THE EFFECT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN SOUTH AFRICA

By

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DECLARATION

I, Zizipho Mihlali Mbeki (209010927), hereby declare this treatise is my own work and that it has not been previously submitted for assessment or completion for any postgraduate qualification at another university or for any other qualification. All sources that have been used have been acknowledged through the provision of a reference list.

Signature Date

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DEDICATION

I dedicate this treatise to the Almighty God, who has been my fortress and my parents, David and Busiswa Mbeki. My late grandmother, Rachel Nonkongozelo Ndandani who constantly encouraged me to continue with my studies while the opportunity still presented itself.

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ACRONYMS AND ABBREVIATIONS

C – Consumption

I – Investment

G- Government Spending

X-M- Net Exports

Y – Output

FDI – Foreign Direct Investment

SA – South Africa

OECD- Organisation for Economic Co-operation and Development

GDP – Gross Domestic Product

TFP – Total Factor Productivity

OLI – Ownership, Location, and Internalisation

MNE – Multinational Enterprise

VECM – Vector Error Correction Model

VAR – Vector Autoregressive

GLSM – General Least Squares Method

SUR – Seemingly Unrelated Regression Technique

GMM – Generalised Method of Moments

IMF – International Monetary Fund

WDI – World Development Indicators

US – United States

USA – United States of America

EU – European Union

UNCTAD – United Nations Conference on Trade and Development

ASEAN – Association of South East Asian Nations

WIR – World Investment Report

NEPAD – New Path for Africa's Development

SADC – Southern Africa Development Community

RDP – Reconstructive Development Program

UN – United Nations

GEAR – Growth Employment and Distribution

ASGISA – Accelerated and Shared Growth Initiative for South Africa

NGP – New Growth Path

NDP – National Development Plan

ODI – Overseas Development Institute

ABSA – Amalgamated Banks of South Africa

UK – United Kingdom

SARB – South African Reserve Bank

BRICS – Brazil- Russia- India- China- South Africa

LDC – Least Developed Countries

MNC – Multinational Companies

FIFA – Federation of International Football Association

DTI – Department of Trade and Industry

X- Exports

I – Imports

OLS – Ordinary Least Square

ADF – Augmented Dickey Fuller

PP – Phillips Peron

EG – Engle Granger Approach

ECM – Error Correction Model

LR – Lag Recommended

FPE – Final Prediction Error

AIC – Akaike Information Criterion

SC – Schwarz Information Criterion

HQ – Hannan – Quinn information Criterion

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CHAPTER ONE
INTRODUCTION

1.1 Introduction and Background of the study

Foreign direct investment has complex historical connections in relation to South Africa. The existence of foreign corporations in South Africa dates back to the 19th century, which was the period of colonial rule (Black and Gelb, 2004). During the colonial rule period effective exploitation of resources required large capital intensive operations which were very costly. The funding to undertake those operations came in the form of direct and portfolio investment flows from Europe, particularly London. These undertakings also played a significant role in the development of the domestic stock exchange in Johannesburg. Domestic economic growth and the re-investment of mining profits stimulated manufacturing development from the turn of the 20th century. Furthermore, FDI from the United Kingdom, United States of America and Europe was important in the establishment and growth of new industrial sectors during the five decades from the 1920s in South Africa.

The early history of FDIs in SA sheds a positive light in relation to links forged with FDIs in various sectors of the economy. However, in the early 1970's there was a decrease in the flow of foreign direct investment as a result of the political pressure foreign investors were receiving from their countries of origin. The international community spearheaded an international campaign against apartheid by disinvesting and abandoning SA markets. These acts resulted in a weak and vulnerable economy as well as political unrest. The South African government of that time was thus forced to reinforce positive changes socially and politically in order for foreign markets to reinvest in the South African economy. The apartheid government thus started by unbanning organisations and the process of constitutional negotiations took place which led to the first democratic elections of 1994. These undertakings which served as corrective measures ended the disinvestment pressures and direct and portfolio investment inflows took form again (Black and Gelb, 2004).

During the past decades, the relationship that exists between FDI and economic growth have been extensively investigated and discussed in economic literature. The investigations conducted have produced conflicting results pertaining to the relationship that exists between FDI and economic growth. Some scholars argue that a positive relationship does exist between FDI and economic growth. This notion is supported by the findings that state that foreign direct investment has the ability to stimulate technological change through the adoption of foreign technology and know-how

and subsequently result in technological spillovers. In turn the host country's economic growth levels increase. Alternatively, some scholars have conflicting views to this notion as they believe that FDI may impose negative implications for the host country. The negative effects could result in a 'crowding out' effect on domestic investments, external vulnerability and dependence, destructive competition of foreign affiliates with domestic firms, and market stealing effect due to poor absorptive capacity.

These scholars thus support the notion that a negative relationship exists between FDI and economic growth (Wan, 2010). It can thus be advocated that if FDIs boost the economy of the host country in a positive manner then it is the responsibility of the host country to encourage FDI inflows by offering infrastructure subsidies, tax incentives, import duty exemptions and other forms of incentives that will encourage FDI to invest in one's country. On the other hand, if FDI affects the economy in a negative manner, the host country is obligated to act against FDI, capital flows penetrating their markets and industries through restrictive measures and controls (Lyroudi, Papanastasiou and Vamvakidis, 2004).

South Africa strives to maintain an environment that is attractive and open for investment purposes. Foreign direct investments are thus considered to be important elements of long-term and sustainable economic growth. Due to South Africa's low savings developing economic status and its high need for domestic investment, it is necessary for South Africa to attract foreign direct investment in order to support domestic investment financing requirements (National Treasurer, 2011).

Foreign Direct Investment is defined as cross-border investments made by a resident in another economy either than that of their own. The aim is to establish long-term relationships that are based on economic interest with the direct investment enterprise. The direct investor is thus entitled to possess 10% voting power over the direct investment enterprise (OECD, 2008). In addition to this, the foreign investor is also permitted to gain access to the economy of the direct investment enterprise. With the assistance of proper policy framework, FDI's play a significant role in assisting host countries in developing local enterprises, promoting international trade through access to markets and lastly, contribute to the transfer of technology and know-how. In addition to its direct effects, FDI has an impact on the development of labour and financial markets, and influences other aspects of economic performance through its other spill-over effects (OECD, 2008).

It should be noted that FDI differs from portfolio investment. Portfolio investment is considered to be the purchase of stocks, bonds, and money market instruments by foreigners for the sole purpose of realising a financial gain. The foreign investor is thus not required to be involved in the management, ownership or any form of legal control. Any other foreign investment that does not fall under direct or portfolio investment is considered to be 'other' investments which take the form of loans, trade finance, currency and deposits and other assets with unaffiliated parties. In relation to FDI investments both foreign portfolio and 'other' investments play no management role in their investments, they merely just receive the realised returns (Sandrey, 2013).

In the last two decades the growth of foreign direct investment has accelerated at a rapid pace all over the world. This is due to the fact that many developing countries see FDI as one of the most important elements in their process of achieving sustainable economic growth and development (Ayanwale, 2007). As a result many countries are working towards improving their business climate with aim of attracting FDI inflows. It is important to note that the regulatory environment for FDI's is one of several important factors that play an influential role in the decisions made by the foreign investors regarding the location they choose to invest in. However, the effects of specific regulations on FDIs cannot be considered in isolation from the wider economic and institutional environment (National Treasury, 2011). Furthermore, FDI can also be attracted to a location due to the desire to gain access to its natural resources, geographical factors, macroeconomic and institutional environment, labour markets and quality of infrastructure, clustering effects and openness to the economy.

However, while Greenfield investment, which mainly involve the establishment of a new business and investment in new productive capacity is generally beneficial for the host economy. There are other forms of investment as well, some of which carry costs for the host economy. In particular, in the acquisition of existing domestic businesses, the benefits of foreign investment must be balanced against possible risks for local employment and production as the domestic firm is integrated into the foreign parent company or even re-domiciled, as well as broader economic concerns that may arise from a shift in ownership and control of successful local firms (National Treasury, 2011).

It is also important to note that other studies highlight that the characteristics and features of the host country play an imperative role in the absorption of the beneficial effects yielded by FDI's. Some studies stipulate that it is likely for FDIs to have differing effects on growth in countries pursuing export-promoting versus countries that promote import substituting policies. The findings highlight

that FDI has a more significant effect on growth in export promoting countries (Balasubramanyam, 1996). According to Blomstrom (1992), FDI has a noticeable significant effect on growth in countries that are considered to be higher income generating developing countries. This serves as an indication that the income threshold of a state plays an important role in ensuring that it benefits from FDIs.

1.2 Problem Statement

The effect of FDI on economic growth is not a straight jacket. Literature has shown that the effect of FDI on economic growth can be either positive or negative. The positive effects of FDI can be caused by increase in output stimulated by new technological innovations and increase in capital flows. The negative effects could result in a 'crowding out' effect on domestic investments, external vulnerability and dependence, destructive competition of foreign affiliates with domestic firms, and market stealing effect due to poor absorptive capacity.This treatise will attempt to shed light on the effect foreign direct investment has on economic growth in South Africa in order to ascertain whether a positive or negative relationship exists between these two variables.

1.3 Objectives of the study

The main objective of the study is to investigate and analyse the effect of foreign direct investment on economic growth in South Africa.

The following exercises will be carried out:

1.To establish the effects of foreign direct investments on economic growth;

2.To examine the causality between foreign direct investments and economic growth;

3.To come up with policy recommendations

1.4 Hypothesis of the study

H0: FDI enhances economic growth.

H1: FDI does not enhance economic growth

H0: FDI Granger causes economic growth

H1: FDI does not Granger causes economic growth

1.5 Significance of the study

The significance of this study is highlighted by the fact that most studies related to economic growth in Africa as a whole including South Africa focus on determinants of economic growth and the contribution aggregate investment expenditure has on economic growth. A limited number of studies

have focused on the distinction between domestic and foreign investment expenditure on long run development and economic growth (Fedderke and Romm, 2004).

This study thus aims to investigate, analyse and estimate the extent to which FDI impacts economic growth in South Africa. The findings of this research will provide policymakers, commercial businesses and scholars with relevant updated theoretical and empirical results that will assist relevant government policy makers in generating effective measures of attracting FDI if it proves to be beneficial for the host country. If the results of the study prove that FDIs do not generate positive spill over effects then the policymakers are thus obliged to formulate policies that will discourage FDIs from penetrating the host country's economy.

Research Methodology

Data will be obtained from mostly secondary sources.

1. Secondary Sources

The secondary sources of information used for the study include textbooks, journals, previous studies, the internet and other sources on the subject

1.6 Outline of the study

Chapter one will necessitate an introduction to the study, background of the study, a problem statement, research methodology and the significance of the study will form part of the information presented in the chapter. Chapter two will present a discussion on the theoretical and empirical literature review on the underlying theories of foreign direct investment and economic growth. Chapter three will present information relating to FDI inflows and economic growth in South Africa. Chapter 4 presents the theoretical information underpinning the econometric methods used for analysis purposes in the study. In addition, this chapter also provides explanations of data and variables used in the model. Chapter 5 presents the final report and interpretation of the empirical findings. Finally, chapter 6 will follow and it will be the last chapter of the research paper. This chapter will present a summary of the research findings, conclusions drawn and policy recommendations. The information provided in the policy recommendations will be useful for policy makers and the commercial business environment when making decisions related to foreign direct investment and economic growth in South Africa.

CHAPTER TWO
FDI AND ECONOMIC GROWTH TRENDS

2.1 Introduction

This chapter seeks to study the trends between FDI inflows and economic growth between the periods of 1980-2015. The first section of this chapter entails the historical overview of FDI in South Africa, this section is thus followed by the underlying determinants of FDI in SA. The determinants of FDI are categorised into three groups namely: political factors, economic factors and business facilitation. South Africa's main determinants of FDI that are under discussion include: market size, exchange rate valuation, trade openness, clustering effects, natural resource availability, labour cost and productivity, political and economic stability, infrastructure, growth prospects and tax. This section covers an imperative aspect of FDI, as FDI determinants are the underlying factors that are placed under tough analysis as they are the main factors that attract FDI in a country.

This section is followed by the global context of FDI inflows. This section covers trends that are notable in both developed and developing countries. The section on the global context of FDI flows is followed by the African context of FDI inflows. The fluctuations that have been taking place in Africa from 1980 – 2015 will be underlined. Additionally, countries which have been exceptional in attracting FDIs will be highlighted. This creates an indication of the top performing countries in relation to attracting FDIs in the midst of the visible global economic turmoil. The African context of FDI inflows is thus followed by the South African context. Trends from 1980-2015 will be highlighted and greater emphasis will be placed on South Africa as it is the main country of focus.

Finally, the section on government initiatives and policies geared towards attracting FDI inflow in SA will conclude this chapter. The government policies highlighted in the study are mainly: the Reconstructive Development Programme (RDP), Growth Employment and Redistribution (GEAR), Accelerated and Shared Growth Initiative for South Africa (ASGISA). Lastly, ASGISA will be followed by the New Growth Path (NGP) and the National Development Plan (NDP).

2.2 HISTORICAL OVERVIEW OF FDI IN SOUTH AFRICA

South Africa is regarded as one of the developing countries in the African continent. It is thus of utmost importance for the country to receive ongoing investment in order for continued growth to take place. FDI investment plays the largest role in the operation and management of the country's natural resources, which in turn leads to a boost in the country's economy. According to Asiedu (2002), the amount of investment foreign companies decide to invest in the host country is largely dependent on the returns the investors expect to realise as well as the risks that are involved. It can thus be said that South Africa's investment environment has experienced drastic changes in the past decades.

Between the 1970s and 1980s, trade and investment in South Africa was strained by sanctions and boycotts which were common due to the apartheid regime that was prevalent in those years. The poor political environment which was shadowed by the sanctions and anti-apartheid campaigns led to low levels of investment and at worst, disinvestment in South Africa. During this period, domestic investment which was concentrated on import substitution dominated in comparison to FDI (Gelb, 2002). In 1994 an improvement in the investment climate surfaced. This was due to the first democratic elections that took place which thus resulted in a stable political environment and a more open and outwardly oriented South African economy.

The manufacturing sector has attracted a number of European Union (EU) investors over the past decade, which was then followed by US and Japan investors (Hamouch and Rumney, 2005). The escalating growth in the manufacturing industry in South Africa is due to the efficiently designed and managed government policies, which particularly place great emphasis on the motor industry. With that mentioned, in 2002 the automotive sector was recognised as the third largest sector in the South African economy. These results were measured by the industry's percentage contribution to South Africa's GDP (SARB, 2011).

Between 1994 and 1999 the gas and oil industries also received a significant amount of investment from foreign companies. Furthermore, the mining sector also strengthened with financial backing provided by FDI, all these improvements led to increased levels of economic growth. From 2002 to 2010 a shift in FDI sector contribution to the economy took place. FDIs started to have a growing interest in green-field projects such as those affiliated with information technology. The FDIs change in interest regarding sector investment indicates that FDI motives are evolving from natural seeking FDIs to market and efficiency seeking FDIs (SARB, 2011).

2.3 Determinants of FDI in South Africa

A number of theories pertaining to the determinants of FDI exist. These theories aim to provide an explanation of the emergence and determinants of FDI. According to UNCTAD (1998) the host countries determinants of FDI can be categorised into three groups. Namely: political factors, economic factors and business facilitation. The scarcity of theoretical framework in relation to the determinants of FDI has led researchers to strongly depend on empirical research for the explanation on the emergence of FDI. In accordance with the discussed literature review, a number of potential determinants of FDI will be discussed in the following section. The FDI determinants that will form part of the discussion are as follows: market size, exchange rate valuation, trade openness, clustering effects, natural resource availability, labour cost and productivity, political stability, infrastructure, economic stability and growth prospects and tax.

2.3.1 Market size

According to Artige and Nicolini (2005) market size as measured by GDP or GDP per capita, proves to be the most robust FDI determinant in econometric analysis. In addition, market size is considered to be the main determinant for horizontal FDI and thus is not relevant for vertical FDI. It is common for FDIs to be attracted to countries with expanding markets and increased levels of purchasing power. This results in firms gaining higher returns on their capital investments and in turn increased levels of profit (Jordaan, 2004).

Charkrabarti (2001) further added that the market size hypothesis is in support of the notion that large markets are a necessity for efficient utilisation of resources and exploitation of economies of scale. The market size hypothesis states that as the market size increases to a critical value, an increase in the inflow of FDI starts to increase as a result of this attraction. Furthermore, the market size has been widely recognised by researchers and is used as an explanatory variable in most empirical investigations conducted on the determinants of FDI. However, there are econometric studies that point out the GDP growth rate as a significant explanatory variable, which in fact is false. This serves an indication that when the current size of national income is very small, increases might have a limited form of relevance to FDI decisions than growth performance, in relation to being an indicator of market potential (ODI, 1997).

According to Dunning and Narula (1998), countries that have a small domestic market are expected to have limited natural resources such as primary commodities, which thus means the country becomes less attractive for FDI purposes. This indicates that lack of economies of scale inhibits

foreign investment and a small sized market also suggests small levels of aggregate consumption. A small consumption capacity would then translate to the need for domestic firms to seek overseas markets in order to achieve economies of scale. In addition, it has been stated that firms are more prone to gain greater long-term profits through economies of scale and lower marginal production costs in countries which possess larger market size. The increased levels of expected profits are due to economies of scale and the market growth prospects which lead to FDI attraction (World Bank Report, 1995).

Wang and Swain (1995) classify the market size as an area for development in which both developed and developing economies can use as means of attracting FDI inflow. However, Wang and Swain also highlight that the market size may be insignificant when FDI motives of investing is mainly exploiting the host country as a production base. The FDI thus undertakes its production processes in the host country which has a cost advantage, the goods are thus exported to more competitive markets.

2.3.2 Exchange rate valuation

The economic policies of various countries may vary in relation to their currency. Some countries may be in favour of an appreciating currency while some may favour a depreciating currency depending on the country's objective. The exchange rate may either be real or nominal exchange rate. The nominal exchange rate is the rate at which an organisation or institution can engage in trading the currency of one country for the currency of another. On the other hand, the real exchange rate is the rate at which an organisation or institution can engage in trading goods and services of another country for those of another economy. Trevino (2002) argues that even though there is the existence of mixed evidence on the impact real depreciation has on the host country. It is believed that FDI may either experience a loss or gain as a result of larger buying power presented by the devaluation of the exchange rate in host countries.

Furthermore, FDI may produce goods at a cheaper cost and thus exploit profits through cheaper production costs and export large quantities of goods more easily. This feature may attract FDIs that are resource and efficiency seeking. Trevino further argues that foreign firms may be reluctant to invest in a host country that displays the continuity of depreciation in the exchange rate after they have entered it as this may imply the possibility of higher costs. Nunnenkamp (2002) holds a similar view, in that the devaluation of currency translates to reduced initial investment costs for foreign investors and in turn tends to attract more FDI.

Froot and Stein (1991) state that a weak host country currency leads to a rise in inward FDI within an imperfect capital market model, as depreciation makes host country assets less costly relative to assets in the FDI's home country. In addition, Blonigen (2005) provides a "firm-specific asset" argument to further emphasize that the depreciation of the exchange rate in host countries tends to increase FDI inflows. Alternatively, the opposing argument is that a stronger real exchange rate might be expected to strengthen and promote the incentive of domestic production by foreign companies. It can thus be said that the exchange rate is regarded as a barrier to entry in the market that could ultimately result in an increase in horizontal FDI. However, this hypothesis was not supported by many researchers in accordance to empirical literature.

Analysts argue that it is of utmost importance that caution is exercised when examining currency fluctuations between host and home countries, because the importance and significance of the changes that take place in the exchange rate can have differing effects on the countries based on the country-specific objectives and strategies. Furthermore, it is commonly known that exchange-rate fluctuations increase risks and uncertainties, thereby hindering incentives that are meant to attract investment. Kwon and Konopa (1993) further argue that unfavourable changes and fluctuations in foreign exchange rates present high risk and danger to FDI.

2.3.3 Trade openness

According to Charkrabarti (2001) mixed evidence that relates to the significance of openness exists. This evidence is measured by the ratio of exports plus imports to GDP in determining FDI. The general hypothesis states: given the fact that a number of investment projects are concentrated towards the tradable sector, a country's level of openness to international trade thus plays an imperative role in deciding which country the FDI should invest in. Jordaan (2004) states that the impact openness has on FDI heavily depends on the type of investment. It is said that trade restrictions, which therefore present less openness can have a positive effect on FDI in a market seeking environment. The reasoning behind this notion is derived from the tariff-jumping hypothesis.

The tariff jumping hypothesis states that foreign firms are motivated to put in place subsidiaries in host countries whereby importing products would prove to be difficult. On the other hand, multinational firms involved in export-orientated investments prefer an open economy for investment purposes. This is due to the fact that increased imperfections that are linked to trade protection generally indicate higher transaction costs in relation to exporting. Furthermore, ODI (1997) states that numerous surveys indicate that open economies attract more foreign investment. Researchers

such as Wheeler and Moody (1992) concluded that the tariff-jumping hypothesis is strongly applied in the manufacturing sector and produces positive results. On the other hand, a weak link to the hypothesis exists in the electronic sector.

2.3.4 Clustering effects

Numerous studies have recognised clustering effects as one of the determinants of FDI. In this regard, the clustering effect is a result of foreign firms gathering together due to similarities in projects or as a result of herding FDI stock. The clustering effect enables new investors to benefit from the spillover effects of the businesses already in existence. The existence of external scales of economies may be regarded as an additional benefit to FDI, as new investors mimic the past practices and investment decisions of previous investors in the market (Wheeler and Mody, 1992).

2.3.5 Natural resource availability

Availability of natural resources is one of the important determinants of FDI. Investors tend to choose investment locations that present a stable and cheaper supply of natural resources, raw materials and other necessary sources of energy that are transported to their base with ease (Jenkins and Thomas, 2002). It can be concluded that countries that possess natural resources and raw materials such as oil and mineral resources are seen as a main attraction by investors, as that is an indication of cheaper means of production. South Africa is also regarded as one of the countries that possess abundant natural resources.

2.3.6 Labour cost and availability

According to Charkrabarti (2001) wage as an indicator of labour cost is regarded as the most contentious of all the determinants of FDI. Cheap labour is regarded as one of the major attractions FDI identify when deciding on the location to invest in. The dependency hypothesis together with the modernisation hypothesis is in support of the effect of cheap labour in relation to FDI determinants, regardless of the different implications they represent. There are a few studies which hold that labour force has a positive determining factor on FDI (Wheeler and Mody, 1992; Kumar, 1994; Sahoo, 2006). However, Resmini (2000) did not confirm that a significant effect exists between wages and FDI, this may be due to the usage of wages that are not controlled for productivity and exchange rates (Bevan and Estrin, 2004).

2.3.7 Political stability

A stable political environment is expected to attract more forms of FDI as opposed to an unstable political environment. Stability in the political environment brings some form of security to investors. Most investors need certainty that when political changes take place, the changes will not impact their investments and businesses in a negative manner (Onyeiwu and Shrestha, 2004). Furthermore, political stability surveys of investors have highlighted that political and macroeconomic stability are primary concerns of potential FDI. However, empirical studies have displayed varied results relating to this relationship.

Wheeler and Mody (1992) hold that political risk and administrative efficiency are insignificant in the determination of the location of production of US firms. On the other hand, Root and Ahmed (1979), observed aggregate investment flows entering developing countries in the late 1960s, and Schneider and Frey (1985), used sample data that reflected similar features at a later period, they thus found that political instability has a significant effect on FDI inflows. Countries such as Nigeria and Angola are examples of high mineral countries that still attract FDI inflow regardless of the unstable political environment that emanates in these countries. The high returns gained by FDI from their extractive industries compensate for the unstable political environment (ODI, 1997).

2.3.8 Infrastructure

The availability of good infrastructure is seen as an important factor in stimulating investment and in turn attracting an inflow of FDI (Asiedu, 2002). Infrastructure entails a number of dimensions ranging from roads, ports, railways and telecommunication systems to institutional development.

Low levels of infrastructure can be regarded as a major obstacle for development in countries in need of FDI (ODI, 1997). However, in some cases foreign investors highlight the potential for attracting significant FDI if host governments allow for FDI's unrestricted involvement in the infrastructure upgrades and management. Furthermore, the expansion of new economic infrastructure and the maintenance of existing facilities are vital components of an investment climate reform strategy. In relation to South Africa, the government has displayed a great level of commitment towards the provision of significant resources needed for infrastructure development. This initiative has been undertaken with the aim of improving the quality and sustainability of capital projects, together with overall efficiency, competitiveness, and growth of the economy. The South African manufacturing industry is recognized as a world leader in specialized sectors such as railway rolling stock, machinery, synthetic fuels and mining equipment (Asiedu, 2002).

2.3.9 Economic stability and growth prospects

A country that exhibits stability in its macroeconomic conditions through high and sustained level of growth is expected to attract more FDI inflows than a country that has a more volatile economy. The proxies that are used as a measure of growth rate are: GDP growth rates, industrial production index, interest rates and inflation rates (Duran, 1999; Dassgupta and Ratha, 2000). In contradiction to this, when inflation is taken as a proxy for the level of economic stability, symptoms of fiscal or monetary control, tend to result in unbridled inflation. In relation to this, investors prefer to invest in economies that exhibit classical traits of stability and a smaller degree of uncertainty (Nonnenberg and Medonca, 2004). It can thus be concluded that GDP growth rates, industrial production index and interest rates would have a positive effect on FDI inflows and the inflation rate would influence FDI inflow in either a positive or negative manner.

2.3.10 Tax

Differing arguments exist in relation to whether FDI is influenced by tax incentives offered by the host country. Some studies have indicated that host country corporate taxes have a significant effect on FDI inflows. Other studies reveal that taxes do not display a significant effect on FDI inflow. Hartman (1994), Grubert and Mutti (1991), Hines and Rice (1994), Loree and Guisinger (1995), Cassou (1997) and Kemsley (1998) deduced that host country corporate income taxes have a significant negative effect on attracting FDI inflows. On the other hand, Root and Ahmed (1979), Lim (1983), Wheeler and Mody (1992), Jackson and Markowski (1995), Yulin and Reed (1995) and Porcano and Price (1996) deduce that taxes do not have a significant effect on FDI. Furthermore, Swenson (1994) reports a positive correlation.

2.3.11 Gross capital formation

In a transition economy, improvements in the investment climate assist in attracting higher levels of FDI inflows. This improvement in the investment climate translates to increased levels of gross capital formation which in turn results in greater economic growth. Libor Krkosa (2001) and Lipsey (2000), find limited evidence that supports the notion that FDI has an impact on capital formation in developed countries and observed that the most important aspect of FDI is connected to the change of ownership. According to (Libor Krkoska, 2001), the relationship that exists between FDI and capital formation is not a simple one. In some cases of privatisation, the result may not lead to an increase or even a reduction in gross capital formation. It can thus be said that there is an unclear relationship between FDI and capital formation which can be present in a transition economy. However, results of a positive or negative and significant relationship between FDI and capital formation are upon expectation.

2.4 Global Context of FDI Inflows

Global FDI inflows between developing and developed countries are known to fluctuate over time. Nevertheless, developed countries were recognised as more fortunate as they attracted more FDI inflows than developing countries since the early 1980's, but studies show that large FDI inflows to developed countries have decreased gradually over time. In addition, during 1982-1986 developed countries' share of global FDI inflow was estimated at 70 percent, while the more disadvantaged, developing countries received a 30 percent share (WIR, 1995).

In 1994 both developed and developing countries experienced major changes, whereby the share of FDI inflow dropped to 60 percent in developed countries and developing countries received a 40 percent increase. Between 1993 and 1994 FDI inflows to developing and emerging economies gradually increased by US$125 billion in 1993 and US$135 billion in 1994. This increase in FDI inflow was a result of an increase in privatisation across regions (WIR 1995). Furthermore, FDI inflows to developing and emerging economies continued to increase to US$865 billion between 1994 and 1999. In the year 2000, these economies experienced a dramatic increase of US$1.3 trillion. From 2001 to 2003 FDI inflows to developing and emerging economies began to exhibit a downward slope in income streams. The drop in FDI inflow was recorded as US$853 billion in 2001, US$651 billion in 2002 and US$635 billion in 2003 (WIR, 2004).

In the midst of all these fluctuations, FDI inflows directed towards emerging and developing economies began to steadily increase. The increase was recorded as US$648 billion in 2004 and US$916 billion in 2005. These increases in FDI inflow were a result of a rise in cross-border mergers, acquisitions and the active involvement of companies (WIR, 2006). According to WIR (2006) the UK and Asian countries were reported as the countries that received the highest FDI inflows in 2005-2006 respectively. Furthermore, Asia attracted more FDI inflows through a number of policy changes that took place at national and regional levels. Such policy changes included the 2010 free trade agreement. In addition, these free trade agreements met the approval of the United States of America and the Association of South East Asian Nations and were successfully signed off (ASEAN) (WIR, 2006).

The fluctuations in FDI inflow started again in 2007 to 2011. FDI inflows were noted at US$1.097 billion which then declined to $1.038 billion in 2008, the decrease was recorded as -5.4 percent decrease. The year 2009 was recognised as a year of recovery with FDI inflows reaching US$1. 184 billion in 2009 and US$1. 231 billion in 2010 (WIR, 2011).

In 2014, global foreign direct investment inflows experienced a 16% decline which was estimated at a value of US$1. 23 trillion, which thus declined from $1.47 trillion in 2013. This decrease was a result of the fragile global economy, which was still recovering from the global financial crisis. In addition, uncertainties in policies, geopolitical risks and disinvestments in the United States played a major role in the decline of African FDI inflows. In the midst of all these economic uncertainties, China became the largest recipient of FDI inflow. However, According to UNCTAD 2015, an increase in FDI flows is expected in 2015, 2016 and 2017.

The anticipated FDI flows are estimated to be US$1.4 trillion in 2015, US$1.5 trillion in 2016 and US$1.7 trillion in 2017. These anticipated growth prospects are encouraged by the demand-stimulating effects which are a result of lower prices of oil, accommodating monetary policy framework, liberalization in investments and promotion measures. However, numerous political and economic risks such as escalating uncertainty emanating from the Euro zone, geopolitical uprisings and emerging economy's persistent state of vulnerability pose a threat to the realisation of these forecasts (WIR, 2015).

2.5 African Context of FDI Inflows

In the last two decades FDI has seen staggering growth worldwide. This is due to the important role it is believed to play in the economic development of African countries (Ayanwale, 2007). However, the African continent experienced fluctuations in relation to the flow of FDI stock entering African countries. During the period of 1980-2000, Africa experienced a noticeable decline in FDI stock. The decrease in FDI inflow decreased from 5.3 percent in 1980 to about 2.3 percent in 2000. After 2000, FDI inflows started to show some progress as there was a considerable amount of FDI inflow coming into Africa. However, despite the fact that FDI inflows had increased in Africa in comparison to the global scale, Africa’s share in global FDI inflow remained very low (UNCTAD, 2010). African countries thus saw the importance of creating a favourable business climate in order to attract larger flows of FDI. The New Path for Africa’s Development (NEPAD) was one of the initiatives created with the aim of attracting more FDI, which would thus assist Africa in being recognised as a desirable investment location in global markets (Funke and Nsouli, 2003). In 2006 there were further improvements in Africa’s means to attract sustainable FDI inflows. An estimated number of about 40 African countries conducted the introduction of 57 new measures that would affect FDI, 49 of these measures promoted the mobilisation of inward FDI (UNCTAD, 2007). These initiatives seem to have achieved fruitful results as the visible increase in FDI largely reflected in the rising levels of

economic growth and strong corporate performance results around the world serve as evidence (UNCTAD, 2008).

In developing countries, 30% of the total FDI inflows were reinvested as a result of profits earned by the MNCs in developing countries. Africa experienced noticeably large increases in FDI inflows from $18 billion in 2004 to $36 billion in 2006. The increase in FDI inflow was a result of increased interest in natural resources, improvement in the business environment and improved prospects for high-profit earnings. In 2005 a large increase of 182 per cent took place in Africa. From this dramatic increase, South Africa accounted for 21 percent. This was a result of the acquisition of ABSA in South Africa by the UK Barclays Bank (WIR, 2006).

However, the least developed African countries which accounted for 34 countries received very limited amount of FDI inflow during 2005. The country that received the highest FDI inflow was South Africa followed by Egypt and Nigeria. A majority of the FDI flows were invested into natural resources, oil being the most dominant. However, the service sector such as banking were also regarded as areas of prominence. Six oil producing African countries namely: Algeria, Nigeria, Sudan, Egypt, Chad and Equatorial Guinea are the countries that received $15 billion worth of FDI which represents about 48 percent of FDI inflows that entered the region during 2005.

During 2005 the manufacturing sector proved to attract very little attention from FDI. However, South Africa seemed to be more favourable to investors as automotive transnational corporations were set up for export-oriented production facilities. Conversely, factors such as fragmented markets, poor levels of infrastructure development and lack of skilled workforce, played a role in the ending of quotas which were established under the Multifibre Arrangement. Furthermore, these weaknesses led to disinvestments in countries such as Lesotho (UNCTAD, 2006).

During 2008, FDI inflows into Africa increased but this positive phenomenon was short lived as a subsequent decline in FDI flows took place due to the global financial crisis. After almost a 10 year period of growth, Africa's FDI inflows experienced a sharp fall from a peak level of US$72 billion in 2008 to $59 billion in 2009, this was thus recorded as a 19 percent decrease in comparison to 2008 (UNCTAD, 2010b). The 2009 FDI inflow decline was estimated at US$1114.2 billion (UNCTAD, 2010a). In 2010 African FDI inflows amounted to US$55 billion, 30 percent of these flows were transferred to North Africa and 27.5 percent was directed to Southern Africa. Most of the FDI inflows were directed towards oil producing economies such as Nigeria, Libya, Algeria, Egypt,

Angola and Ghana. In 2012 FDI inflows continued to increase from US$4.5 billion to a peak high $8.1 billion in 2013. This increase was mainly sparked by FDI's attraction to infrastructure development. This increase saw South Africa being recognised as the top country to receive the most FDI inflow. South Africa was thus followed by Mozambique, Nigeria, Egypt and Morocco. In the same light, South Africa's FDI's outflows nearly doubled from 2012-2013, to $2.9 billion and R5.6 billion respectively. The large increase in South Africa's FDI outflows was attributed to investments in telecommunications, retail and mining. South Africa as the biggest investor was followed by Angola, Nigeria, Sudan and Liberia (UNCTAD, 2013).

During 2014, Africa's FDI flow dropped by 3%, this decrease is estimated at approximately US$55 billion. The major cause for the 2014 African FDI inflow decrease is attributed to North Africa's drastic decrease in FDI flow. North Africa experienced a 17% FDI decline, which is estimated at US$12.5 billion. The FDI inflow decline was a result of the ongoing civil unrest in Libya which thus had a negative impact on the country's attractiveness to serve as an FDI host country. In addition, during 2014 Mozambique played a significant role in sustaining the already vulnerable FDI inflows. This was achieved through its prominence as potentially being the world's largest liquefied natural gas exporters. However, even in the event of large FDI inflows entering Mozambique, Sub-Saharan Africa's position remained stronger, as a 5 percent increase resulted in FDI inflows amounting to $42 billion (UNCTAD, 2015).

In 2015, Africa's FDI inflow remained at a stable position of US$54 billion. However, some African countries did experience some negative declines due to unanticipated occurrences. West Africa experienced a blow when it was hit by the Ebola virus, this resulted in a 10 percent decline and FDI inflows thus amounted to US$13 billion. Southern Africa's FDI inflow levels also dropped by 2 percent resulting in an overall estimation of US$11 billion worth of FDI. Central Africa and East Africa experienced FDI inflow increases of 33 percent and 11 percent, thus overall FDI amounting to US$12 billion and US$7 billion, respectively (WIR, 2015).

FDI growth has proved to be significant over the years. However, it is worth noting that Africa could yield greater FDI growth rates if particular barriers that pose as a blockade to attracting large flows of FDI from entering Africa are reviewed. Tariff barriers within numerous regional economic communities on the African continent such as the SADC had considerably reached decreasing levels. It can thus be noted that non-tariff barriers remain a considerably important growth impediment in

relation to Africa. Furthermore, cross-border investment and intra-regional trade are also included and remain at relatively low levels in Africa (WIR, 2014**).**

2.6 South African Context of FDI Inflows

During the 1970's, international trade was more dominant and was growing at a faster pace than FDI. It can thus be said that by far international trade was considered the most powerful economic activity of that time. However, a radical transition took place in the mid-1980s, FDI started to boom at a rather rapid pace. This boom was strengthened by the benefits attached to FDIs such as technological diffusion, skills transfer, and the establishment of marketing and procuring networks for efficient production processes and international market sales (Urata, 1998).

Foreign Direct Investment played a crucial role in the development of South Africa's economy. FDI is thus believed to have the ability to address the saving deficiency that has emanated in South Africa as a result of the low levels of the saving rate. Increased levels of savings thus lead to better prospects of economic growth. Studies on FDI shed light on the importance of the effect technological advancement and skills transfer has on the economic environment of the host country. Furthermore, FDI is said to represent a source of foreign exchange inflows that play a role towards strengthening South Africa's international reserves. Market analysts have stated that higher levels of FDI have the potential to stage the removal of capital controls. It thus perceived that FDI has the ability to act as a catalyst for investment and not just economic growth but economic development, which thus refers to a more holistic form of growth (Borensztein, de Gregorio, and Lee (1995).

South Africa has tried to maintain FDI inflows by means of creating policies which are aimed at attracting FDIs and having an open economy which is ready for fruitful investment purposes. However, despite South Africa's overall improvement in macroeconomic policies, availability of natural resources, flexibility in investment climate and increased market size, FDI inflow has remained low. Since the 1980's FDI has increased at a fairly slow pace in comparison to other emerging economies. During 1980 to 1994 FDI experienced fluctuations below R33 million, this was due to South Africa's unstable political climate which was a result of the apartheid regime which led to disinvestments and sanctions in South Africa (Business Map, 2002).

Furthermore, Arvanitis (2006) argues that the declining FDI levels in South Africa in the 1980s and 1990s were due to the unfavourable political and economic environment. This period of decline was characterised by trade and financial sanctions, the tightening of capital controls, the financial crisis,

and the declaration of a moratorium on payments to external creditors, which thus subsequently led to South Africa's isolation from the global financial markets.

The end of the apartheid regime and the introduction of democracy came with positive changes as gradual FDI increases began to take place. FDI increased from R33 million in 1994 to R1.3 billion in 1995 and R3.5 billion in 1996 (Business Map, 2002). The year 1996 came with the introduction of the Growth, Employment and Redistribution Strategy (1996) which was introduced as means of engendering growth. In 1997 a drastic increase of R17.6 billion FDI inflow took place, this dramatic increase was a result of the partial privatisation of Telkom and South African Airlines (Thomas and Leap, 2005).

Furthermore, sub-Saharan Africa has shown interest in South African firms since 1994. This was followed by an 18 percent annual growth in South Africa's direct investment assets from 1995-2001 (SARB, 2001, 2003). FDI inflows began to decrease to R944 million in 2002 and R824 million in 2003 respectively. In 2004 FDI inflows experienced a modest recovery of R5.1 billion, this increase was followed by an even larger rise amounting to R39.7 billion in 2005. This massive increase in the value of FDI inflow was due to the ABSA (SA) acquisition deal with Barclays (UK) that brought in R33 billion through FDI methods (WIR, 2011).

In 2006, FDI inflow hit a turn as it decreased to a negative at –R3-4 million. In preceding years it later increased at fluctuating levels. In 2007 FDI inflows amounted to R7.1 billion, R6.3 billion in 2008 and further increased to R7.2 billion in 2009. The 2009 increase was a result of the 2010 FIFA world cup. In 2010 FDI inflow progressed to a further increase of R10.2 billion. This increase in FDI inflows was a result of South Africa's integration into BRICS (Brazil-Russia-India-China-South Africa) initiative (SARB, 2011).

South Africa has been able to cause a significant FDI recovery in the sub-Saharan African region although FDI remains at relatively low levels in proportion to South Africa's annual GDP. This recovery is justified by the increase from US$29 billion in 2010 to US$37 billion in 2011. It can also be said that South Africa is considered the largest originator of FDI in the African continent. Besides India and China, South Africa was regarded the largest investor in LDCs among developing economies as it had invested US$2.3 billion worth of FDI in 27 projects (UNCTAD, 2012). However, three transactions were highlighted as the biggest transactions in South Africa and are as follows: Sasol Petroleum International invested US$1.8 billion into Mozambique's natural gas

industry, Harmony gold mining further invested US$3 billion and US$1.2 billion was invested towards the commercial and industrial building construction which was located in Mauritius (UNCTAD, 2012).

A historical analysis indicates that although South Africa is the biggest economy, Mozambique proved to be FDIs highest attraction in recent years. Mozambique's FDI inflow increased from US$4.4 million in 1980 to US$5.2 billion in 2012, which is 28% of the region's total FDI inflows. South Africa followed as the second largest recipient of FDI inflow, which was then followed by Democratic Republic of Congo and Tanzania. These countries accounted for 24%, 18% and 9% of the region's FDI inflows respectively. Notably, the countries that specialise in oil and mineral production remain the top FDI inflow recipients (UNCTAD, 2013).

In 2013 a significant increase in FDI inflow that was worth R80 billion took place. This increase in FDI inflow was short lived as it was preceded by a decrease in 2013 resulting in FDI inflow amounting to R62 million. In addition, FDI inflow in 2014 and 2015 was US$5,712 billion and US$3.31 billion respectively. Most of the FDI inflows received between 2013 and 2014 were invested in the telecommunications sector. South Africa was rated the 15th most attractive economy for transnational companies during 2013-2014.

The year 2015 came with changes as South Africa regressed and ultimately ended up losing six places as it was placed 43rd out of 189 countries in the 2015 Doing Business Report which was issued by the World Bank. The lower ranking was attributed to shortfalls such as: shortages in electricity supply, incomptetencies in logistics and industrial strikes which hindered effective production processes. Amongst others, these shortcomings proved discouraging to investors in viewing South Africa as the best FDI inflow destination (UNCTAD, 2014). Furthermore, the FDI inflow figure was estimated at US$3.31 billion from January 2015 to July 2015 (DTI, 2015)

South Africa does present attractive advantages to FDI investors as it possess a large free-market economy which encourages Foreign Direct Investment in both the public and private sectors. Positive attributes that play a role in attracting FDI inflow include transparency in the regulatory framework, presence of a large market size, availability of raw materials, developed infrastructure and sound political stability (IMF, 2011). Furthermore, SA took measures that led to economic reforms, which thus resulted in a stable macro economy, tax and custom reductions and an active stock exchange. In addition to that, the production and financial services sector have boomed and are considered the country's most dominant GDP contributors. Tourism and the retail sector also exude promising growth (UNCTAD,

2014). Furthermore, the FDI inflow figure is estimated at US$3.31 billion from January 2015 to July 2015 (DTI, 2015)

Table: 2.1: FDI Inflow Figures 2012-2014

Foreign Direct Investment	2012	2013	2014
FDI Inward Flow *(million USD)*	4,559	8,300	5,712
FDI Stock *(million USD)*	163,510	152,123	145,384
Number of Greenfield Investments***	161	152	121
FDI Inwards *(in % of GFCF****)*	6.1	11.3	8.1
FDI Stock *(in % of GDP)*	41.1	41.5	41.5

Source: UNCTAD - 2014.

The table above indicates that from 2012 to 2014 fluctuations were present in FDI inward flow. There was a significant increase in FDI inflow from 2012 to 2013 of $4,559 to $8,300 respectively, this was followed by a decrease and FDI inward inflow amounted to $5,712 in 2014. FDI stock amounted to $163, 510 in 2012 then decreased to $152,123 in 2013 which was then followed by a further decrease to $145,384. In addition, the number of Greenfield investments declined from 2012 to 2014. In 2012 the figure was 161 which decreased to 152 in 2013 then to 121 in 2014. FDI inwards in % of GFCF started off at 6.1% in 2012, then increased to 11.3% in 2013 which dropped to 8.1% in 2014. Lastly, FDI stock in % of GDP was 41.1% in 2012, a slight increase took place in 2013 resulting in a new value of 41.5%. No movement in FDI stock in % of GDP took place in 2014 and thus remained at 41.5%.

2.7 Government initiatives and Policies geared towards attracting FDI inflows in SA

Introduction

This section will focus on the different government initiative and policies that have been adopted with the aim of attracting FDI inflow. The following are the main policies of action that were

designed in line with economic growth objectives. They are namely: Reconstructive and Development Programme (RDP), Growth Employment and Redistribution (GEAR), Accelerated and Shared Growth Initiative for South Africa (ASGISA). In addition, the most recent of these policies is the New Growth Path (NGP) and the National Development Plan (NDP).

2.7.1 RDP

Preceding the 1994 democratic elections, the newly elected government gathered with the aim compiling policies that would play a transformational role to South Africa's economy. The Reconstruction and Development Programme (RDP) was amongst the first policies implemented by the democratic government. RDP is thus defined as an integrated, socio-economic development policy framework that aims to achieve greater equality through the mobilisation of South Africans and the country's resources towards the final eradication of racial segregation, sexist environment and in so doing thus build a democratic country that is free for all (Government of South Africa, 2011). Some of the interventions encompassed by the RDP programme include: fiscal spending audits, reduced government borrowing, tax reduction, trade liberalisation focused on extending social services to previously disadvantaged individuals through infrastructure programmes (UN, 2011).

2.7.2 GEAR

In 1996 the Growth Employment and Redistribution (GEAR) policy framework was introduced to replace the RDP. GEAR aimed to achieve sustainable annual real GDP growth that measured at 6% or more by 2000. In addition to that, GEAR aims to create 400,000 new jobs on an annual basis (UN, 2011). These objectives were to be achieved through strategies such as: macroeconomic stabilisation, trade and financial liberalisation which serves as a panacea to fostering economic growth (Ncube, Shimeles and Verdier-Chouchane, 2012).

The GEAR policy advocates that in order to achieve sustainable economic development, the private sector should be in the forefront of that process. Furthermore, the state should play a secondary role to the economy and thus allow the private sector free reign in the process of achieving higher levels of economic growth. This was to be achieved through encouraging privatisation of state-owned assets, decreases in government spending, international competition and encouragement of an export-orientated economy. In addition, GEAR policy supported the relaxing of exchange controls and prioritization of social service delivery budgets and municipality infrastructure programmes in order to satisfy the basic needs of the poor. Concurrently, these social services that didn't benefit all the citizens that were in need, such as social assistance grants also were at the brink of being cut short or eliminated entirely under this policy. The national government was thus responsible for laying out

priorities and allocating funds to social and sector policy agendas (Meyer, 2000; Bond, 2000; Van der Walt, 2000; Marais, 2001). “Growth through redistribution” was to be replaced by “redistribution through growth”. This approach envisioned the poverty problem being eradicated through increased levels of growth and the “trickle-down” effect.

It is worth noting that the distribution of income is of secondary importance in the GEAR strategy. The trickle down approach thus advocates that job creation should be at the forefront in transmitting the additional revenue that is generated as a result of high economic growth rates to the poor (Terreblanche, 2003, McKinley, 1997).

The most underlying difference between RDP and GEAR is that RDP advocated the implementation of a people-orientated development approach. On the other hand, the GEAR strategy aimed for a dramatic increase in private capital accumulation which would in turn lead to high levels of economic growth. The government was thus required to refrain from economic intervention and thus allow the private sector to play a more domineering role in economic activity. The government was expected to create a fruitful investment climate for investors with the aim of attracting large flows of investment (Terreblanch, 1999).

The UN (2011) brought forth arguments that GEAR had succeeded in some areas but had failed to deliver in other areas of implementation. This view was supported by the fact that GEAR succeeded in achieving sound financial discipline and macroeconomic stability, yet in the same light failed to increase job employment in the formal sector and achieve even distribution of wealth. Furthermore the GEAR strategy failed to meet the anticipated GDP growth targets as well as pulling in promising FDI inflows. The failures encountered by GEAR compelled the government to replace it with a new macroeconomic policy in 2006. The new policy was named the Accelerated and Shared Growth Initiative for South Africa (ASGISA). ASGISA’s mandate was to assist South Africa in growth acceleration and ensure rising levels of living standards for South Africa’s majority (Government of South Africa, 2006).

2.7.3 NGP and NDP

ASGISA was later replaced by the New Growth Path (NGP) and National Development Plan (NDP). The NGP is a policy that aims to identify structural impediments that hinder South Africa’s economy from achieving faster economic growth. In addition, the NGP also makes recommendations in relation to promoting economic growth through job creation. NGP thus aims to provide 5 million

jobs by 2020 through means of identifying and targeting sectors that present fruitful opportunities for increasing employment growth which are identified as "job drivers". The targeted rate at which NGP hopes to see the economy grow by is between 4% and 7% per annum (Government of South Africa, 2010). On the other hand, the NDP encompasses the ideals and objectives of the NGP. The timeframe is much longer than NGP as it extends to 2030. Both the NGP and NDP display similar characteristics, as both promote faster levels of economic growth as well as increased levels of job creation by means of government intervention.

Government would thus tackle these objectives through means such as: infrastructure investment, microeconomic reforms that aim to lower business costs, equitable and competitive wage structures and unblocking investment constraints that hinder efficiency in certain sectors of the economy (Government of South Africa, 2011).

SUMMARY

This chapter provided insight on the trends bwtween FDI inflows and economic growth in South Africa, with a timeline starting from 1980-2015. This section was followed by a historical overview of FDI in South Africa, which thus gave a better understanding of when and how FDI started playing a pivotal role in South Africa's economy. A thorough explaination on the underlying determinants of FDI in South Africa which are regarded as crucial factors in attracting FDI was provided. This section was followed by the global context of FDI inflows, which covered notable trends in both developed and developing countries. More emphasis was placed on Africa and South Africa as South Africa is the main country of focus. Finally, chapter two was concluded by shedding light on government policies and initiatives that were implemented with the aim of attracting FDI inflows in South Africa.

CHAPTER THREE
LITERATURE REVIEW

3.1 Literature Review

This section reviews both theoretical and empirical literature regarding the link between FDI and economic growth. Important economic theories will be discussed in relation to the relationship these theories have with FDI and economic growth. Due to the vast information that researchers examine, different scholars have different views regarding the relationship that exists between FDI and economic growth. The study will outline the scholars that prove that a positive relationship exists between FDI and economic growth and those that state that the relationship between FDI and economic growth is in fact negative.

3.2 Theoretical Literature Review

This chapter provides important theoretical literature pertaining to economic growth and foreign direct investment. The Keynesian growth theory, Harrod-Dommar growth model, Neoclassical growth theory and the New Endogenous growth theory are theories that will be discussed under the main economic growth theories that have been in existence for a number of years and are used when investigating and analysing various topics pertaining to economics, growth and development of regions, states and the world. These theories provide literature that elaborates on the role savings and investments play in the industrial development of economies. In addition, theories linked to foreign direct investment will also be discussed in detail.

The underlying theories are namely: Microeconomic and macroeconomic theories. Microeconomic theories focus mainly on the characteristics of the firm and plays an influential role in the decision-making process. Examples of microeconomic theories include market imperfections, market power and investment location theories. The Macroeconomic theories are the second category of FDI theories and they analyse a country's characteristics which provide an explanation of FDI inflows within and across countries. The Dunning's eclectic theory and the Hymer's industrial organisation theory are examples of microeconomic theories that will be discussed in this paper.

3.2.1 Harrod-Domar Model

The Harrod-Domar model was developed independently by Sir Roy Harrod in 1939 and was improved by Evsey Domar in 1946. Harrod-Domar growth model represents the Keynesian economics school of thought and advocates that the rate of economic growth in an economy is dependent on the level of saving and capital output ratio.

Higher level of savings enables government to provide funds for firms to borrow and thus use borrowed funds for investment purposes. A rise in investment causes an increase in the capital stock of the economy and in turn generates economic growth through increased production of goods and services. The capital output ratio is used to measure the productivity of investments. A decrease in capital output ratio indicates increased levels of productivity in the economy. This therefore means that a higher amount of output is generated by fewer inputs. This inverse relationship between capital inputs and outputs leads to higher levels of economic growth. This is the formulae that is used under Harrod domar theory and represents growth which is denoted as (Y).

Rate of growth (Y) = Savings (s) / capital output ratio (k)

The Harrod domar model is mainly used in development economics as it suggests that developing countries should be directed towards promoting savings and technological advancements. This will lead to a decrease in the economy's capital output ratio and in so doing, increase levels of economic growth. It can be said that the Harrod Domar model provides a framework for economic development and has influenced government policies of developing economies in a positive manner, such as India's Five Year Plan (1951-1956).

The model concludes that an economy does not naturally find full employment and stable growth rates (Cheung, n/a).

Furthermore, Harrod Domar introduced the three concepts of growth namely: warranted growth, natural growth and actual growth. According to Harrod (1939), the warranted growth rate is defined as the growth rate that promotes investment, such that investments and saving reach the equilibrium point and full utilisation of capital stock takes place. Thus desired expenditure equals output, that is denoted as g = gw. This thus forms the basis for economic agents and entrepreneurs to continue investing with the ultimate goal of creating economic growth. In a situation where the desired level of saving is not equal to the desired level of investment ($g \neq gw$), the output growth rate will translate into a recessionary or an inflationary gap.

Natural growth rate is the rate that maintains full employment. Between 1900-1978 Robert Solow (1956) criticised the Harrod-Domar model by identifying its assumption of fixed proportions of labour and capital as the cause of an equilibrium growth that balances on a knife's edge (Solow 1956). Failure of the Harrod-Domar growth model in achieving steady growth at its potential level gave rise to the introduction of other growth models that allowed the substitution of economic variables, such as the neoclassical growth model and the new endogenous growth model

3.2.2 Neoclassical Growth Theory

The neoclassical growth theory was developed in the late 1950s and 1960s, it came about as a result of intensive research in the field of growth economics. Robert Solow, who won the Noble Prize in Economics and J.E. Meade are responsible for developing the neoclassical theory of growth. This theory highlights the importance of capital accumulation, and its related decision of saving as a crucial determinant of economic growth. The neoclassical growth model considered two-factor production functions with capital and labour as the underlying determinants of output. Furthermore, the model added the exogenously determined factor, technology to the production function. The assumption that states that technology levels of availability are the same throughout the world met criticism by Stonier and Hague (1975). The two authors argue that technology in the model is tradable in a perfectly competitive market where it is freely available and is endogenously determined for long-run economic growth.

The neoclassical growth theory denotes the production function as follows:

$Y = AF (K, L) \ldots$ (i)

Where Y is Gross Domestic Product (GDP), K is the stock of capital, L is the amount of unskilled labour and A is exogenously determined level of technology. Note that change in technology, will cause a shift in the production function. There are two ways in which technology parameter A is incorporated in the production function. One popular way of incorporating the technology parameter in the production function is to assume that technology is labour augmenting and accordingly the production function is written as

$Y= F (K, AL) \ldots$ (ii)

Note that labour-augmenting technological change implies that it increases productivity of labour.

The second important way of incorporating the technology factor in the production function is to assume that technological progress augments all factors (both capital and labour in the production function) and not just augmenting labour. It is thus in this way that the production function equation is denoted (i) above. To repeat in this approach the production function is written as

$Y-AF (K, L)$

Considering in this way A represents total factor productivity, which is the productivity of both factor inputs. When we empirically estimate the production function specified in this way, then

contribution of A to the growth in total output is called Solow residual which means that total factor productivity really measures the increase in output which is not accounted for by changes in factors of production, capital and labour. (Mankiw, 2003)

Unlike the fixed proportion production function of Harrod-Domar model of economic growth, neoclassical growth model uses variable proportion production function where it considers the unlimited possibilities of substitution between capital and labour in the production process.

That is the reason behind the model being called neoclassical growth model, the earlier neoclassical model considered such a variable as the proportion production function. The second important departure made by neoclassical growth theory from Harrod-Domar growth model is that it assumes that planned investments and savings are always equal because of immediate adjustments in price (including interest). With the above-mentioned assumptions it can be said that the neoclassical growth theory focuses its attention on supply side factors such as capital and technology. These factors of production are instrumental in determining the country's rate of economic growth. Therefore, unlike Harrod-Domar growth model, it does not consider aggregate demand for goods limiting economic growth. Therefore, it is called 'classical' along with 'neo'.

The growth of output in neoclassical model is achieved in the short run as a result of higher rate of saving and capital formation. However, diminishing returns to capital serve as a limiting factor to economic growth in this model. Though the neoclassical growth model assumes constant returns to scale which exhibits diminishing returns to capital and labour separately Solow (1956).

Another assumption of the neoclassical model is that technology is exogenously determined. However, the notion that its level of availability is the same throughout the world has been criticised by Stonier and Hague (1975), who argue that technology in the model is tradable in a perfectly competitive market where it is freely available and is endogenously determined for long-run economic growth.

Criticism directed at the neoclassical growth model gave rise to the introduction of the endogenous growth theory. The assumption of perfect competition assumes that the point of equilibrium will be reached, ensuring markets allocate resources to its maximum capacity. When markets fail to clear, uncertainty emerges and results in imperfect information. This thus causes instability in expectations and accrues in the market as investment plants face scaling down effects. The changes that take place in the investment plants have a negative impact on economic growth.

The new endogenous growth theory was developed with the aim of overcoming the problems associated with the neoclassical growth theory. A discussion on the new endogenous theory will follow in the subsequent section.

3.3 New Endogenous Growth Theory

The endogenous growth theory is defined as long run economic growth at a rate that is determined by forces within the economic system. These forces are those that govern opportunities and incentives with the aim of creating technological knowledge. The long-run economic growth rate is measured by using the growth rate of output per person. The growth rate of output per person is thus dependent on the rate of growth of total factor productivity in turn the TFP is also determined by rate of technological progress.

The AK theory which was created by Frankel (1962) is regarded as the earliest version of the endogenous growth theory. The endogenous growth theory under AK theory did not make a clear distinction between capital accumulation and technological progress. Instead the AK theory combined physical and human capital whose effects are under the neoclassical study, together with the intellectual capital that is accumulated when innovation takes form. According to Frankel (1962), aggregate production function can exhibit a constant or increasing marginal product of capital. This takes place when capital accumulation takes place, part of the increased capital will fall under intellectual capital that results in technological progress. The occurrence of technological progress will lead to diminishing marginal product of capital. However, special cases do exist where marginal product of capital is positive, this thus means aggregate output denoted as Y is proportional to the aggregate stock of capital which is denoted as K: **Y ¼ AK ð1Þ.** A is the positive constant; hence it is named the ‘AK theory’ constant.

The AK theory was later overshadowed by the innovation–based growth theory. The innovation-based growth theory stipulates that intellectual capital, which is also regarded as the source of technological progress is distinct from physical and human capital. Furthermore, physical and human capital is attained through savings and schooling, while on the other hand, intellectual capital is a result of innovation.

Romer (1990) initiated a version of the innovation-based growth theory. According to Romer (1990), aggregate productivity is an increasing function of the degree of product variety. This theory suggests that productivity growth is generated by innovation through the creation of new, but not necessarily improved variety of products. The innovation–based theory uses the Dixit – Stiglitz –

Either production function, whereby the final product is produced by the use of labour and intermediate products. The Dixit – Stiglit - Either production is denoted as follows:

Y ¼ L1_a

L is the aggregate supply of labour which is assumed to be constant, x (i) is the intermediate product's flow of input and A is the measure of different intermediate products that are made available for use. Intuitively, an increase in product variety, as measured by A, increases productivity by giving society the liberty to spread its intermediate production more thinly across a larger number of activities, each of which is subject to diminishing returns and thus exhibits a higher average product when operated under lower intensity.

The third version of the innovation-based growth theory is the Schumpeterian theory developed by Aghion and Howitt (1992) and Grossman and Helpman (1991). The earlier models of the Schumpeterian theory were developed by Segerstrom, Anan and Dinopoulos, 1990, and Corriveau, 1991. Schumpeterian theory is concerned with the quality-improving innovations that render old products obsolete, via the process termed creative destruction. The Schumpeterian theory also states that output is produced by a continuum of intermediate products.

Furthermore, the endogenous growth theory challenges the view of neoclassical theory, which assumes that the technological rate of progress is determined by means of scientific methods that are independent economic forces. The neoclassical theory is thus implying that the long-run growth rate is an exogenous factor that is not within the economic system (Solow and Swan, 1956).

Endogenous growth challenges these neoclassical assumptions by stating that technological progress is likely to be influenced by economic forces. The neoclassical theory further substantiates this statement by stating that technological progress can be achieved through applying innovation in the production processes of new products, many of which are borne from economic activities.

3.4 Dunning's Eclectic Theory

The OLI or Eclectic model was introduced in 1976 by John Dunning and improved numerous times since 1988 and 1993. The Eclectic theory is useful in separating the international business studies from international economics and trade theory. Additionally the model may assist in the development of global strategy (Tallman, 2003). Dunning (1977) states that the Eclectic model places emphasis on the study of multinational firms rather than individual firm decisions. However, the model does avail

a framework of normative and descriptive studies of individual firms. The shift in emphasis brought about a refreshing insight to international business study and also contributed a considerable amount of value to developing theory in strategic management and other spheres of business. However, this diverse approach cannot be regarded as a formal theory that can be used with data for scientific purposes, but it is very useful in categorizing recent analytical and empirical research on FDI.

The acronym "OLI" stands for Ownership, Location and Internalization which are the decision factors that FDI considers when forming a multinational. The ownership advantage outlines the underlying reasons that lead foreign firms to set up business operations abroad as opposed to their home countries. The specific firm advantages are thus enough to exceed the costs of setting up business abroad. The location advantage poses the question of where business operations should take place. Lastly, the internalization advantages play a role in how a country chooses to conduct operations in a foreign country. An important characteristic of this approach is that it places emphasis on the incentives that face individual firms. This feature is currently standard in mainstream international trade theory. However, this was not the case in the 1970's (Mundell, 1956).

3.5 Industrial Organisation Theory

The industrial organisation theory originates from the work of Hymer (1960). This theory is also well known as the micro-level theory of FDI. In this theory, Hymer (1960) supports some suggestions expressed by Dunning (1973). In agreement with Dunning (1973), Hymer (1960) highlights that the decision to conduct business operations in foreign countries largely depends on industry and individual company's characteristics as opposed to the specific country characteristics of operation and capital availability.

The Industrial organisation theory places emphasis on two important points. The first point highlights that the majority of firms choose to become MNEs primarily because of the competitive advantage they possess. This competitive advantage plays a critical role in business operations as MNEs use it to achieve efficient production processes which thus yield higher profits. The second point highlights that as a result of the industries structures, some firms would be motivated to internationalise more than other firms operating in other countries.

Hymer's industrial organization theory of FDI hypothesis states that industrialised countries commonly experience decreases in profit. This is a result of domestic competition which thus creates the tendency for firms in underdeveloped countries to have more interactions with FDI. Furthermore, Hymer's theory states that tradable ownership advantages and the elimination

competition are the primary requirements for a firm operating in their industry of specialisation to set up operations overseas and in turn become a MNE. Hymer (1976) strongly argued that MNEs only exist in an imperfect market, whereby firms do not possess financial ownership advantages in comparison to other firms conducting business operations in the same industry.

In addition, (Hymer 1976) further discusses the characteristics of firm's market approach and their connection with oligopolistic interdependence in formulated collusive agreements, as emphasis is directed towards market dominance, tightening entry barriers and lastly, conflict removal. Furthermore, Hymer (1960) argues that firms are motivated to seek investment opportunities abroad as this move enables them to achieve market dominance, high profits and conflict-removing oligopolies. This thus indicates that the largest firms, such as those operating in such an environment, have the opportunity to make high profits due to their ownership advantage. The high rate of returns thus offset the costs of undertaking business operations in a foreign country.

The additional costs incurred by MNEs in foreign countries includes risks and costs that are associated with limited information in relation to local markets, cultural, institutional and linguistic barriers, communication and transport costs. It is thus a necessity for MNEs to possess advantages which are expected to offset the costs incurred by setting up business operations abroad. Some of the advantages possessed by MNEs include advanced technology, Research and Development skills, advanced managerial, administrative and marketing skills, availability of low-cost funding sources at lower interest rates and exchange rate differentials (Dunning, 1973).

Hymer thus asserted that MNEs were internalizing externalities as a result of market competition directed at final products. Upon his investigations conducted on US firms, Hymer concluded that a positive relationship exists between oligopolistic market structures and FDI. These findings thus indicate that a competitive business environment and firm-specific advantages have a positive effect on FDI. Hymer's findings on this issue are in congruence to arguments proposed by Dunning (1973). Hymer's industrial organization theory did not go without criticism, some scholars expressed their disagreement and its perceived weaknesses. Yamin (2000) in Dunning (1973) highlights that Hymer mainly concentrates on theories that discuss how and why firms choose to invest in international markets and neglects the theories that explain how firms conduct efficient operations in foreign countries. Furthermore, Yamin (2000) also added that Hymer did not place much emphasis on how the advantages possessed by MNEs assist in successful business operations but rather assumed that firms were being reactional to structural market failures. However, in reality firms use the advantages they possess to gain the highest profit possible.

Hymer (1976) argued that the firm's primary objective was the maximisation of profits and expansion. However, Yamin (2000) argued that firms focus on strategically employing and developing assets with the aim of attaining improved levels of internal efficiency. It is believed that oligopolies attain success as a result of their size as opposed to achieving it due to their ownership advantage. Adding to the industrial organisation theory's weaknesses is its dependency on the market power approach, whilst placing no emphasis on costs associated with setting up business operations abroad.

Dunning and Rugman (1985) argued that transaction specific assets are of high importance to cognitive market failures as they play a role in minimising these costs. However, Hymer only took into consideration tradable advantages, such as scales of economies and technologies in the decision-making process associated with investing abroad. Furthermore, Hymer (1976) proposed oligopolies are the only form of business that can conduct business operations abroad. This theory has been proven otherwise in the present day. These changes thus denote the decreasing importance of market power in relation to it being the strategy of MNEs location.

3.6 Main objectives of FDI

According to Nunnenkamp and Spatz (2003), three primary objectives which motivate multinational corporations to invest abroad exist. These objectives are namely: resource-seeking, efficiency-seeking and market-seeking objectives. The three different objectives correspond to FDI in the primary, manufacturing and services sector. The effect on growth each sector has is expected to vary respectively. Resource-seeking objectives are evident when multinational corporations choose to invest in countries that are rich in resources such as oil or cocoa. Resource seeking FDI places greater interest in the primary sector which tends to be concentrated in "enclaves dominated by foreign affiliates with few linkages to the local product and labor markets." Research suggests that resource seeking FDI may not generate increased levels of economic growth, despite the "large up-front transfer of capital, technology and know-how, and high foreign exchange earnings involved." Efficiency-seeking objectives are evident when multinational corporations seek to invest in countries that have a comparative advantage in relation to low labour costs, access to resources, cheaper rental fees etc. Research suggests that efficiency-seeking FDI are more likely to generate economic growth as a result of technological spillover and know-how. Finally, the market seeking objective is projected to have positive spillover effects with the introduction of new and modernized products and services which thus translate to increased levels of competition in the host country.

3.7 Theories that explain the reason FDI affects growth

Two major theories exist that are responsible for explaining the growth effects of FDI on growth. These theories are namely: the capital formation theory and the technological spillover theory.

The capital formation theory views FDI as a form of capital and is supported by the neoclassical growth model by Solow (1956).

The neoclassical growth model states that an increase in capital leads to increased levels of production thus resulting in an increased growth rate of output. Due to the fact that FDI is recognised as a source of physical and financial capital to the host country, increases in FDI are thus expected to increase capital availability for means of production. The neoclassical framework further supports this notion by stating that foreign-owned capital stock leads to higher levels of growth, since FDI is regarded as an additional form of capital.

Furthermore, the neoclassical framework implies that FDI acts a driver of growth in the short run Brems (1970). FDI is regarded to possess more stability and benefits as compared to capital inflows such as direct portfolio investment and cross-border bank lending. Lipsey (1999) further confirms that FDI is less susceptible to reversals than portfolio investment. Thus then advocates FDI as more reliable means of capital inflows to developing countries. Due to FDI's stability status, it is perceived that it plays a significant role to host country growth. Beyond direct capital formation, FDI also contributes to economic growth through technological or knowledge spillovers. FDI is thus regarded a diffuser of technology and knowledge which then leads to a direct effect on growth (Borensztein et al 1998).

According to Kinoshita (1999) the technology diffusion process comes in four different forms. Namely: the imitation effect, the training effect, the linkages effect and the competition effect. The new set-up of factories or subsidiaries in developing countries by developed countries led to the introduction of more efficient technologies to local markets. Due to interaction in the marketplace, local producers copied the efficient practices and advanced technology mechanisms that were implemented by the foreign owned subsidies or factories. This resulted in increased production through the use of advanced technology. The diffusion mechanism is referred to as the imitation effect. The second form of the technology diffusion process is the training effect. The training effect states that it would be necessary for foreign-owned firms to train local workers in order to equip them with required skills and knowledge needed for the use of the advanced technologies introduced by FDI to local markets. The education received from these training programs leads to an increase in the stock of knowledge in the host country. Increased level of education translates to increased levels of output and growth in the long-run. The linkages effect is the third form of the technology diffusion

process. This effect comes into form when domestic firms purchase intermediate goods from foreign-owned firms. These inputs are usually more advanced than those previously used or availed to local firms. The increase in the availability of advanced technology for local firms leads to an increase in output levels.

Finally, the competition effect is the last form of the technological diffusion process. Foreign firms which are regarded as more efficient than the local firms stir up the competition effect particularly in markets that were previously operated monopolistically by domestic firms. The competition effect thus comes into form when increased competition compels domestic firms to strive for efficiency in their production processes and invest more resources in upgrading their technology.

3.8 Empirical Literature Review

The empirical literature section will present the results produced by the tests conducted using data obtained from various sources. The study will be based on panel cointegration and granger causality tests. The vector error correction model (VECM) and the Johansen's cointegration model will be put in use as estimation techniques. This section will also include the results obtained by different authors in tests conducted on the relationship between foreign direct investment and economic growth, making reference to other countries either than South Africa. The results will thus further stipulate whether a positive or negative relationship exists in those countries. This research study will provide a compilation of literature as well as empirical studies on the relationship between foreign direct investment and economic growth, with the aim of reaching a meaningful conclusion on the findings of the study.

3.8.1 Studies that indicate a positive and negative relationship between FDI and economic growth

This section attempts to shed light on the different relationships that exist between FDI and economic growth in South Africa. A collection of studies from various authors provide the findings that ascertain whether a positive or negative relationship exists between FDI and Economic growth. Different authors have drawn different conclusions based on empirical tests conducted and compilation of theories that are in support of the conclusions they have drawn.

3.8.2 Studies that indicate a positive relationship between FDI and economic growth

According to De Gregorio (2003) resources such as advanced technology and knowledge are usually brought in by FDI in host countries. This thus leads to productivity growth throughout the economies. In addition, FDI brings in much-needed expertise to host countries and broader access to

global markets. Through empirical investigation De Gregorio (2003), found that increasing aggregate investment by 1 percentage point of GDP, increased economic growth of Latin American countries by 0.1% to 0.2% annually. However, increasing FDI by the same amount increased growth by approximately 0.6% annually during 1950–1985, which then indicated that FDI was three times more efficient than domestic investment.

Furthermore, researchers that support the notion that FDI promotes economic growth, add that this is done through technology diffusion which results in spillover effects and human capital development (Van Loo 1977; Borensztein, De Gregorio and Lee1998; de Mello 1999; Shan 2002a; Liu, Burridge and Sinclair 2002; and Kim and Seo 2003).

Based on empirical investigations undertaken Sun (1998) found that a high and significantly positive correlation exists between FDI and domestic investment in China. In addition, Shan (2002) used the VAR model as means of examining the inter-relationships between FDI, industrial output growth and other supporting variables in China. Shan (2002) concluded that FDI has a dramatically positive effect on China's economic growth when the ratio of FDI to industrial output rose.

In addition, Blomstrom, Lipsey, and Zejan (1994) also added that a positive relationship exists between FDI and economic growth, particularly when the country is sufficiently wealthy. The reasoning behind this notion is that, only countries that have reached a certain point of income level have the ability to fully absorb new technologies and in turn benefit from the effects of technology diffusion. Alfaro (2003) further argued that FDI promoted economic growth particularly in economies that have developed financial markets. In addition, Balasubramanyam, Salisu, and Sapsford (1996) believe that trade openness plays an imperative role in achieving the growth effects of FDI.

Effendi and Soemantri (2003) conducted a study that was based on panel data on foreign direct investment and regional economic growth in Indonesia. Effendi and Soemantri (2003) generated an econometric model from 26 provinces in Indonesia by the use of time series data from 1987- 2000.

The estimation technique used was the General Least Squares method (GLSM). The results of the study proved that FDI has a positive and significant effect on regional economic growth in the short-run but not in the long run. Alfaro (2003) in Lyroudi et al, (2004) examined the effect of FDI on growth in the three sectors namely: primary, manufacturing and the service sector. The use of cross-

country regression and time series data for the period 1981-1999 was used to conduct the test. The results proved that FDI has a positive effect on economic growth. These positive effects emanate primarily from the manufacturing industry.

Khaliq and Noy (2007) conducted a study that was based in Indonesia. The Fixed Effects Model was used together with data that dated back from 1997-2006. The variables used to conduct the investigation included GDP, FDI and domestic investment. The empirical results indicated that FDI has a positive effect on economic growth at aggregate level. Borensztein (1998) further added to economic literature by conducting an investigation based on 69 developing countries. The Seemingly Unrelated Regression Technique (SUR) was used together with data dating back from 1970 to 1989. The variables used to conduct the investigation included GDP growth, FDI, domestic investment, human capital and initial GDP per capita. The empirical results prove that FDI has a positive effect on economic growth depending on the existing capital stock.

Carkovic and Levine (2002) also conducted a study on the effect of FDI on economic growth. The study was conducted on 72 countries with use of Generalized Method of Moments (GMM) model. The data used was from 1990-1998 and the variables used included growth rate of GDP per capita and FDI. The results indicate that a strong positive effect exists between FDI and economic growth. Choe (2003) based the study on FDI and economic growth on 80 countries. The Panel VAR model was used, together with data that dates back from 1971 to 1995. The variables used in the model include domestic investment, annual growth rate of GDP per capita and FDI % of GDP. The empirical results of the test conducted proved that FDI has a positive effect on economic growth.

Obwana (2001) also contributed to economic literature by conducting an investigation which was based on Uganda. The investigation was conducted by the use of econometric tests and surveys. The variables used for the study included savings rate, inflation rate, GDP growth rate, external debt, market size, trade balance and FDI. The research results concluded that a positive and significant relationship exists between FDI and economic growth. Vu (2006) conducted an investigation based on China and Vietnam. The study used econometric tests, together with data dating back from 1990 to 2002. The variables used for testing purposes included domestic investment, human capital, FDI, growth rate of real GDP per capita and initial income.

Kohpaiboon (2003) conducted empirical investigations on the effect of FDI on economic growth. Kohpaiboon made use of export as a variable upon conducting the regression where the vector error

correction model was used with data that dates back from 1970 to 1999. The results showed that a unidirectional causality from FDI to GDP exists. Moreover, the study also showed that the impact of FDI on economic growth is greater under an export-promotion trade regime as compared to an import substitution regime.

Jyun-Yi and Hsu (2008) conducted a study on FDI and economic growth and made use of the threshold regression techniques developed by Caner and Hansen (2004). The study was based on 62 countries from both developing and developed countries. The time series data dated back from 1975 to 2000 and the variables used included human capital, initial GDP and the volume of trade was used as a threshold variable. Human capital and initial GDP were considered important variables upon conducting the regression. The derived results showed that FDI has a positive and significant effect on economic growth when host countries possess better levels of initial GDP and human capital.

Fedderke and Roman (2004) conducted a study that was based on the growth impact and determinants of Foreign Direct Investment in South Africa. The study aimed to provide a structural analysis of the growth impacts and determinants of FDI in South Africa. The model used was the vector error correction model and aggregate time series data for the period 1960 to 2002. The empirical results of the study prove that a positive relationship exists between FDI and economic growth in South Africa. These results thus further confirm that South Africa benefits from positive spill-over effects of foreign capital on output in South Africa. However, crowding-out of domestic investment emanates in the short run as a result of FDI.

Another study based on South Africa was conducted by Moolman (2006). The study was based on investigating the macroeconomic link between foreign direct investment and the impact on potential output. Time series data from 1970 to 2003 was used together with cointegration techniques in the construction of a model that is suitable for policy analysis purposes. The model used five explanatory variables which include the real exchange rate, rand-dollar exchange rate, real GDP as a measure of market size, infrastructure, trade openess and lastly, sanctions which was used as a dummy variable. The empirical results showed that FDI has a positive and significant effect on economic growth in South Africa. Furthermore, the empirical results showed that market size, openness and infrastructure are the primary factors that South African policy makers have to pay attention to in their attempts to attract FDI.

3.8.3 Studies that indicate a negative relationship between FDI and economic growth

Braunstein and Epstein (2002) and Haung (2003) conducted an empirical study based in China. The investigation was conducted by means of a regression model and the use of province-level panel data which dates back from 1986 to 1999. The results showed that FDI had a negative effect of crowding out domestic investment in China. Furthermore, the results indicated that benefits resulting from FDI had almost disappeared due to intense competition for FDI among regions in China. This effect thus forced regions to reduce taxes, wages, working conditions and regulations on environmental protection.

Moreover, Huang (1998, 2003) highlighted that Chinese investment policies were friendlier to foreign invested firms than to domestic firms. This resulted in Chinese partners being more eager to partner with foreign investors. After exploiting the preferential policies and benefits, these partnerships gradually crowded out domestic investment. Louzi and Abadi (2011) also conducted an investigation on FDI and economic growth in Jordan. The model used was the vector error correction model with time series data that dates back from 1990 to 2009. The econometric model captured two-way linkages between variables of interests. The empirical results indicate that FDI inflows do not exert an independent influence on economic growth in Jordan.

Researchers such as Alfaro, Chanda, Ozcan, and Sayek, 2006 examined whether economies with well-developed financial markets have the ability to benefit and boost their economic growth through FDI. These authors conducted the analysis based on 71 developing countries and they also believed that the poor development of domestic financial markets can hinder the domestic economy's ability from experiencing the maximum benefits of FDI spill-over effects. Data for net FDI inflows was obtained from IMF "Financial Statistics" (2000). The World Development Indicators (2000) also provided data for economic growth, which is the growth rate of output measured as the growth of real per capita GDP in constant US dollars. The results indicated that for most of the 71 states a negative relationship exists between FDI and economic growth. The empirical results of the study confirmed the researcher's hypothesis that underdeveloped financial markets and institutions may diminish the anticipated positive effects of FDI

It is evident that existing literature provides contradictory predictions concerning the effect of FDI on economic growth. Researchers have proved the positive effects of FDI on economic growth based on empirical results do exist and that the positive effects of FDI emanate from the advancement in

technology know-how which then results in technological spill-over effects. These advancements lead to the modernization of the host country's economy. However, researchers that are in opposition of the positive effects yielded by FDI on economic growth, advocate that FDI brings about crowding out effects on domestic investment. Moreover, researchers add that the presence of FDI may result in external vulnerability, dependence, destructive competition of foreign affiliates with domestic firms and the market stealing effect due to the local country's poor absorptive capacity. Based on this discussion, it is clear that the impact of FDI on economic growth varies from place to place. There is limited research which was done to establish the impact of FDI on economic growth. This study fills this gap in literature.

SUMMARY

Chapter three reviewed both theoretical and empirical literature pertaining to the link between FDI and economic growth. Important economic theories such as the Keynesian growth theory, Harrod Domar growth model, Neoclassical growth theory, New Endogemous growth theory, Micro and macro economic theories were discussed in detail. In addition, this chapter provided the views of scholars that advocated the existence of a positive relationship between FDI and economic growth. However, there were those scholars who differed in opinion and advocated the existence of a negative relationship between FDI and economic growth.

CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 INTRODUCTION

In this chapter the research methodology used is presented. The chapter is divided into four sections, the first section presents source and nature of data, the second section involves relevant validity tests. Variable measurements and description are described in section three while the research model and estimation technique is discussed in the fourth section.

4.2 ECONOMETRIC MODEL AND ESTIMATION TECHNIQUE

The general national income accounting equation using the expenditure approach was used to describe the relationships between variables in this study. It attempts to equate the national output (GDP) to consumption C, investment I, government spending G and net exports (export minus import) X-M.

$$Y = C + I + G + (X - M) \qquad \text{(Equation 3.1)}$$

Where; ***Y*** is the total output (GDP), ***C*** is consumption function including autonomous consumption, ***a*** and marginal propensity to consume that is, ***C = a + bYd***, ***I*** is the total investment which has an autonomous component, ***d***, and a marginal propensity to invest, **e** that is, ***I = d + Ey***

Note: In this work the assumption is that total investment constitutes domestic and foreign investment (FDI), for the interest of this study, domestic investment is exogenous and therefore total investment constitutes FDI only, that is, ***I = FDI***. ***G*** is government spending which is autonomous, that is ***G = G***. ***X – M*** is net export whereby ***X*** is aggregate export and ***M*** is aggregate imports which has an autonomous component and a marginal propensity to import, ***m***, that is, ***X – (a +mYd)***.

The model estimated have the following nature:

$$GDP_t = \alpha + \beta_1 FDI + \mu_t \qquad \text{(Equation 3.2)}$$

Where: FDI = foreign direct investment stocks

GDP = Gross Domestic Product

B_t = slope of the explanatory variables

μ_i = disturbance term

Most of the economic variables tend to have long run relationship, which is why this study tests for presence of such relationships and whether or not they are contributory. Since the direction of the causality is not clear, there are two equations which describe the possible causal long-run relationships between the variables. This is the main underlying assumption in Vector Autoregression models which is used for estimation. Therefore the researcher has:

$$GDP_t = \alpha_t + GDP_1 Y_{t-1} + \beta_2 FDI_t + \beta_3 FDI_{t-2} + \mu_t \qquad \text{(Equation 3.3)}$$

$$FDI_t = \alpha_t + FDI_1 Z_{t-1} + \beta_2 GDP_t + \beta_3 GDP_{t-2} + \mu_t \qquad \text{(Equation 3.4)}$$

4.3.1 Ordinary least square method

Here the researcher will assume the hypothesis that there is no relationship between Foreign Direct Investment (FDI) and Economic Growth in terms of GDP. To confirm the hypothesis, the linear regression Equation 3.2 shall be considered. The coefficient of regression, $\boldsymbol{\beta_i}$ indicates how a unit change in the independent variable (foreign direct investment) affects the dependent variable (gross domestic product). The error, $\boldsymbol{\varepsilon_i}$ is incorporated in the equation to cater for other factors that may influence GDP but are not included in the model. The validity or strength of the Ordinary Least Squares method depends on the accuracy of assumptions. In this study, the Gauss-Markov assumptions are used and they include;

- That the dependent and independent variables (GDP and FDI) are linearly related,
- The estimators (α, β) are unbiased with an expected value of zero i.e., E (εi) = 0, which implies that on average the errors cancel out each other.

The procedure involves specifying the dependent and independent variables; in this case, GDP is the dependent variable while FDI is the independent variable.

Depending on the assumptions, the results of the methods can be adversely affected by outliers. In addition, whereas the Ordinary Least squares regression analysis can establish the dependence of either GDP on FDI or vice versa; this does not necessarily imply direction of causation. Stuart Kendal noted that "a statistical relationship however strong and however suggestive, can never establish causal connection." Thus, in this study, another method, the Granger causality test, is used to further test for the direction of causality.

4.3.2 Stationary Test

The importance of the stationary phenomenon arises from the fact that almost all the entire body of statistical estimation theory is based on asymptotic convergence theorems i.e., the weak law of large

numbers, which assume that all data series are stationary. Nevertheless, in reality, non-stationarity is extremely common in macroeconomic time series data such as money, inflation, consumption and exchange rates. Thus treating non-stationary series as if they were stationary will bias the Ordinary Least Squares (OLS) and thus result in misleading economic analysis. The model will thus systematically fail to predict outcomes and can also lead to the problem of spurious (nonsensical/misleading) regressions where R-squared is approximating unity, ***t*** and ***F*** statistics look significant and valid.

In essence, the problem lies with the presence of nonsensical regression that arises where the regression of non-stationary series, which are known to be unrelated, indicates that the series are correlated. Hence, there is often a problem of incorrectly concluding that a relationship exists between two unrelated non-stationary series. This problem generally increases with the sample size, and is not normally solved by including a deterministic time trend as one of the explanatory variables in order to induce stationary.

To avoid inappropriate model specification and to increase the confidence of the results, time-series properties of the data are investigated. Although there are a number of methods used to test for stationarity and the presence of unit roots, the methods used here are the Augmented Dickey-Fuller (ADF) and the Philips Peron (PP) tests. By definition, a series is stationary if it has a constant mean and a constant finite variance. On the contrary, a non-stationary series contains a clear time trend and has a variance that is not constant over time. If a series is non-stationary, it will display a high degree of persistence i.e. shocks do not die out. A series ***Xt*** is said to be integrated of order ***d***, denoted as **I(*d*),** if it must be differenced ***d*** times for it to become stationary (Gujarati, 2004). For example, a variable is said to be integrated of order one, or **I(1)**, if it is stationary after differencing once, or of order two, **I(2)** if differenced twice. If the variable is stationary without differencing, then it is integrated of order zero, **I(0)**. According to Dickey and Fuller (1981) the ADF test involves both the level and first differenced observations by estimating the following three models:

No constant and no trend model:

$$\Delta Y_t = \gamma Y_{t-1} + \sum_{i=1}^{k} \beta \Delta Y_{t-1} + \varepsilon_t \qquad \text{(Equation 3.5)}$$

Constant and no trend model:

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \sum_{i=1}^{k} \beta \Delta Y_{t-1} + \varepsilon_t \qquad \text{(Equation 3.6)}$$

Constant and trend model:

$$\Delta Y_t = \alpha_0 + \alpha_{2t} + \gamma Y_{t-1} + \sum_{i=1}^{k} \beta \Delta Y_{t-1} + \varepsilon_t \qquad \text{(Equation 3.7)}$$

Where: $\Delta Y_t = Y_t - Y_{t-1} = the\ first\ difference\ of\ the\ series\ Y_t$

$Y_{t-1} = Y_{t-1} - Y_{t-2} = the\ second\ difference\ of\ Y_{t-1}$

$\alpha_0, \beta_i\ and\ \gamma\ are\ parameters\ to\ be\ estimated\ and\ \varepsilon_t\ is\ the\ stochastic\ error\ term.$

The number of lagged terms is chosen to ensure that the errors are unrelated. The difference among the three regressions (3.5) - (3.7) lies at the inclusion or exclusion of the deterministic elements α_0 and α_{2t}.

4.3.3 The long-run (Cointegration) Relationship

This analysis tests whether if variables are integrated of the same order, a linear combination of the variables will also be integrated of the same order or lower order. The belief underpinning cointegration analysis is that although macroeconomic variables may tend to trend up and down over time, groups of variables may move together. In the case where a tendency for some linear relationships to hold among a set of variables over long periods of time, then cointegration analysis helps to discover relationship. To this end, Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary, **I(0)** and in that situation, the non-stationary (with a unit root), time series will be said to be cointegrated. That is, they are individually nonstationary, integrated of the same order but their linear combination is integrated of a lower order. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship between the variables.

This cointegration provides a platform of dichotomising the evolution of time series data into the following components:

- Long run equilibrium characteristics (the cointegrating vector);
- Short run disequilibrium dynamics

In this case there will be a direct link between cointegration and the so-called error (or equilibrium) correction model. Therefore, cointegration allows the inclusion of a combination of long and short run information in the same model. This scenario has the advantage of minimising the drawbacks associated with the loss of information from simple attempts to achieve a stationary series, for example, by differencing.

There exist two approaches used in literature to analyse cointegration: the Engle-Granger (E-G) approach and the Johansen Maximum Likelihood procedure. The limitation of the E-G approach is applicable when more than two variables are involved in the model. Nevertheless, in spite of its limitations, it is a widely used method for its simplicity and straightforward application. The Johansen Maximum Likelihood procedure is an ideal approach to estimate when there are more than one cointegrating vectors or variables. Since the latter approach is relatively complex, the study will employ the E-G approach.

Therefore the researcher began by testing H_0 that there are no cointegrating vectors. If the null hypothesis is rejected there are at least one cointegrating vectors and proceed with the tests until H_0 is accepted (Johansen, 1995; Johansen and Juselius, 1990; Akaike, 1974).

H_0: $\boldsymbol{U}$ has a unit root (non-stationary)/no cointegration,

H_1: $\boldsymbol{U}$ is stationary/cointegration

Where: $\boldsymbol{U}$ is the generated residual for the model

4.3.4 Short-Run Error Correction Modelling (ECM)

The existence of at least one cointegrating vector among the variables implies that an ECM can be estimated. The ECM approach used here is useful for the formulation of a short-term foreign direct investment adjustment model, which models changes in the South African GDP in terms of changes in FDI, and the adjustment towards the long-run equilibrium in each time period. This draws upon the error correction formulation, which is the counterpart of every long run cointegrating relationship.

To avoid any estimations bias from the results, the ECM model was tested for such econometric assumptions as normality, heteroscedasticity, serial correction and misspecification. Generally, the tests confirm that the short-run model is statistically good, with Custom test showing absence of any structural break in the period under study.

4.3.5 Vector Autoregression Model (VAR)

After identifying the cointegrating vectors in the above section, VAR (which is a set of autoregressive distributed lag) shall be run to identify the cointegrating equations and their estimated coefficients. Since the study has two variables, then there will be two equations indicating that one variable can be explained by the other, the significant equation (s) will be obtained from the results of Vector Autoregression (Granger, 1969).

$$GDP_t = \alpha_t + GDP_1 Y_{t-1} + \beta_2 FDI_t + \beta_3 FDI_{t-2} + \mu_t$$

$$FDI_t = \alpha_t + FDI_1 Z_{t-1} + \beta_2 GDP_t + \beta_3 GDP_{t-2} + \mu_t$$

4.3.6 Granger Causality (Wald test)

FDI and GDP are, in fact, interlinked and co-related through various channels. There is no theoretical or empirical evidence that could conclusively indicate sequencing from either direction. For this reason, the Granger Causality test shall be carried out on FDI and GDP. Following Seabra and Flach (2005), Granger test is implemented by running the following regression:

$$GDP_t = \gamma_0 + \sum_{i=1}^{k+d} \alpha_{1i} GDP_{t-1} + \sum_{j=1}^{k+d} \beta_{1j} FDI_{t-1} + \varepsilon_{1t} \qquad (Equation\ 3.4)$$

$$FDI_t = \gamma_0 + \sum_{i=1}^{k+d} \alpha_{2i} FDI_{t-1} + \sum_{j=1}^{k+d} \beta_{2j} GDP_{t-1} + \varepsilon_{2t} \qquad (Equation\ 3.5)$$

Where; ***k*** is the optimal lag order, ***d*** is the maximal order of integration of the variables in the system and ε_1 and ε_2 are error terms. The study shall make use of maximal order of integration (dmax = 1), optimal lag (k = 2, 3 and 4) using the Granger causality test.

The research applied Granger causality test to determine the direction of causality. The test hypothesis is H_0: variable X does not Granger cause variable Y. Failure to reject this null hypothesis means X does not Granger cause Y, therefore the study has enough evidence to reject that X Granger cause Y (Granger, 1988).

4.4 VARIABLES AND MEASUREMENT

This section describes variables which are studied in this research. Economic growth is measured as the rate at which the real GDP of South Africa has been changing (growing) over time. FDI is measured as the total monetary amount of inward FDI stocks in South Africa in million Rands.

Table 4.1: Variables and Measurements

Variable Name	**Variable description and measurements**
Economic Growth	GDP Growth rate in million Rands per year
FDI Stocks	FDI Stocks (inward) recorded in a year in million Rands

4.4.2 Conceptual Framework

The overall concept underlying this study was adapted and modified from Melina .et al. (2004). The section elaborates on the the relationships between variables under the study. Economic growth (GDP) is determined by substantial improvements in major macroeconomic variables in favour of the country. Such macroeconomic variables which are directly concerned are real GDP, total consumption, total investment, government spending and net export. Other macroeconomic variables are used more for regulatory purposes and creating favourable conditions for growth, they are inflation rate, exchange rate, unemployment rate, interest rate and capital market level.

Total investment comprises of public and private investment of which FDI is a crucial component. Investment in capital can increase productivity and provide employment therefore improves output and boosts economic growth. Exports also provide a source of foreign currency for acquiring capital goods and thus exposing domestic products worldwide. There are cases where economic growth attracts FDI and stimulates manufactured exports. This study will focus on long-run relationships between FDI and Economic growth and show the direction of causality emanating from those long-run relationships.

4.4.3 Study Hypothesis

The study hypotheses are as follows, results presented in chapter four.

- H_0: There is a long-run relationship between FDI and economic growth in South Africa
- H_1: There is a causal relationship between FDI and economic growth in South Africa.

4.5 VALIDITY TESTS

This section presents necessary tests and validity issues concerned with multivariate time series modelling. Major tests include stationary tests (Augmented Dickey Fuller test) which show whether or not there are unit roots associated with the time series variables. This helps to understand the next procedure to undertake. Cointegration tests are done using the Johansen trace test, and lastly the relationship between variables is established by using the Granger causality test.

Other tests includes ARCH LM test for heteroscedasticity and Breuch Godfrey tests for multicollinearity. Model specification test (OV test) was done to see if the model is properly specified and that it did not omit relevant variables (or include irrelevant variables).

4.6 SOURCE AND NATURE OF DATA

This study involved secondary data concerning economic growth and foreign direct investment established in South Africa for 34 years (1980-2014) to determine the presence and direction of the

relationships among the variables. Data and supporting figures were collected from secondary sources including publications, periodic journals and newsletters from Investment reports and periodic newsletters. In addition, an external source which is Stat - country economic data from IMF Economic indicators also forms part of the study.

4.7 SUMMARY

This chapter has provided the methodological outline adopted in this study. This analysis establishes the route for modelling specification and econometric procedures used in the research study.

CHAPTER FIVE
RESULTS PRESENTATION AND ANALYSIS

5.1 INTRODUCTION

The preceding chapters of this study addressed the contextual, theoretical and descriptive aspects of the research. The main focus of this chapter is to present, discuss and analyse the quantitative data of the variables in question and examine the findings in light of the objectives of the study. Testing procedures will follow, precisely all steps that have been described in chapter four. The results obtained were analysed in relation to the findings of other researchers and theory of FDI and Economic growth. E-Views version 7 was used to analyse the data and carry out the empirical tests. The presentation, analysis and discussion of the findings will now proceed accordingly.

5.2 JOHANSEN TEST OF COINTEGRATION

This test establishes the number of cointegrating equations which relates the variables in the study. The tables 4.3 and 4.4 below show the results of the analysis. The precondition for Johansen test of cointegration is that all variables must be non-stationary at level but when converted into first difference, then they become stationary. Meaning that all the variables should be integrated of same order. Only then can Johansen test of cointegration be ran. With reference to the above tests for stationarity, the results obtained show that all variables are not stationary at level, but after first differenced, they become stationary, meaning that both GDP and FDI are integrated of same order. Hence, the researcher can proceed to run the Johansen test of cointegration. Trace Test and Max-Eigen Test were used to determine the decision rule on whether to accept the null hypothesis or reject it. The hypothesis of the tests appear in two major cases as shown below;

- H_0: No cointegration among the variables, (None)
- H_0: There is at most one cointegrating model, (At most 1).

The guidelines to accept or reject the null hypothesis are as follows;

- If T-Statistic and / the Max-Eigen Statistic > the critical value, and if the probability value < 5%, reject the null hypothesis, if otherwise we fail to reject the null hypothesis.

Table 4.3: Trace Statistics Test

Null Hypothesis (H_0)	Trace Statistic	Critical-Value (at 5%)	Probability-Value
None*	25.01622	15.49471	0.0014
At most 1	0.600211	3.841466	0.4385

Source: Author's Own Calculation

Table 4.3 above shows the results obtained from Trace Statistics. In the case where null hypothesis depicts that there is no cointegration among the variables, the trace statistic was found greater than the critical value so is the probability value less than 5% meaning that we reject the null hypothesis. On the other dimension, the trace statistics was found to be less than the critical value, so is the probability value greater than 0.05, meaning that we fail to reject the null hypothesis. The researcher therefore concluded that, the Trace test indicates one cointegrating equation(s) at the 5% level.

Table 4.4 Max – Eigen Test

Null Hypothesis (H_0)	Max-Eigen Statistic	Critical-Value (at 5%)	Probability-Value
None*	24.41601	14.49471	0.0009
At most 1	0.600211	3.841466	0.4385

Source: Author's Own Calculation

Table 4.4 above shows the results obtained from Max - Eigen Statistics. In the case where null hypothesis depicts that there is no cointegration among the variables, the trace statistics was found greater than the critical value so is the probability value less than 5%, meaning we reject the null hypothesis. On the other dimension, the trace statistics was found less than the critical value so is the probability value greater than 0.05, meaning that we fail to reject the null hypothesis. Hence, it is concluded that Max-eigen value test indicates one cointegrating equation(s) at the 5% level.

The results of the tests above show that there is at least one cointegrating vectors since the null hypothesis of none cointegrating vectors is rejected .This means that the variables are cointegrated or they have long run association-ship. Therefore, the next step is to run the vector autoregression model (VAR).

5.3 VECTOR AUTOREGRESSION MODEL (VAR)

There are two types of VAR namely the restricted and the unrestricted. The guideline to separate the two is that, if the variables are not cointegrated after the Johansen Test of Cointegration, then we can

develop unrestricted VAR model, but if the variables are cointegrated then restricted VAR model is developed and that is Vector Error Correction Model (VECM). In this case, the variables were found integrated after running the Johansen Test of cointegration, therefore the following step is to run the restricted VAR model (VECM).

5.3.1 Vector Error Correction Model (VECM).

There are three steps involved in developing the VECM. The steps are as follows;

i. Lag selection,
ii. Checking Stationarity of variables, one by one and verifying their cointegration using the optimum lag selected in item (i) above,
iii. Finally, run the VECM.

Lag Selection

The table 4.5 below summarises the results obtained for optimum lag recommended.

Table 4.5: Optimum lag

Lag	LR	FPE	AIC	SC	HQ
0	NA	5.16e+22	57.97385	58.06636	58.00400
1	210.1417	3.68e+19	50.72685	51.00439*	50.81732
2	3.196662	4.23e+19	50.86196	51.32454	51.01275
3	10.01501	3.65e+19	50.70274	51.35034	50.91384
4	17.28656*	2.19e+19*	50.17505*	51.00769	50.44647*

* indicates lag order selected by the criterion.
LR: sequential modified LR test statistic (each test at 5% level),
FPE: Final prediction error,
AIC: Akaike information criterion,
SC: Schwarz information criterion,
HQ: Hannan-Quinn information criterion.

Source: Author's Own Calculation

Apart from Schwarz Information Criterion (SIC), all other criterion indicates that the optimum lag is 4. As a result, the lag order 4 will be used for the VECM. The next step is to check the stationary of the variables and verify their cointegration using the selected optimum lag.

Stationary Check

Stationarity check of the variables was conducted using correlogram. As a precondition for Johansen Test of cointegration, all variables are expected to be non-stationary at level but after first differenced they become stationary. Hence, two checks will be conducted, the first check at level and the other one at first difference. The hypothesis for the tests are given below.

First check at level

- H_0: Variable is stationary at level
- H_1: Variable is not stationary at level

In this case, the null hypothesis is rejected where the probability value is less than 0.05. The table below summarises the results of the first stationarity check of the variables at level.

Table 4.6: First stationary check of the variables at level

Variable	Q-Stat	Probability Value
GDP	30.533	0.000
FDI	15.867	0.000

Source: Author's Own Calculation

The results above indicate that the probability values of both GDP and FDI are less than 0.05 therefore we reject the null hypothesis and conclude all variables are not stationary at level.

Second Check at 1st difference.

- H_0: Variable is stationary after 1st difference
- H_1: Variable is not stationary after 1st difference.

The guideline for decision rule is that the null hypothesis is accepted where the probability value is greater than 5%. Following are the results for the second check of the variables after first differenced.

Table 4.7: Second Check for stationary at first difference

Variable	Q-Stat	P-Value

GDP	1.3763	0.241
FDI	2.365	0.986

Source: Author's Own Calculation

The results in table 4.7 above shows that the p-values of all variables are greater than 5%, therefore we fail to reject the null hypothesis and conclude both FDI and GDP are not stationary at level but become stationary after first differenced. The next step is to verify the cointegration of the variables using the recommended optimum lag.

Cointegration verification

All the preconditions of the Johansen Test of Cointegration do apply, accept that in this section the recommended optimum lag of 4 was used to run the cointegration test. The results of the analysis are shown in the table below;

Table 4.8: Results of cointegration verification

Null Hypothesis	**Trace-Statistic**	**Critical-Value at 5%**	**P-Value**
None*	60.13627	15.49471	0.0000
At most 1	0.635804	3.841466	0.4252
	Max-Eigen Statistic		
None*	59.0046	14.26460	0.000
At mot 1	0.63804	3.841466	0.4252

Source: Author's Own Calculation

From the results of cointegration verification (Table 4.8) above, there was at least one significant cointegrating vector. These results answer for the first hypothesis that there are long-run relationships between the time series variables which are studied in this research. The non-stationary time series variables which move together in the long run towards equilibrium (have a stationary linear relationship) are said to be cointegrated (Engel and Granger, 1987). Thus, the variables of this study revealed one significant cointegrating equation whose identification is done in following section (VECM).

These findings complement the theory that most economic variables tend to have long and short run relationships. This means that, in most cases they help to predict trends of other economic variables.

For example, growing rates of inflation may predict trend of other macroeconomic variables like total consumption, savings, and therefore economic growth.

5.3.2 VECM Results

In this section, GDP (dependent variable) is the target variable. C(1) represents the speed of adjustment or error correction term and it is said to be significant if the p-value is less than 0.05. According to the results obtained in the table 4.9 below, the probability value of C(1) is 0.0091 meaning that it is significant. In other words, this means that FDI demonstrated a significant impact to GDP growth. These results are consistent to some previous literatures (Karbasi et al, 2002; and Melina et al, 2004) which postulate that FDI and Exports do affect GDP growth rate and therefore economic growth. However, this is not enough of an analysis to explain the result, there are two conditions for C(1), namely the long-run causality and short-run causality.

VECM Equation

D(GDP) = C(1)*(GDP(-1) - 2.10249949535*FDI(-1) - 667493.781555) + C(2)*D(GDP(-1)) + C(3)*D(GDP(-2)) + C(4)*D(GDP(-3)) + C(5)*D(GDP(-4)) + C(6)*D(FDI(-1)) + C(7)*D(FDI(-2)) + C(8)*D(FDI(-3)) + C(9)*D(FDI(-4)) + C(10)

Table 4.9: Vector Error Correction Model

	Coefficient	Std. Error	t-Statistic	P-Value
C(1)	0.332640	0.115274	2.885646	0.0091
C(2)	-0.373779	0.321018	-1.164353	0.2580
C(3)	-0.713374	0.302940	-2.354834	0.0289
C(4)	-0.167800	0.323506	-0.518693	0.6097
C(5)	-0.490108	0.336926	-1.454646	0.1613
C(6)	0.680078	0.246565	2.758207	0.0121
C(7)	0.427387	0.226930	1.883345	0.0743
C(8)	0.238065	0.336055	0.708411	0.4869
C(9)	0.338289	0.289601	1.168123	0.2565
C(10)	245238.9	81133.68	3.022652	0.0067

R-Squared	0.921817
Adjusted R-Squared	0.886635
F-Statistic	26.20112
Prob (F-Statistic)	0.000000
Durbin-Watson Stat	2.013829

Source: Author's Own Calculation

Long-run Causality

If the error correction term is negative and significant then we can say that there is long-run causality running from FDI (independent variable) to GDP (dependent variable), if otherwise, no long-run causality exists. The coefficient of C(1) in the table 4.9 above is 0.33640. This means that there is no long-run causality running from FDI to GDP. The results could yield a short-run causality relationship since the error correction term is significant with a probability value of less than 5%.

Short-run casualty

Short run casualty was tested using the wald test. The null hypothesis of the test was as follows;

- H_0: C(6)=C(7)=C(8)=C(9)=0

Decision to accept or reject the null hypothesis was based on the probability value of the Chi-square. If the p-value is greater than 5%, we accept the null hypothesis meaning that there is no short-run causality running from FDI to GDP. The results on the table 4.10 below indicate a p-value of 0.0368. This value is less than 5% meaning that we reject the null hypothesis and conclude that there is a short-run causality running from FDI to GDP.

Table 4.10: Wald Test Results

Test Statistic	Value	Df	P-Value
Chi-square	10.22199	4	0.0368

Source: Author's Own Calculation

5.3.3 Diagnostic Checking

R-squared measures the fit of the model. Looking at the estimated equation from a purely statistical point of view, it appears as though we have a good relationship with approximately 92% of the variation in the dependent variable (GDP) being explained by the regressor variable (FDI). This can also be supported by the probability of F-statistic which is very small (less than 0.05), meaning that all the variables fitted well into the model. $R^2 <$ Durbin Watson Stat reflecting the absence of spurious regression. (Reference Table 4.9).

Table 4.11: Diagnostic Tests

Test	H_0	Test Statistic	P-Value	Conclusion
Jarque-Bera	Residuals are normally distributed	JB = 1.727538	0.421570	P-Value > 5%. We fail to reject H_0 and conclude that the residuals are normally distributed.
Lung-Box Q	No serial correlation in the residuals up to the 6th order	LB_Q = 13.603	0.628	P-Value > 5%. Accept H_0 and conclude that there is no serial correlation in the residuals up to the 6th order
Breuch-Godfrey	No serial correlation in the residuals up to 2nd Order	nR^2 = 5.915251	0.0519	P-Value > 5%, there we fail to reject H_0 and conclude that there is no serial correlation in the residual up to 2nd order.
ARCH LM	No autoregressive conditional heteroscedasticity up to the 1st order	nR^2 = 0.014766	0.9033	Accept H_0 and conclude that there is no autoregressive conditional heteroscedasticity up to the 1st order

Source: Author's Own Calculation

Heteroscedasticity

Heteroscedasticity refers to the dispersion of the variance, which is caused by statistical models that allows random variables to differ in variance. When the mean of the variable changes with time, variance also changes proportionally. This can be a result of poor data quality or presence of errors during data collection (Greene, 1993). However according to Verbeek (2004), heteroscedasticity problems are not common in time series variables because of seasonal adjustments which occur in variables with trendiness. Heteroscedasticity does not make OLS coefficients estimates biased, it rather leads into biassed estimators of standard errors and if uncorrected, may lead into type II error. ARCH LM test was used to test for heteroscedasticity and the data revealed no problem of heteroscedasticity.

5.3.4 Granger Causality test under VECM environment

In order to test the null hypothesis of granger causality under VECM environment, chi-square was used. The guideline is that if the probability value is greater than 5% we cannot reject the null hypothesis and vice versa. The null hypothesis of the test is that; Where, GDP is the dependent variable, H_0: FDI (lag 1, 2, 3 and 4) jointly cannot granger cause GDP and where, FDI is the dependent variable, H_0: GDP (lag 1, 2, 3 and 4) jointly cannot granger cause FDI.

The results in the table 4.12 below indicate that on both scenarios the probability value is less than 0.05. This means that we reject null hypothesis on both cases and conclude that FDI (lag 1, 2, 3 and 4) jointly can granger cause GDP and vice versa.

Table 4.12: VECM Granger Casuality Results

Dependent Variable: D(GDP)			
	Chi-Square	**Df**	**P-Value**
D(FDI)	10.22199	4	0.0368
Dependent Variable: D(FDI)			
D(GDP)	12.20125	4	0.0159

Source: Author's Own Calculation

Similarly, the Granger causality of FDI to economic growth illustrates the theory of FDI as an engine for growth, because most emerging economies face deficit balance of payment and lack financial capital. Therefore, in order to finance the deficit and obtain capital, these economies attract foreign investment which in most cases come in the form of FDI. Along with that, FDI provides technological spillovers, advanced managerial skills and human capital development. FDI also

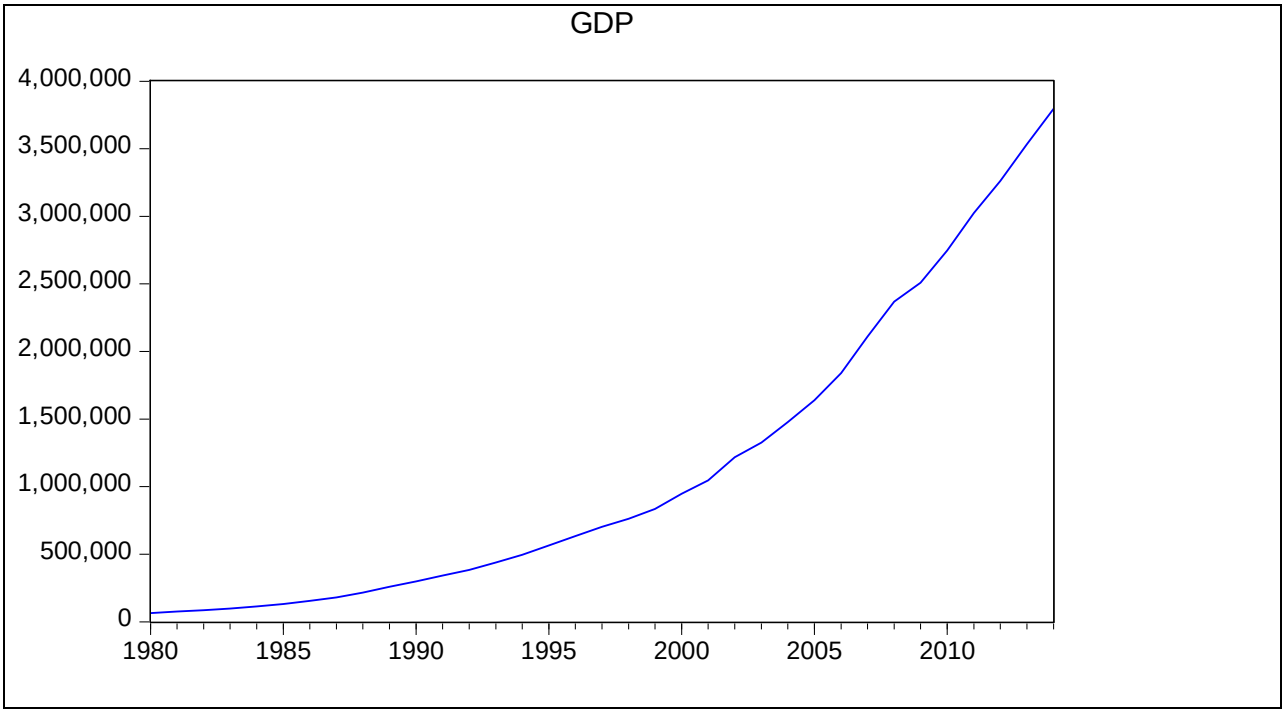
provides employment, all these exert positive effects in the domestic economy. This is consistent with other previous literatures ((Magnus and Fosu 2008, Carkovic and Levine 2002, Prassana 2010; Borensztein, De Gregorio and Lee, 1998). On the other dimension, increase in GDP can attract foreign direct investment. Foreigners are likely to invest in countries where the economy is stable and growing so that they can ascertain their investment returns. It makes sense for a growing emerging economy like South Africa to attract FDI.

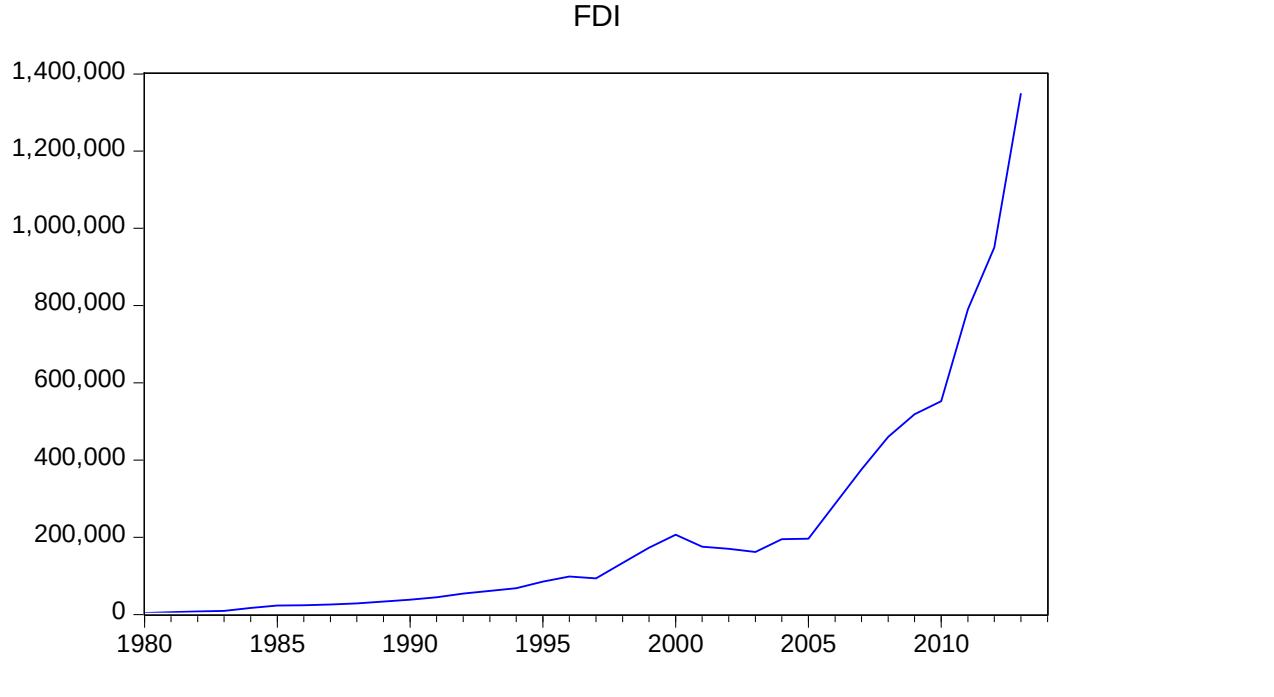
5.4 STATIONARITY TEST

5.4.1 Informal testing

Here stationarity testing was conducted informally through the use of visual graphs. Informal testing suggests that all of the generated graphs in level form have unit roots, meaning that there are non-stationary at level, figure 4.1 below represents informal testing for stationarity.

Figure 4.1: Informal Testing for Stationary





Source: Author's Own Calculation

5.4.2 Formal testing

The formal tests shall be conducted using the Augmented Dickey Fuller (ADF) unit root tests. The results are summarised in the table 4.1 below.

Hypothesis

H_0: $\delta = 0 \; where \; \delta = (\rho - 1)$, that is, there is unit root/ the time series is non-stationary at I(0)

H_1: $\delta < 0$, that is the time series is stationary at I(0)

Table 4.2: Formal Stationary Tests

		ADF TEST		OVERALL CONCLUSION
		Test	**Conclusion**	
FDI	τ_τ	1.738526	Non-stationary	Non-stationary
	τ_μ	0.722424	Non-stationary	
	τ	-0.146394	Non-stationary	
ΔFDI	τ_τ	3.937596**	Stationary	Stationary
	τ_μ	5.278986***	Stationary	
	τ	5.398434***	Stationary	
GDP	τ_τ	1.572237	Stationary	Non - Stationary
	τ_μ	3.09438	Stationary	
	τ	2.42754	Stationary	
GDP	τ_τ	5.572237***	Stationary	Stationary
	τ_μ	3.09438**	Stationary	
	τ	2.42754*	Stationary	

*(**)[***] Statistically significant at a 10(5)[1] % level

Key : τ_τ = Means Trend and Intercept

: τ_μ= Means intercept

: τ = Means None

The table 4.2 above shows results of the unit root test. At level (zero lag), both GDP and FDI were not stationary. The test statistic had a smaller value than the critical values which fails to reject the null hypothesis that there is a unit root, hence concluding that the variables are not stationary at level (have unit root). Stationarity was obtained after lagging the variables once (first differenced) and therefore a conclusion was drawn that GDP and FDI were integrated of order 1 [I (1)]. Stationary test series help to avoid the problem of spurious regression and provides the lead for the proceeding procedures.

Data Source

VARIABLE	SOURCE
GDP	South African Reserve Bank data base
FDI	South Africa Reserve Bank data base

YEAR	GDP	FDI
1980	6.6	4132
1981	5.4	5800
1982	-0.4	7883
1983	-1.8	9143
1984	5.1	16913
1985	-1.2	22776
1986	0	23879
1987	2.1	25901
1988	4.2	28666
1989	2.4	33330
1990	-0.3	38463
1991	-1	44171
1992	-2.1	54329
1993	1.2	61020
1994	3.2	67698
1995	3.1	84991
1996	4.3	98521
1997	2.6	93805
1998	0.5	133178
1999	2.4	172778
2000	4.2	206830
2001	2.7	175695
2002	3.7	170084
2003	2.9	161850
2004	4.6	194653
2005	5.3	196313
2006	5.6	286482
2007	5.4	376005
2008	3.2	460024
2009	-1.5	518785
2010	3	552071
2011	3.2	790273
2012	2.2	950254
2013	2.2	1349855
2014	1.5	

Source: SARB, (2015)

5.5 SUMMARY

This section aimed at analysing the data in order to address the hypothesis of this study and accomplish the objectives thereof. In so doing, E-Views version 7 was employed to analyse the time series properties of the data. First, the data was subjected to unit root tests using the Augmented Dickey Fuller (ADF). All variables were not stationary at level, nevertheless became stationary after first differenced. This implies that all variables entered the model lagged once and integrated in the same order. After stationary tests, variables were examined for long-run relationship using Johansen test of cointegration. The findings indicated the presence of at least one cointegrating vectors implying that the variables have a stationary linear long run association-ship. With at least one co integrating vectors, a vector error correction model (VECM) was estimated and the error correction term was found significant and positive. This means that FDI demonstrated some significant impact on GDP growth. In essence, the positive error correction term provides some evidence against the existence of long-run causality running from FDI to GDP growth. However, Wald tests showed that there is a short-run causality running from FDI to GDP. The VECM was subjected to a number of diagnostic tests to enhance the validity of the results. All the tests suggested a robust model. Finally, the Granger causality tests were carried out to identify the direction of causality. The results indicated that, there were unidirectional causalities running from FDI to GDP growth rate and vice versa. Relevant explanations regarding to the findings were given in relation to theory and other studies of a similar nature.

CHAPTER SIX
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

Having presented the results of the effects of FDI on economic growth in South Africa, this chapter can thus follow. In this Chapter, the study is wrapped up by looking at four issues. Firstly, an outline or a summary of all the work contained herein from Chapter one to Chapter five. Secondly, it provides conclusions to this study based on the objectives which were set on chapter one and the results attained in the preceding Chapter. Thirdly, it provides recommendations for all relevant stakeholders based on the results of the research objectives. Lastly, the paper will provide suggestions to future researchers on the areas which were not addressed by this research paper.

6.2 SUMMARY OF THE STUDY

The objective of this study was to examine the effects of FDI on economic growth using the case of South Africa for the period of (1980-2010). In chapter one, a brief background of the study and the statement of the problem identified were outlined. The objectives of the study and the research hypothesis to be tested were also given. A comprehensive review of both theoretical and empirical Literature of FDI and Economic growth was carried out in the second chapter.

Regarding economic growth, the discussion covered both endogenous and exogenous growth theories. These theories provided a platform to understand the role in which investment plays on the economic growth of emerging markets like South Africa. The model used in this study was adopted from the latter theories (the augmented production function). Industrial organisation and Dunning's Eclectic theories were reviewed under foreign direct investment. These theories helped in identifying crucial factors responsible for attracting FDI in a country or economy.

With regard to empirical tests, studies reviewed were found to be consistent with theory regardless of the differences in the cases used. In other words, FDI was found to be a significant factor on the economic growth of the country. An overview of foreign direct investment inflows in South Africa and the economic growth of the latter was given in chapter three. Following this section is chapter four, in which the methodology adopted was specified and discussed. All the statistical framework and estimation techniques were outlined in this chapter. In chapter four, the hypothesis was tested using E-views version 7 and findings were presented and analysed which indicated evidence that the effects of foreign direct investment on economic growth are positive and significant in the short-run. Moreover, the findings also revealed that FDI do granger cause GDP growth and vice versa. Hence, the null hypothesis could be rejected on both cases.

6.3 CONCLUSION

In most emerging markets, capital for catalysing production and investment is one of the major challenges. Various approaches are put in place in order to cater for this dilemma. In South Africa for instance, a number of initiatives have been embarked on with the aim of attracting foreign direct investment and promote productivity. This study has sought answers to the hypothesis regarding the effects of FDI on the economic growth in South Africa and therefore the possible causality relationship between the two variables.

The hypothesis was tested using time series data for GDP growth rate and FDI inflows from 1980 to 2010. The results obtained highlighted evidence in favour of FDI demonstrating a significant and positive impact towards economic growth. In essence, the results also revealed that there was at least one co integrating vectors obtained by a linear combination involving GDP growth rate and FDI. This suggests that the series tend to move together towards the equilibrium in the long run. However, this co-movement is not necessarily causal. So the research examined whether the relationships can be interpreted in terms of causality.

VECM results showed that there was no causation in the long-run. However, the Wald test results confirmed a short-run causality running from FDI to GDP. These findings are in line with Harrod Domar growth model. The model suggests that, FDI enables host countries to achieve investment that exceeds their own domestic saving and enhances capital formation. The clear implication being that the potential beneficial impact of FDI on output growth is confirmed in the short-run. In the long run, the recipient economy converges to the steady state growth rate. This is due to the diminishing marginal returns on physical capital. The scenario might seem as if FDI has never existed leaving no permanent impact on the growth of the economy.

The outcome provokes the impression that South Africa has been active in promoting policies and strategies that attract FDI to enhancing long-run economic growth. Upon conducting the Granger causality test, the research found and concluded that FDI granger cause GDP growth so does GDP growth granger cause FDI. As a result, there were unidirectional causalities running from FDI to GDP growth rate and vice versa.

The above findings are consistent to the new growth theories which suggest that GDP can attract FDI, especially those Greenfield investors and multinational companies which are market and profit searching. Potentially, economic growth can open up resources for new infrastructural development, training and development of human capital and also stimulate an increase in aggregate demand, which attracts FDI. On the other dimension, FDI in turn promotes GDP growth through transfer of

capital, technology, skills and other positive pullovers. This witnesses the positive and unidirectional relationship between FDI and economic growth.

Summarised, this study concluded that FDI is a significant and favourable growth engine for South Africa. Particularly, if merged properly with other growth driving forces such as: domestic capital investment and labour, FDI can yield favourable results. Among other contributions to the growth of an economy, it promotes international trade, minimises external shocks, and exposes the country to international standards, infrastructural development, technology transfer and innovations. FDI is also a good source of government revenue (income and value-added taxes, customs) and creates employment opportunities for the citizens of the hosting country.

6.4 RECOMMENDATIONS TO POLICYMAKERS

Taking into consideration the long-run casuality results, FDI did not exert favourable impact on economic growth. This implies that the policies and strategies implemented by the authorities responsible have had little impact on enhancing FDI that could promote a positive impact on long term economic growth. Some alternative ways of countering the "growth-destroying forces of diminishing returns" in the long term are required

In light of this, policy makers are recommended to pursue policies and strategies that can stimulate domestic investment, technological progress, exports, training, research and development.

Policymakers should continue to effectively deepen policies aimed at attracting foreign investors with great potential of promoting sustainable economic growth. For example, the BRICS (Brazil-Russia-India-China-South Africa) initiative in 2010 ploughed considerably to the increase of FDI inflows in South Africa regardless of the rise of the global financial crisis during the same period. Furthermore, the South African government is recommended to maintain strong long-run bilateral partnerships with various potential international investors.

Moreover, all the policies and strategies should be accompanied with a conducive investment climate and foreign investment incentives schemes. For example, economic and political stability, coporate governance, favourable tax rates, ensuring property rights, relaxation of exchange control regulations, human capital development, infrastructure development, ideal wage rates and more but just to mention a few. The implications can positively trigger foreign investors and hence increase FDI inflows, which in turn excel into economic growth. Likewise, incentives and policies put in place must be competitive and lucrative enough to benefit both parties (the hosting country and the foreign investors) with a priority being towards the recipient economy.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

In this research, aggregated FDI inflows were used to represent FDI data. This situation does not shed light on the effects of FDI inflows on different sectors of economic growth. As a result, further researchers are advised to use disaggregated or sector specific FDI data and employ the panel regression model. This can enable the policy makers to identify the sectors that attract most FDI in the economy and therefore implement appropriate policies meant specifically for those sectors rather than generalising the phenomena.

Due to unavailability of quarterly data from SARB FDI series, this study used annual data. However, it is assumed that quarterly data could be more relevant and appropriate in exploring the effects of FDI on economic growth. This is because quarterly data is more frequent and variables are computed at quarterly intervals. Further studies are therefore recommended to utilise quarterly data.

Future research should be carried to examine the effects of FDI on domestic labour. This originates from the fact that FDI promote the transfer of new technologies which require training and development of the existing human capital.

APPENDICES

Appendix A: Johansen Test of Cointergration

Date: 10/13/15 Time: 14:52
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP FDI
Lags interval (in first differences): 1 to 1

Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.522828	25.01622	15.49471	0.0014
At most 1	0.018024	0.600211	3.841466	0.4385

Trace test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.522828	24.41601	14.26460	0.0009
At most 1	0.018024	0.600211	3.841466	0.4385

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

GDP	FDI
-5.48E-06	8.47E-06
4.19E-06	-2.06E-05

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	-25684.46	-1503.161
D(FDI)	-48473.06	21698.87

1 Cointegrating Equation(s): Log likelihood -827.0376

Normalized co integrating coefficients (standard error in parentheses)

GDP	FDI
1.000000	-1.546273
	(0.36259)

Adjustment coefficients (standard error in parentheses)

D(GDP)	0.140726
	(0.02744)
D(FDI)	0.265585
	(0.17106)

Appendix B: Lag Selection

VAR Lag Order Selection Criteria
Endogenous variables: GDP FDI
Exogenous variables: C
Date: 10/13/15 Time: 15:01
Sample: 1980 2014
Included observations: 31

Lag	LogL	LR	FPE	AIC	SC
0	-896.5946	NA	5.16e+22	57.97385	58.06636
1	-780.2661	210.1417	3.68e+19	50.72685	51.00439*
2	-778.3604	3.196662	4.23e+19	50.86196	51.32454
3	-771.8924	10.01501	3.65e+19	50.70274	51.35034
4	-759.7132	17.28656*	2.19e+19*	50.17505*	51.00769

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Appendix C: Stationary Check

FDI at Level

Date: 10/13/15 Time: 15:54
Sample: 1980 2014
Included observations: 35

Autocorrelation	Partial association		AC	PAC	Q-Stat	Probe
. |***** |	. |***** |	1	0.645	0.645	15.867	0.000
. |**** |	. |*. |	2	0.515	0.168	26.269	0.000
. |*** |	. | . |	3	0.384	-0.003	32.224	0.000
. |** |	. | . |	4	0.329	0.065	36.738	0.000
. |** |	. | . |	5	0.251	-0.016	39.467	0.000
. |*. |	. | . |	6	0.176	-0.046	40.843	0.000
. |*. |	. | . |	7	0.115	-0.024	41.457	0.000
. | . |	. | . |	8	0.073	-0.013	41.711	0.000
. | . |	. | . |	9	0.060	0.023	41.889	0.000
. | . |	. | . |	10	0.036	-0.009	41.954	0.000
. | . |	. | . |	11	0.027	0.008	41.994	0.000
. | . |	. | . |	12	0.010	-0.009	42.000	0.000
. | . |	. | . |	13	-0.010	-0.028	42.005	0.000
. | . |	.*| . |	14	-0.053	-0.068	42.179	0.000
.*| . |	. | . |	15	-0.087	-0.051	42.673	0.000
.*| . |	. | . |	16	-0.112	-0.034	43.535	0.000

GDP at Level

Date: 10/13/15 Time: 15:57
Sample: 1980 2014
Included observations: 35

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. |******|	. |******|	1	0.895	0.895	30.533	0.000
. |******|	. | . |	2	0.793	-0.045	55.186	0.000
. |***** |	. | . |	3	0.693	-0.039	74.649	0.000
. |**** |	. | . |	4	0.597	-0.047	89.517	0.000
. |**** |	. | . |	5	0.506	-0.030	100.55	0.000
. |*** |	. | . |	6	0.419	-0.037	108.39	0.000
. |** |	.*| . |	7	0.331	-0.068	113.45	0.000
. |** |	. | . |	8	0.251	-0.027	116.46	0.000
. |*. |	. | . |	9	0.180	-0.014	118.08	0.000
. |*. |	. | . |	10	0.116	-0.027	118.77	0.000
. | . |	. | . |	11	0.056	-0.035	118.94	0.000
. | . |	. | . |	12	0.001	-0.035	118.94	0.000
. | . |	. | . |	13	-0.052	-0.045	119.09	0.000
.*| . |	. | . |	14	-0.097	-0.022	119.68	0.000
.*| . |	. | . |	15	-0.139	-0.040	120.93	0.000
.*| . |	. | . |	16	-0.176	-0.031	123.03	0.000

FDI at 1st difference

Date: 10/13/15 Time: 15:58
Sample: 1980 2014
Included observations: 34

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.*| . |	.*| . |	1	-0.193	-0.193	1.3763	0.241
. | . |	.*| . |	2	-0.039	-0.079	1.4345	0.488
.*| . |	.*| . |	3	-0.128	-0.158	2.0847	0.555
. | . |	. | . |	4	0.010	-0.057	2.0886	0.719
. | . |	. | . |	5	-0.005	-0.038	2.0895	0.837
. | . |	.*| . |	6	-0.029	-0.066	2.1257	0.908
. | . |	.*| . |	7	-0.035	-0.070	2.1801	0.949
. | . |	.*| . |	8	-0.052	-0.096	2.3065	0.970
. | . |	. | . |	9	0.008	-0.054	2.3095	0.986
. | . |	.*| . |	10	-0.023	-0.072	2.3358	0.993
. | . |	. | . |	11	0.009	-0.049	2.3400	0.997
. | . |	. | . |	12	0.007	-0.030	2.3428	0.999
. | . |	. | . |	13	0.036	0.003	2.4173	0.999
. | . |	. | . |	14	-0.010	-0.023	2.4233	1.000
. | . |	. | . |	15	-0.015	-0.037	2.4379	1.000
. | . |	. | . |	16	-0.022	-0.047	2.4706	1.000

GDP at 1st difference

Date: 10/13/15 Time: 16:00
Sample: 1980 2014
Included observations: 34

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
***| . |	***| . |	1	-0.371	-0.371	4.9795	0.026
.**| . |	***| . |	2	-0.228	-0.425	6.9186	0.031
. |*. |	. *| . |	3	0.157	-0.171	7.8724	0.049
. *| . |	.**| . |	4	-0.076	-0.236	8.1006	0.088
. | . |	. *| . |	5	0.032	-0.117	8.1433	0.149
. |** |	. |** |	6	0.244	0.252	10.686	0.099
.**| . |	. |*. |	7	-0.237	0.074	13.182	0.068
. | . |	. |** |	8	0.061	0.222	13.356	0.100
. | . |	. | . |	9	-0.008	0.050	13.360	0.147
. *| . |	. *| . |	10	-0.125	-0.133	14.145	0.166
. |*. |	. | . |	11	0.182	-0.051	15.882	0.146
. *| . |	.**| . |	12	-0.080	-0.246	16.233	0.181
. | . |	. | . |	13	0.008	-0.028	16.236	0.237
. | . |	. *| . |	14	-0.011	-0.121	16.244	0.299
. | . |	. | . |	15	-0.013	0.067	16.255	0.365
. | . |	. | . |	16	-0.022	0.058	16.287	0.433

APPENDIX D: Cointegration verification

Date: 10/13/15 Time: 16:03
Sample (adjusted): 1985 2014
Included observations: 30 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP FDI
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.862392	60.13627	15.49471	0.0000
At most 1	0.020970	0.635804	3.841466	0.4252

Trace test indicates 1 cointegrating Eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.862392	59.50046	14.26460	0.0000
At most 1	0.020970	0.635804	3.841466	0.4252

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

GDP	FDI
-2.09E-05	4.40E-05
5.73E-07	2.66E-05

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	-15898.50	3447.504
D(FDI)	-74843.53	-12590.67

1 Cointegrating Equation(s): Log likelihood -713.8606

Normalized cointegrating coefficients (standard error in parentheses)

GDP	FDI
1.000000	-2.102499
	(0.11847)

Adjustment coefficients (standard error in parentheses)

D(GDP)	0.332640
	(0.11527)
D(FDI)	1.565930
	(0.43015)

Appendix E: Vector Error Correction Model

Vector Error Correction Estimates
Date: 10/13/15 Time: 16:06
Sample (adjusted): 1985 2014
Included observations: 30 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	
GDP(-1)	1.000000	
FDI(-1)	-2.102499	
	(0.11847)	
	[-17.7475]	
C	-667493.8	
Error Correction:	**D(GDP)**	**D(FDI)**
CointEq1	0.332640	1.565930
	(0.11527)	(0.43015)
	[2.88565]	[3.64047]
D(GDP(-1))	-0.373779	-2.349504
	(0.32102)	(1.19788)
	[-1.16435]	[-1.96138]
D(GDP(-2))	-0.713374	-3.044057
	(0.30294)	(1.13042)
	[-2.35483]	[-2.69285]
D(GDP(-3))	-0.167800	-3.529265
	(0.32351)	(1.20716)
	[-0.51869]	[-2.92360]
D(GDP(-4))	-0.490108	-3.266128
	(0.33693)	(1.25724)
	[-1.45465]	[-2.59785]
D(FDI(-1))	0.680078	1.115157
	(0.24657)	(0.92006)
	[2.75821]	[1.21205]
D(FDI(-2))	0.427387	2.878952
	(0.22693)	(0.84679)
	[1.88335]	[3.39984]
D(FDI(-3))	0.238065	-0.819128
	(0.33605)	(1.25399)
	[0.70841]	[-0.65322]
D(FDI(-4))	0.338289	3.456850
	(0.28960)	(1.08065)
	[1.16812]	[3.19887]
C	245238.9	1048203.
	(81133.7)	(302751.)
	[3.02265]	[3.46227]
R-squared	0.921817	0.879189
Adj. R-squared	0.886635	0.824824

Sum sq. resids	1.82E+10	2.54E+11
S.E. equation	30176.84	112605.0
F-statistic	26.20112	16.17201
Log likelihood	-345.9311	-385.4354
Akaike AIC	23.72874	26.36236
Schwarz SC	24.19580	26.82943
Mean dependent	122745.2	-563.7667
S.D. dependent	89625.92	269042.3

Determinant resid covariance (dof adj.)	3.59E+18
Determinant resid covariance	1.60E+18
Log likelihood	-713.8606
Akaike information criterion	49.05737
Schwarz criterion	50.08492

Long-run Causality

Dependent Variable: D(GDP)
Method: Least Squares
Date: 10/13/15 Time: 16:11
Sample (adjusted): 1985 2014
Included observations: 30 after adjustments
D(GDP) = C(1)*(GDP(-1) - 2.10249949535*FDI(-1) - 667493.781555) + C(2)*D(GDP(-1)) + C(3)*D(GDP(-2)) + C(4)*D(GDP(-3)) + C(5)*D(GDP(-4)) + C(6)*D(FDI(-1)) + C(7)*D(FDI(-2)) + C(8)*D(FDI(-3)) + C(9)*D(FDI(-4)) + C(10)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.332640	0.115274	2.885646	0.0091
C(2)	-0.373779	0.321018	-1.164353	0.2580
C(3)	-0.713374	0.302940	-2.354834	0.0289
C(4)	-0.167800	0.323506	-0.518693	0.6097
C(5)	-0.490108	0.336926	-1.454646	0.1613
C(6)	0.680078	0.246565	2.758207	0.0121
C(7)	0.427387	0.226930	1.883345	0.0743
C(8)	0.238065	0.336055	0.708411	0.4869
C(9)	0.338289	0.289601	1.168123	0.2565
C(10)	245238.9	81133.68	3.022652	0.0067

R-squared	0.921817	Mean dependent var	122745.2
Adjusted R-squared	0.886635	S.D. dependent var	89625.92
S.E. of regression	30176.84	Akaike info criterion	23.72874
Sum squared resid	1.82E+10	Schwarz criterion	24.19580
Log likelihood	-345.9311	Hannan-Quinn criteria.	23.87816
F-statistic	26.20112	Durbin-Watson stat	2.013829
Prob(F-statistic)	0.000000		

Short-run Causality (Wald Test)

Wald Test:
Equation: Untitled

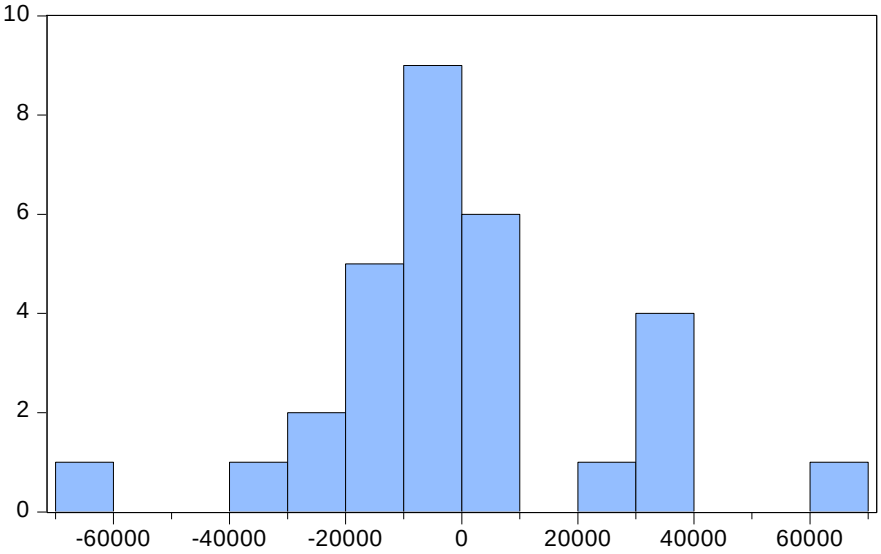
Test Statistic	Value	df	Probability
F-statistic	2.555498	(4, 20)	0.0706
Chi-square	10.22199	4	0.0368

Null Hypothesis: C(6)=C(7)=C(8)=C(9)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	0.680078	0.246565
C(7)	0.427387	0.226930
C(8)	0.238065	0.336055
C(9)	0.338289	0.289601

Restrictions are linear in coefficients.

Normality



Series: Residuals	
Sample 1985 2014	
Observations 30	
Mean	1.89e-11
Median	-3911.288
Maximum	64537.95
Minimum	-65339.81
Std. Dev.	25060.50
Skewness	0.227116
Kurtosis	4.084299
Jarque-Bera	1.727538
Probability	0.421570

Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.210414	Prob. F(2,18)	0.1385
Obs*R-squared	5.915251	Prob. Chi-Square(2)	0.0519

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 10/13/15 Time: 16:23
Sample: 1985 2014
Included observations: 30
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.060482	0.200140	0.302197	0.7660
C(2)	1.109155	1.007095	1.101341	0.2853
C(3)	-1.202231	0.787035	-1.527545	0.1440
C(4)	0.269629	0.445215	0.605616	0.5523
C(5)	-0.818112	0.503026	-1.626382	0.1212
C(6)	0.099151	0.448748	0.220949	0.8276
C(7)	-0.178307	0.516486	-0.345232	0.7339
C(8)	0.335770	0.466874	0.719187	0.4813
C(9)	0.141948	0.361313	0.392866	0.6990
C(10)	35719.66	151149.1	0.236321	0.8159
RESID(-1)	-1.556832	1.128401	-1.379680	0.1846
RESID(-2)	1.267577	0.732763	1.729860	0.1008

R-squared	0.197175	Mean dependent var	1.89E-11
Adjusted R-squared	-0.293440	S.D. dependent var	25060.50
S.E. of regression	28501.19	Akaike info criterion	23.64245
Sum squared resid	1.46E+10	Schwarz criterion	24.20293
Log likelihood	-342.6368	Hannan-Quinn criteria.	23.82176
F-statistic	0.401893	Durbin-Watson stat	1.683744
Prob(F-statistic)	0.937061		

Heteroscedasticity

Heteroskedasticity Test: ARCH

F-statistic	0.013755	Prob. F(1,27)	0.9075
Obs*R-squared	0.014766	Prob. Chi-Square(1)	0.9033

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/13/15 Time: 16:24
Sample (adjusted): 1986 2014
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.31E+08	2.37E+08	2.662914	0.0129
RESID^2(-1)	-0.022648	0.193112	-0.117281	0.9075

R-squared	0.000509	Mean dependent var	6.18E+08
Adjusted R-squared	-0.036509	S.D. dependent var	1.10E+09
S.E. of regression	1.12E+09	Akaike info criterion	44.58076
Sum squared resid	3.40E+19	Schwarz criterion	44.67506
Log likelihood	-644.4210	Hannan-Quinn criteria.	44.61029
F-statistic	0.013755	Durbin-Watson stat	1.986180
Prob(F-statistic)	0.907506		

Granger Causality Test Under VECM

VEC Granger Causality/Block Exogeneity Wald Tests
Date: 10/13/15 Time: 16:28
Sample: 1980 2014
Included observations: 30

Dependent variable: D(GDP)

Excluded	Chi-sq	df	Prob.
D(FDI)	10.22199	4	0.0368
All	10.22199	4	0.0368

Dependent variable: D(FDI)

Excluded	Chi-sq	df	Prob.
D(GDP)	12.20125	4	0.0159
All	12.20125	4	0.0159

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