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The key determinants of foreign direct investment in South Africa

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The key determinants of foreign direct investment in South Africa

Thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in fulfilment of the requirements for the degree of Master of Management in Finance and Investment

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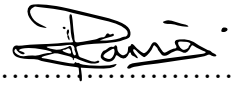
Declaration

I, Kamil Rama declare that the research work reported in this dissertation is my own, except where otherwise indicated and acknowledged. It is submitted for fulfilment for the degree of Master of Management in Finance and Investment at the University of the Witwatersrand, Johannesburg. This thesis has not, either in whole or in part, been submitted for a degree or diploma to any other universities.



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Signature of candidate Date

Acknowledgements

- This paper is dedicated to my late brother who was my pillar of strength and a constant force of motivation.

- I would like to thank God, for providing me with the strength and determination to complete this thesis during an extremely tough and difficult year, not only for myself but for everyone.

- I am grateful for all the constant support and encouragement received from both my parents. They have instilled in me from the young age the benefits of receiving a good education and have worked tirelessly and sacrificed so much to give me the opportunity to better myself.

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- Lastly, I would like to show my gratitude to my supervisor Dr Jones Odei-Mensah who helped shape my research by sharing his knowledge and expertise and by providing me with direction when it mattered most.

Abstract

This study investigates the determinants of foreign direct investment (FDI) in South Africa using annual data for the period 1994-2018. The importance of FDI inflows to South Africa cannot be underestimated, it assists in creating value for investible assets and capital formation, but also brings much-needed stimulus to efficiency, productivity and economic growth. Despite being one of the major recipients of FDI in Africa when compared to other emerging countries the value of these inflows can be considered low and volatile. Based off the literature, Pesaran' s Autoregressive Distributed Lag (ARDL) model was chosen as the method used to test for cointegration. The ARDL model tests the long-run relationship between FDI and its potential determinants and the error correction model (ECM) estimates the short-run dynamic parameters within the ARDL model. The empirical results show that in the long run exchange rate, trade openness and political stability are the most important factors in determining FDI inflows to South Africa. The short-run coefficients show that political stability has a significant positive effect on FDI inflows, while the number of BITS signed has a significant negative effect. The negative short-run coefficients seen with GDP and exchange rate are not notable due to the coefficients being statistically insignificant. The study recommends that he government should look to implement policies which help promote the liberalisation of restrictions around trade and the movement of capital. This should also include looking into increasing the consistency and transparency of fiscal, monetary and trade policies. Exchange rate targeting strategies should be implemented to help stabilize the exchange rate. Lastly the South African government should maintain regulatory policies which promote political stability and invoke investor confidence.

Keywords:

Foreign direct investment, South Africa, Economic growth, Cointegration, ARDL, ECM, Trade Openness, Exchange rate, Political stability

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Chapter 1

Introduction and Background to the study

1.1.Introduction

It is well established that foreign direct investment (FDI) is an important catalyst for economic growth and financial sustainability in developing countries. It allows for countries which are deprived of capital to build up infrastructure, improve human capital resources, increase income and employment as well as provide access to expertise, management and technology. In addition, it allows for the integration of the developing country with the rest of the global economy (Cevis & Camurdan, 2007). Foreign direct investment as defined by the OCED is the acquiring of a lasting interest by a resident entity in one economy in an enterprise that is resident in another economy (OECD , 2020). Starting from the early 1980's the amount of global FDI flows has been on the up, even surpassing world trade and world output (UNCTAD, 1998). The dominance of developed countries in attracting FDI has been eroding, with developing countries accounting for one third of the global inward FDI in 1997 (UNCTAD,1997). FDI to developing countries has continued its upward trend and as of 2019 are responsible for 54%, a new record, of all global FDI (UNCTAD, 2019).

The inflows of foreign direct investment have varied amongst developing countries. The increasing demand for FDI has created a competitive market where countries are trying to one up each other through liberalisation of trade & policy regimes, the inclusion of incentive packages for foreign investors and establishment of special economic zones (Mottaleb & Kalirajan, 2010/13). In 2018 an estimated 122 new measures were implemented by 55 countries which directly affected foreign investment, of which 33% of those new measures were the introduction of new regulations or restrictions. 11 countries have found it necessary to introduce new screening frameworks and in addition have had 41 amendments to existing regimes (UNCTAD, 2019). Despite all these changes some developing countries still struggle to attract FDI.

The story of South Africa's transition post-apartheid era is truly unique, the government has placed great emphasis on the importance of FDI in leading growth and particularly through the Growth, Employment and Redistribution strategy (Arvanitis, 2006). The improvement in macroeconomic conditions coupled with South Africa's great diversification, abundant amount of natural resources, transparent legal system, business-friendly environment and other attractive assets make it a very promising destination for foreign direct investment. However, its performance in attracting FDI relative to other emerging markets is poor. Following a series of low FDI inflows for the years 2015-2017 in which the cumulative amount of FDI was $5971 billion. South Africa has since seen an increase in FDI of 166% in 2018

which can largely be attributed to president Cyril Ramaphosa' s commitment to help secure and attract more foreign investment in an attempt to help kick-start the country's lagging economy (Export Enterprise SA , 2020).

The low domestic savings and investments which characterise South Africa amplifies the need for foreign direct investment to drive economic development, with the inflows of FDI to developing countries now at the highest it's ever been, there is an incentive to find out what the key determinants of FDI are to allow developing countries, like South Africa, to take advantage of what there is on offer.

1.1.2. Overview of the South African Economy

South Africa only recently was surpassed by Nigeria as sub-Saharan Africa's largest economy but it still remains a highly developed economy with advanced economic infrastructure (Nordea Trade , 2020). The political and economic transformation through reforms while continuing the pursuit of trade liberalisation, globalisation and financial sector development has been beneficial to the country post-Apartheid era. This can be seen in Figure 1 and Table 1 which show the GDP growth-rate and other macroeconomic indicators for the period 1994-2018. In present times the key areas of concern for the government are to boost economic growth, reduce unemployment and avoid further credit rating downgrades.

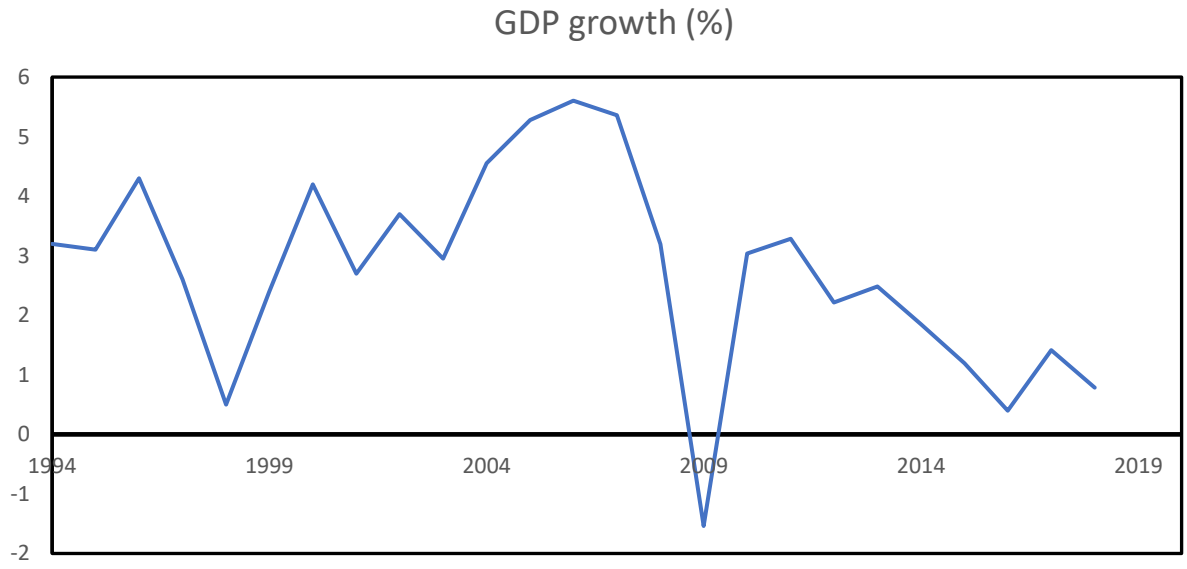


Figure 1: GDP annual growth rate for 1994-2018

Table 1: Average macroeconomic Indicators for South Africa during different periods

	1990-2000	2001-2010	2011-2018
GDP per capita growth (annual %)	-0.40	2.20	0.18
Current account balance (% of GDP)	-0.03	-2.32	-3.98
Gross domestic savings (% of GDP)	18.52	19.89	19.49
Gross capital formation (% of GDP)	17.67	18.80	19.77
Inflation rate (%)	9.47	5.91	5.41
Unemployment rate (%)	26.75	28.04	25.56
Foreign direct investment, net inflows (% of GDP)	0.59	2.00	1.17
Exports of goods and services (% of GDP)	23.24	29.06	30.36

Source: *World Development Indicators 2020*

The country displayed significant economic growth for periods 1990-2000 and 2001-2010 which can be seen in the growth in GDP per capita which more than doubled from -0.40% to 2.20% and since then has seen a steady decline in growth with an average of 0.18% for 2011-2018. For the periods in mention the gross domestic savings (%GDP) has shown a slight increase, however it is still lower than other emerging economies. The increase in gross capital formation can be attributed to increases in FDI inflows which also had a significant increase from the periods 1990-2000 to 2001-2010 and is currently at an average of 1.17%.

South Africa's economy is reliant on exports, specifically of mineral resources. The country is one of the largest producers and exporters of gold, platinum, chrome and manganese and has 60% of the worlds coal reserves (Nordea Trade , 2020). The South African economy is particularly susceptible to volatility in demand and price of such commodities. The agriculture sector is significantly smaller accounting for 2.1% of the country's current GDP and is important for the production of important grains and cereals. The services sector is growing rapidly and employs approximately 71.7% of the total work force and represents 61% of GDP (World Bank, 2020)

Inflation rate within the country has remained stable over the last decade and is within the South African Reserve Bank's (SARB) target range of 3-6% which is achieved through a policy of inflation targeting. Despite these positive indicators, the country is often criticised for the socio-economic challenges it faces; namely the large wealth inequality and poverty. The national poverty line is currently 55.5% and the country ranks 113th on the human development index (HPI) (United Nations, n.d.). The unemployment rate in South Africa has steadily risen over the years and is currently 28.7%. Additional

problems faced by the country over recent years is the decline in global competitiveness as a result of increasing public debt, insufficient management of state-owned enterprises and spending pressures.

1.2. Motivation for study

The importance of FDI inflows to South Africa cannot be underestimated, it assists in creating value for investible assets and capital formation, but also brings much-needed stimulus to efficiency, productivity and economic growth. The South African authorities have attempted to make FDI the main driver of economic growth, and as a result, have implemented various policies and incentives. The identification of variables which affect FDI is important to the government, policy makers and other officials to provide them with specific areas which they can improve in order to achieve sustainable development and economic growth. The primary motivation behind this study is to investigate the main determinants which attract foreign investors and multi-national corporations (MNC's) to invest in South Africa. There is an abundant selection of research on this topic majority of which is based off emerging economies like China and India. There is some which focus on Africa as a continent and sub-Saharan Africa. This study will employ variables which are often overlooked as being key determinants of FDI to South Africa but have played a major role economically or politically. Some of which include human capital, the cancellation of Bilateral Investment Treaties (BITS), domestic stock market development, political stability and corruption.

Human capital is seen as an important determinant of FDI and is acknowledged widely in literature. However, the results for developing countries have been mixed. Human capital plays a vital role in not only attracting FDI but is important in taking advantage of the spill-over effects of FDI. FDI will promote growth, but with the lack of high-skilled labour development is not guaranteed as the transfer of knowledge, managerial expertise and technology by MNC's will be useless to the development of the economy if the host country is unable to use or understand it. South Africa is one of the most developed countries in sub-Saharan Africa; the country has a high literacy rate of 94.37% in 2015, an improvement of 5.65% from 2007. However, it is ranked at 126th on the Human Capital Index (HCI) behind Malawi and eSwatini (The World Bank, 2019). Evidence shows that there is a great learning gap within the country, with a child expecting to complete an average of 9.3 years of schooling compared to the expected number of years which is 13. As a result, majority of the population will be entering the labour market without the necessary skills or education. While the country enjoys a large literacy rate but lacks an abundant amount of skilled human capital, this could lead to implications regarding the utilisation of FDI in the development process (Mudiyanselage, 2013). South Africa has poor human capital development indicators and exhibited poor performance in FDI attraction. This provides the opportunity to analyse the relationship between human capital and FDI.

The study will consider the effects of South Africa's shift in investment policies with the cancellation of bilateral investment treaties (BITS) and the introduction of other legislation such as the new Southern African Development Community (SADC) Bilateral Investment Treaty and the Protection of Investment Act on FDI inflows. BITS have in the past grown in popularity as it provides reassurances to investors with not only market risk but other factors including property rights and government enforcement. The cancellation of these agreements has created concerns among investors regarding the increased investment costs in South Africa as well as the predictability of the framework governing trade and investment to be undermined (Soko & Qobo, 2018). The current work on BITS has produced results which are contradictory and inconclusive. To investigate the effects of the cancellation of BITS on FDI inflows will offer clarity and provide better insight into the effectiveness of South Africa's changes to investment policy and the impact on the country's economy.

The study will consider South Africa's financial development specifically through the stock market. The Johannesburg stock exchange (JSE) is the largest on the continent and ranked as the 19th largest in the world (JSE , 2013). In 2003 the JSE had a market capitalisation of approximately $183 billion with 473 listed companies. From 2004 the JSE allowed the listing of foreign companies, which allowed MNC's to raise capital in South Africa to raise capital for investment both locally and internationally. By 2016 there were 75 foreign domiciled companies listed on the JSE (Thomas, 2017). The JSE has continued to grow through the years, providing access to financial markets including equities, bonds, financial, commodity and interest rate derivatives and as of May 2018 it has a market capitalisation of $1105 billion with 388 listed companies. Therefore, South Africa's highly developed stock market should have an effect on FDI inflows. South Africa's well developed and functioning stock market theoretically should be a more attractive destination for MNC's to invest as it provides a friendlier environment with a government which is open to the international relations. Furthermore, in the past ownership of JSE listed companies have been dominated by local investors but foreign ownership has increased from 28% (by market value) in 2008 to 38% in 2016 (Thomas, 2017). Claessens, Kilngebiel & Schmukler (2001) showed that the degree of internalisation is positively correlated to FDI inflows and as a result the internalisation of the JSE is likely to affect FDI inflows to South Africa. The literature covering the relationship of stock market development and FDI inflows is very limited and to the best of my knowledge, there are no studies which look at stock market development as an important determinant of FDI to South Africa. Investigating it as a key determinant of FDI would offer new alternative approaches to improve FDI attraction in the country.

A secondary motivating factor for this study is a result of variations in economy sizes, politics, and numerous other country settings, the factors which encourage or discourage FDI will vary from country to country. The study will supplement the current catalogue of literature of determinants of FDI in South Africa by looking at different political variables, along with macroeconomic determinants which could

have a significant contribution towards FDI. Moreover, the study will also provide policy recommendations, which focus on specific variables that if utilised will help attract greater FDI inflows and help improve the quality and skill of the labour force, provide economic growth and development as well as improve market access for South Africa. On this basis it is warranted that South Africa is merited a study dedicated to investigating the determinants of FDI.

1.3. Problem Statement

Despite many positive factors including: economic stability, natural resources, good investment climate and trade openness, which have been proved as important determinants of FDI, South Africa's performance in attracting FDI relative to other developing countries is poor. From the period 2010-2018 South Africa has received an average of $4.2 billion inward FDI, this amount is the lowest amount out of the BRICS countries with Russia coming in 2nd with $35.2 billion. Within its own continent even Nigeria has received on average greater amounts of FDI inflows with an amount of $5.02 billion (World Development Indicators, 2020). The inability to attract FDI deprives the country of the much-needed transfer of technologies, resources and skills. South African FDI inflows have been very volatile over the last 20 years and drastic increases in FDI in certain periods can be attributed to once-off privatisations, commodity booms or acquisitions. FDI inflows have allowed South Africa to develop and grow despite the low levels of savings within the country, as a result the government has made it a priority to ensure FDI is the main driver of economic growth (Ruiske, 2007). In attempts to attract FDI which is in line with the constitution and government policies of the country South Africa has cancelled many of its BITS, undergone policy changes and implemented different incentive programs.

The topic of determinants of FDI is well researched, however the debate is ongoing. Majority of the research such as Avantis (2006), Cevis and Çamurdan (2007) and Khondoker and Kalirajan (2010) have focused on the macroeconomic determinants of FDI which include market size, trade openness and inflation. Despite this knowledge South Africa still attracts low levels of FDI. Research conducted on determinants of FDI for South Africa, as a country specific case, also sees the focus primarily on the same macroeconomic determinants with the inclusion of some additional factors including the effects of apartheid and the financial crisis on FDI inflows. Fedderke and Romm (2004) and Moolman et al (2006) conducted empirical analysis on the determinants of FDI in South Africa, in summary the following determinants were found to have a strong influence on FDI market size, openess, infrastructure, nominal exchange rate increased exports and improved property rights. There are other social and political factors that have not been adequately investigated which could have a significant influence on the attraction of FDI. To establish other key determinants of FDI attraction will provide guidance on other sectors or areas to focus on and allow the country to reap the benefits of FDI.

1.4. Objective of the study

- To identify the key determinants of FDI inflows to South Africa.

1.5. Significance Of the study

This study is of significance as FDI is an important source of development, poverty reduction and employment which are key areas of concern for South Africa. The results obtained from the empirical analysis will provide government and policy makers with key determinants on which to focus to increase FDI inflows, this in turn will improve the investment climate within the country. In addition, it can provide guidelines and help other African countries in similar economic situations. The study investigates variables, such as human capital, the effects of BITS and political variables on FDI inflows which are not regularly investigated among literature and will add to the current literature on determinants of FDI to South Africa. Furthermore, the study can act as a basis for further research on FDI determinants.

1.6. Organization of study

Following Chapter 1 the remainder of the study is set out as follows:

- Chapter 2 provides global, regional and South African trends in FDI inflows as well as FDI policies implemented by South Africa.
- Chapter 3 consists of the theoretical and empirical literature review of determinants of FDI
- Chapter 4 discusses the methodology, which includes the formulation of the empirical model and estimation techniques utilised.
- Chapter 5 is the empirical analysis of the models and an assessment of their robustness.
- Chapter 6 concludes with the summary of the empirical results, policy recommendations as well as the direction of possible future research.

Chapter 2

Stylised Facts About FDI and South African FDI policy

2.1.Global and regional trends in FDI

For the 3rd successive year the global amount of FDI has declined, in 2018 it declined by approximately 13% to $1.3 trillion. The continued fall of FDI can be attributed to large repatriations of accumulated foreign earnings by the Unite States MNC's as well as tax reforms introduced at the end of 2017 (UNCTAD, 2019). Despite this the FDI inflows to developing countries continued its upward trend increasing by 2% which means that as of 2018 developing countries are responsible for 54% of all global FDI inflows. Of the developed countries, the United States was the major recipient of FDI with a total of $252 billion, down 9% from the previous year. Inflows to Europe contracted by half to $172 billion.

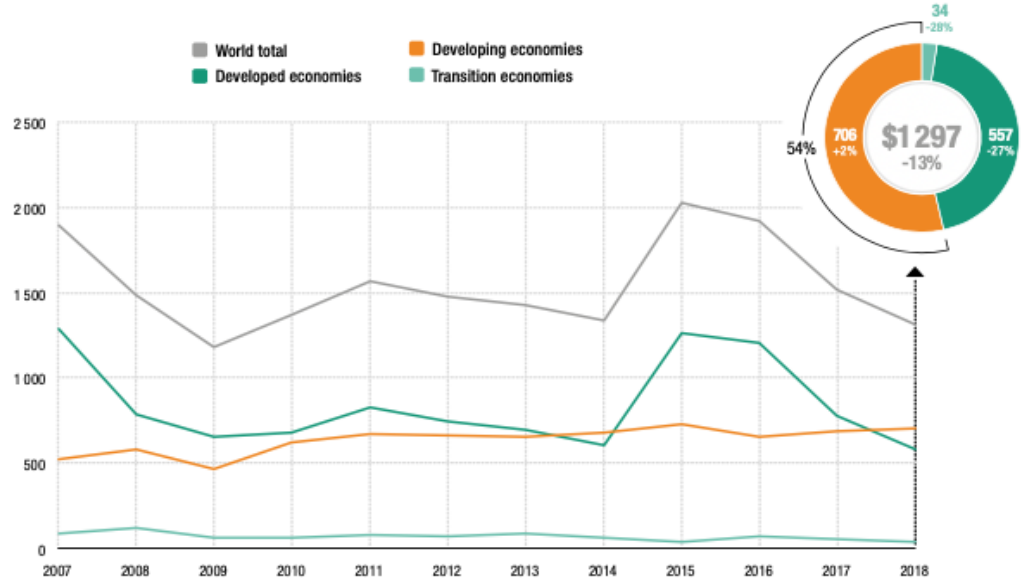


Figure 2: Trends in FDI

Source: *UNCTAD World Investment Report 2019*

FDI inflows to Africa increased by 11% to $46 billion which is still below the 10-year average of $50 billion and represents only 3.53% of all global FDI inflows (UNCTAD, 2019). The rise in FDI is mainly due to the continuation of resource seeking investments and the slow expansion of diversified investments in a few economies, while FDI in Latin America and Caribbean contracted by 6% in 2018 (UNCTAD, 2019). Asia has been the recipient of the most FDI inflows over recent years and continues that trend with a 4% increase to bring its total FDI inflows to $512 billion for 2018. While the transitioning economies who are structurally weak, under-developed and vulnerable only accounted for 3% of all global FDI inflows.

Greenfield investments in manufacturing having been on the decline has seen an increase in the value of announced projects by 35%, majority of which are in developing countries which are in much need of industrial development. The number of state owned MNC's remained stable throughout 2017-2018 and is approximately 1500 (UNCTAD, 2019).

2.2. FDI inflows to South Africa, BRICS and other developing countries

South Africa formally joined the group of important emerging economies, which include Brazil, Russian federation, India and China (BRIC) in 2010 in an attempt to follow through with their foreign policy and strengthen South-South relations. The cheap labour force of China, India's large and young population and the natural resources offered by Brazil and Russia are some key factors which were responsible for attracting FDI to these economies (Nistor, 2015). From Figure 5 it can be seen that South Africa attracts significantly lower amounts of FDI followed by Russia. China has been the recipient of the most FDI since the 1990's and has the leading position among the most attractive economies for FDI. The large potential market, investor friendly government policies and low labour costs have attracted numerous MNC's across various industries including telecommunications and petrochemicals (Nistor, 2015).

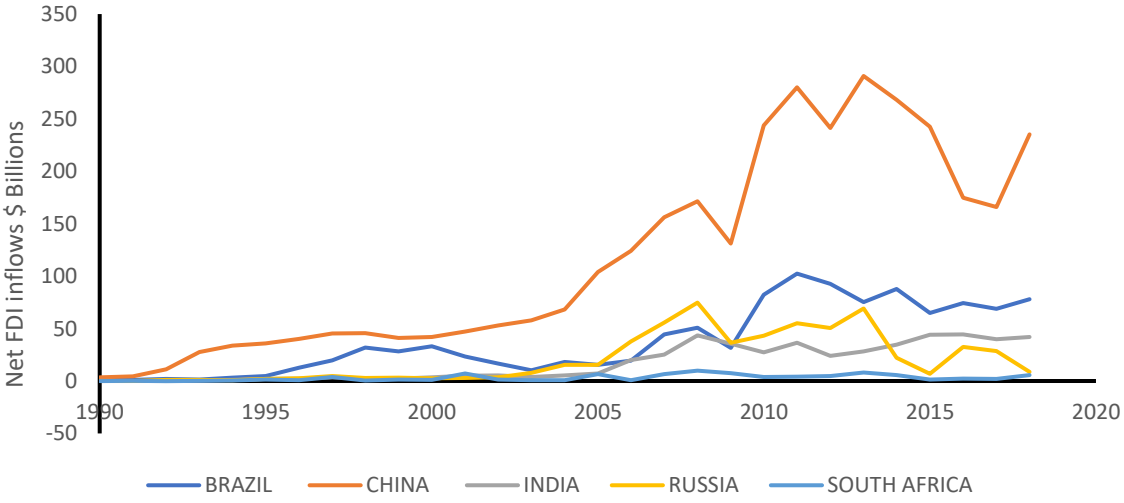


Figure 3:FDI inflows to BRICS for the period 1990-2018

Source: *World Development Indicators 2020*

Looking at Figure 6, it can be seen that South Africa is one of the major recipients of FDI, compared to other sub-Saharan countries also the inflows are extremely volatile and don't seem to follow any particular trend as observed by other economies. The country's biggest competitors for FDI inflows is Nigeria, with Ethiopia and Mozambique also showing growing FDI attraction from 2010. As mentioned earlier Nigeria is now the largest economy in Africa, it is characterised by its abundance of natural

resources and human resources, approximately 95% of FDI goes into the oil and extractive sectors due to the highly undiversified economic structure (Adefeso & Agboola, 2012). Mozambique rise in FDI flows is a result of a process which started many years ago when the government implemented economic reforms which saw a shift from a central economy to a more open economy (UNCTAD, 2010). The privatisation programmes for public companies have also been implemented for the attraction of FDI but the real sectors which investors are interested in are the energy, hydrocarbon, logistics and real estate. The recent decline in FDI is attributed to low investor confidence, due to the government debt scandal in 2016 and as a result the country ranks 138th out of 190 in the 2020 World Bank Doing Business report (Nordea, 2020).

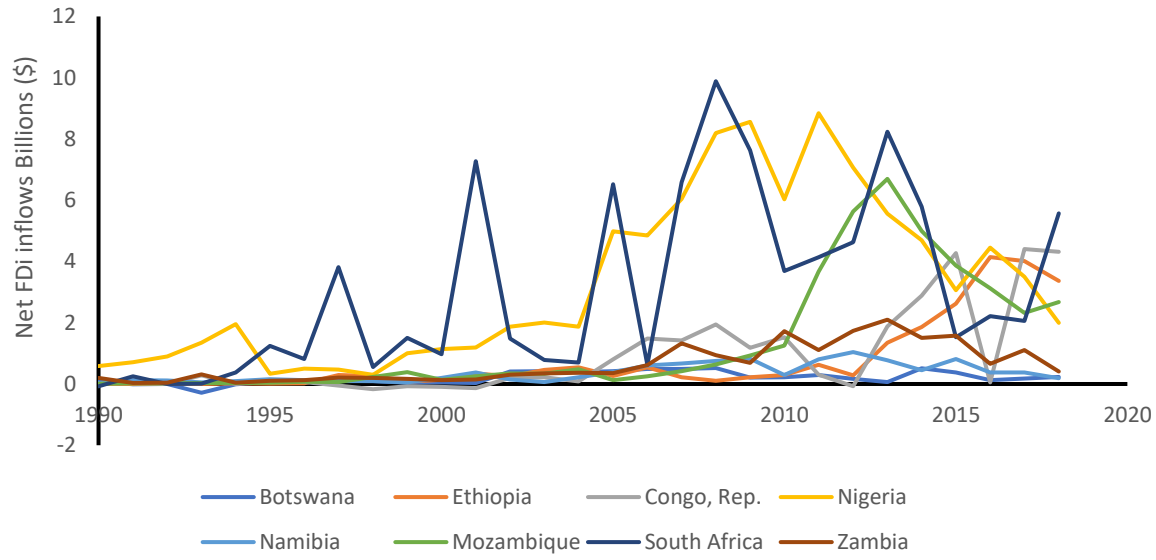


Figure 4:Net FDI inflows to sub-Saharan Countries for the period 1990-2018

Source: *World Development Indicators 2020*

2.3. FDI and Policy in South Africa

The abolishment of the Apartheid regime gave birth to a new liberalised South Africa, the new government wanted to tackle many of the problems plaguing the country and in June 1996 launched the Growth, Employment and Redistribution (GEAR) plan. This macroeconomic policy aimed at strengthening economic development, fighting poverty, improving employment and redistribution of income and socioeconomic opportunities in favour of the poor (Knight, 2001). GEAR would achieve these goals through increased economic liberalization, strengthening of the exchange rate, deregulation of capital control and reduction of the budget deficit. At the time FDI was not pursed actively, rather it was believed that FDI will respond positively to more prudent fiscal deficits and other reforms introduced by GEAR (Barbour, 2005). Part of the strategy involved, for trade related purposes, South Africa entering numerous bilateral agreements with other countries. Bilateral Investment and Protection Agreements (BIPAs) where investors were granted the most favoured nation status and Bilateral

Investment Treaties (BITS) were amongst these agreements implemented in hopes of attracting more foreign investment (Masipa, 2018) .

An increase in foreign investment was vital to South Africa as it would contribute significantly to the GEAR goal of creating 400 000 new jobs annually as the country could not do this on its own due to its low domestic savings rate and low foreign currency reserves. The Strategic Investment Programme (SIP) and Motor Industry Development Plan (MIDP) were implemented as investment incentives to promote employment and FDI in the manufacturing sector as manufactured exports play a vital role in the government's strategy for spurring growth and employment (Barbour, 2005).

The World Development Report 2005: A Better Investment Climate for Everyone, provides data which compares South Africa's investment climate to other sub-Saharan economies, middle-income countries and the rest of the world.

Table 2: Comparison of South Africa's Investment Climate

	Metric	South Africa	World Average	Middle-Income Average	Sub-Saharan Africa Average
Investment risk profile	1-12 1= highest risk	10.5	8.8	8.7	7.2
Intensity of local competition	1-7 1= no competition	5.3	4.7	4.6	4.2
Regional disparities in investment climate	1-7 1= no disparities	2.9	3.4	3.1	2.9
Transparency in policy-making	1-7 1= no transparency	4.3	3.9	3.5	3.8

In comparison to everyone else, South Africa's business climate was relatively favourable at the time, however FDI inflows were still low and this could be attributed to the high investment risk. There is a very high cost of business associated with South Africa with high crime rates, widely fluctuating exchange rate and abundant amount of unskilled labour (Barbour, 2005). Other research into South Africa's macroeconomic and political environment by Chandra *et al.* (2000), Gelb (2003) and Jenkin and Thomas (2002) come to the following conclusions:

- Southern African economies are too small and have slow growth rates which will have a negative effect on market seeking FDI.
- Regional political instability in neighbouring countries (Zimbabwe) can have negative spill over effects to South Africa.

- High levels of crime and HIV/AIDS in South Africa deter potential investors.
- There is shortage of skilled labour in South Africa.
- Uncertainties in regulation of telecommunication, electricity and transport sectors.

The 2018-2019 World Economic Forum's Global Competitiveness Report ranks South Africa amongst its peers for important categories regarding FDI attraction. South Africa is ranked 55th for the strength of its institutions and 60th out of 141 for its overall competitiveness which is 7 positions better than the previous year. Its overall competitiveness is being restricted due to low business dynamism and the sensitivity to exports of mineral resources is likely to affect the economic outlook of the country making it even more difficult to reduce unemployment. For judicial independence the country is ranked 33rd and 67th for property rights, for efficiency of legal framework in challenging regulations and efficiency of legal framework in settling disputes, the country ranks 40th and 31st respectively these are rated below countries such as the United States, Denmark and Australia.

2.3.1. Bilateral Investment Treaties (BITS)

Attracting FDI into the host country involves guaranteeing foreign investors that their investments will be protected, bilateral investment treaties have become a more common method by which states agree, on the various aspects regarding the protection of investments of each other's nationals. These agreements assist the inflow of FDI by providing investment protection policies, ensuring a stable and transparent investment climate, providing accountability and fostering the rule of law (Bosman, 2016).

By the end of 1998 South Africa had entered approximately 15 BITS mainly with European countries, not long after did the South African government realise that its public policy goals were being restricted as a result of these agreements. The government often faced challenges and threats stemming from the fact that BITS did not take into account the complexity of the socio-economic challenges and the broader objectives of government policy in addition there were no significant inflows of FDI from partners who they had agreements with and they still continued to receive FDI inflows from regions in which no BITS were made (Carim, 2015).

From 2008 South Africa had a review of BITS, the process lasted just over three years in which numerous extensive and intensive consultations were held with the aim of developing a framework with dealing with existing BITS and how to engage with them in the future. The conclusion was that South Africa needs to develop a BIT model in line with their own developmental needs and that the country's own legitimate interests should not be compromised for investor certainty. In addition, further domestic legislative intervention was needed to ensure proper balance is achieved and no BITS were to be entered in the future except for the case of compelling economic and political circumstances (Bosman, 2016).

Over the course of 2012-2013 South Africa set about terminating many of its BITS with European countries including France, Germany, Spain and the United Kingdom and planned on not renewing any others once expiration was reached. South Africa was looking to introduce an FDI regime which extracts the maximum benefits from each individual investment. replaced by a single domestic regime which will offer investors protection (Wood & Wentworth, 2014).

The literature on BITS as a determinant of FDI offers mixed results Tobin and Ross-Ackerman (2005) looked at FDI of 63 countries for the periods 1975-2000 and found a weak relationship between FDI inflows and BITS. Further conclusions were that BITS do not encourage greater FDI inflows to risky environments, rather are found to be more beneficial to countries with already stable business environments. The 2014 UNCTAD Trade and Development Report states that the current research cannot explain the determinants of FDI and in particular the effects of BITS on FDI. Neumayer and Spess (2005) investigated 119 developing countries for the period 1970 to 2001 their results showed a positive relationship between the adoption of BITS and FDI inflows and showed that countries which had signed more BITS with developed countries, were the recipients of greater FDI inflows.

2.3.2. Promotion and Protection of Investment Act

As a result of numerous legal and policy consultations a new 'Promotion and Protection of Investment Bill of 2013' was published to the public for comment. The bill did not introduce any new restrictions on investments and iterated the fact that South Africa is still open to FDI and is focused on providing effective protection to investors while maintaining the sovereign right of the government to pursue legitimate public policy outlined by the constitutional requirements (Carim, 2015). Many revised versions of the act were published and in 2015 it was published in the Government Gazette as the Protection of Investment Act, no. 22 of 2015. In 2018 President Ramaphosa announced the operation of the Investment act as part of the large investment drive, headed by many of the country's financial heavy weights, with the aim of attracting $100 billion in new FDI over the next five years. He along with his fellow colleagues will meet with the potential investors from the major financial markets, including the Americas, Asia and Europe (Reporter, 2018). The president is fully committed to the cause saying "We recognise the urgency with which we need to reform our investment promotion architecture to remove policy, regulatory and other impediments," as there is a great need to salvage the economy (West, 2019).

2.3.3. Industrial Development Zones (IDZs)

The first Industrial development zone implemented in South Africa was Coega which was inaugurated in 2001. The country now has 5 IDZs located in Richards Bay, East London, Saldhana Bay and Dube Tradeport. IDZs were first introduced with the aim of promoting export-orientated manufacturing FDI.

This would be achieved by providing investors with: duty-free status for imported raw materials, tax incentives, access to airports and seaports, infrastructure and the latest IT. It has been seen that IDZs have not led to significant economic growth or contributed to the transformation of the country's economic prospects. One of the reasons being that IDZs do not offer competitive incentives, and that the IDZ regulations are aligned with the social, labour and environmental rules implemented throughout the rest of the country (Centre for Development and Enterprise , 2012).

2.3.4. Special Economic Zones (SEZs)

Newer incentive programs for the attraction of FDI include the Enterprise Investment Program (EIP) which provides a cash grant up to 30% for qualifying assets and other options including holiday payments and reduced tax rates. More recently in 2016 the country introduced its Special Economic Zone (SEZ) programme, mandated by the SEZ Act its main objective is to attract foreign and domestic direct investments to the designated zones, which include Saldanha Bay, Coega, East London, Maluti-A-Phofung and Musina-Makhado. These Special Economic Zones were also implemented to create growth amongst the manufacturing sector, decrease unemployment, grow and diversify value added exports and enhance innovations (Mail & Guardian, 2019). These special economic zones are strategically placed in areas with significant growth potential, rather than being situated close to an airport or seaport like IDZs. Foreign investors can reap the benefits of tax, customs and financial benefits which are not found outside these designated zones and not only focuses on infrastructure development but rather considers all the factors of industrial development. Recently the SEZ programme has been the main driver of FDI into South Africa currently the operational investments in all of the SEZs is approximately worth R19 billion and secured but not yet operational investments are worth R43 billion (Mail & Guardian, 2019).

Chapter 3

Literature Review

3.1.Theoretical Framework

This chapter will provide the theoretical literature, and the empirical work relating to the determinants of FDI inflows. In addition, it will cover some of the economic models developed to analyse FDI inflows and look at macroeconomic and other political determinants of FDI.

3.2.Theories of Investment

Numerous complex theories and models have been developed to try gain insight into the nature of FDI and are either categorised as macroeconomic or microeconomic. Macroeconomic FDI theories place more emphasis on country specific factors which apply to FDI and are more applicable to trade and international economics, while microeconomic theories are more firm specific, relate to ownership and are based off market bias and industrial economics.

3.2.1. Hymer -Kindleberger Theory

Stephen Hymers's contribution to the study of FDI has been very important his area of research revolved around MNC's and the organisation of production. In 1960 Hymer finished one of the first works to explain international production in an imperfect market framework, his work was later supported by other researchers including Kindleberger (1969), Knickerbocker (1973), Dunning (1974) and many others. The theory more commonly known as "industrial organization" seeks out to answer three questions: (a) why do firms go abroad ? (b) how are they able to survive in foreign markets which bear initial costs? (c) Why do they want to retain control and ownership? (Hymer, 1960).

Hymer found that there are two types of advantages, " monopolistic" and " oligopolistic" which home firms are subjected to over host country firms, in addition he noted that international firms do not operate under conditions of perfect competition. Hymer mentions that there are numerous advantages which occur when making and selling a product, these could be the form of patented technology, brand names, marketing and management skills. Hymer suggests that the possession of superior technology is one of the most important advantages as it helps facilitate new products and features, while the possession of knowledge and skills helps improve the production process (Nayak & Rahul, 2014). In a later writing Hymer suggested economies of scale and the efficient functioning of a firm's organization in co-ordinating activities as a major incentive to go abroad (Horaguchi & Toyne , 1990).

Hymer also believed that the tendency of MNC's to choose between licensing and contractual agreements primarily depended on the degree of imperfection, the risk of losing comparative advantages as well as the differentials in the rate of return (Yamin, 1991). A very important point of this theory is that it mentions that advantages are transferred effectively from one unit of a firm to another regardless if they are located in one country or in multiple countries. There is no doubt that this theory has transformed FDI theory, however it is does not provide a complete explanation of where and when FDI takes place (Nayak & Rahul, 2014).

3.2.2. The Product Life Cycle Theory

In 1966 Raymond Vernon developed the product life cycle theory which he used to explain pattern in international trade and FDI. He noted that there was a propensity for the production of new products to be concentrated in developed countries as they have greater access to research, technology and innovation. The early stages of a products life cycle will be located in the home country as the domestic demand is unknown. As time progresses a firm may retain its advantage in the domestic market and look to export its product to the rest of the world. The product is then adopted abroad and becomes more standardized developing countries will then benefit as the firm seeks to undertake FDI opportunities for lower cost production or untapped markets.

There are four stages that Vernon determined in the product life cycle theory shown below:

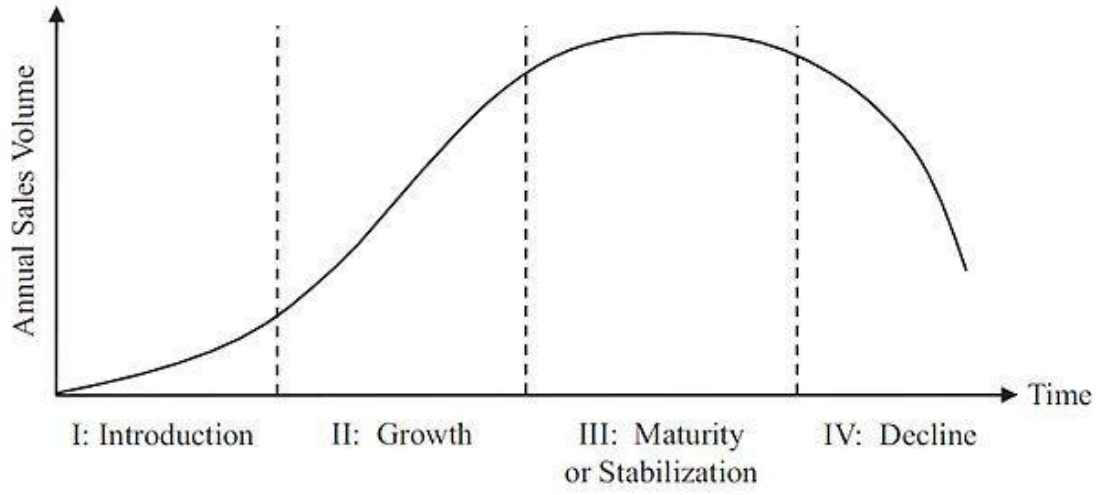


Figure 5:Product Life Cycle

Source: (www.marketing91.com/benefits-and-limitations-of-product-life-cycle/)

Introduction stage is the development of a new product, within the home country due to the research and development capability. The product is introduced to the domestic market where demand is located. There is a minimum amount of competition and international trade is very limited as there is no large-scale production.

Growth stage involves a growing foreign demand for the product and supply is sufficient. Competition grows within the domestic market and the product is exported to other countries with similar demand.

Maturity stage, the product and the production process are highly standardized. Firms try to find a way to decrease production costs and as a result mass production of the standardized product is relocated to developing countries which has lower labour and transportation costs

Decline stage is where the market is satisfied by the existing product and there a decreased demand for the product. This stage occurs as a result of product life cycle or through the entrance of new innovative products.

The product life cycle theory was very applicable to MNC's behaviour in the United States between 1945-1970 where it was a global economic powerhouse. It may be less relevant in the present times due to other great economies which are dominating the global stage. In addition, the rapid technological innovations of the current age means that the four stages of the product life cycle model may not necessarily occur in this sequence due to the long length of time it takes a product to get from the introduction stage to the standardized stage (Essays , UK , 2013)

3.2.3. The Eclectic Paradigm Theory

In 1979 Dunning proposed the eclectic paradigm also known as the OLI model which is an economic theory which has remained the dominant analytical framework for testing theories of the determinants of foreign direct investment and the foreign activities of multi-national corporations (Dunning, The eclectic paradigm as an envelope for economic and business theories of MNE activity, 2000). The framework consists of three tiers: ownership specific (O), location specific (L) and internalisation (I) which will determine if it is beneficial for an MNC to pursue FDI.

Owners-specific (O) advantages refer to advantages which are exclusive to the firm and provide a competitive advantage over domestic and foreign competitors and include advantages in technology, management, patents and reputation. Location specific (L) advantages ensure that the previously mentioned ownership specific advantages can be utilised in the chosen location they consist of immobile, natural or created endowments which act as incentives for an MNC to invest in a host country (Asiamah, Ofori, & Afful, 2018). Internalization (I) advantages which make it more profitable to carry out production in house rather than using external sources and is somewhat dependent on the existence of ownership specific advantages.

Dunning added to the model the motives of FDI which can be classified into four different categories based on its purpose: market seeking FDI, resource seeking FDI, efficiency seeking FDI and strategic resource seeking FDI. Market seeking FDI, focuses on demand aspects and the objectives of a company to access specific markets, promote or exploit new markets. Companies that invest abroad in a particular country or region with the objective of providing goods and services are referred to as market seekers (Hansson & Hedin, 2007).

Resource seeking FDI occurs when MNC's have the primary objective of acquiring resources from the host country due to the low costs or the unavailability of the specific resources in the home country. The resources could be in the form of natural resources i.e. minerals or agricultural products which can play an integral role in a company's production line or it can be in the form of cheap unskilled/semi-skilled labour which will allow for the minimization of costs and maximization of profits.

Efficiency seeking FDI occurs when MNC's have the objective of increasing efficiency through the exploitation of economies with large scale production scope but also risk diversification (Adefeso & Agboola, 2012). It involves the utilisation of differences in factor endowments, cultures, institutional arrangements and economic systems. An advantage from differences in factor endowments between countries consist of differences in availability and cost (Majavu, 2015). As an example, value adding activities which are capital, informational and technologically intensive are more likely to occur in developed countries while value adding countries which are labour or resource intensive will occur in developing countries.

Strategic resource FDI focuses on intangible resources revolving around technology and core competence of the company (Dunning, Multinational Enterprises and the Global Economy., 1993). Seeking out patents, knowledge, employee-skills and strategic supplies are all types of strategic resources which will give a competitive advantage to the firm.

3.3. Determinants of FDI

Foreign direct investment in essence is an economic concept and as a result it's not surprising that economic factors play an important role in determining FDI flows (Tocar, 2018). As a result, many researchers focus on macroeconomic variables and indicators when trying to analyse foreign direct investment. There are numerous other factors; political and social which will affect the distribution of FDI and these determinants will vary based of the type of FDI however there is a number of determinants which are universal and are crucial in the attraction of FDI.

3.3.1. Market Size/ Natural Resources

Market size or size of the economy in terms of GDP (real GDP, real GDP growth or real GDP per capita) is considered to be one of the most important variables when analysing FDI. The higher the productivity of an economy, the greater the chances of attracting foreign direct investment. Nunnenkamp (2002) found that strong correlations exist between market size and absolute FDI inflows, and there is an extensive amount of the research which back those findings. Tsai (1994) found that market size is statistically significant and has a strong effect on FDI into the country, he also explains that a larger market size not only increases the consumer base for MNC's acquiring market seeking FDI but it also increases efficiency of resource utilisation and allows the MNC's to exploit economies of scale.

Historically the presence of natural resources (minerals, raw materials or agricultural products) have been deemed as the most important determinant of FDI, however it has been seen that the presence of natural resources alone does not increase FDI inflows and more commonly gives rise to trade, rather than FDI. Historically FDI took place when countries rich in natural resources lacked the capital or technical skills required for resource extraction (Kudina & Malgorzata Jakubiak, 2008). Contradictorily the work of Asiedu (2003) and Onyeiwu and Shrestha (2004) found that the availability of natural resources is positively related to FDI inflows to Africa.

3.3.2. Infrastructure

Infrastructure and its role as a determinant of FDI has also been researched extensively. A good quantity and quality of infrastructure including telecommunications, water and power supply, roads and ports can help reduce transaction costs and help facilitate business operations – therefore infrastructure is believed to have a positive impact of FDI inflows (Wheeler & Mody , 1992). Kok & Ersoy (2009) state that electric power consumption is important for efficiency seeking FDI, although they did not obtain significant results to justify this; however, their results did show a strong positive effect of telephone mainlines, a factor that represents communication facilities, on FDI. Kachoo & Khan (2012) obtained significantly positive results between electric power consumption and FDI inflows. The work done by Asiedu (2002) provides evidence that good infrastructure promotes FDI to Africa however the marginal benefit from increased infrastructure was less in the 1990's compared to the 1980's and concluded that African countries would need to provide better infrastructure to reap similar benefits. Pigato (2001) found that in terms of infrastructure, Africa lags in the number of telephone mainlines and the percentage of roads that are paved. The on-going debate around academic and policy debates revolving around infrastructure as a driver of economic growth in South Africa is prevalent due to the difficulty obtaining consistent time-series data on infrastructure, and is proved through the limited research done on infrastructure as a determinant of FDI to the country. Alfaro et al. (2003) makes the point that along

with physical infrastructure, well-developed, efficient and readily available financial infrastructure is also crucial in attracting FDI. Weak financial markets make it more difficult for investors to raise funds locally.

3.3.3. Trade Openness

Trade openness of the economy is the measure of trade ratio to GDP, Fedderke & Romm (2004) state that there exist two types of FDI, horizontal and vertical. Horizontal FDI occurs when multi-national companies (MNC's) have their headquarters located in its own country coupled with production plants at home and abroad producing the same products. Vertical FDI occurs when MNC's have headquarters located at home but production plants scattered around various locations abroad, all making intermediate or final goods. In principal, a more open economy will attract greater inflows of vertical FDI as the low trade or transport costs are cheaper price factors for MNC's and have the inverse effects on horizontal FDI since MNC's find it more attractive to invest abroad when trade barriers impose a considerable cost for the firm (Severiano, 2011).

Empirical literature, shows that trade openness is usually a significant explanatory factor for both types of FDI. Research done by Liargovas and Skandalis (2012) which focuses specifically on FDI and trade openness found that trade openness positively affects FDI. A host of other empirical research conducted by Bhattacharya et al. (1997), Morisset (2000) and Fedderke and Romm, (2006) on the determinants of FDI to Africa showed the importance of trade openness in attracting FDI from MNC's.

3.3.4. Taxes

Taxes have a direct influence on the returns on foreign investment - low or competitive tax rates act as incentives for foreign investors. Intuitively there should exist a negative relationship between tax rates FDI. There are some difficulties with the tax elasticity of FDI as a result of the complexity of tax systems and imperfect data collection which distort estimates (Severiano, 2011). Chakrabarti (2001), Arbatli (2011) and Tang (2011) empirical research showed that taxes (taxes on income, profits and capital gains) have statistically significant negative effect on FDI.

3.3.5. Exchange Rate

The macroeconomic variable of exchange rate is known to be influential to FDI, the empirical research on exchange rate as a determinant of FDI has obtained mixed results. Many argue that a depreciation of currency should result in increased FDI as the reduced costs faced by MNC's will make investment more attractive. Moolman et al. (2006) however proved that a depreciation in the South African Rand/ Dollar exchange rate resulted in significantly lower FDI into the country. Philips and Esfahani (2008) made a thorough collection of previous literature on the impact of exchange rate on FDI and concluded that 64% of the aggregate results resulted in lower FDI inflows due to weaker exchange rates.

The counter argument made by Chakrabati (2003) is that a stronger exchange rate will result in greater profits made in the host country, but he also acknowledges that with a stronger currency, certain costs will also increase and so concludes that if the revenue channels exceed the cost channels, there will be an increase of FDI into the country. Ngowi (2001) makes the argument that a lower exchange rate will increase the cost of converting profits and force the parent company to reinvest profits locally.

Fedderke & Romm (2004) argue that a volatile exchange rate will have a negative effect on FDI. The volatility will make long-term decision making for MNC's very difficult. The process of investing is usually a lengthy one and a fluctuating exchange rate will impact management's ability to make informed decisions regarding cost structures and revenues, this increases the risk of investment and will therefore deter FDI from the host country.

3.3.6. Human Capital

Over the years a determinant which has continued to grow and show an importance in the attraction of FDI is human capital. It is important for companies that invest in a host country, to be able to hire employees with the necessary skills needed to run their business (Gray, 2011). Local skills and education are not only important for the attraction of FDI but also important for the host country to take advantage of the added benefits of FDI, the transfer of knowledge, managerial expertise and technology by MNC's will be useless to the development of the economy if the host country is unable to use or understand it. Researches which have proved human capital (education) as a determinant of FDI include: Noorbakhsh, Paloni and Youssef (2001) whom investigated through an econometric analysis the effects of school enrolment on FDI inflows to developing countries, their results showed that local skills and human capital is strongly and significantly positively related to FDI inflows. Addison and Heshmati (2003) found similar results proving that local skills is a strong determinant of FDI with its importance increasing over time. Suliman & Mollick (2009) found adult literacy to be a significant determinant of FDI amongst the 29 Sub-Saharan African countries they investigated. The work of Borensztein (1998) and Xu (2002) investigated the human capital threshold (in terms of male secondary school attainment) required for developing countries to benefit from the technology transfers from MNC affiliates, the estimated values were 1.9 years and 0.51 years respectively.

Some studies have found human capital to have little or no effect on FDI inflows. Root & Ahmed (1979 (Cheng & Kwan , 2000)) involved 58 developing countries and investigated the determinants of manufacturing FDI, their results showed that not a single one of the proxies for human capital, which included primary and secondary school enrolment rate, literacy rate and the availability of technical and professional workers were statistically significant as a determinant of FDI. Hanson (1996) investigated

the determinants of FDI for 105 developing countries and found adult literacy to not be a significant determinant. Chen & Kwan (2000) looked at 29 Chinese regions when investigating the determinants of location FDI, and found that labour quality i.e. percentage of population with at least primary or secondary education to be a significant determinant of FDI.

3.3.7. Stock Market Development

The improvement in macroeconomic conditions, structural reforms, and policy changes over the last two decades have led to the growth of financial markets, specifically stock markets, in developing countries. Accompanied with the advancement in globalization, the link between financial markets and MNC's commercial presence has greatly improved. The relationship between financial markets and capital flows have been widely explored whereas the relationship between stock market development and FDI have not received adequate attention. Despite this the domestic stock market can play an integral part in affecting FDI inflows. Foreign firms could turn to the financial markets to finance part of their investment with external capital or might seek to recover their investment through the selling of equity in the capital markets (Claessens , Klingebiel , & Schmukler , 2001). Furthermore, the presence of a well-developed stock market reduces the barriers to exit, with access to many potential buyers' potential investors are more likely to invest in a country with a well-developed stock market.

FDI is most commonly seen in the form of acquisitions, rather than Greenfield investments a stock market provides a means by which foreign investors can acquire local businesses and the quantity of stock available will affect FDI inflows (Claessens , Klingebiel , & Schmukler , 2001). Noobakhsh, Paloni & Youssef (1999) state that some MNC's would prefer to test the ground by acquiring a small stake before they commit to investing full capital amount, the presence of a well-developed stock market will be crucial to satisfy these needs.

The points mentioned above leans towards the argument that FDI and stock market development are positively correlated and are therefore complementary. An opposing view is that they are in fact substitutes and negatively correlated. Hausmann and Fernandez-Arias expressed this with the view that countries which are riskier, financially underdeveloped and have weak institutions are subject to larger FDI inflows. FDI is put in place to overcome the difficulties and challenges of investing through capital markets which do not provide significant shareholder protection (Claessens , Klingebiel , & Schmukler , 2001). The empirical findings of Claessens, Klingebiel & Schmukler (2001) show that FDI is positivley correlated with stock market capitalizationand value traded. Arčabić, Globan & Raguž (2012) used VAR and cointegration analysis to investigate the relationship between the stock market and FDI in Croatia they concluded there is no long-term relationships between FDI and movements in the stock market however in the short term the stock market was proved as a determinant of FDI. Tsaurai (2014)

used the bivariant causalty test framework and found a long-run relationship between the stock market and FDI inflows to Zimbabwe, however the direct casuality relationship between FDI and stock market or vice versa could not be established.

3.3.8. Political Risks

A countries political environment will have an influence on MNC's decisions to undertake foreign direct investment. The political regime, stability and risk among others will impact the investors costs and will require additional protection of their interests (Tocar, 2018). Despite the fact that economic risk and financial risk have been extensively studied, political risk has been left in the dark and the primary reason being the lack of data as well as the quality of data available (Khan & Akbar, 2013).

Corruption is a deemed a hindering factor to FDI inflows. Getz and Volkema (2001) define corruption as the abuse of public roles and resources for private benefit and includes the misuse of public office. Therefore, it can be said that that corruption discourages international investment by increasing the risk and uncertainty encountered by potential investors. Wei (2000) looked at data for 12 source countries and 45 host countries and found a significant and negative relationship between corruption and FDI. The work of Habib and Zurawicki (2002) aimed at investigating the impact of corruption on FDI used panel data analysis for 89 countries for the period 1996-1998 and found negative impact of corruption on FDI. Contradictorily Nye (1979) found that corruption has a positive impact on economic growth and research by Hines (1995) found a non-significant relationship between corruption and economic growth.

Jadhav (2012) researched the institutional and political factors of responsible for attracting FDI to the BRIC countries, his results stated that out of political stability/no violence, government effectiveness, regulatory quality, control of corruption, voice and accountability and rule of law of which only the last two were statistically significant.

3.4. Additional Empirical Literature on FDI Determinants

There is extensive literature on empirical studies which have been centred around uncovering the key determinants of attracting FDI. Khondoker and Kalirajan (2010) investigated the key determinants of FDI using panel data for 68 low-income and lower-middle income developing countries, their results showed that countries with high GDP growth, high international trade and good business environments are more successful in attracting FDI. On the contrary, Edwards (1990) concluded that countries with low GDP per capita were more successful at attracting FDI.

Cevis and Çamurdan (2007) set out a similar investigation using panel data for 17 developing countries and transition economies, they concluded that FDI inflows are positively related to interest and growth rates, trade openness rates, previous FDI values but inversely related to inflation rates. O'Meara (2015) used least squares regression to determine the principal determinants of FDI on a cross country basis. He used data from both developing and developed countries and the results showed that variables associated with the size and scale of the economy i.e. market size, infrastructure and openness were the most significant factors in determining FDI while economic freedom, tax incentives and human capital were not significant.

Vijayakumar, Sridharan, & Rao (2010) identified that variables including market size, labour costs, infrastructure, currency value and gross capital formation as potential determinants responsible for FDI inflow to BRICS countries while the inflation rate, industrial production and rade openess seem to be insignficant determinants of FDI. Results from Ranjan & Gaurav (2011) contradict those findings with results that show gross capital formation and labour force are insignificant determinants of FDI for BRIC countries.

Morriset (2000) was one of the earliest to conduct research on the determinants of FDI to Africa, his study included 29 Sub-Saharan African countries for the period 1990-1997, using panel data estimation techniques he found that GDP growth and trade openness were the most significant determinants of FDI to Africa. Asideu (2002) utilised simple pooled OLS estimation, to identify the determinants of FDI for 71 African countries for the period 1988-1997, results concluded that inflation, government size, GDP per capita, trade openness and infrastructure to all have positive effects on FDI however political instability has shown to have negative effects. The fixed effects and random effects estimators were used by Onyeiwu and Shrestha (2004) when looking at the determinants of FDI for 29 African countries, it was found that GDP growth, openness, external debt and political stability to have positive effects on FDI while inflation, real interest rates, tax and international reserves to effect FDI inflows negatively.

Jaiblai & Shenai (2019) explored determinants of FDI to Sub- Saharan economies which included Liberia, Sierra Leone, Ivory Coast, Ghana, Nigeria and Senegal, with the use of two econometric models they concluded that countries with smaller markets, good infrastructure, lower income, greater degree of openness and weak exchange rates attracted greater FDI.

Uwubanwen and Ajao (2012) investigated the determinants of FDI inflows in Nigeria using a vector error correction model for the periods 1970-2009 among the variables deemed important were inflation, exchange rate and interest rate and openness while GDP and government size were found to be positive but insignificant on FDI inflows. Adefeso and Agboola (2012) conducted similar research on the determinants of FDI to Nigeria but used the Engle Granger cointegration test. The results showed that

a 1% change in the degree of openness , market size, oil sector, tax will result in a 15%, 67%, 79%, 48% and 38% change in mean FDI inflows in the long run.

3.5. Background of FDI to South Africa

In the past South Africa has received a large amount of FDI targeted at the natural resources of the country. The development of the mining sector following the discovery of diamonds and gold in the 19th century can largely be attributed to the large inflows of foreign capital into the sector (Gelb, 2002). During the 1970's to late 1980's the FDI inflows to South Africa had decreased substantially, foreign investors were deterred from investing in South Africa (Figure 2) due to the political uncertainties within the country as well as additional pressure from their home countries with the growing international campaigns against apartheid (Gelb & Black, Foreign Direct Investment in South Africa , 2004). The conditions of Apartheid and the associated political turmoil hindered economic growth and increased macroeconomic instability. South Africa was essentially cut out of the international capital markets as a result of the imposition of trade and financial sanctions, increased capital controls and the prohibition of payments to external creditors (Arvanitis, 2006). The average net inflows as a percentage of GDP for the years 1985-1990 was -0.19% while the cumulative net FDI inflow for the same period was -$544 million (World Bank Group, 2020). Fedderke and Romm (2004) investigated the effects of Apartheid on FDI inflows and concluded it did in fact hinder FDI attraction which can explain the greater FDI inflows experienced post-Apartheid era.

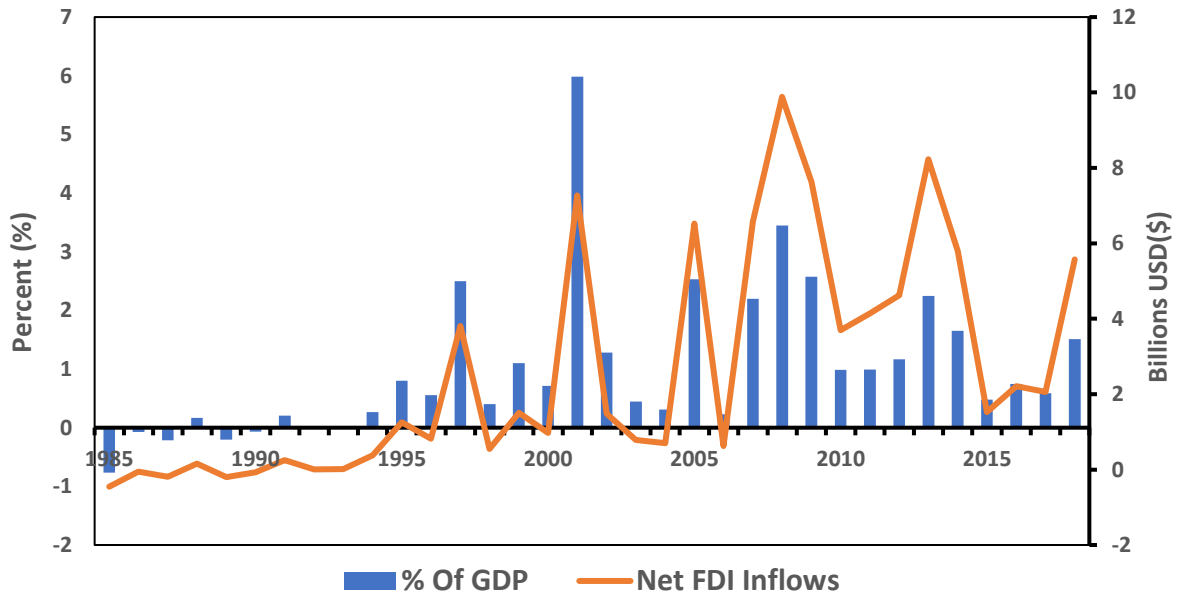


Figure 6:FDI inflows

Since its inception as a democratic country in 1994 the new South African government has worked to transform the country with changes to the macroeconomic policy and strategy for growth and

development. The government managed to liberalise the economy, control inflation and help balance the countries budget while still being able to service the budget deficit incurred during Apartheid (Mabule, 2012). These changes helped attract a larger number of foreign investors and increased the amount of FDI inflows into the country however these new inflows have been very volatile over the past 20 years. The foreign participation in the partial privatisation of Telkom contributed substantially to the increase in FDI from $0.8 billion to $3.8 billion in 1997. The high volatility can be attributed to price changes in the commodity sector as a substantial amount of FDI is obtained through the export of commodities such as gold, platinum and coal- this can be seen in the substantial decrease in FDI of 79.45% between the years 2001 and 2002 where the South African Rand depreciated by 37% against the US dollar (Strauss, 2015). Thomas and Leape (2005) argued the large increase of 671% in FDI inflows for 2005 can be attributed to the acquisition of ABSA by Barclays for R33 billion. The periods 2006- 2009 were characterised by high levels of FDI inflows due to the to the global commodities price boom with South Africa reaching its highest FDI inflow of $9.8 billion. In 2010 approximately 65% of FDI inflows to South Africa were in the form of mergers and acquisitions in the form of state leveraged deals or the privatisation of state-owned assets including South African Airways and Telkom (Masipa, 2018). In 2013 South Africa's FDI rose to approximately $10 billion making it the 13th most attractive destination in the world (Oxford Buisness Group, 2014) . In 2015 there was massive decline resulting in only $1.5 billion new FDI inflows and 2016 saw a slight recovery but was hindered due to sluggish commodity prices. However, following that for the period 2017-2018 the FDI inflows have been on an upward trend with the major spike due to the intensive drive for new FDI headed by the government. As of 2017, the main contributors of FDI inflows to South Africa are the United Kingdom, Netherlands and Belgium accounting for 27, 18 and 14.8% respectively.

The sectoral distribution of FDI shows that the financial services sector is the major recipient of FDI in flows over the past 15 years followed by mining with 45% and 21% respectively for 2017, despite the important role in which natural resource and mineral extraction play in attracting FDI to South Africa. The highly developed financial sector has provided an increase in investor confidence, this could lead to a shift in FDI motives from the natural resource seeking to the market and efficiency seeking FDI (Ruiske, 2007). In addition, there has been improved FDI inflows to the trade and accommodation and the transport and communication sectors which have increased by 8% and 3% over the past 15 years. Still very little FDI inflows are targeted towards the community sectors.

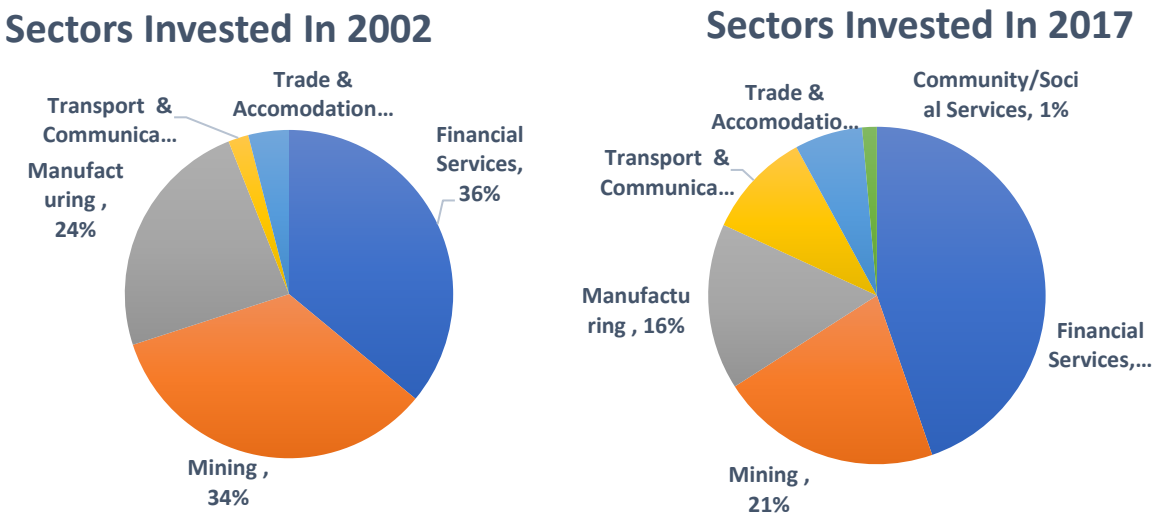


Figure 7:Sectoral Distribution of SA FDI

Source: *SARB, Quarterly Bulletin June 2019*

3.6. Empirical Evidence From South Africa

Fedderke and Romm (2004) investigated the growth impact and the determinants of foreign direct investment into South Africa for the periods 1956-2003 using a VECM model. Their results concluded that there is a positive relationship between growth impact and foreign direct investment. They also concluded that FDI in South Africa is capital intensive and horizonatal rather than vertical, market size, openess and increased exports, improved property rights have a strong impact on FDI while increases in wage costs negativlely affect FDI. Moolman et al. (2006) used cointegration techniques and time series data from 1970-2003 to construct an econometric model which could be used for policy analysis. The results conclued that market size, openess, infrastructure and nominal exchange rate are significant in FDI attraction and should be the main focus for policy makers.

Avantis (2006) investigated why FDI in South Africa has been so low, he conducted panel data analysis which covered 17 different countries all with a sovreign credit rating between BB and BBB+, the data was analysed using ordinary least squares and general least squares. Based off his results he makes several implications for South Africa: infrastructure development, trade liberlization, skills availability and market size are important factors for FDI. Moreover fixed effects for South Africa are signficant, meaning that other factors not included in the analysis can be signficant for South Africa.

Ruiske (2007) investigated dterminants of inward FDI to South Africa he used an empirical model linking the theoretical and empirical determinants of FDI estimated using Johansen cointegration technique and the VECM framework and data from 1975-2002. Results from the empirical analysis showed that the important long run determinants include trade openess,exchange rate and financial development and in the short run market size is an important determinant.

Gray (2011) used panel data and time series data for the period 1969-2009, the latter found that market size, exchange rate, macroeconomic instability and infrastructure to be statistically significant determinants of FDI. The results from the panel data analysis confirmed those of the time series however the relative importance varied, in addition labour productivity and education were found to be statistically significant. Mabule (2012) investigated the economic sense in policies which are centered around attracting FDI to South Africa by examining the determinants of FDI and the correlation to economic growth over the period 1994-2010. The empirical analysis showed that openess, exchange rate, financial development as well as improved labour costs are important long run determinants of FDI to South Africa. He also suggests that African countries require specific solutions when it comes to trade liberalization and that policies succesful in one country does not necessarily imply it will work in other countries.

Lea Strauss (2015) looked into FDI inflows and economic growth of South Africa between 1994 and 2013 with time series analyses, the empirical findings were ambigious with no long term effects between the variables however economic growth was found to only be affected by FDI in the short term. Additionally absorptive capacity was found to not generate overall economic growth and development. Majavu (2015) also investigated the determinants of FDI into South Africa over the period of 1980- 2012 but included a variable to include the effects of the financial crisis of 2008-2009. The empirical results backed those of Mabule and in addition showed that the financial crisis as a variable was negative and statistacally signficant which affected FDI inflows and shows that FDI inflows are also subjected to change due to broader factors out of control of the host country.

Dondashe and Andrew (2018) used the ARDL model to investigate the determinants of FDI for South Africa between 1969 and 2016 they found that GDP per capita, government size, real interest rate variable, and terms of trade are all positively and significantly related to with the exception of inflation, however in the short run, all variables were positively correlated with FDI. Masipa (2018) used vector correction analysis to investigate the relationship between FDI and economic growth his results showed that amongst others the cost of labour, corruption and crime are the major determinants of FDI in South Africa.

3.7. Analysis of Literature and Conclusion

The focus of this chapter was to provide a review of both the available theoretical and empirical studies looking to explain the determinants of foreign direct investment. Although this topic is debated on a frequent basis neither theoretical or empirical literature has managed to come to a consensus on what the main determinants of foreign direct investment are. Hymer's (1960) thesis was a great leap forward for the direction of FDI theory, it proposed that MNE's maintain control over the productive activities in foreign borders which translates FDI into international production. This theory was later criticised

for not directly identifying where and when FDI takes place. The Product Life Cycle theory was especially relevant in explaining international FDI inflows, and highlighted that economies of scale, transportation and labour costs are determining factors for location choice. The Eclectic Paradigm framework (Dunning 1980, 1993) provides an ownership, location and internalization advantage framework. The framework aids in comprehending the behaviour of firms for countries which are seeking to attract the right kind of foreign direct investment. This theory is widely used in empirical studies to identify the factors determining FDI inflows and should be noted that for the empirical review that numerous factors affecting FDI, will have a different impact on each country depending on country specifics, policies and location.

Upon review of the empirical studies it can be seen that there are mixed results with regards to the importance of certain variables which affect foreign direct investment. Determinants which are most commonly investigated include: market size, trade openness, infrastructure, exchange rates and interest rates. The empirical review also highlighted that the importance of these specific variables varies across countries and regions over time. Although there has been some empirical work done to establish the determinants of foreign direct investment in South Africa, as a country specific case, there is a focus primarily on the same macroeconomic determinants mentioned above. Furthermore, very few studies utilise the ARDL model and majority of the available studies do not consider the effects of other social and political factors. Variables such as human capital, stock market development and political risks are often investigated in panel data analysis and not on the country specific case of South Africa, these need to be adequately investigated as their influence on foreign direct investment could be substantial. This study aims to bridge this gap in the literature by investigating those common macroeconomic determinants as well as other variables which could be key to increasing the amount of FDI inflows directed towards South Africa.

Chapter 4

Methodology

4.1. Introduction

This chapter provides a brief explanation on the research methodology as well as the data utilised in the study. The chapter consists of four sections, following the introduction in Section 4.1 Section 4.2 provides the model specification, Section 4.3 presents the data sources utilised in the study and Section 4.4 provides a brief overview of the estimation techniques.

4.2. Model Specification

The Eclectic Paradigm theory discussed in the previous chapter forms the basis of the analytical framework utilised in this study. The model includes macroeconomic, social and political variables within the South African context. Furthermore, the model accounts for the motives outlined in the theory which influence firms' decisions to undertake foreign direct investment. This theory is the most dominant framework for analysing and explaining whether it is in the best interests of an MNC or country to pursue international investment

The theoretical and empirical literature presented in the previous chapter highlight a number of possible determinants of foreign direct investment. These included market size, infrastructure and exchange rate, human capital, inflation, trade openness, stock market development and political stability. This study will implement the use of variables to capture macroeconomic indicators and government stability which are all country specific.

This study will build on previous empirical work, particularly that of Rusike (2007) and Majavu (2015) to investigate the determinants of foreign direct investment in South Africa. The model includes variables which have been found to be significant in the past i.e. market size, trade openness and exchange rate and will then be extended to include other macroeconomic and political variables:

$$FDI = f(GDP, EXC, IN, TO, BIT, HC, INF, SM, PS, RQ, CO) \quad (4.1)$$

All variables except indexes are transformed to natural logs to produce elasticities outcomes and to help reduce the problem of heteroskedasticity. The term u_t represents an error term and the subscript *t* denotes time.

The model to be used in the study can be empirically specified as:

$$LFDI_t = \beta_0 + \beta_1 LGDP_t + \beta_2 LEXC_t + \beta_3 LIN_t + \beta_4 LTO_t + \beta_5 LBIT_t + \beta_6 LHC_t + \beta_7 LINF_t + \beta_8 LSM_t + \beta_9 SR_t + \beta_{10} PS_t + \beta_{11} GE_t + + \beta_{12} CO_t + u_t \quad (4.2)$$

Where:

LFDI = Log of Foreign Direct Investment

LGDP = Log of Gross domestic Product

LEXC = Log of Exchange Rate

LIN = Log of Inflation

LTO = Log of Trade Openness

LBIT = Log of Bilateral Investment Treaties

LHC = Log of Human capital

LINF = Log of Infrastructure

LSM = Log of Stock Market development

PS = Political Stability

CO = Control of corruption

RQ = Regulatory Quality

4.3. Definition and Analysis of Variables

FDI = The dependent variable of the study is net foreign direct investment inflows to South Africa measured in (BoP current US$).

GDP = Gross Domestic Product per capita is the proxy associated with market size; it gives an indication of economic conditions and potential output of the country. A country with a large market size will be able to produce a greater amount of goods and services, resulting in reduced production costs and economies of scale. Nunnenkamp (2002) and Tsai (1994) are examples of previous researchers who found that market size has a positive effect on FDI. This study will assume a positive relationship between FDI and GDP.

EXC = Exchange rate in this study is the exchange rate of the South African Rand (ZAR) to the US dollar ($USD). The relationship between FDI and exchange rate can be either positive or negative A weaker exchange rate lowers the cost of production and promotes MNC's to invest within the host country. Contrarily Ngowi (2001) suggests that a stronger exchange rate will deter MNC's from converting profits and result in further inflows of FDI into the host country.

Therefore, an inconclusive relationship is expected from this study between FDI and exchange rate.

IN = Inflation rate and the stability of macroeconomic variables will be measured using the consumer price index (CPI) which reflects the annual percentage change in consumer prices experienced by an average customer. High inflation rates are synonymous with poor fiscal policy and poor macroeconomic conditions and as a result deter FDI inflows. Asideu (2002) and Onyeiwu and Shrestha (2004) have proved that inflation has a negative relationship on FDI inflows.

TO = Trade openness, which is commonly measured in literature as the ratio of trade to GDP and gives an indication of trade restrictions. The proxy is particularly important for foreign investors who are looking to realise profits through the export market. By having less restrictive trade policies, a country gains access to external markets and increases their global integration. A positive relationship similar to that of Liargovas et al (2012) is expected between trade openness and FDI inflows.

HC = Human Capital will be proxied by the secondary school enrolment (% gross). This indicator captures the ratio of total enrolment to the population of the age group that officially corresponds to secondary education. High skilled labour will allow a country to reap the benefits of FDI spill-over and will allow knowledge transfer, management and technology transferred by MNC's to be utilised in a way which can lead to economic growth. Therefore, a positive relationship is expected between human capital and FDI inflows as proved by Noorbakhsh, Paloni and Youssef (2001)

INF = Infrastructure, which will be proxied by telephone usage which is measured as the total amount of mobile subscriptions as a percentage of the total population**,** a positive relationship with FDI is expected. Good quality infrastructure, including telecommunication channels, roads and ports result in a reduction in transaction costs and helps facilitate business operations. Following the findings of Wheeler & Mody (1992) and Asideu (2002) a positive relationship is expected between infrastructure and FDI inflows.

BIT = The effects of BITS on FDI inflows will be measured by the number of BITS signed by South Africa (host country), this is in align with the research conducted by Tobin & Rose-Ackerman (2005). BITS have in the past grown in popularity as it provides reassurances to investors with not only market risk but other factors including property rights and government enforcement. The cancellation of these treaties has raised concerns for investors regarding the increased investment costs within South Africa. The empirical work thus far has yielded mixed

conclusions on the effectiveness of BITS as a mean of increasing FDI, therefore an inconclusive effect is expected on FDI inflows.

SM = Domestic stock market development which will be measured using the market capitalisation of listed companies (% of GDP), the same proxy was utilised by (Konara, 2013) in the study of FDI determinants of Sri Lanka. A well-developed stock market produces numerous advantages including reducing the barriers to exit and access to many potential investors. However, it was argued by (Claessens , Klingebiel , & Schmukler , 2001) that FDI is put in place to overcome the difficulties and challenges of investing through capital markets which do not provide significant shareholder protection. Countries which are riskier and financially under-developed with weaker stock markets will be recipients of greater FDI inflows. As a result, an inconclusive relationship is expected between stock market development and FDI inflows.

PS = Political stability is measured using the political stability and absence of violence/terrorism index and captures the perceived likelihood of the overthrowing of the government by unconstitutional or violent means. The index ranges from values of -2.5 (weak) to 2.5 (strong). Political stability plays an integral part in the normal macroeconomic and business environment of any country. Political instability resulting from an unstable government and the associated political risks will hinder a countries economic growth and development having a knock-on effect to the countries physical and human resources. Foreign investors will be deterred from investing in any projects with unfavourable business environments. A positive relationship is expected between FDI inflows and political stability.

RE = Regulatory Quality index gives a measure of the government to implement and approve sound policies in order to promote private sector development (Worldbank , 2020). The index ranges from values of -2.5 (weak) to 2.5 (strong). The effective absorption of foreign direct investment can be blocked due to regulatory obstacles and the lack of appropriate executive policies. Regulations such as price control, limitations in stock market and founding new firms and corporations are all excessive and restrictive in terms of exchange . In order to promote foreign direct investment conditions, need to be provided which allow for investment and the conducting of economic activities in a secure and safe environment. A positive relationship is expected between FDI inflows and regulatory quality.

CO = Corruption is measured by the control of corruption index which captures the perceived extent to which public power is utilised for private gain and includes both petty and grand forms of corruption (Worldbank , 2020). The index ranges from values of -2.5 (weak) to 2.5 (strong). Corruption puts a burden on the economy through the reduction in both the volume and

efficiency of investment. Pupovic (2012), states that corruption leads to the distortion of sectorial allocation of investible resources from potentially productive sectors to unproductive sectors decreasing the overall output capacity of the investment. Wei (2000) found a positive relationship between FDI inflows and the control of corruption and the same relationship is expected from this study.

4.4. Data Sources

The study utilises annual data for the period 1994-2018, as this was a period where FDI inflows towards South Africa were extremely volatile. Data for the variables were obtained from the South African Reserve Bank (SARB), UNCTAD, UNCTAD Investment Policy Hub, the World Bank Development and Governance indicators.

4.5. Estimation Techniques

The model seeks to determine the long-run relationships between the identified potential determinants of FDI. Numerous methods can be used to test for these cointegrating relationships and include the Engle-Granger (ER) cointegration test, Johansen cointegration test and the Auto-Regressive Distributed Lag (ARDL) method. The Engle-Granger method is easily accessible and provides a convenient way of measuring the correction form disequilibrium of the previous model. However, the main disadvantages are that the test identifies only a single cointegrating relation, among what might be many relations. The test consists of one regression to estimate the residual series and another regression to test for unit root as a result any errors in the first regression are carried forward into the second estimate (Brooks, 2019). The Johansen cointegration test addresses the shortcomings of Engle-Granger test however is subject to asymptotic properties; meaning that small sample sizes are likely to produce unreliable results (CFI, 2015). The sample size in the study is regarded as small and therefore the Johansen cointegration would be inappropriate to use. The ARDL approach accommodates variables with different orders of integration and provides a robust estimation even with a small data set and will be the method utilised in this study.

4.5.1 Unit Root Tests

The purpose of unit root tests is to test the stationarity properties of time series data, the use of non-stationary data can be unpredictable and lead to spurious regression which is a problem commonly faced by macroeconomic variables (Brooks, 2019). This study will implement both the Augmented Dickey Fuller (ADF) and the Phillips-Peron (PP) tests to test the presence of unit roots.

4.5.2 Augmented Dickey-Fuller Test (ADF)

The Augmented Dickey-Fuller (ADF) follows up on the work of the Dickey-Fuller (DF) test. It improves on the work by including p lags of the dependent variable to eliminate the problem of autocorrelation. The ADF model, according to Brooks (2019) is described as:

$$\Delta y_t = \psi y_{t-1} + \sum_{i-1}^{p} \alpha_i \Delta y_{t-1} + u_t \quad (4.3)$$

The test is still conducted on ψ and the same critical values are used as in the Dickey-Fuller test. An optimal number of lags must be chosen, several ways to choose this number have been proposed and include the Schwarz criteria or by using the frequency of the data as an indicator of the number of lags to include in the regression (Brooks, 2019).

The following can be seen as limitations to the Augmented Dickey-Fuller test:

- The power of the test is low if the process is stationary but with a root close to the non-stationary boundary (Brooks, 2019). What this means is that the tests are poor at deciding if $\emptyset = 1 \; or \; if \; \emptyset = 0.95$ especially with small sample sizes.
- The null distribution is only available asymptotically and when compared to the finite sample distribution, can vary substantially, resulting in size distortion.
- The discrepancies between the results of the different ADF tests (none, intercept, intercept and trend) can lead to conflicting and contradictory information.

4.5.3 Phillips-Peron (PP) Test

The Phillips-Peron test will be used to validate the results obtained from the ADF tests, they are similar in nature but they include an automatic correction to the Dickey-Fuller procedure, allowing for autocorrelated residuals. The general form of the Phillips Peron test is given by:

$$\Delta y_t == \psi y_{t-1} + \mu + \lambda t + \sum_{i-1}^{p} \alpha_i \Delta y_{t-1} + u_t \quad (4.4)$$

Where μ is an intercept and λt represents the time trend , either one can be excluded from the regression if deemed unnecessary (Brooks, 2019). The Phillips-Peron test is subject to the same criticism's mentioned above for the ADF tests.

4.5.4 Autoregressive Distributed Lag model (ARDL)

The autoregressive distributed lag (ARDL) method, also known as the bound test is a cointegration technique used to test the long-run relationships between variables with different integration orders. It was first introduced by Pesaran and Shin in 1999 and further explained by Pesaran et al. (2001).

Moreover, it reparametrizes the variables to the Error Correction Model (ECM) which identifies both the long-run and short-run relationships of the underlying variables (Nkoro & Uko , 2016). Pesaran et al. (2001) states that the long-run relationship between variables can be determined through a joint F-test on one period of the lagged levels of the variables. In this study we specify 13 ARDL regressions in order to test the long-run and short-run relationships between FDI inflows and its potential determinants. After the long-run equilibrium among the variables has been confirmed, the next step is to use an ECM to model the short-run dynamic parameters within the ARDL. The error correction model gives the speed of convergence back to equilibrium once the equation is shocked (Maku & Oyelade , 2018). To incorporate it into the ARDL model, the lagged value of all level variables will be denoted by the error correction term (ECM) retained within the model where η is the speed of adjustment.

The 1st ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LGDP_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LGDP_{t-1} + u_t \quad (4.5)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LGDP_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.6)$$

The 2nd ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LEXC_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LEXC_{t-1} + u_t \quad (4.7)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LEXC_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.8)$$

The 3rd ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LIN_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LIN_{t-1} + u_t \quad (4.9)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LIN_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.10)$$

The 4th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LTO_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LTO_{t-1} + u_t \quad (4.11)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LTO_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.12)$$

The 5th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LBIT_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LBIT_{t-1} + u_t \quad (4.13)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LBIT_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.14)$$

The 6th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LHC_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LHC_{t-1} + u_t \quad (4.15)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LHC_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.16)$$

The 7th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LINF_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LINF_{t-1} + u_t \quad (4.17)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LINF_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.18)$$

The 8th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LSM_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 LSM_{t-1} + u_t \quad (4.19)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LSM_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.20)$$

The 10th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta PS_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 PS_{t-1} + u_t \quad (4.21)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta PS_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.22)$$

The 11th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta RQ_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 RQ_{t-1} + u_t \quad (4.23)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta RQ_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.24)$$

The 12th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta CO_{t-1} + \delta_1 LFDI_{t-1} + \delta_2 CO_{t-1} + u_t \quad (4.25)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta CO_{t-1} + \eta_1 ECM_{t-1} + u_t \quad (4.26)$$

The 13th ARDL regression is:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LGDP_{t-1} + \sum_{i=1}^{n} \phi_3 \Delta LEXC + \sum_{i=1}^{n} \phi_4 \Delta LIN + \sum_{i=1}^{n} \phi_5 \Delta LTO + \sum_{i=1}^{n} \phi_6 \Delta LBIT + \sum_{i=1}^{n} \phi_7 \Delta LHC + \sum_{i=1}^{n} \phi_8 \Delta LINF + \sum_{i=1}^{n} \phi_9 \Delta LSM + \sum_{i=1}^{n} \phi_{11} \Delta PS + \sum_{i=1}^{n} \phi_{12} \Delta RQ + \sum_{i=1}^{n} \phi_{13} \Delta CO + \delta_1 LFDI_{t-1} + \delta_2 LGDP_{t-1} + \delta_3 LEXC_{t-1} + \delta_4 LIN_{t-1} + \delta_5 LTO_{t-1} + \delta_6 LBIT_{t-1} + \delta_7 HC_{t-1} + \delta_8 INF_{t-1} + \delta_9 LSM_{t-1} + \delta_{10} PS_{t-1} + \delta_{11} RQ_{t-1-} + \delta_{12} CO_{t-1} + u_t \quad (4.27)$$

Where the long-run model is given as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \gamma_1 LFDI_{t-i} + \sum_{i=1}^{n} \gamma_2 LGDP_{t-i} + \sum_{i=1}^{n} \gamma_3 LEXC_{t-i} + \sum_{i=1}^{n} \gamma_4 LIN_{t-i} + \sum_{i=1}^{n} \gamma_5 LTO_{t-i} + \sum_{i=1}^{n} \gamma_6 LBIT_{t-i} + \sum_{i=1}^{n} \gamma_7 LHC_{t-i} + \sum_{i=1}^{n} \gamma_8 LINF_{t-i} + \sum_{i=1}^{n} \gamma_9 LSM_{t-i} + \sum_{i=1}^{n} \gamma_{10} PS_{t-i} + \sum_{i=1}^{n} \gamma_{11} RQ_{t-i} + \sum_{i=1}^{n} \gamma_{12} CO_{t-i} + u_t \quad (4.28)$$

If there is cointegration the associated error correction model ECM is specified as:

$$\Delta LFDI_t = \sum_{i=1}^{n} \phi_1 \Delta LFDI_{t-1} + \sum_{i=1}^{n} \phi_2 \Delta LGDP_{t-1} + \sum_{i=1}^{n} \phi_3 \Delta LEXC + \sum_{i=1}^{n} \phi_4 \Delta LIN + \sum_{i=1}^{n} \phi_5 \Delta LTO + \sum_{i=1}^{n} \phi_6 \Delta LBIT + \sum_{i=1}^{n} \phi_7 \Delta LHC + \sum_{i=1}^{n} \phi_8 \Delta LINF + \sum_{i=1}^{n} \phi_9 \Delta LSM + \sum_{i=1}^{n} \phi_{10} \Delta PS + \sum_{i=1}^{n} \phi_{11} \Delta RQ + \sum_{i=1}^{n} \phi_{12} \Delta CO + \eta_1 ECM_{t-1} + u_t \quad (4.29)$$

Where Δ, is a first difference operator and u_t is a disturbance error term assumed to be white noise. The null hypothesis of no cointegration i.e. $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_n = 0$ is tested against the alternative hypothesis of cointegration i.e. $H_1: \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_n \neq 0$. Pearson et al (2001) states that the hypothesis is tested by comparing the F statistic to the upper and lower bounds of the critical values at a 5% significance level. An F-statistic above the upper bound of the critical value allows a rejection of the null hypothesis of no cointegration, resulting in the conclusion that there is a long- run relationship between the variables. However, an F-statistic less than the lower bound critical value means a fail to reject the null hypothesis of no cointegration among variables and it can be concluded that there is no meaning full long-run relationship between the variables. If the F-statistic lies in-between the lower and upper bound critical value, the hypothesis will remain inconclusive and decisions will be made based off the ECM of the ARDL model.

Chapter 5

Empirical Analysis and Discussion

5.1. Introduction

This chapter consists of the results of the empirical analysis. It contains six sections. Following the introduction in Section 5.1, is Section 5.2 which shows the descriptive statistics for the potential determinants. Section 5.3 and 5.4 looks at the time series properties of the variables through trend diagrams and unit root tests. Section 5.5 covers the results from the ARDL cointegration test and Section 5.6. concludes with diagnostic tests conducted on the regression models.

5.2. Descriptive Statistics & Correlation Results

Table 3 shows the descriptive statistics for the potential determinants of FDI under investigation. From the results, it is seen that LFDI followed by LINF have the largest means with values of 21.58 and 16.70 respectively. When compared to their means the standard deviations of the variables are all low, this indicates a small coefficient of variation. The range between the maximum and minimum for all variables also is considerably small. In terms of skewness LHC, PS, RQ and CO are all positively skewed. The Jarque-Bera statistic gives a measure of the difference of the skewness and kurtosis of a series compared to that of a normal distribution. The null hypothesis that the series is normally distributed cannot be rejected for all variables except for LIN and LBIT whose Jacque-Bera value is over 100.

Table 4 provides the correlation coefficients for the time series variables. All variables show positive correlations with FDI except for RQ and CO of which none were expected to have a negative sign. TO, PS and GDP had the highest correlation coefficients indicating that these variables are most capable of explaining the variations in FDI within South Africa. With the other variables displaying a weaker relationship with FDI inflows; however, no conclusions can be made until further tests have been carried out. Due to the large number of explanatory variables in the study, there is a possibility that the model could suffer from multi-collinearity. Utilising a threshold value of 0.70 as an indication of strong collinearity amongst variables we see that LSM, LHC, LINF, PS and CO are all strongly correlated to LGDP. Looking at the political variables in isolation we can see that PS has strong correlations with macroeconomic variables LGDP, LTO and LINF. Due to the number of variables in the study, not all of the variables can be expressed within a single model due to the loss of degrees of freedom which may occur. The problem of multicollinearity will also have to be addressed and as a result it was decided to run two separate regressions LFDI on macroeconomic determinants i.e. LFDI = LGDP, LEXC, LIN,

LTO (model 1) and LFDI = LEXC, LIN, LTO, LHC, LINF, LSM (model 2). A third regression will be run on the "political variables" i.e. LFDI = LBIT, PS, RQ, CO (model 3).

Table 3:Descriptive Statistics

	LFDI	LGDP	LEXC	LIN	LTO	LHC	LINF	LSM	LBIT	PS	RQ	CO
Mean	21.58	8.47	2.02	1.83	4.01	4.51	16.70	5.31	3.42	-0.17	0.44	0.29
Median	21.52	8.59	1.99	1.91	4.03	4.49	17.50	5.27	3.71	-0.16	0.42	0.25
Maximum	23.01	8.99	2.69	2.40	4.29	4.70	18.34	5.86	3.91	0.22	0.80	0.73
Minimum	19.74	7.82	1.27	-0.53	3.71	4.39	12.74	4.80	0.00	-0.54	0.17	-0.12
Std. Dev.	1.00	0.35	0.38	0.57	0.14	0.10	1.70	0.29	0.85	0.18	0.17	0.28
Skewness	-0.20	-0.31	-0.20	-2.96	-0.33	0.58	-1.03	-0.02	-2.91	0.02	0.47	0.12
Kurtosis	1.68	1.74	2.52	12.98	2.54	2.02	2.87	2.19	11.70	2.71	2.54	1.62
Jarque-Bera	1.98	2.05	0.41	140.36	0.66	2.32	4.41	0.68	114.22	0.08	1.03	1.90
Probability	0.37	0.36	0.81	0.00	0.72	0.31	0.11	0.71	0.00	0.96	0.60	0.39
Sum	539.40	211.63	50.45	45.82	100.28	108.25	417.59	132.85	85.39	-4.02	10.20	6.76
Sum Sq. Dev.	24.01	2.97	3.54	7.80	0.47	0.23	69.60	1.96	17.31	0.72	0.61	1.75

Table 4: Correlation Matrix

	LFDI	LGDP	LEXC	LIN	LTO	LHC	LINF	LSM	LBIT	PS	RQ	CO
LFDI	**1.00**	0.46	0.18	0.29	0.53	0.32	0.44	0.27	0.39	0.49	-0.26	-0.48
LGDP	0.46	**1.00**	-0.27	-0.16	0.61	0.75	0.79	0.74	0.64	0.71	-0.27	-0.77
LEXC	0.18	-0.27	**1.00**	0.47	0.20	0.07	-0.19	-0.18	-0.23	-0.10	-0.39	0.08
LIN	0.29	-0.16	0.47	**1.00**	0.20	0.07	-0.13	-0.11	-0.20	-0.14	-0.33	-0.10
LTO	0.53	0.61	0.20	0.20	**1.00**	0.62	0.81	0.49	0.72	0.76	-0.19	-0.78
LHC	0.32	0.75	0.07	0.07	0.62	**1.00**	0.76	0.78	0.48	0.36	-0.64	-0.85
LINF	0.44	0.79	-0.19	-0.13	0.81	0.76	**1.00**	0.73	0.91	0.71	-0.24	-0.88
LSM	0.27	0.74	-0.18	-0.11	0.49	0.78	0.73	**1.00**	0.52	0.53	-0.35	-0.67
LBIT	0.39	0.64	-0.23	-0.20	0.72	0.48	0.91	0.52	**1.00**	0.72	-0.04	-0.70
PS	0.49	0.71	-0.10	-0.14	0.76	0.36	0.71	0.53	0.72	**1.00**	0.09	-0.57
RQ	-0.26	-0.27	-0.39	-0.33	-0.19	-0.64	-0.24	-0.35	-0.04	0.09	**1.00**	0.43
CO	-0.48	-0.77	0.08	-0.10	-0.78	-0.85	-0.88	-0.67	-0.70	-0.57	0.43	**1.00**

5.3. Trend Diagrams

Informal unit root tests include graphical plots of the time series data, which is presented in Figure 8. From this figure it can be seen that the variables under investigation display signs of non-stationarity as they trend, implying the presence of unit roots, with the exception of FDI, trade openness (TO) and stock market development (SM) which do exhibit some fluctuation around the mean. The political variables, i.e. political stability (PS), regulatory quality (RQ) and control of corruption (CO) all display downward trends while the rest of the variables all exhibit upward trends. The variables are then examined at first differences, and the results are shown in Figure 9. It can be seen that the variables do fluctuate around the mean. Formal unit root tests will follow in order to get a more detailed perspective of the time-series properties of the data.

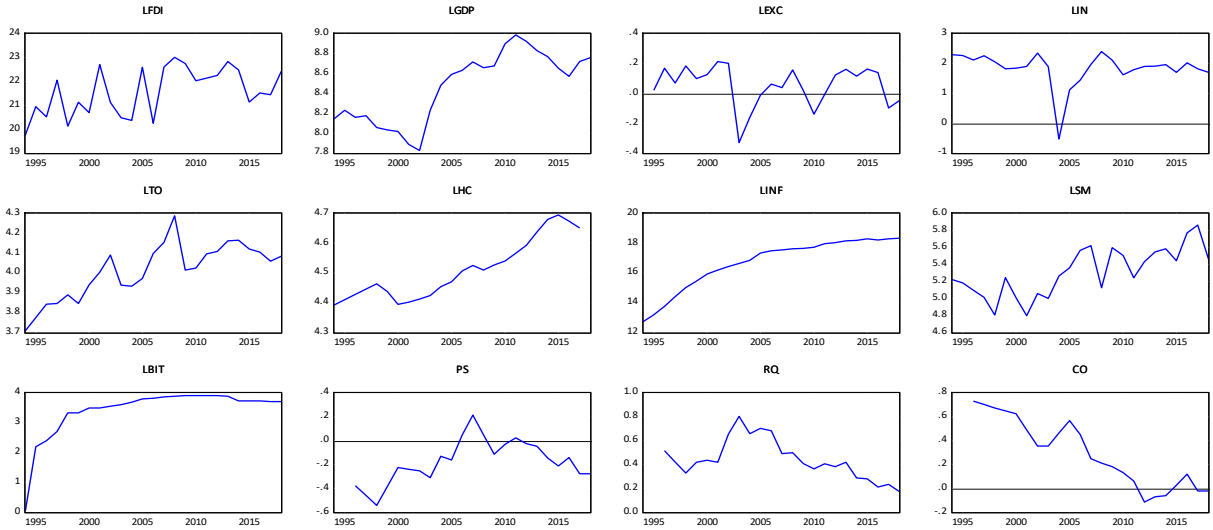


Figure 8:Trend diagrams in levels

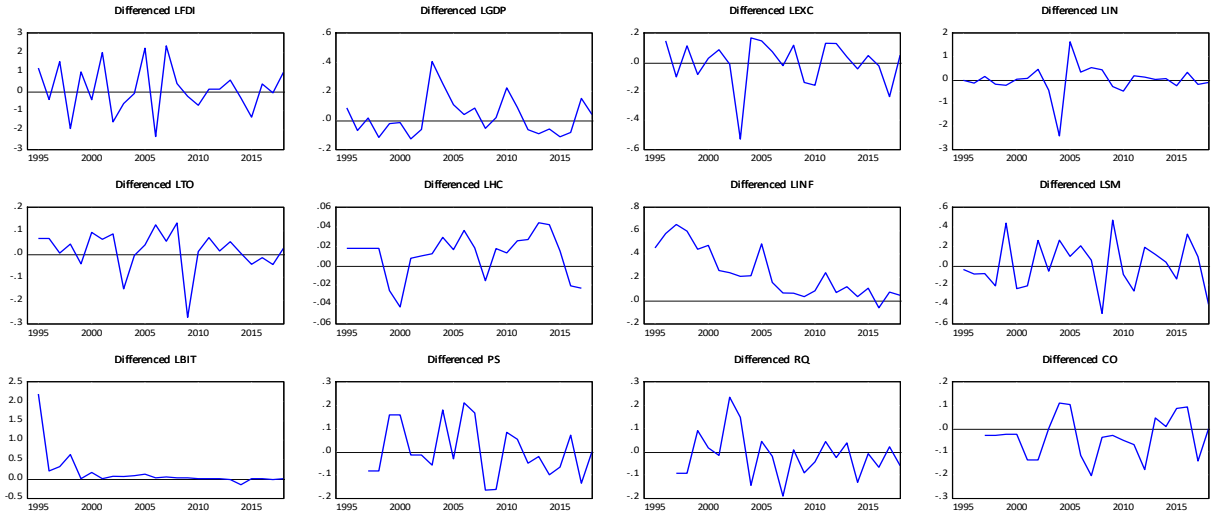


Figure 9:Trend diagrams in first difference

5.4. Unit Root Tests

Prior to performing the ARDL regression, Augmented Dickey-Fuller (ADF) and Phillip-Peron tests (PP) are employed to formally test stationarity and the order of integration of the variables. The tests are conducted with i) intercept ii) an intercept + trend and iii) none at levels and at first differences. The results are shown in Table 6. The results reveal that LFDI and LBIT rejects the null hypothesis of unit root at levels and at first differences for both intercept and intercept + trend for the ADF tests and the PP tests and is therefore considered as being I(0). The other remaining variables reject the null hypothesis of unit roots for a majority of the tests at first differences and as a result are considered to be of order I(1). A point worth noting is that LHC is only statistically significant at a 5% level for ADF and PP at first differences when the tests are conducted on none. In summary of the results, all variables are integrated of order I(0) or I(1) which is an important result because in order to implement the ARDL model there cannot be any variable with an order of integration I(2).

Table 5: Unit root tests

Variable	Model	Augmented Dickey Fuller Test		Phillips-Peron Test (PP)		Order of Integration
		Levels	First Difference	Levels	First Difference	
LFDI	Intercept	-4.216020***	-8.834056***	-4.219295***	-22.36385***	I(0)
	Trend + Intercept	-5.029057***	-8.629359***	-5.028876***	-25.99597***	
	None	0.41142	-8.977487***	0.585147	-14.65872***	
LGDP	Intercept	-1.210156	-3.209826**	-1.075816	-3.191688**	I(1)
	Trend + Intercept	-2.440956	-3.146674	-1.705742	-3.147850	
	None	0.478381	-3.440874***	0.774060	-3.242162***	
LEXC	Intercept	-2.044809	-3.379748**	-1.517898	-3.174153**	I(1)
	Trend + Intercept	-3.081511	-3.305356*	-1.925443	-3.254996*	
	None	1.116241	-3.006963***	1.610111*	-2.996907***	
LIN	Intercept	-3.396578**	-5.772266***	-3.369219**	-8.005533***	I(1)
	Trend + Intercept	-3.321830*	-5.646483***	-3.297110*	-8.498717***	
	None	-1.026471	-5.898484***	-0.851015	-8.152123***	
LTO	Intercept	-3.189233**	-3.300469**	-2.471690	-6.313912***	I(1)
	Trend + Intercept	-2.846981	-5.153031***	-2.872644	-8.314782***	
	None	1.732010	-5.280046***	1.410729	-5.553897***	
LHC	Intercept	-1.019483	-2.324213	-0.411521	-2.466140	I(1)
	Trend + Intercept	-2.8088	-2.207689	-1.726228	-1.666927	
	None	0.80888	-2.228910**	1.978032**	-2.3169**	
LINF	Intercept	-4.879748***	-2.926870*	-8.903818***	-1.446283	I(1)
	Trend + Intercept	-2.548383	-3.351239*	-2.587061	-3.370818*	
	None	-0.004372	-3.652539***	2.565375**	-1.513939	
LSM	Intercept	-0.494287	-4.890183***	-2.048617	-12.70781***	I(1)
	Trend + Intercept	-3.680564**	-5.472052***	-4.158019**	-13.00136***	
	None	0.970309	-2.48559**	0.410086	-8.669506***	
LBIT	Intercept	-5.952196***	-13.38670***	-11.46314***	-12.53067***	I(0)
	Trend + Intercept	-10.03931***	-15.45860***	-10.03931***	-15.51557***	
	None	1.149057	-13.25823***	0.376949	-12.36278***	
PS	Intercept	-1.672570	-4.235267***	-1.594761	-4.260539***	I(1)
	Trend + Intercept	-1.271097	-4.533851***	-1.006589	-9.099792***	
	None	-1.345039	-4.322917***	-1.243775	-4.353018***	
RE	Intercept	-0.998176	-7.80658***	-0.226159	-7.783292***	I(1)
	Trend + Intercept	-3.143111	-7.549947***	-3.943693**	-7.608953***	
	None	-3.562294***	-1.941237*	-1.892386	-5.139620***	
CO	Intercept	-1.170375	-3.847595***	-1.147060	-3.412005**	I(1)
	Trend + Intercept	-3.542569*	-2.385566	-1.952704	-3.389618*	
	None	-2.170803**	-1.698760*	-2.110586**	-3.151966***	

Where* [**] (*) represents significance at 1% , [5%] and (10%) respectively.**

Source: Authors compilation

5.5. ARDL Cointegration Results

The cointegration analysis begins by checking for the existence of a long-run relationship between FDI inflows and its potential determinants through the use of bounds tests on the 15 regressions specified in the previous chapter. The F-statistics calculated are summarized in Table 6. Each variable, when looked at individually has an F-statistic which is greater than the upper bound critical value at a 5% level of significance. As a result, the null hypothesis of no cointegration can be rejected, which implies that there is evidence of cointegration between each variable and FDI inflows. The F-statistics for the three multivariable regressions are greater than the upper bound at a 5% significant level, therefore implying the existence of a long-run relationship between these variables.

Table 6: Bounds tests

Regression	F-statistic	95% lower bound	95% upper bound	90% lower bound	90% upper bound	Result
f(LFDI|LGDP)	16.71	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LEXC)	9.98	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LIN)	10.09	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LTO)	17.60	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LBIT)	11.60	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LHC)	7.79	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LINF)	13.45	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LSM)	11.08	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|SR)	13.61	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|PS)	31.04	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|GE)	7.60	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|CO)	13.89	4.94	5.73	4.04	4.78	Cointegrated
f(LFDI|LGDP, LEXC, LIN, LTO)	9.69	2.86	4.01	2.45	3.52	Cointegrated
f(LFDI| LEXC, LIN, LTO, LSM, LHC,LINF)	6.75	2.45	3.61	2.12	3.23	Cointegrated
f(LFDI| LBIT, PS, RQ, CO)	16.00	2.86	4.01	2.45	3.52	Cointegrated

Table 7 provides the ARDL long-run results for the regressions. It can be seen that when the variables are regressed exclusively on FDI as shown by the following regression functions, f(FDI|LGDP), f(FDI|LEXC), f(FDI|LIN), f(FDI|LTO) and so forth. We obtain estimated coefficients for GDP, trade openness, and political stability all of which are significant at a 1% level and have the correct expected sign. Control of corruption is also statistically significant at a 1% level however the expected sign is not consistent with prior expectations. LINF and LSM have positive coefficients and are significant at a 5% level, implying a positive effect on FDI inflows towards South Africa.

The short-run coefficients of the individual regressions show that inflation (LIN) has a positive influence on FDI inflows and is statistically significant at a 5% level with a corresponding error

correction term (ECT) of -0.59, implying a 59% speed of adjustment. Bilateral investment treaties (LBIT) and political stability (PS) have coefficients of 0.86 and -2.44 respectively and are both statistically significant at a 10% level. The error correction term for both these variables were -1.06 and -1.39 implying speed of adjustments greater than 100%.

Table 7: Long-run and short-run coefficients for individual regressions

	Long-run			Short-run			
	Coefficient	**Std Error**	**Probability**	**Coefficient**	**Std Error**	**Probability**	**ECT (CointEq(-1))**
LGDP	1.43	0.43	0.00***	-0.9	1.28	0.47	-1.15 (0.00)***
LEXC	-1.94	4.14	0.64	1.74	1.42	0.24	-0.61 (0.03)**
LIN	-0.09	0.72	0.90	0.64	0.27	0.03**	-0.59 (0.02)**
LTO	4.27	1.05	0.00***	-	-	-	-1.05 (0.00)***
LBIT	0.83	0.56	0.15	0.86	0.42	0.06*	-1.06 (0.00)***
LHC	2.98	2.32	0.22	-	-	-	-0.98 (0.00)***
LINF	0.3	0.11	0.01**	-	-	-	-1.11 (0.00)***
LSM	1.87	0.73	0.02**	-0.14	0.78	0.86	-1.08 (0.00)***
PS	2.78	0.61	0.00***	-2.44	1.38	0.07*	-1.39 (0.00)***
RQ	-1.76	4.84	0.20	-	-	-	-0.91 (0.00)***
CO	-1.71	0.54	0.00***	-	-	-	-1.2 (0.00)***

Where* [**] (*) represents significance at 1%, [5%] and (10%) respectively.**

Source: Authors compilation

When the multivariable regressions containing the macroeconomic variables are simultaneously regressed on FDI, i.e. f(LFDI|LGDP, LEXC, LIN, LTO) and f(LFDI| LEXC, LIN, LTO, LHC, LINF, LSM) the following long-run and short-run coefficients are obtained and reported in Table 8 and Table 9.

Table 8: Long-run and short-run estimated outputs for model 1

Long-run	**Coefficient**	**Std. Error**	**Probability**
LGDP	0.59	0.46	0.21
LEXC	-0.55	0.53	0.31
LIN	0.26	0.22	0.26
LTO	4.36	1.86	0.03**
Short-run	**Coefficient**	**Std. Error**	**Probability**
ΔLGDP	-0.97	1.12	0.40
ΔLTO	2.49	1.69	0.16
ECT (CointEq(-1))	-1.45	0.19	0.00***

Where* [**] (*) represents significance at 1%, [5%] and (10%) respectively.**

Source: Authors compilation

Table 9: Long-run and short-run estimated outputs for model 2

Long-run	Coefficient	Std. Error	Probability
LEXC	-1.49	0.66	0.04**
LIN	0.44	0.27	0.13
LTO	2.72	2.72	0.33
LSM	-0.29	0.66	0.67
LHC	-0.20	2.37	0.90
LINF	0.48	0.30	0.13
Short-run	**Coefficient**	**Std. Error**	**Probability**
ΔLEXC	-4.78	1.12	0.70
ΔLTO	-0.33	1.68	0.90
ECT (CointEq(-1))	-1.47	0.17	0.00***

Where* [**] (*) represents significance at 1%, [5%] and (10%) respectively.**

The results from Table 8 show that GDP has a positive relationship with FDI in South Africa; a 1% increase in GDP will result in a 0.59% increase in FDI, all other factors held constant. This result is in line with economic expectations and is backed by the works of Nunnenkamp (2002), Fedderke and Romm (2004) and Avantis (2006). Another positive relationship is seen between trade openess and FDI and is present in both macroeconomic models. Trade openess (LTO) has a coefficent of 4.36 which is statistically signficant at a 5% Level. This result is consistent with prior epectations and supported by the works of Liargovas and Skandalis (2012) and (Onyeiwu & Shrestha, 2004) which align with the idea that a country which implements less restrictive capital controls and trade policies are more likely to attract greater FDI inflows.

The exchange rate (LEXC) was found to have a negative relationship with FDI in both the macroeconomic models, however in the 2nd model exchange rate is found to be statistically significant at a 5% level. This implies that in the long-run a 1% increase in the exchange rate (appreciation of host currency), according to the equation, will result in a 1.49% decrease in FDI, all other factors held constant. This is an important result as previous works have yielded mixed results. This is in line with the results of Ngowi (2001) who's argument was that a weaker currency is more likely to attract FDI and the high cost of profit conversion will force MNC's to reinvest profits back into the country. (Jaratin, Mori , Mulok , Sang , & Asid , 2014) also argue that weaker exchange rates allow MNC's to take on higher profitable projects compared to local firms due to the lower cost of capital.

Additionally, the results show that both stock market development (LSM) and human capital (LHC) are determinants with negative relationships with FDI. A 1% increase in either of these variables will result in a 0.29% and 0.20% decrease in FDI respectively, all other factors held constant. The

relationship between stock market development and FDI has previously yielded mixed result. The negative relationship supports the work of Hausmann and Fernandez-Arias (2000) who argued that countries which are risker and weaker in terms of financial development are capable of attracting greater amount of FDI inflows. The negative relationship between human capital and FDI goes against what was expected. A potential explanation for this relationship is due to the type of FDI South Africa has been receiving in the past. Substantial amounts of cost-effective FDI and labour intensive FDI have been directed towards the manufacturing and mining sectors which do not necessarily depend on the high quality of human capital. Only recently have efforts been made into improving research and development, the technology sector and knowledge-intensive industries; hence why there is this negative relationship in this study. As more is invested towards these industries in the near future it is expected that human capital will play a crucial and positive role in attracting FDI towards South Africa.

The determinants in the macroeconomic models which showed opposite signs when compared to their individual regression include inflation (LIN), stock market development (LSM) and infrastructure (LINF) while the latter two were statistically significant at a 5% level in the individual regressions but are not significant in the macroeconomic models.

The short run coefficients for two macroeconomic models show that GDP (LGDP) and exchange rate (LEXC) have a negative effect on FDI inflows however these relationships are not significant. The main purpose of the error correction model (ECM) is to determine the speed of adjustment of any deviation towards the long run equilibrium. This is given by the error correction term (ECT) which has a value of -1.47 for the 1st multivariable regression and a value of -1.45 for the 2nd multivariable regression, these values are outside the range from what was expected.

When the 3rd multivariable regression containing the political variables are simultaneously regressed on FDI i.e. (LFDI|LBIT, PS, RQ, CO) we obtain the following long-run and short run coefficients shown in Table 10.

Table 10: Long-run & short-run estimated outputs for model 3

Long-run	**Coefficient**	**Std. Error**	**Probability**
LBIT	-0.41	0.74	0.59
PS	3.68	1.12	0.01***
RQ	-1.83	0.88	0.06*
CO	1.02	0.93	0.29
Short-run	**Coefficient**	**Std. Error**	**Probability**
$\Delta LBIT$	-2.61	0.76	0.01***
ΔPS	0.22	1.31	0.08**

ECT (CointEq(-1))	-1.24	0.12	0.00***

Where* [**] (*) represents significance at 1%, [5%] and (10%) respectively.**

Source: Authors compilation

The results in Table 10 show that political stability (PS) has a positive relationship with FDI, which is significant at a 1% level. This implies that South Africa's political stability is an important factor which influences the amount of foreign direct investment inflows. All other factors held constant, a 1% increase in political stability can result in an increase in FDI inflows equivalent to 3.68%. This aligns with prior expectations as well as the work of (Fedderke & Romm, 2004) who's research also suggested that an increased political stability will help improve the attractiveness of South Africa as a destination for investment. The negative relationship between regulatory quality (RQ) and foreign direct investment is statistically a 10% level, meaning that a 1% increase in regulatory quality, all factors held constant, can result in 1.83% decrease in FDI. This goes against prior expectations and against the arguments made by (Barkhodari, Salatin, Afshar, & Abedinzadeh, 2017) who argued that by improving the regulatory quality it would reduce market failures, such as complicated bureaucracy, lack of transparency in the market and transparency of the investor's economic right and result in increased FDI inflows.

Control of corruption (CO) has a positive relationship with FDI inflows towards South Africa however it is not significant. Corruption is a deemed a hindering factor to FDI inflows as returns on investment are reduced through corrupt agents in the economy. If South Africa is able get a strong control on corruption through the implementation of stricter policies it would increase the amount of FDI it received. The number of BITS signed (LBIT) has a negative relationship with FDI inflows implying that a 1% increase, all factors held constant, in the number of bits signed would actually lead to a decrease in FDI inflows by 0.41%.

Variables which changed signs in the 3rd multivariable regression compared to their individual regressions include the number of bits signed (LBIT), and control of corruption (CO). Control of corruption was significant at a 1% level; but not significant in the multivariable regression. While regulatory quality (RQ) went from not significant to being significant at a 10% level to in the multivariable regression.

The short-run coefficients of the 3rd multivariable regression show that the number of BITS signed has a negative relationship with FDI that is statistically significant at a 1% level. While political stability has a positive effect on FDI inflows at a 5% level of significance. The ECT term from the regression implies that the speed of adjustment is around 124% which is more than enough to reach a long-run equilibrium due to the disequilibrium as a result of short-run shocks of the previous year.

In summary, the results show that: exchange rate, trade openness and political stability are the most important factors in determining FDI inflows to South Africa. The sample data used in this study was for the period 1994-2018 which can be considered relatively small; although these were the factors found to be most significant that is not to say that an increase in observations could lead to other factors playing an important role in attracting FDI and increasing the reliability of the results.

5.6. Diagnostic Tests

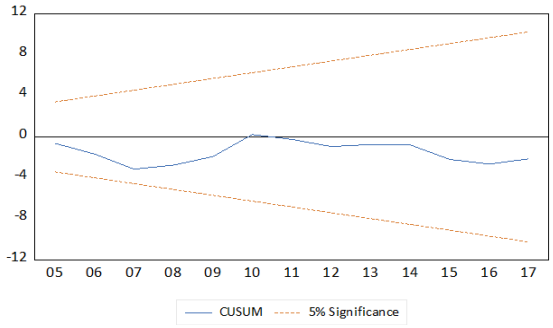
The estimated regression residuals are subjected to a number of diagnostic tests, which include the Breusch Godfrey LM test for serial correlation, ARCH and White's test for heteroscedasticity as well as Ramsey's reset test which is used to test the functional form. These diagnostic tests will help determine if the empirical results should be easily acceptable. The results from the diagnostic tests are given in Table 10. In summary, the results show that the residuals from the regressions do not suffer from heteroscedasticity, serial correlation or incorrect functional form. Therefore, the estimated output coefficients can be interpreted meaningfully.

Table 11: Diagnostic Test Results.

Regression	Breusch-Godfrey	ARCH	WHITE	Ramsey Reset
f(LFDI|LGDP)	0.58	0.74	0.23	0.69
f(LFDI|LEXC)	0.59	0.24	0.26	0.37
f(LFDI|LIN)	0.90	0.36	0.47	0.88
f(LFDI|LTO)	0.57	0.78	0.19	0.79
f(LFDI|LHC)	0.24	0.95	0.76	0.25
f(LFDI|LINF)	0.81	0.79	0.41	0.74
f(LFDI|LSM)	0.28	0.94	0.46	0.41
f(LFDI|LBIT)	0.32	0.67	0.67	0.07
f(LFDI|PS)	0.98	0.94	0.71	0.68
f(LFDI|CO)	0.81	0.56	0.16	0.25
f(LFDI|RQ)	0.47	0.85	0.64	0.51
f(LFDI|LGDP, LEXC, LIN, LTO)	0.12	0.56	0.72	0.17
f(LFDI| LEXC, LIN, LTO, LSM, LHC, LINF)	0.55	0.33	0.90	0.63
f(LFDI| LBIT, SR, PS, GE, CO)	0.73	0.55	0.72	0.12

Source: Authors compilation

An additional check to see the goodness of fit of the ARDL models is to conduct stability checks. The structural stability is checked using both the Cumulative Sum and Cumulative Sum of Square tests. As seen in Figures 10, 11 and 12 the parameters lie within the 5% significance boundary therefore we are unable to reject the null hypothesis of stability in the parameters. Long-run stability is present in the models over the sample period for South Africa.



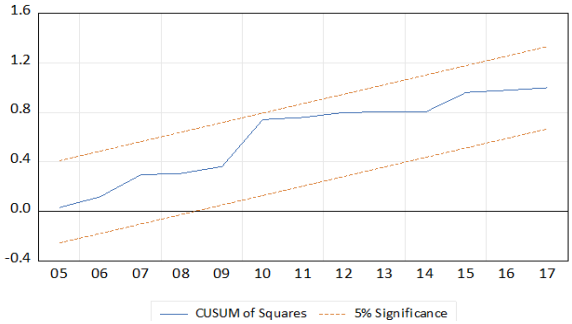
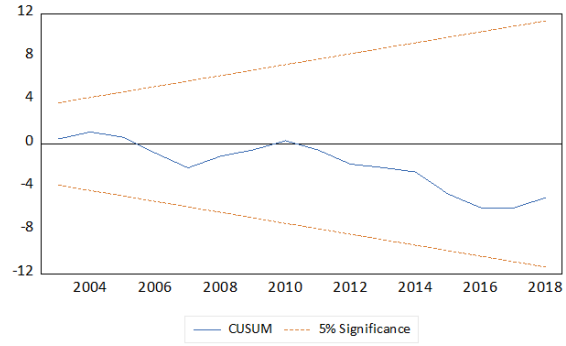


Figure 12:CUMSUM and CUMSUM squares for model 1



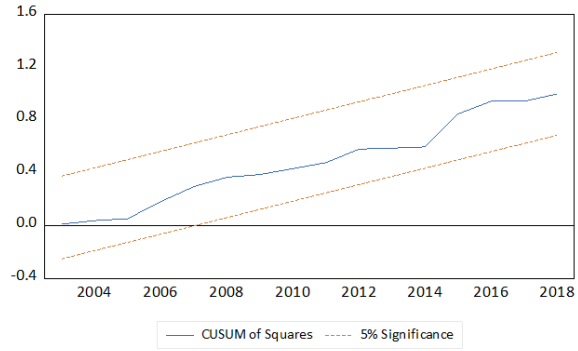
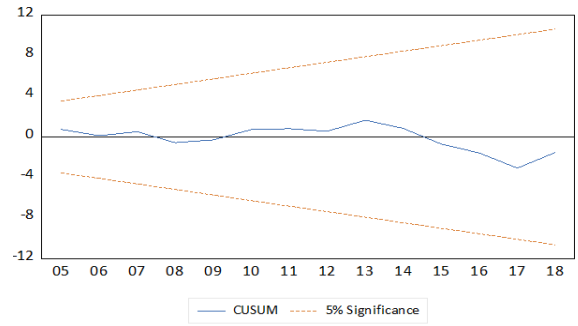


Figure 11:CUMSUM and CUMSUM squares for model 2



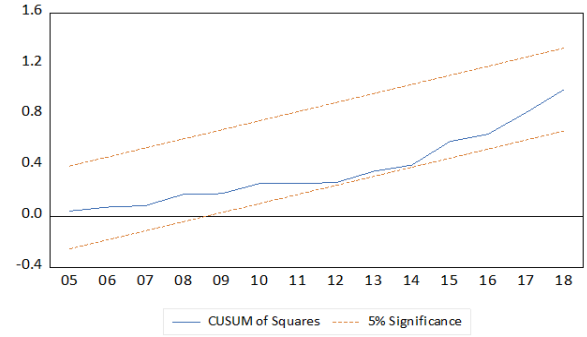


Figure 10:CUMSUM and CUMSUM squares for model 3

Chapter 6

Conclusion and Recommendations

6.1. Summary and conclusion

As stated earlier, this study revolves around the determinants of FDI particularly in the context of South Africa. Since 1994 South Africa has undergone significant transformations, both economically and politically and has seen significant increases in FDI inflows. Despite being one of the major recipients of FDI in Africa when compared to other emerging countries the value of these inflows can be considered low and volatile. The study empirically analyses the determinants of FDI for South Africa for the period 1994-2018 and is based off the Eclectic Paradigm theory of FDI. The analyses includes macroeconomic determinants which are commonly investigated as well as other political variables which could be influential. The choice of determinants included: market size, exchange rate, trade openness, stock market development, inflation, infrastructure, human capital, no of BITS signed, political stability, control of corruption and regulatory quality. Pesaran's ARDL model was chosen as the method used to test for cointegration as it allows for variables of different integrations to be used and provides robust estimates for small data samples. The results of the empirical analysis shows that all variables are of order integration I(0) or I(1) and there is an existence of cointegrating relationships between FDI and its potential determinants. Based on the ARDL regressions estimated outputs it was seen that in the long exchange rate, trade openness and political stability are the most important factors in determining FDI inflows to South Africa.

6.2.Policy recommendations

The following recommendations are made based on the results of this study. Firstly, as there is a strong positive relationship between trade openness and FDI inflows towards South Africa, the government should look to implement policies which help promote the liberalisation of restrictions around trade and the movement of capital. This should also include looking into increasing the consistency and transparency of fiscal, monetary and trade policies. Furthermore, in order to enhance its openness to external markets South Africa could look at adopting international accounting and banking standards. Secondly given that there is a negative relationship between the exchange rate and FDI, seeing as a depreciation in exchange rate would lead to greater FDI inflows, South Africa could implement expansionary monetary policy however what is preferred is that policies centred around maintaining a stable exchange rate should be of priority. This will require the SARB to look at exchange rate targeting strategies. Exchange rates are also influenced by other important macroeconomic variables such as interest rates and inflation. Lastly political stability was found to play an important role in determining FDI inflows. An investors biggest concern revolves around the profitability of their investment, in line

with this the South African government should maintain discriminatory and regulatory policies which promote political stability and invoke investor confidence.

6.3. Future Research Direction

This study focuses on investigating the potential determinants of FDI inflows towards South Africa on a macroeconomic level. Future studies could focus on individual sectors within the country to try determine which factors would be most beneficial to each sector and be of even greater use to help strengthen the South African economy. A good example of this is the financial sector which received 45% of FDI inflows for 2017, a greater understanding of what drives FDI to this sector will certainly help in maximising the spill-over effects of FDI.

Political risks due to its nature are difficult to quantify and a limitation found in this study was the availability of data- the capturing of such data only started around the early 2000's making the sample size relatively small. Therefore, as time passes and more data becomes available, the credibility of results will improve.

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Appendix

Sample Data

Years	Foreign direct investment, net inflows (BoP, cu	GDP per capita (current US$)	Consumer price index (2010 = 100	Taxes on income, profits and capital gains (% of total taxes)	Trade (% of GDP)	School enrollment, secondary (% gross)	Market capitalization of listed domestic companies (% of GDP)	Mobile cellular subscriptions	Exchange rates USD/ZAR	Political Stability	Control of corruptio	Regulation Quality	Credit Ratin	No of Bits	b
1994	374410441.1	3445.230068	39.9208638	54.52639853	40.76895329	80.83278	185.7021454	340000	3.552532543				2	1	8.938543571
1995	1248424933	3751.854328	43.38616495	54.03928145	43.61093869	82.324635	178.430287	535000	3.627925842				2	9	8.680426268
1996	8163892738	3494.383567	46.57683943	56.25819068	46.66732849	83.81649	163.6591045	953000	4.299811073	-0.38	0.73	0.52	2.00	11	7.354128857
1997	3810543923	3549.579815	50.5814093	57.41774331	46.84526188	85.308345	150.7593838	1836000	4.609731341	-0.46	0.70	0.42	2	15	8.597770743
1998	550338596	3154.020777	54.06168974	58.34555364	48.89661764	86.8002	122.32688	3337000	5.538968183	-0.54	0.67	0.33	2.00	28	6.880552536
1999	1503332454	3081.569927	56.8628896	57.66228002	46.86188609	84.58689	190.1009502	5188000	6.116627206	-0.38	0.65	0.42	2	28	5.181487799
2000	968831356	3032.427138	59.89877174	57.10333177	51.43777395	81.033	149.8231484	8339000	6.942205768	-0.23	0.63	0.44	3.00	33	5.338951583
2001	7270344986	2666.47491	63.31414271	58.22200968	54.80163343	81.65817	121.3611029	10787000	8.597916004	-0.24	0.49	0.42	3	33	5.701904835
2002	1479804589	2502.277005	69.32563484	58.07665161	59.7646363	82.48176	157.5984218	13702000	10.51330259	-0.25	0.35	0.66	3.00	35	9.494706671
2003	7831360923	3751.282813	73.26292746	56.30297554	51.40183109	83.49302	148.7805871	16860000	7.563495866	-0.31	0.35	0.80	4.00	37	5.679418064
2004	7014220076	4833.627517	72.75592593	54.44604036	51.07803414	85.96943	193.5866166	20839000	6.446374386	-0.13	0.46	0.66	4.00	40	-0.692030138
2005	6522098178	5383.656543	74.25677316	54.6931502	53.14911539	87.39671	213.0987055	33959958	6.373562621	-0.16	0.57	0.70	4.00	45	2.062852225
2006	6232917443	5602.011044	76.66558987	55.81915543	60.27726433	90.64883	261.8304694	39662000	6.783033497	0.05	0.45	0.68	4.00	46	3.243901675
2007	6586792253	6095.622439	81.40184594	57.04101598	63.68308729	92.33537	276.6006789	42300000	7.05504105	0.22	0.25	0.49	4.00	48	6.17781207
2008	9885001293	5760.805287	89.58703112	60.36991792	72.86539024	90.8974	168.3231334	45000000	8.26056367	0.05	0.21	0.50	4.00	49	10.05528203
2009	7624489974	5862.79734	96.09513667	58.68733379	55.4182616	92.5119	269.998391	46436000	8.418124	-0.11	0.18	0.41	4.00	50	7.264562145
2010	3693271715	7328.615629	100	55.21257709	55.98898581	93.7372	246.4389298	50372000	7.320632	-0.03	0.13	0.36	4.00	50	4.063538973
2011	4139289123	8007.412846	105.0171577	56.02979962	60.1126299	96.18246	189.4815959	64000000	7.266738	0.02	0.06	0.41	4.00	50	5.017157733
2012	4626029122	7501.469984	111.0282807	54.92643955	60.89969944	98.82686	229.0306084	68394000	8.216184	-0.03	-0.12	0.38	4.00	50	5.723943662
2013	8232518816	6832.456891	117.4417229	55.07457371	64.24175982	103.31549	257.0165135	76865278	9.658115	-0.05	-0.07	0.42	4.00	49	5.776404135
2014	5791659020	6433.187277	124.6479707	55.62356895	64.43450111	107.80412	266.1494793	79280731	10.851273	-0.15	-0.06	0.29	3.00	42	6.136020151
2015	1521139945	5734.633629	130.2686073	54.79930753	61.61707348	109.44408	231.705799	87999492	12.783734	-0.21	0.03	0.28	3.00	42	4.509208278
2016	2215307020	5272.918425	138.8593066	56.23387318	60.63818805	107.17695	321.0045388	82412880	14.692312	-0.14	0.12	0.21	3.00	42	6.594604415
2017	2058579911	6132.479841	146.0537215	56.75067775	57.97389493	104.69798	352.156399	88497610	13.319712	-0.28	-0.02	0.23	2.00	41	5.181082233
2018	5569462350	6374.028196	152.6328245	55.18643947	59.47033371	..	234.9589023	92427958	12.69488	-0.28	-0.02	0.17	2.00	41	4.504577493

Estimated Outputs for 1st multivariable regression

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LFDI)
Selected Model: ARDL(1, 1, 0, 1, 0)
Case 3: Unrestricted Constant and No Trend
Date: 06/05/21 Time: 21:05
Sample: 1994 2018
Included observations: 24

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.336368	7.007712	-0.048000	0.9623
LFDI(-1)*	-1.452784	0.213662	-6.799451	0.0000
LGDP(-1)	0.865321	0.662964	1.305231	0.2103
LEXC**	-0.801470	0.772590	-1.037381	0.3150
LTO(-1)	6.330953	2.928872	2.161567	0.0462
LIN**	0.375481	0.321776	1.166901	0.2603
D(LGDP)	-0.967038	1.527320	-0.633160	0.5356
D(LTO)	2.494020	2.466196	1.011282	0.3269

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP	0.595630	0.460740	1.292768	0.2144
LEXC	-0.551679	0.530860	-1.039217	0.3142
LTO	4.357809	1.860266	2.342572	0.0324
LIN	0.258456	0.220679	1.171188	0.2587

Estimated Outputs for 2nd multivariable regression

Dependent Variable: LFDI
Method: ARDL
Date: 06/04/21 Time: 19:28
Sample (adjusted): 1995 2017
Included observations: 23 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): LEXC LIN LTO LSM LINF LHC
Fixed regressors: C
Number of models evalulated: 64
Selected Model: ARDL(1, 1, 0, 1, 0, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LFDI(-1)	-0.472730	0.226777	-2.084559	0.0574
LEXC	0.438980	1.729419	0.253831	0.8036
LEXC(-1)	-2.632182	1.786362	-1.473487	0.1644
LIN	0.644593	0.404737	1.592620	0.1353
LTO	-0.203076	3.334845	-0.060895	0.9524
LTO(-1)	4.204168	2.809522	1.496400	0.1584
LSM	-0.420250	0.993310	-0.423080	0.6792
LINF	0.703710	0.443838	1.585510	0.1369
LHC	-0.453786	3.484575	-0.130227	0.8984
C	11.35874	16.03170	0.708518	0.4911

R-squared	0.619839	Mean dependent var	21.61815
Adjusted R-squared	0.356650	S.D. dependent var	0.950080
S.E. of regression	0.762050	Akaike info criterion	2.593412
Sum squared resid	7.549372	Schwarz criterion	3.087106
Log likelihood	-19.82424	Hannan-Quinn criter.	2.717575
F-statistic	2.355114	Durbin-Watson stat	2.118723
Prob(F-statistic)	0.078131		

*Note: p-values and any subsequent tests do not account for model selection.

Estimated Outputs for 3rd multivariable regression

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LFDI)
Selected Model: ARDL(1, 1, 0, 1, 0)
Case 3: Unrestricted Constant and No Trend
Date: 06/05/21 Time: 21:03
Sample: 1994 2018
Included observations: 22

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32.28176	4.778024	6.756299	0.0000
LFDI(-1)*	-1.319195	0.177646	-7.425978	0.0000
LBIT(-1)	-0.540520	0.954325	-0.566390	0.5801
CO**	1.356222	1.178271	1.151027	0.2690
PS(-1)	4.858429	1.332726	3.645482	0.0026
RQ**	-2.413537	1.092900	-2.208379	0.0444
D(LBIT)	-2.607303	1.594528	-1.635156	0.1243
D(PS)	-1.915443	1.633441	-1.172643	0.2605

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBIT	-0.409734	0.736788	-0.556108	0.5869
CO	1.028068	0.931867	1.103234	0.2885
PS	3.682873	1.121125	3.284979	0.0054
RQ	-1.829553	0.875913	-2.088739	0.0555