround manufacturing firms in Nigeria. This is due to changes in prices of oil. For these companies to attain the standard of production there is need for large amount of fuel to drive the operations of the firms. Most of manufacturing rarely have their own diesel driven generators and therefore use oil products.

Adeniyi, Oyinlola and Omisakin, (2011) studied the relationship between oil price shocks and economic growth. They established that oil price shocks do not account for a significant proportion of observed movements in macroeconomic aggregates. Additionally, the relationship between oil price volatility and economic growth has been complicated by the fact that most governments and supra national organizations advocates green energy sources. As a result, corporate entities have resorted to green (renewable) energy sources when oil prices go up which might result into change in the relationship between oil price volatility and economic growth (Armstrong, 2011).

According to KAM, Kenyan manufacturing sector face numerous challnages and this hinders with efficiency and effectiveness. Among the identified challenges were high production costs, changes in tastes and preferences of consumers and low government support. This has affected performance of many manufacturing firms in the industry. Several studies further indicate significant relationships exist between oil prices inflation and the financial performance of manufacturing firms. The findings from these studies show that macroeconomic indicators affect performance. Example of these macroeconomic indicators includes exchange rate, inflation and interest rates. It is therefore important that studies are done to fill the empirical gaps above. According to

Menike (2006), research has shown that macro economic variables would lead to performance of an organization. Hence there is a need to narrow the list of possible factors considering their relevance to emerging stock markets.

This research will therefore contribute to, and complement other scholarly efforts in providing an empirical foundation for designing an appropriate model that would show the relationship between the oil price changes and the performance of firms in the manufacturing industry.

1.3 Objectives of the Study
1.3.1 General Objective

The general objective of the study was to establish the effect of oil price changes on performance of the manufacturing segment of the Nairobi Stock Exchange.

1.3.2 Specific Objectives

The specific objectives of the study were to;

1. To establish oil price changes trends in Kenya.

2. To establish trends in the manufacturing market segment performance at the Nairobi Stock Exchange in Kenya

3. To establish effects of oil prices on performance of the manufacturing segment of the Nairobi Stock Exchange in Kenya.

1.4 Value of the Study

A study of oil price changes is an area that was beneficial to the following group of persons: By establishing the effect of oil price changes on performance, the study would inform current and would be investors in Kenya as they seek to know how sensitive the economic variables such as commodity prices and foreign exchange market are to oil

price changes. This is a key decision factor especially in foreign direct investment.

Based on previous literature, oil price fluctuations might affect inflation through commodity prices and other macroeconomic aggregates hence overall performance of the economy, thus the study findings would be significant to the government. The government, through its monetary policymakers and regulatory agency such as Energy Regulatory Commission (ERC), by knowing the effect of fluctuations in price of oil and economic growth will thus make proper policies that guide oil market and its pertinent substitutes (hydroelectricity and renewable energy sources), to mitigate poor performance of the economy.

This study is of benefit to corporate management as they would learn the impact of oil price changes on economic growth and their performance, by extension. This would be integral in their decision making on the source of energy to use or hedging techniques as may be appropriate. Additionally, the study is beneficial to the students and academicians in Kenya by narrowing the knowledge gap on the relationship between oil price changes and performance. The study formed a good base upon which further research is based since it is a source of empirical study and secondary material.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter review literature relevant to the current study. The chapter gives theories that formed the basis of the study. The chapter also presents past and relevant studies related to the current one. The conceptual framework and a summary of the literature review and knowledge gaps is also presented.

2.2 Theoretical Framework

This sections reviews relevant theories that are used as the basis of the study. The study reviews the following theories; transmission mechanism, the equity pricing theory. Each of these theories is expounded in details in subsequent sections.

2.2.1 The Transmission Mechanism

Mork (1989) provided the framework for understanding macroeconomic impact of oil price fluctuations. The author notes that changes in oil prices affect economic growth of the country. Furthermore, there is a link between these changes in oil prices and macro economic variables of the country like interest rates and inflation. Mork (1989) orated that increase in prices of oil negatively affects the growth of the economy in terms of GDP. This is often witnessed in Kenya where commodity price increases quickly follow

upward Oil price changes but rarely do they come down following a fall in world Oil prices (Ebrahim et al., 2014).

In summary, studies carried out by (Bacon & Kojima, 2008; Ebrahim et al., 2014; Hamilton, 2008; Kilian, 2010; Mork, 1989) established how the following macroeconomic variable are affected by Oil price changes: *Consumption* is expected to decrease due to the economic uncertainties brought about by oil price fluctuation which impact consumer confidence and leads to precautionary saving behaviour. In his study, (Ebrahim et al., 2014) also observed that unemployment rates, in the short to medium term may increase in response to the decreased consumption and production levels.

Due to the uncertainty surrounding profitability of investments, (Bernanke, 1980) observed that *Real Investment* by manufacturing firms is expected to decline in the short to medium term in response to expected decreases in consumer spending. This is also supported by (Kilian, 2010) who noted a shift in investment expenditure patterns driven by the uncertainty effect. Subsequently, over time, *Production* may remain constant or decrease depending on whether management choose to maintain current production levels while increasing retail prices. Alternatively, firms may reduce production levels in response to declining consumer demand (Hamilton, 2008). This effect would be more immediate in companies dealing with Fast Moving Consumer Goods (FMCG), due to the responsiveness of the markets.

Inflation may move either way depending on the severity of the change (Hamilton, 2008; Jones & Kaul, 1996). It may be that the deflationary pressure caused by the decreasing consumer demand outweighs the inflationary pressure of increased prices of goods. This transmission mechanism explains the influence that Oil price change has on the business environment, which affects the performance of majority of the businesses operating in that environment.

Certain expectations develop depending on the trends of the macroeconomic indicators like rates of inflation and exchange rates. In response to the changing Oil prices, management is constantly engaged in a dilemma of whether to; increase prices during the spikes, which may affect their competitiveness if the competitors don't follow suit or; reduction of prices during the slump, which raises the question as to whether this is sustainable. It is therefore a careful balance that has to be maintained by management in the face of a competitive and ever price sensitive consumer base. The theory is relevant in explaining how oil price changes impact on economic activities in a country and how this in turn affects other certain expectations particular those of share prices within the stock market which end up influencing the performance of various market segments.

2.2.2 Equity Pricing Theory

In view of this theory, stock values are indicated by the sum of discounted future cash flows. These cash flow either directly or indirectly depends on prices of oil. For example, whenever there is steady rise in price of oil, this would increase energy cost for many firms leading to a decline in their earnings. In stock valuation, analysts and investors make prediction of further increase in prizes of oil and therefore estimating lower returns.

The theory is relevant in understanding the significance of oil price changes in stock valuation thus affecting performance in the stock market and hence impacting the overall market segment performance.

2.2.3 Information Hypothesis

In an economy, the ability to make decisions is based on 3 important aspects. These aspects form the basis of economic analysis and they include possibilities in identifying numerous options available, determination of consequences each option pose and lastly determining an optimal choice among alternatives. However, for one to follow this process, adequate information should be in place since inadequate information hinder decision making process (Wallace, 1987). Information strengthens decision making processes (Scott, 2011). Information results into different benefits for example risk reduction, enhanced decision making ability and attainment of effectiveness and efficiencies in exchange of securities (Eugene et al.).

The theory insists on need for availability of sufficient information for determination of market value of economic units and establishing tools for making rational and sound decisions in matters of investment (Wallace, 1987). Since any form of investment involves decision making in a way, decision making processes in economy needs adequate information. Prices of share offer vital information when making investment decision in equities of firms. The theory is relevant in explaining the importance of information concerning oil price changes in influencing the decisions of companies within the stock market which determines their performance in the stock market and hence impacting the overall market segment performance.

2.3 Determinants of Stock Market Performance

There exists several factors affecting how security exchange market perform. These factors include prevailing exchange and interest rates, repayment of foreign debts, presence of business takeovers through mergers and acquisitions, sound investment policies, provision of sound regulatory environment among other factors (Imran Ali, 2009). The study discusses the exchange rate, interest rate and inflation rate as well as real output.

2.3.1 Exchange Rate

It refers to amount the one currency is worth another currency through conversion. Stock market returns are highly affected by changes in exchange rates. High fluctuation in exchange rate increase volatility in stock returns. Scholars have made conclusions that there exists a link between the movement in exchange rates and volatility of security market returns. However, other studies have not supported this argument. Specifically, the information content of exchange rate movement would be carried to the security's business (Ntshangase, Mingiri, & Palesa, 2016).

Hsing (2011) established a positive link between rate of exchange and security market in South Africa. In Taiwan, Cheng' et al. (2011) examined security market and established a positive link between rate of exchange and security returns. Bailey and Chung (1995) examined fluctuations in rates of exchange and political risks and how they affected returns of security exchange markets in Mexico. A direct relationship ease established between the study variables.

2.3.2 Inflation Rate

According to Geethaet al. (2011), financial literature indicates existence of both direct and indirect effect of inflation in an economy. Furthermore, inflation rate has an effect on volatility and risk of a security exchange market.

Inflation has diverse effect on the economy of the country. Inflation can also either positively or negatively affect the economy of the country. Inflation leads to reduction in real value of the currency. Inflation rates are likely to discourage investors from committing their funds in future and this reduces the goods and services available in the country (Kamau, 2016).

The rate of inflation is defined as an increase in prices of goods in the country. It is usually expressed over a given period of time (Mishni, 2004). Inflation is related to the term called consumer price index CPI and in fact many scholars have measured inflation using CPI. CPI was often used to reflect the products and prices about the general public. Different studies have shown that shows that inflation is negatively related with returns of stock.   Liljeblomet al. (1997) used data from Finland and established that inflation affected stock markets. Kavussanoset al. (2002) did an analysis of the industry and similarly obtained a negative relationship. Inflation is limited in predictability (Rapachet al., 2005). On the contrary, Chen et al., (1986) established that inflation had no ability for prediction of returns of stocks. Therefore, inflation is negatively related to returns on stocks.

2.3.3 Interest Rate

Interest rate refers to the price lender charge to borrowers of funds in obtaining loans. Interest rate is expressed as a proportion of total amount loaned out. According to Kabubo and Ngugi (1998), interest rate primarily helps in mobilization of financial resources while at the same time ensuring efficient use of resources for promoting economic development and growth.

According to Chen et al. (1986), interest rate positively affected returns of stocks. Wongbangpo et al. (2002) noted that interest rate negatively affected countries in Asia. Nguyen (2007) revealed that interest rate significantly affected risk perception of capital intensive firms. Chiang et al. (2009) established that interest rate negatively affected security return in Singapore. Specifically, Rapachet al. (2005) noted that among the most reliable indicators in an economy was interest rate. However, Chan et al. (1998) thought interest rate didn't have any relationship with stock return.

Besides, Chen et al. (2005) established no significance between interest rate and returns on stock. In Turkey, Kandir (2008) established a positive link between rate of interest and performance of stocks. Jefferis and Okeahalam (2000) sought to determine a link between identified macroeconomic indicators in Botswana, Zimbabwe and South Africa. Te study established a negative influence of interest rates and stock returns.

2.3.4 Real Output

Real GDP is determined after adjusting for inflation. It is a measure of the level of economic activity in the country. A related but different types of inflation is nominal inflation rate. With this, inflation has not been factored in. In his study, Barasa (2014) found that GDP per Capita had a positive but weak and insignificant relationship with stock market performance.

2.4 Empirical Review

Aye (2015) used weakly data to examine the stock of South Africa. The study covered a period of 1995 to 2014. From the findings, uncertainly significantly affected stock returns in South Africa. The study further noted that accounting for uncertainly in oil prices increases the negative returns. There is asymmetric response between oil price uncertainty and stock returns.

Scholars try to understand whether effect of oil price changes is asymmetrical that is whether the effect of increase and decrease in oil prices are not same. Sadorsdy (1999) provides two explanations for the asymmetrical effect of negative and positive prices of oil on economy. The author examined an interaction between oil price and returns in USA. Data was collected over 1947-1996. The study established relationship between the study variables. The study established that stock returns decline when p[rice of oil rise.

Future oil prices therefore affect expected cash flows and possibly discount rates, expected cash flows are affected because (Arouri et al., 2011). Additionally, the work by Ebrahim et al., (2014), Hamilton (2008) and Mork (1989) looked at the macroeconomic

affect of oil price on fluctuation of prices. Since financial markets have greater efficiency as compared to the real market while at the same time sensitive to new announcement, it is probable that stock market shall absorb information concerning the effect of changes in oil prices and this is quickly reflected in prices of stock (Arouri et al., 2011). The negative reaction of real stock prices to the increase in oil price is attributed, according several authors including Arouri et al., (2011), Dhaoui and Khraief (2014), Huang et al. (2006), Jones and Kaul (1996) and Narayan and Narayan (2010) to the direct effects of this increase on cash flows and inflation. Therefore, is one of the inputs used in production that is affected by both positive and negative economic growth (González & Nabiyev, 2009).

Janor, Abdul-Rahman, Housseinidoust, et al., (2013) studied how changes in prices of oil affected performance of emerging markets. This was done on a period of 1986 to 2011. From the findings, there was significant effect of oil price changes on returns of stock. Oil price shocks and particularly negative shocks raised volatility of returns of stock.

 (Huang et al., 2006) examined empirical findings and defined security prices as discounted values of cash flows expected from projects.   One reasons of using changes in prices of oil as an indicator influencing security prices is that in theory, stock values is equal to discounted sum expected from future cash flows (Narayan & Narayan, 2010). These cash-flows are affected by macro-economic variables that may be influenced by Oil price changes (Arouri et al., 2011)

Future changes in prices of oil affect cash flows expected and therefore discount rate through numerous reasons. For example, since oil is a real resource, it an input in many manufacturing industries. Therefore, expected changes in prices of oil affect stock prices (Arouri et al., 2011). In addition to that, expected changes in prices of oil have effect on returns of stock through discounting. The discounting rate is made up of expected rate of inflation and real rate of interest   (Huang et al., 2006), all of which have dependence on expected changes in oil prices (Arouri et al., 2011; Dhaoui & Khraief, 2014; Huang et al., 2006; Jones & Kaul, 1996; Narayan & Narayan, 2010).

The work by Ebrahim et al., (2014), Hamilton (2008) and Mork (1989) asses how macro economic variables affect changes in prices of oil as the main medium that changes in oil prices may have effect on prices of shares.

Kilian and Park (2009) looked at how prices of oil affected the markets in USE. Demand and supply was examined and how it affects oil price changes. From the findings, there are differences on how stock market reacts to changes in oil prices. The change in oil prices could either be positive or negative, Positive change is called positive shock while negative change is called negative shock.

Mohamed (2012) sought to establish how oil prices fluctuation affect stock markets. From the findings, changes in oil prices have effect on stock market performance. However, each sector had different reaction to change in oil prices.

In his work on understanding crude oil prices, Hamilton (2008) underscores the reaction

to Oil price changes within the US stock market. He noted that negative oil price shocks (increases) tend to have a greater effect than positive price shocks do. This is in line with earlier findings by Mork (1989) in his work on oil and the macro economy when prices go up and down which an extension of Hamilton's results who found was changes in oil prices affect firms across the entire manufacturing sector.

Gatuhi (2013) sought to assess how changes in prices of oil affected stock markets. The study used variables like exchange and interest rates. Data was collected on a monthly basis. The study found out that change in prices of oil affected performance of stock market. Changes in prices of diesel had positive effect while interest rate had negative relationship.

Bett (2017) assessed effect of oil prices and prices of share among firms listed on Manufacturing sector at NSE. The study tested economic theory using data from 2005 to 2014 in the context of listed manufacturing firms. The study tested for traditional linear cointegration using the 1990 Johansen Cointegration test. The findings led to the conclusion that the share prices of some of the manufacturing firms were impacted by the oil price changes in the long term. In addition, the study findings provided evidence to support the theory that it is the oil price that influences the share price movements. The study recommended the need for management teams to institute various measures to either shield the company from losing value or take advantage of opportunities as they lay.

A study was done in India by Rai and Bairagi (2014) to examine the effect of change in prices of oil among listed on Indian Stock Market. A mixture of inferential statistics was used for analysis of the findings. Secondary data was collected over a period of 10 years

that is 2003 to 2012 was used. The study found out a significant but weak relationship between oil prices and Indian stock market returns. The study further established that changes in prices of oil follow the demand and supply principles of economic.

Wattanatorna and Kanchanapoomb (2012) studied how prices of crude oil affected performance of stock in Tahiland. From the findings, prices of crude oil had significant influence on performance. The study concludes for another analysis to investigate performance of every firm in different sectors may give more information on maximization of profits.

In Malaysia, Jafarian and Safari (2015) conducted analysis at the market and sector level by examining the sensitivity of returns of stock on fluctuations in oil prices. The study was done over 2000 to 2014. From the findings, stock returns were affected by changes in prices of oils. The researcher makes recommends for development and incorporation of measures to prevent and reduce changes in oil prices and the effects of these.

Nandha and Brooks (2009) internationally analyzed prices of oil and returns of transport sector. The findings of the study indicated that each industry is affected by oil price changes differently. The degree and nature of effect of oil price change usually dependent on numerous factors. One of the factor is whether the industry use energy intensive means. Secondly is whether the company shall compensate risks by transfer of oil prices shocks and lastly the intensive level of competition in the industry.

Faff and Brailsford (1999) used augmented market model to analyze how sensitive industries in Australia were on returns on equity and changes in oil prices. The study

established that oil price greatly influenced the industry over the wider period. The most affected industries were paper and packaging and transport sector. Afterwards, McSweeney and Worthington (2008) reassessed this study by examining how the industry returns of Australia reacted to macroeconomic indicators like prices of oil, rates of exchange and market portfolios. The study revealed consistent results with the previous ones.

A multivariate VAR model was employee by Cong, Wei, Jiao, and Fan (2008) on Stock market of China. The study established that only larger shocks had negative effect on oil prices. Greater changes in oil prices affected stock market indices. A significant level of variations in manufacturing index was explained by oil price shocks. The rest of the Chinese stock indices were not shown to be significantly affected by the oil prices.

A study was done by Jones and Kaul (1996) to assess how changes in prices of oil affected returns of stocks. The study was done in USA, Canada, Japan and United Kingdom. The researcher used regression analysis to establish results. The findings indicated relationship between the variables of the study. These changes different across the countries studied.

In his investigation on irreversibility, uncertainty, and cyclical investment, Bernanke (1980) indicated how uncertainly on prices of energy may lead firms in postponing investments. The study established negative relationship between the study variables. This showed as that dependent variable is increased, the independent variable decreases.

The degree which decreasing prices of oil may stimulate output may reduce if firms are not sure whether the drop in prices of energy is transitory or permanent. Therefore, increase in oil prices leads to postponement of investment projects. According to (Hamilton, 2008), a reduction in prices of oil would not automatically lead to positive effect on the economy. For example, monetary authorities reacting to oil prices in a non linear way may lead to non linear effect on prices of stocks. This is through real interest rates of interest or rates of inflation (Arouri et al., 2011).

2.5 Conceptual Framework

A conceptual framework diagrammatically illustrates the relationship between the variables of the study. It shows how the variables are moving and how they interrelate.

In this content, the conceptual framework indicates how oil prices changes affect performance of manufacturing segment of NSE. However, as suggested by literature, there are other macroeconomic variables that affect the performance of various segments within the stock market; hence, they need to be controlled. Therefore, exchange rates and interest rates have been considered as extraneous variables in this study. These are independent variables that are not related to the purpose of the study but may affect the dependent variable.

Independent Variable   **Dependent Variable**

Oil Price Changes – Increase/ Decrease in ERC prices in Kshs
Exchange rates – Average Monthly Exchange rate (Kshs/ US$)
Interest Rates – Monthly Central Bank Rate (CBR)

Performance of the Manufacturing Segment of the NSE – Average market segment stock price per Share
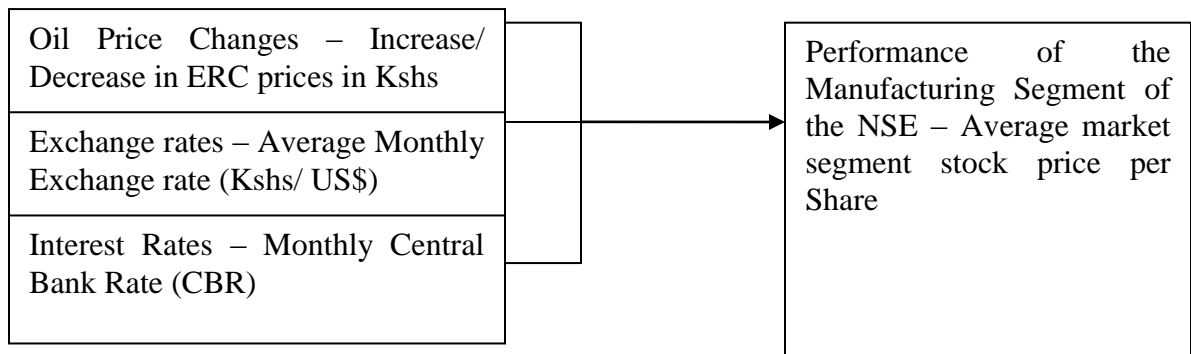
Source: Author (2017)
Figure 2.1 Conceptual Framework

2.6 Summary of Literature Review

The foregoing studies indicate significant relationships exist between oil prices inflation and the financial performance of manufacturing firms. A numerous number of these studies show that macroeconomic indicators are affected by changes in oil prices. Example of these factors includes rates of interest, inflation and exchange, rates of unemployment among others. It is therefore important to fill these gaps in literature. According to Menike (2006), numerous macroeconomic indicators have an influence on

performance of financial markets. It is therefore essential to narrow down these factors in the context of emerging security markets.

Table 2.1: Summary of Research Gap

Author	Topic	Methodo logy	Finding	Research Gap
Aye (2015)	Does oil price uncertainty matter for stock returns in South Africa?		There was a negative and positive influence between the study variables	Contextual gap since the focus is on South Africa. The findings apply to all segments rather than individual segment which is manufacturing segment in this study. The effects of oil prices increases and reductions are not differentiated which is the main focus in this current study
Sadorsky (1999)	Oil price shocks and stock market activity,		Increase in oil prices reduce market performance	Contextual gap since focus is on US and not Kenya hence findings cannot be generalized to fit Kenyan case. The findings do not consider individual market segments but based on the entire market. The effects of oil prices increases and reductions are not differentiated which is the main focus in this current study
Gatuhi&M acharia (2013)	Influence of Oil Prices on Stock Market Performance in Kenya	.	diesel prices had a positive and significant relationship with stock market performance	Conceptual gap. The study focuses on the performance of the entire stock market rather than individual segments. The effects of oil prices increases and reductions are not differentiated which is the main focus in this current study
Bett (2016)	An evaluation of the relationship between oil price and the share prices of manufacturing companies listed in the Nairobi Securities Exchange		share prices of some of the manufacturing firms were impacted by the oil price changes in the long term.	There is a conceptual gap since the study assesses the share prices of individual firms while this current study focuses on the combined share prices for all the firms in this segment.
Rai&Baira	Impact of		there was significant but weak	Contextual gap since

gi (2014)	changes in oil price on Indian Stock Market		relationship between oil prices and Indian stock market returns.	focus is on India. The study focuses on the entire stock market rather than individual segments. The effects of oil prices increases and reductions are not differentiated which is the main focus in this current study
Janor, Abdul-Rahman, Housseini doust, et al.(2013)	Oil Price Fluctuations and Firm Performance in an Emerging Market: Assessing Volatility and Asymmetric Effect		Changes in prices of oil, especially negative changes largely affected returns of share prices.	Contextual gap. The study focuses on stock returns for individual firms within the Malaysia stock market hence findings cannot be generalized to fit the Kenyan case
Wattanatorna&Kanchanapoomb (2012)	Oil prices and profitability performance: Sector analysis		The study established a relationship between the variables.	Conceptual and contextual gaps. The objective of the study is different from that of this study and is based on the Thailand Stock Exchange. The linkage between the oil prices and stock returns through the accounting profitability measures is not elaborated
Jafarian& Safari (2015)	Impact of oil price fluctuations on returns of different sectors of Malaysian Stock Market		Positive effect was established between the study variable.	Contextual and conceptual gaps. The study focuses on the Malaysian Stock Market and the effects of oil prices increases and reductions are not differentiated which is the main focus in this current study
Kilian& Park (2009)	The impact of oil price shocks on the US stock market		The study established relationship between the variable; positive and negative	Contextual gap. The focus is on the entire US stock market while the current study focuses on the manufacturing segment of NSE. The findings cannot be generalized to fit the Kenyan case
Mohamed(2012)	Stock returns and oil price changes in	.	There was sensitivity to indices used	Contextual gap. The study focuses on Europe while the present study is

	Europe: A sector analysis			a Kenya case hence the findings for Europe cannot be generalize to fit the Kenyan case
Faff &Brailsford(1999)	Oil price risk and the Australian stock market	.	oil price factor was more influential over some industries in Australia than the market factor	Contextual gap. Increases and reductions are not differentiated which is the main focus in this current study
Cong, Wei, Jiao, and Fan (2008)	Relationships between oil price shocks and stock market		Relationship was established between the study variables.	The study focuses on the Chinese stock market and increases and reductions are not differentiated which is the main focus in this current study
Jones &Kaul(1996)	Oil and the stock markets		There was relationship between the variables.	The study compares different stock markets and findings may not fit the Kenyan case. Individual segments are not assessed which different from this study which focuses on the manufacturing segment of the NSE
Hamilton(2008)	Understanding crude oil prices		negative oil price shocks (increases) tend to have a greater effect than positive price shocks do.	The study focuses on the US stock market and therefore findings cannot be generalized to fit the Kenyan case
Mork(1989)	Oil and the macro economy		the effects of oil price decline are different from those of price increases	The study focuses on the US stock market and therefore findings cannot be generalized to fit the Kenyan case

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used in gathering the data, analyzing the data and reporting the results. This section looks at research design, target population, population sample, sampling technique, data collection method as well as the data analysis plan and presentation.

3.2 Research Design

The research adopted a descriptive research design using secondary data. Descriptive studies are normally the best methods for collecting information that demonstrate the relationships as they are. Descriptive design was used because it focuses on complex analysis to bring out the correlation of the three variables (oil price changes) and the nexus to performance of the manufacturing segment at the NSE.

3.3 Target Population

The study targeted all the companies that have been consistently listed in the Nairobi Securities Exchange under the Manufacturing and allied Market segment over the period 2012 and 2016. The companies are; B.O.C Kenya, British American Tobacco Kenya Ltd, East African Breweries Kenya Ltd, Mumias Sugar Co. Ltd, Unga Group Ltd, Kenya Orchards Ltd, Carbacid Ltd, and A. Baumann Co. Ltd. These are all the companies that have been trading as listed companies throughout the study period in the manufacturing segment.

3.4 Data Collection Methods

The study used secondary data on share prices (returns), exchange rates and interest rates that were collected from various sources. Oil prices that were used are the average

monthly plats prices for premium petrol since they are the most relevant for this study. The study used a monthly time series data on the average market prices of the listed manufacturing firms from NSE for a 5 year study period. The interest rates and exchange rates were obtained from the Central Bank of Kenya Website. A secondary data collection template was used in conducting this exercise.

3.5 Diagnostics Tests

The reliability and accuracy of the secondary data collected was tested. Durbin Watson tests, VIF tests and Shapiro wilk tests were used to verify the data normality, collinearity and heteroskedasticity. Normality curve histograms were also presented.

3.6 Data Analysis

The study used both descriptive and inferential statistics. Descriptive statistics such as, mean and frequencies were generated. EVIEWS, a statistical software was used in conducting the analysis. Descriptive research design lays emphasis on presenting characteristics of data sets to expound on the relationship between variables. In this study, data was collected, measured and modeled. Means, median, maximum, minimum, standard deviations, skewness, kurtosis and JarqueBera were computed and summarized to explain the behavior of variables of interest.

3.6.1 Model Specification

The study adopted the methodology applied by Jafarian and Safari (2015). A multifactor regression model was employed to measure the effect of oil price changes on stock prices

(returns) of the manufacturing segment at the NSE. However, as suggested by literature, there are other macroeconomic variables that affect asset prices; hence, they need to be controlled. According to Fama (1991), the conventional way to select these variables is to look at what determinants previous studies have selected for analysis. Therefore, the study took two controlling variables, namely, interest rate, and exchange rate, and their effect on the stock return was investigated through the following model:

$Yi_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \mu$

Where

$t = 1 ... T$ (time)………………1

Y_t is the Stock prices at time t

X_t is particular independent variable at time t

Where:

Variable	Measure	Adapted from
Yi_t	Stock price(return)	Jo-Hui et al (2014)
X_{1t}	changes in oil prices	Rodríguez & Sánchez (2005)
X_{2t}	changes in exchange rate	Rodríguez & Sánchez (2005)
X_{3t}	changes in interest rate	Barasa (2014)

In testing for the relationship between the variables, Granger's (1969) causality test was used. In this case, results were interpreted on a cause effect basis. This is summarized by equation below:

$Y_{it} = \beta0 + \beta_1 X_{0,t} + \beta_2 X_{0, t-1} + \mu$

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter analyses the findings of the secondary data on share prices, exchange rates as well as interest rates collected from various sources aimed at determining the effects of oil price changes on the performance of the manufacturing segment of the Nairobi Stock Exchange market. The chapter presents the analysis of time series data on the average market prices of the listed manufacturing firms in NSE for a record 10 years. Correlation analysis, descriptive statistics and regression analysis have been used and the results presented in tables and figures in the following subsequent sections.

4.2 Descriptive Statistics

This section of the analysis presents the various statistical figures such as the maximum, minimum, mean, standard deviation, kurtosis and skewness of the variables under the study. These elements are presented in the table below.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
LN MKT segment perf	60	7.9852	8.5886	8.341939	.1956328	-.562	.309	-1.227	.608
Oil price change	60	-.2301	.2243	-.006515	.0816973	.067	.309	.992	.608
Exchange rate	60	84.1460	105.2750	94.822250	7.5639375	-.061	.309	-1.841	.608
Interest rate	60	13.6100	18.3000	16.187833	1.5972063	-.528	.309	-1.064	.608
Valid N (listwise)	60								

From the descriptive statistics table above, the variables; oil price change, exchange rate and the interest rates have varying averages, standard deviation, kurtosis and skewness. Oil price change has a mean of -0.006515. Manufacturing market segment has statistical mean of 8.341939. Exchange rate predictor variable has the largest statistical mean of 94.8225 followed by interest rate with a mean of 16.187833. Exchange rate has the largest standard deviation of 7.556 implying that there is great variation in the values of the exchange rate around the mean. Interest rate on the other hand, has a standard deviation of 1.597 signifying a relatively small variation of the data around the mean value as compared to exchange rate. It is apparent that the oil price has the least variation from the mean since its standard deviation is 0.08169. Market segmentation performance has a standard deviation of 0.1956 depicting a smaller variation from the mean after the oil price.

4.3 Diagnostic Tests

These tests are conducted to establish the relationship between and among the variables under study. The results from the diagnosis using Durbin-Watson have been presented in the tables below. In the analysis, the predictor variables are exchange rate, oil price change and the interest rate. The dependent variable is market segmentation performance.

Table 4.2: Model Summary [b]

Model	Durbin-Watson
1	.136[a]

a. Predictors: (Constant), Exchangerate, Oilpricechange, Interestrate

b. Dependent Variable: LNMKTsegmentperf

The collinearity statistics are presented in the table. It shows the level of tolerance and the VIF. Oil price change has the highest tolerance level of 0.992 followed by the exchange rate with 0.775 and lastly interest rate with 0.770. For the oil price change, the tolerance level of 0.992 implies that 99.2% of the variation in the oil prices cannot be explained by other variables. Interest rate tolerance level of 77.0% postulates the percentage of the variations in interest rate which cannot be explained by other variables. Looking at the VIF coefficients, interest rate has a coefficient of 1.298 followed by the exchange rate and lastly oil price. There is therefore significant collinearity among and between the variables. Generally, VIF threshold of 4 means that there is no further investigation required as far the variables relationships are concerned.

Table 4.3:Coefficients ^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Oilpricechange	.992	1.008
	Interestrate	.770	1.298
	Exchangerate	.775	1.291

a. Dependent Variable: LNMKTsegmentperf

The table below presents the variance proportions of the factors, Eigen value and the condition index. Interest rate and exchange rate have constant index of more than 15. This implies that there may be a possible problem with collinearity of the variables. Exchange rate with a condition index of 47.670 signifies great multi-collinearity problem since it is more than 30. There is therefore significant collinearity between oil exchange

42

and interest rate variables. From the Eigen value, exchange rate with a value of 0.001 means that the variable explains less variance of the dependent variable segment performance.

Table 4.4:Collinearity Diagnostics [a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	Oilpricechange	Interestrate	Exchangerate
1	1	2.997	1.000	.00	.00	.00	.00
	2	.990	1.740	.00	.99	.00	.00
	3	.012	16.143	.00	.01	.35	.19
	4	.001	47.670	1.00	.00	.65	.81

a. Dependent Variable: LNMKTsegmentperf

The figure shows the regression standardized residual having a mean of 2.11E-14 and a standard deviation of 0.974. The data is skewed to the right and depicts almost a normal distribution of the data on the predictor variables.
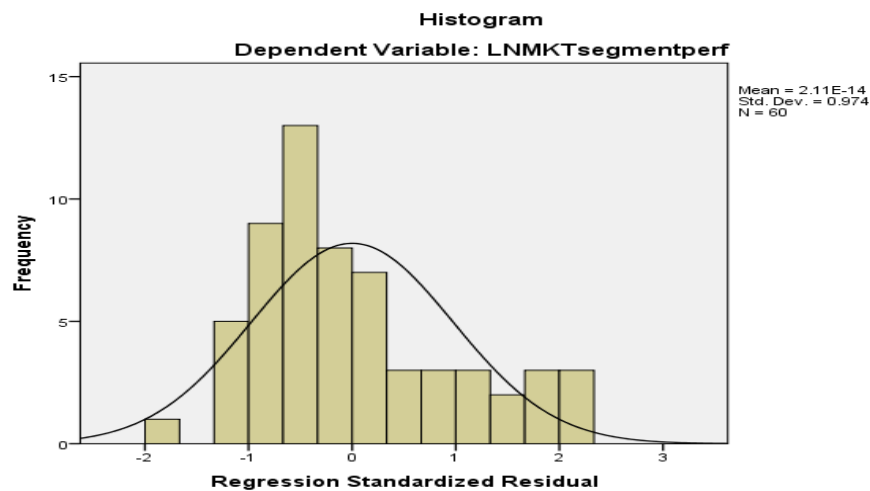
Normal p-plot of the regression standardised residual as shown in the figure below shows a linear relationship with only one value as an outlier. The pattern shows a linear

relationship among the variables with slight variances from each other

4.4 Correlation Analysis

Correlation Analysis is the tool used in statistics to describe the how close a relationship between two or more variables is. When a movement of one variable leads to a movement of the other, this relationship is correlated. If a movement of one variable does not cause any noticeable movement in the other, then the variables are not correlated. In this study, correlation analysis method was used to show the relationships between the variables as provided by the table below.

Table 4.5 Correlations

	LN MKT segment perf	Oil price change	Exchange rate	Interest rate
LN MKT segment perf	1			
Oil price change	-.132	1		
Exchange rate	-.815**	.049	1	
Interest rate	.568**	-.090	-.475**	1

 **. Correlation is significant at the 0.01 level (2-tailed).

From the results, the oil market performance is strongly and positively correlated with interest rate. Market performance is strongly and negatively correlated to exchange rate, while it oil price variable is negatively, though insignificantly correlated with the oil price changes.

4.5   Regression Analysis

The table below shows the regression analysis results. It shows the coefficient of determination and different other coefficients. The coefficient of determination in this case is 0.712, which means that 71.2% of the market segmentation performance as

measured by stock prices is explained by the variables in this study (oil price changes, exchange rate and interest rate). 28.8% of the performance is predicted by other variables outside this study.

Table 4.6 Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.844[a]	.712	.696	.107803 3	.712	46.10 0	3	56	.000

a. Predictors: (Constant), Exchange rate, Oil price change, Interest rate
b. Dependent Variable: LN MKT segment perf

Table 4.7ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	1.607	3	.536	46.100	.000[b]
1	Residual	.651	56	.012		
	Total	2.258	59			

a. Dependent Variable: LN MKT segment perf

b. Predictors: (Constant), Exchange rate, Oil price change, Interest rate

The above table checks whether the regression model used in this research was a good fit for the data. An F statistic is obtained when an ANOVA test is run to if there is a significantly different means between two variables. It shows whether a group of variables are jointly significant. Both F critical and the F value are presented in the results. Normally, when the F value is smaller than the F critical, then the null hypothesis is rejected. The F value for this study is 46.1 while the F statistic is 2.9674.

F tests tellsone if a group of variables are jointly significant. The results presents both an F critical value (F statistic) and the F value. In general, if the calculated F statistic in a

test is larger than the table F value, then the model is statistically fit. In this study, we have the F value of 46.1 while the F critical 2.427. This implies that the model is statistically significant and a good fit for the model. The statistic exclusively compares all the variables' joint effect. The table above shows that the dependent variable statistically predicts the independent variable, F which is 46.1, and $p < 0.000$, therefore confirming that the model is a good model for the data.

Table 4.8: Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.615	.312		30.867	.000
	Oil price change	-.018	.173	-.077	-1.068	.290
	Interest rate	.028	.010	.227	2.776	.007
	Exchange rate	-.180	.002	-.703	-8.627	.000

a. Dependent Variable: LN MKT segment perf

The regression coefficient was;

$$Yi_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \mu$$

Where

$t = 1... T$ (time)………………1

Y_t is the Stock prices at time t

X_t is particular independent variable at time t

Where:

Yi_t = The stock price

X_{1t} = Changes in the oil prices

X_{2t} = Changes in the exchange rate

X_{3t} = Changes in the interest rate.

The regression equation therefore becomes;

$Yi_t = 9.615 - 0.0184X_1 - 0.18X_2 + 0.028X_3 + 0.312$

Constant = 9.615, means the interest rate, exchange rates and the oil prices are at zero, the stock price will be 9.615

Variable (X_1) - $0.0184X_1$ depicts a 0.184decrease in segment performance as measured by stock prices with a unit increase in the oil prices.

Variable $(X_{2)} = - 0.18X_2$, means that a unit increase in exchange rate will lead to a decrease in the stock prices by 0.018.

Variable $(X_{3)} = 0.028X_3$ shows that a unit increase in the interest rate leads to an increase of 0.028 in the stock prices.

4.6 Interpretation of Findings

The results show that interest rate highly affects the market performance through the stock prices, with a Pearson correlation coefficient of 0.568. Further analysis reveals the beta coefficient to be of 0.028, meaning that for every unit increase in the interest rate, there is a corresponding increase in the performance as measured by stock prices of 0.028. The exchange rate adversely affects the market performance significantly, with the Pearson correlation coefficient of -0.815. This means that an increase in the exchange rates will lead to a corresponding decrease in the stock prices. Oil price had an insignificant negative effect on the stock price of the studied firms.

The analysis of variance shows that the model in this study is a good fit for the data inputted, with the F value being greater that the F critical. Further analysis of the data reveals the correlation coefficient as 0.712 which forms a significant percentage of the independent variable. This further confirms the reliability of the variables chosen as

predictions to the independent variable, leaving only 28.2% unexplained.

This study sought to establish the effects of oil price changes on the performance of manufacturing segments in the Nairobi Stock Exchange market. The predictor variables used include the oil prices, interest rate and the exchange rate. Regression analysis was done using the statistical software package called SPPS. The variables predictor variables; interest rate and the exchange rate may have multivariate collinearity problems. Interest rate has a constant index of 16 which is greater than the minimum value of 15. This implies that further investigations may be carried out to determine the potential problem in interest rate collinearity with other predictor variables. An index of more than 30, as in the case of exchange rate, indicates a significant problem. From the study findings, exchange rate collinearity is too great compared with the rest of the independent variables. The output of the regression model reveals that there is indeed linear relationship among the variables. A change in one variable result into to either and increase or decrease in another variable. More than 70% of the changes in each of the independent variable cannot be explained by the rest of the variables. For example, 99.2% changes in oil prices cannot be explained by the changes in exchange rate and interest rate. A unit increase in exchange rate result into 0.49 increases in the oil prices. Implying that oil prices and exchange rates move in the same direction

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the overview of the research. It is subdivided into sections, namely, the summary of the findings, conclusion of the study, limitations of the study, recommendations and suggestions for further research.

5.2 Summary of Findings

The results show that interest rate highly affects the market performance through the stock prices. Further analysis reveals the beta coefficient to be -0.018, meaning that for every unit increase in the interest rate, there is a corresponding decrease in the performance as measured by stock prices of 0.018. The exchange rate adversely affects the market performance significantly.

Oil prices had an insignificant negative effect on the stock prices. Further analysis of the unstandardized beta coefficient shows that this effect is least significant among the variables. This in line with the findings of Adeniyi, Oyinlola and Omisakin, (2011), who studied the relationship between oil price shocks and economic growth. They established that oil price shocks do not account for a significant proportion of observed movements in macroeconomic aggregates. Additionally, the relationship between oil price volatility and economic growth has been complicated by the fact that most governments and supra national organizations advocates green energy sources. As a result, corporate entities resorted to green (renewable) energy sources when oil prices go up which might result into change in the relationship between oil price volatility and economic growth (Armstrong, 2011). This shows the similarity with the West African countries.

The analysis of variance shows that the model in this study is a good fit for the data inputted, with the F value being greater that the F critical. Further analysis of the data reveals the correlation coefficient as 0.712 which forms a significant percentage of the independent variable. This further confirms the reliability of the variables chosen as predictions to the independent variable, leaving only 28.2% unexplained.

Interest rate has a constant index of 16 which is greater than the minimum value of 15. This implies that further investigations may be carried out to determine the potential problem in interest rate collinearity with other predictor variables. An index of more than 30, as in the case of exchange rate, indicates a significant problem.

The exchange rate collinearity is the biggest among the variables. Output of the regression model reveals that there is indeed linear relationship among the variables. A change in one variable result into to either and increase or decrease in another variable. More than 70% of the changes in each of the independent variable cannot be explained by the rest of the variables. For example, 99.2% changes in oil prices cannot be explained by the changes in exchange rate and interest rate. A unit increase in exchange rate result into 0.49 increases in the oil prices. Implying that oil prices and exchange rates move in the same direction.

5.3   Conclusions

The general objective of the study was to establish the effect of oil prices changes on performance of the manufacturing segment of the NSE-listed companies. The effects, oil

prices, exchange rates and interest rates, affect the performance by varying degrees. The research concluded that exchange rates in Kenya is the most significant factor in determining the stock performance manufacturing industry. Oil prices remain an insignificant effect on the stock prices, thus failing to unravel the puzzle that was seen in the Western countries by maintaining the fact. This is also not in line to what most people would propose. Interest rates on the other hand, is a significant factor, with a positive correlation with the stock prices of the studied manufacturing firms.

5.4   Recommendations

This section covers recommendations based on study the findings. Nairobi Securities Exchange should create fair and competitive environment to enable manufacturing segments to compete favorably with other listed firms from different industries. Manufacturing segments should keep track of the interest rates on the investments. Funds should be invested in profitable investment opportunities which offer higher interest rate. This will go a long way in enhancing the performance of segment performance. The firm should keep check on the exchange rate so as to avoid fluctuating transactions which impact on the performance of the segment. The security lending and borrowing should be introduced to enhance liquidity regarding long-term investment portfolio for manufacturing firms listed in the NSE.

5.5 Limitations of the Study

The research study employed multiple linear regression model. This statistical tool has shortcomings such as erroneous and misleading results e.g. when the predictor variable changes. This makes generalization of the findings difficult. Put differently, the

researchers cannot generalize the findings with certainty. This is further supported by the fact that, additions of units of variables into the functional model, the assumptions of the model may not hold.

The study involved the use of secondary data such as the interest rate from the Central Bank of Kenya, the exchange rate and the oil prices from other sources in the public domain unlike first-hand information which can be verified. Organization performance is determined by factors e.g. the efficiency of the operations, customer satisfaction, and political stability other than changes in oil prices and interest rates. This study is however limited to the selected predictor variables which exclusive of the critical performance indicators in the manufacturing segment. Selected determinants are considered in the study due to the insufficient data available.

The study was conducted using monthly time series data on average market prices of the listed manufacturing firms for period of ten years. It cannot therefore be established that the study findings will hold for a period of more than ten years. A longitudinal study of more than 10 years is more reliable as it takes into consideration economic conditions and political environments e.g. booms. The data from the various sources e.g. NSE websites may be prone to errors of omission and commission and thus impacting on the findings of the study.

5.6 Suggestions for Further Research

This research study considered three aspects of manufacturing segment performance: oil prices changes, interest rate and the exchange rate. It also relied on secondary data to establish the impact of changes of the above factors on segment performance. It did not include qualitative factors affecting performance of the listed companies. Further studies

could be conducted to establish the impact of qualitative factors such as operational efficiency and political sanctions on the performance of listed companies as far as share trading is concerned. The exchange rate used as a predictor variable is a function of many economic variables which are not incorporated in the study. Further research could be carried out to determine how macroeconomic variables affect exchange rates and hence performance of the listed companies in NSE.

The analytical tool used in the study, regression analysis has shortcomings and as such a similar study may be conducted using Vector Error Correction Model (VECM) to explain relationships between the variables. Since the environments where organizations operate are dynamic, a more reliable data could be longitudinal and obtained over a period more than 10 years. Since this study was focused on manufacturing firms, a further study can be done to establish the impact of segment performance on share prices in Nairobi Stock Exchange.

REFERENCES

Adeniyi, O.A., Oyinlola, A., &Omisakin, O.A. (2011). Oil Price Shocks And Economic Growth In Nigeria: Are Thresholds Important? *OPEC Energy Review*, 35(4), 308-333.

Armstrong, D. (2011). Higher Oil Prices Spur Production of Renewable Energy Sources.*T Magazine,* September 2, 2011

Arouri, M. E. H., Foulquier, P., &Fouquau, J. (2011).Oil prices and StockMarkets in Europe: A Sector Perspective. Retrieved from http://www.cairn.info/revue-recherches-economiques-de-louvain-2011-1-page-5.htm

Arouri, M. E. H.,&Fouquau, J. (2009). On the short-term influence of oilpricechanges on stock markets in GCCcountries: linear and nonlinear analyses. Retrieved from https://www.google.com/search?q=Jones+CM%2C+Kaul+G.+Oil+and+stock+markets.+J+Finance+&ie=utf-8&oe=utf-8

Aye, G. C. (2015). Does oil price uncertainty matter for stock returns in South Africa? *Investment Management and Financial Innovations, 12*(1-1)

AyhanKose, M., Prasad, E. S., &Terrones, M. E.(2005). Growth and Volatilityinan Eraof Globalization.*IMFStaffPapers*, 31–63.

Babatunde, M.A., Adenikinju, O., &Adenikinju, A.F. (2013).Oil price shocks and stock market behaviour in Nigeria.*Journal of Economic Studies*, 40(2), 180 – 202

Bacon, R.,&Kojima, M.(2008). Coping with OilpriceVolatility.*EnergySector ManagementAssistanceProgramenergysecurity*, (Special Report005/08). Retrieved from

Bailey, W., & Chung, Y. P. (1995). Exchange rate fluctuations, political risk, and stock returns: Some evidence from an emerging market. *Journal of Financial and Quantitative Analysis*, *30*(4), 541-561.

Barasa, J. W. (2014). Macro-economic determinants of stock market performance in Kenya: case of Nairobi securities exchange. *Unpublished Masters Research Project, University of Nairobi*.

Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment.*The Quarterly Journal of Economics*, *98*(1), 85-106.

Bernanke,B. S. (1980). *Irreversibility,uncertainty,andcyclicalinvestment*.National Bureau of EconomicResearch Cambridge, Mass.,USA. Retrieved from http://www.nber.org/papers/w502

Bett, G. K. (2016). *An evaluation of the relationship between oil price and the share prices of manufacturing companies listed in the Nairobi Securities Exchange* (Doctoral dissertation, Strathmore University).

Bukola O. and Gbolagade A (2010) Investigating the Effects of Increase in Oil Prices on Manufacturing Companies in Nigeria.*The Pacific Journal of Science and Technology*, 11(2).

Chen, Jo-Hui, et al. "Grey Relational Analysis and Neural Network Forecasting of REIT returns." *Quantitative Financ*e 14.11 (2014): 2033-2044.

Cong, R. G., Wei, Y. M., Jiao, J. L., & Fan, Y. (2008). Relationships between oil price shocks and stock market: An empirical analysis from China. *Energy Policy*, *36*(9), 3544-3553.

Darfor J and Agyapyong (2010) Effects of macro- economic variables on commercial banksstocks.*Journal of Business Enterprise Development*. ISSN 2026-500.

Exchange Rates," *Working Papers* 1201

Faff, R. W., &Brailsford, T. J. (1999).Oil price risk and the Australian stock market.*Journal of Energy Finance & Development*, *4*(1), 69-87.

Fattouh, B.(2011). *Ananatomy of the crudeoilpricingsystem*.OxfordInstitute for EnergyStudies Oxford, England. Retrieved from http://icmstudy.ir/wp-content/uploads/2015/03/the_course_WPM40-AnAnatomyoftheCrudeOilPricingSystem-BassamFattouh-2011.pdf

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

Geetha, C., Mohidin, R., Chandran, V.V. & Chong, V. (2011), The Relationship between Inflation and Stock Market: Evidence from Malaysia, United States and China, *International Journal of Economics and Management Sciences, 1*(2): 01-16.

González, A., &Nabiyev, S. (2009). Oil Price Fluctuations and its effect on GDP Growth.*Bachelor thesis*, Jönköping University

Hamilton, J. D. (2008). *Understanding crude oil prices* (No. w14492). National Bureau of Economic Research.

Hamilton, J. D. (2008). *Understandingcrudeoilprices*.National Bureauof Economic Research.Retrievedfrom http://www.nber.org/papers/w14492

Hsing, Y. (2011). Macroeconomic Determinants of the Stock Market Index and Policy Implications: The Case of a Central European Country. *Eurasian Journal of Business and Economics*, *4*(7), 1-11.

Huang, R. D., Masulis, R. W., &Stoll, H. R. (2006).Energy Shocks and Financial Markets.Retrievedfromhttp://papers.ssrn.com/abstract=900741ICEFutures Europe.(2013).*ICE_Crude_Refined_Oil_Products.pdf*. Retrieved from https://www.theice.com/publicdocs/ICE_Crude_Refined_Oil_Products.pdf

Ibrahim Turhan&ErkHacihasanoglu&UgurSoytas, 2012. "Oil Prices and Emerging Market

Jafarian, A., &Safari, M. (2015).Impact of oil price fluctuations on returns of different sectors of Malaysian Stock Market.*Journal of Modern Accounting and Auditing, 11*(3), 159-167.

Janor, H., Abdul-Rahman, A., Housseinidoust, E., & Rahim, R. A. (2013). Oil Price Fluctuations and Firm Performance in an Emerging Market: Assessing Volatility and Asymmetric Effect. *Journal of Economic, Business and Management*, *1*(4), 385-390.

Jensen,M. C. (2002). Value Maximization, StakeholderTheory,and the Corporate Objective Function.*BusinessEthicsQuarterly*, *12*(2), 235.

Jiménez-Rodríguez*, R., & Sánchez, M. (2005). Oil price shocks and real GDP growth: empirical evidence for some OECD countries. *Applied economics*, 37(2), 201-228.

Kamau, b. W. (2016). The effect of profit warning announcements on the share returns of firms listed at the Nairobi Securities Exchange (*doctoral dissertation, school of business, university of Nairobi*).

Kilian, L., & Park, C. (2009). The impact of oil price shocks on the US stock market. *International Economic Review*, *50*(4), 1267-1287.

KNBS (2012).Leading economic Indicators. Kenya National Bureau of Statistics

Li, Z., & Zhao, H. (2011). Not all demand oil shocks are alike: disentangling demand oil shocks in the crude oil market. *Journal of Chinese Economic and Foreign Trade Studies*, 4(1), 28 – 44.

Lilien, D. M.,&Lilien,D. M. (1982). Sectoral Shifts and Cyclical Unemployment.*JournalofPoliticalEconomy*, *90*(4), 777–93.

Menike Kim, S., In, F.(2006). The relationship between stock returns and inflation: new evidence from wavelet analysis. Journal of Empirical Finance 12 (2005) 435-444.

Mohamed, A. (2012). Stock returns and oil price changes in Europe: A sector analysis. *The Manchester School*, *80*(2), 237-261.

Moradi, M., Salehi, M., &Keivanfar, M. (2010).A study of the effect of oil price fluctuation on industrial and agricultural products in Iran.*Asian Journal on Quality*, 11(3), 303 – 316.

Mork, K. A. (1989). Oil and the macroeconomy when prices go up and down: an extension of Hamilton's results. *Journal of political Economy*, *97*(3), 740-744.

Mork, K. A. (1989).Oil and the MacroeconomyWhen Prices Go Up andDown: An Extension of Hamilton'sResults.*JournalofPoliticalEconomy*, *97*(3), 740–744.

Munyua, J., &Ragui, M.(2013).Drivers of instabilityin prices of petroleum products in Kenya.*PrimeJournalofBusinessAdministrationandManagement(BAM)*,*3*(3), 919–926.

Nandha, M.,&Hammoudeh, S. (2007). Systematic Risk, andOil prices and Exchange Rate Sensitive in Asia-Pacific Stock Markets.*ResearchinInternationalBusinessandFinance*, *21*(2), 326–341.

Narayan, P. K., & Narayan, S. (2010). Modelling the impact ofoilprices on Vietnam's stock prices.*AppliedEnergy*, *87*(1), 356–361.

Ntshangase, K.,Mingiri, K. F., &Palesa, M. M. (2016).The Interaction between the Stock Market and Macroeconomic Policy Variables in South Africa. *J*

Economics, 7(1), 1-10.

O'Brien, D., &Weymes,L. (2010).TheImpact ofOil prices onIrishInflation.pdf. Retrieved from

http://www.centralbank.ie/publications/Documents/The%20Impact%20of%20Oi l%20Prices%20on%20Irish%20Inflation.pdf

Ombok, E. (2011). Kenyan Shilling Depreciates Against Dollar Amid Domestic Corporate Demand, *Bloomberg*, January 25, 2011

Onuonga, S. M., Etyang,M., &Mwabu, G. (2011). the-demand-for-energy-in-the-kenyan-manufacturing-sector.pdf. *TheJournalofEnergyandDevelopment*, *34*(2).

Orondoh, N. M. (2014).Decompositions of drivers ofinflation before and afteroilpricecontrolsin Kenya. *International JournalofBusiness and Commerce*, *3*(12).

Osoro, C., &Ogeto, W. (2014).Macro Economic fluctuationseffects on thefinancialperfomance oflisted manufacturing firmsin Kenya.*InternationalJournalofSocialSciences*, *21*(1).

Papapetrou, E. (2009,August). *Oil priceShocks,StockMarket,EconomicActivityand EmploymentinGreece*.Universityof Athens, Athens, Greece. Retrieved fromhttp://www.aaee.at/2009IAEE/uploads/fullpaper_iaee09/P_489_Papapetrou_ Evangelia_4-Sep 2009,%2015:13.pdf

Park, J., &Ratti, R. A. (2008).Oil priceshocksand stock markets in the U.S. and 13 Europeancountries.*EnergyEconomics*, *30*(5), 2587–2608.

Sadorsky, P. (1999). Oil price shocks and stock market activity, *Energy Economics, 21,* 449-469.

Sadorsky, P. (1999).Oil price shocks and stock market activity.*EnergyEconomics; Elsevier*, *21*(2), 449–469.

Saghaian, S. H., &others. (2010). The impact of the oil sector on commodity prices: correlation or causation?*JournalofAgricultural&AppliedEconomics*, *42*(3), 477.

Shaari, M. S., Pei, T. L., & Rahim, H. A. (2013). Effects of oil price shocks on the economic sectors in Malaysia. *International Journal of Energy Economics and Policy*, *3*(4), 360.

Wallace, W. A. (1987). The economic role of the audit in the free and regulated

markets: A review, *Research in Accounting, 1*, 7–34.

Wattanatorna, W., & Kanchanapoomb, T. (2012). Oil prices and profitability performance: Sector analysis.*Procedia - Social and Behavioral Sciences, 40,*763 – 767.

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, 107-119

	Plats PM Price	PM Price Change	Exchange Rate S/Kes	Int Rates	Manufacturing Market Segment Performance	Oil Price Change
Oct-17	560.489	-0.0253	103.291	13.69	3103.72	8.040356671
Sep-17	575.012	0.0482	103.278	13.71	3115.17	8.044039004
Aug-17	548.545	0.0758	103.262	13.66	3121.71	8.046136208
Jul-17	509.917	0.0481	103.325	13.69	3092.28	8.036663962
Jun-17	486.511	-0.0654	103.294	13.66	3131.52	8.049273789
May-17	520.583	-0.0623	103.262	13.71	3141.15	8.052344318
Apr-17	555.194	0.0724	103.325	13.61	3121.90	8.046195959
Mar-17	517.717	-0.0777	102.853	13.61	3013.80	8.010956037
Feb-17	561.350	0.0143	103.612	13.69	2937.09	7.985176034
Jan-17	553.417	0.0401	103.747	13.66	2974.08	7.997688436
Dec-16	532.075	0.1288	102.132	13.66	3153.74	8.056344613
Nov-16	471.352	-0.0786	101.748	13.67	3259.27	8.089258557
Oct-16	511.548	0.0680	101.323	13.73	3242.02	8.083953152
Sep-16	478.966	0.0328	101.271	13.86	3195.92	8.069630705
Aug-16	463.739	0.0532	101.41	17.66	3406.30	8.133381369
Jul-16	440.298	-0.1131	101.332	18.1	3574.30	8.181525906
Jun-16	496.466	-0.0003	101.145	18.18	3758.95	8.231894205
May-16	496.613	0.0637	100.732	18.22	3912.19	8.271853128
Apr-16	466.857	0.0843	101.228	18.04	3977.15	8.28832095
Mar-16	430.548	0.2004	101.485	17.87	3953.97	8.282474753
Feb-16	358.667	-0.1041	101.932	17.91	3823.17	8.2488342 7
Jan-16	400.350	-0.0848	102.313	18	3854.35	8.256957397
Dec-15	437.452	-0.0678	102.195	18.3	3988.23	8.291103486
Nov-15	469.262	-0.0331	102.168	17.16	3933.95	8.277398145
Oct-15	485.307	-0.0347	102.779	16.58	3971.15	8.286810405
Sep-15	502.773	-0.0664	105.275	16.82	4205.87	8.3442368 8
Aug		-0.1629	102.431	15.68	4365.61	8.3815126

-15	538.513					61
Jul-15	643.326	-0.0662	101.196	15.75	4653.67	8.4454122 75
Jun-15	688.920	0.0293	97.705	16.06	4787.05	8.4736688 38
May -15	669.342	0.0756	96.389	15.26	5032.59	8.5236890 97
Apr -15	622.300	0.0505	93.438	15.4	5107.20	8.5384058 05
Mar -15	592.364	0.0339	91.727	15.46	5338.67	8.5827312 41
Feb-15	572.950	0.2243	91.489	15.47	5370.29	8.5886370 04
Jan-15	467.988	-0.1700	91.358	15.93	5161.48	8.5489780 86
Dec-14	563.845	-0.2301	90.444	15.99	5087.96	8.5346315 55
Nov -14	732.325	-0.0951	89.963	15.94	5127.76	8.5424248 78
Oct-14	809.250	-0.1071	89.227	16	5260.76	8.5680298 32
Sep-14	906.307	-0.0341	88.836	16.04	5223.60	8.5609426 2
Aug -14	938.288	-0.0654	88.106	16.26	5030.51	8.5232771 23
Jul-14	1,003.967	-0.0170	87.773	16.91	4893.27	8.4956152 35
Jun-14	1,021.321	0.0262	87.612	16.36	4831.83	8.4829809 71
May -14	995.238	-0.0128	87.412	16.97	4931.74	8.5034474 36
Apr -14	1,008.125	0.0329	86.716	16.7	4917.55	8.5005652 1
Mar -14	976.024	0.0061	86.489	16.91	4941.40	8.5054031 04
Feb-14	970.150	0.0332	86.278	17.06	4869.49	8.4907444 88
Jan-14	938.989	-0.0157	86.214	17.03	5014.35	8.5200598 97
Dec-13	953.938	0.0276	86.309	16.99	4931.71	8.5034409 5
Nov -13	928.274	-0.0160	86.103	16.89	5045.10	8.5261733 49
Oct-13	943.413	-0.0212	85.31	17	4928.35	8.5027585 64
Sep-13	963.798	-0.0516	87.413	16.86	4724.38	8.4604914 13
Aug -13	1,016.262	0.0160	87.493	16.96	4793.84	8.4750869 35
Jul-13	1,000.261	0.0350	86.859	17.02	4711.20	8.4576982 08
Jun-13	966.400	0.0237	85.488	16.97	4803.83	8.4771691 08
May -13	943.988	0.0122	84.146	17.45	4925.89	8.5022608 02

Apr -13	932.619	-0.0751	84.189	17.87	4912.06	8.4994487 87
Mar -13	1,008.363	-0.0823	85.818	17.73	4731.91	8.4620837 61
Feb- 13	1,098.750	0.0714	87.446	17.84	4542.98	8.4213374 85
Jan- 13	1,025.568	0.0737	86.9	18.13	4371.05	8.3827578 06
Dec- 12	955.158	0.0245	87.173	18.15	4548.64	8.4225835 66
Nov -12	932.307	-0.0809	84.168	17.78	4487.55	8.4090621 75
Oct- 12	**1,014.359**					