# EFFECT OF INTEREST RATES ON FOREIGN DIRECT INVESTMENTS INFLOWS IN THE ENERGY AND PETROLEUM INDUSTRY IN KENYA

**BY**

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# DECLARATION

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

Signed: _____ Date: _____

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**D63/82811/2015**

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

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# DEDICATION

This work is dedicated to my wife Sarah and my family for their unwavering support, encouragement and patience with me as I spent time away from them to work on this project, without which I would not have been able to complete this challenging task.

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| | |
|---|---|
| **CBK** | Central Bank of Kenya |
| **CPI** | Consumer Price Index |
| **FDI** | Foreign Direct Investments |
| **GDP** | Gross Domestic Product |
| **IOC** | International Oil Corporation |
| **KETRACO** | Kenya Electricity Transmission Company |
| **KNBS** | Kenya National Bureau of Statistics |
| **KPLC** | Kenya Power and Lighting Company |
| **MNC** | Multi-National Corporation |
| **SPSS** | Statistical Package for Social Sciences |
| **SSA** | Sub-Saharan Africa |
| **TIC** | Tanzania International Centre |
| **USA** | United States of America |
| **USD** | United States Dollar |

# ABSTRACT

Both theory and empirical literatures hold that the growth of a country is directly related to the economy, which consists of various variables like GDP, Foreign Direct Investment, Remittances, Inflation, Interest rate, Money supply, Exchange rate and many others. The economic theory which expounds on how capital moves a worldwide economy insist on the fact that capital tends to flow to states which have a return on investment that is higher as compared to countries with higher interest rates. Consequently, investment is high in states that offer better investment returns as well as security in the form of lower interest rates and a better business environment. Capital therefore tends to more from states with low-level rate return to countries with high rate of return. This study sought to determine the effect of interest rates on foreign direct investments inflows in the energy and petroleum industry in Kenya. The independent variable was interest rates as measured by quarterly CBK lending rate. The control variables were economic growth as measured by quarterly GDP, inflation rates as measured by quarterly CPI and exchange rates as measured by quarterly exchange rate between ksh and usd. FDI inflows into the energy and petroleum industry in Kenya were the dependent variable which the study sought to explain and it was measured by FDI inflows in the energy and petroleum industry on a quarterly basis. Secondary data was collected for a period of 10 years (January 2007 to December 2017) on a quarterly basis. The study employed a descriptive research design and a multiple linear regression model was used to analyze the relationship between the variables. Statistical package for social sciences version 21 was used for data analysis purposes. The results of the study produced R-square value of 0.264 which means that about 26.4 percent of the variation in FDI inflows into the energy

and petroleum industry in Kenya can be explained by the four selected independent variables while 73.6 percent in the variation was associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with stock market returns (R=0.514). ANOVA results show that the F statistic was significant at 5% level with an F statistic of 3.139. Therefore the model was fit to explain FDI inflows into the energy and petroleum industry in Kenya. The results further revealed that individually, interest rate, exchange rates, economic growth and inflation rates are not significant determiners of FDI inflows into the energy and petroleum industry in Kenya. This study recommends that there is need for central bank to regulate the interest rate levels prevailing in the country bearing in mind that they influence FDI inflows in the energy and petroleum industry.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Foreign direct investment (FDI) has been growing drastically given it is a major international capital form of inflows as well as due to financial and political transformation in developing economies (Adam &Tweneboah, 2009). FDI is important to a developing economy if it can effectively absorb its spill-over effects. FDI is a significant source of capital inflows with positive effects on the host country's economy which includes technology transfer, technological, specialized human capital, expansion in international trade, and a viable business environment (OECD, 2002). However, the macroeconomic environment in the home country must be favorable to attract foreign investors and one of the main factors of the operational monetary policy regime are real interest rates offered in a given country relative to others (Mishkin& Eakins, 2009).

This study will be guided by several theories such as the internalization theory, product life cycle theory and the eclectic paradigm that have tried to explain the determinants of foreign direct investments in a given country. Internalization theory suggests that licensing has major draw backs as a strategy for entering foreign markets as it does not take full advantage of resources available in the foreign country. The second theory is eclectic paradigm that was championed by British Economist, John Dunning where he argues that location-specific advantage is of great importance in describing both the direction and rationale for FDI. By location specific advantage, Dunning implies to the benefits that arise from the utilization of resource endowments that are linked to certain foreign location and that is valuable for a firm

to combine with its own unique assets which include firms technological, management or marketing capabilities (Charles, 2008). Product life cycle theory the stages a new product goes through before the producing firm goes international (Dunning, 1993).

There has been a lot interactions between Kenya with foreign firms. Around 1970s it Kenya was perceived to have the largest number of FDIs in East Africa. Since then, the number of FDIs has however declined up to current. Kenya launched vision 2030 in 2008 with the goal of gaining global competitiveness and making Kenya a prosperous nation. This aim of this initiative is to attract FDI steer the country towards attainment of differentiation (Kinuthia, 2010). Over the past few years , the government has reviewed the establishment of free trade zones, improvement of business infrastructure, climate and creation of additional incentives that seek to establish momentum that can promote development. Amid these efforts, there is a great desire to attract FDI which would help towards the attainment of industrialization (UNCTAD, 2016).

### 1.1.1 Interest Rates

Interest rate is defined as a price that a borrower or a loan client pays for use of borrowed funds from a lender or the fee which is paid for the use of an asset that is borrowed from a lender (Maigua&Gekara, 2016). The rate of interest is described as the cost which is paid for any borrowing or lending money and is normally expressed as an annual percentage rate. In other words, interest rate is cost of capital or price for the use of funds or money in a certain period (Uddin&Alam, 2009). Interest rates are a signal which affects channeling of money or funds from savers to borrowers of such funds or money (Tran, 2013).

Interest rate is a proxy for financial prices for credit and affects resource allocation, production levels, prices and profitability (Uddin&Alam, 2009). Rate of interest has an advance effect on the market because a rise of rate of interest makes investors change their financial decisions on investments. Their decision may favor investment in fixed income securities other than in capital markets (Syed & Anwar, 2012). High interest risk will either push the lenders out of business or borrowers will be unable to pay (Ariemba, Kiweu&Riro, 2015).

Increase in rates of interest makes the funds costs so expensive and this has the potential of crowding out private demand, especially where there is significant investment sensitivity to interest rate changes. Nevertheless, high rates of interest have the potential of increasing savings and this can attract foreign inflows leading to appreciation of a local currency (Jordaan, 2013). Interest rates are normally measured using the central bank lending rate, average interest rates or the Treasury bill rate (Matete, Ndede&Jagongo, 2014). This study will use the Treasury bill rate as a measure of interest rates.

### 1.1.2Foreign Direct Investments Inflows

Hill (2005) defined FDI inflows as the long lasting investments which are outside the investor's physical or economic boundaries. The beneficiary country of FDI is equipped with capital flow as well as technology flow that will aid in its development. When a country seeks to invest in another, the benefit it seeks to achieve must be higher than the risks it must deal with. UNCTAD (2002) describes three different types of FDI. These are: reinvested earnings, equity capital and other capital which mainly consist of intercompany loans. FDIs create new job opportunities as upon setting of the business, recruitment and training of the locals in the host country is

undertaken transferring skills and technological know-how as well as providing jobs. According to Olson (2008), FDI represent long term commitments to the host country. It is a preferred form of investment because it has no obligations to the host country.

According to Kariguh (2014), foreign investment is one of the main sources of capital flows in most economies that are still developing as they tend to bridge the gap of capital, managerial skills, technology, and formation of human capital as well as creating an environment for more business competition. However, according to Voorpijl (2011), there are consequences for increasing the FDI inflows whereby the multinationals can exploit the local capabilities more freely. Also, the promotion of private investment rather than public investments by many international donors leaves nothing to the host company when they decide to leave.

Generally, FDI are the net inflows of investments from one economy to another and therefore FDI is measured by the net inflow, which is the remainder of first time investment inflows after removing the divestiture and is measured as a percentage of GDP of that economy (Shahbaz, Lean &Kalim, 2013). FDI is advantageous to multinational enterprises as it is a means of entering the markets, accessibility to resources and reduced cost of production. It also benefits the invested country as it provides domestic investment capital which is much in need, creating job opportunity to locals, introduces new management skills and strategies, business practices, technology and economic concepts that ensures growth of local businesses, new industries and increased revenue which leads to economic development (Karthik&Kannan, 2011, Selma, 2013).

### 1.1.3 Interest Rates and Foreign Direct Investments Inflows

The economic theory which expounds on how capital moves a worldwide economy insist on the fact that capital tends to flow to states which have a return on investment that is higher as compared to countries with higher interest rates. Consequently, investment is high in states that offer better investment returns as well as security in the form of lower interest rates and a better business environment. Capital therefore tends to more from states with low-level rate return to nations with high return rates (Pholphirul, 2002).

Singhania (2011) argues that interest rates are normally adjusted to reflect changes in inflation. As a result, interest rates are critical determinants of foreign direct investment. In his study, he defines interest rate as the cost of borrowing capital and also a measure of return on investment. Traditionally, investors will shop for low cost credit sources or lower interest rates and invest it in economies that are promising higher returns. According to Vesarach (2014), who conducted a study on the role of interest rates in attracting FDI in the Asian economies; the findings indicated that determining factors of FDI include interest rates, inflation, GDP, exchange rates, labor cost, money growth and political rights. The researcher concluded that countries should offer competitive interest rates to attract foreign direct investments in their country.

International firms develop its business to an overseas country due to many causes like the utilization of economies of scale, the use of explicit compensation, often due to a life-cycle outline of their yields or simply since their rivals are occupied in parallel businesses (Agiomirgianakis, Asteriou&Papathoma, 2003). On the other hand, Governments are also on a different note, the administrations are as well

occupied in a plan rivalry by shifting main elements of their financial policies, like home labour market setting, business tax and duty barriers, financial support, privatization and authoritarian command laws to advance overseas direct savings actions in their states. Bouoiyour (2003) Identified that, a number of states are struggling to pull overseas investors, to their premises, by means of income tax relief, trade in obligation exclusion and financial support to overseas firms, and procedures like market choice, infrastructures as well as cartel privileges.

### 1.1.4 Energy and Petroleum Industry in Kenya

The industry of energy and petroleum companies in Kenya is mainly regulated by the Energy Regulatory Commission (ERC); this industry of energy and petroleum companies represents the companies that deal with marketing and distribution of petroleum products in the country . They include both the local and the multinational companies. The energy and petroleum industry in Kenya is governed by the Kenyan law which covers processes from importation of crude, retailing and refining. Kenya's petroleum industry structure is oligopolistic in both in wholesale and retail level even with the 1992 deregulation initiative, (Government of Kenya, 2005). There exists more than 30 oil marketing and importing companies made up of five main companies namely Oil Libya, Total, Shell, Chevron, Kenol /Kobil and one of Kenya's state corporations, National Oil Corporation of Kenya (NOCK). These control a market share of over 80% (Energy Regulation Commission, 2016). The main players in the energy sector are; The Kenya Power and Lighting Company (KPLC), The Kenya Electricity Generating Company (KenGen), Kenya Electricity Transmission Company (KETRACO) and independent power producers.

The Kenyan Energy and Petroleum industry is given much consideration due to the fact that it is one of the key segments players of the economy. Petroleum and fuel provides the main source of commercial energy in Kenya. Kenya is acts as an importer of petroleum products currently but with the discovery of some crude oil in it is foreseen that in the near future Kenya will be a primary producer of crude oil. Growth and efficient in performance of the firm performance in the energy sector will be pegged on various macroeconomic factors which can impact on the growth of the organization. The ability of these firms to attract FDIs is also said to be key in enhancing their sustained growth and profitability. Main hindrances experienced in the energy and petroleum industry in their quest to attract FDI are outlined as relatively huge cost of operation which is always escalating high due to volatility in exchange rates, inflation, Gross domestic product fluctuation and volatility in interest rate.

Through liberalization, foreign portfolio is encouraged with the main aim of improving market activity and access to foreign direct investment. For foreign investors, the drive leads to diversification of investments to obtain higher returns in consideration to the developing countries against developed countries low correlation. The investor composition change, however, affects prices of securities and risk pricing. This is more so because the foreign portfolio is easily reversible and thus may affect the share prices and market stability (Nyamongo&Misati, 2010).

### 1.2 Research Problem

Both theory and empirical literatures hold that the growth of a country is directly linked to the economy, which consists of various variables like Foreign Direct Investment, GDP, Inflation, Remittances, Money supply, Exchange rate, Interest rate

and others. These variables are crucial for every economy. Foreign direct investment inflows movement into a country are influenced by variations of important constructs of the economy and these fundamentals' future prospects .FDI provides both the required capital for domestic investment , creates job opportunities and allow for transfer of technology and managerial skills in developing countries which in totality contribute to economic development. Appreciating the contribution of FDI on economic development, high levels of competitiveness are linked to such investment and Kenya particularly seeks this type of investment to speed up the development efforts of the country (Mitullah, 2010).

The Kenyan Energy and Petroleum sector is perceived to be among the major economic segments. Petroleum fuel as been described as Kenya's leading source of commercial energy . The growth in the energy sector depends on the identification of all the variables that affects the firm's profit including the ability to attract FDI. The inability of a firm to attract FDI may lead to lack of adequate financing to meet its obligations which will eventually lead to the disruption of its marketing and distribution process by events such as blacklisting by suppliers and laborers strike . The major challenges facing the energy and petroleum sector includes high cost of operations which is continuously on a rise due to regulation, poor infrastructure, ,volatility in interest rates, volatility in exchange rates, tax administration and burden of government. Other challenges include security issues with recent cases of terror attacks (UNCTAD, 2016). It is against this background that the current study seeks to determine whether indeed interest rates affect FDI inflows in the energy and petroleum industry in Kenya.

Empirical evidence is largely inconsistent and quite varied on the main determinants of FDI inflows in a country. Mottaleb and Kalirajan (2010) demonstrated that nations with larger Gross Domestic Product (GDP) with higher growth rates, a more business-friendly environment and higher proportion of international trade thrive more in attracting foreign investors. Okafor (2012) evaluated whether home macroeconomic variables material for the Nigerian foreign direct savings inflow. The outcome indicates that actual interest rate, gross domestic product,and actual exchange rate are key indicators of foreign direct investment in Nigeria. Omweri (2013) studied the determinant factors of FDI stock in the five countries of the East African Community i.e. Kenya Uganda, Tanzania, Rwanda and Burundi, to find out why the region was recording very low increase of FDI. The study's findings showed that trade openness, inflation, and infrastructure facilities were the most crucial determent factors of foreign direct investment to EAC countries.

Locally, several studies have been conducted on FDI in Kenya. Kinuthia (2010) conducted a study on the factors affecting FDI in Kenya with the main focus being on policy framework and economic determinants. The study findings showed that policy framework and maintaining political stability are key factor in attracting FDIs in Kenya.Otieno (2012) studied locational determinants of FDI in Kenya and found out that FDI has a longstanding relationship with exchange rate, direct taxes, GDP, fixed capital formation and openness of the economy. Kiplagat (2016) examined the impact of interest rates on FDI in Kenya. The study's overall findings were that there was a negligible positive association between interest rates and FDI which was not sufficient in ascertaining the level of the Kenyan FDI inflows .It is therefore evident that few studies have been conducted to investigate the determinants of foreign direct investments in the Kenyan context. In addition, previous studies have mostly

considered determinants of FDI and without focusing on a specific context. It is this gap in literature that the study seeks to bridge by studying the effect of interest rates on foreign direct investments inflows of energy and petroleum firms in Kenya. The study intends to answer the following research question; what is the effect of interest rates on foreign direct investments inflows in the energy and petroleum industry in Kenya?

### 1.3 Objective of the Study

The objective of this study is to determine the effect of interest rates on foreign direct investments inflows in the energy and petroleum industry in Kenya

### 1.4 Value of the Study

The finding of the study forms a future reference to researchers, scholars and students who may aspire to take out research on the same or correlated field. The study may also be helpful to scholars and researchers in identification of further areas of research on other related studies by highlighting related topics that require further research and reviewing the empirical literature to establish study gaps.

The government also stands to benefit from this study as it would be able to understand the factors underlying the dismal performance in the FDI and specifically the role of interest rates. This indeed would help it come up with marketing strategies especially under the brand Kenya initiative to actively market the country as the FDI destination of choice while addressing the factors that would curtail this noble initiative.

The research findings will benefit the stock market investors in making informed decisions in their stock market investments. Investors with an interest in the stock

market will be able to make informed decisions with regard to the best firms to invest in based on their level of foreign direct investment inflows.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This chapter presents the theoretical framework applied in the study and reviews previous studies done on interest rates and foreign direct investments. It contains the theoretical review, determinants of foreign direct investments, empirical review, conceptual framework and summary of literature review.

## 2.2 Theoretical Framework

This presents review of the relevant theories that explains the effect of cheap labour on foreign direct investments. The theories covered are; Internalization theory, eclectic paradigm theory and product life cycle theory

### 2.2.1 Internalization Theory

The theory was established by Buckley and Casson (1976), Rugman (1981) and Hennart (1982). It asserts that proprietary controls over an intangible, knowledge-based, firm-specific advantage are exerted at firm level of an MNC. The theory claims firms reduce their risk exposure that arises from investments in specialized assets by using vertical FDI. The theory also claims that cost benefit analysis of significant factors in the home and receiving country will determine a firm's ability to invest in a foreign country. The investment decision as explained in this theory is dependent on both the expected returns and also on a country's specific factors like political stability, demand for products, barriers to entry, cost of production and capital and economies of scale. Carbaugh (2000) explains that companies might choose to invest

in countries whose raw materials and labor are cheaper when compared to other countries so as to reduce costs. This can be in part be the reason why there is movement of direct investment to Asia more so in India and China where the cost of labor is cheaper compared to other countries in the world.

Internalization theory considers that FDI are suitable when the benefits of internalization overweight costs. MNC possess the technological or managerial knowledge as a key for success and it is also protected in its internal market. Expanding on international market implies developing of new operations and activities, but managed and controlled by the holding company. Even though this theory is more applicable to production and licensing, in term of real estate it could be interpreted through investor's intention to maintain the position and establish quality standards on the foreign market (Casson, 1983).

Lehman (2002) makes an addition to the theory by arguing that FDI may be used as a means of gaining control over input which prevented new competitors from gaining access to the market. The internalization theory proposes that firms' operations are kept internal through a hundred percent owned subsidiary in a bid to control the risks and retain market share. Multinationals practice FDI in order to gain internalization advantages. As opposed to external markets, the firm’s linkages, transfer pricing, integration and economies of centralization enable for reduction of costs through FDI. This theory is relevant to this study as it explains the factors considered by an MNC before making investment decisions in foreign countries and thus affect the amount of FDI inflows into a given country.

### 2.2.2 Eccletic Paradigm Theory

Dunning (1993) came up with this theory which is in itself a mix of three different but correlated theories. These theories are Ownership, Location and Internalization (OLI) which are used to describe how the factors therein contribute to changes in foreign direct investments. Ownership related advantages are those provided by intangible assets. This assets must however be considered as exclusive possessions held and owned by the company and are transferable to other firms at prices that would lead to reduction of costs to the company, or would lead to the company registering high rates of return. In his arguments, Dunning (2005) argues that when all other factors are held constant, a company with a higher level of competitive advantages, in comparison with its competitors, has a higher chance in increasing its overall production and hence increasing its global presence.

Location benefits, as explained by Denisia (2010) are used to compare the different economies, as per their strengths and opportunity. The end result of this analysis is that the most suitable country is selected to be a host country for the activities of multinational firms. The correlation existing between location and ownership advantages is that when a multinational corporation is able to host itself in the most suitable economy, it is now able to engage in the exploitation of its ownership related abilities, and thus leading to the firm engaging in foreign direct investment.

Internalization establishes a need for the firm to be able to have an established business in each of the economies that the company sells its products or services. The firm must derive ways through which it can benefit further through foreign production as compared to the meager fees that are earned in international trade activities such as exporting and franchising. Dunning (2005) states that a corporation is more likely to

get higher returns if, it engages in foreign production as opposed to the extension of its production rights to other countries. The eclectic paradigm is therefore in support of the establishment of production markets by a corporation through exploitation of its competitive advantages and the selection of suitable locations. In doing this, the corporations are not only engaging in foreign direct investments but also gaining much more than their competitors.

### 2.2.3 Product Lifecycle Theory

Vernon (1966), defines production life cycle as a process that consists of four phases of production which include innovation, growth, maturity and decline. A business entity would first come up with an idea about a product or a service. The product or idea then goes through a growth stage and finally attains maturity. It then begins to decline. The product decline is mainly caused by competition in the market place as well as inability of the business to innovate. Companies that are directly involved in foreign direct investment bring production equipment to foreign countries in order to be near the target market and ensure a sustainable market share is attained and maintained(Dunning, 1993).

The production life cycle described by Vernon is typically used in countries that are engaged in manufacturing and exporting products. Sometimes, the countries may lose the market share to competitors who imitate the products and end up being the main exporters of the product. The theory explains that diffusion of technological innovations takes place at a much slower rate. As a result, differences are likely to occur in terms of the production technologies used by different countries. However, it is important to emphasize that the production life cycle described by Vernon is only applicable to certain kinds of products especially those targeting high income earners

and products that have alternative labor and capital sources. Critiques have argued that Vernon's theory is silent on industrial innovation which is important in taking transitional advantages on innovations that require a significant amount of rent to develop (Dunning, 1993).

Vernon's analysis of foreign direct investment solely focused on the product. A summary of the process shows that a product is first invented in the home country. The home country, where the foreign investor resides has advantages in terms of technology and innovation capabilities. The innovator produces the product for the local market first. At a later stage in the production cycle, the product is exported to foreign countries which lack the technology or the innovative capacity to develop similar products. Consequently, the product becomes standardized and eventually matures. At this stage of the product development, labor becomes and critical production input. Consequently, the investor has to attract value input from local materials and people in the foreign country. As a result, foreign direct investment is viewed as a critical stage in the product development life cycle (Chen, 1983).

### 2.3 Determinants of Foreign Direct Investments

FDI involves real assets and this ensures that an investor will be active in managing the assets he is acquiring. There are various factors that make one country more attractive than the others and these factors can also vary from one period to another. These determinants have contributed to studies on why some given countries thrive more than others in attracting FDI. Quite many researches have been executed on the FDI determinants but so far there is yet to be a definite consensus. The different approaches to the determinants of FDI do not cancel each other out but explain different dimensions of the same phenomena (Kinuthia, 2010).

### 2.3.1 Interest Rates

Agiomirgianakis (2003) defined FDI as capital inflow into a country as a result of investment from multinational business entities. The economic theory which elaborates on ways that capital moves in the globalized economy insist that capital tends to flow to countries with higher ROA as compared to those with higher interest rates (Pholphirul, 2002). Consequently, investment is high in countries that offer better investment returns as well as security in the form of lower interest rates and a better business environment. Capital therefore is higher for countries with lower return rates compared to those with high rates of return.

Singhania (2011) argues that interest rates are normally adjusted to reflect changes in inflation. As a result, interest rates are critical determinants of foreign direct investment. Traditionally, investors will shop for low cost credit sources or lower interest rates and invest it in economies that are promising higher returns. According to Vesarach (2014), who conducted a study on the role of interest rates in attracting FDI in the Asian economies; the results showed that the determinants of FDI are interest rates, inflation, GDP, exchange rates, labor cost, money growth and political rights. The researcher concluded that countries should offer competitive interest rates to attract foreign direct investments in their country.

### 2.3.2 Exchange Rates

Exchange rate is an essential component affecting FDI. The eventual importance of exchange rates to the location of FDI was initially suggested by Asiedu (2002). Asiedu stated that different currency areas were responsible for the generation of FDI. Dunning stated that greater fixed capital stakes of an investment showed the possibility of taking into account future movements in exchange rates (Dunning,

1993). Goldberg (2011) agrees that exchange rates volatility impact location decisions of MNCs. Other research indicates that exchange rate risk contributes significantly in explaining FDI (Gastanaga et al., 1998).

Exchange rate volatility may negatively affect and reduce direct investment.Gastanaga et al., (1998) based on an analysis of macroeconomic factors, institutional and legal frameworks and risk in determining FDI, proved that market size, fiscal deficit, inflation and exchange regime and trade openness were all significant. According to earlier research, exchange rate movements have shown to be relevant and significant to FDI because exchange rate volatility contributes directly to uncertainty in the transaction plan from the countries investing (Behera, 2008).

### 2.3.3 Economic Growth

The importance of growth in attracting FDI has been rather controversial. Charkrabarti (2001) stated that the hypothesis of growth that was developed by Lim (2001) suggests that a rapid growth in the economy provides more profitable opportunities than those experiencing slow growth or no growth at all. Mishkin and Eakins(2009) from their research study found that growth was positively correlated with FDI while Gastanaga et al.(1998), strongly supported the hypothesis from the periods 1983 to 1986 but showed a weak link from the periods 1975 to 1978.

Contrary to the results, Aoki (2007) found a weak but positive relationship for economies of less developing countries and weak negative relationship for economies of developed countries. Asiedu (2002) found a positive relationship but with lagged growth for countries not in the Sub-Saharan Africa region, but an insignificant effect for the Sub-Saharan Africa region. Gastanaga (1998) observed a positive impact of growth on FDI.

### 2.3.4 Inflation

Inflation is very important in managing the macroeconomic environment and fiscal governance. It is usually measured by changes in the consumer price index which is essentially a weighted average price of goods and services consumed (CBK, 2013; Nwankwo, 2006). A high level of inflation is an indicator of tensions in the economic environment of a country and is a reflection of the government's reluctance to have a stable monetary policy. It can be argued that risk averse foreign investors coupled with high levels of inflation will lead to decreases in FDI in the host country since investors are not willing to risk the profits that they expect from their investments (Kadongo, 2011).

Given high uncertainty levels, investors are bound to demand high price levels in order to offset their exposure to inflationary risks which are bound to lower the volume of investment. Therefore as a move to encourage investments, inflation rate stability is important (Gastanaga et al., 1998). Nwankwo (2006) has stressed macroeconomic policy failures as deflecting FDI flows from Africa; he points that, poor monetary and fiscal policies cause unsustainable deficits in budgets and increase inflationary pressures thereby raising the production costs in the local country and thus creating instability in exchange rates and thereby the region becomes a risky destination for FDI and making the region too risky as a destination for FDI. Instability in macroeconomic variables as evidenced by high inflation and excessive budget deficits, limits the country's ability to attract FDI (Onyeiwu&Shrestha, 2004).

### 2.3.5 Availability of Good Infrastructure

It is believed that proper infrastructure leads to higher productivity of investment which increases FDI flows (Asiedu, 2002). Wheeler and Mody(1992) in their study

identified infrastructure as a prerequisite for developing nations .While examining infrastructure, the scope should not be only limited to roads but other factors such as telecommunications must be involved. For instance, the availability and efficiency of telephone is required to enable communication between the home and host countries. Apart from the physical infrastructure, financial infrastructure is equally necessary for FDI inflows.

A well-organized financial market have proved to enable a country to fully capture the benefits of FDI. A study by Alfaro et al., (2001), utilized the cross-section data to examine the effect of infrastructure on the economy and noted that that poorly developed financial infrastructure affects the ability of an economy to utilize potential benefits of FDI to a large extent.

### 2.4 Empirical Review

There are numerous empirical studies both locally and internationally to support the relationship between macro-economic variables and foreign direct investments, but these studies have produced mixed results.

#### 2.4.1 Global Studies

Piteli (2009) analyzed the determinants of FDI by multinational corporations (MNCs) in developed countries. He did a comparison of EU and non-EU Nations , he used an estimated equation obtained from economic theory to compare the demand and supply-side FDI determinants. The study contributes to literature in three ways: the first being utilizing the different demand proxies and supply-side factors. The second is by undertaking a comparison between European and non-European developed nations and thirdly by examining the relative benefits of total factor productivity

(TFP) as a FDI determinant. The findings concur with theoretical predictions, but highlight on the benefits of TFP as the FDIs determinant par excellence in industrialized economies.

Okafor (2012) evaluated the impact of domestic macroeconomic in the Nigerian FDI inflow. He observed that economic theory can be used to predict the contribution of foreign capital flows on the countries' economic growth. The empirical analysis examines the contribution of major domestic macroeconomic variables on FDI in Nigeria using the OLS estimation technique. The findings indicate that interest rate, ,real exchange rate and real gross domestic product as the key factors determining FDI in Nigeria. The findings suggest that these domestic macroeconomic variables are important for FDI inflow. Therefore, the policy makers must work harder to make the macroeconomic environment more appealing so as to promote the flow and benefits of Nigeria's foreign direct investment.

Parajuli (2012) investigated the association between the exchange rate, foreign direct investment and trade in the developing economy of Mexico from the Organization for Economic Corporation and Development countries and how exchange rates and the volatility of exchange rates impact the flow of FDI from 1994 to 2008. The results showed a positive correlation between the expectations of exchange rates and FDI. The exchange rate coefficient variables showed that appreciation in the home currencies encourage outward FDI flows from members of OECD countries to Mexico.

Mahiti (2012) examined the determinants of Foreign Direct Investments in Kenya and Tanzania. The research was conducted the Embassy of Kenya and at the Tanzania Investment Centre (TIC). The study concludes that infrastructure mainly in the

transport sector plays a major role in attracting more FDI into the East African Region. Therefore, it is crucial to examine the incentives awarded to investors as well as ensuring smooth transfer of new technologies to Kenya and Tanzania so a to make them globally competitive.

Omweri (2013) studied foreign direct investment stock determinants in the five countries of the East African Community i.e. Kenya Uganda, Tanzania, Rwanda and Burundi, to find out why the region was recording very low increase of FDI. The research employed panel data analysis methods. The study used Gross Domestic Product growth, trade openness, telephone line, Gross Domestic Product per Capita (per 100 people); aproxy for infrastructural facilities, inflation, return on investment and natural resource endowment as independent variables and the stock of foreign direct investment as the dependent variable. The data utilized was for the period between 1991-2012. The study's findings showed that inflation, trade openness and infrastructure facilities were the most significant determinants of foreign direct investment to EAC countries.

### 2.4.2 Local Studies

Nyamwange (2009) conducted a research study to investigate FDIin Kenya. The main aim of the research was to determine factors that influence FDI decisions in the Kenyan context. He explored the correlation between FDI and economic development in Kenya. The study findings showed that FDI in Kenya is affected by level of human capital, stable macroeconomic policies,taxation, and market size. Additionally, there was no statistically significant link between human capital and GDP which means that there is shortage of skilled employees in Kenya.

Kinuthia (2010) gives a new set of evidence on the determinants of Foreign Direct Investment on the basis of a survey of the Kenyan foreign firms in 2007. The findings of the study show than majority of the Kenyan foreign firms are marketing firms and the most vital FDI determinants were identified as market size, bilateral trade agreements, favorable climate and political and economic stability. Furthermore, the three main challenges the growth of foreign investment inflow to Kenya crime and insecurity, institutional factors such as corruption and are political instability.

Mwenda (2012) provided the determinants of FDI and the Transfer of Technology by Information Technology MNCs in Kenya as being market availability,political stability, the absence of maximum retail price, a stable and growing economy, the availability of human resources and the availability of a strategic infrastructure. The impediments to FDI, on the other hand, included delays in licenses and work permits, corruption, political instability and weak infrastructure.

Wanjiru (2013) examined the effect of economic growth and inflation volatility on FDI in Kenya. FDI were used as the dependent variable whereas inflation and GDP were taken as independent variables. A linear regression analysis was used on the data to determine the association between inflation, GDP and FDI flows. The results suggest that no association exists between FDI and inflation, whereas a negative association exists between foreign direct investment and gross domestic product. This study insisted on the intervening effect of inflation on the impact of economic growth on FDI. This therefore means that the effects of economic growth on FDI remain unstudied.

Muema (2013) in analyzing FDI determinants in Kenya concluded that the mean rate of change in the annual average of exchange rates of the Kenyan shilling to the dollar

was 7.66%. The exchange rates change was recorded in 1992 at 80.03% when the value of the shilling dropped from Sh.58 to the US Dollar to Sh.32.22. The lowest change was -8.24% met in 1994 when there was an appreciation in the Kenyan shilling from Sh. 51.43 to Sh.56.05. He established that there was a significant positive relationship between the rate of FDI and the exchange rate change indicating a strong link between higher FDI inflows and the weakening shilling. This study's conclusion was that the main factor determining changes in FDI in Kenya was the Kenyan Shilling exchange rate to the other currencies proxied by the speed of change to the US dollar.

Kiplagat (2016) conducted a study to determine the effect of interest rates on direct foreign investments in Kenya. The descriptive research design was used in the study to establish the association between interest rates and FDI in Kenya. The 44 data points constituted the sample frame which included time series annual data of both the independent and dependent variables from the period 1971 to 2014. FDI while the dependent variable whereas inflation, interest rates, GDP and exchange rates were the independent variables. The data utilized was collected from secondary sources and analyzed using SPSS version 17.0. Descriptive and inferential data analysis was used to analyze the data. The study's overall findings and conclusion was that there is a positive correlation between interest rates with FDI although negligible in ascertaining the FDI inflows' level in Kenya.

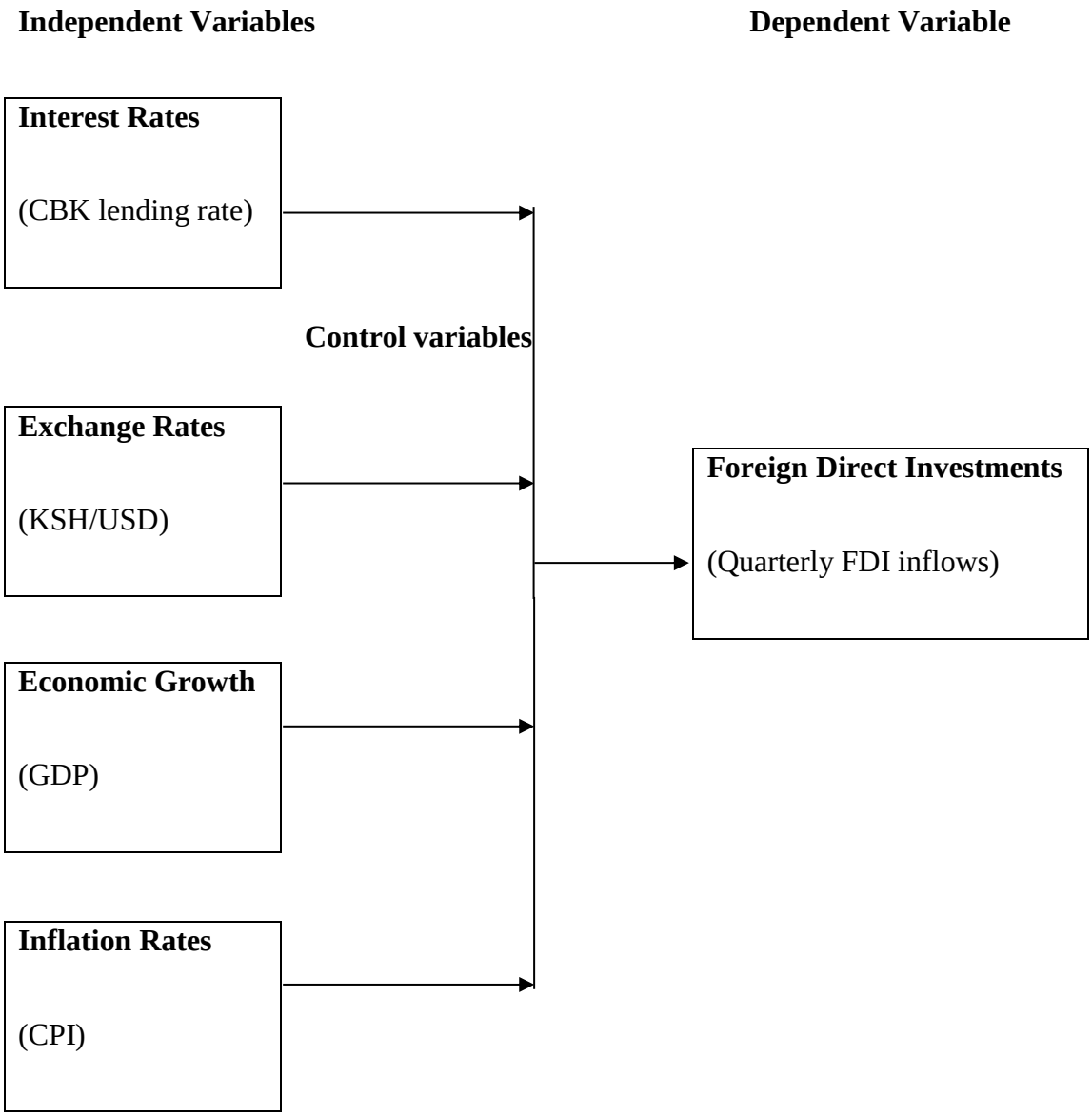
### 2.5 Conceptual Framework

Pholphirul (2002) explains the contribution of capital in the movement of the global economy and insists that capital tends to flow to countrieswith higher return on investment as compared to countries with higher interest rates. Consequently,

investment is high in countries that offer better investment returns as well as security in the form of lower interest rates and a better business environment. Capital therefore tends to more from countries with low rate return to economies with high rate of return.  Singhania (2011) argues that investors will shop for low cost credit sources or lower interest rates and invest it in economies that are promising higher returns.

The conceptual model developed below portrays this expected relationship between the study variables. The factors characterized here interest rates and foreign direct investments. The independent variablesare interest rate as measured by CBK quarterly lending rate, exchange rates as measured by quarterly exchange rate between KSH and USD, economic growth as measured by quarterly GDP and inflation rates as measured by quarterly CPI. Foreign direct investment is the dependent variable which the study seeks to explain and it will be measured by quarterly FDI inflows.

**Figure 2.1: Conceptual Model**




**Source: Researcher (2017)**

## 2.6 Summary of the Literature Review

This section of this study examined the different theories advanced for foreign direct investments including the internalization theory, eclectic paradigm theory and product

life cycle theory. This chapter further examines the various FDI determinants to include exchange rates, economic growth, inflation rates, interest rates and availability of good infrastructure. The chapter also presented empirical studies of the previous studies done by other researchers on the topical area of interest rates and FDI both at the local and global scene.

From the empirical review, it is evident that few studies have been carried out to investigate how interest rate determines foreign direct investments inflows in the Kenyan context. In addition, previous studies have mostly considered determinants of FDI generally without studying specific determinants or FDI inflow into the country as a whole without taking into account specific sectors of the economy. This study intends to fill this research gap by investigating the effect of interest rates on foreign direct investments inflows of energy and petroleum industry in Kenya.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter describes methods of researchapplied to objectively establish the influence of interest rates on foreign direct investments inflows. It also shows the population of study,research design, data collection and analysis criteria.

## 3.2 Research Design

The research design is defined as a blue print of the procedures that will be utilized by a researcher in determining the associations between dependent variables and the independent variables (Khan, 2008). Descriptive design was adopted for the study. A descriptive study involves a description of all the elements of the population. It allows estimates of a part of a population that has these attributes. Identifying relationships among various variables is possible, to determine if the variables are independent or dependent.

## 3.3 Data Collection

Data was exclusively collected from a secondary source. The study used secondary data from KNBS publications as well as from the CBK website. The quantitative datacollected included total FDI remittances into the energy and petroleum industry in Kenya as from 2007 to 2016collected on a quarterly basis.Data on interest rates and exchange rates was collected from the CBK website on a quarterly basis from 2007 to 2016. Data on inflation was the CPI while data on economic growth wasKenya’s GDP, both collected for every quarter from 2007 to 2016.

### 3.4 Diagnostic Tests

Linearity show that two variables X and Y are related by a mathematical equation Y=c+bX where c is a constant number. The linearity test was obtained through the F-statistic in ANOVA. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. This was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is a complete linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense (Burns & Burns, 2008).

### 3.5 Data Analysis

The collected data was sorted, classified, coded and then tabulated for easy analysis. Collected data was analyzed using both the descriptive and the inferential statistics. SPSS computer package version 21 was used in the analysis since it's more user-friendly. The data was inputted into the SPSS and examined using descriptive, correlation and regression analyses. In descriptive statistics, the study used mean, standard deviation and scatter plot. In inferential statistics, the study used multivariate regression analysis to determine the relationship between the dependent variable (foreign direct investments) and independent variables: interest rate, economic

growth, exchange rate and inflation rate.

### 3.5.1 Analytical Model

Using the collected data, the researcher conducted a regression analysis to establish the extent of the relationship between interest rates and foreign direct investments inflows. The study applied the following regression model:

$Y= \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+\beta_4X_4+\varepsilon.$

Where: Y = Foreign direct investments as measured by natural logarithm ofFDI inflows in the energy and petroleum industry in Kenya on a quarterly basis

$\beta_0$ =y intercept of the regression equation.

$\beta_1$, $\beta_2$ and $\beta_{3,}$=are the slope of the regression

$X_1$ = Quarterlyinterest rates as measured by CBK lending rate

$X_2$ =Average quarterlyexchange rate between USD and Kshin natural logarithm form

$X_3$= Economic growth as measured byquarterly GDP in natural logarithm form

$X_4$= Average quarterly inflation rate as measured by CPI

$\varepsilon$ =error term

### 3.5.2 Tests of Significance

To test the statistical significance the F- test and the t – test were used at 95% confidence level. The F statistic was utilized to establish a statistical significance of regression equation while the t statistic was used to test statistical significance of study coefficients.

# CHAPTER FOUR

# DATA ANALYSIS, FINDINGS AND INTERPRETATION

## 4.1 Introduction

This chapter focused on the analysis of the collected data from KNBS and CBK to establish the effect of interest rates on foreign direct investment inflows in the energy and petroleum industry in Kenya. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in table forms as shown in the following sections.

## 4.2Diagnostic Tests

The study looked for data that would be able to meet the objectives of the study. The data collected from the various sources (CBK hand books and KNBS)was cross checked for errors to test the validity of the data sources. The research assumed a 95 percent confidence interval or 5 percent significance level (both leading to identical conclusions) for the data used. These values helped to verify the truth or the falsity of the data. Thus, the closer to 100 pecent the confidence interval (and thus, the closer to 0 percent the significance level), the higher the accuracy of the data used and analyzed is assumed to be.

The researcher also carried out normality test on the collected data. The null hypothesis for the test was that the secondary data was not normal. If the p-value recorded was more than 0.05, the researcher would reject it. The results of the test are as shown in Table 4.1.

**Table 4.1: Normality Test**

| FDI Inflows | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | Df | Sig. | Statistic | Df | Sig. |
| Interest rates | .173 | 40 | .300 | .918 | 40 | .822 |
| Exchange rates | .178 | 40 | .300 | .881 | 40 | .723 |
| GDP | .172 | 40 | .300 | .869 | 40 | .823 |
| Inflation rate | .176 | 40 | .300 | .892 | 40 | .784 |
| a. Lilliefors Significance Correction | | | | | | |

**Source: Research Findings (2017)**

Both Kolmogorov-Smirnova and Shapiro-Wilk tests recorded o-values greater than 0.05 which implies that the research data was normally distributed and therefore the null hypothesis was rejected. The data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance.

### 4.4 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. Table 4.2 above shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of ten years (2007 to 2016) on a quarterly basis. FDI inflowshad a mean of 49.58with a standard deviation of 36.335. Interest rates recorded a mean of 8.010335 with a standard deviation of 3.1788441. Exchange rate resulted to a mean of 81.17 with a standard deviation of 10.002. GDP resulted to a mean of 5.893685with a standard

deviation of .0761285while Inflation had a mean of 8.290545 and standard deviation of 4.5644054.

**Table 4.2: Descriptive Statistics**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| FDI Inflows | 40 | 17 | 211 | 49.58 | 36.335 |
| Interest rates | 40 | 2.1233 | 19.5200 | 8.010335 | 3.1788441 |
| Exchange rate | 40 | 63 | 104 | 81.17 | 10.002 |
| GDP | 40 | 5.7803 | 6.0219 | 5.893685 | .0761285 |
| Inflation | 40 | 2.7136 | 19.1870 | 8.290545 | 4.5644054 |
| Valid N (listwise) | 40 | | | | |

**Source: Research Findings (2017)**

### 4.4 Correlation Analysis

Correlation analysis is used to establish if there exists a relationship between two variables which lies between (-) strong negative correlation and (+) perfect positive correlation. Pearson correlation was employed to analyze the level of association between FDI inflows in to the energy and petroleum industry and the independent variables for this study (Interest rates, exchange rates, economic growth and inflation).

From correlation analysis, the study showed the existence of a weak positive correlation between interest rates and FDI inflows into the energy and petroleum sector (p=.105, p>.518). This goes to show that the prevailing interest rates in a

country have an association with FDI inflows into the energy and petroleum sector but that association is not significant. The study also showed that there exist a weak positive correlation between exchange rates and FDI inflows (p=.426, p>.006). This shows that exchange rates have a weak positive association withFDI inflows and the association is significant. The relationship between economic growth and FDI inflows was found to be weak and positive (p=.431, p>0.005). This implies that movement in economic growth is positively correlated to FDI inflows and in a significant manner.The relationship between inflation and FDI inflows was found to be weak and negative (p=-.252, p>0.116). This implies that movement in the inflation rate is negatively correlated to FDI inflows but not in a significant manner.Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity as all the r values were less than 0.70. This implies that there was no Multicollinearity among the independent variables and therefore they can be used as determinants of FDI inflows into the energy and petroleum industry in regression analysis.

**Table 4.3: Correlation Analysis**

| | | FDI Inflows | interest rates | Exchange rate | GDP | Inflation |
|---|---|---|---|---|---|---|
| FDI Inflows | Correlation | 1 | .105 | .426** | .431** | -.252 |
| | Sig. (2-tailed) | | .518 | .006 | .005 | .116 |
| Interest rates | Correlation | .105 | 1 | .298 | .297 | .448** |
| | Sig. (2-tailed) | .518 | | .061 | .062 | .004 |
| Exchange rate | Correlation | .426** | .298 | 1 | .610** | .029 |
| | Sig. (2-tailed) | .006 | .061 | | .000 | .860 |

| | | | | | | |
|---|---|---|---|---|---|---|
| GDP | Correlation | .431** | .297 | .610** | 1 | -.110 |
| | Sig. (2-tailed) | .005 | .062 | .000 | | .498 |
| Inflation | Correlation | -.252 | .448** | .029 | -.110 | 1 |
| | Sig. (2-tailed) | .116 | .004 | .860 | .498 | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | |

**Source: Research Findings (2017)**

### 4.5 Regression Analysis

FDI inflows in was regressed against four predictor variables; interest rates, exchange rates, economic growth and inflation. The regression analysis was undertaken at 5% significance level. The critical value obtained from the F – table was compared with the one obtained from the regression analysis. The study obtained the model summary statistics as shown in table 4.4 below.

**Table 4.4: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .514[a] | .264 | .180 | 32.905 | 1.997 |

a. Predictors: (Constant), Inflation, Exchange rate, Interest rates, GDP

b. Dependent Variable: FDI Inflows

**Source: Research Findings (2017)**

R squared, being the coefficient of determination indicates the deviations in the response variable that is as a result of changes in the predictor variables. From the outcome in table 4.4 above, the value of R square was 0.264, a discovery that 26.4 percent of the deviations in FDI inflows in the energy and petroleum industryis caused by changes ininterest rates, exchange rates, economic growth and inflation.

Other variables not included in the model justify for 73.6 percent of the variations in FDI inflows in the energy and petroleum industry. Also, the results revealed that there exists a strong relationship among the selected independent variables and the stock market return as shown by the correlation coefficient (R) equal to 0.514. A durbin-watson statistic of 1.997 indicated that the variable residuals were not serially correlated since the value was more than 1.5.

**Table 4.5: Analysis of Variance**

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 13594.048 | 4 | 3398.512 | 3.139 | .026[b] |
| | Residual | 37895.727 | 35 | 1082.735 | | |
| | Total | 51489.775 | 39 | | | |

a. Dependent Variable: FDI Inflows

b. Predictors: (Constant), Inflation, Exchange rate, interest rates, GDP

**Source: Research Findings (2017)**

The significance value is 0.023 which is less than p=0.05. This implies that the model was statistically significant in predicting how interest rates, exchange rates, economic growth and inflation affect FDI inflows in the energy and petroleum industry.Given 5% level of significance, table 4.5 above shows computed F value as 4.949 which is more than the critical value from the table. This confirms that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for

explaining how the selected independent variables affects FDI inflows in the energy and petroleum industry.

**Table 4.6: Model Coefficients**

Coefficients of determination were used as indicators of the direction of the relationship between interest rates, exchange rates, economic growth, inflation and FDI inflows in the energy and petroleum sector. The p-value under sig. column was used as an indicator of the significance of the relationship between the dependent and the independent variables. At 95% confidence level, a p-value of less than 0.05 was interpreted as a measure of statistical significance. As such, a p-value above 0.05 indicates a statistically insignificant relationship between the dependent and the independent variables. The results are as shown in table 4.6

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 11.316 | 982.789 | | .012 | .991 |
| | interest rates | 1.540 | 2.025 | .135 | .760 | .452 |
| | Exchange rate | 1.525 | 1.349 | .420 | 1.131 | .266 |
| | GDP | -12.935 | 183.406 | -.027 | -.071 | .944 |
| | Inflation | -2.609 | 1.424 | -.328 | -1.833 | .075 |

a. Dependent Variable: FDI Inflows

**Source: Research Findings (2017).**

From the above results, it is evident that interest rate is an insignificant determinant of FDI inflows in the energy and petroleum industry as indicated by a p value that is greater than 0.05. Economic growth, inflation rate and exchange rate were also found to be insignificant determinants of FDI inflows in the energy and petroleum industry as indicated by p values less than 0.05.

The following regression equation was estimated:

$Y = 11316 + 1.540X_1 + 1.525X_2 – 12.935X_3 – 2.609X_4$

Where,

Y = FDI inflows in the energy and petroleum industry

$X_1$= Interest rates

$X_2$= Exchange rates

$X_3$ = Economic growth

$X_4$ = Inflation rates

On the estimated regression model above, the constant = 11316 shows that if selected dependent variables (Interest rates, exchange rates, economic growth and inflation) were rated zero, FDI inflows in the energy and petroleum industry would be 11316.A unit increase in interest rates would lead to an increase in FDI inflows in the energy and petroleum industry by 1.540. A unit increase in exchange rates would lead to an increase in FDI inflows in the energy and petroleum industry by 1.525 while a unit increase in economic growth and inflation would lead to a decrease in FDI inflows in the energy and petroleum industry by 12.935and 2.609 respectively.

### 4.7 Discussion of Research Findings

The study sought to determine the effect of interest rates on FDI inflows in the energy and petroleum industry. The independent variable wasinterest rate as measured by CBK quarterly lending rate. The control variables were exchange rates as measured

by quarterly exchange rate between ksh and usd,economic growth as measured by quarterly GDP and inflation rates as measured by quarterly CPI. FDI inflows werethe dependent variable which the study sought to explain and it was measured by quarterly FDI inflows in the energy and petroleum industry in Kenya. The effect of each of the independent variables on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed existence of a weak positive correlation between interest rates and FDI inflows in the energy and petroleum industry in Kenya(p=.105, p>.518). The study also showed that there exist a weak positive correlation between exchange rates and FDI inflows (p=.426, p>.006). This shows that exchange rates have a weak positive association with FDI inflows and the association is significant. The relationship between economic growth and FDI inflows was found to be weak and positive (p=.431, p>0.005). This implies that movement in economic growth is positively correlated to FDI inflows and in a significant manner. The relationship between inflation and FDI inflows was found to be weak and negative (p=-.252, p>0.116). This implies that movement in the inflation rate is negatively correlated to FDI inflows but not in a significant manner.

The model summary revealed that the independent variables: interest rates, exchange rates, economic growth and inflation explains 26.4% of changes in the dependent variable as indicated by the value of $R^2$ which implies that there are other factors not included in this model that account for 73.6% of changes in FDI inflows in the energy and petroleum industry in Kenya. The model was found to be fit at 95% level of confidence since the F-value of 3.139 is higher than the critical value. This implies that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining FDI inflows in the energy and petroleum

industry in Kenya.

Okafor (2012) evaluated the impact of domestic macroeconomic in the Nigerian FDI inflow. He observed that economic theory can be used to predict the contribution of foreign capital flows on the countries' economic growth. The empirical analysis examines the contribution of major domestic macroeconomic variables on FDI in Nigeria using the OLS estimation technique. The findings indicate that interest rate, ,real exchange rate and real gross domestic product as the key factors determining FDI in Nigeria. The findings suggest that these domestic macroeconomic variables are important for FDI inflow. Therefore, the policy makers must work harder to make the macroeconomic environment more appealing so as to promote the flow and benefits of Nigeria's foreign direct investment.

This study is in agreement with Kiplagat (2016) who conducted a study to determine the effect of interest rates on direct foreign investments in Kenya. The descriptive research design was used in the study to establish the association between interest rates and FDI in Kenya. The 44 data points constituted the sample frame which included time series annual data of both the independent and dependent variables from the period 1971 to 2014. FDI while the dependent variable whereas inflation, interest rates, GDP and exchange rates were the independent variables. The data utilized was collected from secondary sources and analyzed using SPSS version 17.0. Descriptive and inferential data analysis was used to analyze the data. The study's overall findings and conclusion was that there is a positive correlation between interest rates with FDI although negligible in ascertaining the FDI inflows' level in Kenya.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Introduction

This chapter summarizes the findings of the previous chapter, conclusion, limitations encountered during the study. This chapter also elucidates the policy recommendations that policy makers can implement to achieve the expected FDI inflows in the energy and petroleum industry in Kenya. Lastly the chapter presents suggestions for further research which can be useful to future researchers.

## 5.2 Summary of Findings

The study sought to investigate the effect of interest rates on FDI inflows in the energy and petroleum industry in Kenya. The independent variables for the study were interest rates, exchange rates, economic growth and inflation. The study adopted a descriptive research design. Secondary data was obtained from CBK and KNBS and was analyzed using SPSS software version 21. The study used quarterly data covering a period of ten years from January 2007 to December 2016.

From the results of correlation analysis, a weak positive correlation was found to exist between interest rates and FDI inflows in the energy and petroleum industry in Kenya. The relationship between the control variables (economic growth and inflation) and FDI inflows in the energy and petroleum industry in Kenyawas found to be weak and negative while exchange rates had a weak positive relationship with FDI inflows in the energy and petroleum industry in Kenya. Exchange rates and economic growth were found to have a significant relationship with FDI inflows in the energy and petroleum industry in Kenyaas indicated by p values that are less than 0.05while

interest rate and inflation rate exhibited an insignificant correlation indicated by a p value of more than 0.05.

The co-efficient of determination R-square value was 0.264 which means that about 26.4 percent of the variation in FDI inflows in the energy and petroleum industry in Kenyacan be explained by the fourselected independent variables while 73.6 percent in the variation of FDI inflows in the energy and petroleum industry in Kenyais associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with FDI inflows in the energy and petroleum industry in Kenya(R=0.514). ANOVA results show that the F statistic was significant at 5% level with a p=3.139. Therefore the model was fit to explain the relationship between the selected variables.

The regression results show that when all the selected dependent variables (interest rates, exchange rates, economic growth and inflation) are rated zero, FDI inflows in the energy and petroleum industry in Kenyawould be 11,316. A unit increase in interest rates would lead to an increase in FDI inflows in the energy and petroleum industry by 1.540. A unit increase in exchange rates would lead to an increase in FDI inflows in the energy and petroleum industry by 1.525 while a unit increase in economic growth and inflation would lead to a decrease in FDI inflows in the energy and petroleum industry by 12.935 and 2.609 respectively.

### 5.3 Conclusion

From the study findings, the study concludes that FDI inflows in the energy and petroleum industry have a positive association with interest rates. The study therefore concludes that higher interest rateslead to improved FDI inflows in the energy and petroleum industry even though not to a significant extent. FDI inflows in the energy

and petroleum industry. Exchange rates were also found to be positively related to FDI inflows in the energy and petroleum industry and therefore an increase in exchange rates leads to an increase in FDI inflows in the energy and petroleum industry. The study found that inflation rate and economic growth had a negative correlation with FDI inflows in the energy and petroleum industry and we can therefore conclude that higher inflation rates and economic growth tend to discourage foreign direct investment inflows in the energy and petroleum industry in Kenya.

This study concludes that independent variables selected for the study interest rates, exchange rates, economic growth and inflation influence FDI inflows in the energy and petroleum industry to a large extent as they account for 26.4 percent of the changes in FDI inflows in the energy and petroleum industry. The fact that the four independent variables explain 26.4% of changes in FDI inflows in the energy and petroleum industry imply that the variables not included in the model explain 73.6% of changes in FDI inflows in the energy and petroleum industry. The overall model was found to be significant as explained by the F statistic. It is therefore sufficient to conclude that these variables significantly influence FDI inflows in the energy and petroleum industry as shown by the p value in anova summary.

This finding concurs withKiplagat (2016) who carried out a study to determine the effect of interest rates on direct foreign investments in Kenya. The study adopted a descriptive research design which assisted in the establishment of the relationship between interest rates and foreign direct investments in Kenya. The sample frame was based on 44 data points i.e. time series annual data of the dependent and independent variables from 1971 to 2014. The dependent variable was FDI while the independent variables were; interest rates and other variables namely, inflation, exchange rates and

GDP since they are the main macroeconomic variables in the economy. Data was gathered only from secondary sources and analysis done using SPSS 17.0. Descriptive and inferential data analysis was used to analyze the data. The overall findings and conclusion of the study was that interest rates have a positive correlation with FDI but not significant at all in determining the level of FDI inflows in Kenya.

### 5.4 Recommendations

The study established that although there is a positive influence of interest rates on FDI inflows in the energy and petroleum industry, the influence is not statistically significant. This study recommends that there is need for central bank to regulate the interest rate levels prevailing in the country bearing in mind that they influence FDI inflows in the energy and petroleum industry.

The study found that exchange rates have a positive influence on FDI inflows in the energy and petroleum industry. This study recommends that policy makers should regulate prevailing exchange rates as depreciation in exchange rates may lead to decreased FDI inflows into the energy and petroleum industry. Economic growth and inflation rates were found to have a negative relationship with FDI inflows in the energy and petroleum industry. The variables were however found to be insignificant determinants of FDI inflows in the energy and petroleum industry. This study recommends that policy makers should pay attention to the prevailing rates of these selected independent variables as they can negatively affect FDI inflows in the energy and petroleum industry.

### 5.5 Limitations of the Study

The scope of this research was for ten years 2007-2016. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether

similar findings would result beyond 2016. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions.

One of the limitations of the study is the quality of the data. It is difficult to conclude from this research whether the findings present the true facts about the situation. The data that has been used is only assumed to be accurate. The measures used may keep on varying from one year to another subject to prevailing condition. The study utilized secondary data, which had already been obtained and was in the public domain, unlike the primary data which is first-hand information. The study also considered selected determinants and not all factors affecting FDI inflows in the energy and petroleum industrymainly due to limitation of data availability.

For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

### 5.6 Suggestions for Further Research

This study focused on interest rates FDI inflows in the energy and petroleum industryand relied on secondary data. A research study where data collection relies on primary data i.e. in depth questionnaires and interviews covering all the energy and petroleum firmsin Kenya on factors affecting foreign direct inflowsis recommended so as to compliment this research.

The study was not exhaustive of the independent variables affecting FDI inflows in the energy and petroleum industry and this study recommends that further studies be

conducted to incorporate other variables like money supply, industry performance, firm specific characteristics, political stability and other macro-economic variables. Establishing the effect of each variable on FDI inflows in the energy and petroleum industrywill enable policy makers know what tool to use when controlling FDI inflows.

The study concentrated on the last ten years since it was the most recent data available. Future studies may use a range of many years e.g. from 1970 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing on the energy and petroleum industry in Kenya. The recommendations of this study are that further studies be conducted on other contexts in Kenya. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

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