THE IMPACT OF EXTERNAL DEBT SERVICE ON FOREIGN DIRECT INVESTMENT INFLOWS IN KENYA (1980-2014)

BY

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DECLARATION

This research paper is my original work and has not been presented for a degree in any other University or institution of higher learning.

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This paper has been submitted with my approval as University Supervisor:

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DEDICATION

This research paper is dedicated to my grandmother, Charity Ciomwereria Ntundu.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADB   African Development Bank

AIC   Akaike Information Criteria

Chi2   Chi Square

D1   First Difference

D-8   Development cooperation among 8 Developing Countries (Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, and Turkey)

Df   Degrees of Freedom

FDI   Foreign Direct Investment

FPE   Final Prediction Error

GDP   Gross Domestic Product

GNP   Gross National Product

HIPC   Heavily Indebted Poor Country

H_0 Null Hypothesis

HQIC   Hannan and Quinn Information Criterion

IDA   International Development Agency

IMF   International Monetary Fund

LD   Lag one

L2D   Lag two

L3   Lag three

LR   Likelihood Ratio

OLS   Ordinary Least Square

Prob   Probability Value

SBIC	Schwarz's Bayesian Information Criterion
UNCTAD	United Nations Conference on Trade and Development
V	Covariance matrix of order statistics
W	Shapiro Test Statistic
WDI	World Development Indicators
Z	Z Statistic

DEFINITIONS OF KEY TERMS

Gross Domestic Product: Gross domestic product refers to monetary value of all goods and services produced within a country's border (Mansfield, 1992).

Gross National Product: Gross National Product is the value of goods and services produced by citizens of a country (Mansfield, 1992).

Heavily Indebted Poor Countries: Heavily indebted poor countries are a group of 38 developing nations that are characterized by high levels of poverty and debt. These countries qualify for special consideration by World Bank and IMF (Easterly, 2002).

Advanced Economies: This is a group of countries that have advanced technology and infrastructure. These countries have high levels of per capita GNP and low Human Development Indices (Todaro and Smith, 2011).

Sub-Saharan Africa Countries: This is a group of countries that geographically lie to the South of the Sahara Desert. In terms of politics, they are all countries that are partially or fully situated to the South of the Sahara Desert except Sudan (Todaro and Smith, 2011).

External Debt Service: External debt service is the repayment of long term debt in form of currency, goods or services (World Bank Database, 2016).

Inflation Rate: This is the percentage rate of change of a given price index over a period of time (Mansfield, 1992).

Human Capital: Human capital is defined as the knowledge, skills and experience possessed by a population or individual. This can be viewed in terms of individual's value to the organization (Kaushik & Vinod, 2007).

Exchange Rate: Exchange rate is the country's currency in terms of other country's currency (Mansfield, 1992).

Openness of the Economy: Openness of the economy is the extent to which a country's participates in international trade. It is measures a ratio of the sum of exports and imports to GDP (Stensnes, 2006).

Ordinary Least Square: This is a method of calculating the coefficients of a classical regression model (Gujarati, 2003).

Domestic Interest Rate: Domestic Interest rate is the amount charged, usually expressed as a percentage of the principal amount, by a lending party to the borrowing party for the use of assets (World Bank Database, 2016).

ABSTRACT

Foreign direct investment has significant contribution to a host country's fixed capital formation. The outcomes of FDI inflows are very important to developing countries than the developed countries due to the fact that the former are characterized by inadequate capital. In addition these countries have limited access to modern technology among other deprivations. FDI inflows are therefore important in bridging these shortfalls and also benefit foreign investors. In Kenya, fixed capital formation stands at 21 % of GDP of which 7% is contributed by FDI.

According to economic theory, external debt service is a key determinant of FDI inflows. The theory stipulates that an increase external debt service leads to increased taxes that discourage foreign direct investors since they are not guaranteed of good returns to their investments. Kenya's public debt stands at 53 percent of GDP of which about 26 percent is external debt. The country's budget deficit to GDP has also increased from 8 percent during the 2015/2016 financial year to about 9 percent in 2016/2017 financial year an indication that debt service is likely to increase. In Kenya, a few studies have explored external debt service but in different approaches. This study therefore sought to bridge the gap by investigating the effect of external debt service on foreign direct investment inflows for the period between 1980 and 2014.

The study used OLS method in estimating long-run cointegrating equation. The study carried out pre-estimation tests so as to validate the results. Among the pre-estimation tests carried out are autocorrelation, heteroscedasticity, multicollinearity and normality test. Stationarity of the variables was further investigated using Augmented Dickey Fuller test.

The estimated results revealed overall significance of the explanatory variables in explaining FDI inflows with a coefficient of determination showed that 90.71 percent. The findings further revealed that lag one of exchange rate to be positive and individually significant at 10 percent level of significance in influencing FDI inflows in the short run. Lag one of GDP was also revealed to be positive and individually significant at 10 percent level of significance in influencing FDI inflows in the short run. Further, Lag two of GDP was also revealed to be positive and individually significant at 5 percent level of significance in influencing FDI inflows in the short run. The study findings suggested that external debt service is insignificant in determining foreign direct inflows in Kenya.

Based on the study findings, the study recommends an improvement in country's GDP due to its positive effect on FDI inflows. To achieve higher GDP levels, the study recommends investment in more growth enhancing activities for instance, infrastructure, education, healthcare, technology and also ensures political stability. The findings do not reveal significant relationship between external debt service and FDI inflows therefore the study recommends identification of other factors that may influence FDI inflows for instance the ease of doing business and strong property rights in Kenya.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Foreign direct investment refers to acquisition of foreign assets including foreign currency, rights, credits, property or benefits by foreigners. The foreigners acquire the assets with an aim of producing goods and services for commercial purposes. The goods and services produced can be sold locally or exported to international markets (Investment Promotion Centre Act, Chapter 518). In general, foreign direct investment refers to an investment which will allow the investor to acquire 10 percent voting rights in an enterprise located in a foreign country. If such an investor has less than 10 percent voting rights, then such a foreign investment is called portfolio investment (World Bank, 1996). Flows of foreign direct investment include capital provided by a foreign investor directly or through other related enterprises. Foreign direct investment can be made in three forms namely equity capital, intra- company loans and re-invested earnings. Purchase of shares in enterprise by foreign investors is called equity capital whereas intra-company loans refer to borrowing by foreign investors' parent enterprises and affiliate enterprises. Re-invested earnings refer to a case where profits accruing to a foreign investor are ploughed back into the business (World Investment report 2012).

Foreign direct investment inflows to Kenya fluctuated from 1990 to 2008 and then started to increase until 2014. This implies that multinationals and their subsidiaries have continued to increase production of goods and services in Kenya. This positive trend in the foreign direct investment is evidenced by figure 1 below.

Figure 1.1: Kenya FDI Inflows, 1990-2014
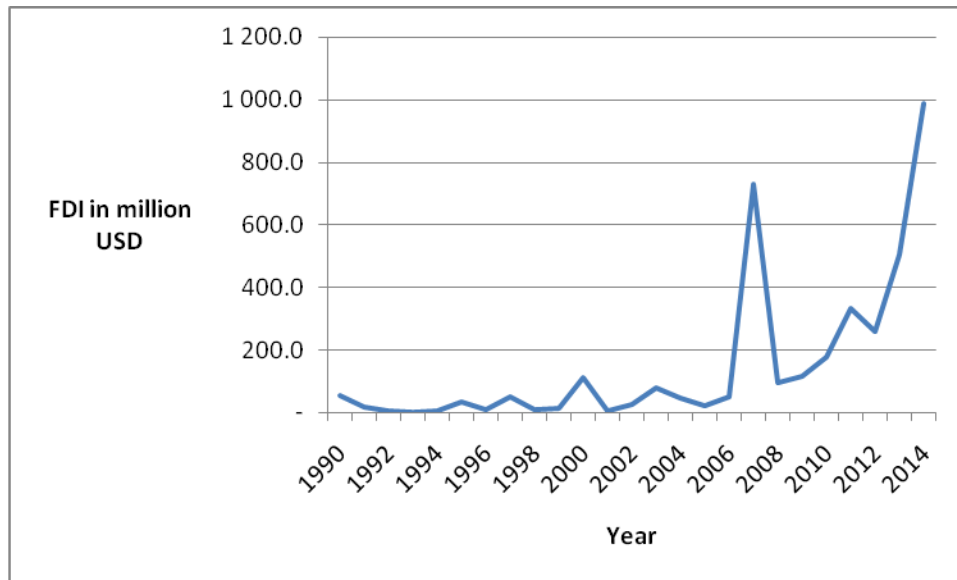
Source: UNCTAD, 2015

Most developing economies for instance Kenya are interested in foreign direct investment as a source of capital for industrialization. This is due to the fact that foreign direct investment presents a long term commitment by the foreign investor to host country. In addition foreign direct investment has significant contribution to a host country's fixed capital formation (Abala, 2014). In Kenya, fixed capital formation stands at 21 % of GDP of which 7% is contributed by FDI (World Bank, 2016).

Foreign direct investment inflows are among the key contributors of countries economic growth. The host country benefits from such investment through increased tax revenues. The host country also benefits from grants which come in as a result of the perceived benefits connected to foreign direct investment. In addition, the host countries sectors that receive foreign direct investment tend to register positive growth. As these sectors grow, there is increased employment opportunities, increased innovation and skills upgrading all of which are key to

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overall country's economic growth (UNCTAD, 2015). However, foreign direct investments can also have negative impact on host countries. For instance, foreign direct investment may discourage domestic savings and investment. Foreign enterprises may also transfer sub-standard or inappropriate technologies to host countries making thus compromising their comparative advantage. In addition, foreign direct investment may focus on cheap labor and raw material making it difficult for host country to embrace value addition and skills upgrade. Further, foreign direct investment may impede the growth of indigenous firms thus abolishing local talent (UNCTAD, 2005). The challenges associated with foreign direct investment can however, be eliminated if the host countries adopt sound labor and business regulation (Kinuthia, 2010).

Dunning (1988) in his eclectic paradigm asserts that FDI inflows are determined by ownership advantages, locational advantages and internalization advantages. The three determinants can be abbreviated as OLI. With regards to ownership advantages, the author argues that foreign investors will be attracted to that country that is privileged to own entrepreneurial skills, efficient production techniques and guarantee increasing returns to scale. According to location advantages, the author argues that establishment of businesses in foreign country is determined by foreign investors themselves. This decision is however, arrived at after a foreign country is observed to have the required raw materials, low wages and has special taxes for foreign investors. Concerning internalization, the author argues that foreign investors choose to invest in a foreign country if own production instead of production through other arrangements for instance partnerships is at their best interest.

1.1 External Debt and Servicing in Advanced Countries

Financial meltdown of 2007 and 2008 had serious challenges for the advanced economies in managing their public debts and debt servicing. The global financial crisis led to rapid increase in public debts and servicing among the developed countries since World War II (Abbas, 2010).

External debt levels in the developed countries continued to rise in 2013 despite contractionary fiscal policy measures and the agreement on fiscal discipline. Many of the fifteen EU member countries failed to bring public debt down to sustainable level. The public to GDP ratio of these countries averaged 90% as compared to 87% in 2012 (World Bank, 2015).

The size of external debt due to the effects of global financial meltdown has led to serious concern of external debt and debt servicing sustainability and the economic impact. The main issue of concern is the degree to which large external debt stocks are likely to have adverse effects on foreign direct investment and productivity hence reducing growth. Increased external debt leads to increased debt servicing which affects the economic growth negatively through various channels for instance, higher tax distortions, rise in inflation and uncertainty (Rother&Checherita, 2010).

1.2 External Debt Servicing in Sub-Saharan Africa

The debt crisis facing Sub-Saharan Countries is part of the world debt crisis. Debt crisis in SSA economies started in 1980s when many of these countries resorted to borrowing and most of the international financial institutions were willing to advance loans. The situation was even made worse following the collapse of world commodity market (IMF, 2001).

The increase in foreign borrowing by SSA is also attributed to the 1973-1979 oil shocks. Most of the SSA economies are non-oil producing countries an indication that much of their resources

shifted to oil producing countries. The increased oil prices led to decrease in exports thus widening the current account to deficit. For these countries to reduce the widening of the current account deficit they had to resort to borrowing from international financial organizations thus resulting to increased debt servicing (Kim & Willet, 2000).

SSA countries have poor macroeconomic policies that have led to increase unemployment, inflation, capital flight and fiscal deficits. These poor macroeconomic policies are as a result of weak structural system. For instance, most of the SSA countries have not embraced advanced technology in their production. They also produce the same products and export primary products which are prone to international price shocks. The problems of the SSA countries are also attributed to external factors. For instance, unfavorable trade policies and unfavorable terms of trade have made SSA countries to experience widened current account deficit. These conditions have led to increased public debt thus leading to increased foreign debt servicing among the SSA (ADB, 2010).

In1980 SSA economies experienced a decrease in per capita income of 2.2%, per capita decrease in private consumption of 4.8% and decline in terms of trade by 9.1%. Between 1981 and 1990, SSA economies had GDP growth rate of 1.7% on average (IMF, 2012). With increasing public debt coupled with poor macroeconomic policies, these countries public debt rose to significant level thus resulting increased burden (Klein, 1994).

In East Africa, Kenya is the second highly indebted country at 53% of GDP. Burundi is the worst in terms of foreign debt whose debt in GDP stands at 72.3%. Tanzania, Uganda comes in third and fourth position with 34% and 27% of debt in GDP respectively. Rwanda is the East African country that is lowly indebted. Rwanda debt in GDP is at 22%. With regard to debt servicing,

Kenya is in the second position among the five East African states at 28.5% of GDP. Burundi is the leading country where foreign debt accounts for 50% of its GDP (IMF, 2013).

1.3 External Debt Servicing in Kenya

Since independence, Kenya has been involved in provision of public of goods which are key components of economic growth hence improving the living standards of its citizens. However, most of the funds used to fund such projects are usually sourced from international markets, grants and foreign aid. The external debt has been used by the Kenyan government to fund its industrial and agricultural sectors. The two sectors are critical in the economy since they are the major source of foreign currency which is used to service the external debts (Were, 2001).

In Kenya many people have not only blamed retarded economic growth due to poor governance and corruption but also increasing public debt. Increasing public debt has serious macroeconomic problems which can lead to poor social and economic status of a country (Government of Kenya, 2012).

Table1.1: Trends in External Debt (% GDP), External Service (%GDP)

Year	External Debt Stock (%GDP)	External debt Service (%GDP)
1980	48.08	5.97
1981	48.62	7.08
1982	54.52	7.73
1983	62.68	8.61
1984	58.65	9.35
1985	70.56	10.13
1986	65.77	9.36

Year	External Debt Stock (%GDP)	External debt Service (%GDP)
1987	75.20	8.67
1988	72.33	8.83
1989	73.26	8.56
1990	85.97	9.23
1991	95.83	8.83
1992	87.82	8.16
1993	131.90	10.99
1994	104.99	12.33
1995	83.76	10.00
1996	57.65	6.95
1997	49.95	5.01
1998	48.87	4.70
1999	51.29	5.39
2000	49.21	4.67
2001	43.38	3.74
2002	47.48	4.04
2003	47.04	3.90
2004	43.81	2.22
2005	34.68	2.88
2006	25.99	1.67
2007	23.69	1.43
2008	21.24	1.15
2009	23.26	1.05

Year	External Debt Stock (%GDP)	External debt Service (%GDP)
2010	22.11	1.00
2011	25.00	1.04
2012	23.39	1.17
2013	25.00	1.17
2014	26.69	2.03

Source: *World Bank data base, 2015*

From table 1 above, it is evident that external debt ratio and external debt service ratio have been fluctuating since 1980. However, the highest external debt ratio (131.90) was recorded in year 1993 while the lowest (21.24) was recorded in the year 2008. On the other hand, the highest external debt service to GDP (12.33) was recorded in the year 1994 while the lowest (1.00) was recorded in the year 2010.

1.4 Problem Statement

Kenya's public debt stands at 53 percent of GDP (Government of Kenya, 2015). Many scholars have shown interest in studying the impact of external debt on the economic development of the developing economies. Those in support of external debt argue that governments that rely on external debts are capable of eradicating bottlenecks in their economies thus making full use of their resources. Maximum utilization of the resources has a direct link to economic growth. Those against external debt argue that such actions by developing countries' economies are likely to hamper economic growth through its negative effect on economic growth handles (Tchereni et al, 2013).

Increased external debt service is also likely to lead to increased taxes which are an incentive for tax evasion. The increased taxes also discourage foreign direct investors since they are not guaranteed of good returns to their investments. Decrease in foreign direct investments and increased tax evasion are ingredients for retarded economic growth (Habimana, 2005).

Kenya's external debt service has been fluctuating from 1980 to 2014. However it has shown a positive trend for the last four years. This trend is illustrated in figure 1.2 below.

Figure 1.2: Debt Service on External Debt in Kenya (1980-2014)
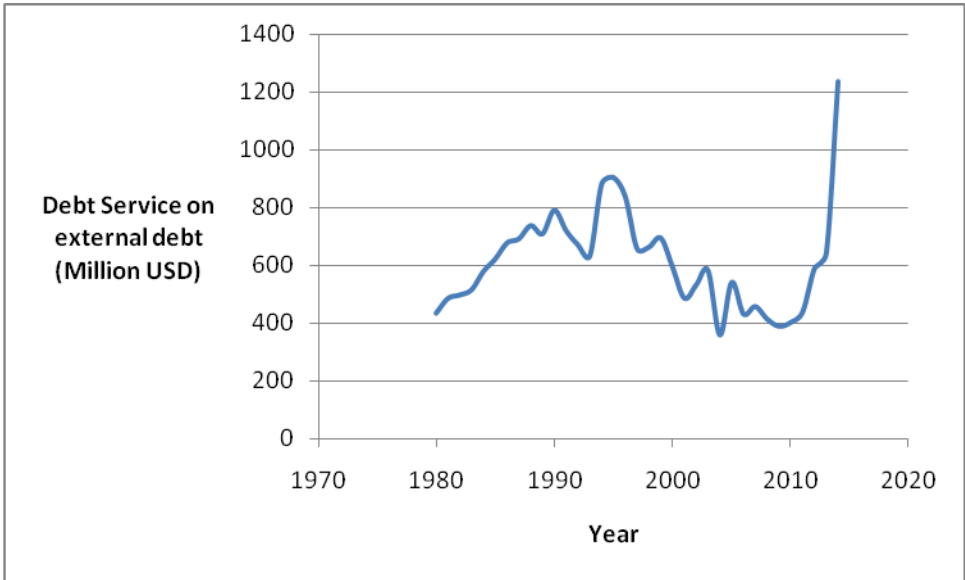
Source: World Bank Development Indicators for various years

From the figure above, it can be seen that the country's debt service on external debt has been fluctuating from the year 1980 to 2011 and began to increase gradually up to 2014.

The increase in debt service to external debt can be attributed to the increase in the country's external debt. Economic theory shows that increase in debt service is harmful to foreign direct investment and eventually hampers economic growth. In Kenya, a few studies have explored

external debt service but in different approaches. For example, Musyoka (2011) investigated the relationship between debt service and economic growth in Kenya using a linear model. Other studies have also investigated impact of external debt servicing but at a cross-country approach. For instance, Fosu (2010) investigated the external debt servicing constraint and public expenditure composition in Sub-Saharan Africa using panel data. This study will therefore bridge the existing gap of looking at the effect of external debt servicing on foreign direct investment inflows which is an important component of country's economic growth. This study will also be different from the studies which have investigated Sub-Saharan Africa as a whole since Kenya has unique characteristics from other countries within the region and therefore should be investigated separately.

1.5 Research Questions

The study intends to answer the following questions, namely:

i. What is the effect of external debt servicing on foreign direct investment inflows in Kenya?

ii. What is the significance of intervening variables on foreign direct investment inflows in Kenya?

iii. What are policy implications arising from this study?

1.6 Objectives of the Study

1.6.1 General Objective

The overall objective of this study is to analyze the effect of external debt servicing on foreign direct investment inflows in Kenya for a period of 34 years, running from 1980 to 2014.

1.6.2 Specific Objectives

The specific objective is in two-fold, namely:

(a) To estimate the effect of external debt servicing on foreign direct investment inflows in Kenya;

(b) To estimate the significance of intervening variables on foreign direct investment inflows in Kenya; and

(c) To draw conclusions and policy recommendations based on study findings.

1.7 Significance of the Study

This study seeks to empirically investigate the impact of external debt servicing on FDI inflows. The study findings will be important to Kenyan government since it will inform policy on external debt management to ensure that debt service does not account for a substantial fraction of country's revenue. A high external debt service means reduced allocation for country's development projects. In addition, according to Kenya's Vision 2030, Kenya is to be a middle income country by the year 2030. This therefore implies that aggregate demand should be high to stimulate production. One of the ways that can increase aggregate demand is to ensure that Kenyans have adequate income. Increase in income can be achieved if majority of the Kenyan population is employed. This means foreign direct investment is important since it is one of the sources of employment opportunities to Kenyans. Therefore, a study that investigates factors that affect FDI inflows especially external debt service is of great importance if Kenya is to achieve her economic dream. Further, this study builds a framework for explaining of the effect of external debt servicing on FDI inflows and it will be a great utility to future researchers.

1.8 The Organization of the Study

The rest of the paper is organized as follows: Chapter two presents a review of selected literature on external debt servicing and foreign direct investment inflows. The method of the estimation has also been articulated in Chapter three (3).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter has been divided into three sections. The first section deals with theoretical literature review. The second section deals with empirical literature review. The last section is the overview of the literature review where a summary of the literature reviewed is presented.

2.2 Theoretical Literature Review

Since the debt crisis of 1980s the nexus among external debt service, capital accumulation and economic growth has continued to attract attention of policy makers and scholars. Heavy external debt has made developing countries to face serious challenges in meeting their development objectives. Excessive external debt service in developing countries is a serious problem and therefore debt sustainability remains an essential condition for economic growth and development.

The theoretical background between external debt servicing and foreign direct investment is discussed below.

2.2.1 The Neoclassical Theory

According to Neoclassical economists, foreign direct investment is influenced by expected rate of return. For instance, if a developing country's interest rate is higher than world interest rate then foreign investors will invest in the developing since they expect higher returns on their investments. According to this school of economists, the other determinant of foreign direct investment is country's macroeconomic policy with regard to taxation. High tax leads to a

reduction in foreign direct inflows due to increased cost of doing business (Cockcroft and Riddle 1991). This theory therefore shows that there is a negative relationship between foreign debt servicing and foreign direct inflows. This is based on the fact that a higher foreign debt servicing leads to increase in country's tax assuming the country has exhausted its tax base.

2.2.2 Debt Servicing and Foreign Direct Investment

External debt servicing affects country's economic growth negatively through altering composition of government spending. Higher debt service widens budget deficit thus reducing public investment (Clements & Nguyen, 2003). The decrease in government spending may be an impediment to foreign direct investment. For instance, infrastructural and labor oriented investors may be discouraged to consider a country which has low investment in the two areas.

2.2.3 Debt Overhang Theory

According to economic theory, external debt is good for a country's economic growth. However, this is only possible up to a certain level beyond which its effects are adverse to an economy. The theory of debt overhang as explained by Krugman (1988) clearly demonstrates how accumulation of high external debt leads to low FDI inflows translating into low economic growth of a country. According to Krugman (1988), debt overhang refers to a situation where the existing external debt is very large. The theory suggests that foreign investors will be discouraged from investing in a country that has a large external debt since part of their proceeds would be used to service the debt through high taxation. On the other hand, the theory postulates that reducing debt obligation results to a rise in both domestic and foreign direct investment thus minimizing the chances of debt default

2.2.4 The Economic Structure Factors Influencing FDI inflows

Economic structure is an important determinant of FDI inflows. The key factors of economic structure that are attractive to foreign investors include market size and expansion, trade balance, external debt, human resources, infrastructure, skilled work-force and information technology (Karimi & Gohari, 2010).

2.2.5 Encouraging and Supporting Factors Influencing FDI inflows

Countries which offer incentives to foreign investors are likely to attract foreign direct investment than those which do not. These incentives include tax exemption for foreign investments, offering insurance covers to foreign investors, subsidized training for local labor force, establishing free trade areas for investment, better infrastructure and cheaper public services for instance electricity and water, guaranteed return of principal and its interest and prevent confiscation of their nationality (Ostadi & Ashja, 2014).

2.3 Empirical Literature Review

Abala (2014) investigated the relationship between FDI and economic growth in Kenya using OLS. One of his objectives was to determine factors that influence FDI in Kenya. To achieve this objective, an FDI equation was run and the findings shows that real GDP and infrastructure are positive and significant determinants of FDI inflows. External debt service and openness of the economy have positive and insignificant determinants of FDI inflows. Market size, real interest rate and return on investment are negative and insignificant determinants of FDI inflows.

Ostadi and Ashja (2014) investigated the relationship between external debt service and foreign direct investment in D-8 member countries using panel data. The study results show that external debt service ratio has a strong negative relationship with foreign direct investment. The control

variables used in the study are government size, population and GDP. The study found that population and GDP have a strong positive relationship with foreign direct investment. On the other hand, government size depicts a negative relationship with foreign direct investment. By applying panel data, the study realized an increased statistical power and overcome problems associated with either time series or cross-sectional data. However, such data may suffer from the problem heterogeneity.

Kaur and Sharma (2013) investigated the determinants of foreign direct investment in India using OLS model. Their findings indicate that long term debt, country's openness, foreign reserves and country's GDP positively influence the FDI inflows. Inflation and exchange rate were found to negatively affect the FDI inflows. This study can be improved by investigating the effect of other variables on FDI inflows since those investigated are not the only ones.

Lokesha and Leelavathy (2012) investigated the determinants of FDI in India using descriptive survey method. Their finding indicates that debt to GDP ratio is negatively related to FDI inflows. According to the authors, increased debt to GDP ratio results to a country's economic instability thus making the country less attractive to foreign investors. Descriptive analysis as used in this study may not to bring out a clear picture of the effect of external debt servicing on FDI inflows. This study therefore intends to apply an econometric model that will clearly present the effect of external debt service on FDI inflows.

Khrawish and Siam (2010) studied determinants of FDI in Jordan using a multiple regression model. The study findings show that foreign debt service as a percentage of country's exports, foreign debt as a percentage of GDP, current account as a percentage of country's exports, exchange rate stability are positive and significant determinants of FDI.

Udo and Obiora (2006) investigated the determinants of foreign direct investment and economic growth in the West African monetary zone using panel data. The study findings indicate that external debt service ratio and political instability negatively influence foreign direct investment inflows. On the other hand, GDP and government spending on infrastructure were found a positively influence foreign direct investment inflows. Use of panel data enabled the author to overcome problems associated with time series and cross sectional data alone. However, this study failed to analyze other factors that influence FDI and economic growth.

In their research, Shahabadi and Mahmood (2005) examined the determinants of foreign direct investment in Iran using OLS method on time series data running from 1957-2003. The results indicate that infrastructure, natural resources, human capital positively influence FDI inflows. On the other hand, external debt to GDP ratio and government expenditure to GDP ratio negatively influences FDI inflows. This study failed to investigate the effect of other variables for instance openness of the economy which is also important determinant of FDI inflows.

Elbadawi et al. (1997) investigated the effect of debt service on investment in Sub-Saharan Africa using panel regression model. The study findings indicate a significant negative relationship between debt service and investment. By applying panel data, the study findings may not give clear picture of specific country effect of debt service on investment since each country has its own uniqueness.

Habimana (2005) investigated the relationship between capital accumulation and external debt burden in Rwanda using quantitative analysis approach. The study adopted debt service to GDP ratio, export to GDP ratio and human capital as the control variables. The study findings show existence of a relatively strong negative relationship between capital accumulation and external

debt. The findings further depict presence of a negative relationship between debt service to GDP ratio and capital accumulation. This study however, failed to investigate the effect of other important variables for instance, inflation and exchange rate which could have improved the study results.

2.4 Overview of the Literature Review

From the literature reviewed, it is clear that varied approaches have been applied in analyzing effects of external debt servicing on foreign direct investment inflows. The literature has revealed that foreign direct investment inflows is influenced by external debt servicing, inflation rate, exchange rate, total exports, total imports, human capital, GNP and domestic interest rates. Although quite a number of studies have been carried out in other regions aimed at investigating the relationship between external debt servicing and FDI inflows, not much has been done with regard to Kenya. Though the concept of external debt has been widely explored in Kenya, the focus has been on economic growth. For instance, Were (2001) investigated the relationship between Kenya's external debt and economic growth. In his findings, external debt was found to negatively affect country's economic growth. This study therefore seeks to narrow down to FDI inflows which are major component of Kenya's economic growth by investigating the effect of increasing external debt servicing on it. This study applied time series data to achieve its objectives.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes methods utilized to operationalize the study to unlock the impact of external debt service on FDI inflows in Kenya. The specific areas included are; conceptual framework, theoretical framework, empirical model, definition of variables and their measurements, diagnostic tests and data source.

3.2 Conceptual Framework

Figure 3.1 shows the nexus between dependent variable, independent variable and the intervening variables.

Figure 3.1: Relationship among Variables

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
External Debt Service	FDI inflows
INTERVENING VARIABLES	
1. Inflation rate	
2. Exchange rate	
3. GDP	
4. Gross Fixed Domestic Investment	
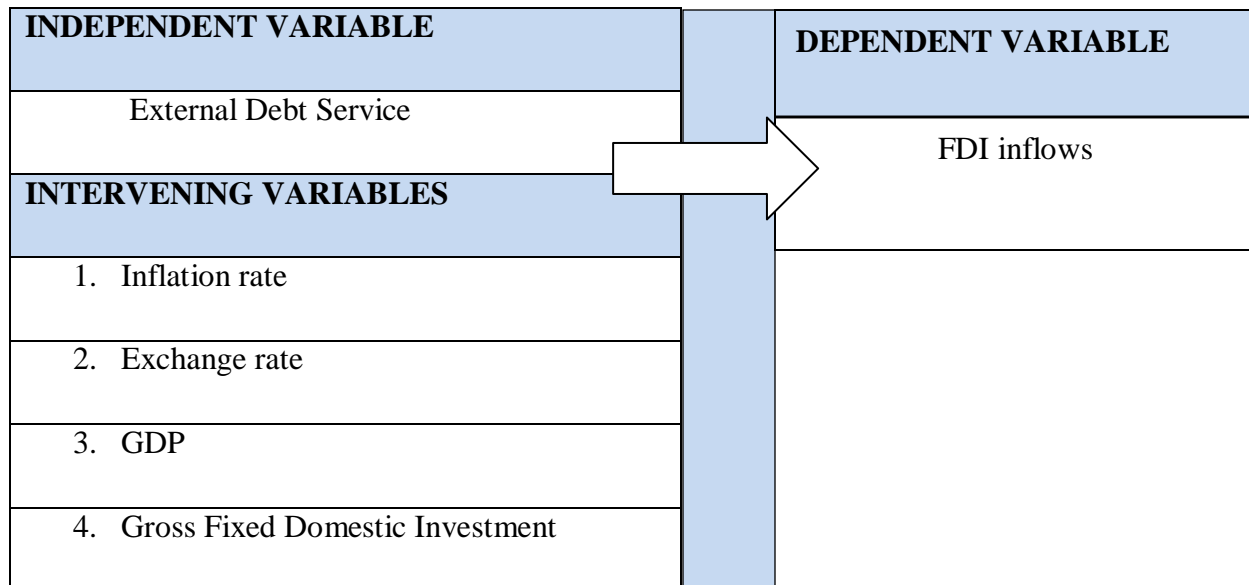
Source: Author's Representation

The above conceptual framework gives a depiction on how the variables are related to one another. The variables defined here are the dependent, independent and intervening variables. An independent variable in this case is the main variable the study seeks to investigate its influence on the dependent variable. On the other hand, intervening variables help us identify the exact effect of the independent variable on the dependent variable by holding them constant.

3.3 Theoretical Framework

The theory focused on the effect of external debt service on FDI inflows and employed basic traditional investment model but augmented with intervening variables commonly used for the study investment behavior of foreigners (Udo & Obiora, 2006). The general form of the traditional investment model was given by:

$$K = f(Y,R)$$ …………………………………………………………………………………..1

Where K is the desired capital stock, Y is the output and R is the real cost of capital in a host country. The basic model refers to the traditional determinants of investment for domestic investors. As foreign investors make decision on where to invest, other factors become important. Among these factors are inflation rate, exchange rate, openness of the economy, infrastructure and political stability. With this modification, we arrived at an augmented foreign direct investment model specification as follows:

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Equation 2 shows that FDI inflows are a function of a country's output and other variables as shown in the equation. The relationship between FDI inflows and country's output implies that foreign investors are attracted by large aggregate demand. The country's government spending on infrastructure can be an effective tool in the creation of a conducive environment that can be

attractive to foreign investors. However, such investment should be handled carefully to avoid crowding out effect. Government spending on the provision of social infrastructure is likely to attract foreign direct investors. Debt overhang effect is captured by the debt service ratio.

3.4 Empirical Model

The above theoretical framework translated into an operational estimation framework by looking at the relationship between FDI inflows and external debt service. An assumption was made of linear relationship between FDI inflows and external debt service. In this case the estimated model was specified as follows:

$$fdi = \beta_0 + \beta_1 ext + \beta_2 exch + \beta_3 gdp + \beta_4 inf + \beta_5 inve + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .3$$

Where, **Error! Reference source not found.** is FDI inflows, **Error! Reference source not found.** is external debt service, **Error! Reference source not found.** is exchange rate, **Error! Reference source not found.** is Gross Domestic Product, **Error! Reference source not found.** is inflation rate and **Error! Reference source not found.** is gross fixed domestic investment. The coefficients β_0, β_1, β_2, β_3, β_4 and β_5 are parameters to be estimated while μ is the error term.

3.5 Variables and Description

3.5.1 Dependent Variable

The dependent variable for this study was FDI inflows. This was measured by the total sum of equity capital, reinvestment of earnings, short-term capital and long-term capital in GDP.

3.5.2 Independent Variable

The independent variable for this study was external debt service**.** According to economic theory, an increase in external debt service results to decrease in FDI inflows as foreign investors predict

future increase in the cost of operating businesses. External debt service was measured by the sum of interest payments and principal repayments actually made in a given year. Generally, an increase in external debt service was expected to have a negative effect on the FDI inflows.

3.5.3 Intervening Variables

A number of factors are assumed to influence FDI inflows. These factors include:-

3.5.3.1 Exchange Rate

Exchange rate is a key determinant of a country's FDI inflows. High exchange rate makes imports expensive and therefore firms that rely on imported raw materials may find it difficult to cope with such economic situation. Exchange rate was measured by the average amount of local currency required for one unit of international currency particularly USD. Generally, a higher exchange rate was expected to have a negative effect on the FDI inflows.

3.5.3.2 Inflation Rate

Inflation makes the cost of operating a business to increase. Increased inflation therefore results to a decrease in FDI inflows. Inflation rate was measured by consumer price index. Generally, a rise in inflation rate was expected to have negative impact FDI inflows.

3.5.3.4 GDP

According to economic theory, an increase in GDP leads to an increase in aggregate demand. For foreign investors, a high GDP depicts a large market size for their products. GDP was measured by total monetary of all goods and services produced within Kenya's borders. Therefore, an increase in GDP was expected to have a positive impact on the FDI inflows.

3.5.3.8 Gross Fixed Domestic Investment

Gross fixed domestic formation raises the efficiency of capital investment, increasing country's productivity thus attracting FDI. Gross domestic capital formation was used as a proxy for gross

fixed domestic investment. Gross fixed domestic investment was expected to have a positive impact of FDI inflows.

Table 3.1 below summarizes the way variables were measured and the expected signs of the independent and intervening variables:-

Table 3.1: Postulated Signs of the Coefficients of the Independent and Intervening Variables

Dependent variable	Independent Variable	Variable Measurement	Expected Sign
FDI inflows (measured by sum of equity capital, reinvestment of earnings, short-term capital and long-term capital in USD)	External Debt Service	sum of interest payments and principal repayments actually made in a given year	_
	Intervening Variables		
	Exchange Rate	average amount of local currency required for one unit of international currency particularly USD	_
	Inflation Rate	Consumer price index	_
	GDP	total monetary of all goods and services produced within Kenya's borders	+
	Gross Fixed Domestic Investment	gross domestic capital formation	+

Source: Author's Representation

3.6 Data Source

The study applied time series data running from 1980 to 2014. This period was preferred due to availability of variables that were measured consistently. The variable of great interest was FDI inflows. This variable was obtained from WDI database. The independent variable was external

debt service while intervening variables were exchange rate, inflation rate, domestic, GDP and Gross Fixed Domestic Investment. Both independent variable and intervening variables were obtained from WDI database.

3.7 Estimation Technique

The study used ordinary least squares (OLS) in establishing the relationship between FDI inflows and the explanatory variables. However for OLS to be used, assumptions of classical linear regression model had to hold. Stata version 13 was used to run the required regressions.

3.8 Diagnostic Tests

The study carried out diagnostic tests as discussed below.

3.8.1 Heteroscedasticity

Heteroscedasticity refers to a situation where variance of the error term varies with change in the number of observation. Presence of heteroscedasticity does not have an impact on the unbiasedness and linearity of the regression coefficient since it only affects the best property of OLS, which renders the conclusion made while testing hypothesis invalid (Gujarati, 2004). The study therefore tested for heteroscedasticity using Breusch-Pagan-Godfrey test.

3.8.2 Autocorrelation

Autocorrelation refers to a case where error term is related to its preceding value. Presence autocorrelation however, do not affect the unbiasedness of the estimates but render hypothesis testing inapplicable. Autocorrelation occurs mostly in time series data. The reason behind this is the fact that such data assumes a certain trend as the time changes. Autocorrelation does not affect the unbiasedness, linearity and asymptotic nature of the estimators. The only problem is that it violates the Best property of OLS which makes conclusion hypothesis testing wrong. This

study therefore used Breusch Godfrey test to check whether data experience serial correlation (Gujarati, 2004).

3.8.3 Multicollinearity

Multicollinearity is also common in time series data since variables may be following a particular trend. Multicollinearity refers to a situation where some of the explanatory variables are related. The variables may be increasing or decreasing over time. Multicollinearity makes the coefficient of regression to be indeterminate. Multicollinearity may be common among variables, but what matters is the degree (Gujarati, 2004). To check for the presence of multicollinearity, the study used the variance inflation factors (VIF) test (Nachtscheim, 2004).

3.8.4 Stationarity Test

Stationarity refers to a case where the mean of the data is time independent. Unit root tests are used to detect non stationarity in all the variables. If variables are non- stationary, there is a tendency of the estimates to change over time. This characteristic leads to spurious estimates. Therefore, if variables are found to be non-stationary, successful differencing is applied until the bias is eliminated. The null hypothesis in this case is that the variable under consideration is non-stationary. Augmented Dickey Fuller (ADF) test was used in testing for stationarity (Gujarati, 2004).

3.8.5 Normality

One of the assumptions of classical linear regression model is that the error term must be normally distributed with zero mean and a constant variance denoted as μ $(0, \sigma2)$. The error term is used to capture all other factors which affect dependent variable but are not considered in the model. However, it is thought that the omitted factors have a small impact and at best

random. For OLS to be applied, the error term must be normal (Gujarati, 2004). To confirm whether the error term is normal or not, the study employed the Shapiro- Wilk test.

3.8.6 Cointegration

Other than stationarity of the variables, there is a need to have a long-run relationship between the dependent variable and explanatory variables, a notion called Cointegration. In the absence of Cointegration, the forecasting power of the model is compromised. The Johansen test of cointegration test was employed to this effect (Gujarati, 2004).

Diagnostic tests are summarized in table 3.2 below

Table 3.2: OLS Assumptions and Tests

OLS Assumption	Test
Heteroscedasticity	Breusch-Pagan-Godfrey
Autocorrelation	Breusch-Godfrey
Multicollinearity	Variance Inflation Factors
Stationarity	Augmented Dickey Fuller
Normality	Shapiro wilk
Cointegration	Johansen test of cointegration

Source: *Author's Representation*

CHAPTER FOUR

EMPIRICAL RESULTS

4.1 Introduction

In this chapter, results of empirical analysis are presented. The chapter discusses descriptive statistics of the data, diagnostic tests and report on the regression results.

4.2 Descriptive Statistics

Descriptive statistics of the data series is shown in table 4.1. Descriptive statistics of FDI inflows, external debt service, exchange rate, GDP, inflation rate and gross fixed domestic investment share in GDP is illustrated. Distribution of a series can be determined by evaluating various statistical measures as shown in table 4.1.

Table 4.1: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Foreign Direct Investment	35	111.8	196.3	0.4	944.3
External Debt Service	35	496.7	124.1	317.9	827.8
Exchange Rate	35	51.8	28.6	7.4	88.8
GDP	35	18213.4	15616.7	5751.8	60990.6
Inflation Rate	35	12.6	8.8	1.6	46.0
Gross fixed Capital Investment (% of GDP)	35	18.5	1.9	15.4	22.9

Source: Author's Computation based on World Bank Database

The total observations considered in this study were 35 with six variables (one dependent and five independent variables). Range is obtained from the difference between the maximum value and minimum value. For example the maximum value of foreign direct investment inflows 944.3 USD million while the minimum is 0.4 USD million giving a range of 943.9 USD million. The standard deviation shows the spread of the values from the mean and is important for comparison purposes. For example the data shows that GDP has a larger spread as compared to other variables. Foreign direct investment has a standard deviation of 196.3, external debt service has 124.1, exchange rate has 28.6, inflation rate has 8.8 and gross fixed domestic investment as a percentage of GDP has 1.9.

4.3 Correlation Matrix

Correlation of the variables is examined in the table shown below.

Table 4.2: Correlation matrix

Variables	Foreign Direct Investment	External Debt Service	Exchange Rate	GDP	Inflation Rate	Gross fixed Capital Investment (% of GDP)
Foreign Direct Investment	1.0000					
External Debt Service	-0.0262	1.0000				
Exchange Rate	0.3975	0.0573	1.0000			
GDP	0.6902	-0.2222	0.6950	1.0000		
Inflation Rate	-0.1374	-0.0374	-0.1828	-0.2313	1.0000	
Gross fixed Capital Investment (% of GDP)	0.4634	-0.2355	0.0190	0.5205	-0.1399	1.0000

Source: *Author's Computation based on World Bank Database*

From Table 4.2, we observe the relationship existing between various variables used in this study. There is a positive association between foreign direct investment inflows and exchange rate, GDP and gross fixed domestic investment share of GDP. On the other hand, there is a negative association between foreign direct investment inflows and external debt service and inflation rate. External debt service has positive association with exchange rate but negatively associated to GDP, inflation rate and gross fixed domestic investment share of GDP. Finally, it is evident from table 4.2 that there is no strong correlation among the variables used in the study since all variables had a correlation index of less than 0.7.

4.4 Diagnostic Tests

4.4.1 Heteroscedasticity

Using Breusch-Pagan test results are as shown in table 4.3.

Table 4.3: Test for Heteroscedasticity

Breusch-Pagan test for heteroscedasticity
Ho: Constant variance
Variables: Fitted values of FDI inflows
chi2(1) = 32.12
Prob> chi2 =0.0000

Source: Author's Computation based on World Bank Database

The results in table 4.3 reveal presence of heteroscedasticity since the p-value of 0.0000 is significant which leads to rejection of the null hypothesis. This will be corrected by use of robust standard error regression.

4.4.2 Serial correlation

Breusch Godfrey test was used in testing for serial correlation. The results are as shown in table 4.4.

Table 4.4: Serial correlation

Breusch-Godfrey test for autocorrelation			
lags(p)	**chi2**	**Df**	**Prob> chi2**
1	1.081	1	0.2985
H_0: no serial correlation			

Source: Author's Computation based on World Bank Database

The test results in table 4.4 reveal absence of serial correlation since the p-value of 0.2651is insignificant thus leading to the acceptance of the null hypothesis.

4.4.3 Multicollinearity

To test for multicollinearity, Variance Inflation Factors (VIF) was examined. For VIF values greater than 10, multicollinearity is deemed to be present (Nachtscheim, 2004). The VIF are calculated as shown below.

Variance Inflation Factors

$$VIF = \frac{1}{1 - R^2}$$

Where VIF= variance inflation factor

R^2= coefficient of determination

1/VIF= tolerance

The VIF values are shown in table 4.5

Table 4.5: Multicollinearity

Variable	VIF	Tolerance
GDP	4.23	0.236135
Exchange Rate	3.03	0.329740
Gross Fixed Capital Investment (% of GDP)	2.00	0.500331
External Debt Service	1.17	0.856639
Inflation Rate	1.07	0.936121
Mean VIF	2.30	

Source: Author's Computation based on World Bank Database

From table 4.5, it is evident that all the variables had VIF of less than 10 implying that there is no multicollinearity.

4.4.4 Normality

In testing for normality of the error term, Shapiro Wilk test was used. The results are shown in the table 4.6.The null hypothesis in this situation indicates that the error terms is normally distributed whereas the alternative hypothesis indicates that the error term is not normally distributed

Table 4.6: Test for Normality

Variable	Observations	W	V	z	Prob>z
Residual	35	0.97021	1.369	0.647	0.27197

Source: Author's Computation based on World Bank Database

The probability value in table 4.6 is not significant thus leading to failure to reject the null hypothesis. This therefore implies that the residuals are normally distributed.

4.5 Stationary Test

Stationarity means the variable is integrated of order zero and therefore inference is applicable. However, presence of a unit root lead to spurious regression which renders inference inapplicable and therefore the model cannot be used in forecasting. The unit root test was done by use of the Augmented Dickey Fuller Test on the individual variables. The test results are as shown in table 4.7.

Table 4.7: Test for Stationarity in Levels

Variable	Test statistic	1% critical level	5% critical level	10% critical level
Foreign Direct Investment Inflows	-1.995	-3.689	-2.975	-2.619
External Debt Service	-2.519	-3.689	-2.975	-2.619
Exchange Rate	-0.942	-3.689	-2.975	-2.619
Inflation rate	-3.341	-3.689	-2.975	-2.619
GDP	5.408	-3.689	-2.975	-2.619
Gross Fixed Investment(% of GDP)	-2.063	-3.689	-2.975	-2.619

Source: *Author's Computation based on World Bank Database*

Table 4.7 shows that only all variables used in the study are non-stationary at levels. The variables were differenced and the results are as shown in the table 4.8.

Table 4.8: Test for Stationarity (First Difference)

Variables	Test statistic	1% critical level	5% critical level	10% critical level
D1Foreign Direct Investment Inflows	-6.907	-3.696	-2.978	-2.620
D1External Debt Service	-6.821	-3.696	-2.978	-2.620
D1 Exchange Rate	-5.438	-3.696	-2.978	-2.620
D1 Inflation Rate	-6.540	-3.696	-2.978	-2.620
D1GDP	-3.783	-3.696	-2.978	-2.620
D1Gross Fixed Capital Investment	-5.663	-3.696	-2.978	-2.620

Source: Author's Computation based on World Bank Database

Table 4.8 shows that all the variables became stationary after first difference. This showed that all the variables have one unit root or are integrated of order 1 that is I (1).

4.6 Vector Autoregressive (VAR) and Vector Error Correction Model (VECM)

Overall, the findings presented in table 4.7 show that all the variables became stationary after first difference, that is to mean the variables are integrated of order one, I(1). These results suggest there might be cointegration vectors between the variables an implication that the model could be feasibly employed with the VAR framework if cointegration is found to be absent or VECM framework if cointegration is found to be present.

4.6.1 Lag length Selection

Before estimating Vector Autoregressive (VAR) or Vector Error Correction Model (VECM), it is important to identify lag length of unrestricted VAR order and VEC order. The two lag selection criteria are discussed below.

Table 4.9: Vector Autoregressive (VAR) Lag Selection Criteria

Selection-order criteria								
Sample: 1987 - 2014					Number of observation = 28			
Max rank	LL	LR	Df	Prob	FPE	AIC	HQIC	SBIC
0	-929.47		.		4.2e+21	66.8191	66.9064	67.1046
1	-781.55	295.83	36	0.000	1.5e+18	58.8251	59.436	60.8234
2	-746.36	70.379	36	0.001	2.4e+18	58.883	60.0175	62.5941
3	-677.05	138.63	36	0.001	8.2e+17	56.5035	58.1617	61.9275
4	907.91	3169.9	36	0.000	8.4e-29*	-54.1365	-51.9547	-46.9997
5	4136.36	6456.9*	36	0.000	.	-283.454	-281.011	-275.461
6	4159.47	46.218	36	0.118	.	-285.105*	-282.661*	-277.112*
7	4117.17	-84.588	.	.	.	-282.084	-279.64	-274.091

Source: Author's Computation based on World Bank Database

From table 4.9, LR criteria show that 5 lags should be considered. FPE criterion shows that 4 lags should be chosen. Regarding AIC, HQIC and SBIC, the guideline is that the lower the value the better the model. In this case the three criteria show that 6 lags should be chosen. Since three out of the five criteria recommend 6 lags, the study will therefore consider 6 lags. These results can be justified by use of vector error correction lag selection criteria as shown in table 4.10.

Table 4.10: Vector Error Correction (VEC) Lag Selection Criteria

Selection-order criteria								
Sample: 1987 - 2014						Number of observation = 28		
Max rank	**LL**	**LR**	**Df**	**p**	**FPE**	**AIC**	**HQIC**	**SBIC**
0	-929.47		.		4.2e+21	66.8191	66.9064	67.1046
1	-781.55	295.83	36	0.000	1.5e+18	58.8251	59.436	60.8234
2	-746.36	70.379	36	0.001	2.4e+18	58.883	60.0175	62.5941
3	-677.05	138.63	36	0.001	8.2e+17	56.5035	58.1617	61.9275
4	907.91	3169.9	36	0.000	8.4e-29*	-54.1365	-51.9547	-46.9997
5	4136.36	6456.9*	36	0.000	.	-283.454	-281.011	-275.461
6	4159.47	46.218	36	0.118	.	-285.105*	-282.661*	-277.112*
7	4117.17	-84.588	.	.	.	-282.084	-279.64	-274.091

Source: Author's Computation based on World Bank Database

Results in table 4.10 corroborate findings in table 4.9. This therefore implies the study considers 6 lag in the Johansen test of cointegration and VAR or VECM framework.

4.6.2 Johansen Test of Cointegration

After identifying lag length, it is important to check whether there is long run relationship among the variables (cointegration) or not. To ascertain this, Johansen test of cointegration was adopted and the results are as shown in table 4.11.

Table 4.11: Johansen Test for Cointegration (Trace statistics Model)

Trend: Constant				Number of observation = 31	
Sample: 1984-2014					
Maximum rank	**parms**	**LL**	**Eigen value**	**Maximum statistic**	**5% critical Value**
0	114	-798.423	.	429.79	94.15
1	125	-704.36	0.998	241.65	68.52
2	134	-624.02	0.994	80.97	47.21
3	141	-604.50	0.716	41.93	29.68
4	146	-590.93	0.583	14.79*	15.41
5	149	-584.01	0.360	0.94	3.76
6	150	-583.54	0.0100		

Source: Author's Computation based on World Bank Database

From table 4.11, it is evident that at least there is cointegrating vector between the variables. At maximum rank 0, the null hypothesis is that there is no cointegration where the alternative hypothesis is that there is cointegration. Since the trace statistic at this point (429.79) is greater than the critical value at 5 percent level of significance (94.15), the null hypothesis is rejected. This leads to movement to maximum rank 1. At this point, the null hypothesis is that there is one

cointegration where alternative hypothesis shows that there is more than one cointegration. Since the trace statistic at this point (241.65) is greater than the critical value at 5 percent level of significance (68.52), the null hypothesis is rejected. This therefore implies that there is more than one cointegrating equation. This process continues up to maximum rank 4. At this point the null hypothesis is that there are four cointegrating equation whereas alternative hypothesis shows that there is more than four cointegrating equations. Since trace statistic (14.79) is less than critical value at 5% level of significance (15.41), null hypothesis is accepted implying that there are four cointegrating equations. To check these assertions, a model with max statistic is considered and the results are shown in table 4.12.

Table 4.12: Johansen Test for Cointegration (Max Statistic Model)

Trend: Constant				Number of observation = 31	
Sample: 1984-2014					
Maximum rank	**parms**	**LL**	**Eigen value**	**Max statistic**	**5% critical Value**
0	114	-798.428	.	188.13	39.37
1	125	-704.361	0.10	160.68	33.46
2	134	-624.023	0.10	39.05	27.07
3	141	-604.500	0.72	27.14	20.97
4	146	-590.931	0.58	13.85	14.07
5	149	-584.007	0.36	0.94	3.76
6	150	-583.535	0.03		

Source: Author's Computation based on World Bank Database

Results in table 4.12 corroborate findings in table 4.11. At maximum rank 0, the null hypothesis is that there is no cointegration while the alternative hypothesis is that there is cointegration. Since max statistic (188.13) is greater than the critical value at 5% level of significance (39.37), null hypothesis is rejected an implication that at least there is cointegration. This leads to movement to maximum rank 1. At this point, the null hypothesis is that there is one cointegration where alternative hypothesis shows that there is more than one cointegration. Since the maximum statistic at this point (160.68) is greater than the critical value at 5 percent level of significance (33.46), the null hypothesis is rejected. This therefore implies that there is more than cointegrating equation. It is at maximum rank 4 that max statistic (13.85) is less than critical value at 5 % level of statistic (13.07) which leads to acceptance of null hypothesis (four cointegrating equations). These results therefore show that the variables have long run association-ship and thus VECM framework should be adopted.

4.7 Vector Error Correction Model (VECM)

VECM framework was adopted and the results are as shown in table 4.11. Note that; **Error! Reference source not found.** is FDI inflows, **Error! Reference source not found.** is external debt service, **Error! Reference source not found.** is exchange rate, **Error! Reference source not found.** is Gross Domestic Product, **Error! Reference source not found.** is inflation rate, **Error! Reference source not found.** is gross fixed domestic investment and *ce* is error correction.

Table 4.13: Regression Results for Vector Error Correction Model

Dependent Variable : FDI Inflows (fdi)				
Method : Vector error-correction model				
Sample : 1984 – 2014				
	Coefficients	**Standard. Error.**	**z**	**P>z**
Dfdi				
_ce1 L1.	-4.121***	2.189	-1.88	0.060
Fdi				
LD.	1.258	1.838	0.680	0.494
L2D.	0.209	1.182	0.180	0.860
L3D.	-0.340	0.520	-0.650	0.513
Ext				
LD.	0.763	0.954	0.800	0.424
L2D.	0.067	0.661	0.100	0.920
L3D.	-0.720	0.566	-1.270	0.204
Exch				
LD.	26.135	19.257	1.360	0.175
L2D.	41.294***	23.623	1.750	0.080
L3D.	19.418	19.402	1.000	0.317
Gdp				
LD.	0.099***	0.059	1.690	0.092
L2D.	0.223**	0.087	2.570	0.010
L3D.	0.023	0.092	0.250	0.803
Inf				
LD.	11.219	11.231	1.000	0.318
L2D.	8.196	6.865	1.190	0.232
L3D.	7.820	4.775	1.640	0.102
Inve				
LD.	-55.378	65.275	-0.850	0.396
L2D.	-19.591	52.923	-0.370	0.711
L3D.	6.810	33.470	0.200	0.839
Constant	0.354	63.385	0.010	0.996
R-squared = 0.9071; P>chi2 = 0.0000*				

Source: Author's Computation based on World Bank Database

4.8 Interpretation of the Results

From table 4.13, *, **, *** indicates significance at 1%, 5% and 10% level of significance respectively. The results reveal that regression performed well in terms of goodness of fit and overall significance with a coefficient of determination of 0.9071 and probability value of 0.0000. The coefficient of determination means that 90.71 % of the variation in foreign direct investment inflows is explained by the explanatory variables in the model. Probability value of (0.0000) implies that the variables in the model are jointly significant in explaining foreign direct inflows at 1% level of significance.

The coefficient of the error correction term (-4.121) is negative and significant at 10 percent level of significance an implication that there is long run causality running from external debt service, exchange rate, GDP, inflation rate and gross fixed domestic investment share of GDP to foreign direct investment inflows.

The results further reveals that lag two of exchange is positive and individually significant in influencing foreign direct investment inflows at 10 percent level of significance in the short run. In addition, lag one of GDP is positive and individually significant in influencing foreign direct investment inflows at 10 percent level of significance in the short run. Further, lag two of GDP is positive and individually significant in influencing foreign direct investment at 5 percent level of significance in the short run.

The results further reveals that lag one of external debt is positive but insignificant in influencing foreign direct investment inflows.

4.9 Discussion of the Findings

The coefficient of lag one of GDP is positive and significant. The results do conform to economic theory since high GDP is a sign of vibrant economy with strong purchasing power thus attracting FDI inflows. The results are in agreement with previous studies by Abala (2014), Ostadi and Ashja (2014), Kaur and Sharma (2013) and Udo and Obiora (2006) who found a positive and significant relationship between GDP and FDI inflows.

The coefficient of lag one of the exchange rate is positive and significant. This finding do not conform to economic theory since high exchange rate makes imports expensive and therefore firms that rely on imported raw materials may find it difficult to cope with such economic situation. This finding contradicts a study by Kaur and Sharma (2013) who found a negative relationship between exchange rate and FDI inflows while investigating the determinants of foreign direct investment in India.

The coefficient of lag one of external debt service is positive but insignificant. The findings are in line with economic theory which indicates that foreign debt is good if the proceeds of such debt are invested in productive activities that can finance the debt. The results further corroborates earlier study by Abala (2014) who found a positive but insignificant relationship between external debt service and FDI inflows while investigating the determinants of FDI inflows in Kenya. This finding however, contradicts earlier studies for instance Ostadi and Ashja (2014) and Lokesha and Leelavathy (2012) who found a negative relationship between external debt service and FDI inflows.

CHAPTER FIVE

CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Introduction

This chapter presents a summary of the study and policy recommendation based on the findings of the study. The chapter is comprised of four sections namely, summary and conclusions of the study, policy implications and recommendations, limitations of the study and recommendation of areas for future research.

5.2 Summary and Conclusions

Foreign direct investment inflows are very important for any developing economy since they bridge the gap between domestic investment and domestic savings. However, many factors fall into the profit maximization function of foreign investors. One of these key factors is external debt service. Economic theory shows that increased external debt service negatively influences FDI inflows. This is because cost of doing business increases as the heavily indebted country's government may resort to raising taxes and other levies so as to raise revenue to finance the external debt and also meet other obligations.

Kenya's external debt service has shown positive trend for the last five years. In addition, country's external debt has been showing a positive trend for the last five years. Though many studies have investigated the effects of external debt and external debt service in Kenya, most of them focused on the impact of these variables on economic growth. This study therefore sought to investigate the effect of external debt service on FDI inflows in Kenya for the period running from 1980 to 2014. The author made a careful selection of the variables in addition to external debt service as guided by empirical studies in this line of study. These variables were analyzed

using econometric techniques as guided by Gujarati (2004) and other international studies in the field of study. The explanatory variables used in the study include external debt service, foreign exchange, GDP, inflation rate and gross fixed domestic investment share in GDP. The objective of the study was to estimate the effect of external debt service and the intervening variables on FDI inflows in Kenya between 1980 and 2014.

To achieve the intended objective, pre-estimation tests and stationarity tests were carried out. Augmented Dickey Fuller test was used to test for stationarity of the variables and revealed that all the variables were non stationary at levels but became stationary after first difference. This implied that the variables were integrated of order one that is I (1). This characteristics of the data informed the researcher to identify the lag length and also check for cointegration using Johansen test of cointegration. Five criteria (LR, FPE, AIC, HQIC and SBIC) for identifying lag length were used of which three out of the five recommended 6 lags. Johansen test of cointegration revealed presence of four cointegrating equations. After identification of the number of lags and cointegrating equations the study proceeded to estimation of VECM which takes into account both short run and long run causality. The coefficient of the error correction term (ECT) was negative and significant at 10 % level of significance. This therefore implied that there was long run relationship running from external debt service, exchange rate, GDP, inflation rate and gross fixed domestic investment share in GDP to FDI inflows.

The results revealed overall significance of the explanatory variables in explaining FDI inflows. The coefficient of determination showed that 90.71 percent of the variation in FDI inflows is explained by external debt service, exchange rate, GDP, inflation rate and gross fixed domestic investment share in GDP.

The findings further revealed that lag one of exchange rate to be positive individually significant at 10 percent level of significance in influencing FDI inflows in the short run. Lag one of GDP was also revealed to be positive and individually significant at 10 percent level of significance in influencing FDI inflows in the short run. Further, Lag two of GDP was also revealed to be positive and individually significant at 5 percent level of significance in influencing FDI inflows in the short run.

5.3 Policy Implications and Recommendation

The findings of this study have important policy implication for FDI inflows in Kenya. The study has revealed presence of long run relationship between external debt service, exchange rate, GDP, inflation rate and gross fixed domestic investment share in GDP and FDI inflows. However, the VECM shows that exchange rate and GDP affects FDI inflows in the short run.

Based on the study findings, the government of Kenya should focus on improving countries income since it is revealed to have a positive effect on FDI inflows. To achieve higher GDP levels, the government of Kenya should invest more growth enhancing activities for instance, infrastructure, education, healthcare, technology and also ensure political stability. The findings do not reveal short run relationship between external debt service and FDI inflows thus informing the government of Kenya to identify other factors that may influence FDI inflows for instance the ease of doing business and strong property rights.

5.4 Limitations of the Study

The major shortcoming of this study is that it failed to incorporate all the variables that influence FDI inflows as guided by other empirical studies. Failure to incorporate all variables was attributed to lack of consistently recorded data. The study also used annual data but use of

quarterly data could be much efficient in establishing the effect of the variables on the FDI inflows in Kenya.

5.5 Areas for Further Study

Future researchers ought to investigate the effect of omitted variables on FDI inflows. For instance, there is need to investigate the effect of institutional quality, property rights, corruption and ease of doing business on FDI inflows.

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