

**Interactions between political risk, real exchange
rate and foreign direct investment inflows in
South Africa**

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DECLARATION

I hereby declare that this study on the topic of

**Interactions amongst political risk, real exchange rate and foreign direct investment
inflows in South Africa**

is my own original work and confirm that all the resources employed are acknowledged in the reference list and I assert that this study has not been submitted at any other institutions.

Reneilwe Bibie Marcia Magoane

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ABSTRACT

It has become evident that for countries to become sustainable and prosperous, a handful of economic variables have to be stable; more specifically political risk has been a growing phenomenon in the 20th century and has been prevalent for many economies including Britain's Brexit; the trade wars between China and the USA. For South Africa, political instability has evolved into one of the most prominent determinant of economic growth, although unmeasured; one can relate this to the immense government corruption, the Nenegate and parliamentary conflicts that have affected the rand's volatility and investor confidence through FDI outflows. The study's primary objective was to analyse the interactions between political risk, the exchange rate and foreign direct investment inflows in South Africa, using the autoregressive distributed lag (ARDL) model for a period ranging from 1995 to 2018. The study provided a background by delivering a detailed cultivation from a global observation where the impact of political risk and a fluctuating currency ultimately affects foreign direct investment inflows in a specific country. The study will contribute to political risk literature as well as provide insights to policy makers regarding this variable as an important component to economic growth and other macroeconomic variables. In South Africa, the Apartheid era indicated the first signals of interaction between political risk, the real exchange rate and foreign direct investment inflows in the country. The theoretical and empirical review involves studies of developed and developing countries, regarding the interaction amongst political risk, the real exchange rate and foreign direct investment inflows. It was concluded from the study that political risk and the real exchange rate have no short run changes on FDI inflows, while the added balancing variable the gross domestic product was found to pose that short run relationship. It was also established that a long-run relationship between political risk rating (PRR), real effective exchange rate (REER) and inflows exist. Two causal relationships were established, using the Toda-Yamamoto causality test. The real effective exchange rate Granger-causes political risk rating. Foreign direct investment was established to Granger-cause the gross domestic product, whilst no other causal relationship was identified for the real effective exchange rate and the political risk rating. Other sources of political risk in South Africa were relatively high concerning controlling corruption and political stability; 2017 was also accentuated from various results in the study as an eminent turn of South Africa's progress where the country was downgraded to sub-investment by two major credit rating agencies, Fitch and S&P. According to this study, South Africa reached a stage where politics severely affects

the Rand value directly and foreign direct investment no longer holds importance. In this regard, the study recommends that, because evidence suggests that political risk seems to affect these relationships, it should be included in policymaking decision as it clearly performs a vital function in South Africa's economy. The study also gives a recommendation that a baseline for FDI returns should be established in the light that these returns will give insight to further research. Moreover, a framework for political risk rating can also be established in order to remedy the exposure to political risk; further opportunities for research can be the comparisons of the same study and variables for SADC and Sub-Saharan countries and the utilization of panel data instead of time series.

Key terms: Political risk, the real exchange rate, foreign direct investment inflows and gross domestic product

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LIST OF ABBREVIATIONS

ADF:	Augmented Dickey-Fuller
BIS:	Bank of International Settlements
CIS:	Commonwealth of Independent State
CLRM:	Classical Linear Regression Model
CML:	Capital Market Line
CPI:	Corruption Perceptions Index
ECM:	Error Correction Model
FDI:	Foreign direct investment
FPI:	Foreign Portfolio Investment
GDP:	Gross Domestic Product
ICRG:	International Country Risk Guide
IRMSA:	Institute of Risk Management South Africa
KPSS:	Kwiatkowski-Phillips-Schmidt-Shin
LOP:	Law of Price
PP:	Phillips-Perron
PPP:	Purchasing power parity
PRR:	Political Risk Rating
PRS:	Political Risk Services
OECD:	Organisation for Economic Cooperation and Development
QB:	Quarterly Bulletin
REER:	Real Effective Exchange Rate
SARB:	South African Reserve Bank

SIU:	Special Investigating Unit
SML:	Security Market Line
UK:	United Kingdom
UNCTAD:	United Nations Conference on Trade and Development
U.S.:	United States of America

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

In an era where investment inflows are at the helm of most developing countries, modern economies have found themselves grappling between managing their exposure to political risk and their attempt to maintaining healthy exchange rates. Evidence from both developing and developed countries has revealed that the direct and indirect interaction between political woes, the currency rate and investment inflows had dire consequences for businesses and economic prosperity (Bissoon, 2011). Most recent examples of interactions amongst political risk, the exchange rate and Foreign Direct Investment (FDI) were observed with the trade-war between the United States (U.S.) and China, where the U.S. increased tariffs on Chinese goods worth over \$16 billion. The trade-war is still at its early stages; its impact on the global economy and developing countries will be impressive as the war unfolds (Srivastava 2018). Yueh (2018) suggests that if the trade-war between the largest global economies continues to persist, global supply chains will be disrupted, especially if the U.S. decides to terminate all foreign investment to China; other impacts to the global economy, include a rise in consumer prices.

The interaction of political risk with exchange rate and FDI inflows were evident in South Africa since the pre- and post-global financial crisis; focus was on years of Jacob Zuma's presidency. FDI inflows were at their lowest low and currency fluctuations were impacted at a rate, driving other economic factors, such as unemployment and inflation, relatively high, and investor sentiment unstable and low (Bronkhorst, 2012; Marsh, 2018; The World Bank, 2013; UNCTAD, 2018). Moreover, political risk has sole been on the rise since and more prominent in this millennial. It was established that in first world countries, such as the U.S.

and the United Kingdom (UK), the rise of political risk emerged from country leadership, not particularly terrorism or security risks (Marsh, 2018; The World Bank, 2013).

In Sub-Saharan Africa, political risk was attributable to terrorism attack, including the famous Boko Haram attacks, whilst in Commonwealth of Independent States (CIS) countries, such as Russia and Ukraine, the rise of political risk stems from political and social fragility (Panorama, 2017). For South Africa specifically, the emergence of political risk was recently manifested by internal political volatilities of corruption in government authorities and the weakness of state-owned institutions (AON Risk Solutions, 2018). The country's political risk increased since the Apartheid era with little change over 20 years later; the after-effects were visible and largely negatively influenced the South Africa economic growth and currency. With background reference to the adamant and historical Nenagate in December 2015 (the Nenagate refers to an incident where former President Jacob Zuma fired and hired three finance ministers including former minister Nhlanhla Nene in three days and this plunged the rand to R16 to the dollar), causing the Rand to depreciate over 3 percent (%) against the Dollar, is one example of the effect of political risk on other economic factors (Nqabeni, 2016).

In academic literature, the definition of political risk is rather broad; various researchers such as Weston and Sorge (1972) define political risk as any action arising from a national government's interference into business transactions, or changes concerning contracts or any other interference leading to financial or non-financial loss. Smith (1971); Lloyd (1976) and Aliber (1975) define political risk as relating to reflections of governance activities and policies of government, influencing foreign investors. In 1979, Kobrin defined political risk as unwanted/ unexpected consequences, resulting from political activity with implications on countries and governments. Kobrin (1982) suggests that political risk is any direct or indirect

governmental interference, hindering business transactions or operations or causing interruptions in the financial system of a country. Brink (2017) defines political risk as the probability that businesses will lose profits because of actions or reactions by stakeholders regarding events, decisions and policies. McKeller (2012) defines political risk as any disturbance in the economic environment, possibly affecting the profits or objectives of a particular environment. Political risk results from political instability or politically risky events occurring in a country; events can be wars, political unrest, including government decisions (Sottilotta, 2013).

Practical examples of political risk events for South Africa can include: the 2014 (longest) platinum mining strike of six months, costing platinum producers and workers billions of Rands (Bohlmann *et al.*, 2014; IOL, 2004). The hiring and firing of three finance ministers in December 2015, plunged the country's currency to R15.3857 against the U.S. Dollar (Cohen & Vollgraaf, 2015). These examples are a few, amongst several others. According to the Institute of Risk Management South Africa (IRMSA) (2015), the Corruption Perceptions Index (CPI) ranked South Africa 72nd from 177 countries indicate the perceived extent of corruption in the country's public sector. The Special Investigating Unit (SIU) estimates that R180 billion is lost yearly, related to 20-25 percent of state-procurement corruption (IRMSA, 2015).

Provided the above scenarios, it is still unclear if political risky events, such as mass strikes, the conviction of government officials, corruption scandals, global economic challenges, such as Russia and Brazil's recession crisis and depreciation of a country's exchange rate, cause any variation in FDI. Political risk is difficult to quantify, attributable to the complexities enfolding the concept and causes. The Political Risk Services (PRS) Group established in

1979, became the first of its kind to offer risk rating systems for countries' political risk and risk rankings (The PRS Group, 2016).

Another concept that needs defining, is real effective exchange rate (REER); it is derived from the nominal effective exchange rate, measuring a currency's value when weighted against other basket of foreign currencies then divided by deflators of price or costs indices. The REER also indicates a country's trade competitiveness concerning affordability of exports and imports through appreciations and depreciations (International Monetary Fund (IMF), 2018).

A country's exchange rate is when a currency is converted for another currency. There are two types of exchange rates: the nominal exchange rate - the amount where a currency can be exchange for a single unit of another currency (Czech National Bank, 2017). The real exchange rate is the amount of a single good or service in one region that can be exchanged for a single good or service of the same good in another region (Beggs, 2016). The real exchange rate considers changes in domestic and foreign prices. Considering the variation of inflation rates across countries, literature suggests that it is sensible to use the real exchange rate for this particular study, relating to foreign investments and prices (Sarno & Taylor, 2001).

Exchange rate systems can be floating or fixed. Floating exchange rate is decided by the supply and demand mechanisms, whilst a fixed exchange rate is determined by the central bank of that particular region (The Economic Times, 2016). Since 13 March 1995, South Africa utilised the floating exchange rate system, adopted after terminating the dual exchange rate system of 1985-1995; for this study, REER will be used to measure the exchange rate (Eun *et al.*, 2012). Bilawal *et al.* (2017) state that the exchange rate is a leading economic indicator, suggesting it directly impacts FDI. For example, when the currency is appreciating

and stable, it attracts investors, desiring to invest in that particular country as they are certain about higher profits and return on their investment. In addition, a depreciated currency leads to labour and production cost to be relatively low, providing the country with an advantage to attract more FDI, as it will be more cost-effective to invest in such a country (Goldberg, 2006).

In the frontlines of economic development, technological progress and employment growth establish the concept of FDI. FDI is a concept defined as the process where a particular firm from a foreign country decides to invest capital to another firm in a domestic country. For example, FDI can be in the form establishing new businesses or investing in the production of existing firms (Jones & Wren, 2012). In particular, FDI inflows had a significant function in the development and enhancement of developing countries as it bridges the divergences of employment generation, allocation and innovation of new technologies and foreign exchange improvement, including economic growth results (Anyanwu, 2012). Other FDI benefits include the maximisation of domestic investments, resulting from economic growth; the increase in trade flows of a particular country through technological transfer and industry development. FDI inflows are also used in financing balance of payments' account trade deficits (Musibah *et al.*, 2015).

When a country indicates a deficient infrastructure, this may attract investors to determine an opportunity to initiate new firms there and be allocated infrastructure tenders by willing governments (ODI, 1997). According to Charkrabarti (2001), labour costs, productivity and economic growth in countries determine the amount of FDI inflows in that country, through the relationship between labour costs and productivity. Potentially, investors would seek to invest in countries where wages are much lower rather than higher; given that investors believe that rapidly growing countries offer greater opportunities such as higher interest rates, profits in terms of return (Charkrabarti, 2001). Additionally, political risk was identified as an

underlying determinant of FDI. Political instability characterises a country to be unstable and investors need certainty when investing large amounts of capital in a country, pursuing certainty of whether their returns (hence profits) are secured (ODI, 1997; Demirhan & Masca, 2008).

South Africa heavily relied on FDI for several years to maintain positivism as the country struggles to fight its budget deficit and its account trade deficit, amongst alternative variables, such as creating sustainable jobs (Gelb & Black, 2016). For a country, such as South Africa, gradually graced by political risk and a volatile exchange rate, it is of utmost importance that the study investigates whether these two variables affect FDI, solely needed by South Africa.

Russia can be used as an example of a country that lost investment FDI inflows, attributable to political risk and exchange rate interactions. Between 2015 and 2016 the country was in a political spit with Ukraine, resulting in sanctions of Russian goods and services. The country entered into a recession with negative growth and a fluctuating currency (Euler Hermes, 2017). More recently the country encountered another obstacle with the U.S., placing sanctions relating to terminating foreign assistance, whilst banning security-sensitive goods and technology exports. The U.S. refrains from granting credit to Russia (Lambert & Wroughton, 2018). Ukraine is another example, similar to South Africa, as its political risk relates to deficient governance and corruption; its economy was in turmoil since 2014 with missing funds, and conflict arising from Russia, added to the country's challenges (The Economist, 2014).

Other empirical evidence, suggesting a link amongst the three variables, include a study by Deseatnicov and Akiba (2011) which focused on the Japanese economy on the effect of political risk and exchange rate on FDI. They established that real exchange rate is statistically significant in explaining changes in FDI flows. They also discovered that political risk in

developing countries has a negative effect, whilst a positive effect was established in developed countries (Deseatnicov & Akiba, 2011).

A study conducted in Yemen by Musibah *et al.* (2015) indicate political stability as a critical determinant of FDI when using a hierarchical regression with alternative variables, such as exchange rates and balance of payments. Khan and Akbar (2013) established a negative relationship between FDI and most political risk indicators; the relationship was the strongest with upper middle-income countries, including South Africa. An additional study established that when a country holds government stability without internal conflict and ethnic tensions, whilst noticing basic democratic rights, keeping law and order in check, these variables are significant determinants for foreign investment inflows (Busse & Hefeker, 2015).

In contrast, Bilawal *et al.* (2017) establish the relationship between the exchange rate and FDI as significant and positive. It was further determined that the exchange rate has a 67 percent impact on FDI for Pakistan. It is evidenced with aforementioned studies, amongst others, that it is crucial to determine whether political risk and the real exchange rate affect FDI in South Africa as it may have serious implications for economic decision-making for policymakers.

1.2 PROBLEM STATEMENT

In formulating the problem statement for this study, it was evidenced from the introduction that political risk was increasing globally and locally in terms of internal political and policy uncertainty increased from the US trade wars with China to UK's Brexit and South Africa's very own maladministration under the former President Jacob Zuma and his governance (IOL, 2017b). Given that South Africa is a developing country and depends on some foreign direct investment for some of its capital flows, the study seeks to determine the effect of politics and a weak rand on these very flows. In defining this research problem, it was crucial to discuss the importance of FDI inflows in developing countries, such as South Africa. FDI was

observed as a crucial component in providing flows of resources amongst various economic borders; it is a core variable in facilitating globalisation and providing financial assistance to countries in need (mostly developing and least developed countries) (Del Bo, 2009; Barolli *et al.*, 2015).

The decision to undertake the interactions between these variables was motivated by the fact that for the past 20 years South Africa's FDI inflows have been declining (reference to Chapter 4: Graphical presentations), the exchange rate is always fluctuating and research also finds that between 2014 to 2018 the country's economy experienced two technical recessions and this had an impeccable effect on the currency and a decline in investor confidence (Fin24, 2018; Rossouw, 2017). Furthermore, the study seeks to close the gap in research as it focuses on using time series data to explain the interactions between political risk, the exchange rate and FDI inflows in South Africa.

An example of a ripple effect can be traced to 2017 when President Jacob Zuma reshuffled the cabinet and sacked Pravin Gordhan, the finance minister and these incidents lead to a credit rating downgrade to a junk status by Fitch and S&P credit rating authorities; they experienced negative sentiments, lacking investor confidence in the country's governance (The New York Times, 2017). The FDI component in its magnitude, serves to feed economies through elevating job creation, infrastructure and industry developments. Enhancing trade flows and foreign exchange improvements, amongst others, secured economic growth and development in several developing countries, including South Africa (Demirhan & Masca, 2008).

The study constructed its purpose based on the evidence suggests that economies such as South Africa have been struggling to manage their political risk exposure, as well as maintaining a fluctuating currency and healthy foreign investment inflows. The study hopes

to reveal insights into the interaction between the three variables and how these interactions could be better managed for the prosperity of economic policy and growth.

1.3 OBJECTIVES OF THE STUDY

The following study objectives were formulated:

1.3.1 Primary objectives

To analyse the interactions between political risk, real exchange rate and FDI in South Africa.

1.3.2 Theoretical objectives

To achieve the primary objective, the following theoretical objectives were formulated for the study:

- Define political risk, the exchange rate and FDI, including other concepts related to the three variables;
- Explain the theoretical concepts of political risk, the exchange rate and FDI;
- Discuss the theoretical framework, linking political risk, the exchange rate and FDI; and,
- Review empirical studies on the link between political risk, the exchange rate and FDI.

1.3.3 Empirical objectives

In accordance with the primary objective of the study, the following empirical objectives were formulated:

- Determine a possible long-run relationship between South Africa's political risk, real exchange rate and FDI;
- Determine a possible short-run relationship between political risk, exchange rate and FDI in South Africa; and,

- Determine possible causal interactions amongst political risk, exchange rate and FDI in South Africa.
- Formulation of a policy statement

1.4 RESEARCH DESIGN AND METHODOLOGY

The study comprised a literature review and an empirical study. Quantitative research, using the survey method, were employed for the empirical portion of the study.

1.4.1 Literature review

In this study, the literature review was formulated by using secondary data sources, including relevant textbooks, journal articles, newspaper articles and the Internet.

1.4.2 Empirical study

The empirical portion of this study comprised the following methodology dimensions:

1.4.2.1 Data collection and sampling

To meet the study objectives, secondary data of the South Africa Political Risk Rating (PRR) and exchange rate were collected from the South African Reserve Bank and the Political Risk Service (PRS) Group. FDI data were obtained from the South African Reserve Bank. Concerning the exchange rate, the effective exchange rate was used, defined as a measure of an exchange rate of a currency's trade-weighted average, compared to a basket of currencies where inflation differentials were already adjusted according to each region, expressed as a rating number (Catao, 2007). Attributable to the difficulty in quantifying political risk, PRR that measures the risk of a country from the Political Risk Services Group, were used to measure political risk for South Africa (the PRS Group, 2016).

Quarterly data of the South African exchange rate, PRR and FDI were utilised for a sample period January 1995 until December 2018. The chosen period marks 23 years of democracy;

literature portrays vivid evidence that the selected period is advantageous to this study as the country evolved massively, with numerous legislative changes regarding FDI during this period (South African History Online, 2015). Another major reason the period was selected for this study is the fact that the exchange rate regime moved from a dual exchange rate regime to a floating exchange rate (Eun *et al.*, 2012).

1.4.2.2 Data analysis

For this study to achieve its established objective of testing interactions amongst PRR, exchange rate and FDI in South Africa, additionally for balancing the model, the gross domestic product (GDP) was added. The ARDL model was employed to statistically analyse possible short- and long-run relationships. More than one variable model was utilised. To satisfy objectives of establishing a relationship/trend amongst South Africa's PRR, exchange rate and FDI, a cointegration test was conducted.

The study identified a long-run relationship amongst PRR, REER and foreign direct investment inflows, with FDI inflows as the dependent variable and the rest as independent; results were determined using the bounds test. Long-run coefficient tests were conducted. These tests aimed to satisfy empirical Objective 1 and 2. The error correction model (ECM) was performed to satisfy empirical Objective 3 for the short-run relationship; No short-run relationships were determined from interactions of logarithms of PRR (LPRR), LPRR, REER (LREER) and LFDI inflows; a short-run relationship between LFDI inflows and LGDP was established.

Two causal relationship was determined using the Toda Yamamoto where the real effective exchange rate can causally affect political risk rating and LFDI inflows was found to have a causal relation with the balancing variable LGDP. Other residual diagnostics test was run such

as the autocorrelation, and heteroscedasticity tests and they met the qualifying criteria; including stability the CUSUM test were the model was found to be stable.

1.5 ETHICAL CONSIDERATIONS

The study was compiled with the guidelines of North-West University ethics regulation and ethical clearance number 0104-19A4 was obtained and the study adhered to all laws set by the institution.

1.6 SIGNIFICANCE OF THE STUDY

Global evidence suggested that both developed and developing countries have seen a rise of political risk exposure, and the interaction with other variables such as exchange rate and foreign investments has resulted in dire economic consequences including low growth rates. This study has the potential to become a baseline for other studies looking into the interactions amongst political risk, the exchange rate and FDI. The findings of this paper will inform policymakers to acknowledge the effect of politics as a contributor to alternative variables, such as the exchange rate and FDI; for example, in 2017, South Africa's political risk concerning government maladministration and corruption, led to Rand depreciations and the largest outflows since this decade, including two credit downgrades to junk status. The study could be further utilized in determining whether a declining exchange rate is determined by political risk exposure and further research could be derived that suggests the effect of politics in other investment inflows such as portfolio flows.

1.7 CHAPTER CLASSIFICATION

This study comprises the following chapters:

Chapter 1: Introduction

This chapter facilitates the introduction, whilst providing a background overview of political instability, political risk, the exchange rate and FDI. The chapter also briefly outlines the problem statement, the three types of objectives: primary, theoretical and empirical, and provides the methodology and the chapter classification.

Chapter 2: Literature review

The chapter analyses the theoretical framework of FDI, exchange rate and political risk, whilst briefly outlining the PRR computation. The chapter discusses a theoretical link amongst political risk, exchange rate and FDI. This chapter provides a review of previous studies in other countries that examined interactions amongst political risk, the real exchange rate and FDI.

Chapter 3: Research design and methodology

This chapter provides the analysis of the methodology used regarding the empirical section, involving discussions on data collection methods, sampling and statistical data analysis.

Chapter 4: Results and findings

This chapter determines results, according to the established objectives of the study, using econometric models, mentioned in the methodology section. This is followed by an analysis and interpretation of the results, established on the effect and relationship amongst South Africa's PRR, the exchange rate and FDI inflows.

Chapter 5: Conclusions and recommendations

This chapter provides a summary and conclusion of the study, referring to results and findings, established in Chapter 4, whilst asserting possible recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter One provided an introduction, background and problem statement of the interactions between political risk, the real exchange rate and FDI inflows in South Africa. Globally, these interactions are evident, with an increased impact, political risk seems to be the main source of the interactions as observed in both developed and developing countries. Furthermore, the currency has an immediate impact as markets react, leading to lower investor confidence and declining profits or returns from their investments (Bishop, 2019). This chapter has defined the concepts of political risk, the exchange rate and FDI. Further provided a theoretical framework of FDI, exchange rate and political risk theory as well as provided the analyses of South Africa's overview of the link between political risk, the real exchange rate and FDI inflows. This chapter further provides an empirical review of previous studies in other countries that examined the effect of political risk and exchange rate on FDI, whilst reviewing alternative relevant studies.

2.2 DEFINING VARIABLES

2.2.1 Political risk

The concept of political risk extends from risk relating to the trade of countries, including the realisation of any transaction from one country to another, conveying some type of risk to that specific country (Asadov, 2016). According to Howell and Chanddick (1994); Kapolkova and Tolstova (2015), political risk is defined as any risk related to political events, actions and inaction of government or any circumstances resulting in investors losing marginal profits or returns. Political risk is divided into macro and micro-risk, where macro-risk is defined as any risk related macro-level politically motivated environmental changes that may affect foreign

business and micro-risk, focussing on environmental changes, influencing industries or firm level risks (Oetzel *et al.*, 2001).

2.2.2 The exchange rate

The exchange rate is defined as a price of a single country's currency, defined concerning another country's currency. This definition of the exchange rate is also called the nominal exchange rate where a particular unit of the local currency has the ability to purchase a unit of currency from a foreign country (Govil, 2014). The real exchange rate is defined as the deflated price of the local export good by the price level in the domestic economy (Frankel, 2003; Macdonald, 1997) defines the real exchange rate as the ratio between domestic and a foreign price level, where the price level in a foreign country are converted, using nominal exchange rate units.

2.2.1 Foreign direct investment inflows

FDI is an investment of a company in one country (foreign company) to another country's company (host company/country) (OECD, 2008). Cardillo *et al.* (2004) define FDI as any objective of one economy, pursuing and acquiring interest in a foreign economy with intentions to establish lasting interests; influence over managing the established enterprise constituted a 10 percent or more shares. Pilinkiene (2008) affirms that FDI relates to a long-term injection of capital to a foreign company in a form of ownership by an investor.

2.3 THEORETICAL REVIEW

This subsection aims to provide a theoretical review of political risk, the exchange rate and FDI, including definitions, importance and interactions amongst the three variables, according to their theories. Other discussions within the theoretical review comprise background concepts of variables and descriptions of how they are measured.

2.3.1 Political risk theory

2.3.1.1 Risk and return theory

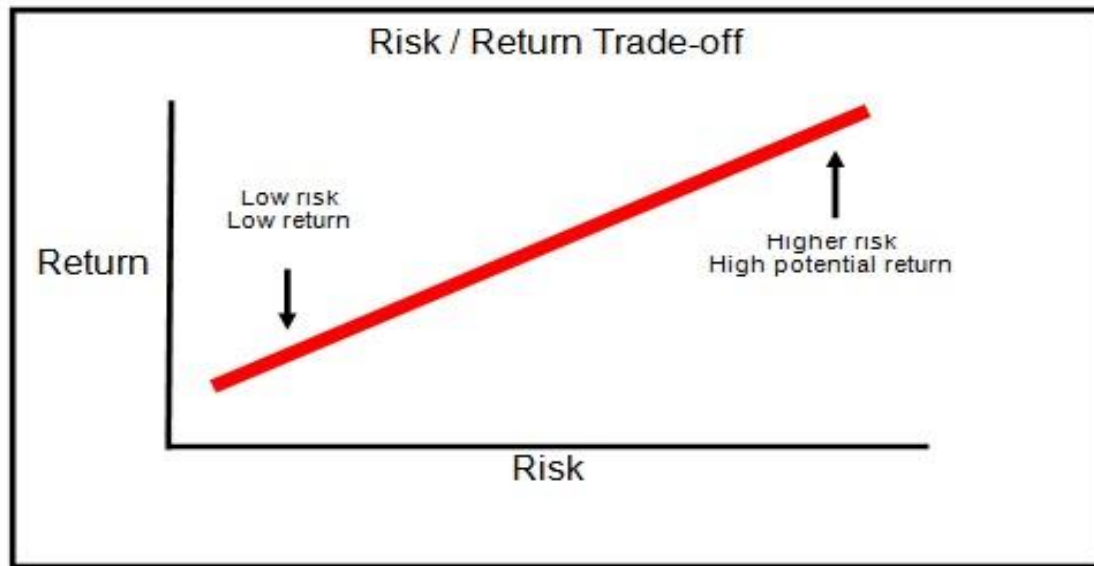
In dissecting the theory of political risk, it is crucial to briefly discuss risk theory. Political risk is a type of risk. Risk is defined as any set of consequences with unknown uncertainties (Chavas, 2004:5). Within the concept of risk, the concept of uncertainty and profit/return emerges; because risk is such an unexpected circumstance, it comes with uncertainty (Mokatsanyane, 2016) and Yoe (2016:1) define risk as any measure of probability for future events with uncertain consequences, such as loss; losses can take any form, such as financial setbacks, fire or natural disasters. Uncertainty causes risk as a result of the lack of information on future expectations (Kobrin, 1979).

Risk differs from uncertainty as with risk, the probability of the outcome is predetermined, whilst the uncertain outcome probabilities are unknown (Herring, 1983:3). Regarding the concept of risk-return or the risk relating to the profitability, all investors', entering any business transaction, main aim is a profit/return and if not the case then all business transactions are regarded as donations or non-profit organisations (Webb, 2003:2; Mokatsanyane, 2016). A theory of interest that also relates to risk, is the risk-return theory embedded in rendering investments, suggesting a correlated relationship between risk and return, with investors more likely to pursue higher returns for higher risk investments (Issacs, 2014).

Markowitz (1952) first introduced the theory of risk and return, suggesting that equal weight must be provided to return and risk. This statement is relevant and customary amongst investors; they measure the value of an investment by the return received (Markowitz & Blay, 2013). The theory is universally used in portfolio theory selection or stock picking; it is

relevant for this study, considering FDI inflows resulting from investors pursuing investments in South Africa through capital investment (Engels, 2004).

Figure 2.1: Risk and return theory



Source: Veracity wealth planning: Investment philosophy 2018

Figure 2.1 provides an eminent example of the risk-return theory; as the risk increases so does the return. When this theory is applied to political concerns, it can be suggested that investors tend to invest in high-risk investments, expecting higher returns; in reality this is the opposite because, for example, South Africa was downgraded to junk status because of political and policy uncertainty of the country in recognising and taking responsibility for its debt obligations. The relationship between risk and return can also be determined for a specific portfolio investment by using the Capital Market Line (CML) equation, which is:

$$\text{CML: } R + \frac{\mu_M - R}{\sigma_M} \sigma \quad (2.1)$$

where, R represents the risk-free rate, whilst the market portfolio is denoted by M , (μ_M, σ_M) denotes the CML line and the market risk is defined by $(\mu_M - R) / \sigma_M$; and the slope of the

line is provided by the fraction $\frac{\mu_M - R}{\sigma_M}$ (Cvitanic & Zapatero, 2004:411). The equation further explains that any investor must hold combining risk-free assets and risky assets from a market portfolio; in conjunction, the Security Market Line is also described as the trade-off between a particular security's risk or beta risk in accordance to a market portfolio and its expected return (Lee & Su, 2014).

2.3.1.2 Country risk

Another concept emerging when political risk is mentioned, is the concept of country risk that can be mistakenly used interchangeably with political risk, the concepts differ. Cosset and Suret (1995) define country risk as relating to any consequence that may lead a country to fail in meeting its obligations to the foreign creditors. These consequences may stem from economic and financial difficulties of a host country. Kosmidou *et al.* (2008:1) define country risk as the potential of incurring economic and financial losses relating to macroeconomic factors of a country or any political environment.

Brink (2017) differentiates country risk from political risk by associating country risk as any loss, attributable to macroeconomic factors influencing a particular country. Country risk reflects how a particular country has the ability and willingness to meet its obligations with foreign investors. These risks relate to political and economic factors, amongst other, including financial factors. Political risk is distinguished as any policy or other regulation change by a particular government with the potential to hamper investment growth (Toma *et al.*, 2011).

There is no single component that measures country risk; a number if not a thousand factors, such as interest rates of a country, its political stabilities, confidence of its governance, expectations about its growth or economy, amongst others define country risk and its

definition also varies country by country (Kuepper, 2018). Mokatsanyane (2016) indicates a correlation between political risk and a country, although not dependent on one another, as a country can hold political risk without country risk. This observation would seem impossible since country risk also possesses macro and micro risks, interrelated to political risk; for example, when a country fails to meet its foreign obligations because investors withdraw their capital investments, attributable to the governance and political leadership change (Garcia, 2014).

2.3.1.3 Political risk conceptualisation

From the previous subsection, it is evident that political risk is not specific as it is abstract. Various researchers endeavoured to find a standard definition; its pure definition has not been established. For decades, academic theory neglected the theory, attributable to the complexity of measuring and defining the concept. The introduction of the concept of political risk emerged in the 1960s. Its first attempted definition was linked to country risk, accounting for country insolvencies, excluding financial and economic factors (Sottilotto, 2013). Political risk was also defined as any loss resulting in major shifts in policy, from risks of political discontinuities (Stone, 2012:199).

Political risk can also be defined as any action or reaction directly linked to or against a government (Boubaker *et al.*, 2016:126). Green (1974) describes political risk as equal to political instability and thus indicating radical political change in a provided country. A more subjective definition is indicated by Henisz and Zelner (2010), stating that political risk is any undesirable interference by government in operations of businesses. This definition lacks context as it fails to explain what kind of interference. Lim (2011) defines political risk as having three crucial parts: macro-political risks with a specific to each country; micro-political risk is industry specific across the region or board; and sovereign political risk, covering

political events in a country, including *coup d'état*, wars, corruptions scandals, colonisation and the sought.

Another author defined political risk as the potential for a firm to lose profits, attributable to reactions and responses of concerned people, linked to a particular political system (Brink, 2017). Political risk definitions mostly focus on domestic politics, including decision-making processes of governments and a country's history; such constitutes know how to assess the risk analytically (Toma *et al.*, 2011). Other concepts relating to political risk, are political uncertainty and political instability, constructing properties of political risk; the concepts differ in that political uncertainty arises from the lack of information regarding a particular political risk; political instability refers to the change of governance or leadership leading to changes in policy. Political instability becomes a factor for political risk as it links directly to any losses incurred by foreign investors, such as nationalisation or repudiation of foreign investor contracts (Brink, 2017).

Table 2.1 provides detailed examples of macro and micro risks, delineated concerning society-related and government related risks, including classification of internal and external risks. The categorisation of political risk concerning macro and micro risks was introduced by Simon (1982) where macro risks linked to country risks. This derives from the definition that political risk results in dire and negative circumstances for assets in a particular company, attributable to governmental or societal related risks/activities. Similarly, Kennedy's (1988) definition of political risk also emphasises macro and micro factors of political risk, by defining it as any risk, resulting in a loss for a company. It can be strategic, personnel and financial loss, including social policies and macroeconomic factors or any political instability, such as insurrection, riots or civil war.

Table 2.1: Macro and micro classifications of political risk factors

		External	Internal
Macro risks	Society-related risks	- Cross-national guerrilla warfare - International terrorism - World public opinion - Disinvestment pressure	- Revolution <i>Coup d'état</i> - Civil war - Factional conflict - Ethnic/religious turmoil - Widespread riots/terrorism - National-wide strikes/boycotts - Shifts in public opinion - Union activism
	Government related risks	- Nuclear war - Conventional war - Border conflicts - Alliance shifts - Embargoes /International boycotts - High external debt/service ratio - International economic instability	- Nationalisation/ expropriation - Creeping nationalisation - Repatriation restrictions - Leadership struggle - Radical regime change - High inflation - High interest rates - Bureaucratic politics
Micro risks	Society-related risks	- International activist groups - Foreign MNE competition - Selective global terrorism - International boycott of firm	- Selective terrorism - Selective strikes - Selective protests - National boycott of firm
	Government related risks	- Diplomatic pressure - Bilateral trade agreements - Import/export restriction - Foreign government interference	- Selective nationalisation /expropriation - Discriminatory taxes - Local content/hiring laws - Industry specific regulations - Breach of contract - Subsidisation of local competition - Price controls

Source: Lindeberg and Morndal (2002)

The categorisation of political risk concerning macro and micro factors, provides clarification on the enormity and broadness of the concept, whilst explaining that a single definition for political risk will be limited. Researchers should rather pursue to define it relative to the objective of a particular study. For this study, political risk is defined as any risk curbing from macroeconomic government related, in this case the politics and corruption in South Africa is a good example (Traydon, 2018). Most government related risks are potentially regarded under the definition of geopolitical risk, a part of political risk, whilst defined as any risk resulting in disrupting global relations of a particular country, attributable to terrorist attacks, conflicts between regions or risks relating to wars (Caldara & Iacoviello, 2018).

Carney (2016) defines geopolitical risk, whilst including economic and policy uncertainty, contending that combining the three variables, potentially affect the economic stance of any particular economy. The importance of political risk has since emerged; post-global financial crisis arises, as several countries were encountered with internal and external turmoil, as countries, such as the Middle-East and Israel were in locker heads, attributable to religious conflicts; others suffered at the mercy of other countries: Ukraine, Russia and South Africa's political risk was rising, attributable to deficient governance, corruption and inadequate management of government finances, including state-owned enterprises (Panaroma, 2017; Euler Hermes, 2017; AON Risk Solutions, 2018).

Stuenkel (2016) recognises that the global rise of populism and nationalism, insinuated a rise in studying political risk. Political instability became a new norm as countries, such as when the U.S. embraced the unexpected Trump win for president or when Brexit occurred but did not evidently impact on Britain. The measurement of political risk was a challenging task for several practitioners, political risk assessment analysts and experts, attributable to determine the complexity of which variable explains a political risk and to what extent. Various

researchers used diverse data sources and variables to explain political risk concerning the relevant research topic.

For this study, the PRS Group measure of political risk was used to quantify political risk. The Policy Uncertainty Index by Baker, Bloom and David (2016) and the World Bank governance indicators data were also employed. The PRS Group published two distinct methodologies for assessing risk. PRS delivers a decision-focussed political risk model, comprising three industry forecasts at the micro level. The International Country Risk Guide (ICRG) model was established in 1980 and serves to forecast financial, economic and political risk (the PRS Group, 2016).

For each country, higher risk points (above 50 to 100) indicate lower risk, whilst higher risk is indicated by lower risk points (below 49). Since the study endeavoured to determine interactions amongst political risk, the real exchange rate and FDI; it was necessary to establish the theoretical link for the three variables. Setzer (2006:35) declares that when political uncertainty is high, investments become riskier for investors, resulting in the decline in demand of the local currency. In earlier concepts of political risk, the risk and return theory were defined. It emphasised that investors always pursue a higher return for any high-risk investments; if a high political risk leads to investments to further risk, then the return provided to investors needs to be high and attractive.

This was observed in South Africa, with the increase of the repossession and prime rate (South African Reserve Bank, 2018). The link connecting political risk and FDI inflows, remains in determining factors of FDI and the country risk factors possessed by the host country, when an investor/organisation pursues to invest in a particular country, an analysis is required of the country's state institutions, political stability and level of corruption, which may also fall under

political risk components (Asadov, 2016). Other researchers suggest that traditional factors relating to host countries' compliance laws and state institutions, limited to no correlations with FDI inflows as MNEs are more focussed on important factors, such as leadership, governance and corruption (Busse & Hefeker, 2005; Asadov, 2016).

Political risk is one of the most important factors when investors pursue investment decisions about host countries; the country's political environment determines investment profits, conducting an analysis on political risk. This reduces uncertainties on future profits (Mawanza *et al.*, 2013:78; Erkekoglu & Kilicarslan, 2016). Isard (1995) suggests that traditional exchange rate determination using nominal exchange is insignificant in explaining political risk; moreover, only qualitative studies find some sought of relationship between the two variables (Cosset & Rianderie, 1985). Lim (2003) asserts that researchers are often discouraged from pursuing quantitative research on political risk since its measure is indefinite. Data are unavailable for public use. The link between political risk, the exchange rate and FDI is not as direct; a relationship exists amongst the three variables when political risk is dependent. This study aimed to identify evidence from these relationships.

2.3.2 Exchange rate theories

This subsection provides a detailed discussion on the definition of exchange rate; then a discussion of the exchange rate regimes and the exchange rate approaches and the importance of a stable exchange rate. It also attempts to link the exchange rate with political risk and FDI inflows.

2.3.2.1 The Gold standard and the Bretton Woods system

Exchange rate regimes state back as far as the 1800s, with the gold standard in 1870, based on the statutory gold content of each exchange rate, suitable in relatively stable conditions.

The gold standard was similar to the fixed exchange rate system; nations settled accounts amongst each other, using gold as a form of currency in exchange. Each nation's funds supply was aligned to its gold reserves. The system was automatic and provided price stability through its gold parity, using par values (Eichengreen & Flandreau, 2005:1). The gold-exchange standard of 1952 was based on countries, keeping reserves concerning bills and liquid assets, exchangeable for gold; interest was yielded on those reserves (Van Der Merwe, 2014:136).

The gold standard allowed for national convertibility rules, which were aligned to global financial markets and central banks, were forced to support the gold parity by intervening in the gold market (Bordo & Eichengreen, 2007:115). Provided that the gold standard had its disadvantages, such as its inability to function efficiently during World War I, attributable to lack of adequate supply of official gold stocks, the system was crucial in building the foundation surrounding the cooperation of central banks globally, and its function as a commitment mechanism, still visible today (Bordo, 2005:5).

The Bretton Woods system emerged from a conference held at Bretton Woods in 1944 in the U.S. that led to the restructuring of the global monetary system, establishing the IMF in 1945 (Van Der Merwe, 2014:137). The Bretton Woods system was a fixed exchange rate, allowing countries to trade, receive and provide capital flows without destabilising the exchange rate. It differed from the gold standard system in that the rules of commitment were inscribed in a formal constitution (Pfeiffer, 2012:1; Schwartz, 2009:391).

Some of the reforms brought by the system, included the flexibility of pegged exchange rates, rather than a fixed exchange rate. The U.S. had the sole right to maintain gold prices of \$35 per fine ounce. Because it held the largest and strongest economy, the U.S. became the reserve

currency of the world (Boyce & Melvin, 2012:798). The system had three aims when it was introduced:

- To assist balance of payment challenges in countries.
- Create global capacity movements.
- Establishing global trade organisations and trading rules (Coffey *et al.*, 2006:3).

The fall of the Bretton Woods system was caused by countries' refusal to change par values. It led to the system's main core of adjustment capability and flexibility to fail; furthermore, the large outflows of U.S. capital affected the global economy. The decision to terminate convertibility between the dollars and gold was 'the last nail to the failing wood ship' (Van Der Merwe *et al.*, 2014:138).

2.3.2.2 The Mundell-Fleming model

The Mundell-Fleming model applies the standard IS-LM analysis, including trade and global capacity mobility. The model attempts to conceptualise the incorporation of the global trade in the IS-LM model, enabling a macroeconomic balance in a country with an open economy rather than a closed economy (Evans, 2003). The model endeavours to respond to enquiries regarding a link amongst exchange rates, inflation, balance of payments, GDP, interest rates and the external trade and financial transactions in an open economy (GRIPS, 2015). The Mundell-Fleming model also indicates the relationship between a country's economic output and its nominal exchange rate in the short-run. The model contends that no economy can simultaneously control an independent monetary policy, fixed exchange rate and free capital movement (Everaert, 1992).

Van Der Merwe *et al.* (2014:139) define the Mundell-Fleming model as assuming that the exchange rate is constant, constituting that an equilibrium of the balance of payments is

reached through various combinations of the interest rate and income. Bitzenis and Marangos (2007) elude that the main assumption of the model attributes that the level of global prices differs from price levels of a domestic economy; furthermore, it was contended that the Mundell-Fleming model was derived from Meade's (1951) foundations to analyse and study the external and internal balance of an open economy. For the equilibrium in the balance of payments to be attained, any deficits or surpluses are self-corrected in the financial account, providing funds and stock changes; the equation for these is as follows:

$$B = Bc + Bf \quad (2.2)$$

where the balance of payments is denoted by B , whilst the balance of the account and financial account is provided by $Bc + Bf$. Since world prices and income are least affected by domestic government, exchange rates and prices in the domestic economy are constant and exports are exogenous variables; whilst imports are part of the domestic goods' competitiveness globally and the domestic income and thus the account's only endogenous variable is the domestic income (Bitzenis & Marangos, 2007; Van Der Merwe *et al.*, 2014:139). The equation for the account balance determination is provided by:

$$Bc = X - mY \quad (2.3)$$

where X represents exports, the account is still Bc and the marginal propensity to import is denoted by m and Y is provided by the national income (Van Der Merwe *et al.*, 2014:139). It is assumed that in the short-run the marginal propensity to import is constant and the propensity is measured by increases in imports from income; the domestic interest rate level in comparison with global, determines the net financial inflow in a fixed exchange rate regime; this is provided by:

$$Bf = f(i - i^*) \quad (2.4)$$

where the function notation is provided by f ; Bf is the financial net inflow, whilst the I and i^* represents the interest rates in the domestic economy and rest of the world's interest rate with the $*$. If all variables remain constant, the net financial inflow increases as a response to increases in interest rates of the domestic economy (Van Der Merwe *et al.*, 2014:139).

2.3.2.4 The fixed exchange rate system

The exchange rate in the fixed exchange rate regime is determined by the central bank of that country, using its reserve of global currency (Lamehdasht, 2016). The central banks buy and sell their currencies amongst other major currencies at a fixed price; fixed exchange rate systems are associated with stability (Dornbusch *et al.*, 2014:293; Van Der Merwe *et al.*, 2014:141). Fixed exchange rates are predetermined rates, established by monetary authorities. The rate can be linked to one or more foreign currencies; decades ago, fixing the rate exchange was linked to credible commitment of the central bank to its people (Frankel, 2003).

Fixed exchange rates are advantageous in eliminating exchange rate risk through enhancing investments and global trade, although it is unsustainable in the long-run; the fixed rate encourages the management and discipline of responsible financial policies; the rates are perceived to be stable in the foreign exchange market (Van Der Merwe *et al.*, 2014:141). The fixed exchange rate has some benefits, though the maintenance of a fixed currency in an ever-developing world, filled with globalisation, is almost impossible (Labonte, 2004).

The exercise of monetary and fiscal policies becomes constrained in countries, facilitating a fixed exchange rate; the rate becomes unsustainable when compared to countries using currency boards. Currency boards are characterised by relatively stable capital flows across the board (Klein & Shambaugh, 2012:15). Fixed exchange rates are described as hard pegs. In instances where the currency becomes overvalued, capital outflows are excessive, resulting in losses in foreign reserves; funds supply in the fixed exchange rate is ungoverned, therefore,

adjusting automatically to any disequilibrium in the balance of payments. In conclusion, the main reason fixed exchange rate became unpopular, is the commitment of monetary authorities to favour and defend the exchange rate, disregarding public service obligations (Labonte, 2004).

2.3.2.5 Floating exchange rate regime

In the floating exchange rate regime, the domestic economy's exchange rate is determined by the market forces of demand and supply. By using the floating exchange rate, an economy has the ability to correct balance of payments disequilibria without distortion. The system utilises only one price for balance of payments transaction adjustments and need no maintenance by a central authority to ensure the exchange rate level (Fournier & Wadsworth, 1976:56). In a floating exchange rate, the monetary policy authority cannot commit to a particular currency rate at any preannounced level, allowing the currency to be determined by foreign exchange markets (Frieden, 2014:3). Two types of nominal exchange rates are identified: the predetermined; and floating nominal exchange rates.

Additional literature contends that a free-floating regime is practical in theory only. Governments influence exchange rates (Leonard, 2005). Contrary to these benefits, the floating exchange rate holds shortcoming during inelastic demands for goods and services, as they lead to fluctuations of the exchange (Steinherr & Weiserbs, 1991:78).

Other disadvantages of the exchange rate include the long-lasting deviations from purchasing power parity and destabilising currency speculation, resulting in a lack of financial discipline (Van Der Merwe, 2014:142). Schmitz (2012) also emphasises that the main challenge with a free-floating exchange rate is its unpredictability when compared with a managed floating or fixed exchange rate, therefore, increasing the cost of domestic and global transactions,

attributable to its fluctuating feature. The cost of these transactions relates to the monetary approach theories discussed (Wilson, 2009).

Provided that the fixed exchange rate is less popular in several countries, some countries still benefit from this regime. They can ensure price stability, financial discipline, leading to stable exchange rate levels. There is therefore, no possibility for currency speculation (Ferrington, 2007:6). Each coin has two sides. The level of external balance policymakers needs to ensure an indefinite fixed rate, disadvantaging the fixed exchange rate. These policymakers need capital mobility and a fixed exchange rate, which simultaneously, is technically impossible (Van Der Merwe, 2014:141).

2.3.2.5 The purchasing power parity

The theory of the purchasing power parity (PPP) compares currencies of various countries, assuming that the two currencies will reach an equilibrium when goods and services of those countries are priced the same (Mohr *et al.*, 2016:147; Ignatiuk, 2009:5). The origin of the PPP stems from the law of one price (LOP), eluding that when a particular currency was converted to a common currency, the same good should be sold for the same price in varying regions. The LOP equation is written as:

$$P_i = P_i^* S_i \quad (2.5)$$

Where P_i denotes good i 's price in the host country and the foreign country's price for good i is denoted by P_i^* and S_i represents the nominal exchange rate (Taylor, 2013). They are two types of PPP namely the absolute PPP and the relative PPP; with the absolute PPP the equilibrium exchange rate is concerned with the base period and is a ratio, indicating two countries' price levels; the relative PPP theory is based on an equilibrium ratio concerning the period (Mohr, 2016:149).

The purchasing power parity is distinguished in the terms, bilateral and multilateral; for example, an absolute PPP can be the famous Big Mac Index, asserting the notion that exchange rates globally should automatically adjust to the same level if the same basket of tradable goods is compared across a range of countries (The Economist, 2017; Mohr *et al.*, 2016:151). The absolute PPP is provided by the real exchange rate $e = P / P_f$ where:

$$e^* (P / P_f) = P_f / P * P / P_f = 1 \quad (2.6)$$

and P is defined as the domestic economic while P_f is the foreign economy. The theory assumes that the real exchange rate equals to the one only in the long-run but not applicable in the short-run; moreover, an exchange rate is undervalued when it falls below one and overvalued above one. The absolute PPP considers only account transactions; in the short-run the theory is disadvantaged, attributable to its unaccountability for financial flows and costs, such as tariffs (Van Der Merwe & Mollentze, 2012:126).

A bilateral PPP is an equilibrium exchange rate between two economies' currencies, where a prevailing exchange rate of one economy is used to express a cost of a good for both economies (Asian Development Bank, 2012). In contrast to the bilateral PPPs, the multilateral rates (PPP) are defined as combining all foreign countries or trading partners and the host economy, capturing the effects of trade competition (Baillie & McMahon, 1990).

Dornbusch *et al.* (2014:299) define the PPP theory as the ability of a domestic unit of currency to purchase the same amount of goods at a foreign region and domestic region; it was contended that the variation between countries' inflation rates are a true reflection of fluctuations in the exchange rate. In the occurrence of large inflation differentials between countries, the PPP tends to represent a behavioural trend of the exchange rate as e keeps eP / P_f where the entire equation denotes the real exchange rate (Dornbusch, *et al.*, 2014:554).

Fourie and Burger (2013:157) explain the PPP as a type of an equilibrium approach as the exchange rate moves closer to the price ratio defined by $(\frac{P_{Domestic}}{P_{Foreign}})$ and arguing that any changes in the exchange rate are in relation to the price ratio. The PPP is more of a long-run approach rather than short-run, attributable to numerous underlying factors affecting the exchange rate.

The definition of the PPP from Dornbusch *et al.* (2014) is also a relative PPP the opposite of an absolute PPP, where financial flows and costs are considered and further focusses on exchange rates undervalued for developing countries and overvalued for the more developed nations (Samuelson, 1964; Maepa, 2015). Contradicting Dornbusch *et al.* (2014) and Fourie and Burger (2013), Hickman and Klein (1998:60) define the PPP as:

$$V_t = \frac{P_t^d}{P_t^f} \quad (2.7)$$

where V_t represents the nominal exchange rate, the foreign price index is denoted by P^f whilst, P^d denotes the domestic price index; in their argument, a relationship exists between the exchange rate's level and the indices of the relative price.

2.3.2.6 The portfolio balance approach

The portfolio balance approach provides emphases on the behavioural models of supply and demand of portfolio stocks concerning links between asset stocks adjustment and balance of payment flows (Isard, 1995:107). The approach also holds the notion that people demand to hold diversified portfolio securities, comprising domestic and foreign bonds (Levi, 2007:457). The approach alludes that home-currency securities are imperfect substitutes as their interest rate does not equal foreign interest rate added with the expected rate of change in the exchange rate. The portfolio balance approach is also called the asset market approach. It describes

money as an asset of several other assets. The demand and supply of financial assets determine the exchange rate in the short-run (Bitzenis & Marangos, 2007).

The approach comprises the relation between the account, asset accumulation rate, asset markets and the level of price; it links the balance of payments, stock equilibrium, the exchange rate and the level of wealth together, either in short-run equilibrium to long-run (MacDonald, 1988). The portfolio approach also relates to Tobin's model of liquidity preference, explaining money as store of value and wealth. His model also emphasises risk and return, relating to holding diversified assets in a portfolio (Kari, 2017). Levi (2005:475) contends that in the portfolio balance approach, demands and supplies of bonds and funds should balance or be in equilibrium.

The portfolio balance approach with flexible exchange rates, was crafted by Branson (1972; 1976) and others, such as Girton and Henderson (1977), modifying the model to its current state. They describe the approach with the notion of individuals in a fixed period where wealth is allocated with assets, dominated by foreign and domestic currencies. The model hypothesised that in the short-run, changes in assets and its responses to changes in assets' rate of return, determine the exchange rate, whilst in the long-run, real factors in the economy determine the exchange rate. These include the PPP, global flows of trade and investment decisions for the long-term (Branson, 1972:1976). Frankel (1984) describes the approach concerning a portfolio with two assets, where one is dominated by a foreign currency, whilst the other represents assets, dominated by the domestic currency; the equation is provided as follows:

$$B_d = B_d W_d \quad (2.8)$$

$$\text{where } W_d = B_d + S F_d \quad (2.9)$$

where W_d denotes the total financial wealth; whilst B_d represents domestic currency allocation and foreign currency allocation is provided by F_d . If F_d was an accumulation of surpluses from the past account, and assuming that foreign investors hold no domestic assets then the imbalances in the account will be quoted in the foreign currency and the portfolio balance model also assumes that expectations are static and the exchange rate is responsible for the sustainability of a global portfolio balance (Branson, 1977).

2.3.2.7 The monetary approach

The monetary approach focusses on the adjustment of stock imbalances of flows, whilst it also reiterates that changes in the domestic money supply eventually result in changes in the exchange rate through price and interest rate dynamics (Scobie, 1983:17). Boughton (1988) defines the monetary approach as comprising stock or asset, where variations in relative prices of goods fulfil a minimal function. He explains the approach, emphasising other exchange rate approaches, such as the flow approach, asserting shocks, resulting from fiscal and monetary policies, hampering trade flows through terms of trade and relations between output and local absorption. The monetary approach also recognises the global movement of funds, besides its relation to factors, comprising the balance of payments, such as financial capital (Bitzenis & Marangos, 2007).

The Keynesian monetary theory assumes that the demand for transactions costs increases as a response to increased income if money is held for future transactions and finance; the theory further confirms a relationship between interest rates and money demand; interest is earned for holding funds, therefore investments increase when the rate of return is high (Wilson, 2009; Woo, 1985). The monetary model for exchange rate determination states that money demand and money supply are equal at equilibrium and the equation is provided as:

$$M_d = M_s \tag{2.10}$$

where M_d is the money demand and M_s is money supply, in the building the monetary model it is sufficient to combine equation (2.10) with Cambridge cash-balance approach derived from Fisher's model that states money as a medium of exchange and the turnover of money and number of transactions are constant; furthermore, Cambridge economists modified Fisher's model by including demand deposits and the circulation of the currency (Wilson, 2009; Jimoh, 2004). The modified Fisher's equation is provided by:

$$\frac{M}{P} = kY \quad (2.11)$$

where money's real demand is denoted by $\frac{M}{P}$, Y represents the real national income and k is a constant representing a fraction from annual national income for pursuing to hold money; it also stated that because money allows for credit creation through financial institutions it becomes endogenous (Wilson, 2009). Combining the two equations results to this:

$$M_s = kPY \quad (2.12)$$

where Y and k are assumed constant, money supply in the domestic economy increase in the same proportion as P ; thus, the increase in M_s automatically adjusts to equilibrium and further affecting the exchange rate through an appreciating and the effect is indicated as follows:

$$R = M_s k^* Y^* / M_s^* k Y \quad (2.13)$$

where R represents the foreign exchange appreciation, attributable to money supply increase (Bitzenis & Marangos, 2007; Wilson, 2009). The monetary approach is one of the few approaches, attempting to explain the exchange rate as the interest rate approach, assuming that perfect mobility is benefited by global capital through variations in interest rates. The link between interest rates and exchange rates emerged after the Bretton Woods agreement of 1970-1972 collapsed (CurrenciesFX.com, 2017).

The monetary model for exchange rates has three competing models of importance. These include, the flexible price monetary model; the sticky-price and the real-interest differential model.

- The flexible price monetary equation.

Frankel (1976); Bilson (1978) and Mussa (1976) contributed to the flexible price model; assuming that the PPP is held instant when prices are perfectly flexible because they instantaneously adjust in the money market. Foreign and local currency are perfect substitutes, whilst the real-interest rates denoted by r and the expected inflation rate is π are summed to hold the Fisher's equation $i = r + \pi$ where an assumption lies that r is constant. The equation of the perfect flexible price model in instantaneous times is provided by:

$$s = p - p^* \quad (2.14)$$

where p and p^* denotes the price levels for domestic and foreign logs, whilst s is the spot exchange rate explained concerning foreign currency price with domestic currency as denominator. To represent the demand for money function concerning domestic and foreign terms, the equation is written as follows:

$$m = p + \phi y - \lambda i$$

$$m^* = p^* + \phi y^* - \lambda i^* \quad (2.15)$$

where m and m^* represent the money supplies for domestic and foreign logs; the real income for foreign and domestic logs is provided by y^* and y ; whilst λ represents the semielasticity of interest rates and the elasticity of income is provided by ϕ and the interest rate of both the domestic and foreign logs represented by i and i^* (Frankel, 1984; Wilson, 2009). The final monetary exchange rate model for flexible prices is provided by combining the two equations:

$$s = (m - m^*) - \phi(y - y^*) + \lambda(i - i^*) \quad (2.16)$$

- The sticky-price monetary equation.

Dornbusch (1976) introduced the sticky-price monetary equation with the assumption that the PPP is unrealistic to hold perfect flexible prices. It rather holds prices in the long-run; he further eluded that prices are relatively rigid as prices are less impacted when the supply of funds declines, relative to money demanded. Foreign capital flows are generated from an increase in domestic interest rates, relative to interest rates of foreign regions (Frankel, 1984). In the short-run, the nominal exchange rate exceeds as the PPP holds only in the long-run; it is expected that aggregated demand will increase causing output, prices and the exchange rate to adjust accordingly (Wilson, 2009). The equation for the long-run effect is written as follows:

$$\bar{s} = \bar{p} - \bar{p}^* \quad (2.17)$$

where the bar on variables represents the long-run equilibrium this equation was provided by Genberg (1978) and Krugman (1978). Frenkel (1976); Mussa (1976) and Bilson (1978) wrote their long-run equilibrium as:

$$\bar{s} = (\bar{m} - \bar{m}^*) - \phi(\bar{y} - \bar{y}^*) + \lambda(\bar{\pi} - \bar{\pi}^*) \quad (2.18)$$

The sticky-price equation from is similar to that of the flexible price equation in the short-run, the only difference is that it is in the long-run.

- The real-interest differential model.

The model was derived from Frankel (1976) and Dornbusch's (1976) models. It is contended that the sticky-price model is only practical when changes in the inflation differential are small. If the opposite occurs when they are large, then flexible prices model applies. Frankel (1979) developed a model for inflation rates seculars for the sticky-price model, resulting in a model providing a relationship, negative between nominal interest differential and the rate

of exchange, whilst between long-run inflation differential expectations and the exchange rate the relationship is positive (Wilson, 2009).

2.3.2.8 Exchange rate conceptualisation

The exchange rate became one of the most important macroeconomic variables since the emergence of globalisation and global trade. It is particularly important for an open economy since it facilitates and dictates trade and finance amongst countries (Moosa & Bhatti, 2009:2). Frieden, (2014:1) also suggests that the exchange rate is an important factor for the economy; it is the government's most important policy because all prices, revenues and incomes are affected by this one price. The simplest definition for an exchange rate is when one country expresses their currency concerning another currency (Van Der Merwe, 2014:128). An exchange rate can be quoted as bilateral or multilateral exchange rate; it is used as either a nominal exchange rate or a real effective rate (Fourie & Burger, 2013:152). Goldberg (2006) defines an exchange rate as a currency price of the domestic economy concerning foreign currency, and their volatility and levels matter for the exchange rate.

A bilateral exchange rate is an indication of quoting two combined currencies, or the quoting of a currency concerning the price of another currency. The quotations can either be direct or indirect; the difference between the two is whether the expression of currencies is from domestic to foreign or the other way around (Van Der Merwe, 2014:129). The currency measure of an effective exchange rate can be regarded as a multilateral exchange rate, especially if the comparison of the host currency is against major currencies (Mohr, 2016:147).

REER is measured by utilising movements in the nominal exchange rate. It is an index, considering a basket of currencies for a particular host country and weights it, according to trade importance (Van Der Merwe, 2014:131). A nominal exchange rate is defined by the

price of units of a domestic currency converted into a particular foreign currency. In a fixed exchange rate, a depreciation and an appreciation of a currency are termed as a ‘devaluation’ and a ‘revaluation’. The link between REER (R) and the nominal exchange rate (E) is in calculating R , where $R = (E.P^*)/P$ where P^* is the level of the foreign price and P denotes the level of the domestic price (Czech National Bank, 2017).

The concept of the exchange rate also has other types of rate, such as the spot and forward exchange rates; where the forward exchange rate is described concerning a commitment to buy or sell at a future rate, the spot exchange rate is sales or purchases affected by the quoted rate. The spot and forward exchange rate are linked to interest rate arbitrage (Krueger, 1983:18). In the foreign exchange rate market, the exchange rate is quoted daily; the rate is market determined and is temporary. The exchange rate fluctuates continuously. Most currencies use a floating exchange rate system, therefore exchange rates are affected by external and internal factors, such as the Federal Reserve in the U.S. changing interest rates. That affects the fluctuation of the South African Rand (ZAR) in South Africa (Evans, 2014).

To conclude the conceptualisation of the exchange rate, the link between the rate and political risk and FDI. Goldberg and Kolstad (1995) claim that FDI decreases as exchange rates are uncertain and term of trade changes; investors aim to avoid fluctuations of terms of trade. FDI is linked to the exchange rate as the currency depreciates; it reduces the cost of production and wages in countries, becoming a comparative advantage for foreign investors. The negative effect of the two arises when exchange rate movements tend to affect the cost of the project financed through FDI (Goldberg, 2006). Blonigen (1997) identified a negative relationship between the exchange rate uncertainty and FDI.

2.3.3 Foreign direct investment theories

To understand FDI inflows, this section aims to assess the concept by discussing types of investments, followed by the determinants of FDI, ensued by a full discussion of the conceptualisation of FDI.

2.3.3.1 Investment theory

It is crucial to define an investment before outlining the investment theory. Kaptan (2001:1) defines an investment as any utilisation of funds with the purpose to earn profit, also considering the period investors invest their funds. Parker (2010) refers to investment in two ways: for bankers or asset managers, an investment refers to purchasing financial assets, such as stocks and mutual funds. An economist defines an investment as any increase resulting from a transaction, leading to the growth of real aggregate wealth in the economy; these include the buying and selling of production factors, such as machinery. Coleman (2017) describes investment as any contractual agreement, involving purchasing securities or stocks including the opportunity cost of gaining wealth immediately with the expectation of gaining a higher profit or return in the future, and also accounting for counterparty investment and liquidity risk.

In investment theory, three forms of investment or flows exist: the FDI inflows, allowing investors voting rights and owning over 10% of a particular company; the foreign portfolio investment (FPI) accounting to investors with shares less than 10% and other investments, comprising trade loans, bank loans and deposits (Humanicki *et al.*, 2013).

Razin, (2002) contends that FDI conveys ‘seeds that can lead towards stable economic growth, whilst portfolio investments (PI) have high volatility, providing uncertainty concerning sustained economic growth.

Classical economists, such as Keynes (1936) and Fisher (1930) define investment theory in two ways, suggesting, the main aim to invest is when cash flows are expected, and that an investment is only regarded as an investment when the opportunity cost of capital equals the present value of expected future revenues. The equation for the net present value is written as:
$$NPV = -C_0 + \int_0^{\infty} C(t)e^{(g-r)t} dt \quad (2.19)$$

Where $C(t)$ is future cash flows, g denotes a growth rate and r is the discount rate (the opportunity cost of capital) where $r = i$ and i is the expected return on investment. The return on investment for Keynes represents the marginal efficiency of capital, whilst for Fisher it represents an internal rate of return. The observations of the two classical economists differ concerning their perception of risk and uncertainty.

Another theory of investment is the neoclassical theory and Tobin's Q-theory. Both assume that the main aim of any investment is profit maximisation. The Q-theory explicitly states that Q (defined as the ratio between market value of a company, compared to its replacement cost of the physical assets of the company) should be greater than one to allow investments (Blundell *et al.*, 1992; Eklund, 2013). Jorgenson (1963) first established the neoclassical investment model, suggesting the maximisation of profits by companies in accordance to the Cobb-Douglas production technology and accounts for investment as a distributed lag function relating to any changes of the desired capital. The desired capital defined the level of output, the cost of capital of the user and the firm's output (Twine, 2015; Eklund, 2013).

The accelerator principle theory assumes that optimal capital stock determines investment, explaining that the variation between demand for capital is the acceleration of the same demand (Clark, 1917). The principle originates from the neoclassical model; the only difference is that the accelerator theory has fixed prices, assuming fixed output and the equation can now be written as:

$$K^* = \alpha Y \quad (2.20)$$

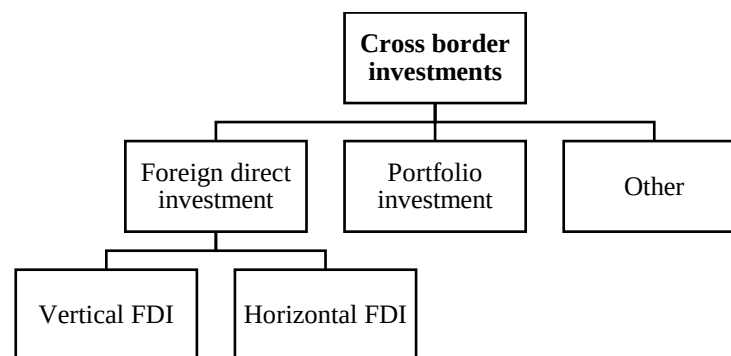
This equation suggests that output and the desired or expected capital stock are proportional to each other, further assuming that at any provided time, the growth in output will always determine the investment (Eklund, 2013). Resulting the rigidity of the simple accelerator principle and its only focus on the growth of output, a revised version, called the ‘flexible accelerator model’ was established. It accommodated for market imperfections and investment uncertainty, whilst allowing investments to move perpendicular to other relevant variables (Twine *et al.*, 2015; Chenery, 1952; Lucas, 1967).

2.3.3.2 Investment types

The previous subsection discusses the investment theory, identifying three forms of investment: FDI, FPI and other investments. This subsection comprehensively discusses these forms, whilst briefly discussing investment types, concerning asset allocation products.

In FDI, investors have direct control and influence, managing the firm in the foreign country. Flows are less volatile, compared to other investment forms. Regions with fragile institutions, lacking financial development, tend to receive lower FDI flow levels (Humanicki *et al.*, 2013; Patterson *et al.*, 2004). FPI flows are volatile and more sensitive to market fluctuations (Suwantaradon, 2009).

Figure 2.2: Structure of cross-border investment forms



Source: Protsenko (2013) & SARB (2017)

Figure 2.2 provides the structure of the type of cross-border investments. FDI can take a form of either vertical or horizontal, whereas PI include purchasing various asset classes, including stocks, unit trusts or bonds and other type of investments, including loans or any other cross-border investment, not categorised under FDI or FPI (OECD, 2018). FDI inflows have always been regarded as the safest and rewarding amongst the three cross-border investments. Foreign firms can directly construct a firm rather than borrowing from the IMFs, incurring further debt; Although portfolio flows provide instant return/profit prediction and indication, they are volatile bundled with high uncertainty; risks are broad in scope and require a proactive investment manager (Razin, 2002). By default, short-term investors are portfolio investors. No long-term investment commitment is needed; thus, portfolio flows are more volatile than FDIs and other investments. If investment environments were more transparent regarding their profitability and costs of investment, FDIs might experience less resale prices, whilst portfolio flows would be less volatile, attributable to certainty and stability (Ahmad *et al.*, 2004).

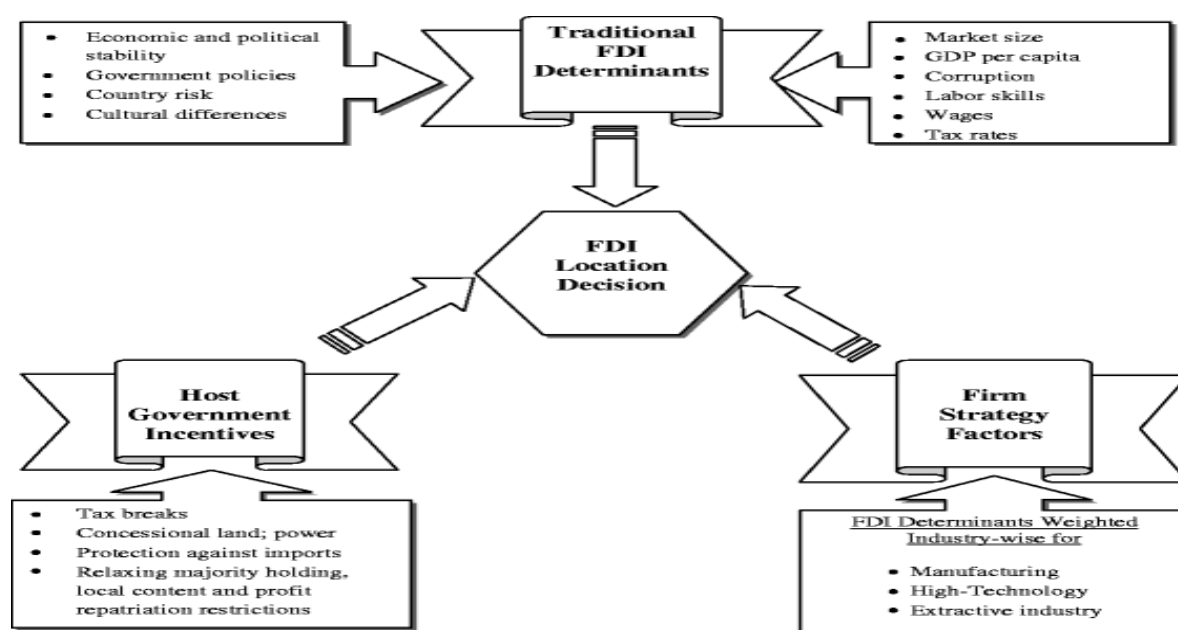
2.3.3.3 Determinants of foreign direct investment

FDI was extensively used as the main source to enable countries to obtain capital flows. To receive these flows, foreign investors need to assess and determine the worthiness of investments. Figure 2.3 provides an overview of potential determinants of FDI, though no standard factors are established.

Provided that the country risks a political risk concept, the link between political risk and FDI is well-defined. Country risk is a determinant of FDI as a high-risk country, such as a country in the Middle East (war-like environment), with a high probability of not meeting investors'

obligations concerning return and security of ownership and intellectual property rights (Hayakawa *et al.*, 2013).

Figure 2.3: Determinants of foreign direct investment



Source: Sethi *et al.* 2009.

Government policies are also regarded as a determinant for FDI, since governments control the regulation and implementation of monetary and fiscal policies, amongst others. It is relevant that government policies, such as the Moroccan government policies on any foreign investments and high-level of restricted entries concerns foreign investments (OECD, 2010). Government policies often relate to their development objectives. Attracting FDI inflows may have potential benefits, such as skills upgrading, growth, capital flows and advanced technology exposure (Te Velde, 2001).

The primary goal for any investment is to make profit, when economic and political instability pose risks on these investments, investors hold back, pursuing other stable environments, offering higher profit (Schneider & Frey, 1985). Economic and political stability are one of the traditional determinants of FDI, since the beginning of globalisation; these two

determinants developed in popularity, especially political stability, usually bundled as a component of political risk (Haksoon, 2010). No evidence subsists that cultural difference between a foreign direct investor and potential host country exists, cultural differences, to a certain extent, may lead to countries either receiving FDI, or not, also depending on the type of attributes each host country relates with (Kandogan, 2015). For example, most Arabic countries tend to invest amongst each other. A country such as South Africa, with 11 languages and over five ethnicities, would have various cultural and communication barriers.

Another traditional FDI determinant, is market size, commonly measured by the host country's GDP. Countries with higher market size tend to offer high returns from increased purchasing power and greater economies of scale. Researcher established that countries with a growing market share receive large amounts of FDI flows (Jamolovich, 2016). The market size is also determined by the GDP per capita, constituting another measure. GDP per capita is a comparative indicator for economic performance, measuring produced goods and services within a particular country, according to the population of that country (OECD, 2012).

Corruption also falls under traditional FDI determinants. To link corruption to FDI, the definition from Macrae (1982) states that corruption is a deal between two or more parties, and is a type of a private exchange where resource allocation can be influenced by such an arrangement and it is to the interest of the involved party without concern of other affected or interested parties. With this definition of corruption, Al-Sadig (2009) contends that FDI considers the cost of corruption as a determinant, affecting potential profitability of investments, whilst posing a risk.

Mixed results exist regarding the link between FDI and labour skills and wages. Academic literature from the Neoclassical trade theories suggests that wage inequality decreases as the demand for skilled employees declines, as a response to growing trade flows and unskilled

labour (Bruno *et al.*, 2006). Feenstra and Hanson (1997) contend that foreign capital increases lead to an increase of wages of skilled labour. They further suggest that lower labour costs are significant for determining FDI. In contrast, Mody *et al.* established that labour costs fail to explain FDI inflows, though skilled labour as a determinant, is significant for foreign direct investment. The evidence of whether labour skills and wages are determinants of FDI is inconclusive; the link or relationship exists amongst these variables.

The last traditional determinant of FDI is taxes. Taxes similar to labour skills and wages' link is lacking in literature. Haufler and Stowhase (2003) assert that the link between FDI and taxes is indirect from spill-overs of productivity from domestic or host countries. They further contend that the positive effect of FDI in host economies lead to more tax breaks or outright subsidies. Nistor and Paun (2013) claim that countries with lower taxes are attractive to receive FDI, eluding that tax policies also determine the choice of location where the foreign country will establish a company.

The traditional determinants of FDI exclude the location advantages, such as government incentives and firm strategy factors. Government incentives include the attractiveness of tax breaks, relaxation of majority ownership, subsidies and lower tariffs and protection against imports (Mudmabi & Navarra, 2002). Hines (1996) indicates that the location of FDI and volumes are significantly affected by tax rates in a host country. Corporate tax was established to be part of the top five important factors to consider for FDI location decisions. The industry considered location advantages for FDI determinants, by separating them into manufacturing, high-technology and extractive industry. This allows investors to acquire specific knowledge industry. For example, countries with manufacturing and extractive industries attract more FDI, since general purpose incentive from government are efficient and accessible to investors; whereas high technology pursue prerequisites, such as proper and well-functioning

communications and established IT infrastructure in the host country (Sethi *et al.*, 2009). Additionally, government incentives are only viable to a certain extent as investors also consider prerequisites for FDI location decisions. Investors seek prerequisites for investment location, such as political risk, infrastructure and economic environment of that particular host country (Sethi *et al.*, 2002).

2.3.3.4 FDI conceptualisation

FDI is a concept associated with developing a country through investing capital flows. Effects were generally positive; researchers, such as Kathuria (2000); Atiken and Harrison (1999) and Zilinsk (2010) established that when FDI flows increase, domestic productivity declines. As foreign firms usually invest in technologies, a series of increased unemployment can also be realised, attributable to a lack of skills. FDI can be classified as horizontal and vertical. Horizontal suggests that the foreign investing company is investing in the same company and its operations are similar to the domestic company they own in their native country; whilst vertical FDI is when investing to construct a distribution business in the foreign country to distribute services and products to the native company (Artige & Nicolini, 2009). The definition of FDI from foreign investors' perspective relates to the capital investment of any form, resulting in control of ownership. Domestic firms describe FDI as an instrument, improving the local economy through employment growth, poverty reduction, production stimulus and infrastructure development (Petrovic & Stankovic, 2009).

In defining this concept of foreign direct investment, it is important to mention that FDI forms part of the types of cross-border investments, including PI and other investments; FDI is when an investor seeks to invest capital or erect a business in a country other than their own (Bayar & Gavrilletea, 2018; Protsenko, 2003). Foreign direct investors seek a permanent interest in another country's company; this permanent interest is an obligation to link the investing firm

and local firm, where long-term interests and the investors' plans for level of control in the newly established firm are harboured. The management plan and influence of the foreign investors are critical to the investment as they indirectly determine the capital to be invested, including business structures (Petrovic & Stankovic, 2009).

Razin (2002) and Ahmad *et al.* (2004) elude that FDI contributes positively to growth in output and domestic investments, compared to flows from portfolios and global loans. Informational value is a determinant of FDI; some host country tends to gain immensely from the determinant as direct investors utilise the information to select the best sectors with prospects of good economic growth. Another positive attribute of information value includes positive spill-over effects for host economies and good economies of scale, as sectors enjoy capital flows and hands-on management.

During conceptualisation of FDI, globalisation should be considered. It provides support of FDI inflows/outflows across nations. Globalisation reduces trade barriers in countries as it provides for open economies, industrialisation and cross-border trade, resulting in FDI flows between regions. The concept of globalisation is also called 'a global village' where no country can survive in isolation. The absence of space and distance allows for global interactions, either physically or digitally. FDI would be irrelevant if countries were predominately unnavigable (Daouas, 2001:1; Loots, 2001:2). Closed economies exhibit characteristics, such as regulatory restrictions, sanctions, tariffs on imported goods (to discourage foreign investment or trade). Examples of such countries are Brazil and Norway as they import the least globally, according to the (The World Bank, 2018; Jordaan, 2005).

Earlier theories of FDI are classified concerning macroeconomics and microeconomics. Macroeconomics involve global trade, whilst microeconomics focusses on market imperfections and power. Hansen (1998:24) and Razin (2002) contend that environmental

dimensions where investors locate their operations and comparative advantages as macroeconomic theories. The comparative advantage gained by investing firms is questioned by Hansen (1998), explaining that foreign investors encounter immense disadvantages in the local market. Domestic firms are familiar with the market conditions, linguistics and institutional barriers. Hymer (1993) contends that macroeconomic factors solitarily fail to explain why multinational and transnational corporations seek to invest domestically, provided that local firms have access to more capital and trading information.

It is further eluded that microeconomic factors fulfil a crucial function in foreign investment as foreign investors have advantages that domestic firms desperately need, such as managerial and entrepreneurial advantages, access to raw materials and research and development for technological advancement (Hymer, 1993; Razin, 2003). Other firm-specific advantages relate to advanced distribution and marketing, followed by economies of scale, resulting in cost and product superiority, technological advancements and multi-plant economies. Additionally, FDI is relatively expensive when it is indirectly involved, or when increasing trade with a particular nation rather than erecting a firm in the same country, especially if internal factors are in favour of foreign investments (Jordaan, 2005).

Table 2.2 indicates how FDI can influence quantity, quality and location. Results are classified under direct and indirect; it is further subcategorised as positive and negative effects. FDI affect quantity positively as an influx of job creation with an increase in working places through capital investment; for example, when a firm is established, human resources are in demand to conduct production and generate profits; quantity is negatively affected by FDI, as foreign nations may suffer as imports will now emerge from domestic firms with FDI (Petrovic & Stankovic, 2009).

FDI affects quality through enhancing production and influencing best practices for local firms, including discouraging developing employees through salary cuts. FDI positively affect the location of domestic firms by establishing new industries and creating employment and disadvantage the local economy by encouraging monopolies (Petrovic & Stankovic, 2009). The concept of FDI is discussed to its fullest from the background of investment theory to the types of cross boarder investments, followed by the determinants of FDI and concluding the subsection with the conceptualisation of FDI, including various definitions, surrounding concepts and additional FDI relevant information.

Table 2.2: Foreign direct investment effects

	Spread of potential FDI effects			
	Direct		Indirect	
	Positive effects	Negative effects	Positive effects	Negative effects
Quantity	Prospective industries experience growth in employment and capital inflows	FDI can impact on the number of working places as it is based on Brownfield investments	The relationship between suppliers and buyers will created jobs and working places	Importing disparities as imports now emerge from domestic countries
Quality	Productivity growth enhancement	Influencing the practice of unfair working environments and development of employees	Encouraging domestic companies to share best practices and experience	The decreasing of salaries if local competitors aim to compete through salary cuts
Location	New established industries allowing for better employments and convenient locations	Improving developing centres in the region, including regional inequality	Encouragement and strengthening of local companies to migrate from comfortable zones	Establishment of local monopolies

Source: Petrovic and Stankovic (2009)

2.3.4 South African linkage of political risk, the real exchange rate and FDI inflows

The democratic republic of South Africa was ranked as one of the most developed countries in Africa, concerning its significant financial systems, monetary policy and inflation targeting framework, amongst others. Foreign direct investment inflows were relatively high for Africa and South Africa for years but, according to United Nations Conference on Trade and Development (UNCTAD), the country's FDI inflows deteriorated since 2013. During 2016 it reached its lowest low of a drop of 69 percent (UNCTAD, 2017; Sharara, 2016). The declining FDI inflows are attributed to South Africa's low economic growth performance and higher electricity and low global commodity prices, contributing to economic volatility (Sharara, 2016 & Writer, 2017). Conversely, South Africa's political uncertainty and the volatility of the real exchange rate were major performers in the economic growth.

South Africa's Rand was volatile since the floating exchange rate regime was adopted in 1996 after the decision to move-away from a dual-rate regime system of 1995. The country's decision to progress to the floating exchange rate regime, had its disadvantages (Eun *et al.*, 2012). Disadvantages include the Rand depreciating from any movement in the economy, such as strikes, GDP growth or recession, inflation, political hoes of government leaders, such as the president and wars, amongst others. With focus on political hoes, the 2015 December sharp depreciation of the Rand into the R16.00s can be recalled, influencing the hiring and firing of three finance ministers in three days by President Jacob Zuma (Fin24, 2016).

Provided the experience from the Ukraine protests of 2013, establishing the country's economy to shrink to 0.3 percent to the Brexit saga of 2016, resulting in a depreciation of the pound sterling in 2016; South Africa's 2015 Nenegate; the 2017 reshuffle that led to the horrific credit downgrades and massive fluctuations to the Rand's strength (Hunter, 2016; BBC News, 2014; Fin24, 2016; IOL, 2017a). Evidence suggests that a link between political

risk and the exchange rate exist. For example, it could be assumed that when war occurs in a country, by virtue its currency depreciates because the markets are crumbling, people migrate, the economy is in distress, or even hits a recession, thus foreign investors start losing confidence in the stability of the country's economy; their returns are affected and they will pursue a more secure location to invest their resource (Krugman, 2014).

Academic literature supports this example of political risk ripple interactions, exchange rate and inadequate FDI. Additional reason that may have led to this inadequacy of literature, may be attributable to a lack of data regarding FDI returns. FDI is relatively stable and fails to indicate its real impact on the economy. It was converted from a low-base frequency of quarterly data to monthly data, anticipating establishing the truth. Converting the real exchange rate to quarterly economically is insensible.

2.4 EMPIRICAL REVIEW

The topic of the interaction amongst political risk, the real exchange rate and FDI in South Africa was investigated the least. This can be attributed to a lack of political risk data, and the reality that South Africa had low FDI inflows, attributable to the increased focus on portfolio equity investments. In addition, portfolio equity investments became popular, attributable to the inherent low risk of losing returns and FDI investments, requiring physical infrastructures. To fulfil the primary objective of this study, the focus remained on FDI in South Africa. To generate substantial empirical evidence, various studies were reviewed, relating to the effect of political risk and foreign direct investment, followed by studies on the exchange rate and FDI. This study was concluded by combining the three variable political risks, the real exchange rate and FDI with other related studies.

2.4.1 Empirical studies relating to political risk and foreign direct investment

For collecting adequate and substantial empirical evidence in conclusions and recommendations, empirical studies covering developed and developing concerns are reviewed below.

2.4.1.1 Political risk and foreign direct investment: studies from developed countries

A study focussed on the relationship between FDI and home-country economic and political conditions for 14 host countries, investing in the U.S. from 1974 to 1980 identified a negative relationship between a country's credit rating and FDI (Albuquerque, 2000). It was concluded that countries with higher credit scores hold more FDIs. Guerin and Manzocchi (2009) established that democracy relating to political risk, had a positive effect on FDI flows concerning probability and amount in developed and emerging countries. The effect of democracy included the total factor productivity for FDI flows. The study was based on the effect of a political regime on bilateral FDI flows for the period 1992 to 2004, using a random-effect Tobit model.

A study by Khan and Akbar (2013), spanning from 1986-2009, including 94 countries on the impact of political risk on FDI, investigated the negative and significant relationship between the two variables. It was established that upper middle-income countries had the strongest negative relationship between political risk indicators and FDI when compared to the rest of the world. High-income countries indicated the same negative relationship. Baek and Qian (2011) focussed their study on the effects of political risk on FDI, whilst comparing various impacts for developed and developing countries. They used cross-sectional data with 22 industrialised/developed countries and 94 developing countries for the period 1984 to 2008. The study also utilised the fixed effect panel regression approach for the model estimation and findings. Additionally, the ICRG political risk index with its 12 components was used to

measure political risk. This study established that foreign direct investment is significantly affected by political risk in both developed and developing countries; specifically, for the developed nations, political risk's significant impact on FDI stock began to take precedence after the 9/11 attacks.

Nelson *et al.* (2016) focussed on the effects of foreign direct investment on political risk (the reverse of most studies that run from political risk to FDI). The data included a combination of 140 developed and developing countries over a period spanning from 1984 to 2012. Only 30 countries were used for estimations. The log-linear regression model was utilised for estimating the model based on the Ordinary Least Squares with adjustments for serial correlation. For the political risk data, the ICRG index was utilised. The study concluded that any increase in FDIs is accompanied by low levels of political risk. It was also apparent that developed economies exhibit extremely low political risk levels.

2.4.1.2 Political risk and foreign direct investment studies from developing countries

Using the ICRG methodology, Alonso (2016) researched the effects of political risk on FDI inflows in the case of Egypt over the period 2010 to 2014. According to the aforementioned methodology, the level of political risk in the country was high, attributed to the high involvement of military in politics, corruption, terrorism, unemployment, poverty, and low democratic accountability. Results also revealed that main sources attributing to political risk, with the most significant effect on FDI in Egypt, were war, terrorism and political violence. Osabutey and Okoro (2015) used the ICRG data of 12 components of political risk by the PRS Group in the Nigerian telecommunication industry to evaluate the effect of political risk on flows of FDI in Sub-Saharan Africa. Results revealed that FDI inflows are significantly influenced by political risk. The 12 components of political risk have various impacts on FDI inflows; corruption was established to explain two-thirds of flows of foreign direct

investment, whilst for the telecommunications sector, law and order, investment profile, corruption and democratic accountability, significantly affects FDI inflows.

In a separate study for the Iran economy, conducted by Rafat and Farahani (2017), focussing on finding linkages between political risk and FDI, also used the ICRG data and the 12 various components of political risk indices for the period spanning from 1985 to 2016. A Wu-Hausman test was used for estimating endogeneity and the two-stage least square estimator to find any relationships between the political risk indices and FDI inflows. The study reveals that FDI in Iran can be significantly determined by investment profile, religious tensions, socioeconomic conditions, military, external conflict and ethnic tensions. Another study that also employed the PRS (ICRG) data were conducted by Filippou *et al.* (2015); and its focus was to examine the relationship between political risk and currency and established that global political risk is significant in explaining currency momentum of cross section nature.

The following studies by Krifa-Schneider and Matei (2010) and Busse and Hefeker (2005) employed the Arellano-Bond GMM model to investigate the relations between political risk and FDI inflows. A study investigating the linkages between business climate, political risk and FDI using a sample of 33 developing countries for the period 1996 to 2008 and employed two panel data models: a) the Arellano-Bond GMM estimator and b) a fixed effect model. Krifa-Schneider and Matei (2010) established that low levels of political risks relate or lead to higher inflows of FDI and business operations indicated to be a significant determinant of FDI. The Busse and Hefeker (2005) study on the relation between FDI and political risk, using the Arellano-Bond GMM estimators with a sample of 83 countries for the period between 1984 to 2003, discovered that internal and external conflicts have no significant effect on FDI flows into developing economics. Their study established that governance infrastructures, including quality of institutions and policies are a significant determinant of inflows of FDI

and that quality governance infrastructures attract capital and create opportunities for domestic MNE and investments.

According to a study by Anchor and Mshelia (2018), investigating the political risk assessment (PRA) techniques that multinational corporations (MNCs) utilised in Nigeria and employed the multimethod approach for data from 2011 to 2015. It was concluded that low quantitative techniques in Nigeria are attributable to regional variations. It was established that the economic and financial attractiveness attracts investments despite high political risk. Other researchers find that a negative impact between political instability and FDI inflows for African countries exists; it was discovered that quality infrastructure and higher investment returns in non-Sub-Saharan African (SSA) countries has a positive effect on FDI and that trade openness in Sub-Saharan Africa and non-SSA countries attracts FDI (Asiedu, 2002). Coetzee *et al.* (2015), conducted a study examining the relations between risk and foreign direct investment using data from 2003 to 2012 of 42 African countries and estimating a structural equation model for ten risk categories and FDI; the study concentrated on the real estate, automotive, metals and communications sectors. It was concluded from the study that investors are more concerned with regulatory and legal risks; and government effectiveness. The focus for African countries should be on stability, transparency and government effectiveness to attract more FDI.

A study by Van Wyk and Lal (2008), investigating the impact and power of institutional and macroeconomic variables, including and not limited to political risk 31 developing countries for a period spanning from 1995 to 2003. The study used the means pooled least squares regressions to test the hypotheses and established that political risk reduced foreign direct investment, whilst economic freedom attracts more inward FDI. Asif *et al.* (2018), conducted a study on the effects of fluctuations in political risk indicators on Pakistan's FDI, the study

focussed on the period 1984 to 2013 using the ARDL model. It was established that a cointegrated relationship exists between foreign direct investment and indicators of political risk; moreover, in the short-run investment profile affect FDI inflows, whilst in the long-run, low external conflicts and government stability positively attract inflows of foreign direct investment.

Haksoon (2010) investigated the relationship between political stability and foreign direct investment, determining that countries with high political rights tend to have higher outflows of FDI and on the contrary established that high levels of corruption and lack of democracy attracted more FDI inflows. In support of the established negative relationship, Aguiar *et al.* (2006), also establish a negative relationship between political risk and FDI and results also indicate that the quality of policy formulation and implementation were established to be the significant]. The study focussed on the factors that better explain FDI in Brazil by country, with using 180 countries, including and excluding FDI in Brazil.

A study by Dutta and Roy (2011), focussing on FDI, financial development and political risks, established results, emphasise that financial development is negatively affected by higher political risk through disadvantaging financial institutions from benefiting from FDI. Results also indicate that FDI becomes negative beyond threshold level when impacted by financial development. A study by Hayakawa *et al.* (2014) examined the effects on inward FDI on a range of components, including political and financial risk, during the period 1985 to 2007 using 89 countries with 56 developing countries. It was established that political risk or the lack of political risk leads to higher FDI especially in developing countries when compared to developed nations. Whereas financial risk has no significant impact on FDI inflows; moreover, political risk, such as military in politics, internal conflict, corruption have an inverse relationship with FDI inflows.

2.4.2 Empirical studies relating to the exchange rate and foreign direct investment

This section will review studies that relate to the exchange rate and FDI as they add value to the conclusions and recommendations, and it is also categorised concerning developed and developing countries.

2.4.2.1 Exchange rate and FDIs: studies from developed countries

In 1991, Froot and Stein conducted a study, focussing on the impact of the real exchange rate on industrialised countries FDI to the United States using data from 1974 to 1987. By categorising FDI inflows into 13 industries; results indicated that an increase in foreign direct investment is realised when the exchange rate depreciates and that a strong negative relationship between the exchange rate and foreign direct investment for West Germany and the United States exist. The study also established that lowering the wealth of local agents in the U.S, resulted in an increase of FDI or foreign acquisitions of assets. In another study that focussed on the United States by Kogut and Chang (1996), focussed their research on the effects of subsequent entry of Japanese electronics companies into U.S, by conducting a firm level and industry level for years spanning from 1970s to 1980s. It was established that the exchange rate is a significant determinant of FDI and the study revealed that R&D capability of MNEs combined with the history of investments in the U.S. will enhance the effect of the movement of the exchange rate.

A study by Amuedo-Dorantes and Pozo (2001) investigated the response of exchange rate uncertainty and exchange rate levels to FDI into the United States for the period 1976 to 1998 and the study also employed the conditional measures for the exchange rate uncertainty. Results established in the short-run exhibit no significant link between inward FDI and the real exchange rate; a decline in foreign direct investment is attributable to an increase in uncertainty of the exchange rate provided the conditional measures are employed. A long-run

relationship was established amongst the GARCH measure of volatility of the exchange rate; FDI inflows as a share of GNP and the real exchange rate.

Arratibel *et al.* (2009) analysed the relationship between volatility of nominal exchange rate and various macroeconomic variables, including FDI, real per output growth, account balance and excess credit for Central and Eastern European (CEE) EU Member States. The data used spans from 1995 to 2008 and panel estimations were employed for the analysis of the data. Findings of the study state that lower levels of exchange rate volatility are associated with higher levels of FDI stocks, higher excess credit, higher growth, higher currency account deficits.

Researchers Nasir and Hassan (2011) in their study of the South Asian countries, also established that FDI is negatively affected by REER as it was significantly negative when relating it to FDI. They also revealed that the relationship between market size and FDI was established to be significantly positive. Economic freedom is also a determinant of attracting FDI in the region. The period of the study spanned from 1995-2008, using a multivariate regression analyses on a panel data framework. Kiyota and Urata (2004) conducted a study investigating the impact of exchange rate changes and volatility on Japan's FDI for the period 1990 to 2000. The study revealed that foreign direct investment is attracted to a depreciation of the host country's exchange rate. High levels of volatility reduce FDI and a more stable but flexible exchange rate system will encourage foreign direct investment inflows.

Lee and Min (2011) conducted a study focussing on the function of exchange rate levels and volatility on multinational enterprises (representing FDI) for Korea and find that changes in foreign direct investment are rather affected by exchange rate volatility than levels and the effect of the exchange rate volatility is significant and persistent for FDI determination. A study by Igawa (1983), using time series data, investigated the relationship between bilateral

FDI flows and exchange rate risk amongst five developed countries (UK, Japan, Canada, Germany, France and U.S.). They established a positive relationship between the two variables. A study using cross-sectional data for the period 1974 to 1977, examined U.S. FDI flows and the exchange rate risk against 15 developing and 14 developed countries. They established the existence of a strong negative relationship across all countries (even when categorised in sets) (Clare, 1992).

Feenstra and Hanson (1997) investigated the relationship between FDI and relative wages in Mexico's maquiladoras from 1975-1988. Their results revealed that the demand for skilled labour is positively correlated to the growth in FDI. It was established that in regions where FDI was concentrated, an increase of over 50 percent in skilled labour wages could be accounted to Foreign direct investment growth.

2.4.2.2 Exchange rate and FDI: studies from developing countries

Lily *et al.* (2014) examined and analysed the relationship between movements of the exchange rate and FDI using data from Asian economies, including Singapore, Thailand, Malaysia and the Philippines from 1971 to 2011. The study utilised the ARDL bounds test approach for estimations of these relations; it was established that exchange rate movements of the Philippines, Singapore and Malaysia have positive impacts on FDI. Additionally, estimating data using ECM based on ARDL approach for causality tests established that a long-run bidirectional causality exists for Singapore and Philippines' exchange rates and FDI, whilst in the short-run a unidirectional causality was established between Singapore's FDI and exchange rate. A group of researchers, Bilawal *et al.* (2014), identified a significantly positive relationship between the exchange rate and foreign direct investment in Pakistan and the R-square of 0.679 inciting that FDI can be impacted 67 percent by the exchange rate (the independent variable). They examined if the uncertainty of the exchange rate can affect

macroeconomics-measured by FDI, for 1982 to 2013 (32 years); using correlation and regression tests provided in the SPSS device.

Khandare (2016) conducted a study for the two emerging markets India and China and analysed the effect of the exchange rate on FDI for both countries using data from 1991 to 2014 and employing regression and correlation analysis techniques. The study revealed that for India, a positive correlation was established for the exchange rate and FDI, whilst for China a negative correlation was established between the two variables. More statistical results indicate that a unit increase for China's exchange rate results in a decreased value of 0.2503 of FDI (meaning there is negative 25 percent correlation between the exchange rate and FDI), whilst India's unit increase of the exchange rate results in a positive increase of 0.605 of FDI (meaning there is a positive 60.5 percent correlation between the exchange rate and FDI). Additionally, India's p-value of 0.0017 indicates that the exchange rate is significant in explaining FDI, whilst China exhibits a p-value of 0.228 and its exchange rate is insignificant in explaining FDI.

Zakari (2017) investigates the effect of fluctuations of the exchange rate and FDI impact on GDP in Nigeria for the period 1990 to 2015. Regression and correlation analysis techniques were employed for estimating the findings. The study identified a strong positive relationship between the exchange rate and foreign direct investment, whilst a weak positive relationship was established for GDP and FDI. It was also revealed that an increase of the exchange rate led to increased FDI between the years 2005 to 2014. A study that focussed on Ghana, investigated the effect of exchange rate regime on FDI over the period spanning from 1970 to 2008 with the attempt to determine a causal relationship between the two variables. The study employed the cointegration and Ordinary Least Squares (OLS) techniques for estimations. No discernible effect from the exchange rate regime in Ghana was established to affect foreign

direct investment inflows, with the link only established at 10 percent significance level and other results suggest that democracy is an important factor to attract FDI inflows (Nyarko *et al.*, 2011).

Abbott *et al.* (2012) focussed their study on the effect of the regimes of exchange rate on FDI for a panel of 70 developing countries during the period 1985 to 2004, and in their study the system's generalised methods of moments were utilised, estimating the model. It was established that developing countries with flexible exchange rate system attract more FDI when compared to developing countries adopting an intermediate regime. Cushman and De Vita (2017) investigated the relationship between FDI and regimes of the exchange rate for 70 developing countries, using the propensity score matching (PSM) and the regime classification of *de facto* countries. The study concludes that fixed *de facto* regimes attract more FDI than floating exchange rate regimes, in contrast with the previous study. In this study, the general-to-specific modelling, the logit equations and four other matching procedures were used to determine results and estimation.

Goldberg (2006) establishes that the cost of production and wages decrease as result from weakened currency, later providing a comparative advantage for foreign investors and a further negative relationship is discovered when exchange rate movements tend to increase the cost of the project financed through FDI. Blonigen (1997) also establishes a negative relationship between FDI and exchange rate uncertainty, and Lemi and Asefa (2003) also identify a negative relationship between FDI and exchange rate uncertainty in developing countries.

2.4.3 Empirical studies relating to political risk, the exchange rate and foreign direct investment

Since the focus country for this study is South Africa, it was crucial to review studies relating developed and developing countries because they will provide insight into the links between political risk, the real exchange rate and FDI.

2.4.3.1 Political risk, the exchange rate and FDI: studies from developed countries

Del Bo (2009) examined the effect of political risk and exchange rate volatility on outward FDI on a panel of 53 countries receiving direct investment from the United States for a period ranging from 1982 to 2005. In the study, they used the partial equilibrium model for foreign investment and GARCH model for estimating exchange rate variability and results revealed that the combination effect of political risk and the exchange rate on foreign capital inflows had negative complementarities. Further results relate to the industry effects in relation to various risks and the function of interest rates and wages. In study, Clare and Gang (2010), investigated the political risks and exchange rate on FDI for multinationals investing the U.S. The study established that present and past variations of exchange rates matter for more developed nations, whilst political risk matters for developing nations as a decrease in political risk results in increased FDI.

A study by Tallman (1988) looked into the effect of political and economic conditions on outward FDI of home countries; focussing on the U.S. and Western developed countries for the period spanning 1974 to 1980. Results reveal that FDI decisions are significantly affected by economic and political conditions; additionally, economic development defined by gross domestic product (GDP) per capita was established to be a significant determinant of FDI for the U.S.

2.4.3.2 Political risk, the exchange rate and FDI: studies from Developing countries

Studies by Liargovas and Skandalis (2012) and Sharma *et al.* (2012), focussed on the determinants of FDI in various countries using various models, it was vital that these studies are reviewed to strengthen the literature review, emphasising all aspects of FDI. Liargovas and Skandalis (2012) focussed on FDI and trade openness in the case of developing countries with 36 developing economies for 1990 to 2008 and using panel regression analysis. The main results indicate that in the long-run, FDI inflows in developing countries are positively attracted by trade openness, whilst researchers Sharma *et al.* (2012), in their study of Malaysia on the determinates of Foreign direct investment with using cointegration and ECM, also established that in the long-run openness and the quality of labour positively contribute to attracting FDI. It was established that in the short-run quality of infrastructure is the main attraction for FDI.

Lemi and Asefa (2001) investigated the effects of exchange rate and price uncertainty and political instability on FDI for selected economies in Africa, using conditional variance of the residual autoregressive (AR) processes for the period 1975 to 1997. Results that were established pointed that FDI inflows are only affected by real exchange rate volatility when the magnitude is low, whilst combining political instability and inflation rate uncertainty constrain FDI inflows. Another unexpected result identified a positive impact on FDI inflows when the real exchange rate and political instability are combined.

A study by Maepa (2016), for the case of South Africa, analysed the short and long-run interactions of the exchange rate and various types of investments for a period 1970 to 2014. In the study, the Vector Autoregressive model (VAR), a multivariate Johansen co-integrations approach and Granger causality were used to estimate and analyse these interactions. The study revealed that interactions amongst the exchange rate and various types of investments

in South Africa have a short-run relationship; the short-run interactions were not significant enough to cause variations in both variables. The study identified a negative long-run relationship, indicating that a fall in investments in the long-run will lead to an increase of the exchange rate (Maepa, 2016).

Gastanag *et al.* (1998) researched the effect of institutional and political variables on various types of FDI and the political and institutional variables include expropriation, corruption, exchange rate bias, contracting administration and global capital flows. The data included 49 developing countries within a period range of 1970 to 1995 and results indicated that foreign direct investments may increase when the risk of expropriation and corruption are less present and compliance with FDI contracts is complied with. Benassy *et al.* (2001) focussed on the effects of host country's institutional quality on FDI inflows and established that institutional quality matters for FDI attraction and the lack of quality thereof deters FDI inflows; moreover, quality institutions provide investors with higher productivity prospects. Korgaonkar (2012) examined the interaction between FDI and financial development from 1980 to 2009, analysing 78 countries and the data mining approach; it was established that financial development was significant to attract FDI.

2.4.3.3 Political risk consequences in South African economy

For the South African economy, political risk has resulted in the country experiencing a recession in the 1st quarter of 2017 at -0.7% GDP from -0.3% in the previous quarter; this was combined with high inflation rates, high interest rates and increased unemployment rates (Davies, 2017). Additionally, under the administration of former President Jacob Zuma, strides of corruption scandals and reshuffling of cabinet ministers in 2016/17 saw the country sore with credit downgrades from both S&P and Fitch to non-investment (junk status) (Kilian, 2017).

2.5 SUMMARY

The purpose of this chapter was to discuss the concepts of political risk, the real exchange rate and foreign direct investment inflows and provide the theoretical review through the review of theoretical frameworks of political risk theory and its measurement, the framework for the real exchange rate and that of the foreign direct investment inflows. It is evident from the theories that there is indirect link between the political risk, the real exchange rate and the foreign direct investment inflows however, the empirical review revealed rather a clear picture of the underlying relationship between the concepts.

The empirical review from both developed and developing countries showed evidence that there is a negative relationship between political risk and foreign direct investment inflows, while some evidence in the FDI theory suggests that a link may be possible between FDI and the real exchange rate and the empirical studies for both developed and developing countries conclude that there is also a negative relationship between the exchange rate and FDI inflows. The empirical also suggested that the combined interaction between political risk, the exchange rate and foreign direct investment had a negative relationship given certain conditions such as high levels of volatility for the exchange rate.

The empirical review also discussed other studies investigating the effect of other variables on Foreign direct investment and these studies will be used to substantiate the importance of this research study. In conclusion, although the theoretical review failed to distinguish and detect a clear relationship for the effect of political risk and exchange rate on FDI inflows, while the empirical review gave the study enough evidence to carry through the investigation. The following chapter is the methodology where each variable will be discussed in detail, in terms of its measurement, sources and trend analysis; it will also discuss the model that is employed for this study, including any other tests that are related to model.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

The literature review in the previous chapter presented and provided the theoretical background of political risk, the real exchange rate and FDI, including their definitions and their respective theories. Empirical studies were reviewed concerning studies relating to: a) political risk and FDI; b) the exchange rate and FDI and c) studies combining the three variables. The empirical review was further categorised in by studies, focussing on developing or developed nations and others with the characteristics to strengthen the argument that developed and developing countries are affected differently by interactions amongst political risk, the real exchange rate and FDI.

The studies in the empirical review employed various econometric tools in arriving to results and conclusions; such models as Asif *et al.* (2018) who utilized the Autoregressive Distributed Lag (ARDL) model and similarly the results found showed that there is a negative relationship between political risk and foreign direct investment inflows in both developed and developing countries. The Autoregressive Distributed Lag (ARDL) model was also employed for studies relating to the exchange rate and foreign direct investment such as Lily *et al.* (2014) study focused on the effect of exchange rate movements on FDI inflows. Other models employed included the Error Correction Model (ECM), Vector Autoregressive (VAR) model, panel regressions, cointegration tests and residual Autoregressive (AR).

For this study, a single-equation time series model, the ARDL was employed for the econometric analysis of the long and short-run relationships between PRR, the REER and FDI inflows. Additionally, Toda-Yamamoto Granger causality test was used to test for the causal interactions between the variables. The chapter commences by outlining data sources, sample period and variable descriptions for the three variables: political risk and descriptions of data

employed from the World Bank and Bloomberg are briefly discussed; the REER and FDI. The trend analyses of each variable are discussed under Section 3.2.2.1 for PRR, Section 3.2.2.2 for the REER, Sections 3.2.2.3 and 3.2.2.4 covered FDI inflows and GDP, respectively. A balancing variable of the GDP was also included in the model and is briefly described in this section. Secondly, the chapter individually outlines the model specifications of the study, explaining the unit root test, using these unit root and stationarity tests: the Augmented Dickey-Fuller (ADF), Phillip-Perron (PP) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS).

3.2 SAMPLE PERIOD AND VARIABLE DESCRIPTIONS

The subsection discusses the sample period used and various reasons why these periods were chosen, followed by the discussion regarding descriptions of variables used and more detail of their measurement and expected results from each variable; data sources of all data inputs used to perform tests and result is discussed within the variable descriptions.

3.2.1 Sample period and data transformation/adjustments

The study is a quantitative research, employing quarterly, secondary time series data, 1995 to 2018, for variable political risk, the real exchange rate and FDI inflows, and GDP. Referring to the political risk and the real exchange rate data, the original data comprise a monthly frequency; they were converted to quarterly for consistency, since FDI is captured quarterly by the SARB. Other sources of data from the World Bank and Bloomberg data covering the same period.

The data period 1995 to 2018, was selected, emphasising the post democratic era of South Africa, covering recent political developments and distorting declines in FDI inflows during the post-global financial crisis era. For the measure of political risk, the PRR from the PRS

Group was employed. Consequently, the REER was used to measure the exchange rate, sourced from the South African Reserve Bank (SARB). FDI data and GDP data were also sourced from the SARB.

Literature suggests that distributions with high levels of skewness is potentially eradicated by using logarithmic transformation; logging data sets also prevent unnecessary variance (Leydesdorff & Bensman, 2006). Adjusting FDI inflow values, prompted transforming all variables to a natural logarithmic form to capture a dataset, possibly producing adequate results.

3.2.2 Variables descriptions

The econometric analysis, including variables, are briefly discussed in the subsequent sections.

3.2.2.1 Political risk rating

The PRS Group computed the PRR (a country's risk rating), measured by totalling 17 risk components. The composite scores range from zero to 100 points, with 80 to 100 indicating low risk and 0 to 49.9 points indicating high-risk. The components each comprise a theoretical ranging that begins from 0 to + 4.0, asserting that zero is the lowest level, depicting a forecast of no change under any regime. In contrast, + 4.0 is the highest level, depicting a forecast of more constricting policies.

- The measurement of political risk rating

The PRR is an important variable for its computation and use in academic literature, lacking in nature, thus the significance purpose of this study. The PRR was used to measure the political risk. The rating calculated the risk of a particular region, resulting from 12 risk components stated in the PRS methodology. The 12 components included, bureaucracy

quality, ethnic tensions, corruption, internal conflict, government stability, democratic accountability, religious tensions, socioeconomic conditions, external conflict, law and order, military in politics and investment profile (PRS Group 2016). For each country, higher risk points (e.g. above 50 to 100) indicate lower risk, whilst higher risk is indicated by lower risk points (e.g. below 49).

Table 3.1: Political risk ratings by component

Sequence	Component	Maximum points
A	Government stability	12
B	Socioeconomic conditions	12
C	Investment profile	12
D	Internal conflict	12
E	External conflict	12
F	Corruption	6
G	Military in politics	6
H	Religious tensions	6
I	Law and order	6
J	Ethnic tensions	6
K	Democratic accountability	6
L	Bureaucracy quality	4
Total		100

Source: PRS Group (2019)

Government Stability - 12 Points: Government stability assesses the ability to remain in office, meeting established objectives, such as declared programme(s) or projects. Within this component, three subcomponents convey four maximum score points, with zero points reflecting a high-risk and the max of four denoting a low risk. The subcomponents included

in government stability are legislative strength, government unity and popular support (PRS Group, 2019).

Socioeconomic conditions - 12 Points: The socioeconomic conditions relate to any pressures resulting from society or the dissatisfaction of the society thereof that may constrain governance deliverance of social or public services. Residing subcomponents for socioeconomic conditions include: unemployment, consumer confidence and poverty, conveying a maximum of four score points each reflecting a denotation of a low risk subcomponent and if ranked at zero, it indicates the subcomponent as a high-risk (PRS Group, 2019).

Investment Profile - 12 Points: The investment profile holds 12 score points, focussing on any other risk not included in any economic, financial risk and political risk components in the methodology. The risk suggests any factors that may affect the investment to and from a particular country. Within the investment profile a maximum of three subcomponents collectively calculate the 12 points as they convey a maximum of four score points each. The presiding ranks state that any value closer to zero reflect a high-risk and the latter closer to four a low risk, these subcomponents include contract viability/expropriation; profits repatriation; payment delays (PRS Group, 2019).

Internal Conflict - 12 Points: Internal conflict within a country is assessed through its political violence and how such violence may impact governance. Countries indicating signals of on-going civil war, are assigned the lowest rating, whereas countries where government and civil society are at peace with each other, where no armed or no civil wars are present whether indirectly, directly or no form of government arbitrary violence, the highest rating is provided. Three terrorism/political violence subcomponents; civil war/coup threat and civil disorder, each quantifying a maximum point of four, denoting a low risk. Risks denoting as high are

scored zero in countries with on-going civil wars, by government to civil society (PRS Group, 2019).

External Conflict - 12 Points: Assessing the external conflict measure is broad as it stems from a foreign country, affecting an incumbent government. The risks include non-violent external pressures, such as sanctions, trade restrictions, war, cross-border conflict, FDI outflows/ withdrawals of aid and diplomatic pressures. The effect of external conflicts affects business operations, restrictions, such as sanctions and protectionist tariffs to foreign investment, including lacking resources for economical use, or as extremes as society structural changes. The component has three subcomponents amounting to a maximum score of four, representing a risk low and zero, denoting a high-risk (PRS Group, 2019).

Corruption - 6 Points: Corruption is defined as any corruption affecting investment from foreign nations and within the political system of a domestic country. The calculated impact of such a risk threatens the efficiency and functionality of businesses and government as the appointment and occupation of certain positions and power are influenced by patronage. These disregard merit, ability or qualification. Such corruption threatens the financial and economic environment and its resources, attributable to the increase in political instability.

Corruption within businesses include: financial corruption, influencing the success and failure of business transactions; bribes and special payments related to licences of trade; tax and audit assessments foreign exchange rate controls; protection from government officials, such as the police and justice system. In the methodology the following concerns are most regarded as the highest risk to potentially affect investment from foreign nations; attributable to fears of state capture, inefficient exchange controls and discontent: (PRS Group, 2019).

Corruption holds a greatest risk, as government can be overthrown, attributable to civil society's reaction to social media reports, relating to a president, an important minister or the

sought; other effects can include: restructuring law and order; or the judicial system; the government's political institutions or the amendment of the constitution in favour of a minority group in the country (PRS Group, 2019).

Military in politics - 6 Points: Military in politics relates to politics in the military, not elected by individuals or political parties; it is a democratic accountability. The military has the obligation to meddle in governance if an external or internal threat was identified beyond government control; in such rare cases the military has the right to demand and facilitate certain measures against or in favour by government to mitigate the external or internal threat. Cases, such as a military takeover, pose as high-risk, providing the impression that government can be trusted with managing the country, or the functionality of the government; these aspects may distort financial investments (PRS Group, 2019).

Other high-risks can result from military regimes, whereas not all regimes will be negative, some may reduce business risk through stabilising a country's finances, government and foreign exchange controls. Military participation within the boundaries of government has negatives and positives qualities; a greater degree of involvement of military in politics has lower risk ratings and higher PRRs (PRS Group, 2019).

Religious tensions - 6 Points: In cases of religious tensions, the government is dominated by a single religious group where it seeks to abolish others' religions and remove civil war by excluding the practice of other religions and beliefs from social processes and systems. The dominating government seeks for a single group of religion for the entire country and a single identity is expressed, whilst violating the religious freedom of others. Risks are measured, according to situations, possibly ranging from civil dissent to imposing unfavourable policies, to civil wars (PRS Group, 2019).

Law and order - 6 Points: The law and order component is divided into two entities, where law considers the legal system and its strengths or weaknesses as well as its impartiality; whereas the order entity focusses on assessing what occurs within the law. Countries are ranked individually on the separate entities with rating ranging from zero to three score points. For example, a country can score low on the order part from high crime and corruption, attributable to a lack of the law playing precedence, scoring high for a functional and working judicial system (PRS Group, 2019).

Ethnic tensions - 6 Points: Ethnic tensions within a country relating to race, language division or nationality or ethnicity are assessed. Countries exhibiting signals of division, nationality and racial tensions, such the xenophobic attacks that occurred in the 2000s in South Africa, are assigned the lowest of rating as the country's ethnic tensions are high - were for example certain ethnic groups fail to cooperate with countries, such the Islamic. In contrast, countries with minimal ethnic tensions where diversity and collaboration within races and nationalities are present; a higher rating is provided (PRS Group, 2019).

Democratic accountability - 6 Points: Democratic Accountability measures government's responsiveness to the civil society that it governs based on whether the society is in a democracy where the responsive is likely more positive or where a non-democratic society is unresponsive to government. The type of government of each country, also fulfils a major function in assessing risks in this component; below, various types of governance are briefly defined:

- Alternating democracy

In an alternating democracy more than one political party have presence and position in the country; the constitution is respected and abided regarding fair and free election procedures and systems, according to legislature and relevant laws. The government or executive party

would have not served less than two successive terms; constitution and the law take precedence concerning safeguarding the personal liberties of individuals and a fair and independent judiciary system (PRS Group, 2019).

- Dominated democracy

A dominated democracy has identical feature of the alternating democracy with a few exceptions. The country's judiciary system must be fair and independent and personal liberties of individuals must be protected with a fair and clear balance between the judiciary, government and legislature. The governance in a dominated democracy, must have an excess of political parties, where two or more successive terms of the government was served, with election procedures and systems according to legislature, according to the constitution (PRS Group, 2019).

- *De Facto* one-party state

In a *de facto* one-party state; regular elections take precedence, governed by the constitution. One particular government seeks domination, whilst supported by the skewness of the electoral system, designed to provide and ensure dominance. The government must have served for successive terms, longer than two. The one-party state indicates evidence of the harassment, discrimination and the purposeful implementation of impediments that only affect non-government political parties; where such parties are restricted on several activities, including media access or any other sourcing, place the state party into turmoil with its civilians (PRS Group, 2019).

- *De Jure* one-party state

The main features of the *de jure* one-party state is its requirement by the constitution to have one governing political party and the absence of any opposition party recognised by the law (PRS Group, 2019).

- Autarchy

The autarchy resembles the *de jure* and *de facto* one-party state since it has restricted legislative powers where a single individual or a group can lead the state, not subjected to any franchise, inherited right or military. The type of governance sometimes indulges in the quasi-democratic process where regular elections amongst competing parties are subject to the popular franchise system with restricted laws. The autarchy's most important feature is, whether the standing of political opponents allow the leadership to fight for their position in an electoral system (PRS Group, 2019).

In conclusion to the democratic accountability, the autarchies' type of government conveys the highest of risk with the lowest number of risk points, such as zero. Alternating democracies convey the highest risk points, such as three or four because it bears the lowest of risk.

Bureaucracy Quality - 4 Points: The quality and strength of a country's bureaucracy and institutions is an important component of the PRR, considering that the high-quality bureaucracy can withstand any shocks that may result in disrupting government policy implementation. Concerning ranking, the highest points are allocated to high-quality bureaucracies of a particular country, provided its strength to withstand and successfully surpass any interruptions when government policy changes are implemented. The latter is true about countries lacking strength and quality in their bureaucracies. Such countries are rated with the lowest scores, posing risks to investors, whilst reflecting poorly as they are sensitive to political pressures, likely to encounter disruption when government policies are implemented (PRS Group, 2019).

Assessing PRR: In general terms, a high-risk component holds points of 50 percent and below; where a high-risk is between 50 to 60 percent; followed by a modest risk ranging between points, with 60 to 70 percent. A low risk is points comprising ranges between 80 to 100 percent; where low risk falls within the band of 70 to 80 percent (PRS Group, 2019). Although this categorisation are guidelines, each component may exhibit its own risk rating (PRS Group, 2019). A PRR is categorised in the table below:

Table 3.2: Political risk interpretations

Level of risk	PRR (%)
Very high-risk	0.0 to 49.9
High-risk	50.0 to 59.9
Moderate risk	60.0 to 69.9
Low risk	70.0 to 79.9
Very low risk	80.0+

Source: PRS Group 2019

Political risk profile: South Africa (2018): The following table provides an overview of South Africa's political state, which highlights the political and economic strength and weaknesses of the country.

Table 3.3: Political risk profile - South Africa

<i>Political Strength</i> • A fair and transparent election processes and results • South Africa still has the best Constitutions in the world	<i>Economic Strength</i> • Sustainable financial sector and private institutions • The monetary authority still remains independent and on track with its policies
<i>Political Weaknesses</i>	<i>Economic Weaknesses</i>

• Instability in government authority and trust in public figures with frequent Cabinet reshuffle • High levels of government corruption, including high profiles • Conflict with the governing party affects proper decision-making	• The economic growth has experienced its lowest low including a recession in 2017 • The unemployment rate increases annually towards 30% • The budget deficit widens all budgets
<i>Political & Governance indicators</i> • Control of Corruption ranked 56.73/100 • Political Stability No violence ranked 35.71/95 • CPI 2018 ranked South Africa on 73/180	<i>Economic indicators</i> • GDP was 1.4% (2018Q4) • Inflation was 4.5% (2018Q4) • Unemployment rate was 27.1% (2018Q4) • Debt standing at 55.8%

Source: Statistics SA, 2019; World Bank, 2017.

- Other measurements of political risk

In order to fully understand the variable of political risk, the study also discusses additional political risk measures which are separate from the econometric model in Section 4.5.7 in Chapter 4. The additional measures were derived from the World Bank, South Africa's credit rating history and the Bloomberg country risk score and their respective methodologies are discussed below:

- World Bank (2018) governance indicators

The following provides the methodology of how each governance indicator is measured and what each result would mean in Section 4.5.7 under the additional sources for political risk, this is crucial for the interpretations of these data.

Political stability and absence of violence/terrorism: the variable measures likelihood perceptions of political instability and/or the absence of politically motivated violence, including terrorism. The standard error indicates an estimate of governance's precision, less precise estimates are indicated by larger standard error values. The estimate is regarded strong when it is equal or closer to 2.5, whilst -2.5 indicates weaker governance (World Bank, 2017).

Control of corruption: are measured perceptions of control of corruption in the extent to the overuse/misuse of public power for private/individual gain, including any kind and level of corruption, and state capture in the interests of elites and private individuals. The methodology of the previous indicator is used to calculate the estimate (World Bank, 2017).

Government effectiveness: this variable captures the discernment of the effectiveness of government through assessing the quality of public services, civil service, quality of policy formulation and implementation, the extent of independence from political pressures, including the credibility of government's commitment to such policies. Calculating the estimate follows those of the previous indicators (World Bank, 2017).

Regulatory quality: regulatory quality determines whether the government's ability to establish and facilitate policies relating to private sector development through easy access to markets; the effect of taxation, including tariffs; price controls; competition regulation; trade policy. The estimate is calculated, using the same methodology aforementioned (World Bank, 2017).

Rule of law: the rule of law captures how citizens abide by the law and have confidence in the law, including courts, police, state security and rights. The estimate is calculated by considering sub-variables for the rule of law, such as the fairness of the judicial system, property rights, civil justice, violent crime, law and order (World Bank, 2017).

Control of Corruption: The last governance and most common indicator is control of corruption capturing how individuals in power, exercise their power and authority for

individuals interests and gains, including state capture where a minority of officials mismanages public funds for personal and private gains. The estimate of this indicator considers various subcomponents, including (but not limiting) corruption index, diversion of public funds, trust and accountability in the public sector; corruption in government and judiciary; transparency in the public domain (World Bank, 2017).

- Credit rating methodology

The South African credit history are discussed in Chapter 4 in Section 4.5.7. Its methodology is provided as follows for the three credit rating agencies Fitch, S&P and Moody's.

Table 3.4: Credit rating methodology

Moody's	Fitch	S&P	Rating Grade description
Aaa	AAA	AAA	Prime investment grade with low credit risk
Aa1	AA+	AA+	High grade of investment
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Moderate credit risk and good investment grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	There is substantial credit risk and its speculative investment
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
B1	B+	B+	Non-investment grade (first level of junk investment)
B2	B	B	
B3	B-	B-	
Caa1	CCC+	CCC+	Substantial credit risk with high levels of default
Caa2	CCC	CCC	
Caa3	CCC-	CCC-	

Moody's	Fitch	S&P	Rating Grade description
Ca	CC C	CC C	High levels of credit risk and defaulting not easily recoverable
	D	D	Default has occurred and obligations will not be fulfilled

Source: Reindl, 2019

- The Bloomberg Country Risk Score (2017)

The Bloomberg country score is a measure of risk of a country's financial, economic and political sectors, compared to other emerging and developed markets' performance. The risk score is calculated on a quarterly, equally weighted, per cent-rank model, scaling from 0-100, proclaiming more stability and less risk when scores are higher, closer to 100 (Bloomberg, 2017).

- Political risk rating trend analysis

In this study political risk is expected to influence the REER and FDI; first, a long-run relationship must exist as literature and empirical studies emphasise that political risk is a determinant of FDI. The exchange rate adversely, is the first to react and respond to any political instability or risk of any shape, size or form. It is also a signalling factor for foreign investors (Bloomberg, 2017).

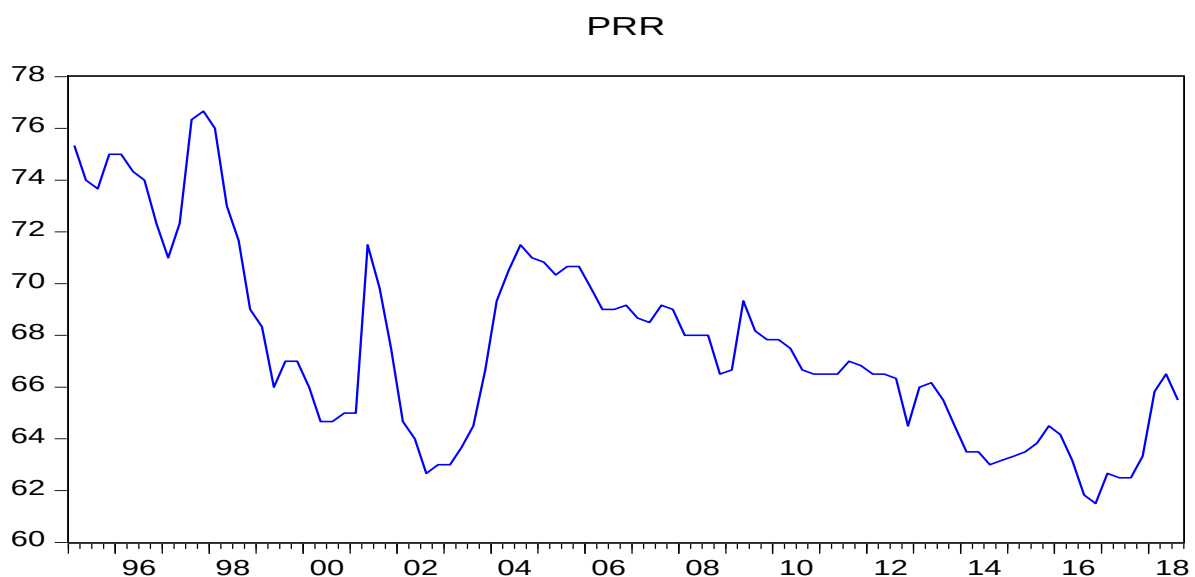
The PRR had a trend of values below 70 constituting a moderate risk; the trend never reached a low risk. The years, 2004 from 1995, have periods rated as low risk. Although, it can be argued differently; South Africa experienced a new dawn from 1995 to 2004; Mandela was president, followed by Mbheki; the country was politically sturdy concerning new

constitutions, law and order and no apparent extreme political risk was evident. Post that period, the graph indicates the rating moves to the 60s and remains there, even now:

- Institutions are failing.
- Corruption reached an all-time high.
- Government is in conflict with civil society.
- Cohesion between politicians and businesses is evident, post 2004 to 2015.

The trend in Figure 3.1 of PRR in South Africa was on a downward slope from 2015 to late 2017 until the axing of former President Jacob Zuma to the newly elected Cyril Ramaphosa in early 2018. The maladministration of the Zuma era lead to loss of investor confidence, including credit downgrades, a fluctuating Rand, high levels of corruption and no economic growth (Pretorius, 2019). The trend started to collect momentum from 2018 and the rating indicated a further moderate risk for South Africa, provided the positive investor sentiments, a stronger currency and a new dawn for the country.

Figure 3.1: Trends of political risk rating



Source: Author's own calculations, data from PRS Group.

3.2.2.2 The real effective exchange rate

The SARB defines the REER as any adjustment for inflation differentials in the nominal effective exchange rate between South Africa and its major trading-partner countries (Motsumi *et al.*, 2008:61). The SARB data are recorded monthly and recognise the REER as an indicator of competitiveness in global trade. Similarly, the Bank for International Settlements (BIS) (2017) describes the REER as weighted averages of adjustments relative to consumer prices of the nominal effective exchange rate (the nominal EERs are calculated as bilateral exchange rates of geometric weighted averages).

The REER was selected over the bilateral exchange rate because it reflects an improved indication of trade capabilities and currency strength/weaknesses of a country. Its measurement can account for trade flows and capital, whereas a simple bilateral exchange rate fails to cover under its measurement. The Bank of International Settlement (BIS) (2017) measures the REER, using the average weighted of bilateral exchange rate against a country's trading partners, with the following equation:

$$REER_{country\ i} = \sum_{j=1}^N trade\ weight\ (country\ j) \times Real\ exchnage\ rate\ (country\ j) \quad (3.1)$$

where country $j = 1, 2, \dots, N$ trading partners for country i and geometric averages are used (natural logarithms for the exchange rates).

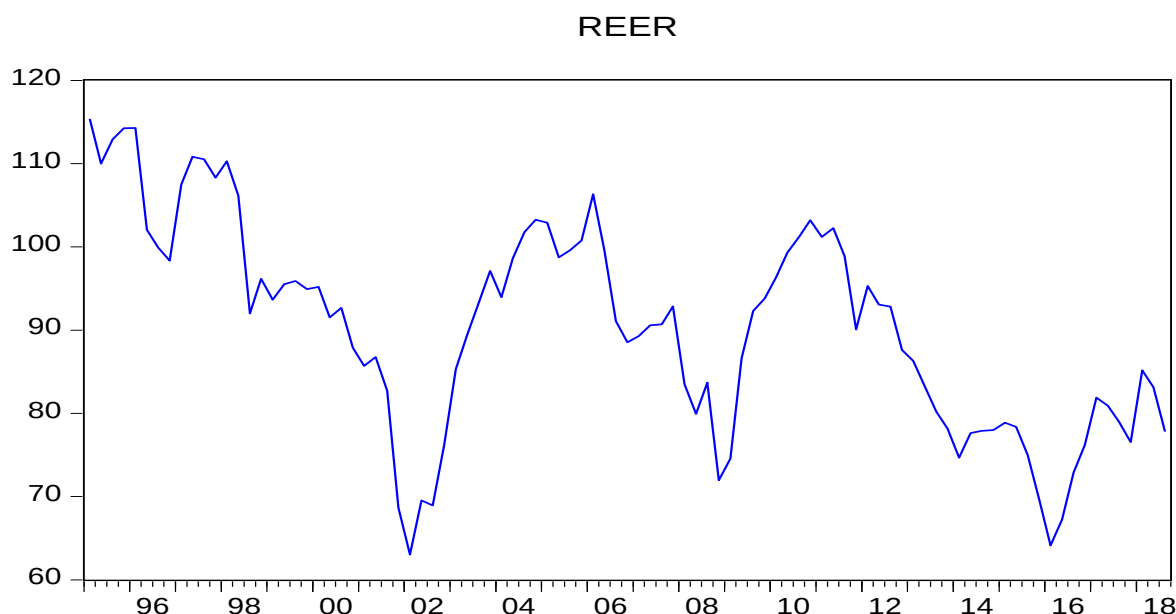
The study expects the REER to have a relative positive effect on political risk and FDI. A long-run relationship must exist between variables since FDI rely on political risk as a determinant. Concerning the causality, REER causes PRR but fails to explain FDI; these results are especially true as the real effective exchange rate has no direct effect on FDI movement. For political risk, the exchange rate is the closes measure to indicate the impact

of political risk in a particular country, through depreciations of the currency, stock and financial markets downturns.

Figure 3.2 indicates the trend of the REER over the sample period of 1995 to 2015. It established that from 1995 to early 2000s, REER was above 80, then plunged to a low of 60s in 2002. This could have been because of introducing inflation, targeting regime of 2001 by SARB. The first signals of a global financial crisis were experienced during these periods. REER returned to its normal 80s until plunging to the global financial crisis of 2007, affecting developing emerging markets over developed stable third world countries.

From 2013 up to 2015, REER was below the average 80s. From a global perspective, taper tantrums commenced in 2013 in most developed nations. It had a negative effect on emerging market currencies, including South Africa. Internal factors affecting REER during 2013 to 2015, include 1) the national platinum strike, continuing six months; 2) 2014 was the year President Jacob Zuma was elected for to run for the second term; 3) in 2015 December, the hiring of three finance ministers in three days caused the currency to plunge; and 4) during the same period, the emergence of state capture and excessive corruption within government officials started to surface. The trend post 2015 had an upward trajectory as the country has never depreciated to the 2015 levels since. A recovering economy led to this trend from 2016 to 2017 when South Africa credit downgrades hit, with external global macroeconomic factors affecting the currency to weaken; 2018 also indicates a depreciation in the last quarter.

Figure 3.2: The trend of the real effective exchange rate



Source: Author's own calculations, data from BIS

3.2.2.3 Foreign direct investment inflows

The UNCTAD (2017) defines FDI as the process comprising the acquiring of a foreign enterprise beyond economic borders of the native country and in the interest of gaining majority vote in the enterprise or total ownership. Acquisitions of such enterprises are recorded as FDI inflows as capital flows in the foreign country. The SARB (2017) records FDI inflows on a quarterly basis in its Quarterly Bulletin (QB) under the name 'net direct investment' (inflow (+)/out- flow (-)) comprising net incurrence of liabilities and net acquisition of financial assets. The downfall of the variable is its measure of returns, data were scarce in availability concerning the recording of what each FDI enterprise makes in profits; it is fortunate that the SARB has data on the inflows, attesting to econometric analyses.

A clear measure of foreign direct investment falls short in literature, however, most recently, economists pay attention to inward and outflows of FDI, measured on a quarterly and annually basis by monetary authorities, such as the SARB and the OECD. Capital flows from an FDI are recorded from cross-border transactions at a particular point in time either quarterly or

yearly; the transaction include earnings from reinvestment; equity transactions and transactions relating to debt transactions. Outflows of FDI are calculated by subtracting transactions that may decrease investment in the foreign economy, such as borrowing and sales equities from equity purchases, representing an increase in the foreign economy's enterprise. FDI comprises transactions relating to foreign investors in a resident enterprise, where increases in investment are subtracted by any expenses to the investment (OECD, 2018).

Provided that recently, South Africa's FDI was negative and saw more outflows than inflows, it is prompted to use alternative cross-border capital flows, such as portfolio flows and bank loans or deposits. FDI was selected for this study, endeavouring to respond to the reasons why South Africa was not receiving FDI anymore; was it attributable to the frequent fluctuant exchange rate or the drastic changes in government and high-risk political instability, such as corruption, high crime and policy uncertainty driving investors away? Although FDI lacks data concerning the measure of its returns, whilst with other investments, such as PI have data readily available. FDI is one of the oldest evidences of globalisation, trade and open economy characteristics and indirectly indicates how attractive and competitive a particular country is, proportionate to other countries.

In theory, foreign direct investment inflows are affected by political risk as part of its determinants; concerning the REER, no direct effect was emphasised from or to FDI. A positive correlation will emanate from the interaction of the three variables, it was however, established that changes in FDI does not cause PRR and the real effective exchange rate - although a long-run relationship, was established. FDI inflows are a secondary effect from political risk pressures and a fluctuant currency, as evidence indicates that investors react to such pressures then decide to either invest or withdraw investment. For example, credit rating

agencies assess various components, such as political and policy uncertainties within a country, investor sentiments or movements of the currency before placing a sovereign debt of a country as AAA+ or a Baa3.

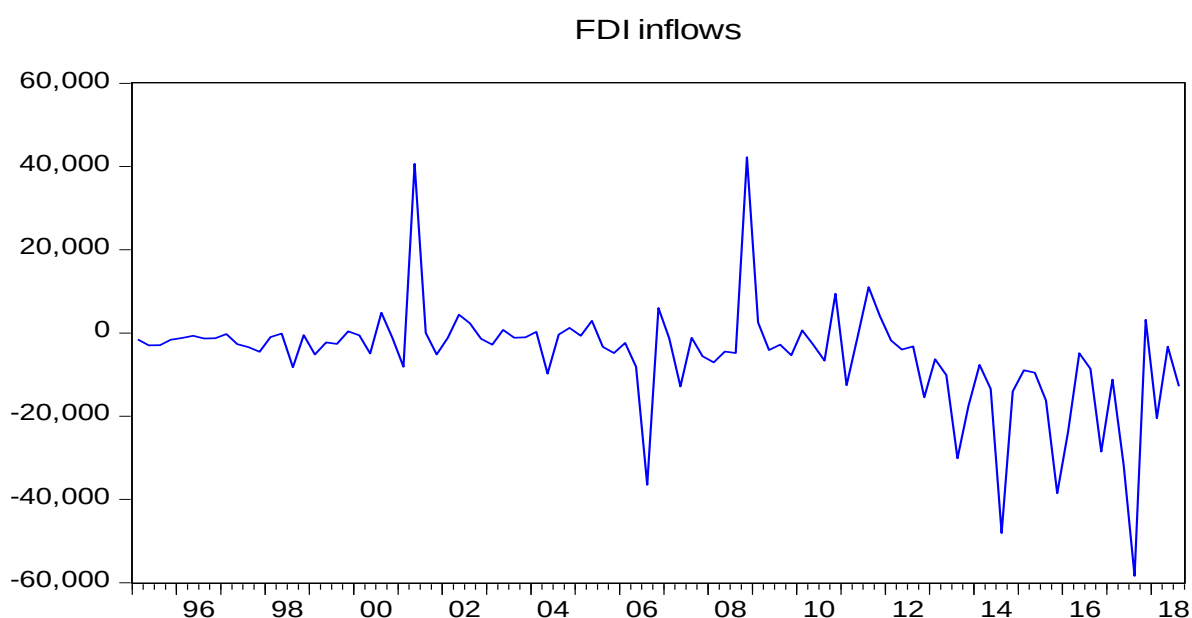
The trend of FDI in South Africa was negatively stable with sharp steep declines and peaks in various points; in 2001 to 2002, a sharp uptick presenting an inflow is seen; although global countries were dealing with the after-effects of the dot.com and Asian crisis; South Africa adversely experienced a new dawn of democracy; the presidency of Thabo Mbheki. This could have added positive prospects about the country and its growth. The first steep decline was experienced in 2006, possibly resulting from the first evidence of a looming financial crisis that had negative effects of flows to emerging markets, to safer stable developed economies.

In contrast, an influx of inflows was received in 2009, which is surprising because this era marks the beginning of the reign of Jacob Zuma administrations; the financial crisis had just ended and developed countries started on quantitative easing and increasing money supply. From 2013 to 2015, Graph 3.3 indicates evidence that FDI flows reached their lowest low in 2014. This result was possibly influenced by emerging state capture scandals, the second term of Jacob Zuma administration; the country was in turmoil with fluctuating exchange rate and investor confidence reached the bottom of the barrel as growth prospects from IMF were below average.

The most impactful and largest decline in foreign direct inflows are observed in 2017. During this year South Africa experienced two credit downgrades for the local and foreign currency from S&P and Fitch with a negative outlook from Moody's. As an indirect result from the political uncertainty, the country also experienced two-quarters of negative growth (meaning a recession) and high inflations, reaching the highest inflation target band at 6% (Manon

2019). FDI began a slow recovery in 2018, provided the new government administration and regained confidence in investment by electing Ramaphosa as head of state.

Figure 3.3: The trend of foreign direct investment inflows



Source: Author's own calculations, data from SARB

3.2.2.4 Gross Domestic Product (GDP)

GDP is defined as all services and goods in a particular country, producing at a particular time, measured by Statistics South Africa (2019), the trusted authority for measuring the GDP. Stats South Africa (2012) measures GDP using two approaches: first, they measure GDP adjusted seasonally at an annualised rate; another measure is the unadjusted GDP accounting for quarterly growth on a year-on-year basis - this is the most utilised measure economists and analysts apply for research and additional analysis.

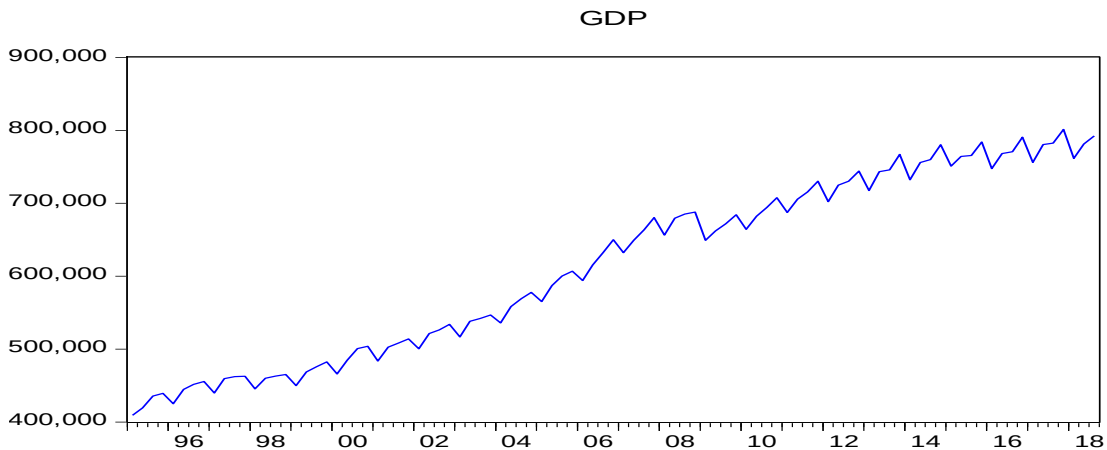
The GDP was included in this study as a balancing variable as political risk. The real exchange rate and FDI cannot interact in isolation of the most significant macroeconomic factor in

measuring the economy, the GDP. For this study, SARB GDP constant data were employed, identical to that measured by Statistics South Africa.

The study expects that GDP have a negative or an inverse relationship with all the other variables; for example, for the real exchange rate, as an appreciation reduces the gross domestic product and a depreciation in the currency lead to increasing GDP (Habib *et al.*, 2016). The gross domestic product is not an explanatory variable as it is a consequential variable and rarely affects other economic variables; instead GDP is the dependant variable where, for example high levels of political risk indirectly cause economic growth decline through investor sentiments and the exchange rate. As for FDI inflows, the relationship is negative since recessions are indirectly caused by FDI outflows; for example, in 2017, after credit downgrades, investors withdraw their capital/investments in fear of receiving less returns, whilst pursuing improved and safer havens, such as in developed nations (Manon, 2019).

The trend of GDP in Figure 3.4 indicates a significantly growing gross domestic product. In reality this graphical presentation is more reflective when annualised growth rates are applied. The provided figure indicates a GDP with constant prices, as selected, balancing the other main variables for the study. Provided that this study focussed on GDP, growth rates would be applied. In addition, the actual trend of the South African economy fluctuates with lower to no growth between 2014 and 2017 and a bit of a recovery experienced in 2018 (Stats SA, 2019).

Figure 3.4: The trend of gross domestic product (GDP)



Source: Author's own calculations, data from SARB

3.3 MODEL SPECIFICATION

As aforementioned, the single-equation time series model ARDL was chosen to detect possible interactions and relationships amongst the PRR, the REER and FDI. The ARDL was also selected, allowing for a mixture of $I(0)$ and $I(1)$ order of integration within various variables; it is an infinite distributed lag, enabling variables to explain their own lags and those of alternative variables (Chetty, 2018).

It was established that PRR and the REER are stationary at 1st difference $I(1)$, whilst, FDI is stationary at level $I(0)$; these results were derived from the ADF, the PP unit root tests and KPSS stationarity test to provide insight into the original data; before running any model, no logarithm was used to convert variables as its natural states provided significant results.

3.3.1 Unit root test and stationarity analysis

Considering that the study designed possible short-run and long-run relationships, the concept of stationarity and unit root testing surfaced. In modelling an econometric model, the first step was to check for stationarity in a data series, using a unit root test; this was concluded with

each individual variable. Brooks (2008) defines stationarity as a requirement for each provided lag to have a constant mean, variance and auto-covariance. Stationarity in a data series is important as it can sharply impact the behaviour and properties of the data series and nonstationary data, leading to spurious regressions (Brooks, 2015). Nonstationary data can discredit the validity of the standard assumptions for asymptotic analysis. This study provided a multivariate approach, using VAR; the parametric approach for testing for stationarity was used.

3.3.1.1 Augmented Dickey-Fuller (ADF) unit root test

Early testing of the unit root was conducted first by Dickey and Fuller in 1979; the main objective was to analyse the null hypothesis, that a series has a unit root and an alternative that the series is stationary (Brooks, 2015:361). In examining the PRR, the real exchange rate and FDI, the ADF test was chosen. It is defined as a test derived from the autoregressive $AR(p + 1)$ representation, whilst considering lags of a particular series (Cheung & Lai, 1995). The ADF is one of the most popular tests used for stationary tests; parametric autoregressive structures are used to capture the serial correlation with the test regressions of ADF (Habanabakize, 2016). Stationarity from the unit root test can either be at level or at first difference; VAR requires that the stationarity of variables be at the same level (EViews 8, 2014). The ADF equation is represented as follows:

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \beta_1 \Delta y_{t-1} + \beta_2 \Delta y_{t-2} + \dots + \beta_p \Delta y_{t-p} + v_t \quad (3.2)$$

Where Δ is the first difference operator while $\alpha = \rho - 1$, and x_t are exogenous regressors of constant or constant plus trend, ρ and δ are estimated parameters and v_t is the estimated white noise. The ADF provides a result of an asymptotic distribution of t -ratio for an

independent number of lagged 1st differences represented by α included by ADF regression. The null hypothesis for ADF follows the original Dickey-Fuller

$$H_0 : \alpha = 0$$

$$H_1 : \alpha \neq 0$$

where H_0 represents the null hypothesis of the existence of a unit root meaning the set is not stationary and H_1 indicates the alternative that identified a lack of a unit root explaining that variables are stationary at a provided significant level (usually 5%). When results of PP and ADF are statistically significant at a 5% confidence level, the null hypothesis of unit root is rejected, and the alternative is accepted and the series stationary. In contrast, the null hypothesis is accepted when statistically insignificant results are greater than the 5% confidence level, and in this event the order of integration is changed from I(0) to I(1) until the null hypothesis is rejected and series is stationary (Dickey & Fuller, 1981).

3.3.1.2 Phillips-Perron (PP) unit root test

In 1988 Phillips and Perron developed a similar unit root test to the ADF, however the PP differs from the ADF unit root test as it employs non-parametric adjustments factors for serial corrections to deal with errors in serial correlation and heteroscedasticity. In the first order ARMA, the PP unit root test ignores serial correlation and utilises the OLS parameter estimate for its equation; the PP is more advantageous to the ADF unit root test as no lag length is necessary for testing the regression and heteroscedasticity; errors are dealt with by the rigorous and robust PP unit root test (Del Barrio Castro *et al.*, 2015). The null hypothesis for the unit root of PP is similar to the ADF and identified a unit root in H_0 assuming that it is not stationary and the alternative H_1 is that no unit root or the series is stationary. It is provided as follows:

$H_0 : \alpha = 0$ (Unit root presence)

$H_1 : \alpha \neq 0$ (Stationary series)

The null of the presence of a unit root test is only rejected when results of PP and ADF are statistically significant at a 5% confidence level; the alternative is accepted that the series is indeed stationary. In the event that results are not statistically significant at a 5% confidence level, the null hypothesis of the presence of a unit root is accepted; the series is deemed not to be stationary. In such a case, the order of integration is changed from $I(0)$ to $I(1)$ until the series is stationary and the null is rejected (Phillips & Perron, 2018; Dickey & Fuller, 1981).

The Phillips and Perron (1988) unit root test is provided as follows:

$$Y_t = \alpha Y_{t-1} + \delta x_t + \mu_t \quad (3.3)$$

$$Y_t = \theta_0 + \delta_{1yt} + \delta_{2t} + \mu_t \quad (3.4)$$

Where the θ_0 represents the constant and the trend is denoted by t , additionally, the result of a unit root and nonstationary is provided when $\delta = 0$ and stationary variables with no presence of a unit root are provided by $\delta < 0$. The PP unit root test tends to be less powerful when compared with the ADF; it requires selecting parameter estimates, possibly resulting in finite sample, since the lag length is not specified (Nielsen, 2005).

3.3.1.3 Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test

The KPSS stationarity test was developed in 1992. It is one of the innovative ways to account to stationary results, unlike the ADF (1981) and PP (1988); the KPSS stationary test has a stationary trend for a null hypothesis (H_0) and the alternative (H_1) has a presence of a unit root and it is written as follows:

$H_0 : Y_t \sim I(0)$ level (or trend) stationary

$H_1 : Y_t \sim I(1)$ unit root (nonstationary)

The KPSS equation is provided as follows:

$$X_t = A'Dt + Y_t + \varepsilon_t \quad (3.5)$$

$$Y_t = Y_{t-1} + \alpha_t \quad (3.6)$$

Where a pure random walk is provided by Y_t and within it lies the innovation variance of $\sigma_\alpha^2, \alpha_t \sim WN(0, \sigma_\alpha^2)$ and the stationary process is denoted by the ε_t , whilst, Dt represents the deterministic trend (possibly linear or non-linear) where A' is the transposed vector of the coefficients (Metes, 2005). The above equation prompts the null hypothesis and the alternative to be written as follows:

$$H_0: \sigma_\alpha^2 = 0$$

$$H_1: \sigma_\alpha^2 \neq 0$$

When the null hypothesis is represented in the above form, the Y_t becomes a constant term rather than a random walk and allows for a stationary process for X_t . The KPSS is the closest stationary test to the moving average (MA) in the ARMA structures when the null is indicated in its form (Metes, 2005; Arltová & Fedorová, 2016).

3.3.1.4 The structural break unit root test

Nelson and Plosser (1982) first introduced the unit root hypothesis on the basis that shocks were unaffected in the long-run, whilst it has an effect only on a temporary basis and that the effect in the long-run is observed when their random shocks affecting the level of macroeconomics provided, all these traditional bases. Perron (1989) argued that the standard ADF tests fails in the presence of a structural shock, as results are commonly skewed to

nonstationary. He further contends that time series of a macroeconomic nature tend to have unit roots although stationarity is existence in the deterministic trend of fluctuation functions.

According to the underlying asymptotic distribution theory, Perron (1989) suggested that the Dickey-Fuller unit root test be modified to include a structural break exogenous using a dummy variable - the selection of the break point would be independently chosen from the data and it would be fixed (exogenous). Perron (2005) continues to contend that the alternative, a null hypothesis, would be unaffected by the break; asymptotically the structural break would have a correct size; the unit root can indicate consistency with and without a break. The unit root will continue to estimate the correct values as it is independent from break's magnitude and parameters within the structural break (Glynn *et al.*, 2007).

Three equations were formulated by Perron (1989) using various structural breaks to test for unit roots; all three models are constructed under the null hypothesis of presence of a unit root and the stationary process that has a delineated trend, represented by the alternative hypothesis:

$$x_t = \alpha_0 + \alpha_1 DU_t + d(DTB)_t + B_t + \rho x_{t-1} + \sum_{i=1}^p \phi_i \Delta x_{t-1} + e_t \quad (3.7)$$

where the equation represents a structural break, such as a crash model, that the series allows for breaks in the intercept and the level. The second structural break comprise model that has a changing growth break; that allows it to break in the slope provided by the following equation:

$$x_t = \alpha_0 + \gamma DT_t^* + B_t + \rho x_{t-1} + \sum_{i=1}^p \phi_i \Delta x_{t-1} + e_t \quad (3.8)$$

The last break includes both effects of equation (3.7) and (3.8) occurring simultaneously and its equation is as follows:

$$x_t = \alpha_0 + \alpha_1 DU_t + d(DTB)_t + \gamma DT_t + B_t + \rho x_{t-1} + \sum_{i=1}^p \phi_i \Delta x_{t-1} + e_t \quad (3.9)$$

Where:

DU_t : dummy intercept that denotes a change in the level; and $DU_t = 1$ if $(t > TB)$ and otherwise zero

DT_t and DT_t^* : dummy slope the trend function's slope changes; and $DT^* = t - TB$ and otherwise zero

$(DTB) = 1$: crash dummy where $(DTB) = 1$ if $t = TB + 1$ and otherwise zero

TB : Break date

Perron's (1989) procedure and methodology was later challenged by Zivot and Andrews (1992) where they contend that the endogenous structural break test is better than the underlying distribution theory as it is a sequential test; a full sample is considering, whilst using various dummy variables for possible break dates. Negative t-statistic values from the ADF unit root test are utilised for the selection of a break date; values unfavourable for the null hypothesis of the unit root test are chosen for the break date, ensuring that the alternative could be accepted instead (Zivot & Andrews, 1992).

3.3.2 Cointegration test: Autoregressive Distributed Lag (ARDL)

The cointegration test follows from determining stationarity of variables through the employment of unit root testing. For this study and the utilisation of the ARDL since the unit root results identified a mixture of $I(0)$ at level and 1st difference $I(1)$ order of integration for variables political risk, the real exchange rate and FDI.

ARDL was first developed by Pesaran and Shin (1999). The model is described as a dynamic single unrestricted model where variables can be expressed first by their own lag values and lag values of the alternative variables (preferably the independent variables if the subject is the dependant variables) (Ghouse *et al.*, 2018). The ARDL model commonly tests for long-

run relationships between variables, using the bounds test approach, whilst the short-run aspects are conducted using the ECM. Additionally, the model has the ability to identify a single cointegrating vector amongst multiple cointegrating vectors; the approach can distinguish independent and dependent variables where a single long-run relationship is identified (Belloumi, 2014).

In conducting the ARDL model, the optimal ARDL model have to be selected. These are data dependent as it utilises the sample size's deterministic function, whilst standard information criteria was selected, according to the stationarity of variables (Taylor, 2009). In contrast, the standard information approach could be mis-specified in nonstationary volatility is present as the approach is assumed to have constant volatility (Cavaliere & Phillips, 2012). For the unit root test, lags were fixed to two, allowing for all variables to be stationary at 1st difference.

The optimal ARDL model length selection process is an integral part of the ARDL model, as it provides estimates feeding into the long-run cointegration (bounds test) results and the information criteria tests used, included the Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hanna-Quinn Criterion (HQC) provided as follows

$$HQC = -2l / T + 2\log(\log T) / T$$

$$AIC = -2l / T + 2k / T$$

$$SIC = -2l / T + (K \log T) / T$$

Where the log likelihood is represented by l , the sample size is denoted by T and the number of parameters is denoted by k (Akaike, 1974; Asghar & Abid, 2007; Hannah & Quinn, 1979; Schwarz, 1978). The equation for optimal lag determination can be rewritten as $(p + 1)^k$ where p represents the maximum number of lags and variables are provided by the k (Mposelwa, 2016).

The ARDL model generally utilises the bounds test for the long-run relationship. It is advantageous, allowing for applying underlying regressors that could be mutually cointegrated, $I(0)$ and $I(1)$ s; for studies with small samples, the bounds test outperforms Johansen and Engle-Granger cointegration tests. The test has the ability to eradicate endogeneity (Narayan & Smyth, 2006). The Wald test also simulates the long-run relationship that produces F-statistics; ideally the result should indicate a single long-run relationship for efficiency, thus multiple long-run relations are inappropriate for the ARDL model (Nkoro & Uko, 2016).

The F-statistics tests the null hypothesis for no cointegration (H_0) and the alternative of cointegration (H_1); within the F-statistic results in two critical bounds are established as the lower bound and upper bound. The lower bound represents variables cointegrating at level ($I(0)$), whilst the upper bound presents suggestions for cointegration at 1st difference $I(1)$ (Pesaran *et al.*, 2001). The interpretation of the hypothesis states that if the F-statistic is lower than the lower bound $I(0)$, the null hypothesis is accepted and the alternative is rejected concluding that no cointegration (no long-run relationship) exists between variables. In contrast, if the F-statistic is greater than the upper bound, there exists a long-run relationship and variables are cointegrated as the null hypothesis is rejected and the alternative is accepted (Mposelwa, 2016; Habanabakize, 2016).

The ARDL hypothesis testing is provided as follows:

H_0 : No cointegration

H_1 : Cointegration

The ARDL model seeks to estimate the long and short-run relationships between variables and is provided as follows:

$$\Delta LFDI\ inflows_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LFDI\ inflows_{t-j} + \sum_{j=0}^k \varphi_j \Delta LREER_{t-j} + \sum_{j=0}^k \varphi_j \Delta LPRR_{t-j} + \delta_1 LFDI\ inflows_{t-1} + \delta_2 LREER_{t-1} + \delta_3 LPRR_{t-1} + e_t \quad (3.9)$$

Where *LFDI inflows* represents the natural log of FDI, the REER is expressed as *LREER* and *LPRR* represents the PRR which also include natural logs for South Africa. The Δ represents the first (1st) difference operator for all dependent and explanatory variables, whilst e_t denotes the white noise error term in the ARDL model. The short-run relationship was measured using the following coefficients β_j, φ_j for all independent and dependent variables; and the long-run relationship is represented by these coefficients $\delta_1, \delta_2, \delta_3$ for all dependent and explanatory variables. To test for cointegration using equation (3.9) the following hypothesis is provided:

$$H_0: \delta_1 = \delta_2 = \delta_3 = 0 \text{ (No cointegration)}$$

$$H_1: \delta_1 \neq \delta_2 \neq \delta_3 = 0 \text{ (Cointegration)}$$

If the null hypothesis of no cointegration is rejected and the alternative is accepted, identifying a long-run relationship from the REER and PRR to FDI, then an ECM is estimated.

3.3.3 Error Correction Model (ECM)

Since the ARDL model estimated the long-run relationship using the bounds test, the short-run impacts are expressed by conducting an ECM. The ECM recognises nonstationary time series as cointegrated and simultaneously models short-run and long-run relationships amongst a established of variables (Brooks, 2015: 696). The error correction term is also known as the cointegration term and stems from the deviation of long-run equilibrium, steadily corrected through a series of adjustments in the short-run (Panagiotou, 2005). The model unifies the long and short-run relationships by linking the short-run dynamic

behaviours with the long-run cointegrating equilibrium and has the ability to forecast and model macroeconomic time series (Iqbal & Uddin, 2013).

The study established this ECM equation:

$$\Delta LFDI\ inflows_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LFDI\ inflows_{t-j} + \sum_{j=0}^k \varphi_j \Delta LREER_{t-j} + \sum_{j=0}^k \varphi_j \Delta LPRR_{t-j} + ECT_{t-j} + e_t \quad (3.10)$$

The error correction term is denoted by ECT seek to capture the long-run equilibrium indicated by changes in each variable, whilst β_j and φ_j represent the error correction parameters, determining reactions of each variable to deviations from long-run equilibrium. Δy_t provided by $\Delta LFDI\ inflows_t$, $\Delta LREER_t$ and $\Delta LPRR_t$ indicates the long-run cointegrating relationship between variables (Lutkepohl & Kratzig, 2004:89).

3.3.4 Toda-Yamamoto Granger causality test

Granger (1969) proposes a two-way Granger causality test where lags of one variable Y could explain past and values of variable X and the test is fairly applicable to multiple empirical studies. On the contrary, Gujarati (2006) contend that the number of lags employed and model specifications are major inputs for the outcome of causality tests and further asserts the lack of a standard distribution from the F-statistic procedure leads to invalidity if variables are integrated (Alimi & Ofonyelu, 2013).

In 1995, Toda and Yamamoto (T-Y) proposed a causality test that comprised estimating an unrestricted VAR as it ignores cointegration and integration properties, attributable to its asymptotic distribution in the Wald statistic. The VAR model employed for this modified Wald statistic is written as VAR ($s + d_{max}$) where the d_{max} demotes the maximal order integration and χ^2 denotes the guaranteed asymptotic distribution (Oladipo, 2010). Furthermore, this causality test contends that adequate results are attained provided that the

maximal order of integration is below the VAR model's true lag length (Inusah, 2018; Zapata & Rambaldi, 1997). The Toda- Yamamoto equation is given as follows based on the VAR model:

$$\begin{aligned} \Delta LFDI\ inflows_t = & \alpha_0 + \sum_{i=1}^k \beta_j \Delta LFDI\ inflows_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_j \Delta LFDI\ inflows_{t-i} + \\ & \sum_{i=1}^k \varphi_j \Delta LREER_{t-i} + \sum_{j=k+1}^{k+d_{max}} \varphi_j \Delta LREER_{t-i} + \sum_{i=1}^k \varphi_j \Delta LPRR_{t-i} + \\ & \sum_{j=k+1}^{k+d_{max}} \varphi_j \Delta LPRR_{t-i} + \varepsilon_t \end{aligned} \quad (3.11)$$

The above equation (3.11) has the following parameters and residuals given by β_j and φ_j for both the independent and dependant variables including the FDI inflows, the real effective exchange rate and political risk rating. Moreover, k and d_{max} represent the optimal lag order and the maximum order of integration possible within the set series; while the ε_t remains to represent the white noise error term.

Researchers, such as Sims *et al.* (1990) and Narayan (2004) explain that an asymptotic distribution employed in a small sample lead to size distortions and by applying the T-Y approach the correct order of lags and the lag length artificially increases. The T-Y causality test allows for the common Granger causality to include additional lags (including more past information), for the y variables, according to the highest order of integration in the model (Bota-Avram *et al.*, 2018).

3.3.5 Diagnostic tests

The diagnostic tests are divided into two, the first being the residual diagnostic tests, which are commonly used in testing any econometric model and the stability test which are specific for the ARDL model.

3.3.5.1 Residual diagnostic tests

The residual diagnostics tests are an integral portion of any econometric based study as they provide validity and the performance of results of the model estimated (Habanabakize, 2016). Econometric literature firmly asserts the interrogation of the assumptions constructed with the model, such as the model's error term, the distribution and other model specifications, including but not limited to the regressors, functional form and measurement of errors. Residual diagnostic testing has two known methods the variable transformation and variable addition methods, such as the Regression Specification Error (RESET) test (DeBenedictis & Giles, 1996). The study focussed on the heteroscedasticity test, autocorrelation test and normality test

- Heteroscedasticity test

The test spans from assumption two of the five assumption of classical linear regression model (CLRM), emphasising that the variance of an error should be constant $V(\varepsilon_j) = \sigma^2$, if not it is otherwise stated a heteroscedastic and this assumption also serves as the null hypothesis (Brooks, 2008). The hypothesis for the heteroscedasticity test is written as follows:

H_0 : Homoscedasticity

H_1 : Heteroscedasticity

Results from the test reject the null hypothesis when the p-value is lower than the 5% significance as they assume a presence of heteroscedasticity, however if the p-value is greater than the 5% significance level then the null of homoscedasticity is accepted and results are concluded to be non-heteroscedastic (Olofin *et al.*, 2009).

- Autocorrelation test

Autocorrelation is the interrelatedness of the values of a series against its own previous values; the test could be performed in various ways, including using the Durbin-Waston test and LM test (Brooks, 2015:680). Broersen (2005:32) asserts that the autocorrelation test is symmetrical around zero and its function is provided as follows:

$$p(k) = \frac{r(k)}{r(0)} = \frac{r(k)}{\sigma_x^2} \quad (3.11)$$

Where the only two observations for the function of the time lag are observed as $-k$ and k , moreover, the short-run distance in relation the long-run is much greater for this test and at lag 0, autocorrelation is equal to one. Additionally, most results only present the positive lags of test as negative symmetries add no further information for analysis. The hypothesis for this test is provided as follows:

H_0 : No autocorrelation up to order k

H_1 : Autocorrelation up to order k

Similar to the heteroscedasticity test, the null hypothesis is accepted only if the p-value is greater than the significance level (preferably 5%) and if the null is rejected provided a lower p-value to the significance level, then it is concluded that the series has a presence of autocorrelation and prompts for a generalised least squares test to fix the problem.

- Normality test

Assumption 5 of the CLRM asserts the assumption of normality assuming that disturbances should be normally distributed ($u_t \sim N(0, \sigma^2)$), the normality can be performed using the Jarque-Bera test or simply detecting the bell shape of the histogram (Brooks, 2015:211). The normality test can be tested using the W/S test; Jarque-Bera test or utilising the Shapiro-Wilks test; for this study the Jarque-Bera test that checks for the goodness-of-fit of the model using the kurtosis and skewness matching it to the normal distribution and is indicated as:

$$JB = n \left(\frac{(k_3)^2}{6} + \frac{(k_4)^2}{24} \right) \quad (3.12)$$

Where n is sample size, k_3 represents the skewness, whilst the kurtosis is denoted by k_4 (Thadewald & Buning, 2004). The null hypothesis for the JB normality tests assumes that the distribution is normal and similarly if results have a p-value greater than the significance level (preferably 5%) then the null is accepted that the series is normally distributed (Mc Camel, 2018). On the contrary, if the p-value is less than the significance level, then the alternative is accepted and asserts that the series is not normally distributed. The hypothesis testing is provided as:

H_0 : Normal distribution

H_1 : Non – normal distribution

3.3.5.2 Stability tests

Specifically, for the ARDL model the stability tests CUSUM test are discussed below as its results are presented in Chapter 4; it became of significant for econometric studies to account for stability tests as they measure any disruption, such as structural breakpoints in a data set that could potentially affect results (Talas *et al.*, 2013).

- CUSUM test

The CUSUM test was introduced in 1975 by Brown *et al.* in their study of determining structural change using cumulated sums of recursive residuals; the test attempts to detect any systematic movements through coefficients values that potentially reflect an instability structural, the CUSUM test is cumulative in nature and any changes in the process mean has potential impact on the drift direction (Xiao & Phillips, 2002). The equation for the test is provided as follows:

$$W_t = \sum_{t=K+1}^m \frac{w_t}{\hat{\sigma}_w^2} \quad (3.13)$$

$$\text{Where } \hat{\sigma}_w^2 = \frac{1}{T-K-1} \sum_{t=K+1}^m (w_t - \bar{w})^2$$

$$\bar{w} = \frac{1}{T-K} \sum_{t=K+1}^m w_t$$

$$m = K + 1, \dots, T.$$

Where the standard deviation is provided by $\hat{\sigma}_w^2$; W_t is the recursive residual and t is time it takes for the constant to diverge. The test plots the two critical lines around the 5% significance level and if the cumulative sums are established external from the critical lines, the parameters are established to be unstable and the latter to be stable (Choudhry, 2011:40).

3.4 SUMMARY

The aim of this chapter provided background on the methodologies that are applied to the results chapter four that follows as the study attempts to statistically analyse possible short-run and long run relationships between more than one variable. The analysis of these possible interactions was based on political risk rating, the real effective exchange rate and foreign direct investment inflows variables for South Africa. In the second sub-section of the chapter; the data source, sample period, data transformation/adjustments was highlighted and covered the time frame for the study from 1995 quarter one to 2018 quarter three. The sample period was selected given that 1995 represented the start of a new democracy and gives insights into the past 23 years of democracy for South Africa engulfed with changing governments, adoption of new exchange rate systems, more recently credit downgrades, corruption within state-owned enterprises and declining business confidence and a stagnant economy.

The data transformation and adjustments highlighted that the political risk rating and the real effective exchange rate data was converted into quarterly data from originally being monthly.

Furthermore, for the uniformity of the dataset, the FDI inflows data was later transformed from net negative values to positive values in order for all variables to have natural logarithms. The FDI inflows and GDP data was sourced from South African Reserve Bank, while the PPR was retrieved from the Political Risk Services (PRS) and the REER was derived from the Bank for International Settlements (BIS); moreover, additional country risk data was derived from Bloomberg and the World Bank.

The model specification was the third and last sub-section when excluding the summary, it provided insight on the econometric modelling processes and the Autoregressive Distributed Lag (ARDL) model, a single-equation model as the selected model for the study for detecting possible causal, long run and short-run relationships between the political risk rating, the real effective exchange rate and Foreign direct investment (FDI) inflows. However, before the discussion of the ARDL model, unit root tests were highlighted including the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) test and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test. Additionally, the structural break unit root test was discussed for reference, but no test will be conducted for this specific study.

The ARDL model estimated equation (3.9) which is utilized in chapter four for the bounds test in determining the long run relationship between FDI inflows, REER and PPR including the balancing variable GDP; moreover, the Error Correction Model estimated equation (3.10) which is utilized for the short run adjustments conducted in chapter four. In order for the study to fulfil all its objectives the Toda-Yamamoto (T-Y) causality test approach was discussed as conducted in chapter 4, rather than the commonly used Granger causality test; the T-Y was selected as it accounts for all integration and cointegration properties found in the system and produces fitting results for the ARDL model. As literature suggests the residual diagnostics methodologies for heteroscedasticity, serial correlation and the normality test was highlighted

accordingly; along with their null hypothesis. Moreover, since an ARDL model was selected, stability tests such as the CUSUM test was described conducted in the last section of chapter four. The chapter concludes by summarizing the whole chapter. The following chapter is really the core of the entire study as it presents the results of the study from the graphical results to the logged results including the analysis of the ARDL model and its accompanying tests and closes off with the additional results for further emphasis.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The methodology chapter in the previous section discussed the ARDL model as the chosen model for this study and the most suitable for determining the long and short-run relationships between political risk, the real exchange rate and FDI inflows in South Africa. The methodology described the various variables and supporting data to be used for analysis. The model was specified to be the ARDL model and the ECM, whilst we discussed three types of a unit root testing; the ADF (1981), the PP (1988) unit root test and the KPSS stationary test. Various residual and stability diagnostics tests and the Toda-Yamamoto causality tests were described. This chapter provided the descriptive, econometric findings for interactions between political risk, the real exchange rate and FDI inflows in South Africa.

The subsequent section provides a graphical presentation of results from graphical analysis, descriptive statistics and correlation covariance analyses of the variables. This is followed by the presentation of the unit root tests, including the ADF, PP and KPSS and these were significant to conduct as they provide indication of stationary and are the first steps in the ARDL model. The econometric analysis firstly emphasises the optimal ARDL model selection to be utilised in the ARDL model; followed by estimating the ARDL model bounds test to determine any long-run cointegration between FDI inflows, REER and PRR with including a balancing variable the GDP; this is conducted by either accepting or rejecting the null hypothesis of a long-run cointegration. It then estimates the ECM to satisfy determining any short-run relationship between variables.

To fulfil the objective of determining any causal relationships between variables; the Toda-Yamamoto causality test is presented and interpreted and the final econometric test to be run are the residual diagnostics, including the heteroscedasticity test, serial correlation and the

normality test. Specifically, for the ARDL model and the CUSUM squares stability test were conducted to test for stability with the parameters of the model. Additional political risk data are discussed to support results already established using the World Bank governance indicators, South Africa credit downgrade history and Bloomberg's country risk data. The chapter closes the second section with a discussion and implication of results for South Africa compared to the empirical studies reviewed and any literature linkages found, whilst the concluding section summarises the entire chapter.

4.2 GRAPHICAL ANALYSIS

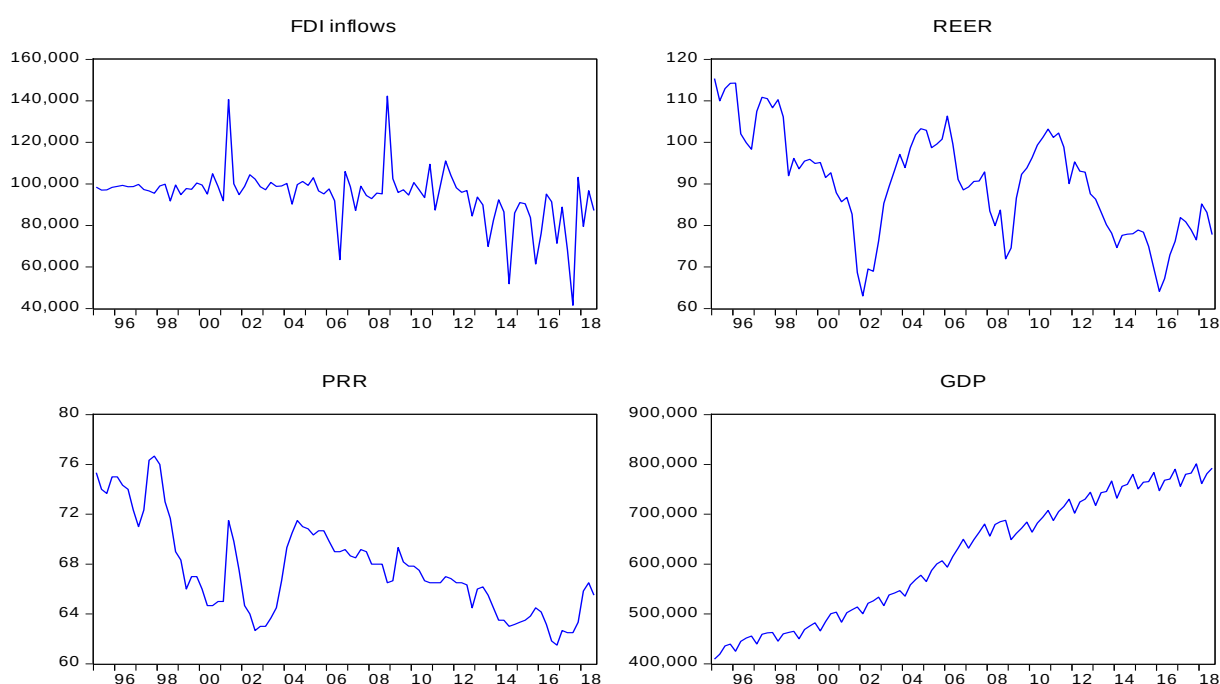
This section focusses on providing results and discussion of graphical analysis, descriptive and correlation covariance between political risk, REER and FDI in the South African context. The expectation for results of this section identified a relationship between political risk, REER and FDI because foreign investors seek to invest their capital and resources in a politically stable country, instability affects the currency and, in a nutshell leading to lower returns.

In Figure 4.1, FDI of South Africa illustrate inflows that were low, the trend of the graph fluctuates throughout the period between 2013 to 2018 but ranging on the negatives with less strong inflows. FDI inflows are observed to hover around an average of R3830.42 million for the whole period 1995 to 2015, with the year 2000 having the highest inflow and 2014 having the lowest inflow with a negative of R48102 million. With low FDI inflows, introducing portfolio investment and other investments could be better investments as they provide a higher return than investing capital into a country through FDI.

Where, the real effective exchange rate trend has massive depreciations and appreciations in 1995 to 2018, REER will represent the real effective exchange rate for the rest of the document. It illustrates that REER was fluctuating for the period, with 2001 marking a sharp

depreciating caused by the 9/11 attacks of the U.S. World Trade Centre. Other declines are also observed in 2009, caused by the global financial crisis. Internal pressures of the renegades rather caused the 2015 incident, establishing the Rand, crashed to lowest levels (Bronkhorst, 2012).

Figure 4.1: Graphical analysis



Source: Author's own calculations from the study data

The figure also illustrates the quarterly PRR for South Africa was relatively declining, indicating that the country was within the ranges of 63 to 70, illustrating that the political risk was risky. The lowest point of 62.6 was observed in 2002 quarter 3, this result could have been the after-effects of introducing the inflation targeting framework and the Asian crisis. The year 2014 indicated a drastic low of 63.0, which because of the 2013 taper tantrum and the internal political uncertainty with the controversial President Jacob Zuma remaining for the second term and in the same year, the platinum mining strike for five months, dragging the economy into lower growth numbers (SA history, 2018).

The link amongst the three variables is not much clear, however a general trend was determined from the years 2006 to 2015. A discovery by the sharp decline in all three seem to dip in 2014 and this could have a caused by various factors, such as the re-election of the African National Congress (ANC) President Jacob Zuma for the second term, despite allegations, lawsuits and corruption scandals, 2014 is also the year after extensive taper tantrums of most advanced economies, feeding negatively performing emerging markets.

Finally; the GDP indicates an unrealistic trend that has an upward trajectory, however since the data are a constant growth rate the GDP seems to be increasing. In reality, the South African GDP declined with rates observed below 5% cent (R1m) over the past two decades (Stats SA, 2019). The declines were because of additional macroeconomic variables, such as inflation, the real exchange rate and political risk within the economy between the years 2009 to 2015. Any increases experienced during the period could have resulted in the change of government to Cyril Ramaphosa administration in the early 2018.

4.3 DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 4.1 provides a summary of descriptive statistics, summarising the pure data of results before any logarithms are applied. The mean indicates that the balancing variable GDP at constant prices (nominal) has a higher average of 614513.5 than FDI inflows of 94502.53 that could imply that FDI inflows will be least affected by PRR and REER since their averages are 67.61 and 90.33.

The maximum and minimum indicate the highest and lowest values of each variable's data. The FDI have a maximum and minimum values of 142254.0 and 41611.0, whilst GDP ranges from 801180.0 and 40929.0. PRR ranges from 76.67 and 61.50, whilst REER has a maximum of 115.38 and a minimum of 63.03. The maximum value in the study is 801180 and the

minimum is provided as 61.50, these also indicate the prediction interval for the study and since the interval is wide, thus leading to an expectation that the study is not distributed.

Table 4.1: Descriptive statistics

	FDI_INFLOWS	PRR	REER	GDP
Mean	94502.53	67.6122	90.3342	614513.5
Median	97069.00	66.8333	91.5233	632121.0
Maximum	142254.0	76.6666	115.3800	801180.0
Minimum	41611.00	61.5000	63.0333	409292.0
Std. Dev.	13135.40	3.7370	12.5723	122630.5
Skewness	-0.6011	0.5876	-0.0658	-0.0924
Kurtosis	8.8572	2.6070	2.3031	1.5315
Jarque-Bera	141.5198	6.0794	1.9905	8.6708
Probability	0.0000	0.0478	0.3696	0.0130
Sum	8977740.0	6423.167	8581.753	58378781
Sum Sq. Dev.	1.62E+10	1312.747	14858.04	1.41E+12
Observations	95	95	95	95

Source: Author's own calculations from the study data

The standard deviation a measure of variation or dispersion of the data set, the GDP and FDI are spread with values, standing at 122630.5 and 13135.40. Whereas, REER and PRR have standard deviations of 12.57 and 3.73, suggesting that data are not so dispersed when compared to the GDP and FDI inflows.

Whilst, the skewness, measuring how each data set or a measure of symmetry where greater than those skewed, and any value between -0.5 and 0.5 is symmetric (Stommel & Dontje, 2014:24). Results indicate that the skewness of all variables ranges between -0.09 to 0.58, concluding resulting are symmetric. Results of FDI inflows, PRR, REER and GDP indicate symmetric results of -0.06, 0.59, -0.06 and -0.09. The normal distribution must have tails of

three to be normally distributed and results of all variables have tails less than the three kurtoses except for FDI inflows where its 8.86 and the rest of the variable are PRR with 2.61, REER with 2.30 and finally the GDP with a low of 1.53.

The other significant descriptive criterion is the Jarque-Bera test, measuring the goodness-of-fit test of each data set (Jones, 2018:389). The Jarque-Bera test is also used to measure normal distribution within data sets, moreover the test's null hypothesis assumes a normal distribution and its alternative is not distributed datasets at 5% significance level for this study. For FDI, PRR and GDP the null hypothesis is accepted as the probability is within the 5% significance level thus concluding that variables are distributed. In contrast, REER has a probability higher than the 5% significance thus the null hypothesis is rejected, and the alternative of an undistributed data set is accepted, concluding that REER is not normally distributed in this study.

Table 4.1 indicates results of correlation covariance matrix between FDI, PRR and the REER, including the balancing variable the GDP. The correlation covariance matrix is a significant indicator of any linear relationships between variables. A strong positive relationship is provided by a result of any value greater than zero closer to 1; where any value is negative and closer to -1 the relationship is defined as an inverse or a negative strong relationship (Mertens, 2005:158). Cases where the value of zero is estimated, no relationship or association exists between variables. For this section, the natural logs applied to FDI inflows as LFDI inflows, PRR as LPRR, REER represented as LREER and the GDP denoted as LGDP.

Results of Table 4.2 indicate that the relationships by the first line being the correlation then covariance and the last as the probability, the relationship between FDI inflows and the other variables, including PRRs, REER and GDP. A positive and significant relationship exists between LFDI inflows and LREER with value 0.27; the relationship between LFDI inflows

and LGDP was established to be an inverse relationship and significant with a negative -0.39 correlation coefficient. The relationship between LFDI inflows also suggest a negative relationship with LPRR of 0.34, suggesting that an increase in FDI leads to an increase in PRR index thus reducing it (as the methodology chapter stated that a higher PPR equals lower risk). the relationship of LFDI inflows with LREER is positive and an inverse relationship for LGDP. The probabilities are defined for a significance level of 5 % (percent) and thus a conclusion that all relationships established are significant.

Table 4.2: Correlation covariance matrix

Correlation covariance matrix				
Variables	LFDI_INFLOWS	LPRR	LREER	LGDP
LFDI_INFLOWS	0.0246			
	1.0000			
LPRR	0.0029	0.0029		
	0.3444	1.0000		
LREER	0.0061	0.0058	0.0200	
	0.2754	0.7632	1.0000	
LGDP	-0.0126	-0.0071	-0.0157	0.0420
	-0.3938	-0.6434	-0.5415	1.0000

Source: Author's own calculations, data from the study data

For PRR provided by LPRR the relationships with REER is strong and negative closer to one when observed using the correlation coefficient results, provided as 0.76, respectively. Similarly, to the relationship between LFDI and LGDP, a strong inverse relationship was established amongst LPRRs with both LFDI inflows and LGDP at 0.34 and -0.64 correlation coefficients, respectively. The covariance results matched the correlation coefficient relationship results. Probabilities assert that the relationships are significant at 5% significant level. In the literature review in Chapter 2, Khan and Akbar (2013) established that the

relationship between political risk and FDI inflows was negative, aligning with results established in this correlation results.

In the South African economy, political risk had a negative influence on FDI as observed with the credit investment downgrades in 2017/18, attributable to political instability (Menon, 2018). Concerning a negative relationship between political risk and the REER, a study by Bahmani-Oskooee *et al.* (2019) high levels of political risk leads to a depreciation of the real exchange rate. The negative relationship established between political risk and gross domestic product is also established in Yu and Wang (2013) study on China where they assert that as political risk increases economic development or GDP declines. For South Africa, the economy (GDP) has since major declines recently, attributable to political risk and instability as suggested by Bloomberg (2019).

The other correlation results are in relation to the REER and the alternative variables where Table 4.2 indicates that it has positive and significant between the LREER and LFDI inflows, whilst an inverse relationship was recorded amongst LREER and both LGDP and LPRR at -0.54 and 0.76 correlation coefficient. The covariance results also indicate similar results as the correlation coefficients and the relationships were certified as significant at 5% significance level. The relationship amongst the REER and the gross domestic product's inverse for the South African economy, is the opposite; for example, the recent GDP results of a decline of 3.2% in 2019 quarter one resulted in a depreciation in the Rand, suggesting a positive relationship (Mahlaka, 2019).

The correlation results for the GDP were discussed immensely with the rest of the analysis and it is thus concluded that LGDP has a negative relationship with all the other variables, including LFDI inflows, LPRR and LREER both in these results and the South African

economy except for the real exchange rate as a positive relationship exists in reality. The following section will look at the unit root tests and analysis.

4.4 UNIT ROOT TESTS

Unit root testing was discussed in Section 3.3.1. and it was reiterated that to successfully estimate any model, determining the order of integration for variables plays a pivotal function in estimating any econometric model and it was mentioned that unit root tests or stationarity tests were employed for this study, including; the Augmented Dickey-Fuller test, the PP test and the KPSS stationarity test. Sjö, (2008) asserts that testing for the order of cointegration is a standard econometric application and allows for researchers to determine if variables are integrated with or without a random walk. Furthermore, unit root tests are described as simple devices to categorise a series as either stationary or nonstationary and defined as integrated at $I(0)$, $I(1)$ (also called 1st difference) and $I(2)$ this level of integration is unfavourable as it is only applied when all the other levels are absolute nonstationary.

Results below present the three tables and explanation of the ADF test in Table 4.3; PP test in Table 4.4 and lastly the KPSS in Table 4.5. It is expected that results of the ADF and PP unit root tests will present similar results, since their null hypothesis asserts a unit root and an alternative of series stationary. In contrast, the KPSS stationary test served as an additional test to strengthen the robustness of the data series; its results relatively vary from the ADF and PP unit root test as it assumes that stationarity is tested on a deterministic trend, similar to the null hypothesis.

4.4.1 Augmented Dickey-Fuller (ADF) unit root test

The ADF unit root tests is discussed and interpreted below as the first test to test for stationarity in the studied variables, according to (Wirth *et al.*, 2018:373). The ADF unit root

test assumes that between any two periods the covariance should be dependent on the distance of those periods, whilst the mean and the variance should remain constant and the tests eradicates any correlation between error terms.

Performing the unit root tests is the first step in attempting to estimate a particular model. For this study, (an automatic number of 11) lags were selected. Table 4.3 indicates that the study performed the test both at level and 1st difference on the criteria including without trend and with trend and intercept. The ADF test assumes a null hypothesis that the variable has a unit root and an alternative indicating the lack of a unit root at a 5% significance level.

Results depict that the natural LREER and the GDP (LGDP) are stationary at 1st difference (I1), where their p-values are significant at 5% significance level. The first order of integration, I(1), was established when the unit root test was without trend, however even with trend and intercept results remain the same. FDI (LFDI inflows) logged results indicate a varying result from the rest of variables as it is stationary at level (I(0)) on the criterion of without trend, whilst the same results will perpetuate throughout the other criteria, such as with trend and intercept. The null hypothesis of a presence of a unit root test is rejected at 5% level and the alternative hypothesis of a stationary series is accepted. The results of the ADF unit root provide a mixture of I(0) and I(1) results thus leading to using an ARDL (ADRL) model.

Table 4.3: Augmented Dickey-Fuller test results

Variables	Level				1 st difference				Order of integration
	Without trend		With trend and intercept		Without trend		With trend and intercept		
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	

LPRR	-2.5080	0.1168	-3.1416	0.1030	-7.7219	0.0000*	-7.6928	0.0000	I(1)
LREER	-2.5224	0.1135	-3.0243	0.1313	-7.9204	0.0000*	-7.8713	0.0000	I(1)
LFDI inflows	-7.3082	0.0000	-8.6801	0.0000*	-8.5662	0.0000	-8.5179	0.0000	I(0)
LGDP	-0.8558	0.7978	-1.1131	0.9206	-3.1374	0.0274*	-3.1668	0.0979	I(1)
*Stationarity reached at 5% significance level									

Source: Author's own calculations, data from the study data

4.4.2 Phillips-Perron unit root test

The PP developed in 1988 assumes that the unit regression tests on a basis of semi-nonparametric process where heteroskedasticity and serial correlation are considered in a wider scope. Although the PP test is similar to the ADF test, the PP unit root test poses more power and has stronger confidence interval yields; the test tends to be weaker when the serial correlations are positive (Flood, 2003:327-328). Table 4.4 provides results for the PP results and interpretation.

As noted in Section 3.3.1 in Chapter 3, the PP unit root results will be similar to the ADF in that the null hypothesis's asymptotic statistical distribution are the identical. Results in Table 4.4 indicate the same order of integration for LPRR, LREER and LFDI inflows as established in Table 4.3 (ADF test) where their stationary at first difference without a trend and the outcome is also observed even when a trend and intercept are applied. Results rejected the null hypothesis of a presence of a unit root at 5% significance level and were concluded stationary. In contrast, LGDP results were established to be inconsistent to the ADF results as it is stationary at level with trend and intercept in this PP unit test.

The PP unit test also presents mixed results with order of integrations of I(0) and I(1) respectively and thusly prompting estimating an ARDL model as it accommodates combined order of integration results. Lastly, results of the KPSS stationarity test are discussed next along with their interpretation.

Table 4.4: Phillips-Perron test results

Variables	Level				1 st difference				Order of Integration
	Without trend		With trend and intercept		Without trend		With trend and intercept		
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	
LPRR	-2.4842	0.1225	-2.7616	0.2152	-7.5373	0.0000*	-7.494	0.000	I(1)
LREER	-2.4580	0.1291	-2.7988	0.2015	-7.9390	0.0000*	-7.890	0.000	I(1)
LFDI Inflows	-7.7476	0.0000*	-8.7040	0.0000	-75.344	0.0001	-74.496	0.000	I(0)
LGDP	-1.6741	0.4410	-4.6142	0.0018*	-18.346	0.0001	-20.479	0.000	I(0)
*Stationarity reached at 5% significance level									

Source: Author's own calculations, data from the study data

4.4.3 Kwiatkowski-Phillips-Schmidt-Shin stationarity test

The KPSS test proposed that stationarity be tested using an LM test where the null hypothesis is a deterministic trend, the KPSS is significantly different from the ADF and PP since its test moves away from a unit root process to a stationarity process (Pfaff, 2008:103). The LM test considers the stationary error, the random walk and the deterministic trend where the

asymptotic statistical distribution is derived from the hypothesis of the null and the alternative series imposed by difference-stationarity (Kwiatkowski, *et al.*, 1992).

The stationary test the KPSS is distinguished because its null hypothesis and asymptotic distribution and it is excepted to present results that also vary for the same variables. The KPSS stationary test is a suitable complementary test for the unit roots as it directly tests for stationarity and is applicable for both short-time and long-time series; the stationarity test was established to be sensitive to truncation lags and volatility shifts in data series (Arltová & Fedorová, 2016; Caner & Kilian, 2001).

Results in Table 4.5 indicate the contradictory results from the ADF and PP unit root, as the LPRR and LREER are established to be stationary at level $I(0)$ with trend and intercept where they were previously stationary at first difference. LFDI inflows and LGDP KPSS results are established as stationary at first difference without trend and were also contradictory to the ADF and PP unit root, as expected. All KPSS results, accept the null hypothesis of stationary at 5% significance level and the results similar to the unit root tests, prompted for an ARDL test since it combined order of integrations, including $I(0)$ and $I(1)$. The subsequent section provides the summary of the unit root and stationarity test.

Table 4.5: Kwiatkowski-Phillips-Schmidt-Shin test results

Variables	Level				1 st difference				Order of integration
	Without trend		With trend and intercept		Without trend		With trend and intercept		
	LM-stat	Crit. Value	LM-stat	Crit. value	LM-stat	Crit. value	LM-stat	Crit. value	
LPRR	0.7293	0.4630	0.1042 *	0.1460	0.0726	0.4630	0.0403	0.1460	I(0)
LREER	0.5424	0.4630	0.0846 *	0.1460	0.0502	0.4630	0.0424	0.1460	I(0)

LFDI inflows	0.7835	0.4630	0.2249	0.1460	0.1136 *	0.4630	0.1125	0.1460	I(1)
LGDP	1.2762	0.4630	0.2406	0.1460	0.2767 *	0.4630	0.0772	0.1460	I(1)
*Null hypothesis of stationarity is accepted if LM is less than critical value									
Critical value for 5% confidence level was selected									

Source: Author's own calculations, data from the study data

4.4.4 Summary of the unit root and stationarity tests

This subsection presented the unit root tests; the ADF and PP tests and the KPSS stationarity test. Results of the ADF and PP unit root tests are similar for LFDI inflows, LREER and LPRR except for LGDP, whilst the KPSS stationarity test as stated presented the opposite results for all variables. The summary of the tests identified a mixture of I(0) and I(1) order of integration, prompting to implement the ARDL model, discussed below in the econometric analysis.

4.5 ECONOMETRIC ANALYSIS: ARDL MODEL

Section 4.4 discussed the unit root processes, including the stationary test provided by the KPSS, where a mixture of I(0) and I(1) order of integrations were established, supporting the selection of the ARDL model. Since the ARDL model accounts for various orders of integrations, it allows for small sample sized variables where an underlying existent long-run relationship makes the model more robust than other econometric models (Nkoro & Uko, 2016). The model is also advantageous in that it takes countless amounts of lags, allowing for a general-to-specific framework, simplifying the derivation of an ECM through linear transformation (Shrestha & Chowdhury, 2005).

The section presents the optimal ARDL model section where the Lag criterion is used as the measure followed by its implication on the ARDL model. To fully satisfy empirical objectives

of determining short-run and long-run relationships, the bounds test and cointegrating long-run tests are presented and interpreted below. The short-run relationship is measured by the ECM and is interpreted accordingly. The econometric analysis is applied for all variables in their natural LREER, FDI (LFDI inflows) and the balancing variable the GDP (LGDP).

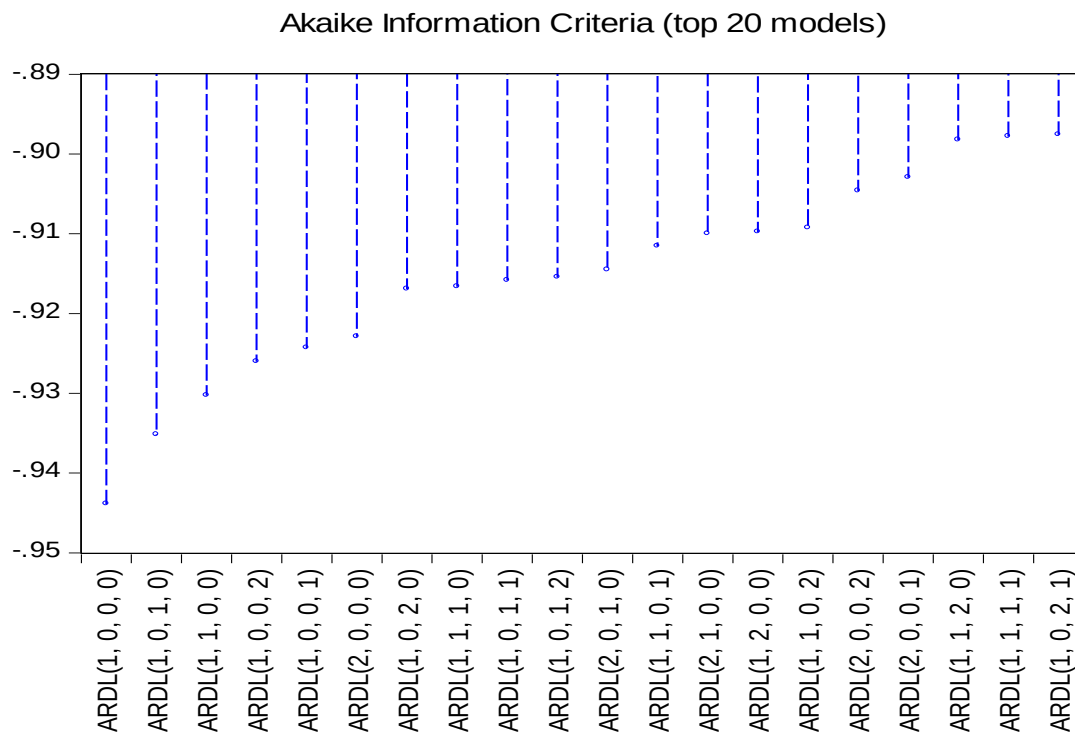
4.5.1 Optimal ARDL model selection

It is mandatory that before estimating an ARDL model that the optimal ARDL model criteria test is performed to understand and apply enough lags in that model. For this study the AIC was utilised in determining the optimal model since it is an asymptotically efficient model estimator and a commonly known good predictor (Myung, 2004).

Although other criteria, such as the SIC and the R Square Criteria could have been applied, the AIC is advantageous as it considers the negative entropy when it increases and the maximum likelihood principles. In contrast, the SIC is believed to outperform the AIC as it accounts for the degrees of polynomial regression, whilst the R Square criteria is a true coefficient determiner as it is a positively biased estimator, however for the suitability of the ARDL model the AIC was selected (Gayawan and Ipinyomi, 2009).

According to results in Figure 4.2, the lag section for the logged PRR, the REER, FDI and the GDP reveal that the suitable number of lags to be used for the estimated ARDL is (1,0,0,0) when using the AIC. For the interest of the study, the SIC results also present (1,0,0,0) as the maximum number of lags to be employed for the estimated ARDL model, however, the R Squared Criteria revealed that the number of lags for the ARDL model should be (2,2,2,1). In conclusion, the AIC lags of (1,0,0,0) is selected for the ARDL model and will be applied to the following bounds test, and its accompanying ECMs result

Figure 4.2: ADRL model selection results



Source: Author's own calculations, data from the study data

4.5.2 Bounds test results

As stated in Section 1.3.3 in the introduction chapter, one of the most important empirical objectives is determining a long-run relationship between PRR, the REER and FDI and now inclusive of the balancing variable the GDP. The bounds test assumes that variables have a mixture of $I(0)$ and $I(1)$ order of integration and in this case, the study fully satisfies this assumption as already discussed in Section 4.4. The bounds test utilises the joint F-statistic, with an underlying asymptotic distribution where the critical bounds are put against the F-statistic value to either reject/accept the null hypothesis of no long-run relationship.

Table 4.6 indicates results of the bounds test for model (1,0,0,0) for the ARDL and the F-statistic of 17.32 exceeds the critical values on the lower bound (I0) and upper bound (I1) of 3.23 and 4.35 respectively when FDI inflows are the dependant variables where PRR, the REER and the balancing variable GDP are the independent variables. The null hypothesis is

rejected at 5% significance level and the alternative of the existent of a long-run relationship is accepted and thus it is concluded that a long-run relationship exists from FDI to all the other variables, including PRR, REER and GDP.

This long-run relationship was also established in the empirical review by Maepa (2016) where various types of investments are affected by the exchange rate in the long-run, whilst Asif *et al.* (2018) discovered a long-run relationship between FDI inflows and political risk, and even concluding that when the political risk measured by government stability is low, FDI inflows are attracted in the long-run. For the South African economy, these results stipulate that in the long-run, FDI is affected by any changes in exchange rate and the political risk sphere. Table 4.7 further determines the long-run relationship between LFDI inflows and the alternative variables of the long-run coefficients.

Table 4.6: Bounds test results

Test statistic	Value	Dependant variable	
F-statistic	17.32637	FDI inflows	
Critical Value Bounds			
Significance	I0 Bound	I1 Bound	Null hypothesis: Decision
10%	2.72	3.77	Reject
5%	3.23	4.35	Reject
2.5%	3.69	4.89	Reject
1%	4.29	5.61	Reject

Source: Author's own calculations, data from the study data

4.5.3 Long-run cointegrating results

The long-run cointegrating results focussed on determining the long-run relationship as it was a main objective of the study to determine whether the interaction between political risk, the REER and FDI in South Africa have a long-run relationship in their interaction.

The long-run coefficients equation where FDI is the dependant variable, as observed in the long-run equation. The interpretation of the equation identified a positive long-run relationship between PRR, the REER and FDI, whilst a negative long-run relationship was established between GDP and FDI. Results also stipulate that a 1 % increase in PRR and the REER would lead to an increase of 0.02% and 0.53% in FDI. In contrast, a 1% increase in GDP leads to a decline of 0.22% in FDI.

These results of a long-run relationship between political risk, the real exchange rate and FDI aligns to the empirical review results by Maepa (2016), Asif *et al.* (2018) and Bilawal *et al.* (2014) positive and negative long-run relationships were established in their respective studies. Where Bilawal *et al.* (2014) establish a direct long-run relationship between the exchange rate and FDI; Asif *et al.* (2018), establish a long-run relationship between political risk and FDI inflows. The negative relationships were also established in Section 4.2 under the correlation's covariance discussion, with a negative relationship between PRR and the REER against FDI, whilst the negative relationship between LFDI inflows and the GDP contradicts Masipa's (2018) study on relationship between economic growth and FDI in South Africa.

Ormond (2018) establishes the South African economy's FDI are dependent on positive political sphere and on a stable exchange rate, however for a decade the political risk was skyrocketing and the Rand on the verge of collapsing. From this section it is concluded that a long-run relationship exists between PRR, the REER and GDP on FDI in South Africa.

Merten (2019) indicates, the country's economy lost around R4.9 trillion due to state capture lead through by corruption and resulting in lost opportunity, lost confidence from investors abroad and locally. The extent of the after affects or long-run effects of the state capture may last for several more years, it is further stated that the decline in FDI in South Africa are attributable to political risk and low economic growth, according to the 2018 World Investment Report.

Long-run cointegration equation:

$$\text{LFDI inflows} = + 0.0209 * \text{LREER} + 0.5336 * \text{LPRR} - 0.2256 * \text{LGDP} + 12.2945$$

Source: Author's own calculations, data from the study data

4.5.4 Error Correction Model (ECM) results

The previous section focusses on determining the long-run relationship as stipulated by the objective in Section 1.3.3 in Chapter 1. On the same empirical objectives, determining a short-run relationship is another objective amongst PRR, the REER and FDI in South Africa. The ECM was selected to determine these short-run relations. The ECM is defined as the speed of adjustment test where it calculates the time a variable consumes to return to equilibrium (Müller, 2004). The ECM equilibrium mechanism is also applied when detecting causal relationships between explanatory and dependant variables. Establishing the ECM was remarked as a beginning to understand the time series regression concerning determining an equilibrium between an interaction of variables (Kanioura & Turner, 2003). Barunik (2011) further states that ECM is advantageous in that where variables are cointegrated it can run for both long-run and short-run relationships, whilst critics contend that this ability of the ECM is not sustainable for countries enduring recessions or downturns (DeBoef, 2000).

Results of the long-run relationship established as aforementioned, can be re-estimated by utilising the speed of adjustment, provided that the ECT coefficient is negative and statistically significant at a 5% significance level (McCamel, 2018). Table 4.7 reveals that the ECT coefficient is provided by -0.885164 with a probability of 0.0000, these ECT results satisfy the requirement already mentioned in the first sentence. The ECT further implies that any disequilibrium established in FDI through the other explanatory variables, including PRR, the REER and the GDP will converge around 88.52% in each quarter to return to a long-run equilibrium. Results are also interpreted in any explanatory variables (LREER, LPRR & LGDP). To take effect on FDI, endures approximately $(1/0.885164)$ 1.1297 quarters, since the quarters are small one may suggest the existence of a short-run relationship within this ARDL model of (1,0,0,0). as specified in the lag selection.

GDP results are statistically significant at 5% and 10%, concluding that LGDP has a short-run negative relationship with LFDI inflows; these results are particularly evidenced in the correlation discussion and the long-run results. PRR short-term coefficient was established as positive; however, it is statistically insignificant to cause any impact to FDI inflow changes in the short-run. The results of the short-run test are concluded as the only existing viable short-run relationship is between FDI and the GDP in the South African economy. Since LGDP was just a balancing variable, a conclusion exists for no short-run relationship since political risk and the real exchange rate fail to explain changes in FDI inflows in the short-run.

Concerning the real economy, Fedderke (2018) asserts that the country's GDP was at its lowest, affecting amongst other factors, FDI. He emphasises that policies to organically grow the economy. A lack exists in this regard; thus, the country is found in this predicament of low growth rates against other developing markets. The econometric analysis revealed that a

long-run relationship exists between FDI, the REER and PRR, not to mention the balancing variable GDP. Conversely, a short-run relationship is only viable for GDP where LPRR and LREER fail to impact any changes in LFDI inflows in the short-run. The following sections focusses on the residual diagnostic and stability tests for the ARDL model, whilst determining causal relationships, according to line objectives in Chapter One.

Table 4.7: ECM Short-run results

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LREER)	-0.0184	0.1657	-0.1113	0.9116
D(LPRR)	0.4723	0.4743	0.9957	0.3220
D(LGDP)	-0.1997	0.1002	-1.9916	0.0495*
CointEq(-1)	-0.8851	0.1057	-8.3677	0.0000
<i>Note: * Significant at 5%</i>				

Source: Author's own calculations, data from the study data

4.5.5 Residual diagnostic and Stability tests

In any econometric model performed, an established rule of standards and fitness tests are required to be conducted to fully qualify the econometric model proper and fitting. According to DeBenedictis and Giles (1996), conducting a residual diagnostics test, eliminates model mis-specification. The model's interrogations should align with the CLRM assumptions concerning the model's error term treatment, the choice of regressors, the structural and functional form of the ARDL model. For the ARDL model to be deemed fit, non-spurious and misleading, the residual diagnostic and stability are mandatory for quality and model ethical appropriateness (Zeng, 2016).

To comply with the five assumptions of the CLRM, the autocorrelation LM test for the ARDL model (1,0,0,0) reveal that the p-value of 0.99 is greater than the 5% significance level and thus, no autocorrelation was detected in this set of variables. This indicated a lack of interconnectedness between the LPRR, LREER, LFDI inflows and the balancing variable LGDP. The white heteroscedasticity test with cross terms was selected to validated assumption two of the five assumption of CLRM. The null hypothesis for the white test writes as, H_0 : no heteroscedasticity, Table 4.9 indicates that the p-value is 0.12, greater than the 5% significance level. Based on this result, the null hypothesis is accepted; it is concluded that the ARDL model has no heteroscedasticity.

The normality test using the Jarque-Bera, tended to have negative results as the ARDL model was established to be abnormally distributed as the null hypothesis of normality was rejected at 5% significance level. For the ARDL model, non-normality in the model has no, to little impact on results as the Jarque-bera test is asymptotic test, relying on larger samples ($n=100$); it is concluded that if heteroscedasticity and serial correlation are satisfied, the model fits and qualifies.

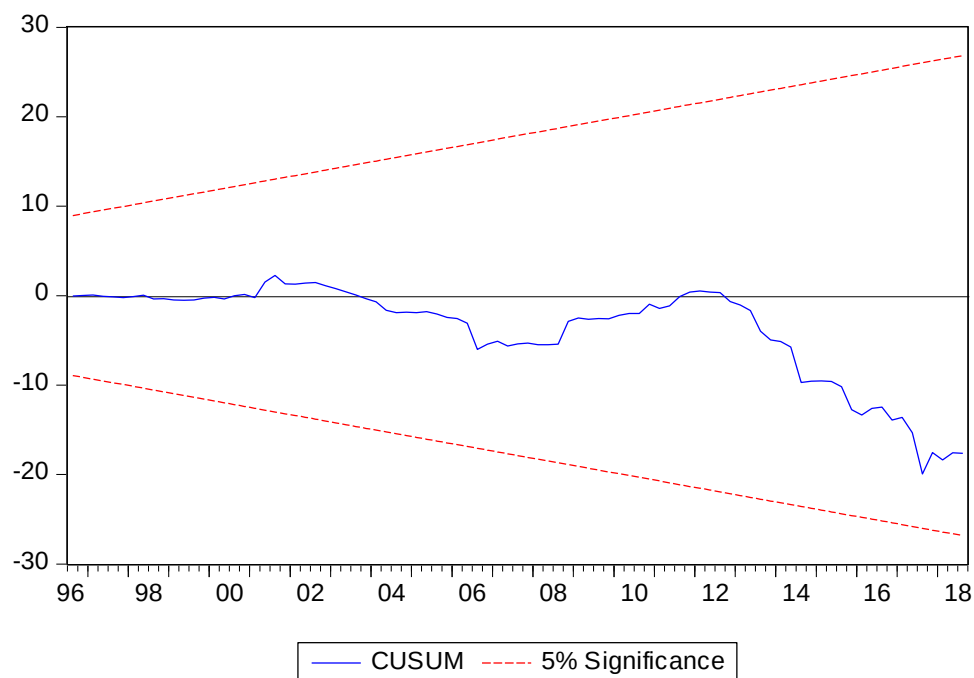
Table 4.8: Residual diagnostic test results

	Null hypothesis (H_0)	P-value	Decision
Serial correlation (Breusch-Godfrey LM Test)	No serial correlation	0.9978	Accept H_0
Heteroscedasticity test (White)	No heteroscedasticity	0.1252	Accept H_0
Normality test (Jarque-Bera)	Residuals are normally distributed	0.0000	Reject H_0

Source: Author's own calculations, data from the study data

Figure 4.3 indicate results for the stability tests for the ARDL model (1,0,0,0); it can be concluded that the CUSUM test on the left indicates some stability since the blue line is within the 5% significance level (the red lines), concluding that the model is stable. For the South African economy, these results align as South Africa commence to deteriorate from 2003 (as provided by the downward trend of the blue line into the negatives), attributable to macroeconomic fluctuations, political instability relating to corrupt government, other external factors, such as the global financial crises in 2008/09 and 10 years of maladministration from 2009 to late 2017 through the era of the Zuma administration (South African Market Insights 2019).

Figure 4.3: Stability test results



Source: Author's own calculations, data from the study data

4.5.6 Toda -Yamamoto causal test

The Toda-Yamamoto test is the unconventional version of the Granger causality test where it utilises the unrestricted VAR and applying the Wald test to arrive at directional or causal

relationships between variables, accordingly the test has generalisations of the Likelihood Ratio test, ignoring cointegration and integrations properties unlike the Granger (Peeters, 2012:138).

The Toda-Yamamoto causality test was performed to determine whether two variables cause changes in each other; the null hypothesis was no causality. Table 4.9 indicates results for the natural logs of FDI (LFDI inflows), the REER (LREER), PRR (LPRR), and the GDP (LGDP).

It was established that most variables have no short-run causal relationships, however a causal relationship between FDI and GDP was established where their probability values are below the 5% significance level, as the null hypothesis is rejected, and the alternative is accepted. A short-run relationship was also established in the ECM results. aligning to this causal relationship, suggesting that any changes in GDP causes 0.186 shift in FDI in South Africa. The second and final causal short-run relationship was established between political risk and the REER, with a probability value of 0.0017, the null hypothesis was rejected in this instance at a 5% significance level; it is concluded that two causal relationships were established for ARDL model (1,0,0,0).

Table 4.9: Toda - Yamamoto test results

Dependent	Explanatory	Probability	Decision
LFDI inflows	LREER	0.9726	No causal relationship
	LPRR	0.6724	No causal relationship
	LGDP	0.0186*	A causal relationship exists
LREER	LFDI_INFLOWS	0.1875	No causal relationship
	LPRR	0.1891	No causal relationship

	LGDP	0.2289	No causal relationship
LPRR	LFDI_INFLOWS	0.7227	No causal relationship
	LREER	0.0017*	A causal relationship exists
	LGDP	0.3588	No causal relationship
LGDP	LFDI_INFLOWS	0.1494	No causal relationship
	LREER	0.3010	No causal relationship
	LPRR	0.4617	No causal relationship

Note: 5% significance is provided by *

Source: Author's own calculations, data from the study data

4.5.7 Analysis of additional political risk sources

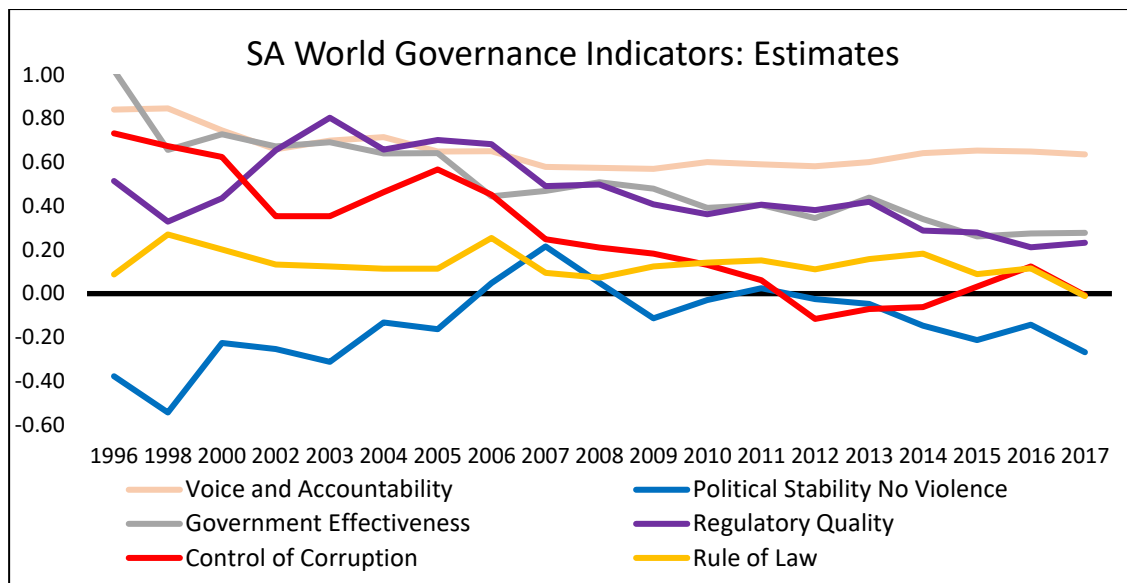
The study provided reference of two other sources from the World Bank and Bloomberg including an overview of South Africa's credit rating history in order to support findings of the econometric analysis and literature review. The analysis of additional data sources provided results; for the context of South Africa, were briefly discussed, falling under other measures for political risk.

To create a solid foundation for the study, the World Bank governance indicators were charted in Figure 4.4 concerning the estimate values where 2.5 indicates stronger governance and values closer to -2.5 represent a weak governance. The figure indicates that controlling corruption provided by the black line; started above the negative line and slowly moved below the black line indicating findings of corruption out of control in South Africa and research indicates that corruption was at its highest level with state capture and corruption amongst government authorities, including ministers and the former president.

Post 2015, the indicator indicates an indication of improvement from the negatives to positives and this is contradictory to results established in the same period in this study. These years indicated highest declines in capital flows; the largest currency depreciation in the decade. Another important indicator that illustrated major results, is the political stability with no violence indicator, provided by the blue line, where it commenced indicting negatives for 10 years, demonstrating a was weak governance in maintaining political stability. These results are also verified in that South Africa, grappling with a new democracy and new administration; in 2009 a weakness in government is also emphasised, followed by a year's recovery, only to return, below the black, indicating that the country remains where it was during the early 2000s.

Indicators, including voice and accountability; governing effectiveness and regulatory quality was relatively stable throughout the period from 1995 to 2018, indicating some strength in the governance of these indicators, however South African government was ineffective in providing public services and economic development in its 25 years of democracy. As the country battles with low economic growth, lack of leadership, credit rating downgrades and state capture, results of the World Bank may not convey the truth regarding South Africa's state, but it rather stipulates that the country may encounter a political risk, causing uncertainty around investors and stakeholders. The subsequent subsection provides evidence of South Africa's credit rating history for the period covered.

Figure 4.4: The world governance indicators



Source: Author's own calculation and The World Bank (2018)

The study alluded extensively on the effects of political risk on the economy. A major consequence is a credit rating downgrade where a group of global credit rating agencies rate a country's long-term foreign and local currency, considering their ability to repay debts (credit risk). Table 4.10 illustrates South Africa's historical credit ratings since 1994 when the new government came into power. The table also indicates the respective presidents of each period. During the presidency of Nelson Mandela, the country was still downgraded under sub-investment grade (junk status), according to Fitch and S&P, however Moody's indicates a moderate credit risk rating.

South Africa eventually progressed to an investment grade from 2000 to 2008 during the tenure of Thabo Mbeki, also evidenced in Figure 4.4 of the governance indicators where political stability and no violence; control of corruption and regulatory quality were positively high. The Jacob Zuma era from 2009 to 2017 presented results from 2009 to 2011, according to Fitch and Moody's ratings were an investment grade with lower credit risk, however from 2012 the gradings kept on declining towards sub-investment that in 2017 Fitch and S&P

tanked the rating to sub-investment grade (junk status) for both local and foreign bonds and currency.

Ratings of 2017 replicates ratings in 1994 to 1999, the Zuma era was followed by lower capital outflows, as aforementioned in this Chapter and in Chapter 3 under the trends of FDI. The economy did not grow significantly, with a fluctuating currency and a rise in political tensions within the ruling party (government) with the conclusion to vote out the president, whilst 2018 bared the same scars, whilst ratings remained the same, except that Moody's was the only agency that still regarded the country as investable, although another president and administration took control.

According to Abedian (2016), major consequences of a country with a junk status are both on political and financial sense; political in that the government's high credit risk would result in obtaining funds (loans) from governments and institutions, such as the IMF. A sub-investment grade affects the macroeconomic framework of the country, causing investment outflows, high inflation rates and currency depreciation. Below South Africa's country risk, according to Bloomberg estimates will provide results of where the country is concerning its country values since 2010 up to 2017.

Table 4.10: South Africa credit rating history

Years	Fitch	S&P	Moody's	President
1994 - 1999	BB	BB+	Baa3	Nelson Mandela
2000	BB+	BBB-	Baa3	Thabo Mbeki
2001 - 2002	BBB-	BBB-	Baa2	

2003 - 2004	BBB	BBB	Baa2	
2005 - 2008	BBB+	BBB+	Baa1	
2009 - 2011	A-	BBB+	A3	
2012 - 2013	BBB+	BBB	Baa1	Jacob Zuma
2014	BBB	BBB-	Baa2	
2015 - 2016	BBB-	BBB-	Baa2	
2017	BB+	BB+	Baa3	
2018	BB+	BB	Baa3	Cyril Ramaphosa

Source: Stanlib (Cairns 2019)

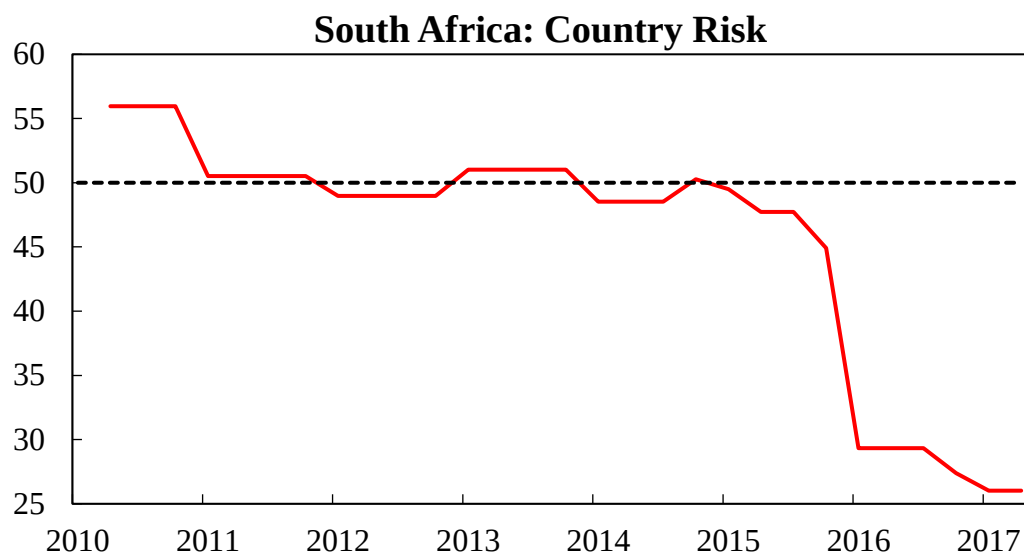
Junk status (High credit risk)	
Moderate credit risk	
Investment grade (Low credit risk)	
Good investment grade	

Source: Stanlib (Cairns 2019)

Figure 4.5 indicates the result of a Bloomberg estimate for South Africa's country risk score and considers the country's financial, economic and political sectors, in comparison to other emerging and developed markets' performance. The figure indicates that the country score sharply from 2015 to its lowest low in 2017 scoring below 50 thresholds. This declining result

indicates exactly what the country was experiencing concerning a lack of economic growth, low capital inflows in the financial sector and the biggest portion resulting from high political risk concerning government ineffectiveness, corruption and state capture.

Figure 4.5: South Africa: Country risk



Source: Bloomberg, 2017

It was emphasised and established that in 2017, South Africa was in a brink of despair as the trend in FDI inflows indicates the largest outflow in the decade, marked in that year. Even the PRR indicated the highest risk in 2017. These results agree with the literature review of the study and the World Bank governance indicators discussion above, where control of corruption and the lack of political stability and no violence dampens the South Africa economy. The previous discussion on South Africa's credit downgrade history, is also emphasised in 2017; the country was downgraded to junk status by two of the major ratings agency Fitch and S&P. It is concluded that although the country is in a state of recovery, the clean-up, endeavouring to return the state to stability, will be time-consuming as the damage is extensive. The following section discusses results and impact on the South African

economy by alluding to major results of the study, whilst suggesting recommendations in the conclusion.

4.6 DISCUSSION AND IMPACT

The discussion is the final section of this chapter when excluding the summary and it highlights the major findings obtained and discusses the results in relation to South Africa's economy. The descriptive results revealed the first signs that the variables might be interlinked in some way and for South Africa it means that as political risk rating goes down, it is expected that the real effective exchange rate and the foreign direct investment inflows to decline also from these results. However, since the political risk rating index assumes lower risk when it increases and higher risk when it declines, the relation with FDI inflows and the REER is deemed to be negative and strong.

The correlation results show that there is negative relationship between the interaction of political risk rating, the real effective exchange rate and foreign direct investment inflows, while all variables were found to have a negative relationship with GDP. This was also seen in empirical literature that there is a negative relationship between political risk and foreign direct investment; where for the real effective exchange rate is contradictory from the empirical research. In the South African context, the impact of these negative relations between the variables is an exact reflection of the country as politics have taken stage since 2009 to date with the rise of political uncertainty due to maladministration of government monies including looting and the scandalous state capture that drove the country to two credit downgrades and an average growth rate of below 5% (Bloomberg, 2019; Merten, 2019).

The unit root test including the ADF and Phillips-Perron test not to mention the KPSS stationary tests results revealed that there was mixture of $I(0)$ and $I(1)$ order of integration and thus prompted the established and estimation of the Autoregressive Distributed Lag mode

since it accounts for the mixture of different integrations. The Akaike Information Criteria as well as the SIC results found that the maximum number of lags suitable for the ARDL model was (1,0,0,0). A positive long run relationship was found under the ARDL model using bounds test and long run coefficients tests. For South Africa, it means that there is a positive long run relationship between the variables and when political risk increases, the exchange rate and foreign direct investment are bound to react such as the positive sentiments from investors when President Cyril Ramaphosa was elected president even the rand appreciated to the political news including a stabilisation of the GDP in the same note.

In the empirical review studies by Maepa (2016), Nasir and Hassan (2011) Bilawal *et al.* (2014), revealed that there is a positive/negative relationship between the exchange rate and foreign direct investment inflows, these results are also highlighted in the long run relationship between foreign direct investment inflows, political risk rating and the real effective exchange rate. Furthermore, it was found that short-run changes in political risk rating cannot affect foreign direct investment inflows. Studies by Aguiar *et al.* (2006) and Alonso (2016) also revealed that there is negative effect from political risk rating and foreign direct investment inflows which align with the results that were established in the study.

Given South Africa floating exchange rate regime, which is determined by the market, market forces of any kind and magnitude including political instability have an effect on the fluctuations of the economy. The results showed that there is a long-run relationship between the real effective exchange rate, political risk rating, FDI inflows and GDP, however short-run changes for the three variables was not found when excluding the short run relationship found between FDI inflows and the balancing variable GDP.

The results also reveal an interest fact that policy makers need to consider; the fact that the decline in FDI inflows and the decline in political risk index (explained as the country moving

to high risk realms or parameters) was roughly around the same time between 2010 and 2015 when assessing the graphical logged data of the variables. Furthermore, this shows that around the first term of Zuma's ruling and the exit of the Thabo Mbeki the country had this shift. Due to the negative relationship between the real effective exchange rate and Foreign direct investment inflows; the graphical presentations show that the REER around 2010 to 2015 was appreciating and depreciating throughout the period.

The additional results for political risk clarified and emphasised that 2017 marks as a year where the country went into turmoil and the final nail to the sinking ship, the Bloomberg country results showed a sharp decline between 2016 and 2017; while the World Bank governance indicators also vividly heightened that South Africa lacks control over corruption and political instability as well as the presence of violence have dampened the country's investor confidence, economy and stability. Moreover, the South Africa's credit rating history also gave an insight into how the country was downgraded to sub-investment grade from Fitch and S&P with Moody's holding the last life jacket with a rating just above junk at Baa3.

The impact of a country with high levels of political risk, lower foreign direct investment inflows and depreciating rand is firstly seen with high levels of inflation as suppliers are forced to raise prices in order to keep float followed by higher interest rate prompted by losses in investment. In the credit downgrade history of South Africa, it was also stated that the consequences of a sub-investment grade lead to more borrowing to meet state obligations and financially impacts the macroeconomic environment given by currency depreciations, higher inflation and increase as well as investment outflows. All the above mention economic crowding effects eventually lead to a recession and in fact 2018 resulted in recessions followed by two consecutive economic decline.

These findings mean that for South African policy makers it is crucial that they take into account the interactions political risk, the real effective exchange rate and FDI inflows especially in the long term, as there is no significant effect of each variable in the short-run. Furthermore, BusinessTech (2017) asserted that for countries to regain their investment grade from junk status approximately takes 3 to over 10 years and countries such as Colombia and India similarly had economic depreciation as South Africa and it took both countries over a decade to escape junk status. The current monetary authorities in the country take into account exchange rate risks which may possibly impact on inflation.

4.7 SUMMARY

Chapter 4 gave an analysis of the graphical analysis provided an estimate of trends of each variable for the period from 1995 to 2018 (quarterly data). Conversely, descriptive results indicated a similar pattern concerning the trend and shocks of each period for the graphical presentation of the original data for PRR, the REER and FDIs and the additional balancing variable of the GDP.

The correlation covariance results in the same section, establishing that the logged results of interactions of all variables with the GDP (LGDP) was established as negative and significant. The PRR index risk lowers as it increases. The analysis of the correlation covariance concluded on this definition, that although results of LREER and LFDI inflows were positive concerning interaction with LPRR, indications are a negative and significant relationship. As LFDI inflows and LREER increases, LPRR increases, lowering the risk, whilst rendering the relationship inverse.

For the study to be compelling to established objectives, an econometric model had to be instituted; accordingly, before the performance of any model, stationarity of established variables is the first and most important test in identifying the selected econometric model.

For this study, the ADF unit root test, PP unit root test and the stationarity test KPSS were selected. Results established a mixture of a $I(0)$ and $I(1)$ order of integration, prompting the study to pursue the ARDL model, accommodating a combination of $I(0)$ and $I(1)$.

Since the preceding paragraph already mentions the ARDL model as the selected econometric model to be applied for this study, the model first has to determine the optimal number of lags needed for the model. The optimal lag selection is a vital first step into determining the ARDL model; for this study it was provided as (1,0,0,0) when using the AIC. The subsequent subsection conducts the bounds test, attempting to emphasise the sight of a long-run relationship between variables. The test was established to reveal a long-run relationship at a 5% significance level.

The bounds test formed the basis for determining the long-run equation, indicating a possibility of a long-run relationship between LFDI inflows, LREER and LPRR, including the balancing variable LGDP. The long-run coefficients confirmed a long-run relationship between political risk, the real exchange rate, and foreign direct investment inflows, whilst a negative long-run relationship was estimated between FDI and GDP. An ECM was estimated to establish a short-run relationship between variables. It was concluded that political risk and the real exchange rate cannot explain short-run coefficients of FDI inflows, whilst the GDP was established to hold a short-run relationship.

The residual diagnostics tests were conducted accordingly to remove any disparities with results and data. From the serial autocorrelation and heteroscedasticity, results have no presence of each of the Classical Linear Model (CLM) assumption. The ARDL model of (1,0,0,0) variables are not normally distributed. The non-normality in the model has little to no effect on an ARDL, as explained in the same section. The stability test was conducted by using the CUSUM test where the model was certified as stable. For determining a causality

amongst the three variables, including the balancing variable, the Toda-Yamamoto causality test results concluded, two causal relationships were established where FDI inflows could cause short-run changes to GDP; another causal relationship was established between political risk and the REER and foreign direct investment inflows.

The chapter also discusses and interprets additional political risk sources; data for governance indicators from the World Bank, emphasised that South Africa's control of corruption and political stability is deteriorating. The subsection also discusses the South Africa's credit rating history. It is identified as a major consequence of the interaction amongst political risk, the real exchange rate and FDI. Lastly, the country risk data are briefly discussed, emphasising deterioration of South Africa's rather sinking economy. The preceding section of this chapter includes a discussion and impact of the results. The sections discussed major results in the study, including various links within the study. The year 2017 is emphasised as the turning point into the country's struggling economy. The subsequent chapter summarises, concludes and provides recommendations, based on the entire study, through summaries of each chapter.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

In a country where Foreign direct investment (FDI) inflows used to account a large portion of the South Africa's capital inflows and in the forefront of the establishment of foreign firms in the country; FDI inflows have been seen to decline in the past six to seven years and this could be as a result of many macroeconomic and other factors. For the purpose of this study, it was decided that the study will focus on the interaction between political risk, the real exchange rate and foreign direct investment inflows. The decision spans from evidence that suggest that political risk in one's country can discourage investors from investing in a particular region, as the country will be deemed to be unstable and will affect returns or profits. In terms of the exchange rate, evidence from the Nenegate, Brexit, Ukraine and South Africa mining strike in 2014, wars in the Middle East and North Africa shows that the strong link between political risk and exchange rate could be also have first and second round effects on FDI inflows of that country.

Although, empirical and literature evidence lacks in terms of a clear evidence regarding the interaction between political risk, the real exchange rate and foreign direct investment inflows, the study attempts to close that gap by pioneering this topic. The primary objective of the study was to determine the interactions between political risk, real exchange rate and Foreign direct investment inflows in South Africa for the period of 24 years (1995-2018). The primary objective is aligned with the empirical objectives and the theoretical objectives of the study; where the empirical objectives included: determining the existence of a long run relationship between South Africa's political risk, the real exchange rate and Foreign direct investment inflows. Another objective was to find any short run relationships between the three variables as well as any causal relationships.

While the theoretical objectives were also corresponded with the primary objectives as they covered analysing the theoretical framework of political risk; theoretical framework of Foreign direct investment and framework for exchange rates and as well as give an analysis of South Africa's overview on the link between political risk, the real exchange rate and foreign direct investment inflows. An Autoregressive Distributed Lag (ARDL) model was the chosen model for the study as a mixture of $I(0)$ and $I(1)$ order of integration was found. The following section will give a summary of each chapter and also provide recommendations as well as limitations of the study before concluding.

5.2 OVERVIEW OF THE STUDY

The summary of the study outlines the introduction, followed by the literature and empirical review, covered in Chapter 2. Chapter 3 summarises the methodology employed, determining results. A summary of the study findings is also discussed in this section, whilst providing the summary of results, established for the South African interactions of PRR, the REER and FDI inflows.

5.2.1 Chapter 1: Introduction

The introduction chapter gave a background of the study by provided a detailed breakdown from a global view where the impact of political risk and a fluctuating currency ultimately affects foreign direct investment inflows of that particular country. Examples such the Trump administration to UK's Brexit are featured in this chapter as a high-level overview, when bringing down to South Africa the apartheid was the very first signs of the interaction between political risk, the real exchange rate and foreign direct investment inflows in the country. However, more recent evidence was when the rand plunged to the firing and hiring of three prominent finance ministers in 2015; and the crack opening into state capture and Gupta leaks

which claimed that the Zuma administration was corrupt and ran the country's economy to a recession and two credit downgrades to junk status.

The chapter also briefly defined political risk, the real exchange rate and foreign direct investment inflows concepts and provided practical examples of each concept including ones related to South Africa and abroad. Furthermore, theoretical and empirical evidence of the interaction between the three variables was discussed in depth in this chapter. Any study begins with a why and what exactly is the research problem the study aims to solve; the problem statement was unpacked in this section where it became apparent that foreign direct investment inflows play a vital role in developing countries' economies and that factors such as political risk and the real exchange rate may affect such flows.

With the research problem defined, the purpose of the study was set in the primary objective which is to analyse the interactions between political risk, real exchange rate and foreign direct investment inflows in South Africa. Additionally, the theoretical and empirical objectives of this study was laid out in the introduction and will be discussed under achievements of study objectives. The research methodology of how the empirical objectives are to be achieved was also given where the data collection, analysis and sampling was discussed and a possible model for the study was selected. The chapter was concluded by giving an overview of what each chapter that follows will focus and discuss.

5.2.2 Chapter 2: Literature and empirical review

The summary for the literature review serves to achieve the theoretical objectives of the study. It was evident from the theories reviewed that there is an indirect link between the political risk, the real exchange rate and foreign direct investment inflows was established, however the empirical review revealed a clear relationship between the concepts. The South African overview of the link between political risk, the real exchange rate and FDI Inflows, revealed

that the link starts from political risk to the real exchange rate then flow to FDI, as the REER and FDI inflows have an inverse relationship. The theoretical review however failed to link political risk to foreign direct investment inflows as political risk theory is fairly new in academic literature, while some evidence suggests that a link may be possible between FDI inflows and the real exchange rate however, other variables need to accompany the variables for a real effect to be established such as political uncertainty.

The political risk theory was also covered and revealed the 12 components that are included in the computation of the political risk rating but was fairly brief due as academic literature on the concept was limited, background concepts in support of political risk were discussed including the risk-reward theory, country risk and finally the conceptualization of the political risk concept. The exchange rate was first conceptualized and then theories that were covered included the subsection also gave a brief discussion on exchange rate regimes which also included the current South African floating exchange rate which gave the definition that the currency is freely determined by the market and monetary authorities will only intervene in dire situations.

Following, was the discussion on classical exchange rate approaches that discussed the purchasing power parity, the monetary approach and the portfolio approach, with the PPP being the most relevant for the study through the real effective exchange rate. Background concepts linked to FDI inflows were particularly relevant to the study as they gave a foundation of the investment theory, the types of cross boarder investments and the determinants of foreign direct investment inflows; then followed by the conceptualization of the foreign direct investment inflows.

The empirical review was structured into developed and developing countries where a negative relationship between foreign direct investment inflows and political risk and other evidence

suggest that both types of countries show a negative relationship the real exchange rate and FDI inflows. Overall the empirical research of the interaction between political risk, the real exchange rate and foreign direct investment inflows shows evidence of a negative relationship. Studies by Maepa (2016), Nasir and Hassan (2011) Bilawal et al. (2014), revealed a positive/negative relationship between the exchange rate and Foreign direct investment inflows. The chapter concluded that although the theoretical review failed to distinguish and detect a clear relationship for the interactions between political risk, the real exchange rate and FDI inflows, while the empirical review gave the study enough evidence to carry through the investigation.

5.2.3 Chapter 3: Methodology

For the purpose of this study, and in order to meet the empirical objectives; descriptive, econometric and excel findings of the interactions between political risk, the real exchange rate and the foreign direct investment inflows in South Africa for the period ranging from 1995 to 2018 were determined. The methodology aimed to discuss the methodologies applied in order to determine the results and make conclusions in chapter four and five. The chapter discussed in depth the data sources where Political Risk Services (PRS) Group, the South African Reserve Bank (SARB), the Bank of International Settlements, The World Bank and Bloomberg were utilized for sourcing data for the variables including the balancing variable GDP.

The data transformations in this study included the use of logarithms for all variables from political risk rating to LPRR, the real effective exchange rate to (LREER); foreign direct investment inflows to LFDI inflows and LGDP from gross domestic product. Furthermore, political risk rating and the real effective exchange rate data were naturally monthly data and were transformed to quarterly data in order to have a uniform data set with FDI inflows and GDP quarterly data. The sample period was selected given that 1995 represented the start of a

new democracy and gives insights into the past 24 years of democracy for South Africa as it adopted new exchange rate regimes, inflation targeting and various government administrations engulfed with credit downgrades, corruption within state-owned enterprises and declining business confidence and a stagnant economy.

Chapter three discussed each variable in depth; for one political risk started with the definitions, how its measured and the 12 components that contribute to the overall index were discussed and dissected individually, more so the trend of the variable was given by a natural graphical figure where it was interpreted practically. Specifically, for political risk, additional sources such as the World Bank governance indicators, Credit ratings and Bloomberg's country's risk methodologies were explained. The real exchange rate variable was also defined in terms of how its measured by the Bank of International Settlements, and the trend for the period covered was interpreted practically and the expected results of the variable was also estimated. Furthermore, foreign direct investment inflows was also detailed similarly to the real exchange rate in terms of how its measured, its trend over the period and how its expected to affect other variables in the results section. Gross domestic product (GDP) was briefly discussed as a balancing variable and how its expected to affect the model, as well as its trend was discussed respectfully.

The model specification provided insight on the econometric modelling processes and discussed how the Autoregressive Distributed Lag (ARDL) model, a single-equation model as the selected model for the study for detecting possible causal, long run and short-run relationships between the political risk rating, the real effective exchange rate and Foreign direct investment (FDI) inflows and of course the utilizing the balancing variable the gross domestic product. The first step into the ARDL model is the determination of the order of integration where the unit root tests were discussed in depth and these tests included the

Augmented Dickey-Fuller (ADF) which is the most commonly used unit root test; similarly, the Phillips-Perron (PP) unit root test and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test. Additionally, the structural break unit root test was discussed for reference, but no test will be conducted for this specific study.

The ARDL model estimated was to utilize the bounds test and the long run coefficients which will estimate a long run equation where the long run relationship between FDI inflows, REER and PRR including the balancing variable GDP will be determined. Moreover, the Error Correction Model (ECM) estimated for the determination of the short run adjustments conducted in chapter four. The commonly used granger causality test was swapped with Toda Yamamoto (T-Y) causality test approach as this the most appropriate causality test for ARDL as it accounts for all integration and cointegration properties found in the system. Furthermore, for any model to be found fitting and stable the residual diagnostics and stability tests were their respectful methodologies and null hypothesis were highlighted for heteroscedasticity, serial correlation and the normality test was highlighted accordingly; along with their null hypothesis. Moreover, since an ARDL model was selected, stability tests such as the CUSUM test was described conducted in the last section of chapter four.

5.2.4 Chapter 4: Results and discussion

The results and discussion chapter is the heart of the entire study as it gives insights into the empirical objectives already set in Chapter 1. The chapter gave a graphical analysis of each variable; political risk rating, the real effective exchange rate and foreign direct investment inflows as well as the gross domestic product before the logarithms are applied were individual trends are discussed and overall the graphics point out a clear picture that 2015 to 2017 South Africa experienced the most knocks with a failing economy, lowest investment inflows, a depreciating currency and government corruption. In the same light the descriptive statistic

gave results indicated a similar pattern in terms of the trend and highlighted fitness of this data into the model and study.

The correlation covariance results in the same section, found that the logged results of the interactions of all variables with the gross domestic product (LGDP) was found to be negative and significant. Moreover, since the methodology highlighted the important note that political risk rating index's risk lowers as it increases, the analysis of the correlation covariance results of LREER and LFDI inflows were positive in terms of interaction with LPRR, however, the conclusion is that the relationship for both is negative and significant. As LFDI inflows and LREER increases, LPRR increases which lowers the risk and making the relationship inverse.

The empirical objectives required that an econometric model had to be established and for this study the Autoregressive Distributed Lag (ARDL) model but accordingly before the performance of any model, the stationarity of the set variables is the first and most important test into avoiding spurious data. The study employed both the unit root test the Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test and the stationarity test the Kwiatkowski-Phillips-Schmidt-Shin (KPSS). The results revealed that there is a mixture of a $I(0)$ and $I(1)$ order of integration which prompted the study to pursue the suiting ARDL model as it accommodates a mixture of $I(0)$ and $I(1)$.

Given that the ARDL model was chosen the model first determined the optimal number of lags to be used for the model using the lag selection process and it was found that for this study it was given as (1,0,0,0) when using the AIC (and as well as for SIC). The long run relationship determination was directed by the conduction of the bounds test which attempted to highlight the sight of a long run relationship between the variables and the test was found to reveal a long run relationship at 5% significance level. Furthermore, the long run coefficients confirmed that there's a long run relationship between political risk, the real exchange rate and foreign

direct investment inflows while a negative long run relationship was estimated between FDI and GDP. Where the other empirical objective was to determine any short run relations the Error Correction Model (ECM) was estimated in order to determine whether a short run relationship exists between the variables and it was found that political risk and the real exchange rate cannot explain short run coefficients of FDI inflows while the gross domestic product was found to have that short run relationship with the inflows.

For the ARDL model of (1,0,0,0) to meet the Classical Linear Model (CLM) assumptions the residual diagnostics tests were conducted accordingly in order to remove any disparities with the results and data. Serial autocorrelation and heteroscedasticity results found no presence of each of the CLM assumptions and the null hypothesis of no heteroscedasticity and no autocorrelation were accepted. However, the variables were found to be not normally distributed and the non-normality in the model has little to no effect on an ARDL as explained under the same section. The CUSUM stability test for the model was certified as stable. For the purpose of determining a causality between the three variables including the balancing variable, the Toda Yamamoto causality test results concluded that two causal relationships were found where FDI inflows was could cause short run changes to GDP and another causal relationship was between political risk and the real effective exchange rate and foreign direct investment inflows.

The additional political risk sources mentioned in chapter three were discussed accordingly in relation to the results already interpreted in the econometric model, the data for governance indicators from the World Bank highlighted that South Africa's current control of corruption and political stability is deteriorating. Furthermore, the most featured consequences of the dampen South Africa's economy were the credit rating downgrades and in the discussion the country's credit rating history was dissected and interpreted. Lastly, the country risk data was

briefly discussed and highlighted the deterioration of South Africa's rather sinking economy. The last section of this chapter was the discussion and impact of the overall results and the section discussed major results in the study and the various links within the whole study. It was also highlighted that 2017 was rather the turning point into the country's struggling economy.

5.3 ACHIEVEMENT OF STUDY OBJECTIVES

This section emphasises objectives the study established in Section 1.3 where they were provided during discussing the primary objective, where the purpose of the study is stated; theoretical objectives represented theories and frameworks of each dissected variable. Empirical objectives represented related studies from previous researchers, forming foundational evidence for expected results.

5.3.1 Primary objective

The primary objective of analysing interactions amongst political risk, the real exchange rate and FDI in South Africa was met by the study. The primary objective established theoretical and empirical objectives.

5.3.2 Theoretical objectives

Theoretical objectives of analysing theoretical frameworks of political risk, the real exchange rate and FDI was achieved during discussions in Chapter 2. Theories provide background theories, supporting concepts to relevant variables, whilst emphasising the relevance of this study.

- *Defining political risk, the exchange rate and FDI; additional concepts related to the three variables.*

Chapter 2, Section 2.2 (the literature review) describes the variable political risk, the exchange rate and FDI in connection with alternative concepts; the objective was fully achieved. The

definition of political risk is described as actions or inaction that may result risky for investor investments, such as a war, or sanctions on a particular country; political risk is divided into macro and micro-risk, where macro is more systemic, such as sanctions on a country, whereas, micro is specific to an industry or an environment. The section defines the exchange rate as the price where a currency is exchanged for the next, more specifically the real exchange rate is provided as a ratio between the price level domestically and a foreign price level; where the price level in a foreign country is measured using the nominal exchange rate unit. Finally, the definition of FDI is proportionate to any long-term injection of capital to a foreign company by a host company in the interest of gaining economic value from such an injection, and may even result in ownership by an investor. The defined concepts provide a foundational start to the chapter in general.

- *Explain the theoretical concepts of political risk, the exchange rate and FDI.*

The theoretical concepts of political risk, the exchange rate and FDI were discussed in-depth. The section provided a link between political risk and the other variables. The exchange rate theories under Section 2.3.2 discussed various theories relating to the exchange rate, such as the Gold and Bater system; the Mundell-Fleming model; two exchange rate regimes; floating and fixed systems; classical theories, including the PPP; the monetary approach; the portfolio balance approach and conceptualising the exchange rate. Section 2.3.3 focusses on foreign direct investment theories, outlining the investment theory and investment types; these included FDI determinants and conceptualising foreign direct investment.

- *Discuss the theoretical framework linking political risk, the exchange rate and FDI.*

The literature review in Chapter 2, Section 2.3.4 discusses the South African link of political risk, the real exchange rate and FDI in relation to theories already discussed, including some

practical examples of how the three variables have interacted previously and in a democratic South Africa. This objective was satisfied within this section.

- *Review empirical studies on the link between political risk, the exchange rate and FDI.*

Empirical studies form an integral part of the study's entity as any result found within the studies, may link to another researcher's study. To fully achieve this objective; Section 2.4 in Chapter 2 firstly reviewed studies relating to political risk and FDI under categories developed and developing countries. Studies relating to the exchange rate and FDI were reviewed amongst same country groupings for developed and developing countries, emphasising some research papers directly related to this study; some provided some sought of proxy. To fully satisfy this objective, studies relating to the interaction amongst political risk, the real exchange rate and FDI were reviewed, although they were limited, attributable to the measurement of political risk, whilst combining the three, thus this study is a pioneer in the economic research sphere.

5.3.3 Empirical objectives

Chapter 5 satisfied empirical objectives, providing descriptive, econometric and excel findings, interacting between PRR, the REER and FDI. Results in achieving this objective, revealed long-run and short-run relationships, incorporating trends and causal relationships.

- *Determine a possible long-run relationship between South Africa's political risk; real exchange rate and FDI inflows.*

In Section 2.4, Chapter 2 the empirical review covered studies that established a long-run relationship between political risk, the exchange rate and FDI. Chapter 4 outlines the text conducted, determining the possibility of a long-run relationship between variables; provided Section 3.3 established an ARDL model. Section 4.5.2 and 4.5.3 specifically satisfied this empirical objective as the bond test, revealing a direction of a long-run relationship. The long-

run coefficients and equation established a long-run relationship between FDI, the real exchange effective rate and PRR, including the GDP balancing variable. Before the estimation of the ARDL model, the unit root tests, indicated in Section 4.4, the ADF and PP tests were conducted. To include the stationary test, the KPSS, where a mixture of $I(0)$ and $I(1)$ directed the decision to use the ARDL model. The long-run relation between FDI inflows and GDP, were established as negative, whilst the long-run relationship with the alternative variables was established as positive. The optimal lag in Section 4.5.1 determined the number of lags that the ARDL model was to utilise in the study and ARDL (1,0,0,0) was established, using AIC (the same results was established with the SIC criterion, although not presented in these results).

- *Determine a possible short-run relationship between political risk, exchange rate and FDI inflows in South Africa.*

Establishing a long-run relationship in Section 4.5.3, prompted estimating the ECM; this empirical objective was achieved in Section 4.5.4 where the ECM was conducted, determining the short-run relationship for all variables. The ECM was also delineated in the methodology in the Section 3.3.4 results in Chapter 4, indicating no short-run relationship between PRR, REER and FDI. This study established a short-run relationship between FDI inflows and GDP.

- *Determine possible causal interactions linking political risk, exchange rate and FDI inflows in South Africa.*

After estimating the long-run and short-run relationship in Section 4.5.3 and Section 4.5.4, the subsequent empirical objective to be achieved, was causal interactions amongst PRR, the REER and FDI, including the balancing the variable of the GDP. The causal methodology is discussed in Chapter 3, Section 3.3.5. The Toda-Yamamoto causality was chosen as the appropriate causality test for an ARDL model, rather than the ideal and common Granger causality test. In Section 4.5.5, results of the Toda-Yamamoto test, revealed two causal

relationships where LFDI inflows can cause effects to LGDP, whilst another causal relationship was established between LPRR and LREER.

- *Formulation of a policy statement*

The overall results of this study provided interesting results from both the theoretical and empirical review. This objective is certified in this section. It the recommendation of the study that the government firstly need to implement a political risk measure, which will be included as an additional determining variable for exchange rate and interest rates. Moreover, the study recognizes that government must establish a database which will estimate the amount of returns for each FDI inflow that enters the country. It is further stated that policymakers also need to recognize political risk as one of the variables that impact economic growth, and the study advices the implementation of a framework that will set out prevention and remedy political exposures.

5.4 RECOMMENDATIONS

The study recommended the following endorsements for South African authorities:

5.4.1 Inclusion of political risk in economic models

This study determined that political risk in South Africa is at high levels and it seemingly directly affects the exchange rate of the country aggressively, because of the inverse relationship established in the study between the currency and FDI inflows. The study recommends that political risk fulfils a vital function in the economy. Monetary policymakers should account for such shocks in their model, as it stands that SARB protects the value of the currency in its primary functions, however the study extensively suggest that political risk be included in a measure in their models when attempting to protect the currency. Other countries, such as Ukraine, the Middle-East had their economy decreased, attributable to political risky

events, such as wars, coups and politically motivated protests. For years, political risk has taken the back banner, attributable to the controlled or fixed exchange rate regimes. It is established that countries using a floating exchange rate, are prone to political risk, affecting their exchange rate, whilst filtering through to the economy.

5.4.2 Establishment of a database for foreign direct investment returns

A crucial question that the study refrained from answering, is: Why investors invest their FDI in foreign countries? This question could only be answered by the data for returns that firms or capital inflows make on them. No database exists, recording returns for FDI inflows exists in the country, which is publicly accessible. Establishing this database, would assist researchers to respond to such and other questions, surrounding FDI inflows in the country, because unlike portfolios and other investment, their returns are readily available to the public through sources, such as Bloomberg terminals and Reuters, amongst others.

5.4.3 Further research political risk impacts

Research on political risk is relatively new, as quantifying the variable could be challenging for researchers, for example, how do you quantify war? What weight will you assign to the variable when comparing it to GDP or an exchange rate? Political risk theory in academic literature lacks; the first attempt in defining the concept was observed in 1969, whilst qualifying political risk by the PRS Group only surfaced in the 1990s. The study recommends that further research on political risk and its impact should continue to be established, concerning data with various sources, used from the PRS Group, Bloomberg and the Economist Intelligence Unit, although most only provide country risk data.

5.4.4 Implementation of political risk framework

The study recommends the implementation of a political risk framework, where policymakers will set out mechanism for political risk exposure as well the remedy measures to counter exposure that has already occurred. For example, in South Africa, if a framework existed during the Nenegate saga; remedies such as media control and a bureau for political stability would have implemented remedial actions. The framework can also include the measurement of political risk since the data is not available for public use, a political risk database may close the gap into measuring the variable.

5.5 CONTRIBUTION OF THE STUDY

This study contributes to the rising focus on political risk literature as component or a determining variable for other economic variables such as the exchange rate and foreign direct investment inflows, since the quantification of political risk is deemed complex and unavailable this study aims to bridge that gap as the PRS Group political risk index data has been employed for analyses. The study aims to contribute this piece to enlighten policy makers to acknowledge the effect of politics as a contributor to other variables and the broader economy. For example, in 2017 South Africa's political risk in terms of government maladministration and corruption led to rand depreciations and the largest outflows as well as two credit downgrades to junk status.

5.6 LIMITATIONS OF THE STUDY

The limitation of this study was that foreign direct investment inflows provides limited data since they are not broken down into sectors or clusters such as FDI in manufacturing, construction or mining sectors. The lack of studies that focused on the interactions of political risk, the exchange rate and FDI inflows in South Africa was a limitation since no direct link

was established between the three variables. Moreover, empirical research also revealed that studies in developing countries was limited in terms of the interactions of these variables.

5.7 OPPORTUNITIES FOR FUTURE RESEARCH

Future research may include variables established in studies, such as the interest rate, trade rates, including exports and imports. Incorporating additional macroeconomic variables such as interest rate and portfolio flows, may enhance and reveal various results, useful for economic policies and policymakers. Since this study utilises the PRS Group data for PRR, future researchers may use other country risk factor to conduct empirical and theoretical research on this phenomenal topic. Additionally, other studies may focus on the interaction of political risk, the exchange rate and FDI inflows for SADC countries and Sub-Saharan Africa. Even the study could be done using panel data instead of time series data, which may prone even more insights on the relations between the variables included.

5.8 CONCLUSION

The study vividly showed evidence that political risk and the real exchange rate play an important and vital role in securing FDI inflows in South Africa; since the country gained its democracy in 1994, politics in the country have taken centre stage ever since (the good and the bad). Moreover, with the democracy also came the change in 1995 to a free-floating exchange rate system where the currency is determined by changes in the market (supply and demand). With all this said, the study aimed to determine the interactions between political risk, the real exchange rate and FDI inflows in South Africa with the use of the multivariate model, specifically the VAR for a period ranging from 1995 to 2018. Other additional sources for political risk foundation were the World Bank governance indicators, South Africa's credit rating history and the Bloomberg country risk. The literature and empirical review highlighted studies that revealed that there is an existence of negative/positive relationship between

political risk, the real exchange rate and foreign direct investment inflows in both developing and developed countries including South Africa.

The empirical results can be concluded that foreign direct investment inflows have negative relationship all the independent variables PRR, REER, GDP in the correlation covariance results. The unit root results presented a mixture of $I(0)$ and $I(1)$ which prompted the use of Autoregressive Distributed Lag (ARDL) model which presented the following results. A long run relationship was established when foreign direct investment inflows is the dependent variable and political risk rating and the real effective exchange rate are independent variables (including the GDP). The ECM found the that between political risk rating, the real exchange rate and foreign direct investment inflows no short run relationship was determined while, the GDP a short run relationship between FDI Inflows and GDP was found. Moreover, two causal relationship was determined where the real effective exchange rate can cause political risk rating and FDI inflows can cause effects to GDP; no other relationship was determined with regards to interactions between the variables. The additional sources for political risk highlighted that political risk in South Africa has been relatively high in terms of the lack of control of corruption and political stability (no violence).

The evidence of the sources also revealed that indirect effect to the real exchange rate followed by a decline effect to FDI inflows; given by the inverse relationship between the REER and FDI inflows. South Africa on the other hand is at a state where politics sharply affected the rand immediately and where foreign direct investments no longer hold importance when compared to portfolio flows and other investments. However, in this regard, the study recommends that because evidence suggests that political risk seems to root these relationships, it should be included in policy making decision as it clearly plays a vital role in South Africa's economy.

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