DETERMINANTS OF FOREIGN DIRECT INVESTMENT STOCK IN KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF ECONOMICS, UNIVERSITY OF NAIROBI, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF MASTER OF ARTS IN ECONOMICS.

DECLARATION

DECLARATION BY THE CANDIDATE

This project is my original work and has not been presented for a degree in any other University.

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

Signature: …………………………………………………..

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Dr. Benedicto Ongeri

DEDICATION

I dedicate this project report to my family and friends who have been a source of inspiration and support all through my life.

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I wish to acknowledge the enormous contribution made by several individuals in the course of this research work. I wish to recognize the work done by my supervisors- Dr. Urbanus Kioko and Dr. Benedicto Ongeri, and Dr. Ongoro for their constant and analytical criticisms, corrections, guidance and encouragement, all through I admired their dedication. Special thanks go to my parents who have always been my model, and my colleagues and friends who where handy in my research work. My thanks also go to University of Nairobi staff. Last but not least, to God almighty for giving me continued good health as I pursued my academic goals.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AGOA	African Growth and Opportunities Act
DF	Dickey Fuller
EPZ	Export Processing Zone
FDI	Foreign Direct Investments
GDP	Gross Domestic Production
UNCTAD	United Nation Centre for Trade and Development
MNCs	Multinational Corporations
NEPAD	New Partnership for Africa's Development
USA	United States of America
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
ICRG	International Country Risk Guide
EAC	East African Community
IMF	International Monetary Fund
SAP	Structural Adjustment Program
SSC	Sub-Saharan countries
2SLS	Two Stage Least Squares Estimation
IIR	Institutional Investors Investment ratings
LDC	Least Developed Countries
KIPPRA	Kenya Institute for Public Policy Research and Analysis

ABSTRACT

Empirical studies have confirmed that FDI inward stock spurs economic growth since it is the investment in the real sector of the economy while FDI net inflows which is volatile negatively affects economic growth. Most Sub Saharan African countries endeavor to attract FDI stock because of its known importance as an instrument of economic growth and development. Africa's quest for FDI is evidenced by the formation of the New Partnership for Africa's Development (NEPAD), which is seen as the vehicle for attracting of foreign direct investment to Africa.

This study investigated determinants of FDI stock in Kenya. Secondary data were used and sourced from the United Nation Centre on Trade and development (UNCTAD), World Bank database, Transparency International and Kenya National Bureau of Statistics. The period of study was 1980–2012. Linear Regression Model was used to examine the determinants and Granger causality test to analyze and establish the nature of relationship between FDI inward stock and its determinants. Results suggest that rate of return, inflation, quality infrastructure, quality of institutions, cost of the factors of production, discount rates, openness of the economy and GDP growth rates of Kenya affect FDI stock. Economic growth of OECD countries, cost of factors of production, and rate of return have been found to be very significant at 2.12, 4.83 and 2.91 respectively. The study therefore recommends FDI stock should be encouraged in sectors with potential competitive advantages and where complementarity with domestic investments is likely to be high. Also, the government will have to promote effectively the development of technological and human capital capabilities in order to attract FDIs in higher-value added activities, as well as to ensure Kenya can assimilate these technologies effectively.

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CHAPTER ONE

1.0   Introduction

Foreign direct investment (FDI) is defined as an investment involving a long‑term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign enterprise). FDI implies that the investor exerts a significant degree of influence on the management of the enterprise resident in the other economy. Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and among foreign affiliates, both incorporated and unincorporated. FDI may be undertaken by individuals as well as business entities. The minimum and most commonly applied threshold level of ownership that is viewed to bring significant influence is 10% of a company's equity or voting stock.Flows of FDI comprise capital provided (either directly or through other related enterprises) by a foreign direct investor to an enterprise, or capital received from an investing enterprise by a foreign direct investor, (UNCTAD, 2011)

There are two major types of FDI: horizontal FDI and vertical FDI. Horizontal FDI is where multi plant firms duplicate roughly the same activities in multiple countries, whereas vertical FDI is where firms locate different stages of production in different countries. The bulk of FDI is horizontal rather than vertical. Horizontal FDI is generally driven by market seeking motives, while vertical FDI is driven by cost saving motives. Horizontal FDI could be expected to involve substitution between the MNE's foreign and domestic activities, at least as long as FDI is undertaken in the tradable goods sector, (Ekholm et al, 2007)

FDI has three components: equity capital, reinvested earnings and intra‑company loans.Equity capital is the foreign direct investor's purchase of shares of an enterprise in a country other than its own. Reinvested earnings comprise the direct investor's share (in proportion to direct equity participation) of earnings not distributed as dividends by affiliates, or earnings not remitted to the direct investor. Such retained profits by affiliates are reinvested, and Intra‑company loans refer to short or long term borrowing and lending of funds between direct investors (parent enterprises) and affiliate enterprises, (UNCTAD, 2011). FDI stock is therefore the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprise, (UNCTAD, 2011). Therefore, FDI stock is the foreign investment in the real sector of the economy.

FDI stock has acquired an important role in the international economy because it is a source of capital for industrialization process. Most developing countries are now interested in FDI stock because involves a long-term commitment to the host country and contributes significantly to gross fixed capital formation. Further, it contributes to supplementing domestic savings, integration into the global economy, technology transfer, new management skills, job creation and economic growth, (OECD, 2002). However, FDI can also be harmful to the host countries if it results in pollution, resource exploitation and abuse of market power. Nevertheless, the negative consequences of FDI can be managed with proper business and labour regulation (Rose and Mwega, 2006 and Kinuthia, 2010)

Looking at the trend of FDI inward stock, it has increased steadily over time from 5.95% of GDP in 1980 to 31.98% of GDP in 2012. In 1980, developing countries had 11.68% of GDP and 42.45% share of global FDI inward stock while the developed countries had 4.9% of GDP and 57.55% share.

This has since increased as at 2012, with developing countries accounting for 30.41% of GDP and 33.95% share of global FDI inward stock while the developed countries had 32.98% of GDP and 62.34% share. East African countries had 6.56% of GDP in 1980 and have since increased to 31.64% of GDP in 2012. Kenya, being the country of study was at 4.21% of GDP in 1980 and hit 7.01% of GDP in 2012, (UNCTAD, 2012). This shows that there in increasing interest in attracting FDI stock in most countries. Therefore, countries are faced with the challenge of knowing what motivates the investors to seek other markets.

In terms of strategic objectives of foreign companies, direct investments depend on different aspects of investments: the motive for investment (market-seeking, resource-seeking, asset seeking and efficiency-seeking), type of investment (greenfield or brownfield), the sector of investment (manufacturing or services), and the size of multinational company or investor. The market-seeking FDI aims at penetrating the local markets of host countries and is usually connected with market size and per capita income, market growth, access to regional and global markets, consumer preferences, and structure of domestic market. The resource-asset seeking FDI depends on prices of raw materials, lower unit labor cost of unskilled labor force, and the pool of skilled labor, physical infrastructure (ports, roads, power, and telecommunication), and the level of technology. The efficiency-seeking FDI is motivated by creating new sources of competitiveness for firms and it goes where the costs of production are lower. In this last case, prior to decision, foreign investors consider prices of factors of production (adjusted for productivity differences) and the membership in regional integration agreement (Dunning, 1993).

Since 1980s, Kenya has increasingly attracted FDI stock. However, like other developing countries, it continues to suffer from high poverty levels, unemployment, international debts, inappropriate technology, macro-economic instability, low levels of industrialisation and economic growth

(Todaro and Smith, 2011). It's due to this that Kenya is focusing on encouraging more FDI stock to finance long-term investment. In order to design appropriate economic policies to attract FDI inward stock, one must first find out what motivates the investors to seek other markets – in other words, what are the key determinants of the FDI inward stock. Because the FDI is a rather complex economic category which depends on many factors whose relative importance changes as the economic environment evolves over time, it is possible that – since the economy of the host country changes as well as the international environment evolves – the FDI factors also change (UNCTAD 2012).

Besides the determinants of FDI stock of any economy may be country and period specific, and as such therefore, there is the need for country specific studies. A number of studies in Kenya have analyzed the relationship between the determinants of FDI net inflows (see for instance, Mwega & Ngugi, 2006; Nyamwenga, 2009; Kinuthia, 2010, UNCTAD, 2010). However, the determinants of FDI inward stock have not been addressed. While FDI inward stock is expected to help in achieving the Vision 2030 objectives, it has not been empirically established in the Kenyan case. Research is therefore crucial for investment decision making and predictability of FDI inward stock is imperative. This study will fill this gap by analyzing the determinants of FDI stock in Kenya.

1.1 Kenya Context of FDI

Figure 1 below shows high fluctuation in the trend of FDI net flow. These are mainly investments which come in as FDI and leave the country as portfolio investments. Some of these FDI inflows are associated with vertical investments which take place when a firm relocates only a part of its production process. In many cases, it is the relocation of the labor-intensive activities in low-wage countries (Mariotti et al. 2003).

This study focuses on FDI inward stock which goes to the real sector of the economy.

Figure 1: FDI net flows in Kenya for the period 1980 – 2012 (USD, in Millions)
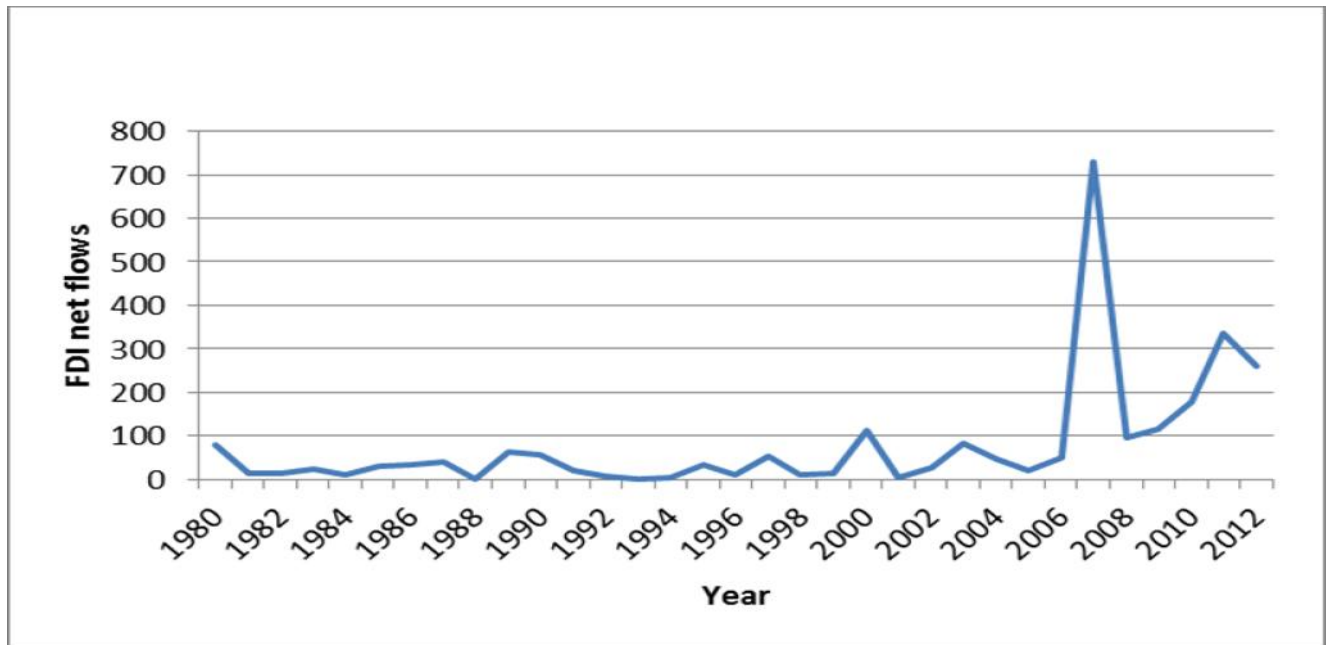
Source: UNCTAD, 2012

Over the past 32 years, the value for FDI net inflows has fluctuated with the highest inflow at $729 in 2007 after Ken Invest which was created in 2004, was given autonomy in 2007 to market the country's opportunities, facilitate investors and ensure aftercare. In 2008, FDI declined due to post election violence which rocked the country. Since then, the net inflows have remained low and unstable due to numerous factors such as political instability and uncertainty, rising costs of services and doing business, mediocre growth performance, corruption, poor governance, deterioration of public services and infrastructure.

Figure 2: FDI Stock in Kenya for the period 1980 – 2012 (USD, in millions)
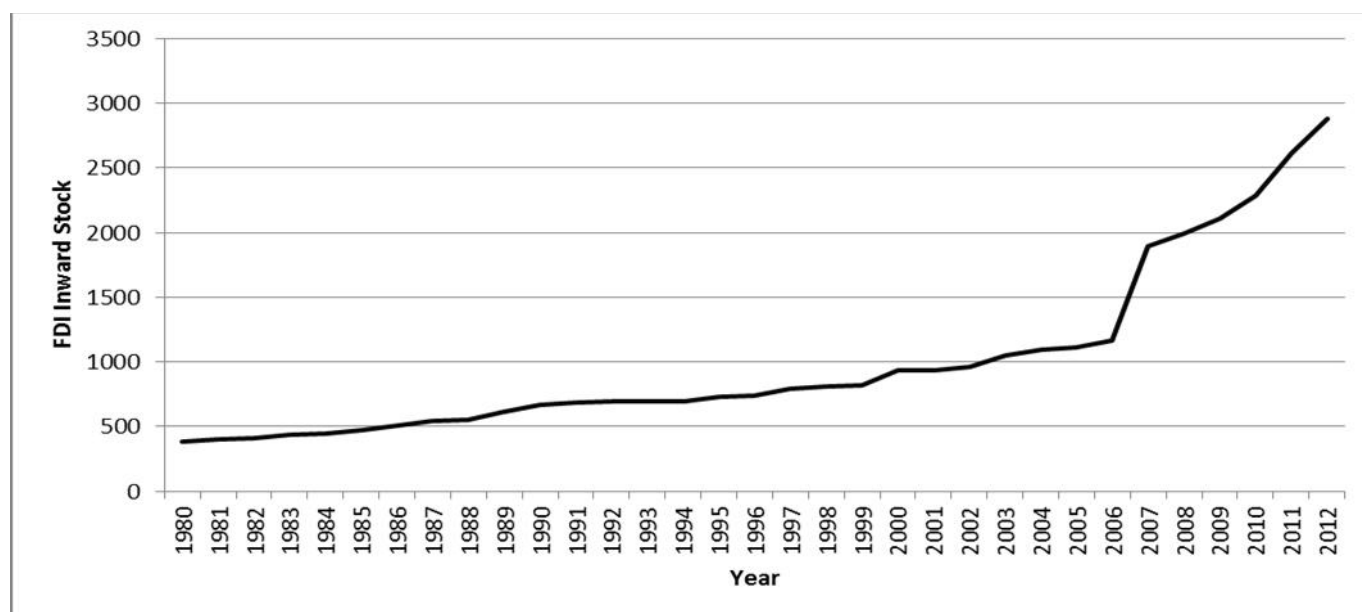
In figure 2 above, we see that Kenya has had steady FDI stock increase since 1980 to 2012. Kenya's FDI stock in the 1980's was low but has been growing steadily from $386 in 1980. The most recent value for FDI inward stock (current US$) was $2,876 as of 2012. Over the past 32 years, FDI stock has grown steadily with minimal fluctuations except from 2006 when it increased sharply from $1,164 to $ 1,893 in 2007 and thereafter continued with an upward trend. Its highest value in the last 32 years was $2,876 in 2012, while its lowest value was $386 in 1980. Theoretically, factors such as post election violence and deep-rooted corruption which has rocked Kenya should have dented the FDI stock inflow trends, but from the graph it's evident that this is not the case.

Notable recent trends in sectoral composition of FDI are in horticulture, floriculture, garments, and tourism. While interest in horticulture and floriculture has been due to favorable climate, garment investment has been in response to the U.S. granting preferential access to its market under African Growth and Opportunities Act (AGOA). Manufacturing FDI has concentrated on consumer goods sectors, such as the food and beverage industry. Most foreign investment in manufacturing since

2001 has been in the Export Processing Zone (EPZs), with the majority in AGOA-related textiles. EPZs have expanded from their initial textiles focus to also produce a number of other goods. FDI in services has been directed to a wide array of sub-sectors such as tourism, financial and business services and telecommunications. Kenya has attracted foreign investors in banking and professional services (UNCTAD, 2005; Kinuthia, 2010).

1.1.1 Policies by the government to enhance and attract FDI stock

Between 1970 to 1980, the country received relatively large capital inflows.This was partly driven by rapid expansion in the agricultural sector, expansionary fiscal and monetary policies, sustainable budget deficit and the import substitution industrialization (ISI) strategy involving overvalued exchange rate, import tariffs and quantitative restrictions, foreign exchange controls, and import licensing (Ikiara et al., 2003). Other factors included large and favourable regional market from the East African Community (EAC) which attracted FDI into the country (World Bank, 2004b).

Toward the end of the 1970s, Kenya's economic performance began to deteriorate. Largely this was due to the collapse of the EAC in 1977; the erosion of fiscal prudence; the second oil shock in 1977; and the anti-export bias of the import substitution strategy (Ikiara et al., 2003). In 1980, Kenya entered into a Structural Adjustment Program (SAP) under the tutelage of the World Bank and the International Monetary Fund (IMF). It began to implement structural reforms aimed at improving market incentives and resource allocation and macroeconomic stabilization. The reforms included liberalization of the foreign exchange market; credit market and agricultural commodities markets, as well as privatization of some parastatals; the lifting of domestic price controls; and export promotion programs. However, the implementation of reforms was slow and erratic, and at times reforms were unsuccessful as the Government lacked commitment hence causing uncertainty (World Bank, 2004b; Rose and Mwega, 2006).

The country started experiencing slow growth in FDI stock as Gross Domestic Product (GDP) grew at an average of 4.3 per cent per year and per capita GDP expanding only by 0.5 per cent annually (World Bank, 2004b). Besides continued uncertainty in implementation of SAPs, debt crisis arising from extra emphasis on import substitution strategy also led to trade deficit. The government was then forced to scale back investment in basic health, infrastructure, utilities, education, and agricultural research causing deterioration in public services such as telecommunications,water, energy and transportation whichaffected the productivity and competitiveness of the Kenyan manufacturing and agricultural sectors and FDI inflows (Swamy, 1994 and World Bank, 2004b).

The economic deterioration continued through to 1987 when negative trade reforms like import licensing system was completely removed in 1993, the foreign exchange and commodity markets were also fully liberalized hence leading to an increase in FDI stocks. Further, privatization of some state-owned enterprises which began in 1993 also contributed to the growth in FDI stock (Rose andMwega, 2006 and Kinuthia, 2010).

In 2003, there was a move by the Kenya Government to make the private sector a new engine of economic growth and to promote FDI inflows. In this light, Ken Invest was created in 2004 and given autonomy in 2007 to market the country's opportunities, facilitate investors and ensure aftercare. Besides, public private partnerships (PPPs) bill has been lined up for approval; Privatization Commission has also been set up to manage the Government's privatization program in a transparent and competitive way. Furthermore, the Government has published its Vision 2030, which includes clear benchmarks on how it wishes to develop and bring investment into a number of key sectors. At the heart of Vision 2030, is the government's desire to significantly improve the country's infrastructure, including road and rail. This has already begun with some major road

upgrading including new transport corridor to South Sudan and the Ugandan border, enlarging Mombasa port and expanding Jomo Kenyatta International Airport (UNCTAD, 2012)

1.2   Problem Statement

Most of the studies on determinants of FDI stock in Sub Saharan Africa are cross-country evidences, while the determinants on FDI inward stock can be country and period to period specific. A number of studies in Kenya have analysed the determinants of FDI net inflows (see for instance, Mwega & Ngugi, 2006; Nyamwenga, 2009; kinuthia, 2010, UNCTAD, 2010). However, the determinants of FDI inward stock have not been addressed and empirically established yet FDI inward stock is expected to help in achieving the Vision 2030 objectives.

Since stock of FDI depends on many factors whose relative importance changes as the economic environment evolves over time, it is possible that the economy of the host country changes as well as the international environment evolves. As a result the FDI factors also change (UNCTAD, 1998). Even though traditional determinants and the types of the FDI associated with them have not disappeared with globalization, their importance is declining. For example, one of the most important traditional FDI determinants, the market size, has decreased in importance, while at the same time some new determinants have become prominent. Cost of the factors of production, economic growth levels, total factor productivity, discount rates, quality of infrastructure, the easiness of doing business, and the availability of skills have increased in importance (UNCTAD 2008). This reveals that the investors' motives are changing, and consequently countries must seek new ways to attract FDI stock. Research is therefore crucial for investment decision making and predictability of FDI inward stock is imperative. This study will fill this gap by analysing the determinants of FDI stock in Kenya.

1.3   Objectives of the Study

The general objective of this study is to examine the determinants of FDI inward stock in Kenya for the period 1980 – 2012 using partial stock adjustment model.

The specific objectives are:

1. To identify the determinants of FDI inward stock in Kenya.

2. To determine the effects FDI inward stock in Kenya's economy.

3. To draw relevant policy recommendations based on the results of the study.

1.4   Significance of Study

Since a study on determinants of FDI inward stock has not been addressed and empirically established in Kenya, this study contributes to the existing literature by examining the determinants of FDI stock in Kenya hence addressing the country's specific factors affecting FDI stock growth.

From the findings of the study, policy makers may be able to design future policies to attract FDI stock and note to mitigate any effects of an adverse shock and uncertainty of FDI stock inflows, which may produce an uncertainty to reduce the effectiveness of FDI stock on economic growth.

The study will also contribute to the general knowledge on the FDI stock trends in Kenya and further open up ways for others to conduct further studies on the issues related to FDI inward stock in Kenya.

1.5   Structure of the study

Following this introduction is Chapter two which provides literature review on the determinants of FDI. Chapter three contains the methodology. The study findings are presented in chapter four. Conclusion and policy recommendations follow in chapter five.

<center>**CHAPTER TWO**</center>

<center>**LITERATURE REVIEW**</center>

2.1   Introduction

This chapter presents a review of theoretical and empirical literature on the determinants of FDI stock and net inflows. Section one review the theoretical literature on FDI and its determinants, section two reviews the empirical literature, and the final section provides an overview of the reviewed literature.

2.2   Theoretical Literature

1. Production Cycle Theory of Vernon

Vernon (1966)used Production cycle theory to explain certain types of FDI made by U.S. companies in Western Europe after the SecondWorld War in the manufacturing industry. Vernon believes that there are four stages of production cycle: innovation, growth, maturity and decline. According to Vernon, in the first stage the U.S. transnational companies create new innovative products for local consumption and export the surplus in order to serve also the foreign markets. According to the theory of the production cycle, after the Second World War in Europe had increased demand for manufactured products like those produced in USA, the American firms began to export, having the advantage of technology on international competitors. If in the first stage of the production cycle, manufacturers have an advantage by possessing new technologies, as the product develops also the technology becomes known. Manufacturers will standardize the product, but there will be companies that you will copy it.

Thereby, European firms have started imitating American products that U.S. firms were exporting to these countries. US companies were forced to perform production facilities on the local markets to maintain their market shares in those areas. This theory managed to explain certain types of

investments in Europe Western made by U.S. companies between 1950-1970. Although there are areas where Americans have notpossessed the technological advantage and foreign direct investments were made duringthat period.

2. The Internalisation Theory

This theory tries to explain the growth of transnational companies and their motivations for achieving FDI. Hymer, Buckley and Casson (1976) identified two major determinants of FDI. One was the removal of competition. The other was the advantages which some firms possess in a particular activity (Hymer, 1976).

Buckley and Casson, who founded the theory demonstrates that transnational companies are organizing their internal activities so as to develop specific advantages, which then to be exploited. Internalisation theory is considered very important also by Dunning, who uses it in the eclectic theory, but also argues that this explains only part of FDI flows. Hennart (1982) develops the idea of internalization by developing models between the two types of integration: vertical and horizontal.

Hymer is the author of the concept of firm-specific advantages and demonstrates that FDI take place only if the benefits of exploiting firm-specific advantages outweigh the relative costs of the operations abroad. According to Hymer (1976) the MNE appears due to the market imperfections that led to a divergence from perfect competition in the final product market.

3. The Eclectic Paradigm of Dunning

The eclectic theory developed by professor Dunning (Dunning, 1973, 1980, 1988, 1993) is a mix of three different theories of direct foreign investments (O-L-I):

1) "O" from Ownership advantages:

This refers to intangible assets, which are, at least for a while exclusive to the company and may be transferred within transnational companies at low costs, leading either to higher incomes or reduced costs. This means that to successfully enter a foreign market, a company must have certain characteristics that would triumph over operating costs on a foreign market. These advantages are the property competences or the specific benefits of the company including having monopoly over its own specific advantages and using them abroad to increase marginal profitability or lower marginal cost than other competitors.

2) "L" from Location:

When the first condition is fulfilled, it must be more advantageous for the company that owns them to use them rather than sell or rent to foreign firms. Location advantages of different countries are the key factors to determining who will become host countries for the activities of the transnational corporations. The specific advantages include: economic benefits on quantitative and qualitative factors of production, costs of transport, telecommunications, market size; political advantages which include common and specific government policies that affect FDI flows; and social advantages which includes distance between the home and home countries, cultural diversity, attitude towards strangers etc.

3) "I" from Internalization:

Supposing the first two conditions are met, it must be profitable for the company the use of these advantages, in collaboration with at least some factors outside the country of origin. This third characteristic of the eclectic paradigm OLI offers a framework for assessing different ways in which the company will exploit its powers from the sale of goods and services to various agreements that might be signed between the companies. As cross-border market Internalization benefits is higher the

more the firm will want to engage in foreign production rather than offering this right under license, franchise.

Dunning (1993) emphasizes that locational determinant is the most important since it is able to manipulate other factors. In identifying the most common investment motivations as resource seeking FDI, market seeking FDI and efficiency seeking FDI, Dunning (1993) argues that these motives of foreign production may change over time and other factors such as the skills and education levels of labour can influence the levels of FDI and activities of the MNCs

2.3   Empirical Literature Review

Anyanwu (2011), in a study of the determinants of FDI inflows to Africa using panel data for the period 1980 – 2007 andobserved that FDI inflows are positively influenced by market size (proxied by share of urban population), openness to trade, government consumption expenditure (if the expenditure is targeted to infrastructure development) and natural resource endowment. He also found out that FDI is negatively correlated with financial sector development in that FDI is a substitute of domestic financial market development in Africa and therefore for FDI to complement local financial development, African countries should improve the quality of domestic financial systems (including integrating them into global financial markets). In addition, he also found out that a stable macroeconomic stability (proxied by inflation) promotes FDI by showing less investment risk.

Asiedu and Lien (2010) conducted an empirical study to examine the impact of democracy and degree of openness on FDI inflows for resource exporting and non-resource exporting countries. They estimated a linear dynamic panel-data model using data from 112 LDCs over the period 1982 to 2007. Democracy and high degree of openness was found to promote FDI when the value of the

share of minerals and oil exports is less than some critical value. In the majority of countries, democratization was found to enhance FDI while 22 countries showed a reduction in FDI. Further, they found out that the effect of democracy on FDI depends on the size and not the type of natural resources. In addition, Asiedu (2002) argued infrastructure has a positive impact on FDI inflows in Sub-Saharan countries (SSC) are less open than other regions

Bénassy-Quéré, Coupet and Mayer (2007) re-examine the role of institutions in the host and in the source country by estimating a gravity equation for bilateral FDI stocks that includes governance indicators for the two countries. Second, they tackledmulticollinearity and endogeneity bias by implementing a three-stage procedure for instrumentation and orthogonalisation. Third, they looked further into the detail of institutions by using a new database constructed by the French Ministry of Finance network in 52 foreign countries. They found out that institutional set up affect FDIinward stock.

Kinaro (2006) in his study on the determinants of FDI inflows in Kenya found the following factors to affect FDI inflows in Kenya; market size, political and economic stability in both Kenya and its neighbouring countries and bilateral trade agreements between Kenya and other countries, crime and insecurity, institutional factors such as corruption, delayed licenses and work permits.

Artige and Nicolini (2005) analyse the determinants of FDI inflows for a group of European regions. The originality of their approach lies in the use of disaggregated regional data. First, they developed a qualitative description of their database and discussed the importance of the macroeconomic determinants in attracting FDI. Then, they provided an econometric exercise to identify the potential determinants of FDI. In spite of choosing regions presenting economic similarities, they show that regional FDI inflows rely on a combination of factors that differs from one region to another.

Mwega and Ngugi (2006) estimated a panel data for 43 countries using the OLS method and found economic growth rate to be insignificant in determining FDI, while that of the trading partners' is significant and positively correlated with the FDI ratio at the 10% level. The coefficient on the human capital was found to be insignificant while macroeconomic variables such as the fiscal deficit ratio, real effective exchange rate, the trade ratio and the government investment ratio did not have significance. However the coefficient external debt income ratio was found to have a significant positive effect at the 10% level. Political instability was found to be insignificant at a positive effect which is weakly significant at the 20% level. Terms of trade shocks was found to have a negative effect and high significance at the 5% level.

Peter (2005) investigated the determinants of FDI inflows in Uganda. He used cross - sectional data to determine factors that led the investors to decide to invest in Uganda. The results showed that location specific factors significantly predict FDI inflow decisions by 70%. Ownership also significantly influence the amount of FDI inflow at 34%.

Khawar (2005) examined the effect of economic growth on FDI inflows for the period 1970-1992 using the method of ordinary least squares (OLS). He found that FDI is significant and positively correlated with economic growth as well as domestic investment. Population growth rate and political instability variables were found to be negatively correlated with FDI. The human capital measure was not significant in the analysis.

Onyeiwu and Shrestha (2004) argues that despite economic and institutional reform in Africa during the past decade, the flow of FDI to the region continues to be disappointing and uneven. In their study they use the fixed and random effects models to explore whether the stylized determinants of FDI affect FDI flows to Africa in conventional ways. Based on a panel dataset for 29 African countries over the period 1975 to 1999, their paper identifies the following factors as significant for

FDI flows to Africa: economic growth, inflation, openness of the economy, corporate taxes international reserves, and natural resource availability. Contrary to conventional wisdom, political rights and infrastructures were found to be unimportant for FDI flows to Africa. The significance of a variable for FDI flows to Africa was found to be dependent on whether country- and time-specific effects are fixed or stochastic.

A joint study by KIPPRA and World Bank (2004) on the determinants of FDI inflows in Kenya revealed that investors rated corruption, cost of finance and crime, theft and disorder as major factors affecting FDI in Kenya. Some firms also ranked anti-competitive practices, tax rates, and economic and regulatory policy uncertainty high among investment concerns.

Harms and Ursprung (2002) used the Ordinary Least Squares (OLS) method to estimate factors influencing FDI. The variables used were return on investment, market size and democracy in LDCs. They found that FDIs are more attracted to countries with bigger returns, market size and relatively high democracy.

Busse (2003) used cross-sectional and panel data to determine the relationship between democracy and FDI. The results were that FDI is higher in democratic countries than in non-democratic ones. Democracy was proxied by political rights and civil liberties indicators.

Biswas (2002) in a study of determinants of FDI inflows for 44 countries for the period 1983 – 1990 regressed infrastructure, law and order and cost of labour indices and proxies for the security of property and contract rights and found a positive and significant relationship at 1% level. The results showed that protection of property rights and good infrastructure are important to foreign investors. Surprisingly, he finds marginal negative effects of wages on investment, implying that low wages are not a crucial factor for FDI.

Obwana (2001) shows that FDI in Uganda is much more dependent on macroeconomic and political stability than on incentives. He carried out a study of the determinants of FDI and their impact on economic growth in Uganda for the period between 1962 to 1996. The variables he considered included GDP growth, trade account balance, inflation rate, proportion of public expenditure on GDP, domestic saving rate and external debt services as aproportion of GDP. By use of Two Stage Least Squares Estimation (2SLS), he found that GDP growth rate, external debt services, trade balance account and proportion of public expenditure to GDP significantly determine FDI in Uganda.

Nyamwenga (2009) explored the effect of economic growth rate on FDI inflows in Kenya using OLS method on time series data from 2000 to 2009 and established that economic growth rates insignificantly contribute to the level of FDI inflows.

UNCTAD (1999) explains that economic growth has either a positive or negative impact on FDI depending on the variables in the test equation. These variables include the political instability, terms of trade, education attainment, domestic investment ratio, black market exchange rate premiums, initial per capita GDP, and the state of financial development.

Wilhelms (1998) tested his Fitness theory of FDI using an Econometric cross section analysis across 67 emerging economies. The analysis showed that government and market variables were the most significant determinants of FDI inflows. Governmental fitness was reflected in economic openness with only minimal trade and exchange rate controls. It also meant a strong rule of law and low corruption based on legal and administrative equity and transparency. High trade volume, low taxes, high urbanization, and ready availability of credit and energy represented market fitness. The results show that while investors are willing to negotiate they seek stability and transparency, preferring clear cut and consistently implemented regulations to individual privileges.

Cheng and Kwan (2000) by using partial stock adjustment model in estimating the determinants of FDI stock in 29 Chinese regions from 1985 to 1995, found that past FDI inward large regional market, good infrastructure, and preferential policy had a positive effect but wage cost and quality of labour had a negative effect on FDI inward stock. The effect of education was positive but not statistically significant. In addition, they also found a strong self-reinforcing effect of FDI on itself. There was no convergence in the equilibrium FDI stocks of the regions between 1985 and 1995, but there was convergence in the deviations from the equilibrium FDI stocks.

Alam & Shah, (2013) explored the determinants of FDI for a panel of ten OECD member countries over the period of 1985-2009. Granger causality tests were used to identify causalities, both in the short-run and long-run, between FDI and the variables that emerge as significant determinants of FDI during the study period. Estimated results of fixed effects estimation indicates that market size, labor cost and quality of infrastructure have significant effect on FDI for the panel of countries. A bi-directional short-run relationship is established between market size and labor costs in the short-run; whereas quality of infrastructure causes market size and labor costs in the short-run. In the long-run, a deviation of FDI from equilibrium was recorded. However, market size, labor costs and quality of infrastructure all exerted joint effect in the short-run to re-establish the equilibrium. This implies that the included variables viz; FDI, natural resources, market size, Openness and Inflation have no any significant long-run relationship.

Abubakar & Abdullahi (2013) in studying the determinants of FDI in Nigeria by examining the influence of macroeconomic stability, natural resources, market size, openness and inflation over the period 1981-2010. Series of econometric techniques were employed; unit root test, cointegration test and Granger causality test. The results of the Johansen cointegration test, suggest that availability of natural resources, market size, openness of the economy and macroeconomic stability do not attract

FDI in the long run in Nigeria. While the results of the Granger causality test showed that market size and inflation positively affect FDI in the short run. Inflation increases the market size in the short run and availability of natural resources also leads to openness of the economy in the short run.

2.4   Literature Overview

Establishing the determinants of FDI has motivated voluminous empirical and theoretical literature focusing on both developed and developing countries. From the literature reviewed, it is clear that there are many factors that affect FDI and that the factors may vary from country to country. The use of OLS regression model in measurement has been increasingly preferred. This is because they are likely to produce consistent estimates of parameters of interest. The study will draw much relevance by accounting for the current FDI inward stock determinants.

The shortcomings of the literature reviewed are that most of the studies are not country specific and instead, they are cross-country meaning they might fail to bring on board unique characteristics in these countries. Besides a study on FDI stock has not been done in any of East African countries. Lack of such a study may imply that local policy may be formulated based on foreign ideas. This poses the risk of not addressing the Kenyan economic situation adequately. It is therefore imperative to conduct further study to try and close this gap especially doing a country specific study which should bring out the actual issues in the specified country.

CHAPTER THREE

METHODOLOGY

3.1   Model Specification

We analyze the determinants of FDI inward stock by following recent empirical work of Mwega and Ngugi (2006) who used Classical Linear Regression model, to investigate the determinants of FDI net inflows. The objective is to ascertain the factors affecting FDI stock in Kenya. The study improves on Mwega and Ngugi (2006) work by using FDI inward stock.

The model is specified as:

$FDI = f(RR, DO, I, QL, FP, E, DR, QI, INF, TPF, ED, PI, CT, EG)$ ………………(1)

and taking:

$X_{it} = RR, DO, I, QL, FP, E, DR, QI, INF, TPF, ED, PI, CT, EG$

Where: *FDI* = Foreign Direct Investment

RR = Rate of Return	*TPF* = Total Factor Productivity
DO = Degree of Openness	*ED* = External Debt
I = Infrastructure	*PI* = Political Instability
QL = Quality of Labour	*CT* = Corporate Taxes
FP = Cost of Factors of Production	*EG* = Economic Growth of Kenya
E = Economic Growth of OECD countries	*INF* = Inflation
DR = Discount Rates	*QI* = Quality of Institutions

The estimation of the above function may result in residuals that violate the assumption of normality of error terms which is a simplifying assumption of the Classical Normal Linear regression model. This must be satisfied for OLS to yield Best Linear Unbiased Estimators. To ensure normality of the

residuals, the estimation equation used in this study is expressed in natural logarithms as shown in equation 2 below. The logarithmic form ensures that the errors are both homoscedastic and normally distributed.

Equation 1 is thus transformed into logarithmic form for estimation purposes as shown below

$$Ln(FDI_t) = \beta_0 + \beta_i lnX_{it} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where: $\beta_0 = ln(A_0)$,

the subscript **i** represents i^{th} determinant.

t represents the time period

β_i represents the long run elasticities of FDI with respect to X

ε_t represents the stochastic disturbance term.

Hence:

$$fdi_t = \Gamma + \mathsf{S}_1 rr_t + \mathsf{S}_2 do_t + \mathsf{S}_3 i_t + \mathsf{S}_4 qr_t + \mathsf{S}_5 fp_t + \mathsf{S}_6 e_t + \mathsf{S}_7 dr_t + \mathsf{S}_8 qi_t + \mathsf{S}_9 \inf_t + \mathsf{S}_{10} tpf_t + \mathsf{S}_{11} ed_t + \mathsf{S}_{12} pi_t +$$
$$\mathsf{S}_{13} ct_t + \mathsf{S}_{14} eg_t + \mathsf{V}_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

3.2 Definition and measurement of variables

Rate of return on investment

The return on investment has consistently been used by many economic researchers like Federationof Kenya Employers (2002) as a significant variable in assessing their influence on FDI. Its significance has notably been high as it is the direct and major attraction to investors and major determinant of a good investment climate. The higher the return on capital, the higher the flow of FDI. Annual FDI income for the year to the average of the end of year FDI positions for years t and t-1 is used as a measure for return on investment.

Openness to Trade

A country's degree of openness to international trade is a relevant factor in attracting FDI because it is indicative of the host country's ease of access to the world market. A higher degree of openness of an economy indicates not only more economic linkages and activities with the rest of the world, but also a more open and liberalized economic and trade regime (Asiedu, 2002). As a result, it is expected to attract more FDI inflows, particularly the inflows of resource-seeking or export-oriented FDI. The ratio of trade to GDP is used as a measure of openness of a country and is also often interpreted as a measure of trade restrictions.

Quality of Infrastructure

The infrastructure development of a region is also important, since it indicates how difficult and costly it may be to do business in the country. The more developed the road system in a country, for example, the easier the access to markets and the lower the transportation costs, and, thus, the greater the incentive to invest in that countryAsiedu (2002). The multidimensional nature of infrastructure makes it difficult to measure since it comprises roads, telecommunications, railways and so on. We test for the impact of quality of infrastructure using public investment to GDP ratio.

Quality of Labour

Foreign investors are also concerned with the quality of the labour force in addition to its cost. A more educated labor force can learn and adopt new technology faster and is generally more productive. Higher level of human capital is a good indicator of the availability of skilled workers, which can significantly boost the locational advantage of a country. Borensztein et al, (1998), and Aseidu (2002) found that the level of human capital is a significant determinant of the locational advantage of a host country and plays a key role in attracting FDI. We test for the impact of labor quality, using the general secondary education enrollment rate.

Labor cost

Labor cost is a major component of total production cost and of the productivity of firms. Wage variables have thus been often included in the empirical literature and this is particularly true for labor-intensive production activities where a higher wage would deter FDI. However, wages may also be high because of high local inflows of FDI, Aseidu (2002). We use the nominal wage rate as a proxy for labor cost. We would generally expect a negative sign on the coefficient (e.g., countries with lower labor costs would attract more FDI stock).

Economic growth of foreign countries

An increase in the economic growth of foreign countries is expected to increase FDI inflows if the investors don't invest back into their countries, Morrissey (2000). We use average growth rates of OECD countries as a measure for economic growth of foreign countries.

Discount rate

The interest rate is the rate which is charged or paid for the use of money or more precisely the cost of borrowing. According to Grosse and Trevino (1996) a relatively high interest rate in a host country has a positive impact on inward FDI. However the direction of the impact could be in a reverse if the foreign investors depend on host countries capital market for raising FDI fund. We use Central Bank of Kenya lending rates as a measure for discount rates.

Quality of Institutions

Foreign investors are concerned about the quality of institutions in relation to safeguards for their property rights and the bureaucratic red tape of undertaking investment. Blomstrom and Kokko (2003) note that potential investors considerthe rule of law, strong and clearly defined property rights, extent of corruption, the regulatory framework and local bureaucracy in making their

investment decisions. Further, good administration of justice, respect for property rights, freedomfrom political intrusion in private business, low corruption, transparency and minimal red tape will promote FDI. We use average indices of corruption in government, quality of bureaucracy, and law and order from ICRG.

Inflation

A history of low inflation signals to investors about the commitment and credibility of the government. The higher the level of macro instability, the higher the risk premium on investment and the lower the level of investment. Rogoff and Reinhart (2002), in looking at the role of price stability on FDI in Africa, argue that without macroeconomic stability, the risk of doing business rises drastically. High and unpredictable inflation cripples business planning and checks the development of financial intermediation within the private sector. We measure inflation with annual average consumer price index.

Total Factor Productivity

This is the measure of the efficiency of all inputs to a production process. Increases in Total Factor Productivity result usually from technological innovations or improvements. Thiam (2006) recognized that total factor productivity is an important factor in attracting FDI inflows. We use output to input ratio to measure total factor productivity.

External Debt

The impact of accumulated external debt is expected to be negatively associated with FDI since too much public debt enlarges macroeconomic risks, obstructs economic growth, and hinders economic development (Azam and Asmatullah, 2008). We use accumulated debt to GDP to measure external debt.

Political Instability

International Country Risk Guide (ICRG) defines political risk to include various factors such as government stability, law and order, internal and external conflicts, corruption and democratic accountability. However, in this study, we use a political risk rating as provided by the International Country Risk Guide (2012) as a proxy.

Corporate tax rates

The corporate tax rates of the host country represent another factor which foreign investors would consider. Higher tax levels of the host country would be expected to deter potential FDI. There seems however to be mixed empirical results as for instance Kemsley (1998) and Billington (1999) have found the host country tax rate to be a significant factor in determining FDI inflows while Wheeler and Mody's (1992) study have found the tax rate of the host country insignificant. We use profit tax rates as a proxy for corporate tax rates.

Economic growth rate of Kenya

A rapidly growing economy provides relatively better opportunities for making profits than the one growing slowly or not growing at all. A high rate of economic growth is an indicator of development potential. We use GDP growth rates as a measure of economic growth rates in Kenya.

3.3 Measurement of variables and their expected signs

Variable	Measurement	Apriori Expected Effect
FDI stock per capita	FDI inward stock	The dependent variable
Return on investment (RR)	Annual FDI income for the year to The average of the end of year FDI positions for years t and t-1	Positive
Degree of openness (DO)	The(exports + imports) as a ratio of GDP	Positive / Negative
Infrastructure (I)	Public investment to GDP ratio	Positive
Quality of Labour (QL)	General secondary school enrolment (%)	Positive
Cost of the factors of production (FP)	Gross nominal wage	Negative
Economic growth in OECD countries (E)	Average growth rate of OECD countries	Positive
Discount rates (DR)	CBK lending rates	Negative
Quality of institutions (QI)	Average indices of corruption in government, quality of bureaucracy, and law and order.	Positive
Inflation (INF)	Annual average of current inflation rate (%)	Negative
Total factor productivity (TFP)	Output to input (Labour + Capital) ratio	Positive
External debt (ED)	Accumulated debt to GDP	Negative
Political Instability (PI)	Political risk index dummy from IIR and ICRG	Negative
Corporate Taxes (CT)	Profit Tax rates	Negative
Economic growth of Kenya (EG)	GDP growth rates (%)	Positive

3.4 Pre-estimation techniques

Stationarity, cointegration and diagnostic testing

For estimation purposes, time series data covering the period 1980 – 2012 is used. Prior to testing for a causal relationship between the variables, the first step is to check the stationarity of the variables used as regressors in the models to be estimated.

Stationary series have finite variance, transitory innovations from the mean and a tendency to return to its mean value as opposed to non-stationary series. Therefore we need to ensure that the variables we want to estimate have their means and variance well defined and constantly independent of time. The aim is to verify whether the series have a stationary trend, and, if non-stationary, to establish orders of integration. For this purpose, we will use Augmented Dickey-Fuller (ADF) to test for stationarity of the data and examine all the explanatory variables.

To test the level of integration of the variables, we use both Dickey Fuller (DF) and the augmented Dickey Fuller (ADF) tests. This helps us to determine whether the variables follow a non-stationary trend and are in fact of the order of 1 denoted as I(1) or whether the series are stationary, i.e. of the order of 0 denoted as I(0). If the series are non-stationary the use of OLS could lead us to mistakenly accept spurious relationships, and thus their results would be meaningless. Secondly, in the case where the series are non-stationary around their mean, the traditional suggestion is to differentiate the series. This leads to stationarity, leading us to apply conventional econometrics (Granger and Newbold, 1974). However, first differencing is not an appropriate solution to the above problem and has a major disadvantage in that it prevents detection of the long-run relationship that may be present in the data, i.e. the long-run information is lost, which is precisely the main question being addressed.

The standard ADF procedure will be based on the following equation (Dickey and Fuller 1979).

$$ADF \text{ test equation}: \Delta FDI_t = \text{u}FDI_{t-1} + \sum_{j=1}^{p-1} \{_j \Delta FDI_{t-j} +_{''0} + \text{v}_t$$

Where FDI = is the stock of capital

ε_t is the error term of zero mean and constant variance.

is a first-difference operator,

is the number of optimal lags,

t= time

, , is a set of parameters to be estimated.

Both of the null and alternative hypotheses in unit root tests are:

H0: $\beta_2 = 0$ (FDI is non-stationary/a unit root process)

H1: β_2 0 (FDI is stationary)

The unit root hypothesis of the Dickey-Fuller can be rejected if the t-test statistic from these tests is negatively less than the critical value calculated. This means that, by the ADF test, a unit root exists in the series FDI (implies non stationary) if the null hypothesis of β_2 equals zero is not rejected (Gujarati 2003).

On the evidence of non-stationarity in each variable and the same order of intergration of all the variables, we will pursue the cointegration methodology and the subsequently estimate the associated error correction model (Engle and Granger, 1987). The absence of a cointegrating relationship (long-run equilibrium) among the variables allows the application of simple OLS to estimate the model without risking misleading inferences stemming from spurious correlation.

Since the variables could be highly correlated, we run a correlation matrix for the variables. If there is a strong correlation between the two variables (i.e 0.5 and above), then this could signal a problem of multicollinearity. Similarly a high R^2 with low values of t statistic, high F-value for a group of coefficients that are individually insignificant and when the coefficient change with inclusion of a new variable could also be a sign of multicollinearity. Multicollinearity is a situation whereby the independent variables are too highly correlated to allow precise analysis of their individual effects.

Multicollinearity may lead to a large R^2, inconsistent results in terms of size and sign and it may become difficult to identify separate effects of variables involved. To solve the problem of multicollinearity, a correlation matrix will be generated then they will be used interchangeably in the model. The study will apply OLS when the Durbin Watson statistic does not indicate any problem with serial correlation.

3.5   Data type and source

The study uses secondary annual time series data for the period 1980 – 2012. Data on GDP growth rates, FDI stock, labour force, openness, return on investment, inflation rates, external debt, for the year 1980-2012 was obtained from United Nations Centre for Trade and Development (UNCTAD), discount rates data was obtained from Central Bank of Kenya (CBK), quality of institutions and political instability data was obtained from International Country Risk Guide (ICRG) and Transparency International, tax rates and public investment were obtained from Economic surveys and Statistical Reviews in Kenya National Bureau of Statistics (KNBS). Growth rates of OECD countries was obtained from Organisation for Economic Co-operation and Development (OECD) database.

CHAPTER FOUR

EMPIRICAL ESTIMATION AND RESULTS

4.1 Introduction

This chapter presents the empirical results of the study. The first section gives the descriptive statistics and econometric results while the next section discusses the results.

4.2 Descriptive statistics

The variables in this study, as shown in Table1 show that the mean and the medians of the variables are almost equal hence the data is normally distributed and does not suffer from outlier problem. The measures of dispersion, maximum and minimum, (which determine the range) and standard deviation, shows that dispersion or spread in the series is normal.

Table 1. Summary statistics

Variable	Mean	Median	Std Dev	Min	Max
lFDI	6.74159	6.610126	0.563468	5.95493	7.96411
lDR	2.87698	2.762115	0.324610	2.35928	3.59016
lPI	0.88771	0.916291	0.268131	0.40547	1.14866
lQI	0.79689	0.916291	0.358374	0.00000	1.17866
lED	-0.86121	-0.867501	0.153367	-1.07881	-0.57982
lE	0.74215	0.997430	0.817670	-2.55722	1.52928
lEG	1.04475	1.376023	0.834967	-1.04073	1.97096
lI	2.90486	2.928475	0.091253	2.73358	3.06272
lINF	2.10381	2.230014	0.735198	-0.06914	3.73740
lFP	11.33717	11.257620	1.208036	9.48843	12.93123
lDO	-0.68668	-0.690276	0.267771	-1.08346	-0.21250
lCT	3.36436	3.410976	0.253237	2.83263	3.74889
lRR	-0.97018	-0.755023	0.994923	-4.60517	0.00000
lQL	3.76589	3.762046	0.212316	3.37623	4.16973
lTPF	-0.99572	-0.941609	0.274676	-1.46968	-0.56212

4.3 Stationarity analysis

In order to investigate the stationary properties of the time series data, the presence of unit root was tested. That is to test, whether the variables are integrated of order 1, I (1), implying that they are stationary. This was achieved by applying augment Dickey-Fuller (ADF) test. The null hypothesis of the unit root implies non-stationarity, such that if the null hypothesis is rejected then the series is stationary. Therefore no differencing in the series is necessary to induce stationarity. The ADF test is widely used due to the stability of its critical values as well as its power over different sampling experiments. In the analysis one lag is chosen since the data is expressed yearly.

Table 2 Unit root test results

Variable	Test statistic	1% Critical Value	5% critical value	10% critical value	Stationarity
lFDI	1.448	-3.709	-2.983	-2.623	Non stationary
lDR	-1.68	-3.709	-2.983	-2.623	Non stationary
lPI	-2.745	-3.709	-2.983	-2.623	Non stationary
lQI	-3.405	-3.709	-2.983	-2.623	Non stationary
lED	-1.638	-3.709	-2.983	-2.623	Non stationary
lE	-2.283	-3.709	-2.983	-2.623	Non stationary
lEG	-3.331	-3.709	-2.983	-2.623	Non stationary
lI	-2.874	-3.709	-2.983	-2.623	Non stationary
lINF	-2.559	-3.709	-2.983	-2.623	Non stationary
lFP	-0.975	-3.709	-2.983	-2.623	Non stationary
lDO	-0.615	-3.709	-2.983	-2.623	Non stationary
lCT	-1.737	-3.709	-2.983	-2.623	Non stationary
lRR	-5.691	-3.709	-2.983	-2.623	Stationary
lQL	-0.864	-3.709	-2.983	-2.623	Non stationary
lTFP	-2.029	-3.709	-2.983	-2.623	Non stationary

From the above results all the variables are not at stationary level except LRR. Therefore we test their stationarity at first difference. The unit root test results for the first difference are reported in table 3 below.

Table 3 Unit root test result after differencing

Variable	Test statistic	1% Critical Value	5% critical value	10% critical value	Stationarity
dlFDI	-3.973	-3.716	-2.986	-2.624	Stationarity
dlDR	-3.921	-3.716	-2.986	-2.624	Stationarity
dlPI	-4.81	-3.716	-2.986	-2.624	Stationarity
dlQI	-7.333	-3.716	-2.986	-2.624	Stationarity
dlED	-3.717	-3.716	-2.986	-2.624	Stationarity
dlE	-3.788	-3.716	-2.986	-2.624	Stationarity
dlEG	-5.696	-3.716	-2.986	-2.624	Stationarity
dlI	-5.493	-3.716	-2.986	-2.624	Stationarity
dlINF	-6.121	-3.716	-2.986	-2.624	Stationarity
dlFP	-4.881	-3.716	-2.986	-2.624	Stationarity
dlDO	-5.117	-3.716	-2.986	-2.624	Stationarity
dlCT	-3.884	-3.716	-2.986	-2.624	Stationarity
dlRR	-7.111	-3.716	-2.986	-2.624	Stationarity
dlQL	-3.919	-3.716	-2.986	-2.624	Stationarity
dlTFP	-4.98	-3.716	-2.986	-2.624	Stationarity

After the first difference all the variables are now stationary. Since all the variable series have unit roots, it is possible that they are cointegrated thus we move to the next stage where we formally test for the possible existence of a cointegrating equation. We will also test for multicollinearity.

4.4 Cointegration test

After establishing the order of integration of time series, cointegration test has to be done. The major concern with time series is that, if non stationarity of data series persists, then it may lead to spurious relationship. To avoid this problem, it is necessary to use the cointegration methodology. Cointegration techniques are used to establish valid long-run relationship between variables.

We therefore estimate the regression equation for the period 1980-2012 using the Engel-Granger two step procedures (Engel and Granger 1987). The first step is to estimate a long run equation using ordinary least squares (OLS) with variables, which are integrated of order one, I(1) in their levels.

Table 4: OLS regression results for I(1) variables

dlFDI	Coefficient	Std Error	t	p>|t|
dlDR	-0.0668	0.1349874	-0.49	0.629
dlPI	-0.023	0.0846487	-0.27	0.790
dlQI	-0.0205	0.0646897	-0.32	0.756
dlED	-0.0839	0.2268674	-0.37	0.717
dlE	0.01229	0.0212279	0.58	0.572
dlEG	0.01076	0.0213363	0.50	0.623
dlI	0.24066	0.2537024	0.95	0.360
dlINF	0.00616	0.0311403	0.20	0.846
dlFP	-0.6368	0.2560191	-2.49	0.027
dlDO	-0.1499	0.3913157	-0.38	0.708
dlCT	-0.0352	0.0858571	-0.41	0.689
dlRR	0.03165	0.0148758	2.13	0.053
dlQL	0.15534	0.3425931	0.45	0.658
dlTFP	0.0317	0.1310612	0.24	0.813
Constant	0.13447	0.0359921	3.74	0.002

Number of obs	28
F(15,9)	1.46
Prob>F	0.2502
R-Squared	0.6115
Adj R-Squared	0.1932
Root MSE	0.08081

The results of the OLS shows robust standard errors are shown in the table 4. In order to avoid spurious regression, residual based cointegration test was used, where the stationarity of the residual implies a cointegrating relationship among the variables in the long run equation. The results for the ADF test of the residual are shown in the table 5.

Table 5: ADF test for residual

	Test Statistic	1% Critical value	5% Critical value	10% Critical value
Z(t)	-3.915	-3.750	-3.000	-2.630

Since the test statistic –3.915 is less than the critical values at 1%, 5%, 10%, it therefore implies that residual from the regression using the ADF test is stationary. This result indicates that an error correction model (ECM) is a better fit than one without.

The second step in the Engel Granger procedure is to estimate the corresponding ECM, based on the long run cointegrating relationship to observe the short-run dynamics (Engel and Granger, 1987).The study estimated the ECM using the residual from the long-run equation. The ECM is based on stationary data (as all the I(1) regressors are in first difference form) and includes the lagged residuals of the long-run equation, which is also I(0) when the variables have cointegrating relationship. Since the dummy variable is not continuous, there is no need to worry about the stationarity of the dummy variable. The study ran a short run error correction model (ECM). In the ECM, the one period lagged residual for annual data acts as the error correction term. The results of the error correction model in this case are presented in the table 7.

4.5 Test for Multicollinearity

Table 6: Test of Multicollinearity

Variable	VIF	1/VIF
dlDO	2.40	0.417224
dlINF	2.26	0.443191
dlEG	2.15	0.465533
dlRR	2.11	0.473111
dlTFP	2.10	0.476997
dlQI	2.00	0.498959
dlQL	1.00	0.510797
dlI	1.89	0.530059
dlE	1.82	0.548770

dlFP	1.64	0.609148
dlCT	1.62	0.617306
dlPI	1.43	0.697531
dlED	1.43	0.698716
dlDR	1.37	0.727491
	Mean VIF	1.870000

After first differencing all variables were tested for multicollinearity using Varinace Inflation Formula (VIF), since the VIF were all below 10. There was no problem of multicollinearity.

Table 7: Error Correction Model Results

dlFDI	Coefficient	Std Error	t	p>|t|
dlDR	-0.1201033	0.0922413	-1.30	0.225
dlPI	0.0359725	0.0503661	0.71	0.493
dlQI	0.0120832	0.0441053	0.27	0.790
dlED	-0.1688306	0.1391983	-1.21	0.256
dlE	-0.0359786	0.0169471	-2.12	0.063
dlEG	0.0124788	0.0144236	0.87	0.409
dlI	0.084592	0.1782347	0.47	0.646
dlINF	-0.0102617	0.0248714	-0.41	0.690
dlFP	-0.7586025	0.1572231	-4.83	0.001
dlDO	0.0499341	0.332884	0.15	0.884
dlCT	0.0296662	0.0515113	0.58	0.579
dlRR	0.0258247	0.0088616	2.91	0.017
dlQL	-0.15052	0.2205389	-0.68	0.512
dlTFP	-0.1241436	0.816969	-1.52	0.163
dEct	0.9309218	0.1722352	5.40	0.000
Constant	0.1489456	0.0214011	6.96	0.000

Number of obs	25
F(15,9)	5.73
Prob>F	0.006
R-Squared	0.9052
Adj R-Squared	0.7473
Root MSE	0.0469

4.6 Discussion of results

Table 7 gives the regression results. Most of the results conform to prior expectations except quality of labour (QL), economic growth of OECD countries (E), total factor productivity (TPF), political instability (PI) and corporate taxes (CT). Economic growth of OECD countries (E), cost of factors of production (FP), and rate of return (RR) are very significant and correlated with FDI stock at 10%, 1% and 1% levels respectively. The rest of the variables which are Total Factor Productivity (TPF), Degree of Openness (DO), External Debt (ED), Infrastructure (I), Political Instability (PI), Quality of Labour (QL), Corporate Taxes (CT), Economic Growth of Kenya (EG), Inflation (INF), Discount Rates (DR) and Quality of Institutions (QI) all have an insignificant effect on the FDI inward stock in Kenya. The R squared value of 0.7473 means that 74.7% of the changes in FDI stock are explained by the explanatory variables. The other factors not captured by the model are captured by the error term. The value of the constant term implies that if all the explanatory variables are zero then the natural log of FDI stock will be 0.149. All the variables are in logarithmic form and thus the coefficients are interpreted as elasticities.

The coefficient of return on investment (RR) is significantly and positively correlated with FDI stock at 1% level. The coefficient of 0.026 indicates that a 1% increase in return on investment will lead to an increase in FDI stock by approximately 0.026% holding all other factors constant in the short run. These findings were in agreement with the findings of a study by Harms and Ursprung (2002).

The coefficient of degree of openness (DO) is positive, but statistically insignificant at conventional levels. The coefficient of 0.05 indicates that an improvement in openness by about 1% leads to an increase in FDI inward stock by 0.05% holding all other factors constant in the short run. These findings are in agreement with the findings of Asiedu and Lien (2010) that openness attracts FDI inflows for resource exporting and non-resource exporting countries. This implies that the more the

economy of Kenya is linked to the rest of the world through a liberalized trade and economic regime, the more FDI stock it will attract.

The coefficient of infrastructure (I) is confirmed as positive (0.085) and statistically insignificant at conventional levels. This indicates that increase in the public infrastructure by 1% leads to an increase in FDI inward stock by 0.085% holding all other factors constant in the short run. These findings prove Asiedu (2002) who found out that infrastructure has a positive impact on FDI inflows in Sub-Saharan countries (SSC).

The coefficient of quality of labour (QL) is negative (-0.151) and statistically insignificant at conventional levels. The results depict that an increase in quality of labour by 1% leads to a decline in FDI inward stock by 0.151%. Cheng and Kwan (1995) also found a negative correlation between quality if labour and FDI stock and noticed that China's open door policy FDI was attracted not to areas with higher education attainment, but to South China due to preferential policy and its geographical proximity to Hong Kong. Besides Rodrik(1996) writes of "the conventional wisdom about low labour-standard countries being a haven for foreign investors". Friedman, Gerlowski and Silberman(1992) also refer to the "conventional wisdom" that foreign investors tend to locate where union representation isweaker. This is confirmed by Kucera D (2002) that vertical FDI, from multinationals taking advantage of inter-country differences in factor costs, concentrating on more labour-intensive activities where labour costs are lower and labour unions are weak will be discouraged by increasing quality of labour which will demand higher costs. This means that most of the foreign investment in Kenya are Vertical FDI stock which are labour intensive.

The coefficient of cost of factors production (FP) is confirmed negative (-0.759) and statistically significant at 1% level. This implies that an increase in the cost of factors of production by 1% leads

to a decrease in FDI inward stock by 0.759%. This result confirms Dunning, (1973, 1980, 1988, 1993) and Aseidu (2002) literature that higher cost of factors of production would deter FDI inward stock.

The coefficient of economic growth of OECD countries (E) is negative and statistically significant at 5% level. The coefficient (-0.036) means that an increase in economic growth in OECD countries by 1% leads to a decline in FDI inward stock by 0.036%. This means that investors in these countries reinvest in their countries.

The a priori expectation for the discount rates (DR) has been confirmed as negative (-0.120) and statistically insignificant at conventional levels. This implies that an increase in lending rates in Kenya by 1% leads to a decrease in FDI inward stock by 0.120%. This is an indication that some of the investors who would want to borrow from the country would consider that lending rates.

The coefficient of quality of institutions (QI) is positive (0.012) and statistically insignificant at conventional levels. This implies that an improvement in the quality of Kenya's institutions by 1% leads to increase in FDI inward stock by 0.012%. This result confirms Wilhelms (1998), KIPPRA and World Bank (2004) literature that a strong rule of law and low corruption based on legal and administrative equity and transparency would attract FDI stock. This means that removing restrictions and providing good business operating conditions encourages foreign direct investment.

The a priori expectation for inflation (INF) has been confirmed as negative (-0.010) and statistically insignificant at conventional levels. This means that foreign investors are attracted to low inflation. Anyanwu (2011) found out that a stable macroeconomic environment (proxied by inflation) promotes FDI by showing less investment risk. Therefore an increase in inflation by 1% leads to

increase in FDI inward stock by 0.010%. High inflation means investors will not find it conducive to invest in the country because cost of doing business will be so high.

The a priori expectation for the external debt (ED) has been confirmed as negative (-0.169) and statistically insignificant at conventional levels. This means that an increase in external debt in Kenya by 1% leads to a decrease in FDI inward stock by 0.169%. This result confirms Obwana (2001) and Mwega and Ngugi (2006) literature that increasing external debt leads to a decrease in FDI inward stock.

Political instability (PI) does not seem to significantly constrain the FDI stock, and has a positive coefficient, which is insignificant at conventional levels (perhaps because political instability may be correlated with dependence on mineral resources). This is a surprising result given the importance of political risks in the context of irreversible investment theory. Mwega and Ngugi (2006) also found the a positive coefficient for political instability on Kenya's FDI inflows.

The a priori expectation for the economic growth rate (EG) has been confirmed as positive (0.012) and statistically insignificant at conventional levels. This means that an increase in GDP growth in Kenya by 1% leads to increase in FDI inward stock by 0.012%. This result confirms Khawar (2005) and UNCTAD (1999) literature that economic growth has a positive influence on FDI inward stock. However, this is an insignificant percentage as was found out by Mwega and Ngugi (2006).

The coefficient for corporate tax rates (CT) of the host country is 0.03 and is positive and statistically insignificant at conventional levels. This means that an increase in corporate tax rates by 1% leads to increase in FDI inward stock by 0.03%. This is against the priori expectation of the study that higher

these tax levels of the host country would be expected to deter potential FDI stock. However, this is confirmed by Wheeler and Mody's (1992) study who found the tax rate of the host country insignificant.

The error correction term is significant and positive with a relatively high speed of adjustment of about 0.9% suggesting that about 0.9% of deviations from long run equation are made up within one time period. This is counter intuitive. This result confirms Alam & Shah, (2013) and Abubakar & Abdullahi (2013) in which they found out that quality of infrastructure, openness, inflation, labor cost have no long run relationship. This means that most of the government FDI stock policies should be up to date with the changing trends of the determinants to ensure increasing inflows in FDI stock.

CONCLUSION

We have seen an increasing trend of FDI stock in Kenya since 1980 to 2012. An examination of the trend shows a gradual increase irrespective of change of political eras, oil shocks, deep corruption scandals and post election violence. This paper has attempted to identify the factors affecting FDI inward stock in Kenya. We have analyzed the determinants of FDI inward stock in Kenya for the period 1980 – 2012 using Linear regression analysis. The data analysis of the determinants reviewed in the literature shows that all the variables have the expected signs except quality of labour, economic growth of OECD countries, total factor productivity, political instability and corporate taxes. It can therefore be concluded that the a priori expectations for rate of return, inflation, quality infrastructure, legal system (including enforceability of contracts), cost of the factors of production, high discount rates, openness and growth rates of Kenya which were as per the literature is also true to Kenya. Economic growth of OECD countries, cost of factors of production, and rate of return have been found to be very significant at 2.12, 4.83 and 2.91 respectively.

These results imply that there is need for Kenya to be competitive by creating an investment friendly environment, ensuring a stable macro-economic environment, enforcement of law and order, improving the quality of institutions, ensuring quality infrastructure, opening up the country through trade, offering attractive lending rates, ensuring low cost of factors of production and promoting its economic growth. Any promises of incentives should be fully fulfilled failure to which it may pose a serious problem about the credibility of future government policy commitments.

Most FDI seem to be going to the agricultural and services sector. There is need for the government to market FDI generally but not completely neglecting the other sectors or specific types of FDI sock. The creation of sectoral or even industry specific codes should be helpful as each sector or

industry has its specific characteristics. This will enhance coordination and counter information failures in the investment process which may lead to insufficient or wrong types of FDI stock.

The guidelines for foreign investor should be clearly published by the Kenya Investment Authority since it will provide the regulatory and institutional framework for investment in Kenya now and in future. They should aim specifically at reducing infrastructural, institutional and economic bottlenecks that have plagued Kenya for many years besides emphasizing on fiscal and custom incentive as has always been the case. More autonomy should be granted to Kenya Investment Authority such that it should be a quasi-governmental organization. That is, it should be funded by government but includes those in private sector and civil society and have autonomy in decision making. Its role should not be limited to investment facilitation but should extend to research and promotion.

Kenya is strategically well located among the East African countries and has the most developed infrastructural, economic and resource base advantage that cannot be neglected within the sub region. Kenya should therefore stand to benefit from most in FDI stock.

5.1 Policy recommendation

Given the complementarity between foreign and domestic investment, in terms of promoting economic growth, joint ventures should be encouraged and organized. Foreign Direct Investment should be encouraged in sectors with potential competitive advantages and where complementarity with domestic investments is likely to be high. Also, the government will have to promote effectively the development of technological and human capital capabilities in order to attract FDIs in higher-value added activities, as well as to ensure Kenya can assimilate these technologies effectively.

5.2 Limitation of the study

In this study our econometric analysis has relied on aggregate data. A more disaggregated analysis of FDI inward stock into various forms or sectors of destination would certainly have shed more light on the determinants and recent changes in the investment climate.

5.3 Areas of further study.

It would be interesting to investigate empirically the sectorial composition of the FDI stock, their determinants, and the role played by export orientation strategies in allowing effective FDI stock in Kenya.

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