Gordon Institute of Business Science
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The determinants of inward foreign direct investment: Evidence from Sub-Saharan Africa

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ABSTRACT

This study attempts to establish the determinants of Foreign Direct Investment into Sub-Saharan African countries for the periods before and after the 2008 global financial crisis. The World Bank secondary data source was used to obtain data for this study. The relationship between inward FDI, trade openness, institutional quality and infrastructure investment were analysed using multiple linear regression analyses. The time horizon for this research was a “snapshot” time horizon which is referred to as cross sectional, a “snapshot” was taken of the periods 2002 to 2008 and 2009 to 2016. The key results of this study were that trade openness was a determinant of FDI for the periods 2002 until 2008 and 2009 until 2016, institutional quality was a determinant of FDI for the period 2009 until 2016, low infrastructure investment was a determinant of FDI for both time periods and there were no statistically significant results between inward FDI and control of corruption. The results obtained from this study, namely trade openness, institutional quality and low infrastructure investment, as determinants of FDI, indicate a need for the revision of policy in the SSA region in order to increase the inflow of FDI into the countries in this region.

KEYWORDS

Foreign direct investment, Trade openness, Institutional quality, Infrastructure investment, Control of corruption

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE
INTRODUCTION AND BACKGROUND TO RESEARCH PROBLEM

1.1. Introduction and background to the study

This study contributes to the literature on Foreign Direct Investment (FDI) by examining the macroeconomic determinants of inward FDI into specific Sub-Saharan African (SSA) countries for the periods before and after the 2008 financial market crash. Trade openness, institutional quality, low infrastructure investment and control of corruption were identified from the relevant theoretical and empirical literature as determinants of the flow of inward FDI and hypotheses regarding the relationship between inward FDI and these determinants were established. Two main theories that are applicable to this study are the Internalisation Theory and the Ownership-Location-Internalisation paradigm (OLI) theory. Considering that there is a dearth of literature pertaining to FDI in SSA, it is necessary for a study of this nature to be conducted to add to the existing literature.

1.2. Background to the study

A discussion of the background to this study is presented and indicates that specifically since the middle of the 1990's, FDI growth has been exceptional internationally and it therefore has been one of the major developments in the economy. As a result, most developing countries have focused on FDI in their strategies to develop their economy (Villaverde & Maza, 2012).

Sub-Saharan Africa (SSA) relies heavily on FDI to provide for the deficit in foreign exchange and savings and by filling this gap, sustainable development could be promoted. Income levels are low in SSA countries and therefore this inflow of external resources is essential (Adams & Opoku, 2015). Positive externalities are created due to direct capital inflow, which is a result of FDI. Additionally, FDI can aid in the improvement of economic growth through technology spill overs, and the introduction of managerial skills and new processes (Abdouli & Hammami, 2017). A discussion of the research problem is presented next.

1.3. Research Problem

The problem that this study will attempt to highlight is related to the macroeconomic determinants: trade openness, institution quality, infrastructure investment and control of corruption, prior to and post 2008 in the SSA region. These determinants were examined to establish whether a relationship exists between these determinants and the inflow of

FDI, this was the objective of the study. As mentioned above, SSA countries need FDI, consequently this study attempted to establish what drives FDI into SSA countries. Thirty-five SSA countries were investigated in the study.

1.4. Research aims and objective

The study's aim was to establish the determinants of FDI into SSA countries for the periods 2002 until 2008 and 2009 until 2016, before and after the financial crisis of 2008. The study's objective was to:

1. Determine the relationship between inward FDI and trade openness
2. Determine the relationship between inward FDI and institutional quality
3. Determine the relationship between inward FDI and infrastructure investment
4. Determine the relationship between inward FDI and control of corruption

The following hypotheses were developed from the literature to establish the relationships between the determinants discussed above and inward FDI:

Research Hypothesis 1:

The null hypothesis: The model showed a relationship between FDI and trade openness in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and trade openness in SSA countries, beyond a significance level of 95%.

Research Hypothesis 2:

The null hypothesis: The model showed a relationship between FDI and institutional quality in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and institutional quality in SSA countries, beyond a significance level of 95%.

Research Hypothesis 3:

The null and alternative hypotheses for establishing the relationship between inward FDI and infrastructure investment for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and infrastructure investment in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and infrastructure investment in SSA countries, beyond a significance level of 95%.

Research Hypothesis 4:

The null and alternative hypotheses for testing the relationship between inward FDI and control of corruption for SSA countries for the time periods prior to and post the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and control of corruption in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and control of corruption in SSA countries, beyond a significance level of 95%.

1.5. Definition of key terms

Foreign Direct Investment (FDI)

FDI is made by investors who operate in economies outside of the location of the enterprise in which the investor wants to invest (UNCTAD, 2018). The main driver behind international economic integration is FDI, which can improve the economic development and the welfare of societies and can additionally provide financial stability (OECD, 2008).

Trade Openness

Trade openness is defined as trade costs which are low, these costs are related to transportation, tariffs, taxes, subsidies and non-tariff barriers (Batabyal & Nijkamp, 2015).

Additionally, the relation of trade (the addition of imports of services and goods and exports) to Gross Domestic Product (GDP) is an indicator of trade openness, which has increased for most trading nations, and occurs due to trade liberalisation and globalisation. Some benefits of trade openness include the increase in the transfer of technology, labour, total factor productivity and economic growth (Economics Online, 2018).

Institutions

The rules, enforcement characteristics of rules, and the standards of behaviour that structure the recurrent interaction between people describe institutions (North, 1989).

Infrastructure investment

Infrastructure is the term for the basic physical systems of a country or an organisation; some examples include transport, communication and electric systems. All these systems incur high investment costs and are necessary for a country's success and economic development (INVESTOPEDIA, 2018).

Corruption

Corruption is defined by Kaufmann et al. (2009 p4, in Bailey, 2018) as "*the extent to which public power is exercised for private gain*". Additionally, Godinez and Liu (2015) define corruption as the exploitation of public office for one's own benefit.

Control of corruption

Control of corruption captures insights into the degree to which public power is used for one's personal gain, this includes large and trivial types of corruption and state capture by leaders (THE WORLD BANK, 2018a). The control of corruption variable in this study was measured using the control of corruption indicators from the World Bank database, which was in alignment with Cieślik and Goczek (2018).

Internalisation theory

The internalisation theory explains why international organisations prefer to keep full control over the process of producing goods instead of giving some of the work to local organisations (Javorcik, 2004). The internalisation theory suggests that it is a requirement to internalise markets that are not perfect, since this leads to the creation of multinational enterprises (Buckley & Tian, 2017).

OLI paradigm model

Ownership-Location-Internalisation paradigm (OLI) was developed by Dunning (1977, 1979 in Villaverde and Maza, 2012). The OLI paradigm is based on the theory of internalisation and describes the features of a country that determine the inflow of FDI. This theory assists researchers and organisations to have an improved understanding of the reason why FDI flows into a certain country (Kahouli & Maktouf, 2015).

Sub-Saharan Africa (SSA)

The region of Africa which lies south of the Sahara Desert is known as Sub-Saharan Africa (Collins, 2018).

1.6. Personal rationale for the study

This problem was chosen because the researcher had a keen interest in FDI in SSA post the 2008 market crash. The problem of FDI is highlighted because South Africa (which forms part of SSA) has numerous challenges that could deter the inflow of foreign investment. Consequently, the researcher is interested in establishing what the determinants are that drive FDI into a country. The current debate surrounding the amendment of the constitution to allow expropriation of land without market related compensation is a further challenge to FDI inflow into South Africa. President Ramaphosa initiated the Protection of investment Act 22 of 2015, a controversial act that reduces the protection in South Africa afforded to foreign investors, and this act can influence foreign investment negatively. The main issue surrounding the act is whether foreign investment assets can be expropriated without receiving any compensation (Matthews, 2018).

According to Morris (2018) *"South Africa's friends in the world want the country to succeed, but the drive to implement Expropriation without Compensation (EWC) risks undermining the considerable benefits of global goodwill, and the investment that goes with it".* Cognisant that South Africa is part of the globalised economy, where capital is mobile and as a South African, the researcher is interested in examining which policy areas are most critical in attracting the inward flow of FDI.

1.7. Academic rationale for the research

This study aims to contribute to the academic literature in three respects. Firstly, recent literature on FDI determinants in SSA or developing countries, most recently, is scarce and therefore this study will provide fresh insights into the topic. After conducting the study, certain determinants of FDI will be output from the statistical multiple regression analysis. If there is a relationship, which is significant between inward FDI and the determinants specified in the multiple regression model, the determinants of FDI will be for the period in which there is a statistically significant relationship in the results.

Secondly, the literature following the 2008 market crash on this topic in SSA or developing countries is sparse and therefore this study added to the current literature by providing the determinants for this period. The relationship between inward FDI and

certain determinants of FDI found in the literature was established by conducting a multiple regression statistical analysis. Thirdly, this study established the FDI determinants prior to and post the 2008 market crash for certain SSA countries; a search of literature post 2008 market crash indicated that limited research had been conducted. It will be interesting, to determine from the analysis conducted in this study whether there is a difference between the determinants before and after the 2008 financial market crash. The market crash was described by The Guardian newspaper as "a global financial earthquake that changed the world" (Mathiason, 2008). Additionally, The Economist (2013) points out that "*five years after the crash, the effects of the crisis were still being felt and the effects were still rippling through the world economy*".

1.8. Business rationale for the research

FDI assumes a vital part in the economy globally and therefore understanding the determinants of FDI flow is a critical component to inspire and attract external investors. Furthermore, it is essential for the country receiving the investment to encourage and establish programmes to gain FDI (Kahouli & Maktouf, 2015). Amendolagine, Boly, Coniglio, Prota, and Seric (2013) mentioned that the main goal of policymakers is to attract foreign investment from around the world. This attraction is of importance in poorer countries where the lack of capital inflow prevents economic prosperity. The objective of this study is to provide policy makers with suggestions, which can assist them to make their country more attractive to receive FDI. The suggestions will be applicable to SSA or developing countries. Additionally, this study will provide insights into what the determinants of FDI are before and after the financial market crash, and if there is a difference in these determinants.

1.9. Research purpose

In respect of the research problem stated above, the study's purpose is to gain an enhanced understanding of the macroeconomic determinants of inward FDI in SSA for the periods 2002-2008 and 2008-2016 (before and after the 2008 crash). The determinants that were investigated are trade openness, institutional quality, investment in infrastructure and control of corruption. The four most frequent macroeconomic determinants (the determinants mostly associated with the economic features of the countries under review) that were found in the theoretical and empirical literature were used to establish the main determinants of inward FDI into all SSA countries. The research was an explanatory study since the relationships between the variables were established through regression analyses (Saunders, Lewis & Thornhill, 2009).

1.10. Research scope

The scope of this study was to find the macroeconomic determinants of inward FDI into SSA countries. Thirty-five SSA countries were analysed for the periods 2002 until 2008 and 2009 until 2016. SSA was chosen to be analysed since although there has been an increase in FDI in general into the SSA region, SSA receives a small amount of FDI compared to other regions. This FDI inflow into SSA is unequal, only a few countries receive a substantial amount of capital inflow (Okafor, Piesse & Webster, 2017). FDI inflow according to Villaverde and Maza (2012) aids in the economic growth of a country. Additionally, SSA countries were chosen because South Africa forms part of this African region and data is available to conduct statistical analysis. The time periods 2002 until 2008 and 2009 until 2016 were specifically chosen to review the period prior to and after the financial crisis. The determinants established from the multiple regression analyses could be applicable to other SSA or developing countries. The literature on the determinants of the inflow of FDI aided in developing the research questions and hypotheses. The secondary data required to perform the research was derived from the hypotheses. This topic is important as this study will focus on the macroeconomic drivers of inward FDI inflow, developing countries lack capital and this proves to be a constraint in the economic development of these countries. It is therefore necessary that these countries amend their policies to attract FDI (Amendolagine et al., 2013).

1.11. Dissertation structure

The document is structured as follows:

This Chapter, Chapter One, provided an introduction as well as the background to the study. It specified the need for the study to be conducted, objectives, purpose and scope of the study and theoretical and business need for the research to be conducted.

Chapter Two includes the relevant literature pertaining to this study. The literature presented in this chapter is predominantly international and to a lesser extent local because literature on SSA countries is limited on this topic. This chapter mainly includes literature pertaining to the theoretical models and empirical evidence relating to the topic of the determinants of inward FDI in SSA.

The hypotheses that were developed from the literature review conducted in Chapter Two, are presented in Chapter Three.

An in-depth description of the methodology used to test the hypotheses developed in Chapter Three is presented in Chapter Four.

A presentation of the results from the multiple regression analyses, described in Chapter Four, may be found in Chapter Five.
A discussion of the results of Chapter Five ensues in Chapter Six of the dissertation.
The conclusion for this study is found in Chapter Seven and comprises the main findings of the study, policy implications, limitations and future research recommendations.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter provides the literature consulted on the topic “The Determinants of Inward Foreign Direct Investment: Evidence from Sub-Saharan Africa”. Literature sourced for the period prior 2008 was predominantly on developed countries, however, there appears to be a paucity of literature on SSA countries prior to the global financial crash. Below follows a discussion of the relevant literature sourced for this study.

The objective of this study was to assess the macroeconomic determinants of inward FDI into SSA countries for the periods prior and post the financial crisis of 2008. The following literature survey aimed to establish the academic foundation for this research project and provided an understanding of the theoretical models, empirical studies and arguments that aided in the development of the research questions and hypotheses.

The survey is divided into the following sections. Section 2.2 provides information on the theories which were developed to provide a more informed understanding of the determinants of FDI. Section 2.3 provides empirical evidence from past studies which were conducted to establish the macroeconomic determinants of foreign direct investment. This section specifically provides empirical evidence from SSA or developing countries. Section 2.4 provides a conclusion of the main outcomes from the literature review.

2.2 Overview of Sub-Saharan Africa

Economies in the SSA region have shown a strong growth since the middle of the 1990’s, this healthy growth was surprising since there were setbacks due to financial and food crises, political issues and natural disasters in certain African countries (Djimeu, 2018). Although according to Bartels, Napolitano, and Tissi (2014:1) Africa was labelled as “*the hopeless continent*”. In 2011 the label changed to “*the hopeful continent*” (Bartels et al. 2014:1). Figure 1 below identifies the economic growth of SSA from 1990 until 2017 which has increased in this period. Figure 2 below shows the GDP growth rate for certain SSA countries from 1990 till 2018, from this graph it is obvious that certain SSA countries have faster GDP growth rates compared with other countries, for example Ethiopia’s GDP growth rate has been performing better than South Africa’s. The majority of the SSA countries have grown from 1990 until 2017. Figure 3 provides a comparison of the economic growth between developing regions globally for the period 1980 until 2017.

The SSA region's GDP per capita growth is the worst performing region compared with other developing regions globally, for example emerging and developing countries in Europe. The GDP per capita has increased since 1980 for all the developing regions, however, certain emerging regions have grown faster than other developing regions

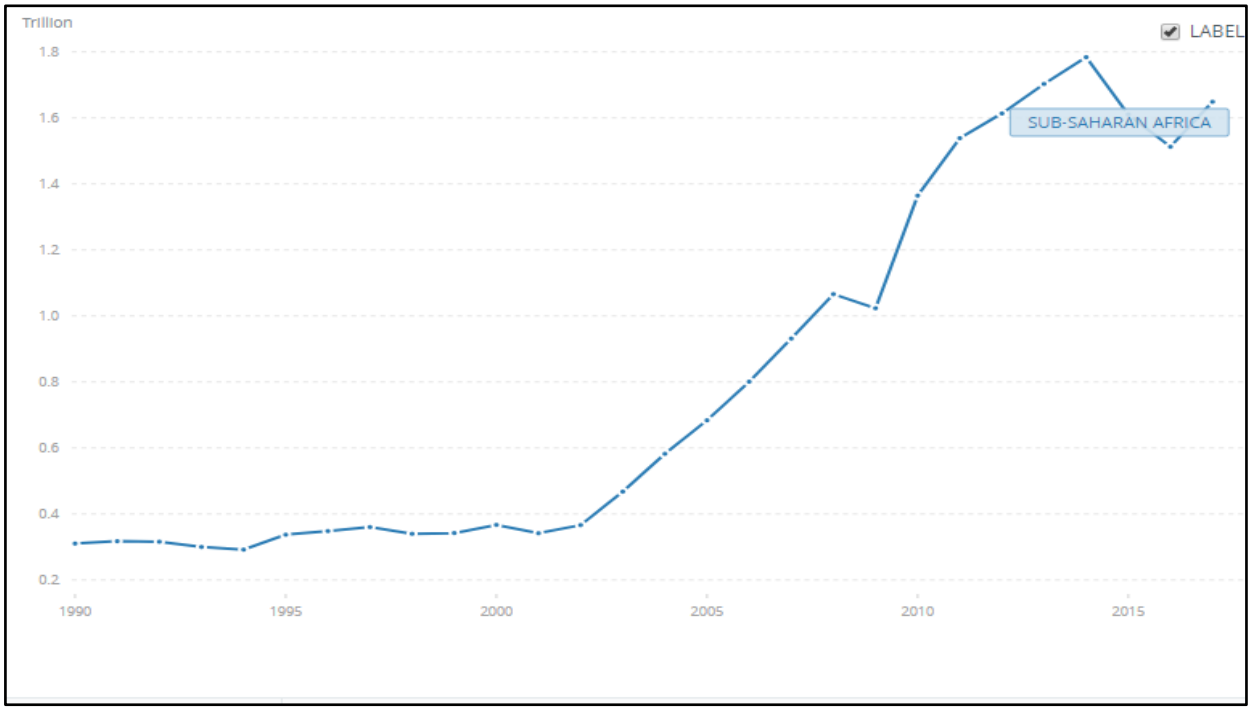

Figure 1. GDP growth (in trillion US Dollars) for SSA countries from 1990 till 2017. From *THE WORLD BANK*. Retrieved from https://data.worldbank.org/region/sub-saharan-africa. Copyright 2018 by THE WORLD BANK GROUP.

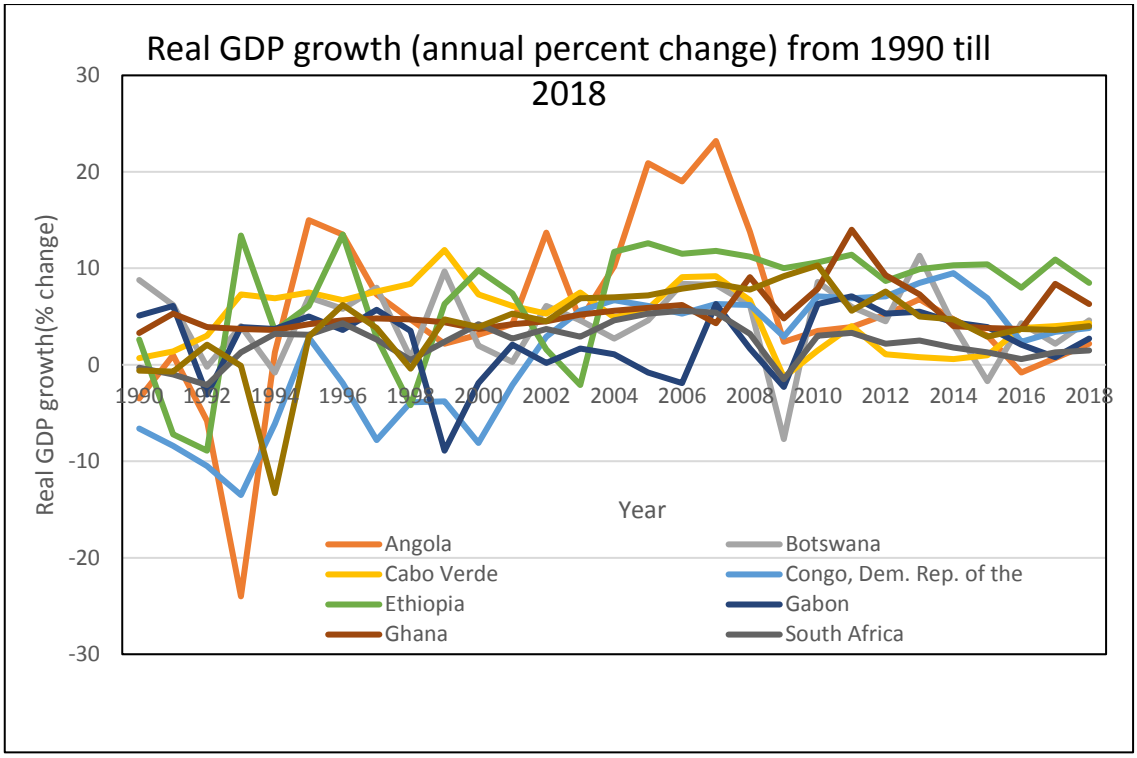

Figure 2. Real GDP growth (annual percent change) from 1990 till 2018. From *INTERNATIONAL MONETARY FUND.* From http://www.imf.org/external/datamapper/NGDPD@WEO/SSQ. Copyright 2018 by IMF.

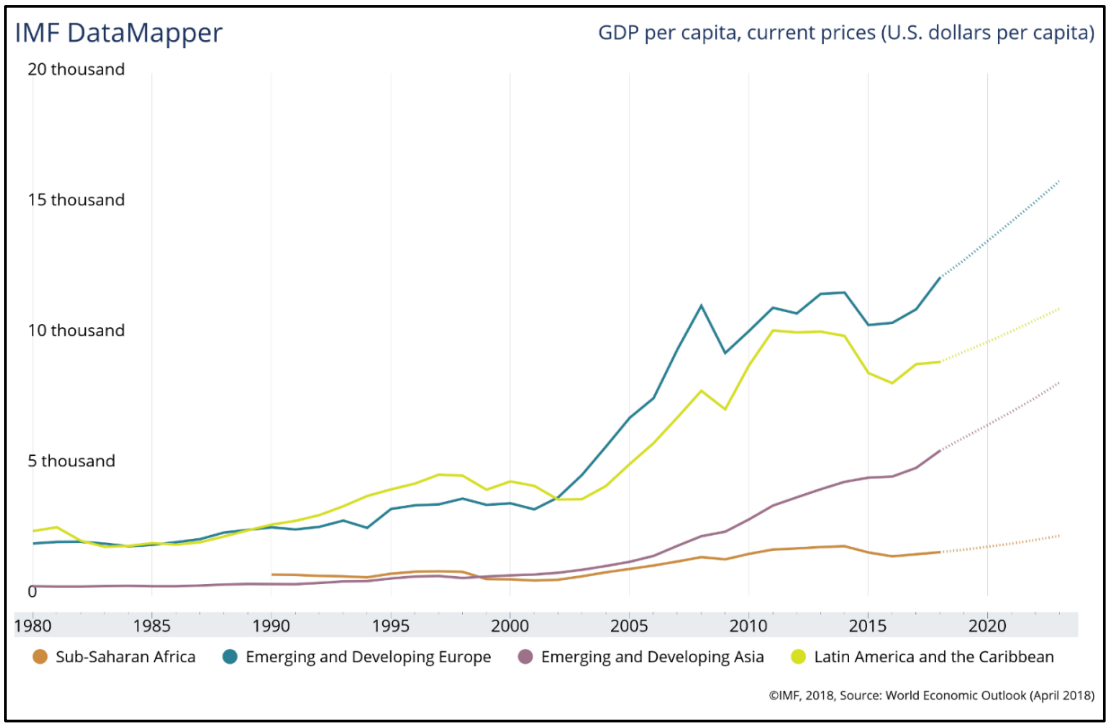

Figure 3. GDP per capita (US Dollars per capita) for certain developing regions from 1980 till 2017. From *INTERNATIONAL MONETARY FUND.* Retrieved from http://www.imf.org/external/datamapper. Copyright 2018 by IMF.

The attention to invest in SSA countries has increased due to the robust growth of the countries and due to mineral resources' security aspects (Bartels et al., 2014).The growth performance of SSA countries has in the past forty years been poor compared with other developing countries. The maximum average SSA per capita, real GDP growth rate has barely exceeded two percent in comparison with the Pacific and East Asian countries where the growth rates range from 4%-8% (Danquah & Ouattara, 2015).

There has been an upsurge in FDI in the past thirty years however, SSA countries remain in a position whereby they are the lower receiving countries in terms of FDI with 3% of the total worldwide FDI. Minimal SSA countries receive a large amount of FDI and this investment is not distributed equally amongst these SSA nations (Okafor, Piesse, & Webster, 2015). However, the literature on FDI in SSA , according to Cleeve, Debrah and Yiheyis (2015) indicated that it is currently increasing.

2.3 Financial Crisis

The 2008 financial crisis caused a global decline in FDI thereafter and had severe consequences globally. In 2009, UNCTAD mentioned that the outflow Of FDI globally declined by 46% compared with 2007, the outflow of FDI from developed countries declined by more than 50%. The reason for this decline was thought to be caused by the downturn in the economy and FDI began to recover very slowly after the crisis. This rapid decline in FDI was a global concern because FDI played a major role in globalisation in the past years. FDI is an essential source of investment capital for developing economies particularly (Raff, Ryan, & Stähler, 2018). After the global financial crisis, it was necessary for certain countries to attract FDI to grow their economies, these countries were suffering from liquidity and financing related problems.

2.4 Foreign Direct Investment

Capital flow to emerging markets is currently an important topic in literature (Vo, Nguyen, Ho, & Nguyen, 2017). FDI is conventionally defined as a type of global, inter-company co-operation and includes the managing and controlling of the receiving country's enterprises (Sun, Tong, & Yu, 2002). FDI is an historical issue which currently continues to be relevant because of the creation of income, the introduction of capital into an economy as well as FDI promoting the economic status of the receiving country. Additionally, FDI is defined according to Petranov, 2003 (as cited in Mourao,2016) as "*an international investment, in which the direct investor, the resident of a foreign economy, acquires a lasting interest*."

In addition, it is essential to differentiate between the types of foreign direct investment that could be made. For example, FDI takes on three different forms: land acquisition, buildings or civil structures development or investment and purchase of businesses or land. These different types of FDI, however, have changed over the years. Initially FDI was involved in the purchase of buildings or land by individuals; presently, investors are involved in drawing up complicated contracts in order to form joint ventures through the acquisition of shares in business assets (Mourao, 2016).

The attraction of foreign investment is essential for policy makers and this is of importance for developing countries where the capital is limited and is one of the main limiting factors that inhibits countries' economic development. Various countries have recorded that foreign investment is necessary although it does not promote sustainable economic growth (Amendolagine et al., 2013).

Literature has indicated that FDI has had an influence on the receiving countries' economic growth which is twofold. Firstly, the receiving country gains capital and the FDI is expected to promote growth in the country through introducing innovative technology to the receiving company's production function. Additionally, knowledge is transferred by the FDI which is expected to improve existing knowledge in the receiving country through training of the labour force and the introduction of innovative management practises and organisational change (de Mello, 1999).

2.5 Inward foreign direct investment in Africa, SSA or developing countries

The literature highlights how local factors of the receiving countries are the main determinants of the flow of investment into emerging economies, an example of a local factor is trade openness. These factors are known as the pull factors which determine the flow of capital investment into a country (Vo et al., 2017).

Since the focus of this study was on FDI into SSA countries, it is important to explain the need for the inflow of FDI into these SSA countries which include the following benefits: the creation of management skills, local job opportunities and the improvements in technology (Dell'Erba & Reinhardt, 2015). The technology spill over to the receiving country, firms from foreign multinationals improve the receiving country's productivity and innovative capacity through research and development alliances, learning and imitation (Li, Wan, & Wang, 2018). Additionally, FDI is seen as a "good" type of flow of capital due to the promotion of growth in the countries receiving the FDI (Dell'Erba &

Reinhardt, 2015). There is an emphasis on the importance of FDI flowing into SSA countries, since these countries lack finance for growth. Since the official development assistance to SSA countries has declined rapidly, FDI is essential to contribute to the growth of these SSA countries. From 1990 to 2001 the official development assistance declined by 41% and UNECA found that this decline was below the international commitment which was made in 2010. For this reason, FDI is necessary for a large number of SSA countries and to attract FDI is, at present, a major economic development goal for these countries (Cleeve et al., 2015).

To reiterate SSA countries receive the lowest amount of FDI inflows globally, approximately 2% of all the global inflow of FDI is therefore limited. As discussed above, FDI inflow can provide various benefits for developing countries, therefore it is important that these regions attract FDI which can be used to aid their development programmes and attain levels of growth which are higher. The data does however, suggest that SSA countries are situated at the lower end of the spectrum in terms of receiving FDI and this suggests that the reforms which have been made in the past decades to gain FDI are still insufficient and have not attracted a considerable amount of foreign investors (Okafor et al., 2015).

Figure 4 below reveals the inflow of FDI into SSA countries for the period 2000-2017.

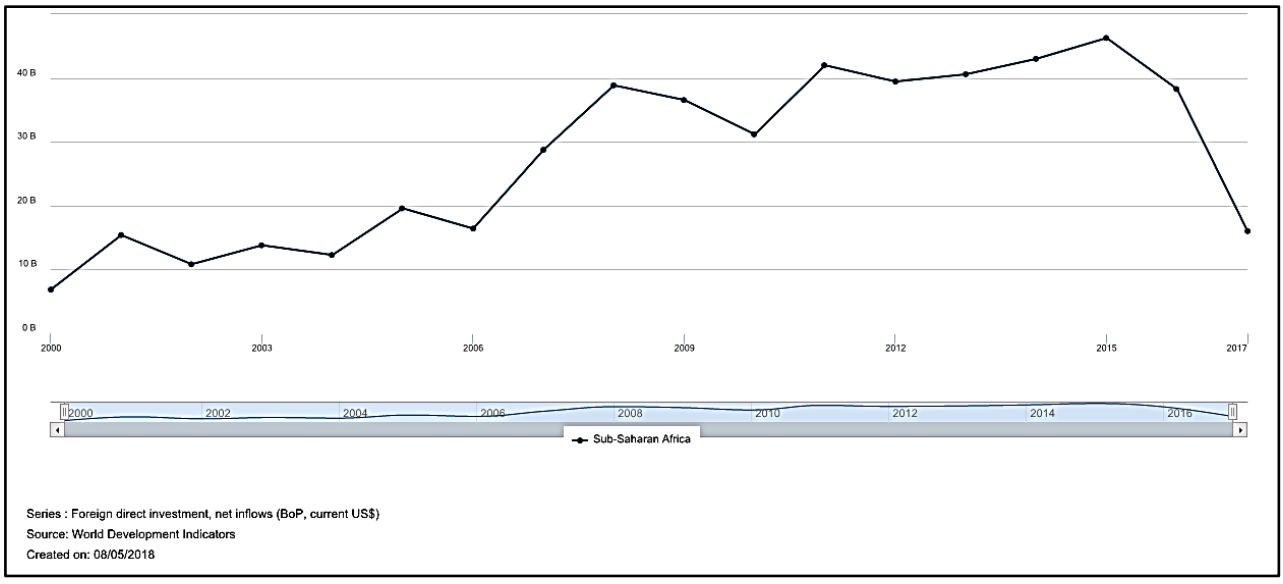

Figure 4. Net inflow of FDI(US$) into SSA countries for the period 2000-2017. From *THE WORLD BANK.* Retrieved from http://databank.worldbank.org/data/reports.aspx?source=2&series=BX.KLT.DINV.CD.WD&country=SSF. Copyright 2018 by THE WORLD BANK GROUP.

This study focused on the periods prior and post the 2008 financial crisis and examined the flow of FDI into SSA countries. The above line graph indicates the increase of FDI inflow from 2000 to 2008 and from 2008 there was a rapid decline until 2010 where there was a slight increase and a steady increase until 2015, thereafter there was a rapid decline till 2017. This line graph indicates that the FDI was not stable and consequently SSA countries have experienced a lack of financial investment. The interesting feature of this line graph is that the 2017 FDI inflow is marginally higher than the 2000 inflow. Despite the growth from 2000 to 2015, the FDI inflow returned to what it was, in 2000. Additionally, Figure 5 below proves that the FDI inflow into SSA countries compared with other developing or emerging economies has been limited from 1990 till 2016. Asian developing economies have received the largest amount of FDI inflow from 1990 till 2016.

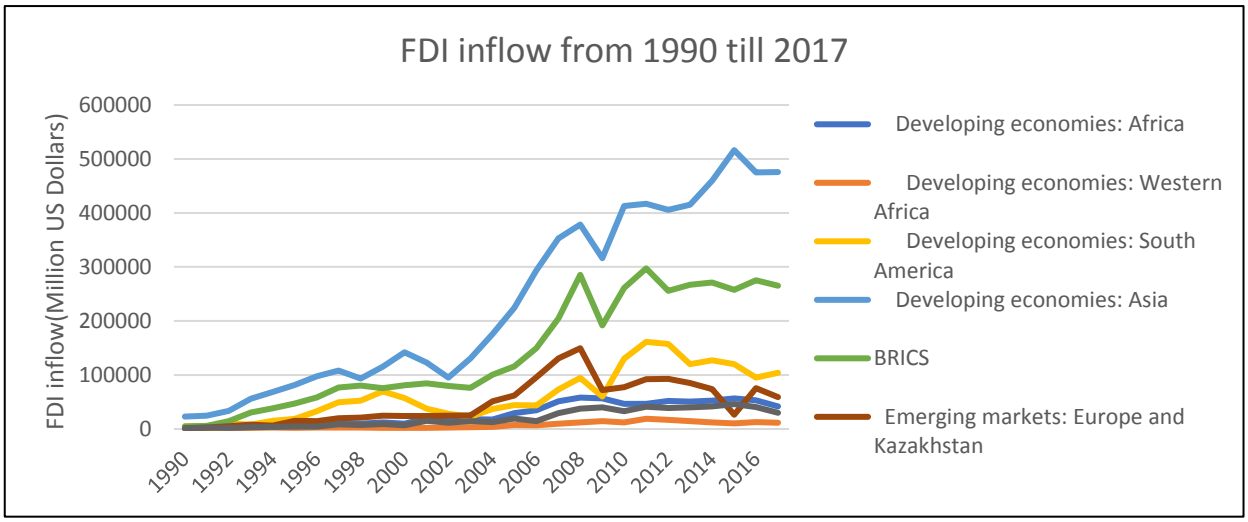

Figure 5. Inflow of FDI into developing or emerging economies/markets for the period 1990 till 2016. From *UNCTADSTAT*. Retrieved from http://unctadstat.unctad.org/EN/. Copyright 2018 by UNITED NATIONS 2016.

2.6 Negative FDI implications

Although, FDI inflow is regarded in a very positive light, there are however some negative implications which are discussed next. One example is that small local companies could experience difficulties in competing with the large multinationals who invest in a country. Consequently, unemployment could be on the rise, and smaller companies are unable to compete with the high technology that the multinationals bring into the country. Additionally, the introduction of technology is viewed in a positive manner, however because of the labour-saving aspect, employment reduction is a reality. With FDI multinationals entering a country, there is the prospect of mergers and acquisitions which

could negatively affect companies involved (Amendolagine et al., 2013). In addition, empirical evidence indicated that Latin American countries that receive FDI did not benefit as there was little or no effect on the growth of the receiving country (Alvarado, Iñiguez, & Ponce, 2017).

2.7 Inward flow of FDI

Thomas and Grosse (2001) attempted to explain the inflow of FDI to host countries by providing macro and micro explanations. The macro approach focused on country level variables (for example: change in exchange rates) to explain the flow of FDI into a country. The macro level studies typically looked at the features of a country that determined where FDI would flow. Additionally, these studies provided explanations why investors chose one country as opposed to another. The studies at a micro level particularly focused on individual organisations and provided reasons for the expansion of these countries into external markets (Thomas & Grosse, 2001). Although Thomas and Grosse (2001) discussed both the macro and micro level, only the macro determinants were analysed in this study since the determinants of FDI inflow were evaluated for SSA countries at a macro or country level. The determinants that were reviewed were macro determinants (for example infrastructure investment or corruption). Country level determinants were reviewed, business level (micro level) investment was not considered in this study.

It is necessary to have a better understanding of FDI into developing countries as the literature is limited in these countries compared to developed countries. This study took a macro-level view and thus focused on the macroeconomic characteristics of the country of destination of the investment and looked at the factors that explain why organisations have chosen to invest in certain countries. The country level aspects of the receiving country were considered and therefore macro level determinants of FDI into SSA countries were considered in this study. Considering the country level aspects that attract FDI, four determinants of FDI were investigated to explain why companies have chosen to invest in SSA countries (Thomas & Grosse, 2001). Several other determinants of FDI were found in the literature, however, this study was limited to the four main determinants of FDI into SSA countries. Various theories related to the determinants of FDI are discussed in the following sections.

2.8 Early studies on the determinants of FDI

The possible determinants of FDI have been studied broadly in Villaverde and Maza's (2012) paper. Some of the positive determinants of FDI that were found in this paper

were economic potential, competitiveness and labour conditions. These determinants of FDI attracted FDI into the Spanish regions that were studied, market size was an additional determinant that was considered however, it did not attract FDI. Villaverde and Maza (2012) do however, mention that there are recent studies, which are good and, have been developed by Blonigen (2005) and Faeth (2009). FDI was first explained in the neoclassical trade context by MacDougall (1960) and Kemp (1964, in Villaverde & Maza, 2012). In terms of the Neoclassical theory, capital investment will move from wealthy to poorer countries and this will remain the case until the return on investments in these two types of countries are equal (Garg & Dua, 2018). Villaverde and Maza (2012) discussed how the above-mentioned authors researched the return in capital differences regarding FDI. Having consulted current literature on the topic, it was found that two of the main theories on FDI determinants are the internalisation theory and the Ownership-Location-Internalisation paradigm (OLI) theory, consequently, these two theories underpinned this study, a discussion of the internalisation theory follows.

2.9 Internalisation theory

Internalisation is a general belief that explains organising boundaries and explains why overseas organisations prefer to keep full control over the process of producing goods instead of giving some of the work to local organisations (Buckley & Casson, 2009). The reason for keeping the work in the company (internalising the work) is due to the high cost of transactions which are incurred through licensing contracts (Javorcik, 2004). The internalisation theory posits that it is a requirement to internalise markets that are not perfect and this leads to the creation of multinational enterprises (Buckley & Tian, 2017). The creation of these multinational enterprises leads to FDI inflow into various countries and therefore this theory provides an explanation of FDI inflow. Alan Rugman (1980,1981) made the internalisation theory popular and this theory became the standard theory of the MNE (Narula & Verbeke, 2015).

The idea of internalisation was presented forty years ago by Coase (1937 in Buckley and Casson, 2009). It was presented as an idea to provide a connection between the economic theory of markets and managerial theories of organisation and control. The concept argues how the growth of MNE's is governed by the benefits and costs of market internalisation. The link between market internalisation and the existence of MNE's is developed whenever markets are internalised across national boundaries (Buckley & Casson, 2009). Pitelis and Teece (2018) described the theory as being designed to address the "make/buy" decision of firms investing overseas.

Another theory that is pertinent to this study is the Ownership-Location-Internalisation paradigm, which is discussed below.

2.10 Ownership-Location-Internalisation paradigm (OLI) theory

As claimed by Villaverde and Maza (2012), the theories discussed above were to a certain extent made consistent and summarised in the Ownership-Location-Internalisation paradigm (OLI) which was developed by Dunning (1977,1979 in Villaverde & Maza, 2012). The OLI paradigm is based on the theory of internalisation, which comprises features that are particular to the locality in a variety of countries to aid with deciding on FDI. Ideally the OLI model aids organisations and researchers to have a better understanding of why FDI occurs and how it can be used in a strategic manner to improve global competitiveness (Kahouli & Maktouf, 2015). OLI is a highly regarded theory that includes most aspects of the determinants of FDI (Luiz & Charalambous, 2009).

The OLI paradigm argues that an organisation's investments internationally are determined by three factors: ownership compensations (O), location advantages (L), and advantages from internalisation (I) (Godinez & Liu, 2015). The key principal behind the OLI model is that MNE's develop competitive advantages "O" in their home country and transfer those advantages oversees (based on the "L" advantages of the recipient country) where they can be utilised through FDI, which enables the MNE to internalise the ownership advantages("O").

Luiz and Charalambous (2009) mentioned that while the first two circumstances "O" and "I" are related specifically to organisation determinants of FDI, the location advantages "L" has a strong influence on the receiving country's inflow of FDI. The "L" variables, which are particularly related to policy and economic factors, are essentially the main determinants of FDI into a country. It should be noted that there are differences between the "L" variables in developing economies compared to developed economies. Most developing countries have unstable institutions, which thus lead these countries to be ineffective in the market place. Institutions allow economic exchange to occur and since these institutions are unstable and poorly run in developing economies, this causes problems for companies operating in these economies (Halaszovich & Lundan, 2016). This information is particularly significant for this study because this study focused on SSA countries which are classified as developing countries.

The "O" and "I" factors are still important in directing the FDI investment of MNEs, but the focus of this study was on SSA countries as investment destinations and therefore the "L" factors were the focus of this study (Luiz & Charalambous, 2009).

2.11 Empirical evidence on FDI determinants in SSA

There is a vast and rich amount of theoretical literature available on FDI determinants according to Villaverde and Maza (2012). The empirical surveys which were conducted on SSA or developing countries is limited and should be noted that the empirical information on this topic conducted on SSA or developing countries is mainly derived from two-star or lower ranked journals with respect to the ABS 2018 list in the Journal Quality List provided by Harzing (2018). The three and four-starred ABS 2018 journals generally represent the interests of American and European researchers who appear not to have had much interest in research in Africa, on this topic. The research which was conducted on this topic in Africa or developing countries was published predominantly in specialist or lower-tiered journals.

The following section will present evidence which has been found empirically on the four most frequent macroeconomic determinants of inward FDI into Sub-Saharan Africa or developing countries which were found through recent empirical research literature. These determinants are trade openness, institutional quality, infrastructure investment and control of corruption. Hypotheses were developed based both on the theoretical literature discussed above and the empirical research which will be discussed below. There are a vast number of determinants, however, for this study, four determinants were chosen to be tested. The first determinant is trade openness which is discussed in-depth, next.

2.12 Trade openness

Countries that have a large supply of goods that can be traded are defined as having economies which are more open (Romelli, Terra, & Vasconcelos, 2018). The indicator for trade openness is the ratio of trade to Gross Domestic Product (GDP). Trade openness is calculated by the addition of exports and imports of goods and services divided by GDP. Some of the benefits of trade openness include: an increase in the transfer of technology, skills transfer, total factor productivity and labour is increased, and finally development and economic growth increases (Economics Online, 2018).

Empirical research was conducted for the period 1996 until 2010 by Okafor et al. (2017) on the reasons for the inflow of FDI into SSA countries. Statistical analysis using panel

data techniques explored the impact of four locational motives of FDI. The empirical results for this study revealed that trade openness was found to have a significant and positive impact on the inflow of FDI. Countries that are characterised with high levels of trade openness and with more connections to the global economy, are hypothesised by Okafor et al. (2017) to attract more FDI inflow and are willing to accept investment from overseas. Openness, in this study was measured by adding exports and imports and dividing the sum by GDP, this equation revealed the degree of liberalisation of the countries under review. The results from this study suggested that trade liberalisation was therefore an important factor for FDI, it was also revealed that trade openness was an important FDI determinant and it was recommended for the countries under review to seriously improve trade policies (Okafor et al., 2017).

Mijiyawa (2017) looked at the factors that attracted FDI into certain African countries, the time period analysed was 1970 until 2009. Five-year panel data and the system generalised method of moments (GMM) technique was implemented to conduct the statistical analysis. The review of the empirical literature on FDI in Africa and/or SSA countries revealed the following. Morisset (2000, in Mijiyawa, 2017) conducted research on twenty nine SSA countries for the period 1990 till 1997 and found that trade openness created an improved business environment for FDI. Asiedu (2002, in Mijiyawa, 2017) found that trade openness also attracted FDI into SSA and non-SSA countries. Cross sectional analysis was conducted by Asiedu (2002) on 71 developing countries, 32 of which were SSA countries and the analysis was conducted for the period 1988 till 1997.

Research conducted by Mijiyawa (2017) revealed firstly that the effect that openness had on FDI varied according to the form of FDI (Mijiyawa, 2017) and FDI can either be export or market orientated. Export orientated FDI is focused on the competitiveness of costs of the receiving country whilst market orientated FDI is focused on size and growth of a market (Sharma, Wang, & Wong, 2014).The conclusion from Mijiyawa's (2017) research was that the relationship between FDI and trade openness was positive and significant, trade openness is therefore a driving factor for the increase of investment into Africa.

A regional comparison of FDI was conducted by Anyanwu and Yaméogo (2015) where they analysed the FDI determinants by looking at provincial heterogeneity amongst five African regions for the period 1970 to 2010 on 53 African countries. The analysis found a positive relationship between trade openness and FDI inflow in all the five regions

except for East Africa. Consequently, for FDI to be successful in SSA, it would be necessary to take cognisance of the factors that drive FDI in other African countries.

The capital flow structure to South Africa (an SSA country) between 1994 and 2002 was reviewed by Ahmed, Arezki and Funke (2007) who found that trade openness attracted FDI. Additionally, Gossel and Biekpe (2017) conducted research on the determinants of FDI that either pull FDI into South Africa or prevent the inflow of FDI for the period 1986-2013 and found that FDI inflows were "pulled" by trade openness in the short term. Trade openness is measured as the addition of real imports and exports divided by real GDP and if an economy has a high trade openness measurement, this will foster financial openness and will thus increase the inflow of capital (Gossel & Biekpe, 2017).

Trade openness is essential in terms of contributing towards the economic development of a country. It attracts FDI inflow and encourages private entrepreneurship whilst supporting "learning-by-doing" and promoting knowledge and new technology acquisition which consequently leads to an increase in productivity and growth of the economy concerned (Mullings & Mahabir, 2018).

Research was conducted on twenty two developing (non-OECD) and 24 OECD countries for the time period 1980 until 2012, the panel data method of statistical analysis was implemented(Economou, Hassapis, Philippas, & Tsionas, 2017). The review on trade openness by Economou et al. (2017) discussed how trade openness has been considered to be an essential factor in terms of the attraction of FDI inflow. They added that various authors concluded that there was a positive relationship between FDI inflow and trade openness and that by creating trade connections it would have a significant influence on FDI inflow. The results from Economou et al. (2017) revealed that trade openness was an important and significant determinant of FDI for OECD countries and this was not the case for the twenty two non-OECD developing countries.

The FDI into 42 SSA countries was investigated by Gossel and Biekpe (2017) for the period 1972 to 2014 and it was found that trade openness shows the extent of integration between the global economy and the receiving country. Additionally, Gossel and Biekpe (2017) stated that generally, in empirical research, there is a positive relationship between FDI inflow and trade openness. The results from Gossel and Biekpe's (2017) research revealed that trade openness and FDI had a positive and highly significant relationship which revealed that the relationship between trade and FDI in SSA remained unchanged in terms of time. This result was expected from Gossel and

Biekpe's (2017) research as economies which are open generally have more reputable and stable macroeconomic policies which thus lead to the reduction in the risk of conducting business and as a result, leads to FDI attraction.

Having presented a discussion on trade openness, a discussion of institutional quality is presented below.

2.13 Institutional quality

Institutions can be categorised as either being informal or formal. Informal institutions include, values, group routines, social norms or trust and formal institutions include, laws and rules (Álvarez, Barbero, Rodríguez-Pose, & Zofío, 2018).

FDI into developing countries, particularly SSA countries for 2009 was investigated by Amendolagine et al. (2013) who found that effective institutions and a reliable legal system were necessary for improving the connections created by overseas organisations. Research was conducted by Economou et al. (2017) on the FDI determinants in OECD and developing countries for the period 1980-2012 and the results from the statistical analysis revealed that favourable institutional variables, for example, regulatory quality, could cause the inflow of FDI into these receiving countries. Research conducted by Ahmed et al. (2007) focused on South Africa for the period 1975 to 2002, in addition, this study concluded that institutional quality attracts FDI inflows.

Specifically for emerging economies, Gaur, Kumar and Singh (2014) explained that institutions have a great effect on a company's performance and strategy. If institutions are well developed, companies can conduct the operations of their business in an efficient manner by using the market to their benefit. Incompetent institutions lead to higher transaction costs and the efficiency of market-based exchanges become less efficient. According to Gaur et al.(2014),emerging economies are typically characterised by poor institutions, and these institutions are usually undergoing transformation which changes the nature of competition.

Compared with developed countries, emerging markets have different institutional environments. The differences in institutions between the receiving countries and investing countries are fundamental. Institutions which have formal regulations and laws in the receiving and investing countries influence an MNE's choice about which structure of ownership and entry mode into the receiving country should be implemented. Companies that invest in countries that have institutions that differ from their institutions

will experience problems. These problems increase the uncertainty of the investment into the foreign country and increase expenses incurred when investing in these countries. The costs which can be incurred include management and initiation costs as well costs incurred to achieve success in these countries. (Contractor, Lahiri, Elango, & Kundu, 2014)

The World Bank's World Governance Indicators (WGI) was used to measure institutional quality for the sample of countries that were tested. The WGI is the most geographically comprehensive and detailed set of institutional indicators that were available. The WGI are complex ratings and it has combined various institutional information to create a database that is more accurate. The WGI provides six indicators that are related to governance for the period 1996 till 2013, therefore this database is suitable for this research since the analysis was conducted for the periods 2002-2008 and 2009-2016. The WGI captures different features of institutional quality at country level. Control of corruption is included in the six indicators and this indicator measures anti-corruption policies, government effectiveness which measures the satisfaction and quality of public amenities, infrastructure, bureaucracy and government credibility. Thirdly Political stability and absence of violence which measures violence and radicalism motivated by political actions. Fourth, Rule of Law which reflects the judicial system, property rights and law enforcement confidence. Fifth, Regulatory quality, which indicates the governments' ability to implement policies to endorse private sector growth. Finally, Voice and accountability measures the degree to which inhabitants are able to participate in choosing the government representatives (Álvarez et al., 2018).

2.14 Infrastructure investment

The causes of inward FDI SSA countries for the period 1996-2010 were investigated by Okafor et al. (2017) and indicated that Leibrecht and Riedl (2008 in Okafor et al. 2017) as well as Fung and Siu (2005 in Okafor et al. 2017) claimed that quality infrastructure attracted FDI. Investment in infrastructure was not positively and significantly related to FDI activities in SSA (Okafor et al., 2017). The variable used by Okafor et al. (2017) to measure infrastructure, was "investment in infrastructure" by the country receiving FDI. It was found in all regression models, that were tested by Okafor et al. (2017), that there was no relationship between the inflow of FDI and infrastructure investment, there was an insignificant result in the statistical regression analysis.

Kinuthia and Murshed (2015) focused on the FDI determinants for Kenya and Malaysia and the results revealed that the limited level of infrastructure development in Kenya did

not encourage FDI inflows to Kenya. The infrastructure variable in this case was defined for Malaysia as “expenditure on infrastructure” for the period (1970–2009) and for Kenya an infrastructure index was developed as a substitution to measure the level of infrastructure development. The index was constructed due to lack of better measure and as a substitution to measure the development of infrastructure

Research conducted by Asiedu and Lien (2011) on a large selection of developing countries for the period (1982-2007) revealed that good infrastructure promoted the inflow of FDI. Two measures were used to determine the level of infrastructure development in the host countries that were analysed: the number of telephones per hundred of the population and the gross fixed capital formation as a percentage of gross domestic product (GDP). Alvarez and Marin (2013) concur that the level of infrastructure was an important driver of inward FDI. According to Chung (2014), infrastructure amongst other determinants such as corruption and market capitalisation for example, were identified as a significant determinant of FDI inflow.

2.15 Corruption

Corruption is defined by Kaufmann et al. (2009 p4, in Bailey, 2018) as “*the extent to which public power is exercised for private gain*”. Additional definitions are provided by Godinez and Liu (2015) who define corruption as the exploitation of public office for one’s private gain. This definition is revealed in the measure of one’s perception of levels of corruption. Public corruption destroys a country’s integrity by decreasing the efficiency of its operations, misrepresenting public policy, reducing the speed of information distribution, having a negative impact on income distribution and increases the nation’s poverty (Godinez & Liu, 2015).

Corruption includes the following activities: nepotism, bribery, patronage and fraud. Theoretically, the relationship between FDI and corruption is focused on the increase in the costs from performing corrupt actions. Inefficiencies in the market place and in resource allocation are developed from corrupt practises. These inefficiencies thus lead to an increase in management and production costs. There are various research articles which have found significant negative relationships between FDI and corruption, for example, Gastanaga et al. (1998, in Bailey, 2018) found this relationship for developing countries.

A major concern in developing African economies is the problem of corruption and its effect on the country’s economic growth because corruption has an adverse effect on a country. This is confirmed by d’Agostino, Dunne and Pieroni (2016) who state that

corruption would have a damaging effect on the welfare and development of these countries. Corruption is prevalent both in developing and developed countries and financial globalisation has caused corruption to increase (Gossel & Biekpe, 2017).

For different locations, corruption can vary in its level of uncertainty that it creates as well as in its scope in an economy. Cognisance should be taken of the fact that not all MNE's react and perceive corruption in the same way. The costs incurred from corruption and the level of uncertainty from corruption could vary depending on the country from which the investors originate. It is for this reason that MNE's which are based in countries that exhibit a low level of corruption avoid investing in highly corrupt countries. These MNE's do not invest in these countries due to unfamiliarity of how to deal with corruption since this problem is not common in their homelands and since they do not have the skills and knowledge to deal with this issue, they are consequently, deterred from investing in highly corrupt countries. By contrast, there is an argument that MNE's from highly corrupt countries are not deterred from investment in certain corrupt countries and therefore may be attracted to invest in corrupt countries and could therefore take advantage of corrupt activities (Godinez & Liu, 2015).

Data for the corruption variable in this study was measured by following the method provided by Cieslik and Goczek (2018) who used indicators of control of corruption from the World Bank, Worldwide Governance Indicators' (WGI) database to measure the effect of corruption on international investment. Data is provided by the WGI on the governance indicators for more than 200 countries for the time period 1996 until 2017 based on six governance aspects, control of corruption being one of the dimensions (THE WORLD BANK, 2018e).

The impact of corruption for the year 1997 on OECD countries was reviewed by Cuervo-Cazurra (2006,2008, in Jain, Kuvvet, & Pagano, 2017) who found that corruption had a significantly negative effect on FDI, however, they added that this effect could be minimised by implementing anti bribery laws in the country. These laws were said to reduce the number of bribes from OECD countries and consequently could reduce corruption globally.

Okafor et al. (2017) conducted research on the SSA and MENA regions, which were referred to as regions that had received the least FDI. Panel data for twenty SSA countries and eleven MENA countries were reviewed for the 2000 till 2012 period to evaluate the determinants of FDI. Using fixed effects estimations, it was found that the control of corruption positively influenced FDI inflows into these areas. The result from

their analysis confirmed their hypothesis of there being a positive relationship between the control of corruption and FDI inflows. Their hypothesis identified that there was a positive relationship between the variables as it was believed that controlling corruption can reduce investment activity uncertainty. Corruption was described as the ability to prevent the inflow of investment directly and indirectly. The control of the corruption variable for this study was measured using data from the World Bank, it measured the degree to which public power for one's gain is controlled. The results of Okafor et al's. (2017) study found that corruption control would encourage the inflow of FDI into these specific regions.

The driving factors of FDI into Africa were analysed by Mijiyawa (2017) using panel data to conduct an empirical investigation. Five-year panel data and the GMM method were used for the analysis for the period 1970 till 2009. They mentioned how Asiedu (2006, in Mijiyawa, 2017) stated that less corrupt countries promote FDI into the receiving country. Considering that corruption is one of the determinants in this study, the above information indicates that a country that has a low incidence of corruption attracts FDI.

Azam and Ahmad (2013, in Ullah & Khan, 2017) concur with Mijiyawa's (2017) analysis of the relationship between FDI inflows and corruption in thirty three developing countries for the period 1985 till 2011 and the results of the statistical analysis revealed that corruption significantly affected FDI inflow, the majority of the MNE's do not invest in countries that are corrupt which leads to reduced FDI inflow (Ullah & Khan, 2017).

To confirm the negative impact of corruption, Cieślik and Goczek (2018) considered corruption to be an obstacle in terms of the economic development of emerging economies and the literature on economics discusses how corruption negatively affects the economic growth of countries since it affects physical capital accumulation. The incentive to invest in a country is reduced due to the uncertainty which corruption creates regarding the return on investment. Corruption has a negative effect on a country's economic growth and wealth since it discourages new capital inflow into the country, additionally, it creates social and private rights uncertainties (Cieślik & Goczek, 2018).

In contrast with the above arguments, Gossel (2018) reviewed the relationship between corruption, democracy and FDI for thirty countries in SSA for the period 1985 till 2014 and the GMM analysis for the relationship between FDI and corruption revealed that the increase in the level of corruption in the thirty SSA countries caused FDI to flow into these countries, corruption has a highly significant and had a positive relationship with

FDI inflow. FDI is attracted to the increase in corruption, because the majority of SSA democracies are weak and the political parties receive support in exchange for services or goods (Gossel, 2018).

2.16 Conclusion

This chapter presented the relevant literature that was sourced for this study. The literature comprised explanations of the pertinent terminology used in this study followed by information on SSA countries' FDI. Thereafter theoretical and empirical evidence was examined to provide an extensive and informed understanding of the causes of FDI flow into a host country. The theories that were examined included the Neoclassical, internalisation and OLI paradigm theory. Several determinants were identified in the literature, however for this study the most important determinants that were found both from the theoretical models and empirical studies were discussed in depth. A review of various empirical studies on trade openness, institutional quality, infrastructure investment and corruption were presented. The next chapter is Chapter three which presents the hypotheses that emanates from the literature review presented above.

CHAPTER THREE
RESEARCH HYPOTHESES

3.1 Introduction

This study intended to evaluate the determinants of FDI into SSA countries, prior to and after the 2008 financial crisis. Consequently, research hypotheses were formulated, emanating from the theoretical and empirical literature review, to establish which determinants are driving FDI into SSA countries prior to and post the 2008 financial crisis. The relationship between FDI and trade openness was examined by the Research Hypothesis one. Research Hypothesis two looked at the relationship between the inflow of FDI and institutional quality. Research Hypothesis three examined the relationship between FDI and infrastructure investment and finally Research Hypothesis four perused the relationship between FDI and the control of corruption.

The objective of this study was to establish the determinants of inward FDI into SSA countries for the periods 2000-2008 and 2008-2016. Based on the information obtained from the literature review presented in Chapter Two, it was possible to formulate the following Research Hypotheses.

3.2 Research Hypothesis One

The null and alternative hypotheses for testing the relationship between inward FDI and trade openness for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and trade openness in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and trade openness in SSA countries, beyond a level of significance of 95%.

Thus: H1O: Model significance (as specified by an ANOVA p-value) <= .050

H1A: Model significance (as specified by an ANOVA p-value) >.050

3.3 Research Hypothesis Two

The null and alternative hypotheses for testing the relationship between inward FDI and institutional quality for SSA countries for the time periods prior and post the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and institutional quality in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and institutional quality in SSA countries, beyond a level of significance of 95%.

Thus: H2O: Model significance (as specified by an ANOVA p-value) <= .050

H2A: Model significance (as specified by an ANOVA p-value) >.050

3.4 Research Hypothesis Three

The null and alternative hypotheses for testing the relationship between inward FDI and infrastructure investment for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and infrastructure investment in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and infrastructure investment in SSA countries, beyond a level of significance of 95%.

Thus: H3O: Model significance (as specified by an ANOVA p-value) <= .050

H3A: Model significance (as specified by an ANOVA p-value) >.050

3.5 Research Hypothesis Four

The null and alternative hypotheses for testing the relationship between inward FDI and control of corruption for SSA countries for the periods prior and post the financial crisis of 2008 were as follows:

The null hypothesis: The model showed a relationship between FDI and control of corruption in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and control of corruption in SSA countries, beyond a significance level of 95%.

Thus: H4O: Model significance (as specified by an ANOVA p-value) <= .050

H4A: Model significance (as specified by an ANOVA p-value) >.050

The above hypotheses were developed from the theoretical and empirical literature on the topic of determinants of FDI. After an examination of the numerous articles for the literature review the following determinants were identified trade openness, institutional quality, infrastructure investment and control of corruption from the various other determinants that were found. For this study, regression models were formulated to conduct the statistical analysis to establish the relationship between FDI and the determinants identified in the literature review as discussed in Chapter two. The following Chapter, Chapter four provides a discussion of the study's research methodology and design that was implemented to check the hypotheses that were developed.

CHAPTER FOUR
RESEARCH METHODOLOGY AND DESIGN

4.1 Introduction

This chapter provides a description of the research method that was implemented to address each hypothesis. This section outlines the research methodology and design that was used to ensure that the previously mentioned objective was achieved. The population description, the unit of analysis, the sampling method and size, the measurement instrument, the data gathering process, the data analysis approach and limitations are discussed in this chapter.

4.2 Choice of methodology

The research philosophy is a concept that corresponds to knowledge development and the essence or attributes of the knowledge. The philosophy for this topic contained key assumptions about the way the world is perceived through the researcher's eyes. Researchers should understand what they are researching; therefore, the onus is upon them to be concerned with the philosophy of the chosen topic. The research philosophy is ultimately influenced by the researcher's opinion and ideas about the relationship between knowledge and the process by which these ideas are created (Saunders et al., 2009). Practical considerations play a part to a certain extent in the choice of philosophy (Ahmad and Yekta, 2010).

This study was quantitative in nature and the relationship between inward FDI and the following variables: Trade openness, institutional quality, infrastructure investment and control of corruption were investigated. The philosophy which best describes the way the researcher conducted the methodology was positivistic. When a researcher chooses a "positivist" philosophy, there is a preference to work with social reality that is practical, something that could be visualised, similar to what a scientist does (Saunders et al., 2009). The positivist researchers' key concern is to research measurable and observable variables. To reiterate, the variables that were studied were FDI, trade openness, institutional quality, infrastructure investment and control of corruption, which were all measurable and observable. Positivistic type philosophies use highly structured methodologies; the statistical analysis for this study was structured and direct (Saunders & Lewis, 2012). Consequently, the relationships between the variables mentioned above were established by performing a statistical multiple regression analysis, two separate multiple regression analyses were conducted. The first analysis was conducted on inward FDI, trade openness, institutional quality and infrastructure investment for 2002

until 2008 and 2009 until 2016. The second analysis was conducted on inward FDI, trade openness, infrastructure investment and control of corruption for 2002 until 2008 and 2009 and 2016. Regression is described as a simple method to investigate the relationship between variables (Mazu, Chatterjee, & Price, 1993). Saunders et al. (2009) noted that if a positivistic philosophy is used, existing theory must be used to create hypotheses and these hypotheses will be verified and validated through the statistical regression. Four hypotheses were created for this study, were verified, and validated using statistical regression.

The approach that was used for this study was deductive since the main goal of this research was to determine the macroeconomic determinants (Trade Openness, institutional quality, infrastructure investment and control of corruption) of inward FDI into SSA countries. Saunders and Lewis (2012) define deduction as follows: "*Deduction is a research approach which involves the testing of a theoretical proposition by using a research strategy designed to perform this test*" (p. 108). From this definition, it is apparent that the deductive research approach was appropriate for this study as a new theory was not developed from the analysis of the data that was collected; hypotheses that were formulated from the literature review were tested. Consequently, the study verified the relationship between inward FDI and trade openness, institutional quality, infrastructure investment and corruption of the host countries for the periods prior and post the financial crisis of 2008.

The research was performed as an explanatory study that evaluates fundamental relationships between variables and is thus explanatory in nature. A statistical regression analysis was used to establish the relationship between FDI and trade openness, institutional quality, infrastructure investment and the control of corruption variables as mentioned earlier (Neuman, 2007).

The strategy that was employed for the research was an experiment. The aim of this type of strategy was to evaluate the underlying relationships between the independent and dependent variables. The independent variable was FDI and the dependent variables were trade openness, institutional quality, infrastructure investment and corruption. For this study, the relationship between the variables was reviewed and therefore the experiment strategy was considered most suitable. The time horizon for this research was a "snapshot" time horizon which is referred to as cross sectional (Saunders et al., 2009). A "snapshot" was taken of the periods before and after the 2008 global financial crash 2002-2008 and 2009-2016. To obtain this snapshot, the average

of the variables (FDI, trade openness, institutional quality, infrastructure investment and control of corruption) was taken of the SSA countries for the two periods before and after the 2008 global financial crash. The average of the above mentioned variables was taken as did Villaverde and Maza (2012) in their study. The reason why Villaverde and Maza (2012) took the average of all the variables in their study was because of various data problems which could have arisen. An additional reason for taking the average of the variables was that inward FDI flow had changed significantly between the periods prior and post the 2008 crash as well as due to many missing observations on some of the determinants (Villaverde & Maza, 2012).

A quantitative methodology is a data gathering technique or data analysis process that creates or uses numerical data. The technique that was employed was a highly structured quantitative method. The research method that was used was the mono method, which is a method where only one technique of collecting data and a corresponding single analysis of data is implemented. Secondary data sources were used to collect the data for this study; the World Bank database was used to collect data for all the variables mentioned above.

4.3 Population

Zikmund (2013) defines the population or universe as any full group of objects that share similar qualities. The purpose of this study was to determine the macroeconomic determinants of inward FDI into SSA countries; consequently, the population for this study was thirty-five SSA countries.

4.4 The unit of analysis

Lewis-Beck, Bryman and Futing Liao (2004) define the unit of analysis as the simplest element in a research project. It is the subject of the study, the who or the what that one studies. The units of analyses, for each SSA country, for this study were derived from the hypotheses and relate to the following variables:

4.5 Dependent variable

FDI inflow: FDI inflow divided by GDP. This was in accordance with (Asiedu, 2002)and was calculated for each SSA country in Table 1.

4.6 Independent variables

Trade openness: (Exports + imports) divided by GDP was in accordance with the Villaverde and Maza (2012) article and was calculated for each SSA country in Table 1.

Institutional quality: sum of (accountability and voice, absence of violence and political stability, the effectiveness of government, regulatory quality, rule of law and corruption control). All these items to measure the quality of institutions were collected from the World Bank's Worldwide Governance Indicators for the period 2002 until 2016 for the SSA countries in Table 1. The addition of the above items, for each SSA country in Table 1 below, to obtain institutional quality concurred with Economou et al.(2017).

Infrastructure investment: number of telephone lines per one hundred people (which was obtained from the World Development Indicators (WDI, online portal) found in the World Bank database. This was in accordance with Alam and Zulfiqar Ali Shah (2013) and this data was collected for each SSA country in Table 1.

Control of corruption: The data for the corruption variable was obtained from the World Bank's Worldwide Governance Indicators control of corruption data for the period 2002 until 2016 for each SSA country.

The unit of analyses discussed above were applicable to SSA or developing countries since these variables (independent variables) were found in the empirical literature that was specifically conducted on SSA or developing countries. These independent variables were chosen from several determinants found in the literature. The reason for limiting the investigation to these determinants was due to time constraints and data availability. These determinants, which were analysed, were also chosen due to the frequent mention in the literature.

4.7 Sampling method and size

Sampling is defined as the selection of a subgroup of a population to be used in research. If sampling is implemented in the correct manner, it enables cost saving and time reduction for the research (Daniel, 2012). Samples were used instead of the full population since it was not viable to access data for all SSA countries.

There are two types of sampling techniques, which could have been implemented: probability sampling and non-probability sampling. The sampling method, which was used, for this study was purposive sampling. This is a technique whereby one's

judgement is used to choose samples that will best aid the researcher to prove the hypotheses and assess the research problem (Saunders et al., 2009).

The objective of this study was to establish the determinants of inward FDI into SSA countries for the sample periods 2002-2008 and 2009-2016, judgement was implemented to choose only SSA countries instead of other developing countries.

Table 1 below (35 SSA countries) represents the SSA countries that were chosen to be analysed for the multiple linear regression analyses that was conducted on FDI and trade openness, institutional quality, infrastructure investment and control of corruption; instead of choosing a few SSA countries, a large sample of SSA countries was chosen to get a full representation of the SSA region. Data was unavailable for certain SSA countries and these countries with other SSA countries were omitted from the analysis due to missing data for certain years. Table 2 below (48 SSA countries) reveals the full list of SSA countries according to the (THE WORLD BANK, 2018c), however due to data availability various countries were not analysed. The research required secondary annual time series data for the independent and dependent variables mentioned previously.

Table 1

SSA countries for statistical multiple regression analysis

	Country		**Country**		**Country**
1	Angola	16	Guinea-Bissau	31	Tanzania
2	Benin	17	Kenya	32	Togo
3	Botswana	18	Madagascar	33	Uganda
4	Burkina Faso	19	Malawi	34	Zambia
5	Cabo Verde	20	Mali	35	Zimbabwe
6	Cameroon	21	Mauritania		
7	Chad	22	Mauritius		
8	Comoros	23	Mozambique		
9	Congo, Dem. Rep.	24	Namibia		
10	Congo, Rep.	25	Niger		
11	Cote d'Ivoire	26	Nigeria		
12	Equatorial Guinea	27	Rwanda		
13	Gabon	28	Senegal		
14	Gambia, The	29	South Africa		
15	Ghana	30	Swaziland		

Note. Adapted from THE WORLD BANK (2018b)

Table 2

Full list of SSA countries according to The World Bank dataset

	SSA country		**SSA country**		**SSA country**
1	Angola	20	Guinea	39	Somalia
2	Benin	21	Guinea-Bissau	40	South Africa
3	Botswana	22	Kenya	41	South Sudan
4	Burkina Faso	23	Lesotho	42	Sudan
5	Burundi	24	Liberia	43	Swaziland
6	Cabo Verde	25	Madagascar	44	Tanzania
7	Cameroon	26	Malawi	45	Togo
8	Central African Republic	27	Mali	46	Uganda
9	Chad	28	Mauritania	47	Zambia
10	Comoros	29	Mauritius	48	Zimbabwe
11	Congo, Dem. Rep.	30	Mozambique		
12	Congo, Rep.	31	Namibia		
13	Cote D'ivoire	32	Niger		
14	Equatorial Guinea	33	Nigeria		
15	Eritrea	34	Rwanda		
16	Ethiopia	35	Sao Tome and Principe		
17	Gabon	36	Senegal		
18	Gambia, The	37	Seychelles		
19	Ghana	38	Sierra Leone		

Note. Adapted from THE WORLD BANK (2018b)

4.8 Measurement instrument

The objective of this study was to establish the determinants of FDI into SSA countries for the sample periods 2002-2008 and 2009-2016. A survey was not required for this study since the dataset existed. Secondary data, as discussed previously was used for the study. When checking if the secondary dataset is suitable, the most important item to check is measurement validity. If the secondary data cannot provide the right information that is required to answer the research question, then the answers to the question will not be correct (Saunders et al., 2009). Secondary data should provide the information to clarify questions pertaining to the research topic, consequently secondary data was obtained from the World Bank database, which is available to the public and

provided the relevant information pertaining to the independent and dependent variables as mentioned above.

There are no strong solutions to ensure validity when using secondary datasets, it is suggested that the researcher makes his/her own decision regarding the validity of the data for the research purpose. The researcher may consult other studies, which had used similar datasets and determine the suitability of the data and how validity and reliability was dealt with. Validity and reliability of secondary datasets was linked to the methodology that was chosen to collect the data, the source specifically (Saunders et al., 2009).

The source and authority of the dataset should be checked for validity and reliability. It is suggested specifically that when obtaining data from the internet, which was done for this study, the researcher should initially find the responsible individual who compiled the data, find extra information on the source to establish the reliability of the information. Since the World Bank Data Bank, is a reliable source of information and their reports are based on their research and statistics, which are consistently updated for their records, the data obtained from the World Bank was reliable and valid. The data collected by the World Bank is of a high quality and the methodologies, sources and standards, which are used, are internationally recognised. A Data Quality Assessment Framework has been created by the World Bank to assess the data quality (THE WORLD BANK, 2018c). When sourcing information from the internet, copyright statements should be examined for reliability and validity. It is suggested that the researcher examine the method that was used to collect the data, this may be found perhaps in a report provided by the website (Saunders et al., 2009). It is essential that a researcher ensures credibility of the data sources that will be used in a study and this was done by the researcher for the secondary data sources discussed above.

4.9 Data gathering process

To reiterate, the data used for this research topic was secondary data; the data was annual time series data for the previously discussed independent and dependent variables. The data was accessed from various reliable sources, which included The World Bank DataBank and the World Bank's Worldwide Governance Indicators for 1996 until 2016.

4.10 Trade openness

The data for the trade openness independent variable was obtained from the World Bank DataBank. The trade openness variable was measured by adding exports of services and goods and imports of services and goods and dividing this total by GDP. Trade openness was calculated using this equation for each year for each SSA country (refer to Table 1 above) under consideration and finally averages were taken of this trade openness equation for the two time periods, 2002-2008 and 2009-2016 for each of the thirty-five countries.

4.11 Institutional quality

Data for the institutional quality variable was obtained from the Worldwide Governance Indicators (WGI) project, which falls under the World Bank. The report compiled by the World Bank includes data for various countries on six governance dimensions: Voice and accountability, absence of violence and political stability, effectiveness of government, regulatory quality, rule of law and corruption control. The six governance indicators for each SSA country were added for each year for each SSA country (refer to Table 1 above) and an average was taken for the two time periods before and after the 2008 global financial crash for each SSA country.

4.12 Infrastructure investment

Data for the infrastructure investment variable was obtained from the World Bank DataBank and it was measured using the fixed telephone subscriptions per 100 people. The average was taken for each SSA country (refer to Table 1 above) for the number of fixed telephone subscriptions per 100 people for the two periods before and after the financial crisis.

4.13 Control of corruption

Data for the corruption variable was obtained from the control of corruption data for the institutional quality variable. Okafor et al. (2017) used the control of corruption variable in their analysis which explored the determinants of FDI into 20 SSA countries for the period 2000 until 2012.

4.14 Data analysis approach

The tests that were used to analyse the data and establish the macroeconomic determinants of inward FDI were adopted from previous similar studies or were adapted from these similar research studies. Statistical tests which were employed by Villaverde and Maza (2012) were found to be most suitable for this research. Villaverde and Maza (2012) conducted research on the determinants of inward FDI for the European regions

and consequently this study drew upon information found in Villaverde and Maza's (2012) study.

The aim of the statistical analysis was to test the hypotheses discussed previously in Chapter Three, to establish the relationship between FDI and the following variables: trade openness, institutional quality, infrastructure investment and control of corruption. Two multiple regression analyses were conducted since the institutional quality variable and control of corruption variable cannot be analysed in the same regression since institutional quality comprises data on control of corruption. Once the statistical relationships were established by using the ordinary least squares regression method, the determinants of FDI into SSA countries before and after the 2008 global financial crash were determined. For this study, the data was analysed following the statistical method used by Villaverde and Maza (2015) who reviewed the determinants of FDI for European regions.

The secondary data was accessed from the sources mentioned above, for each of the years between 2002 and 2016, for this study. The average of the data (for each of the independent and dependent variables) was taken for the two periods 2002-2008 and 2009-2016 as did Villaverde and Maza (2012) in their study. Once the averages were taken for all the variables for the periods 2002-2008 and 2009-2016, multiple regression analyses were conducted for determinants: trade openness, infrastructure investment, institutional quality and control of corruption for the SSA countries shown in Table 1.

4.15 Analyses parts one and two: Multiple regression analyses

Two multiple regression analyses were performed and Analysis part one was conducted on the following variables: FDI, trade openness, infrastructure investment and institutional quality. Analysis part two was conducted on the following variables: FDI, trade openness, infrastructure investment and control of corruption. Both analyses followed the statistical multiple regression analysis method provided by Laerd STATISTICS (2018). The statistical multiple regression analysis method was used since it explores the relationship between a continuous dependent variable and various independent variables. The method was additionally considered since it tells you how well a group of variables can predict a certain outcome, provides information about the model as a whole, it establishes which variable in the group of variables is the best predictor of the specific outcome, it provides the relative contribution of each of the variables in the model (Pallant, 2007).

4.16 Basic requirements of running a multiple regression analysis

A significant aspect of running a statistical multiple regression analysis involves checking that the data can be analysed using the multiple regression test. There are eight assumptions that need to be met before conducting a multiple regression analysis. The first two assumptions relate to the design of the study and if these two assumptions are not met then the statistical multiple regression analysis is the incorrect analysis to run. The remaining six assumptions are related to the nature of the data that was analysed. The IBM SPSS software was used to check the last six statistical assumptions. If any of the assumptions were not met, the data was corrected so that the data did not violate the assumptions that were made (Laerd STATISTICS, 2018).

4.16.1 Assumption one

A single dependent variable must be measured at the continuous level (ratio or interval level). In this case, the dependent variable was FDI, which was measured by dividing inward FDI by GDP. The continuous variables in the IBM SPSS statistical package are referred to as scale variables (Leech, Barrett, & Morgan, 2014).

4.16.2 Assumption two

There are two or more independent variables that are measured at the nominal or continuous level. In this study, for analysis part one the independent variables were trade openness, infrastructure investment and institutional quality and for analysis part two the independent variables were trade openness, infrastructure investment and control of corruption. (Laerd STATISTICS, 2018).

4.16.3 Assumption three

This assumption discusses the independence of observations and is designed to check for first order autocorrelation, which means that adjacent observations (their errors) are correlated (not independent). The Durbin-Watson statistic test was used to check this assumption and it is a statistic that measures autocorrelation of errors (Tabachnick & Fidell, 2007). Godinez and Liu (2015) conducted research on FDI inflows into Latin America and specifically looked at corruption and the effect that this determinant had on FDI inflow, autocorrelation was checked by the authors using the Durbin Watson statistical test. The Durbin-Watson test checks for serial correlations between the errors. The test statistic can vary between zero and four and if the value is two, it indicates that the residuals are not correlated. If the value is above two, this suggests that there is a negative correlation between the adjacent residuals and if the value is below two, this

shows a positive correlation. If the value is lower than one or greater than three, this is considered as problematic (Field, 2009).

4.16.4 Assumption four

There was a requirement for a linear relationship to exist between each of the independent variables and the dependent variable. This was verified by creating partial regression graphs between the dependent variable and each independent variable. Additionally, there was a requirement for there to be a linear relationship between the independent variables collectively with the dependent variable. This check was conducted by plotting a scatterplot of the studentised residuals against the unstandardized predicted values, the residuals in the graph plotted should form an approximate horizontal band (Griga, 2017). Scatterplots provide an indication of whether the variables have a linear relationship or nonlinear relationship(Pallant, 2001).

4.16.5 Assumption five

Homoscedacity requires the residuals' variance about the predicted dependent variable scores should be similar for all predicted scores (Pallant, 2007). The X variable's (the variables that were plotted on the X axis) variability in scores should be similar to all of the values of the Y variables (variables that were plotted on the Y axis), this is known as homoscedasticity (Pallant, 2001). The residuals should be similarly spread over the predicted values in the studentised residuals against the unstandardized predicted values scatter graph (Griga, 2017).

4.16.6 Assumption six

Multicollinearity refers to the relationship between the independent variables and it exists when there is a high correlation between the independent variables, r is equal to and greater than 0.9 (Pallant, 2001).This high correlation can lead to problems when trying to understand which independent variable contributes to the dependent variables variance, additionally it creates technical issues when performing a multiple regression model calculation. IBM SPSS Software was used to check for multicollinearity and the tolerance values as well as correlation coefficients were inspected, in addition to checking the "r" value. The tolerance values should be less than 0.1 and the bivariate correlation for the variables should not be more than 0.7(Pallant, 2007).

4.16.7 Assumption seven

There was a requirement for there to be no significant outliers, high leverage points, or influential points that were high in the model (Laerd STATISTICS, 2018). Outliers are cases with values that are slightly above or below the majority of the other cases (Pallant, 2001). Additionally, statistical multiple regression analysis is sensitive to outliers in the model (Pallant, 2001). Outliers are defined as standardised residual values higher than 3.3 or less than -3.3. If there are only a few outliers, it is not necessary to act (Pallant, 2007). The Casewise Diagnostics table was output in SPSS to check for unusual cases, the table was only output if there were standardised residual values above three or below three.

Leverage points were checked using the IBM SPSS Software and influential points were checked using Cook's Distance which measures the change in the regression coefficients produced by leaving out a certain case (Tabachnick & Fidell, 2007). The leverage points were checked and if there were any values below 0.2, these were considered as safe values, any values above 0.5 were avoided and values between 0.2 and 0.5 were considered as risky (Mehmetoglu & Jakobsen, 2017). The Cook's Distance value was found in the residual's statistic table. If this value was greater than one, it was considered problematic, however consideration was taken to remove or not remove the offending case (Pallant, 2001).

4.16.8 Assumption eight

Normality was checked by plotting a histogram, there is a requirement for the histogram to show a symmetrical and bell-shaped curve, this reveals a normal distribution (Field, 2009). If the mean and standard deviation values are close to zero and one, this reveals normality (Bajpal, 2010). Additionally, the P-P graph plotted was checked for normality, the points on the graph should lie in a reasonably straight diagonal line to show no major deviation from normality (Pallant, 2007).

4.17 Multiple regression model

Once assumptions one and two, discussed above, were satisfied, multiple regression models (equations) were fitted to the data. Multiple regression allowed for a relationship between the single dependent variable and the multiple independent variables to be modelled, the independent variables were used to determine the dependent variable.

4.17.1 Analysis part one

$$Y = b0 + b1TO + b2II + b3IQ + e1 \quad (1)$$

Where b0 is the constant in the equation, b1 is regarded as the sample slope coefficient or slope parameter for TO(trade openness variable), b2 is the sample slope coefficient for II (infrastructure investment variable) and b3 is the slope coefficient for IQ (institutional quality variable) and finally e1 is the error for the sample (Laerd STATISTICS, 2018).

4.17.2 Analysis part two

$$Y = b4 + b5TO + b6II + b7COC + e2 \quad (2)$$

Where b4 is the constant in the equation, b5 is regarded as the sample slope coefficient or slope parameter for the "TO" (trade openness variable), "b6" is the sample slope coefficient for "II" (infrastructure investment variable) and "b7" is the slope coefficient for "COC" (control of corruption variable) and finally "e2" is the error for the sample (Laerd STATISTICS, 2018).

The data was subsequently set up in the IBM SPSS Software and assumptions three to eight discussed previously were tested for analyses parts one and two using the statistics package (Laerd STATISTICS, 2018).

The multiple regression analyses were performed for the SSA countries in Table 1 to determine the significance of the variation in the dependent variable (FDI) from the independent variables (Trade openness, institutional quality, infrastructure investment and control of corruption). This objective was met if the assumptions of the multiple regression were met (Laerd STATISTICS, 2018).

4.18 Multiple regression data analysis steps

The statistical multiple regression analysis was conducted using the following steps provided by Laerd STATISTICS (2018) for part one and two multiple regression analyses:

Assumptions one and two were checked for the data.

The independent and dependent variables, discussed above for the multiple regression analysis, were set up using the variable view window in SPSS and the data was input into the Data View window in SPSS.

The multiple linear regression was run using SPSS Statistics and a 95% confidence interval was applied. This included 12 steps and created the output for assumptions three until eight. The Durbin Watson test was analysed for the lack of independence, which is known as 1st order autocorrelation (Laerd STATISTICS, 2018). Once this check was completed, the independence of observations was assessed (Assumption three).

If there was independence of observations, that is Assumption three was satisfied, then the chart builder was run, and this procedure was conducted to establish whether there was a linear relationship between the independent and dependent variables together (this appeared under the check for Assumption four). Additionally, it checked whether the variances along the best fit line remained similar moving along the line, a scatterplot of the studentised residuals against the unstandardized predicted values was created (this was the homoscedacity check for Assumption five). Once the scatterplot which was developed in the previous step and the partial regression graphs plotted were analysed (Assumption four check), linearity was checked. If there was no linear relationship, this non-linear relationship was changed into a linear relationship by transforming the data (if the data was transformed, the multiple regression was rerun from step three above).

If there was a linear relationship between the variables, the variances along the best-fit line were assessed to establish whether they remained similar along the line, this formed part of the homoscedacity check under Assumption five. If the variances remained similar along the best-fit line, Assumption six was checked. If there was multicollinearity, the offending variables were removed from the regression analysis and the regression was rerun from step three mentioned above. If there was no multicollinearity, unusual items (outliers, influential points and leverage points) were checked.

Significant outliers were checked using the methodology discussed above in Assumption seven. Cook's distance was used to check for highly influential points, whilst high leverage points were checked through inspection of leverage values. These unusual items were assessed together, and they were removed, altered or the regression proceeded as normal. If they were removed, the regression was rerun from step three, or these unusual items were transformed and if they were transformed, the regression was rerun from step three.
Assumption eight was checked for normality.

The checks for normality were conducted and if the data was not normally distributed, the data was transformed and if the transformation was effective, step three above was

rerun. If the errors were approximately normally distributed the following step was performed. The regression process that was run in step three, output various results and these results are interpreted in Chapter five. The analysis was therefore complete after performing the above-discussed steps and the determinants of FDI were established if there was a significant relationship between the variables.

4.19 Conclusion

This Chapter provided information on the methodology that was implemented to achieve the study's objectives and establish the relationships, which were hypothesised in Chapter Three, which were derived from the literature discussed in Chapter Two. The study was quantitative in nature and the approach to the research design was deductive. Additionally, this Chapter focused on providing in-depth discussions of each of the aspects pertaining to this study. An in-depth discussion of the Methodology identified to conduct this study was presented, followed by the unit of analysis, the independent and dependent variables. Thereafter a discussion of the sampling method and sample size as well as the measuring instrument were described. This was followed by the method used for data gathering and thereafter a short discussion of the determinants, namely, trade openness, institutional quality, infrastructure investment and control of corruption were discussed briefly. A comprehensive discussion of the data analysis approach used for this study for Analyses parts 1 and 2 ensued. Finally, Assumptions 1 to 8 were presented, along with the Multiple Regression Models for Analysis Part 1 and Part 2 and the data analysis steps. Two analyses were conducted since institutional quality and control of corruption could not be analysed in the same multiple regression analysis.

The next chapter is Chapter Five which presents the results of the multiple regression analyses that were performed for analysis part one and part two for the periods 2002 until 2008 and 2009 until 2016.

CHAPTER FIVE
RESULTS OF THE STUDY

5.1 Introduction

This chapter provides the results from the statistical analysis that was performed to determine the relationship between inward FDI and the following determinants, namely trade openness, institutional quality, infrastructure investment and control of corruption. The results are presented in two components, the first set of results emanated from the statistical multiple regression analysis which was performed on the first three determinants mentioned above, the second set of results were developed from the statistical multiple regression analysis that was performed on inward FDI, trade openness, infrastructure investment and control of corruption. The first set of results provided proof of the first three hypotheses mentioned in Chapter three, the second set of results provided proof of all the hypotheses. Since institutional quality and control of corruption are similar measures, both these variables/determinants were analysed in separate models/analyses. The information pertaining to the results from both the steps of analysis are discussed in- depth below.

This section provides details on the sample and results of both analyses that were conducted to check the hypotheses that were developed in Chapter three. A description of the sample obtained, reliability and validity of the data, data transformations and the statistical results for each hypothesis are presented below and are set out as follows:
Analysis part one was conducted to check the relationship between inward FDI and trade openness, infrastructure investment and institutional quality for a sample of 35 countries. The second multiple linear regression was conducted to determine the relationship between inward FDI and trade openness, infrastructure investment and control corruption for the same sample of countries. Both analyses were conducted for two periods, 2002 until 2008 and 2009 until 2016.

5.2 Analysis part one

The relationships established in Hypotheses one, two and three in Chapter Three were checked by conducting a multiple regression analysis. The following section presents the results of the analysis of the multiple regression.

5.2.1 Period: 2002 till 2008

Description of sample obtained

The following table presents the descriptive statistics of the sample that was used for analysis part one: 2002 until 2008.

Table 3

Descriptive Statistics Analysis Part One 2002 till 2008

Descriptive Statistics			
	Mean	Std. Deviation	N
FDIoverGDP2002TILL2008	4.0658	3.44697	35
Tradeopenessaverage2002till2008	.5700	.22784	35
Sumallgovernancevariables2002till2008	-3.2675	3.61592	35
Infrastructureinvestmenttelephonesper100people2002till2008	2.9234	5.48309	35

Source: Own study

Results on reliability and validity of the data

The following six assumptions were checked to determine if the data was suitable for the multiple regression analysis.

Assumption three: Independence of observations

The Durbin Watson statistic was tested to check for the lack of independence, first order autocorrelation.

Table 4

Model Summary Analysis Part One 2002 till 2008

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	**Durbin-Watson**
1	.597[a]	.356	.294	2.89637	**2.722**
a. Predictors: (Constant), Infrastructureinvestmenttelephonesper100people2002till2008, Tradeopenessaverage2002till2008, Sumallgovernancevariables2002till2008					
b. Dependent Variable: FDIoverGDP2002TILL2008					

Source: Own study

A Durbin-Watson statistic of 2.72(shown in Table 4) reveals independence of the residuals. This figure is less than three and greater than one, which agrees with Field (2009) in Chapter four; this value is not a cause for concern.

Assumption four: Linearity test

A test was conducted to check whether a linear relationship exists between the independent and dependent variables collectively; the scatterplot of the studentised residuals against the unstandardized predicted values was plotted.

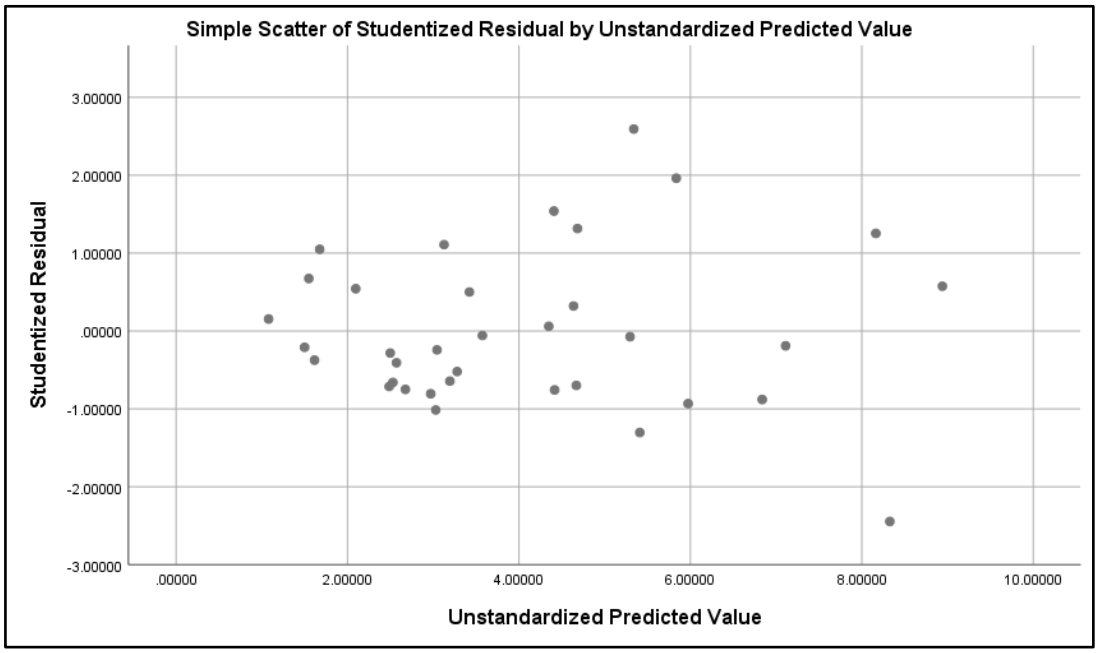

Figure 6. Scatterplot of studentised residual by unstandardized predicted value

The above graph (Figure 6) reveals an approximate horizontal band; the relationship between the variables is likely to be of a linear nature. This output satisfies the Assumption four requirements discussed in Chapter four.

The following graphs were plotted to establish if there was a relationship between each of the independent variables and the dependent variables.

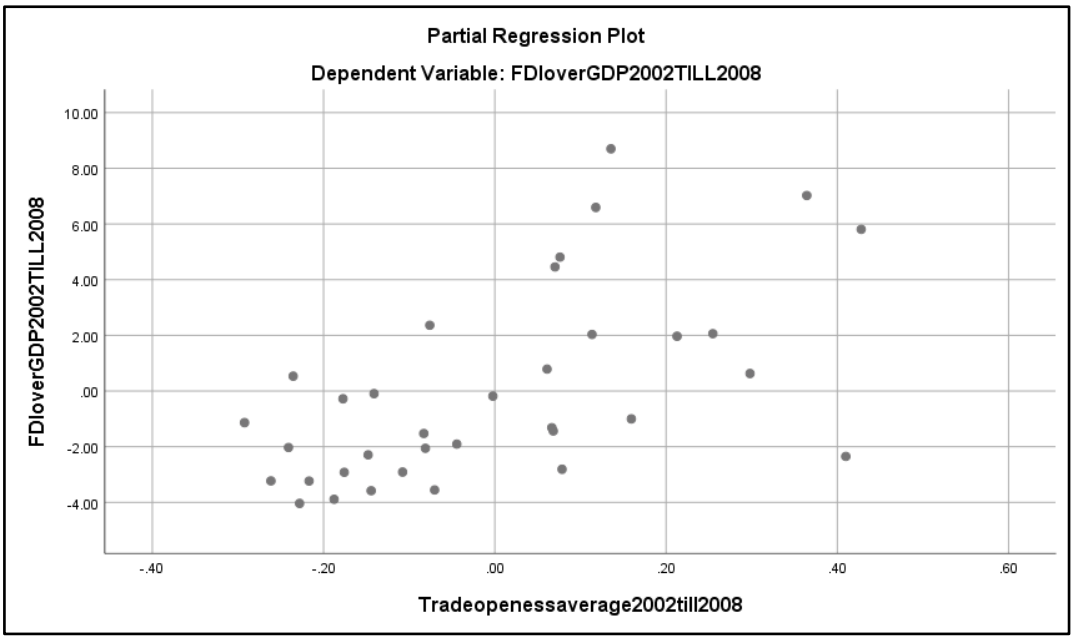

Figure 7. Partial Regression Plot of FDI against Trade Openness for the period 2002 until 2008.

Figure 7 above reveals a linear relationship between inward FDI and trade openness for the period 2002 until 2008. This plot satisfies the requirements of linearity discussed in Chapter four.

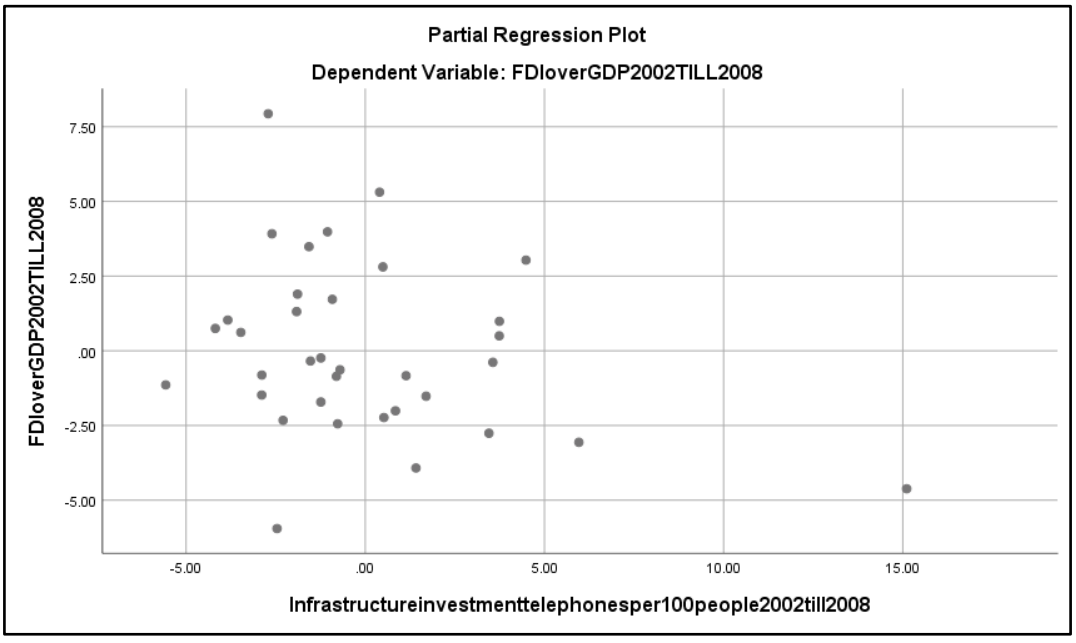

Figure 8. Partial Regression Plot of FDI against Infrastructure Investment for the period 2002 until 2008.

Figure 8 above reveals a slight linear relationship between inward FDI and infrastructure investment for 2002 until 2008; this satisfies the requirements of linearity discussed in Chapter four.

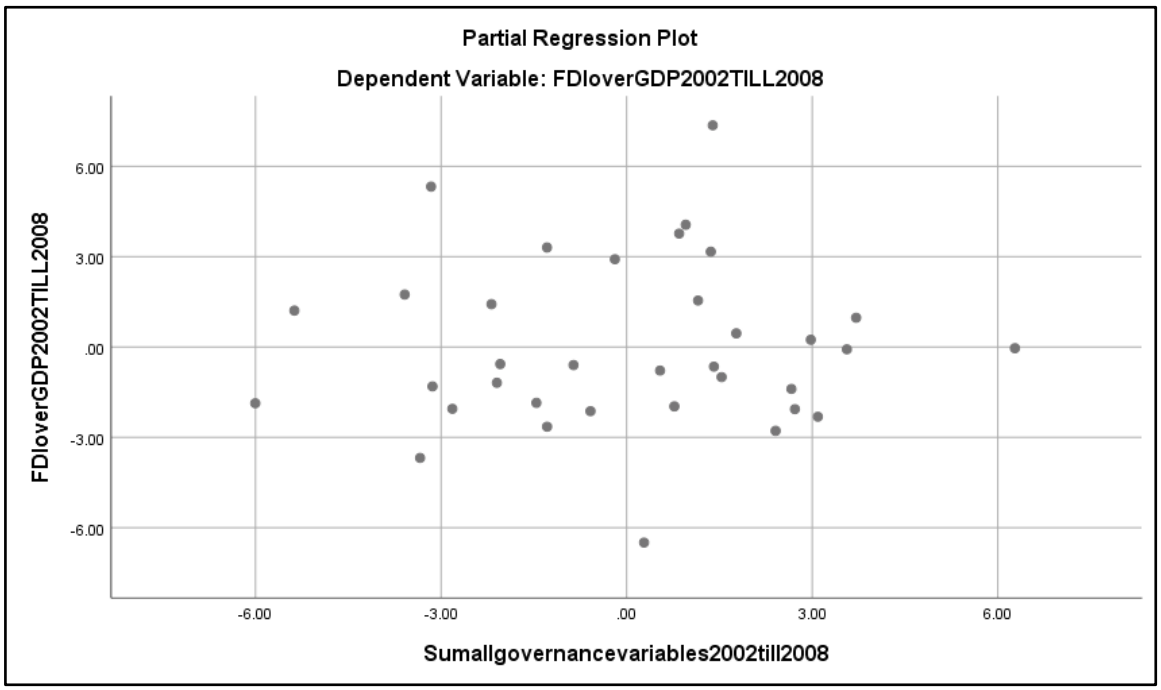

Figure 9. Partial Regression Plot of FDI against the sum of all the governance variables for the period 2002 until 2008.

Figure 9 above reveals a partial linear relationship between inward FDI and institutional quality for the period 2002 until 2008; this graph satisfies the requirements of linearity discussed in Chapter four.

Assumption five: Homoscedacity test

The graph of the studentised residuals against the unstandardized predicted values as shown below in Figure 10 reveals homoscedacity. The points on the graph do not exhibit any pattern and therefore there is homoscedacity. Figure 10 below satisfies the requirements of homoscedacity discussed in Chapter four; the residuals are equally spread over the predicted values (Griga, 2017).

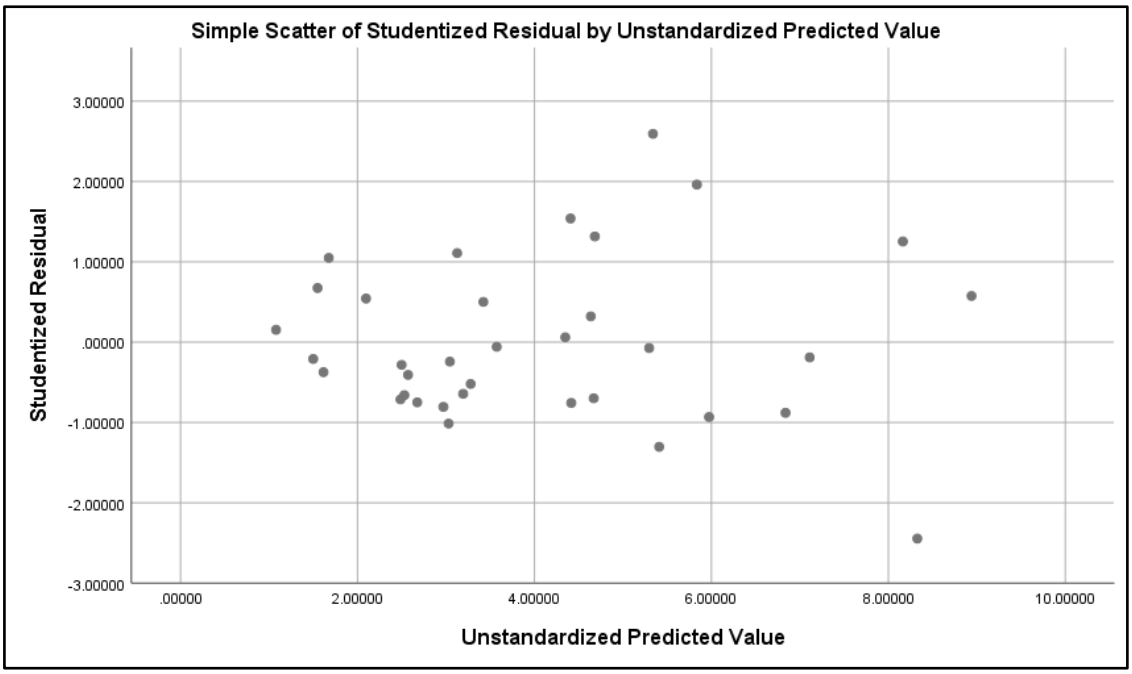

Figure 10. Simple Scatter Plot of Studentized Residual against Unstandardized Predicted Value

Assumption six: Multi-collinearity check

The "R" value shown in Table 5 below reveals a value of 0.597 and is less than 0.9 therefore showing a low correlation between the independent variables. The correlations Table, Table 6 below reveals zero correlation between the independent variables, none of the independent variables have a correlation higher than 0.7 in this Table. This multi-collinearity check satisfies the requirements stipulated in Chapter four for Assumption six.

Table 5

Model Summary Analysis Part One 2002 until 2008

Model Summary[b]					
Model	**R**	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	**.597a**	.356	.294	2.89637	2.722
a. Predictors: (Constant), Sumallgovernancevariables2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008					
b. Dependent Variable: FDIoverGDP2002TILL2008					

Source: Own study

Table 6

Correlations table output for statistical analysis part one, period 2002 until 2008

Correlations					
		FDIoverGDP2002TILL2008	Tradeopenessaverage2002till2008	Infrastructureinvestmenttelephonesper100people2002till2008	Sumallgovernancevariables2002till2008
Pearson Correlation	FDIoverGDP2002TILL2008	1.000	**.514**	**-.042**	**-.113**
	Tradeopenessaverage2002till2008	**.514**	1.000	**.446**	**.128**
	Infrastructureinvestmenttelephonesper100people2002till2008	**-.042**	**.446**	1.000	**.628**
	Sumallgovernancevariables2002till2008	**-.113**	**.128**	**.628**	1.000
Sig. (1-tailed)	FDIoverGDP2002TILL2008	.	.001	.405	.259
	Tradeopenessaverage2002till2008	.001	.	.004	.231
	Infrastructureinvestmenttelephonesper100people2002till2008	.405	.004	.	.000
	Sumallgovernancevariables2002till2008	.259	.231	.000	.
N	FDIoverGDP2002TILL2008	35	35	35	35
	Tradeopenessaverage2002till2008	35	35	35	35
	Infrastructureinvestmenttelephonesper100people2002till2008	35	35	35	35
	Sumallgovernancevariables2002till2008	35	35	35	35

Source: Own study

Additionally, Table 7 was consulted to check for collinearity where it was found that the tolerance column does not have any values less than 0.1; therefore, there is no collinearity between the independent variables. Consequently, this satisfies the requirements of Assumption six discussed in Chapter four.

Table 7

Unstandardised coefficients, correlations and collinearity statistics for analysis part one, period 2002 until 2008

Model		Unstandardized Coefficients		Correlations			Collinearity Statistics	
		B	Std. Error	Zero-order	Partial	Part	**Tolerance**	VIF
1	(Constant)	-.974	1.473					
	Tradeopenessaverage2002till2008	10.127	2.495	.514	.589	.585	**.763**	1.310
	Infrastructureinvestmenttelephonesper100people2002till2008	-.224	.132	-.042	-.291	-.244	**.470**	2.128
	Sumallgovernancevariables2002till2008	.024	.181	-.113	.023	.019	**.577**	1.734

Source: Own study

Assumption seven: Outliers check

No outliers were detected in the analysis, none of the standardised residuals were greater or less than three. This output satisfies Assumption seven requirements in Chapter four.

Assumption seven: Leverage points check

One leverage point was found in the analysis; the leverage point has a value greater than 0.2, which presents a risk, as mentioned in Chapter four, Assumption seven. The data for Mauritius had a high leverage point; this country however, was not removed from the analysis.

Assumption seven: Influential points check

There are no influential points in the dataset.

Assumption eight: Normality check

The histogram plotted below, Figure 11, was checked for normality.

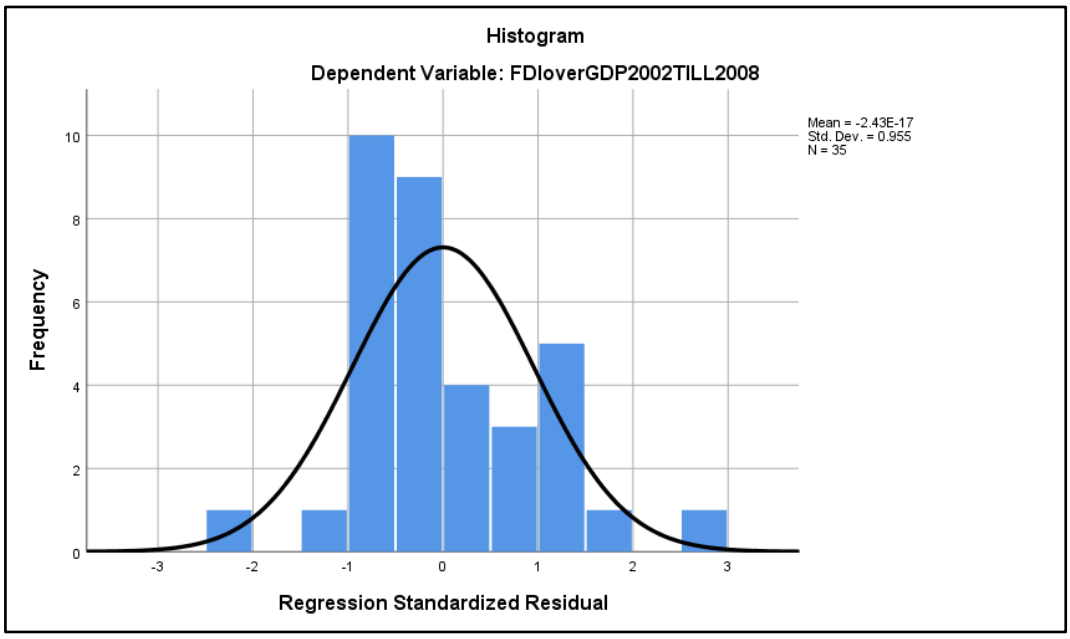

Figure 11. Histogram plotted for the period 2002 until 2008.

The Mean and Standard Deviation values are zero and close to one, revealing a normal distribution (Bajpal, 2010). In addition, the P-P graph, Figure 12 below, was reviewed to check for normality; the points are not perfectly aligned as can be seen in the graph, however the points on the graph are close to the diagonal line, which indicates that the residuals are approximately normal. The normality checks satisfy the Assumption eight requirements as discussed in Chapter four.

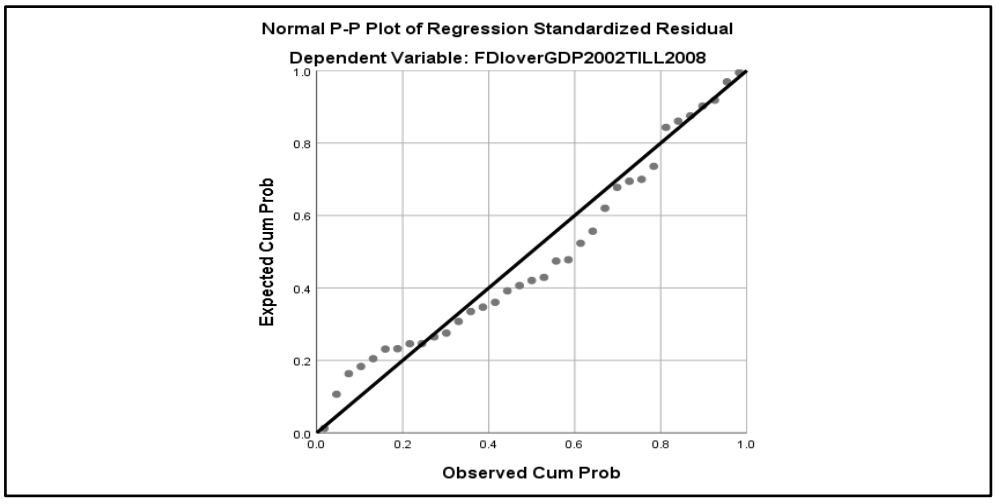

Figure 12. Normal P-P Plot of Regression Standardized Residual for the period 2002 until 2008.

Data transformations

No data transformations took place in this analysis.

Statistical results for analysis part one 2002 till 2008

The following section reveals the statistical results of the tests that were performed to check hypotheses one, two and three for the period 2002 until 2008. The results are discussed below for each hypothesis. Hypothesis one focused on the relationship between inward FDI and trade openness, hypothesis two looked at the relationship between inward FDI and institutional quality and Hypothesis three reviewed the relationship between inward FDI and infrastructure investment. A description of the hypotheses is provided below.

Research Hypothesis one:

The null hypothesis: The model showed a relationship between FDI and trade openness in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and trade openness in SSA countries, beyond a level of significance of 95%.

Thus: H1O: Model significance (as shown by an ANOVA p-value) <= .050
H1A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and trade openness for the periods 2002 until 2008 and 2009 until 2016.

Research Hypothesis two:

The null hypothesis: The model showed a relationship between FDI and institutional quality in SSA countries, to a significance level of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and institutional quality in SSA countries, beyond a significance level of 95%.

Thus: H2O: Model significance (as shown by an ANOVA p-value) <= .050

H2A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and institutional quality for the periods 2002 until 2008 and 2009 until 2016.

Research Hypothesis three:

The null and alternative hypotheses for testing the relationship between inward FDI and infrastructure investment for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and infrastructure investment in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and infrastructure investment in SSA countries, beyond a level of significance of 95%.

Thus: H3O: Model significance (as shown by an ANOVA p-value) <= .050
H3A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and infrastructure investment for the periods 2002 until 2008 and 2009 until 2016.

Results summary

A multiple linear regression was run to predict inward FDI from trade openness, institutional quality and infrastructure investment for the period 2002 until 2008. The multiple regression model statistically significantly predicted inward FDI for the period 2002 until 2008, $F(3, 31) = 5.718$, $p < .0005$, adj. $R2 = .294$. Only the trade openness variable added statistically significantly to the prediction, $p < .05$. This information was obtained from the Model Summary (Table 8), ANOVA (Table 9) and the Coefficients table (Table 10) shown below which were output for analysis part one multiple regression for 2002 until 2008. The model accepted the null hypothesis for hypothesis one and rejected the null hypothesis for hypotheses two and three as there is no relationship between inward FDI and institutional quality and infrastructure investment for 2002 till 2008 (Laerd STATISTICS, 2018).

Model evaluation

The model for the period 2002 until 2008 for analysis part one outputs an Adjusted R square value of 0.294, shown in Table 8 below. The adjusted R square value provides an improved estimate of the true population value for a small sample compared to the R square value. This model explains 29.4% of the variance in the dependent variable (inward FDI). The statistical significance of the result can be reviewed by assessing the ANOVA table, Table 9 below. This test checks the null hypothesis that the population's multiple R is equal to zero. This model attains statistical significance (Sig. = 0.003; $p<0.05$).

Independent variables evaluation

The coefficients table output; Table 10 below reveals which of the model's variables contributed towards the prediction of inward FDI (the dependent variable). The Beta column under the standardised coefficients in Table 10 allows for an understanding of the independent variables' contribution towards the model. The highest Beta is 0.669 for the trade openness variable, which means that trade openness, for this model for the period, 2002 until 2008 makes the strongest unique contribution in terms of explaining the dependent variable, inward FDI, when the variance which is explained by all the other variables in the model is controlled for. The Sig. column in Table 10 reveals if the independent variable is making a unique, statistically significant contribution in the model. The Sig. value for trade openness is less than 0.05(a 95% confidence interval was implemented) which means this variable makes a unique significant contribution towards predicting the dependent variable, inward FDI, in the model/equation for this period for analysis part one. The Sig. value for the other variables is greater than 0.05, which means these variables do not contribute significantly towards predicting the dependent variable, inward FDI (Pallant, 2007). Additionally, Table 10 below reveals the relationship between inward FDI and the independent variables. The "B" values under the unstandardized coefficient column reveals the relationship, the "B" value is positive for trade openness and institutional quality which means that as inward FDI increases, these variables increase; the "B" sign for infrastructure investment is negative, meaning as inward FDI increases, infrastructure investment decreases for this time period for analysis part one (Field, 2013)

Table 8

Summary of statistics model performed for the period 2002 until 2008, analysis part one

Model Summary[b]					
Model	R	R Square	**Adjusted R Square**	Std. Error of the Estimate	Durbin-Watson
1	.597[a]	.356	**.294**	2.89637	2.722
a. Predictors: (Constant), Sumallgovernancevariables2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008					
b. Dependent Variable: FDIoverGDP2002TILL2008					

Source: Own study

Table 9

ANOVA table for analysis part one, period 2002 until 2008

ANOVA[a]						
Model		Sum of Squares	**df**	Mean Square	F	Sig.
1	Regression	143.917	**3**	47.972	5.718	.003[b]
	Residual	260.058	**31**	8.389		
	Total	403.975	**34**			
a. Dependent Variable: FDIoverGDP2002TILL2008						
b. Predictors: (Constant), Sumallgovernancevariables2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008						

Source: Own study

Table 10

Coefficients table output for analysis art one, period 2002 until 2008

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	**Sig.**	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-0.974	1.473		-0.66	**0.513**	-3.978	2.029					

	Tradeopenessaverage2002till2008	10.127	2.495	0.669	4.059	**0**	5.038	15.215	0.514	0.589	0.585	0.763	1.31
	Infrastructureinvestmenttelephonesper100people2002till2008	-0.224	0.132	-0.356	-1.69	**0.1**	-0.493	0.046	-0.042	-0.29	-0.24	0.47	2.13
	Sumallgovernancevariables2002till2008	0.024	0.181	0.025	0.13	**0.897**	-0.345	0.393	-0.113	0.023	0.019	0.577	1.73
a. Dependent Variable: FDIoverGDP2002TILL2008													

Source: Own study

5.2.2 Period: 2009 till 2016

For this period, the majority of the tables are omitted due to repetition, the output of the results for this period follows the above section for the period 2002 until 2008. See Appendix A for these tables.

Description of sample obtained

Table 11 below presents the descriptive statistics of the sample for the period 2009 until 2016 for analysis part one.

Table 11

Descriptive statistics output for analysis part one, period:2009 until 2016

Descriptive Statistics			
	Mean	Std. Deviation	N
FDIoverGDP2009TILL2016	5.0508	5.06253	35
Tradeopenessaverage2009till2016	.782	.2386	35
Sumallgovernancevariables2009till2016	-3.3311	3.48718	35
logInfrastructureinvestmenttelephonesper100people2009till2016	.0492	.61623	35

Source: Own study

Results on the validity and reliability of the data

The following six assumptions were checked to determine if the data was suitable for the statistical multiple regression analysis that was performed:

Assumption three: Independence of the observations

A Durbin-Watson statistic of 2.168 shows independence of the residuals, this figure is less than three and greater than one. This outcome agrees with Field (2009) in Chapter four; the value is no cause for concern. Table 14 in Appendix A provides the details of the Durbin Watson Statistic.

Assumption four: Linearity test

A test was conducted to check if a linear relationship exists between the independent and dependent variables collectively; the scatterplot graph of the studentised residuals against the unstandardized predicted values was plotted. This plot is provided in Appendix A, Figure 13.

Figure 13, see Appendix A, reveals a slight horizontal band; the relationship between the variables is likely to have a linear nature. This plot satisfies the Assumption four requirements discussed in Chapter four.

Figures 14, 15 and 16, see Appendix A, were plotted to establish if there was a relationship between each of the independent variables and the dependent variable. Figures 14, 15 and 16 in Appendix A reveal linear relationships between the variables. These results satisfy the Assumption four requirements mentioned in Chapter four.

Assumption five: Homoscedacity test

The graph of the studentised residuals plotted against the unstandardized predicted values, shown in Figure 17 (Appendix A) reveals homoscedacity. The points on the graph do not exhibit any pattern and therefore there is homoscedacity. The graph satisfies the requirements of homoscedacity discussed in Chapter four; the residuals are equally spread over the predicted values (Griga, 2017).

Assumption six: Multi-collinearity check

The “R” value shown in Table 15 (Appendix A) shows a value of 0.66, which is less than 0.9, therefore revealing a low correlation between the independent variables. The correlations table (Table 16 in Appendix A) reveals no correlation between the independent variables, none of the independent variables have a correlation higher than

0.7 in the table. This multi-collinearity check satisfies the requirements stipulated in Chapter four for Assumption six.

Additionally, Table 17 in Appendix A was consulted to check for collinearity. The tolerance column does not have any values less than 0.1; there is no collinearity between the independent variables. This result satisfies the requirements of Assumption six discussed in Chapter four.

Assumption seven: Outliers check

An outlier was found in Mozambique's data, a standardised residual value for the data for this country is greater or less than three, however the outlier was not removed from the analysis.

Assumption seven: Leverage points check

A high leverage point was found in the data for Mauritius, the leverage point was higher than 0.2, which is considered to pose a risk, as discussed in Chapter four, Assumption seven. The country was however, not removed from the analysis, Pallant (2007) mentions that if there were only a few outliers, it was not necessary to remove them.

Assumption seven: Influential points check

An influential point was found in the initial statistical multiple regression analysis (a cook's distance value greater than one was found in the data) and a transformation was performed on the Infrastructure investment variable in this analysis, the transformation removed the influential point from appearing in the regression analysis, which was rerun with the transformed variable. The multiple regression results with the transformed variable are shown for the period 2009 until 2016.

Assumption eight: Normality check

Figure 18 see Appendix A, was output to check for normality.

The Mean and Standard Deviation values are zero and close to one, revealing a normal distribution (Bajpal, 2010). Additionally, the P-P graph (Figure 19 see Appendix A), was reviewed to check for normality, the points are not perfectly aligned as can be seen in the P-P graph, however the points on the graph are close to the diagonal line, which indicates that the residuals are approximately normal. The normality checks satisfy the Assumption eight requirements mentioned in Chapter four.

Data transformations

The infrastructure investment variable was transformed; a log transformation was performed on the infrastructure investment variable. All results for the period 2009 until 2016 are shown for the rerun regression analysis, which was performed with the transformed variable.

Statistical results for analysis part one, period 2009 till 2016

The following section reveals the statistical results of the tests that were performed to check hypotheses one, two and three for the period 2009 until 2016. The results are discussed below for each hypothesis. Hypothesis one focused on the relationship between inward FDI and trade openness, hypothesis two looked at the relationship between inward FDI and institutional quality and hypothesis three reviewed the relationship between inward FDI and infrastructure investment. A description of the hypotheses is provided above. The objective of these research hypotheses, for this analysis, was to establish the relationship between inward FDI, trade openness, institutional quality and infrastructure investment for the period 2009 until 2016.

Results summary

A multiple regression was run to predict inward FDI from trade openness, institutional quality and infrastructure investment for the period 2009 until 2016. The multiple regression model statistically significantly predicted inward FDI for the period 2009 until 2016, $F (3, 31) = 7.996$, $p < .05$, adj. $R2 = .382$. All independent variables added statistically significant information to the prediction, $p < .05$. This information was obtained from the Model Summary (Table 15 Appendix A), ANOVA (Table 20 Appendix A) and the Coefficients table (Table 21 in Appendix A) which were output for analysis part one multiple regression for the period 2009 until 2016. The model accepted the null hypotheses for hypotheses one, two and three (Laerd STATISTICS, 2018).

Model evaluation

The model for the period 2009 till 2016 for the analysis part one outputs an Adjusted R square value of 0.382, shown in Table 14, see Appendix A. The adjusted R square value provides an improved estimate of the true population value for a small sample compared with the R square value. This model explains 38.2% of the variance in the dependent variable (inward FDI). The statistical significance of the result can be reviewed by assessing the ANOVA table, Table 20 in Appendix A. This check tests the null hypothesis that the population's multiple R is equal to zero. This model attains statistical significance (Sig. = 0.000; $p<0.05$).

Independent variables evaluation

The coefficients table output, Table 21 see Appendix A, reveals which of the model's variables contributed towards the prediction of inward FDI (the dependent variable). The Beta column under the standardised coefficients in Table 21 see Appendix A, which allows for an understanding of the independent variables' contribution towards the model. The highest Beta is 0.623 for the trade openness variable, which means that trade openness, for this model for the period, 2009 until 2016 makes the strongest unique contribution in terms of explaining the dependent variable, inward FDI, when the variance, which is explained by all the other variables in the model, is under control. The Sig. column in Table 20 indicates whether the independent variable makes a unique, statistically significant contribution in the model. The Sig. value for all the independent variables is less than 0.05 (a 95% the confidence interval was implemented) which signifies that these variables make a unique significant contribution towards predicting the dependent variable, inward FDI, in the model/equation for this period for analysis part one (Pallant, 2007). Table 21 see Appendix A, which additionally, reveals the relationship between inward FDI and the independent variables. The "B" values under the unstandardized coefficient column reveals the relationship, the "B" value is positive for trade openness and institutional quality which means that as inward FDI increases, these variables increase; the "B" sign for infrastructure investment is negative, indicated that as inward FDI increased, infrastructure investment decreased for this period for analysis part one (Field, 2013).

5.3 Analysis part two

The second statistical multiple regression analysis was performed to check hypotheses one, three and four for the periods 2002 until 2008 and 2009 until 2016. The following section will include the sample and results of the analysis.

5.3.1 Period:2002 till 2008

Description of sample obtained

Table 12 below presents the descriptive statistics of the sample that was used for analysis part two for the period 2002 until 2008.

Table 12

Descriptive statistics output for analysis part two, period 2002 until 2008

Descriptive Statistics			
	Mean	Std. Deviation	N
FDIoverGDP2002TILL2008	4.0658	3.44697	35
Tradeopenessaverage2002till2008	.5700	.22784	35
Infrastructureinvestmentteleph onesper100people2002till2008	2.9234	5.48309	35
controlofcorruption2002till2008	-.5951	.60797	35

Source: Own study

Results on reliability and validity of the data

The following six assumptions were checked to determine if the data was suitable for the multiple regression analysis.

Assumption three: Independence of observations

The Durbin Watson statistic was tested to check for the lack of independence, first order autocorrelation. A Durbin-Watson statistic of 2.713 shown in Table 18 in Appendix A shows independence of the residuals, this figure is less than three and greater than one, which agrees with Field (2009) as discussed in Chapter four and is no cause for concern.

Assumption four: Linearity test

A test was performed to check whether a linear relationship exists between the independent and dependent variables collectively; the scatterplot of the studentised residuals against the unstandardized predicted values was plotted. Figure 20 see Appendix A reveals a slight horizontal band; the relationship between the variables may be linear. This output satisfies the Assumption four requirements mentioned in Chapter four.

Figures 21, 22 and 23 see Appendix A, were plotted to establish if there was a relationship between each of the independent variables and the dependent variables.

Figure 21 reveals a linear relationship between inward FDI and trade openness. Figure 22 reveals a slight linear relationship between inward FDI and infrastructure investment. Figure 23 reveals a linear relationship between inward FDI and control of corruption. These graphs satisfy the requirements of linearity discussed in Chapter four.

Assumption five: Homoscedacity test

The graph of the studentised residuals plotted against the unstandardized predicted values shown in Figure 24 in Appendix A revealed homoscedacity. The points on the graph do not exhibit any pattern and therefore there is homoscedacity. The graph satisfies the requirements of homoscedacity discussed in Chapter four; the residuals are equally spread over the predicted values (Griga, 2017).

Multicollinearity check

The "R" value shown in Table 18 see Appendix A which reveals a value of 0.597, which is less than 0.9 therefore revealing a low correlation between the independent variables. The correlations table, Table 23 see Appendix A, reveals no correlation between the independent variables; none of the independent variables has a correlation higher than 0.7 in Table 23. This multi-collinearity check satisfies the requirements stipulated in Chapter four for Assumption six. In addition, Table 24 see Appendix A was consulted to check for collinearity. The tolerance column does not have any values less than 0.1; there is therefore no collinearity between the independent variables. These outputs satisfy the requirements of Assumption six discussed in Chapter four.

Outliers check

No outliers were detected in the analysis, none of the standardised residuals are greater or less than three. This output satisfies Assumption seven requirements in Chapter four.

Leverage points check

Three leverage points were found in the analysis; the leverage points have a value greater than 0.2, which presents a risk as discussed in Chapter four, Assumption seven. These high leverage points were not removed from the dataset.

Influential points check

No influential points were found in the analysis.

Normality check

Figure 25 see Appendix A, was output to check for normality. The Mean and Standard Deviation values are zero and close to one, revealing a normal distribution (Bajpal, 2010).The P-P plot (Figure 26) see Appendix A, was reviewed as well to check for normality, the points are not perfectly aligned as can be seen, however, the points on the graph are close to the diagonal line, which indicates that the residuals are approximately normal. The normality checks satisfy the Assumption eight requirements mentioned in Chapter four.

Data transformations

No data transformations were performed in this analysis.

Statistical results for analysis part two period 2002 until 2008

The following section reveals the statistical results of the tests that were performed to check hypotheses one, three and four for the period 2002 till 2008, although the main reason for conducting the analysis part two was to investigate the corruption variable separately from institutional quality, corruption forms part of institutional quality and therefore the sum of all institutional quality variables had to be omitted from this regression analysis. The results are presented below for each hypothesis for this analysis. Hypothesis one focused on the relationship between inward FDI and trade openness, hypothesis three reviewed the relationship between inward FDI and infrastructure investment and hypothesis four analysed the relationship between inward FDI and control of corruption. A description of the hypotheses is provided below.

Research Hypothesis one:

The null hypothesis: The model showed a relationship between FDI and trade openness in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and trade openness in SSA countries, beyond a level of significance of 95%.

Thus: H1O: Model significance (as shown by an ANOVA p-value) <= .050
H1A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and trade openness for the period 2002 until 2008.

Research Hypothesis three:

The null and alternative hypotheses for testing the relationship between inward FDI and infrastructure investment for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and infrastructure investment in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and infrastructure investment in SSA countries, beyond a level of significance of 95%.

Thus: H3O: Model significance (as shown by an ANOVA p-value) <= .050
H3A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and infrastructure investment for the period 2002 until 2008.

Research Hypothesis four:

The null and alternative hypotheses for testing the relationship between inward FDI and control of corruption for SSA countries for the periods before and after the 2008 financial crisis were as follows:

The null hypothesis: The model showed a relationship between FDI and control of corruption in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and control of corruption in SSA countries, beyond a level of significance of 95%.

Thus: H4O: Model significance (as shown by an ANOVA p-value) <= .050

H4A: Model significance (as shown by an ANOVA p-value) >.050

The objective of this study's research hypothesis was to establish the relationship between inward FDI and control of corruption for the period 2002 until 2008.

Results summary

A multiple linear regression was run to predict inward FDI from trade openness, infrastructure investment and control of corruption for the period 2002 until 2008. The multiple regression model statistically and significantly predicted inward FDI for the period 2002 until 2008, $F(3, 31) = 5.725$, $p < .05$, adj. $R2 = .294$. Only the trade openness variable added statistically and significantly to the prediction, $p < .05$. This information was obtained from the Model Summary (Table 22 see Appendix A), ANOVA (Table 26 see Appendix A) and the Coefficients table (Table 27 see Appendix A) that were output for analysis part two statistical multiple regression analysis for the period 2002 until 2008. The model accepted the null hypothesis for hypothesis one and rejected the null hypotheses for hypotheses 3 and 4 as there is no relationship between inward FDI and

infrastructure investment and control of corruption for the period 2002 until 2008 (Laerd STATISTICS, 2018).

Model evaluation

The model for the period 2002 until 2008 for analysis part two outputs an Adjusted R square value of 0.294, shown in Table 25 see Appendix A. The adjusted R square value provides an improved estimate of the true population value for a small sample compared with the R square value. This model explains 29.4% of the variance in the dependent variable (inward FDI). The statistical significance of the result can be reviewed by assessing the ANOVA table, Table 26 see Appendix A. This test checks the null hypothesis that the population's multiple R is equal to zero. This model attains statistical significance (Sig. = 0.003; $p<0.05$).

Independent variables evaluation

The coefficients table output, Table 27 see Appendix A reveals which of the model's variables contributed towards the prediction of inward FDI (the dependent variable). The Beta column under the standardised coefficients in Table 27 allows for an understanding of the independent variables' contribution towards the model. The highest Beta is 0.67 for the trade openness variable, which means that trade openness, for this model for the period, 2002 until 2008 makes the strongest unique contribution in terms of explaining the dependent variable, inward FDI, when the variance which is explained by all the other variables in the model is controlled for.

The Sig. column in Table 27 reveals if the independent variable is making a unique, statistically significant contribution in the model. The Sig. value for trade openness is less than 0.05(a 95% confidence interval was implemented) which suggests this variable makes a unique and significant contribution towards predicting the dependent variable, inward FDI, in the model/equation for this period for analysis part one. The Sig. value for the other variables is greater than 0.05, which means these variables, infrastructure investment and control of corruption, do not contribute significantly towards predicting the dependent variable, inward FDI (Pallant, 2007). Additionally, Table 27 reveals the relationship between inward FDI and the independent variables. The "B" values under the unstandardized coefficient column reveals the relationship, the "B" value is positive for trade openness and control of corruption which means that as inward FDI increases, these variables increase; the "B" sign for infrastructure investment is negative, meaning as inward FDI increases, infrastructure investment decreases for this period for analysis part two (Field, 2013).

5.3.2 Period: 2009 till 2016

For the above-mentioned period, some of the tables are omitted due to repetition and are found in the appendices, see Appendix A.

Description of sample obtained

Table 13 below presents the descriptive statistics of the sample for the period 2009 until 2016.

Table 13

Descriptive statistics output for analysis part two, period 2009 until 2016

Descriptive Statistics			
	Mean	Std. Deviation	N
FDIoverGDP2009TILL2016	4.5243	3.58560	31
Tradeopenessaverage2009till2016	.762	.2255	31
Infrastructureinvestmenttelephonesper100people2009till20016	2.0660	2.82867	31
controlofcorruption2009till2016	-.7274	.54168	31

Source: Own study

Results on reliability and validity of the data

The following six assumptions were checked to determine whether the data was suitable for the multiple regression analysis. The following assumptions were considered.

Assumption three: Independence of observations

A Durbin-Watson statistic of two was found in the statistical analysis, which is less than three and greater than one, which agrees with Field (2009) as discussed in Chapter four; this value is no cause for concern. Table 28 in Appendix A provides details of the Durbin Watson Statistic.

Assumption four: Linearity test

A test was conducted to check if a linear relationship exists between the independent and dependent variables collectively; the scatterplot of the studentised residuals against the unstandardized predicted values was plotted. This plot is provided see Appendix A, Figure 24.

Figure 24 in Appendix A revealed a slight horizontal band; the relationship between the variables is likely to have a linear nature. This satisfies the Assumption four requirements discussed in Chapter four.

Figures 28, 29 and 30 were plotted to establish if there was a relationship between each of the independent variables and the dependent variable. Figures 28, 29 and 30, see Appendix A, reveal a linear relationship between the variables. These results satisfy the Assumption four requirements discussed in Chapter four.

Assumption five: Homoscedacity test

The graph of the studentised residuals plotted against the unstandardized predicted values, shown in Figure 27, see Appendix A reveals homoscedacity. The points on the plot do not exhibit any pattern and therefore there is homoscedacity. The plot satisfies the requirements of homoscedacity discussed in Chapter four; the residuals are equally spread over the predicted values (Griga, 2017).

Assumption six: Multicollinearity check

The "R" value shown in Table 28 (Appendix A) reveals a value of 0.622, which is less than 0.9, therefore revealing a low correlation between the independent variables. The correlations table (Table 29 see Appendix A) reveals no correlation between the independent variables; none of the independent variables has a correlation higher than 0.7 in Table 29. This multi-collinearity check satisfies the requirements stipulated in Chapter four for Assumption six. Additionally, Table 30 see Appendix A was consulted to check for collinearity. The tolerance column does not have any values less than 0.1; therefore, there is no collinearity between the independent variables. This outcome satisfies the requirements of Assumption six discussed in Chapter four.

Assumption seven: Outliers, leverage points or influential points check

Data for Botswana, Mauritius, Mozambique and Rwanda were removed from this analysis due to having either high leverage points or cook's distance values which exceed the requirements specified in Assumption seven in Chapter four. These countries were removed, and the regression analysis was rerun for this period, all the statistical results shown for analysis part two, period 2009 until 2016, reveal the multiple regression statistical results with these countries removed from the sample.

Assumption eight: Normality check

Figure 31 see Appendix A, was output to check for normality. The Mean and Standard Deviation values are zero and close to one, revealing a normal distribution (Bajpal, 2010). In addition, the P-P plot (Figure 32 see Appendix A was reviewed to check for normality, the points are not perfectly aligned as can be seen in the P-P plot, however, the points on the graph are close to the diagonal line, which indicates that the residuals are approximately normal. The normality checks satisfy the Assumption eight requirements mentioned in Chapter four.

Data transformations

No data transformations were performed for this analysis.

Statistical results for analysis part one 2009 till 2016

The following section reveals the statistical results of the tests that were performed to check hypotheses one, three and four for the period 2009 until 2016. The results are discussed below for each hypothesis.

Results summary

A multiple regression was run to predict inward FDI from trade openness, infrastructure investment and control of corruption for the period 2009 until 2016. The multiple regression model statistically and significantly predicted inward FDI for the period 2009 until 2016, $F(3, 27) = 5.675$, $p < .005$, adj. $R2 = .319$. Only the trade openness and infrastructure investment variables added statistically and significantly to the prediction, $p < .05$. This information was obtained from the Model summary (Table 31 Appendix A), ANOVA table (Table 32 see Appendix A), and the Coefficients table (Table 33 see Appendix A), which were output for analysis part two multiple regression for the period 2009 until 2016. The model accepted the null hypothesis for hypotheses one and three (Laerd STATISTICS, 2018).

Model evaluation

The model for the period 2009 until 2016 for analysis part two outputs an Adjusted R square value of 0.319, shown in Table 31 in Appendix A. The adjusted R square value provides an improved estimate of the true population value for a small sample compared with the R square value. This model explains 31.9% of the variance in the dependent variable (inward FDI). The statistical significance of the result can be reviewed by assessing the ANOVA table, Table 32 see Appendix A. This tested the null hypothesis

that the population's multiple R is equal to zero. This model attains statistical significance (Sig. = 0.004; $p<0.05$).

Independent variables evaluation

The coefficients table output, Table 33, see Appendix A, reveals which of the model's variables contributed towards the prediction of inward FDI (the dependent variable). The Beta column under the standardised coefficients in Table 33 allows for an understanding of the independent variables' contribution towards the model. The highest Beta is 0.605 for the trade openness variable, which means that trade openness, for this model for the period, 2009 until 2016 makes the strongest unique contribution in terms of explaining the dependent variable, inward FDI, when the variance which is explained by all the other variables in the model is controlled for.

The Sig. column in Table 33 reveals whether the independent variable is making a unique, statistically significant contribution in the model. If the independent variable is making a significant contribution, the independent variable can be a determinant of inward FDI. The Sig. value for trade openness and infrastructure investment is less than 0.05(a 95% confidence interval was implemented) which denotes that these variables make a unique statistically significant contribution towards predicting the dependent variable, inward FDI, in the model/equation for this period for analysis part two. The Sig. value for the control of corruption variable is slightly greater than 0.05, which indicates that this variable does not contribute significantly towards predicting the dependent variable, inward FDI (Pallant, 2007). Additionally, Table 33 see Appendix A, reveals the relationship between inward FDI and the independent variables for the analysis part two, period 2009 until 2016. The "B" values under the unstandardized coefficient column reveals the relationship, the "B" value is positive for trade openness and control of corruption which suggests that as inward FDI increases, these variables increase; the "B" sign for infrastructure investment is negative, meaning as inward FDI increase, infrastructure investment decreases for this period for analysis part two (Field, 2013).

5.4 **Conclusion**

This chapter presented the results of the statistical multiple regression analysis procedure that was implemented for analysis part one and two, additionally, the assumption testing results were provided in this chapter. The following chapter, Chapter Six, discusses the results found in this chapter.

CHAPTER SIX
DISCUSSION OF RESULTS

6.1 Introduction

Chapter Six provides a discussion of the statistical results that were obtained from the multiple regression analyses results that were presented in Chapter Five. An alignment is made in this chapter between the research objectives in Chapter One, the literature review conducted and presented in Chapter Two, the hypotheses in Chapter Three, the research methodology in Chapter Four and the discussion of the results obtained in Chapter Five. The discussion of the results from the previous chapter is supported in this chapter with the empirical literature pertaining to the topic of the determinants of inward FDI into SSA as well literature from developing and African countries as presented in Chapter Two. Below follows a presentation of the study's aim, objective, and hypotheses that were developed in chapters one and three previously.

6.2 Research aim and objective:

The aim of this study was to establish the determinants of FDI into SSA countries for the periods prior and post the 2008 financial crisis. The objective of this study was to:

1 Determine the relationship between inward FDI and trade openness
2 Determine the relationship between inward FDI and institutional quality
3 Determine the relationship between inward FDI and infrastructure investment
4 Determine the relationship between inward FDI and control of corruption

The hypotheses that were established in Chapter Three are presented below:

Hypothesis one:

The null hypothesis: The model showed a relationship between FDI and trade openness in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and trade openness in SSA countries, beyond a level of significance of 95%.

Hypothesis two:

The null hypothesis: The model showed a relationship between FDI and institutional quality in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and institutional quality in SSA countries, beyond a level of significance of 95%.

Hypothesis three:

The null hypothesis: The model showed a relationship between FDI and infrastructure investment in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and infrastructure investment in SSA countries, beyond a level of significance of 95%.

Hypothesis four:

The null hypothesis: The model showed a relationship between FDI and control of corruption in SSA countries, to a level of significance of 95%.

The alternative hypothesis: The model did not show a relationship between FDI and control of corruption in SSA countries, beyond a level of significance of 95%.

6.3 Statistical analysis method

Two multiple regression analyses were performed, analysis part one considered the following variables: inward FDI, trade openness, institutional quality and infrastructure investment and analysis part two reviewed the relationship between inward FDI, trade openness, infrastructure investment and control of corruption. Two regression analyses were conducted because correlation problems would occur if institutional quality and control of corruption were included in the same analysis. The two analyses were conducted for two periods namely, 2002 until 2008 and 2009 until 2016, prior to and post the 2008 financial crisis. The discussion for part one of the analysis is presented below, thereafter a discussion of the analysis for part two is presented.

6.4 Analysis part one

The discussion of the results presented in Chapter Five for part one of the analysis for the periods 2002 until 2008 and 2009 until 2016 is presented here in depth below. This section discusses the results of analysis part one, it is necessary to mention that a multiple linear regression was performed to test hypotheses one, two and three for the two periods indicated above. The descriptive statistics presented in Chapter Five for both periods presented the mean and standard deviation of the variables that were analysed. Only thirty-five countries from SSA were considered for the analysis for both periods due to missing data for some of the variables for certain years. The reliability and validity of the data was determined by checking eight assumptions of the data. As

discussed in Chapters Four and Five, the data adhered to the eight assumptions and therefore the statistical multiple regression analysis was a suitable method to use to check the relationships between the variables for both periods. The findings from the assumptions testing and the statistical multiple regression analysis were as follows:

A statistical multiple regression analysis was run for the period 2002 until 2008 to determine the relationship between inward FDI and trade openness, institutional quality and infrastructure investment. A Durbin-Watson statistic of 2.722 reveals independence of the residuals. The partial regression graphs and a graph of studentised residuals against the predicted values revealed linearity. There was homoscedasticity, as shown by the "R" value which was lower than 0.9, zero correlation was found between the independent variables, tolerance values greater than 0.1 were found which revealed zero multicollinearity. There were no standardized residuals higher or less than three, there was one leverage value greater than 0.2(this was ignored), and no influential points were found in the analysis and the histogram and P-P Graphs revealed normality. The multiple regression model statistically significantly predicted inward FDI for the period 2002 until 2008, $F (3, 31) = 5.718$, $p < .05$, adj. $R2 = .294$. Only the trade openness variable added statistically and significantly to the prediction, $p < .05$ (Laerd STATISTICS, 2018).

The economic significance of the trade openness variable (trade openness was the only variable that was statistically significant in this analysis, therefore the other independent variables were not considered for economic significance) predicting inward FDI can be interpreted by reviewing the trade openness unstandardized coefficient of 10.1 in Table 7. This means that as trade openness increases by one unit, inward FDI increases by 10%, since inward FDI in this study is measured as a percentage of GDP (Field, 2013).

A statistical multiple regression analysis was run for the period 2009 until 2016 to determine the relationship between inward FDI and trade openness, institutional quality and infrastructure investment. A Durbin-Watson statistic of 2.168 shows independence of the residuals. The partial regression graphs and a graph of studentised residuals against the predicted values revealed linearity. The graph of studentised residuals against unstandardized predicted values revealed homoscedacity. Tolerance values greater than 0.1 were found which revealed zero multicollinearity and additional checks were implemented as discussed in Chapter Five. An outlier was found in the analysis; however, it was not removed from the sample, there was one leverage value greater than 0.2 (this was ignored), and an influential point was found. The infrastructure investment variable was transformed, and the regression was rerun (all results presented in Chapter Five for the period 2009 until 2016 are from the rerun regression with the

transformed variable). The histogram graph and a P-P graph revealed normality. The multiple regression model statistically significantly predicted inward FDI for the period 2009 until 2016, $F(3, 31) = 7.996$, $p < .05$, adj. $R2 = .382$. All independent variables, trade openness, institutional quality and infrastructure investment added statistically and significantly to the prediction, $p < .05$ (Laerd STATISTICS, 2018).

The economic significance of the trade openness variable, institutional quality and infrastructure investment predicting inward FDI is as follows: the unstandardized coefficients for trade openness, institutional quality and log(infrastructure investment) are 13.2, 0.54 and negative 5(these values are extracted from Table 16) which means that as trade openness increases by one unit, inward FDI increases by 13.2%, as institutional quality increases by one unit, inward FDI increases by 0.54% and as infrastructure investment decreases by one unit, inward FDI increases by 0.05%. Economically, institutional quality and low infrastructure investment cause inward FDI to increase marginally compared to the ten percent that trade openness causes inward FDI to increase by (Field, 2013).

6.5 Analysis part two

An in-depth discussion of the results that were presented in Chapter Five for part two of the analysis for the periods 2002 until 2008 and 2009 until 2016 is presented in this chapter. Although this section discusses analysis part two, it is necessary to mention that a multiple linear regression was performed to test hypotheses one, three and four for the two periods indicated above. The descriptive statistics presented in Chapter Five for both periods for analysis part two presented the mean and standard deviation of the variables that were analysed. To reiterate, only thirty-five countries from SSA were considered for the analysis for both periods due to missing data for some of the variables for certain years and due to problems in the assumption testing. Analysis part two did not consider the institutional quality variable, however, included the control of corruption variable in the multiple regression model since institutional quality and control of corruption are similar variables, data for control of corruption was extracted from the institutional quality data. Including both the variables in the same model could lead to correlation problems. The reliability and validity of the data was determined by checking eight assumptions of the data. As discussed in Chapters Four and Five, the data adhered to the eight assumptions and the statistical multiple regression analysis was therefore a suitable method to implement as well as to check the relationships between the variables for both the periods, that is to check the objectives of this study. The findings from the

assumptions testing and the statistical multiple regression analysis are summarised as follows for analysis part two:

A statistical multiple regression analysis was run for the period 2002 until 2008 to determine the relationship between inward FDI and trade openness, infrastructure investment and control of corruption. A Durbin-Watson statistic of 2. 713 reveals independence of the residuals. The partial regression graphs and a graph of studentised residuals against the predicted values revealed linearity. There was homoscedasticity, as shown by the "R" value which was lower than 0.9, zero correlation was found between the independent variables, the tolerance values were greater than 0.1 therefore revealing zero multicollinearity. There were no standardized residuals higher or less than three, there were three leverage values higher than 0.2, which were found in the analysis, these values were not removed from the analysis and consequently, no influential points were found in the analysis. The histogram graph and the P-P Graph revealed normality. The multiple regression model statistically and significantly predicted inward FDI for the period 2002 until 2008, $F (3, 31) = 5.725$, $p < .05$, adj. $R2 = .294$. Only the trade openness variable added statistically and significantly to the prediction, $p < .05$ (Laerd STATISTICS, 2018).

The economic significance of the trade openness variable (trade openness was the only variable that was statistically significant in this analysis, therefore the other independent variables were not considered for economic significance) predicting inward FDI can be interpreted by reviewing the trade openness unstandardized coefficient of 10 in Table 24. This means that as trade openness increases by one unit, inward FDI increases by 10%(since inward FDI in this study is measured as a percentage of GDP) (Field, 2013).

A statistical multiple regression analysis was run for the period 2009 until 2016 to determine the relationship between inward FDI and trade openness, infrastructure investment and control of corruption. A Durbin-Watson statistic of two reveals independence of the residuals. The partial regression graphs and a graph plotted of studentised residuals against the predicted values revealed linearity. There was homoscedasticity, as shown by visually inspecting a graph of studentised residuals against unstandardized predicted values. The tolerance values were greater than 0.1 therefore revealing zero multicollinearity and other checks were implemented as discussed in Chapter Five. Data for Botswana, Mauritius, Mozambique and Rwanda were removed from the initial analysis due to having high leverage points or high influential points. The analysis was rerun, and the results presented in Chapter Five are shown for the rerun analysis with the removed countries. The histogram graph and a P-

P Graph revealed normality. The multiple regression model statistically and significantly predicted inward FDI for the period 2009 until 2016, F (3, 27) = 5.675, p < .005, adj. R2 = .319. Only the trade openness and infrastructure investment variables added statistically significantly to the prediction, p < .05 (Laerd STATISTICS, 2018).

The economic significance of the trade openness and infrastructure investment variables is as follows for analysis part two, period 2009 until 2016: the unstandardized coefficients for trade openness and infrastructure investment are 9.6 and -0.6(these values are extracted from Table 30) which means that as trade openness increases by one unit, inward FDI increases by 9.6% and as infrastructure investment decreases by one unit, inward FDI increases by 0.6%. Economically, low infrastructure investment causes inward FDI to increase marginally compared to the 9.6% that trade openness causes inward FDI to increase by (Field, 2013).

6.6 Hypothesis One discussion

For analysis part one, the result for trade openness for both periods accepts the null hypothesis for hypothesis one. A positive and significant statistical relationship was found between inward FDI and trade openness for both periods, prior and post the financial crisis.

The result for the trade openness variable obtained in this study for both periods corresponds with the various literature that was presented in Chapter two on the topic of trade openness. The result for this study concurs with Vo et al. (2017) who described trade openness as being one of the local factors of a receiving country that attracted FDI in their study which focused on emerging economies and therefore is relevant to the SSA region. Additionally, Okafor et al. (2017) conducted research on the motives for inward FDI into SSA countries for the period 1996 until 2010 and their study revealed that trade openness was found to have a positive and significant impact on the inflow of FDI, consequently, the result that was obtained from this study agrees with Okafor et al's. (2017) study . Research conducted by Mijiyawa (2017) on the driving factors of FDI into African countries for the period 1970 until 2009 revealed a positive and significant relationship between inward FDI and trade openness; FDI drives investment into African countries. This study for both periods corresponds with the findings of Mijiyawa (2017). Anyanwu and Yaméogo (2015) analysed the determinants of FDI for five African regions for the period 1970 until 2010 and the results revealed a positive relationship between FDI and trade openness in all the five African regions excluding East Africa. The results obtained from this study concur with Anyanwu and Yaméogo's (2015) study. In addition,

the result achieved in this study corresponds with the results obtained by the following researchers in their studies, Ahmed et al. (2007), Gossel and Biekpe (2017) and Economou et al. (2017) who found that there was a positive relationship between FDI and trade openness.

The results found in analysis part two for the relationship between inward FDI and trade openness agrees with the results that were found in analysis part one, except that analysis part one excluded the control of corruption variable whereas analysis part two included the control of corruption variable and excluded the instituional quality vairable. The same literature presented in the discussion above for analysis part one on the trade openness and FDI relationship, is applicable to this finding in analysis part two for the trade openness variable.

6.7 Hypothesis Two Discussion

Hypothesis two was tested in analysis part one by conducting a multiple linear regression between inward FDI and trade openness, institutional quality and infrastructure investment for the periods 2002 until 2008 and the period 2009 until 2016. The positive relationship between inward FDI and institutional quality was of no significance for the period 2002 until 2008. For the period 2009 until 2016, there was a statistically positive significant relationship between inward FDI and institutional quality. The null hypothesis for hypothesis two was rejected for 2002 until 2008, however, it was accepted for 2009 until 2016.

The results for 2002 until 2008 disagree with most of the literature that was considered for institutional quality. However, the relationship that was found between inward FDI and institutional quality was very weak yet positive, hence the insignificant result and the rejection of the null hypothesis. Amendolagine et al. (2013) found that effective institutions were necessary for improving the connections created by foreign organisations. Research was conducted by Economou et al. (2017) on the FDI determinants in OECD and developing countries for the period 1980-2012 and the results revealed that favourable institutional variables could improve the receiving country's attractiveness in terms of receiving FDI. Ahmed et. al. (2007) focused on South Africa for the period 1975 to 2002, in addition, this study concluded that institutional quality attracts FDI inflows. The positive and significant relationship that was found between inward FDI and institutional quality for the period 2009 until 2016 agrees with the

literature reviewed on institutional quality, since the result for this period was statistically significant.

6.8 Hypothesis Three Discussion

Hypothesis Three was tested in analysis part one, which found that the negative relationship between inward FDI and infrastructure investment for the period 2002 until 2008 was statistically insignificant. During the period 2009 until 2016, there was a statistically significant negative relationship between inward FDI and infrastructure investment as discussed previously.

Additionally, analysis part two tested hypothesis three for the period 2002 until 2008 and no relationship was found between inward FDI and infrastructure investment. For the period 2009 until 2016 for analysis part two, a statistically significant negative relationship was found between inward FDI and infrastructure investment. Analysis part one and two provide the same results for hypothesis three. The null hypothesis for hypothesis three was rejected for 2002 until 2008 however, the null hypothesis was accepted for 2009 until 2016, however, this relationship is negative. Although a statistically significant negative result was found for the period 2009 until 2016 for analysis part one and part two, economically, low infrastructure investment causes inward FDI to increase negligibly (0.05% and 0.6% as discussed previously).

The result for 2002 until 2008 for analysis part one and part two correspond with the study conducted by Okafor et al. (2017) who found that the investment in infrastructure did not result in a positive and significant relationship with inward FDI. Kinuthia and Murshed (2015) found that the limited level of infrastructure development in Kenya for the period 1970 until 2009 did not encourage the inflow of FDI, this finding does not agree with any of the results for the two periods, for the two analyses conducted in this study.

Asiedu and Lien (2011) focused their research on a large selection of developing countries for the period 1982 until 2007 and their results revealed that good infrastructure attracts FDI inflow. Additionally, Alvarez and Marin (2013) found a similar result in their study and Chung (2014) mentioned that infrastructure amongst other determinants, for example, corruption, was found to be a significant driver of FDI inflow. The results achieved in this study for both periods and for both analyses do not agree with the literature that was consulted in Chapter Two. However, there appears not to be any literature that supports the finding of a negative relationship between inward FDI and

infrastructure investment for the period 2009 until 2016. Most of the literature consulted found that the higher the infrastructure investment, the higher the inflow of FDI, alternatively, this study found that the lower the level of infrastructure investment, the higher the inflow of FDI.

6.9 Hypothesis Four Discussion

Hypothesis four dealt with the relationship between inward FDI and control of corruption. This relationship was tested in analysis part two, which found an insignificant, positive relationship for the period 2002 until 2008 and 2009 until 2016 between inward FDI and control of corruption. The null hypothesis was rejected for Hypothesis Four for both periods since the relationship between inward FDI and control of corruption was insignificant, weak and positive for both periods. The findings from this study were inconclusive, the relationship between inward FDI and control of corruption is weak for both time periods and therefore disagrees with the findings of Gastanaga et al. (1998, in Bailey, 2018) who established a significant negative relationship between inward FDI and corruption for developing countries.

African countries, according to d'Agostino et al. (2016) deter the inflow of FDI due to corrupt practises, consequently, causing a lack of development in these countries. However, literature indicates that corruption is widespread and may be found in both developing and developed countries (Gossel & Biekpe, 2017). FDI is dependent upon how MNE's respond to corruption, since all MNE's react in diverse ways. There is a school of thought that indicates that MNE's from corrupt countries would invest in corrupt countries and would capitlise on the corruption already prevalent in the country (Godinez & Liu, 2015).

Cuervo-Cazurra (2006,2008, in Jain et al., 2017) reviewed the impact of corruption for the year 1997 on OECD countries and found that corruption had a significantly negative effect on the inflow of FDI, this study's results for control of corruption were insignificant therefore differ from Cuervo-Cazurra (2006,2008, in Jain et al., 2017) results. Additionally, Cieślik and Goczek (2018) found that corruption negatively influences the inflow of FDI and the economic development of emerging economies, Cieślik and Goczek's (2018) results were significant whereas the results for the control of corruption variable were insignificant and therefore no relationship was established in this study. Corruption creates uncertainty, which thus leads to the decrease in the incentive to invest in these corrupt countries.

A positive relationship between inward FDI and the control of corruption was found by Okafor et al. (2017) in the MENA and SSA regions for the period 2000 until 2012. Investment uncertainty can be reduced by controlling corruption since corruption prevents the inflow of investment directly and indirectly.

A study was conducted by Ullah and Khan (2017) on thirty three developing countries for the period 1995 until 2011 and their analysis found a significant negative relationship between the inflow of FDI and corruption,the majority of MNE's do not invest in highly corrupt countries, this leads to a reduction in the inflow of FDI into these corrupt countries (Ullah & Khan, 2017). The insignificant results found in this study do not coincide with the significant results found by Okafor et al. (2017) and Ullah and Khan (2017) in their studies.

The relationship between democracy, corruption and FDI was reviewed by Gossel (2018) for the period 1985 until 2014 for thirty SSA countries, interestingly a positive significant relationship was found between the inflow of FDI and corruption which disagrees with the positive, insignificant and weak relationship which was found in this study between control of corruption and the inflow of FDI. Gossel's (2018) study found that an increase in the corruption level in these countries gave rise to an inflow of FDI, FDI is attracted to an increase in corrupt acitivies due to the majority of SSA democracies being weak and involved in corrupt practises (political parties receive support in exchange for goods and services).

The results from this study on the relationship between inward FDI and control of corruption were insignificant and therefore inconclusive, however anecdotal evidence has indicated that South Africa as an SSA country has suffered from the plague of corruption, for example various corrupt activities within the Government as well as in the private sector, for example the scandal with KPMG. According to Shoaib (2017) "KPMG's South African branch has come under fire and suffered a severe reputational hit after becoming caught up in a growing corruption scandal surrounding one of the country's most powerful families, the Guptas." This begs the question, "Why is this result in this study insignificant?" This is discussed under the limitations in Chapter Seven.

6.10 Conclusion

This Chapter discussed the results in terms of the hypotheses that were established in Chapter Three. This discussion was aligned to the empirical literature presented in Chapter Two, the hypotheses established in Chapter Three, the methodology presented in Chapter Four and the results of the multiple regression analyses that were presented in Chapter Five. The study's aim and objectives that were mentioned at the beginning of the chapter were met since the determinants of FDI were established for the periods before and after the 2008 financial crisis in SSA countries. For the period 2002 until 2008, only trade openness was a determinant of FDI into SSA in both models that were discussed above. For the period 2009 until 2016, trade openness, institutional quality and infrastructure investment were established as determinants of FDI, although the negative statistical relationship between inward FDI and infrastructure investment did not correlate with most of the literature. The literature suggested that the higher the inflow of inward FDI, the higher the investment of infrastructure, the findings in this study revealed that the higher the inflow of FDI, the lower the investment of infrastructure. Economically, it was established that low infrastructure investment causes inward FDI to increase marginally. The relationship between inward FDI and trade openness, institutional quality, infrastructure investment and control of corruption were established, as discussed in Chapter Five and in this Chapter, therefore the objectives of this study were met. The following chapter presents the conclusion to this study.

CHAPTER SEVEN
CONCLUSION

7.1 Introduction

This chapter presents the main theoretical findings of the research, the results are merged to form a consistent group of findings. Recommendations which are based on the findings of the study are provided in the form of policy implications for policy makers, interested parties and stakeholders as well as recommendations for future research. This study analysed the relationships between inward FDI and trade openness, institutional quality, infrastructure investment and control of corruption for the periods 2002 until 2008 and 2009 until 2016 for the SSA region, two multiple regression analyses were conducted to establish these relationships and hence the null hypotheses were either accepted or rejected in the study. Once the relationships were established, the determinants of FDI for the periods before and after the financial crisis were established for the SSA region.

7.2 Principal findings

As a result of having conducted two multiple regression analyses to establish the relationships between FDI and the variables mentioned above, the findings in this study were as follows. As indicated in Chapters Five and Six, for analysis part one and part two, there was a positive and significant relationship between inward FDI and trade openness and therefore trade openness was a determinant of FDI for 2002 until 2008 and 2009 until 2016. This indicates that the higher the trade openness, the higher the inflow of FDI for SSA countries. The positive and significant relationship found between inward FDI and trade openness agrees with various studies that were conducted on the determinants of FDI into either SSA, Africa or developing countries. These studies were conducted by Okafor et al. (2017), Anyanwu and Yaméogo (2015), Mijiyawa (2017) and Gossel and Biekpe (2017) for example.

For analysis part one and two, there was a positive but insignificant relationship between inward FDI and institutional quality for the period 2002 until 2008, which disagreed with the majority of the literature consulted on the institutional quality variable. There was however a positive and significant relationship between inward FDI and institutional quality for the period 2009 until 2016, which agrees with the findings of Amendolagine et al. 2013, Economou et al. (2017) and Ahmed et. al. (2007).

Institutional quality was therefore not a determinant of FDI for 2002 until 2008, however, it was a determinant for 2009 until 2016.

For analysis parts one and two, there was a negative and insignificant relationship between inward FDI and infrastructure investment for the period 2002 until 2008, however, for the period 2009 until 2016, there was a negative and significant relationship between inward FDI and infrastructure investment. Most of the literature consulted, regarding infrastructure investment mentioned positive relationships between inward FDI and infrastructure investment, the higher the investment in infrastructure the higher the inflow of FDI, the result in this study for both analyses indicated a negative insignificant or significant relationship between inward FDI and infrastructure investment which suggests the higher the inflow of FDI, the lower the investment in infrastructure should be. It was however discussed in Chapter 6 that the economic significance of the negative relationship between infrastructure investment and inward FDI is minimal. Speculation can be made as to why a negative statistical relationship was found in the statistical analysis between these variables, perhaps the sample size or years analysed had an impact on the outcome of the statistical analysis.

A positive and insignificant relationship was found between inward FDI and control of corruption for analysis part two, for the period 2002 until 2008 and 2009 until 2016 and the null hypothesis for Hypothesis Four was rejected for both time periods. Control of corruption was not found to be a determinant of FDI into SSA regions. This outcome for both periods analysed disagree with most of the literature that was consulted, for example, Cieślik and Goczek (2018), Okafor et al. (2017) and Ullah and Khan (2017) found a positive and significant relationship between inward FDI and control of corruption.

Despite not being an objective of this study to assess the impact of the 2008 financial crisis on the determinants of inward FDI, it is interesting to note that there are differences in determinants of inward FDI for the periods before and after the 2008 financial crisis, it appears that after the 2008 financial crisis did the institutional quality and infrastructure investment variables become statistically significant, that is only after the crisis, was institutional quality important in driving FDI inflow and lower investment in infrastructure attracted inward FDI. Trade openness was a determinant of FDI into SSA before and after the financial crisis meaning that the financial crisis did not affect trade openness as being a driving factor of FDI.

7.3 Implications for Policy Makers

This study investigated the relationship between inward FDI and trade openness, institutional quality, infrastructure investment and control of corruption for the periods before and after the financial crisis for certain SSA countries. To reiterate the findings of this study revealed that trade openness was a determinant of FDI into SSA for the period 2002 until 2008 and 2009 until 2016. Institutional quality was a determinant of FDI for the period 2009 until 2016 and poor infrastructure investment was a determinant of FDI while control of corruption was not found to be a determinant for either of the periods that were analysed.

Policy makers will find these results valuable since they add to the dearth of literature on the topic of determinants of FDI in SSA countries or developing countries. Additionally, this topic has also not been researched recently and therefore this research adds to the limited recent literature and policy makers may use the current information from this study to inform policy decisions. The results from this study provide essential implications for government implemented policies, it is anticipated that revised policies based on the findings of this study will attract the flow of inward FDI into these countries.

FDI has positive externalities for economic growth and contribute towards development, consequently attracting FDI has been a focus of policy makers in recent years. Moreover, FDI aids human development, contributes towards sustainable development and creates political freedom (Mihalache-O'Keef, 2018)

Since SSA and developing countries rely heavily upon FDI, as discussed in the previous chapters, this study could provide the requisite information for the revision of policies to attract inward FDI. There is sufficient empirical and theoretical information which supports that FDI aids in economic growth and can act as a mechanism to gain physical capital and transfer human capital to the country receiving the investment and as a result this leads to an increase in the economic growth rate of the country. The consideration to invest in the SSA region has increased due to the availability of mineral resources. In addition, the low robust growth performance of the SSA region is another factor that aids in attracting FDI (Bartels et al., 2014). FDI inflow may also be perceived as leading to technology transfers which in turn contribute to an increase in productivity factors, economic growth is driven by innovation (Alvarado et al., 2017).

Three significant results that emerged from this study are trade openness, institutional quality and low infrastructure investment being determinants of inward FDI in the SSA

region. These variables are classified as determinants of inward FDI since statistically significant results were found in this study for these variables. Consequently, if countries within the SSA region want to attract FDI, these countries should review their current policies taking into consideration trade openness institutional quality and low infrastructure investment, which would enable these countries to enjoy the benefits of FDI discussed above. It should be noted, however, that the statistical results for the infrastructure investment variable do not follow most of the findings in the literature on the relationship between inward FDI and infrastructure investment. It was established in this study that economically trade openness causes inward FDI to increase the most compared to institutional quality and low infrastructure investment. Trade openness, in both analyses, for both time periods, causes inward FDI into SSA regions to increase by a minimum of 10 percent, whereas, institutional quality and low infrastructure investment, cause inward FDI to increase marginally, less than 1 percent. It can therefore be seen that although three determinants of FDI were found in this study, trade openness makes the largest economic contribution in terms of increasing the inflow of FDI into SSA regions.

7.4 Limitations of the research

In a study of this nature, there are bound to be limitations that are encountered by the researcher, a discussion of these limitations is presented below.

The study focused on the following determinants of FDI: trade openness, institutional quality, infrastructure investment and corruption and did not consider other variables such as the volatility of the exchange rate or inflation that could influence the inflow of FDI into SSA countries as mentioned earlier. Additionally, this study was limited to certain SSA countries (these are developing countries), the results obtained from this study will not be applicable to developed countries. Certain SSA countries were omitted due to non-availability of data or problems in the data as indicated previously (assumptions were not met), consequently, this study was conducted on SSA countries only and thus excluded other African countries, which restricted the research in terms of reviewing Africa as a whole. An additional limitation was the periods that were used for this study, the period prior to the financial crisis could have been expanded however due to missing data for certain years (2002 until 2001), these years were omitted from the analysis. A limiting factor encountered was the non-availability of high-quality journal articles on this topic specifically in SSA, which hindered the quality of information obtained for the literature review. This study was a mini dissertation and due to the length constraints, it was not possible to conduct a larger study.

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7.5 Recommendations for future research

The recommendations for future research that emanated from this study are discussed hereafter. A very interesting study could be a study that incorporates a qualitative component; alternatively, a mixed methods study could produce interesting findings. Additionally, a methodology that could be used is a qualitative methodology that would involve perceptions, experiences as well strategies used to attract FDI into SSA countries. Apart from the methodological considerations, there are other considerations that potential researchers pursuing this topic could take cognisance of. Additional determinants of FDI, the inflation rate, the exchange rate, credit ratings, share of gross capital formation, and corporate tax rates could be included in the analysis. The statistical result obtained in this study for infrastructure investment did not support the positive relationship between infrastructure investment and inward FDI found in the literature, this study found a negative statistical relationship between the variables. Economically, it was found that low investment in infrastructure causes the inflow of FDI to increase minimally. It is, however, proposed that an alternate measure of infrastructure investment be implemented to determine the relationship between inward FDI and infrastructure investment.

The result for the control of corruption variable, did not provide statistically significant results, it is suggested that an alternative measure be applied to measure corruption. The Corruption Perceptions Index (CPI), published by Transparency International (TI) could be used to measure corruption in future studies, this was suggested by Jetter and Parmeter (2018). Instead of using a multiple linear regression technique, other statistical methods were found in the literature review, for example Economou et al. (2017) used an estimation of a fixed effects panel model .The time periods may be extended to include additional years prior to 2002, considering the availability of data for the determinants included in the analysis. This study may be extended to include other developing countries as well. A cross sectional analysis was conducted for two periods in this study, a longitudinal analysis could be performed. Finally, the impact of the 2008 financial crisis on the determinants of FDI into SSA countries may be researched; this entails another statistical analysis technique.

7.6 Conclusion

This chapter presented the principle findings from the multiple regressions analyses that were conducted on inward FDI, institutional quality, infrastructure investment and control of corruption for the periods 2002 until 2008 and 2009 until 2016 on SSA countries, thereafter the implications for policy makers were discussed. An in-depth discussion of the limitations of the research and the suggestions for future research were provided.

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APPENDIX A

OUTPUT FROM CHAPTER 5

Table 14

Model summary for analysis part one, period 2009 until 2016

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					**Durbin-Watson**
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.660[a]	.436	.382	3.98083	.436	7.996	3	31	.000	**2.168**
a. Predictors: (Constant), logInfrastructureinvestmenttelephonesper100people2009till2016, Tradeopenessaverage2009till2016, Sumallgovernancevariables2009till2016										
b. Dependent Variable: FDIoverGDP2009TILL2016										

Source: Own study

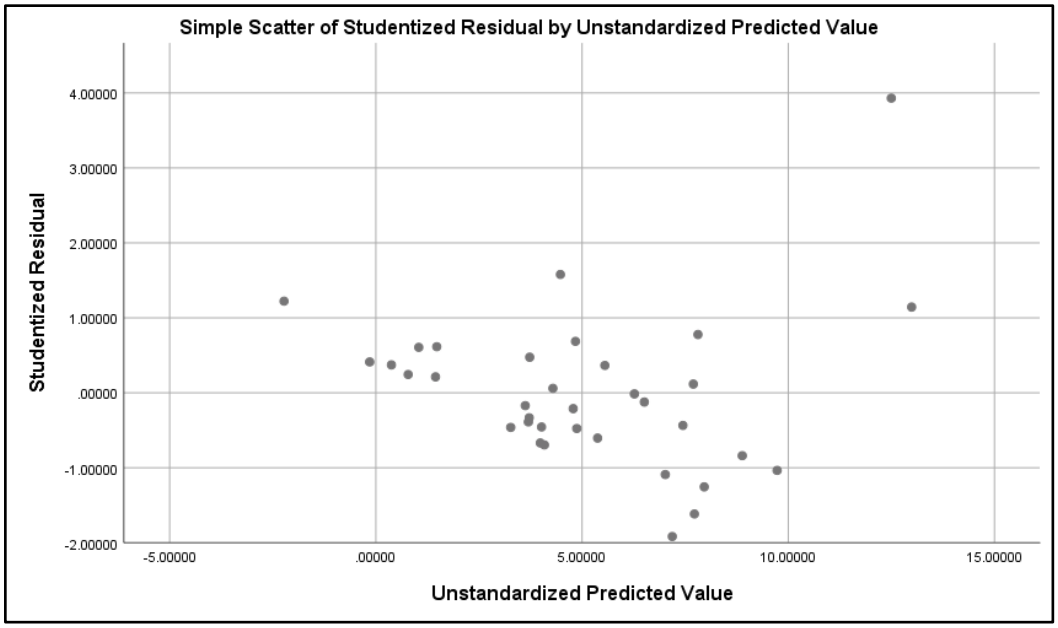

Figure 13. Simple Scatterplot of the Studentized Residual against the Unstandardized Precited Value.

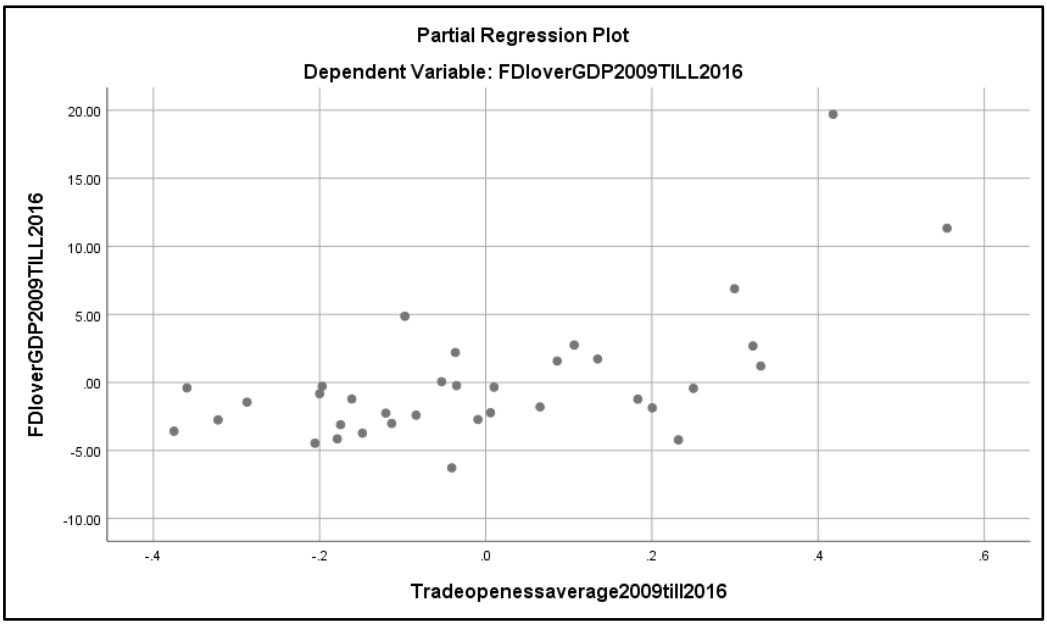

Figure 14. Partial Regression Plot of FDI against Trade Openness for the period 2009 until 2016.

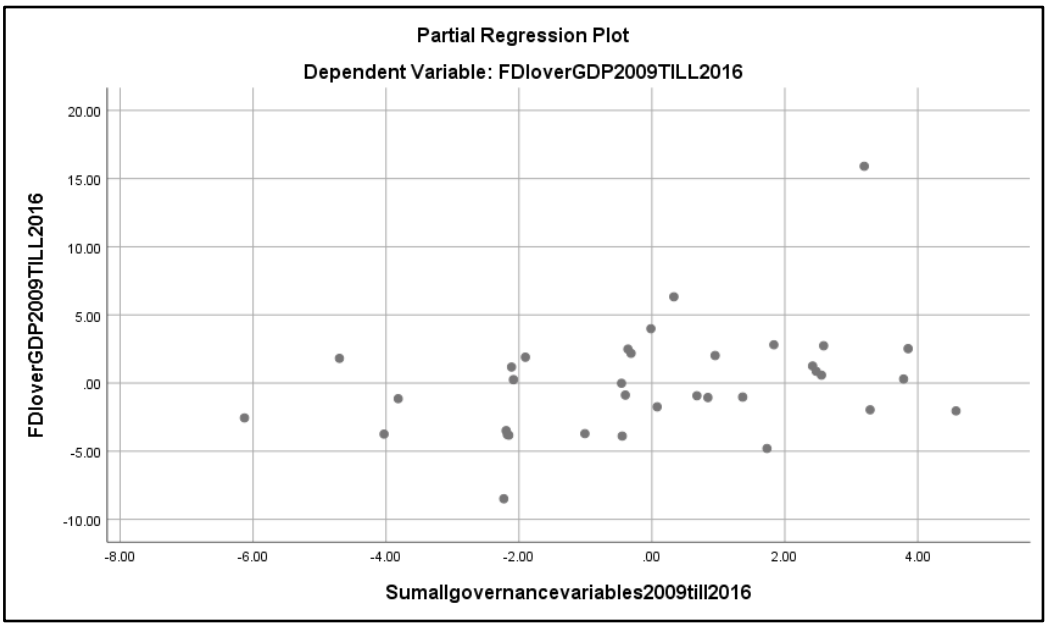

Figure 15. Partial Regression Plot of FDI against the sum of all the governance variables for the period 2009 until 2016.

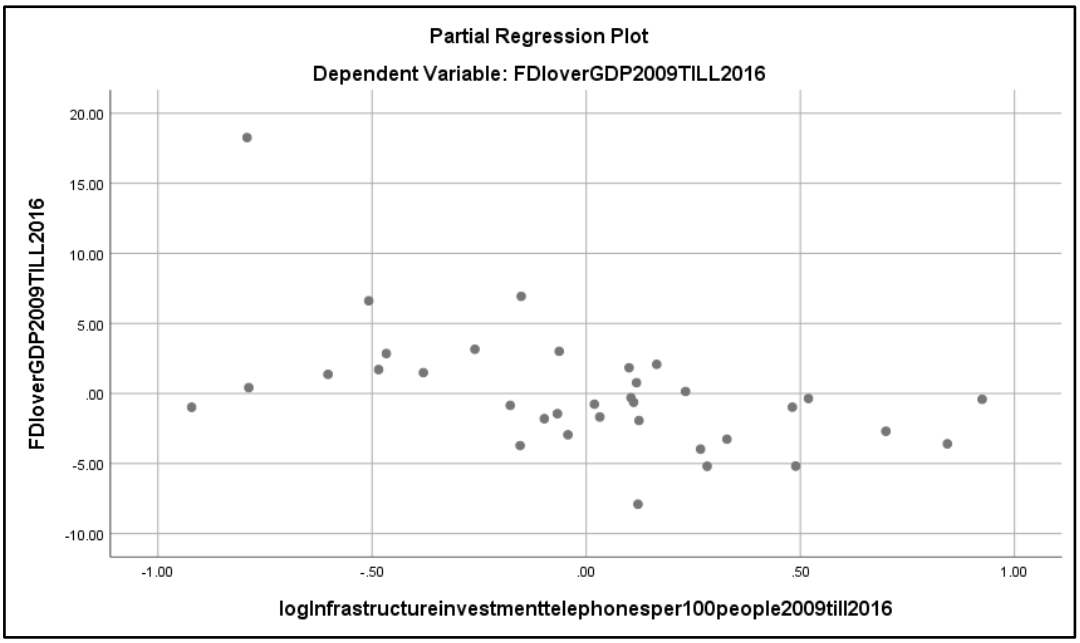

Figure 16. Partial Regression Plot of FDI against loginfrastructure investment for the period 2009 until 2016.

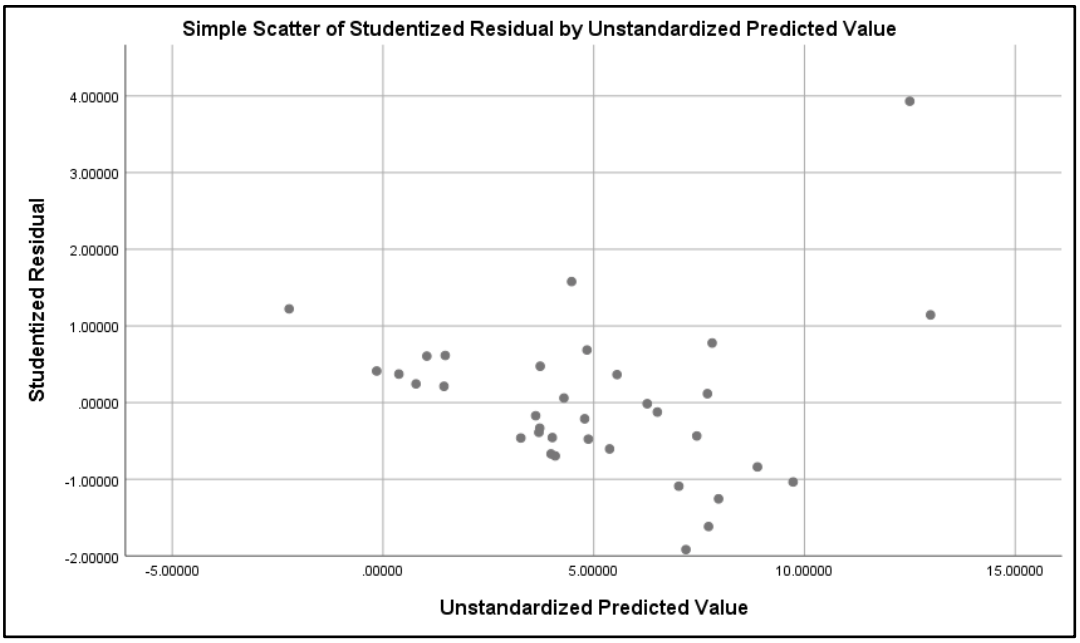

Figure 17. Simple Scatterplot of Studentized Residual plotted against the Unstandardised Predicted Value.

Table 15

Model Summary output for analysis part one, period 2009 until 2016

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.660[a]	.436	.382	3.98083	.436	7.996	3	31	.000	2.168
a. Predictors: (Constant), logInfrastructureinvestmenttelephonesper100people2009till2016, Tradeopenessaverage2009till2016, Sumallgovernancevariables2009till2016										
b. Dependent Variable: FDIoverGDP2009TILL2016										

Source: Own study

Table 16

Correlations table output for analysis part one, period 2009 until 2016

Correlations					
		FDIoverGDP2009TILL2016	Tradeopenessaverage2009till2016	Sumallgovernancevariables2009till2016	logInfrastructureinvestmenttelephonesper100people2009till2016
Pearson Correlation	FDIoverGDP2009TILL2016	1.000	**.481**	**.012**	**-.211**
	Tradeopenessaverage2009till2016	**.481**	1.000	**.084**	**.276**
	Sumallgovernancevariables2009till2016	**.012**	**.084**	1.000	**.657**
	logInfrastructureinvestmenttelephonesper100people2009till2016	**-.211**	**.276**	**.657**	1.000
Sig. (1-tailed)	FDIoverGDP2009TILL2016	.	.002	.473	.112
	Tradeopenessaverage2009till2016	.002	.	.316	.054
	Sumallgovernancevariables2009till2016	.473	.316	.	.000
	logInfrastructureinvestmenttelephonesper100people2009till2016	.112	.054	.000	.
N	FDIoverGDP2009TILL2016	35	35	35	35

	Tradeopenessaverage2009till2016	35	35	35	35
	Sumallgovernancevariables2009till2016	35	35	35	35
	logInfrastructureinvestmenttelephonesper100people2009till2016	35	35	35	35

Source: Own study

Table 17

Collinearity output for analysis part one, period 2009 until 2016

Model		t	Sig.	Collinearity Statistics			
				Partial	Part	Tolerance	**VIF**
1	(Constant)	-1.3	0.2				
	Tradeopenessaverage2009till2016	4.399	0	0.62	0.593	0.907	**1.1**
	Sumallgovernancevariables2009till2016	2.061	0.05	0.347	0.278	0.558	**1.79**
	LogInfrastructureinvestmenttelephonesper 100people2009till2016	-3.35	0	-0.516	-0.45	0.519	**1.93**

Source: Own study

Table 18

Model summary output from analysis part two, period 2002 until 2008

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.597[a]	.357	.294	2.89577	.357	5.725	3	31	.003	2.713
a. Predictors: (Constant), controlofcorruption2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008										
b. Dependent Variable: FDIoverGDP2002TILL2008										

Source: Own study

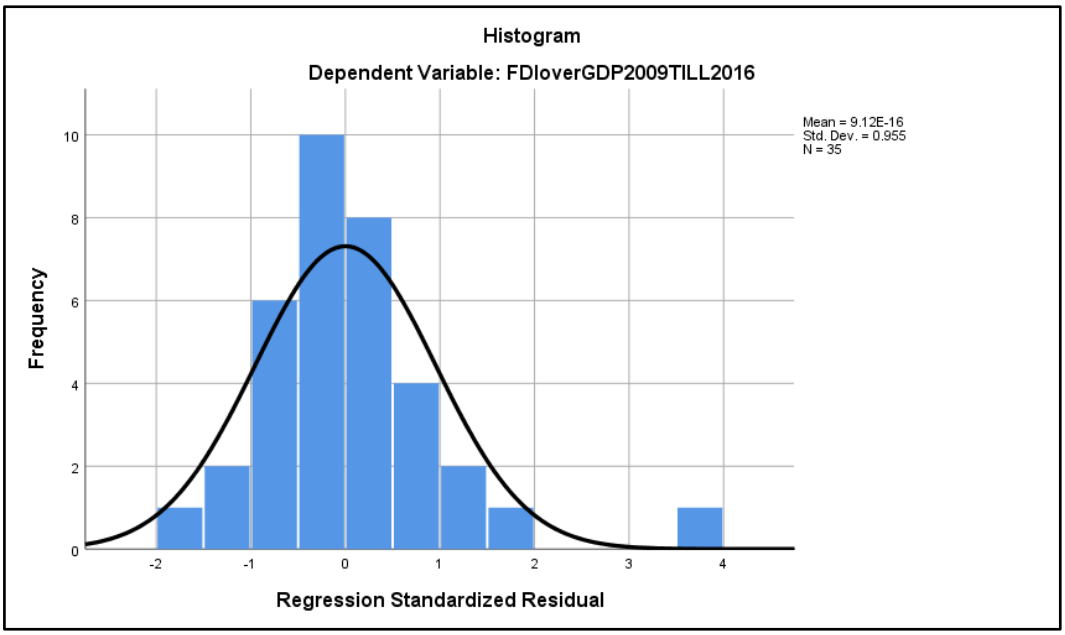

Figure 18. Histogram plotted for the period 2009 until 2016.

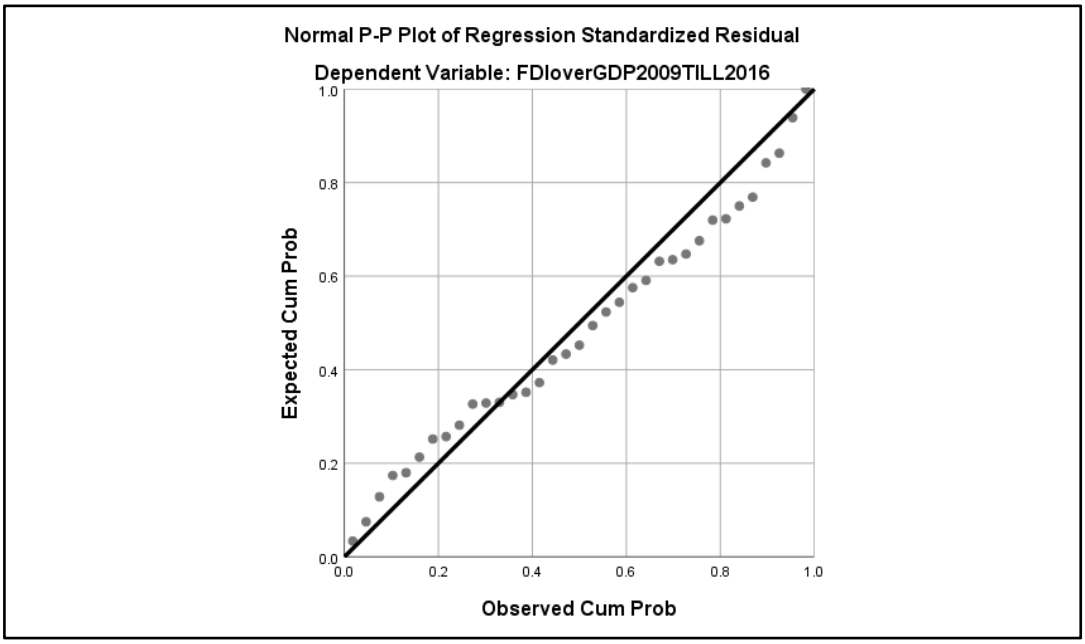

Figure 19. Normal P-P Plot of the Regression Standardised Residual for the period 2009 until 2016.

Table 19

Model summary output from analyses part one, period 2009 until 2016

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.660[a]	.436	.382	3.98083	.436	7.996	3	31	.000	2.168
a. Predictors: (Constant), logInfrastructureinvestmenttelephonesper100people2009till2016, Tradeopenessaverage2009till2016, Sumallgovernancevariables2009till2016										
b. Dependent Variable: FDIoverGDP2009TILL2016										

Source: Own study

Table 20

ANOVA output from analysis part one, period 2009 until 2016

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	380.134	3	126.711	7.996	.000[b]
	Residual	491.258	31	15.847		
	Total	871.392	34			
a. Dependent Variable: FDIoverGDP2009TILL2016						
b. Predictors: (Constant), logInfrastructureinvestmenttelephonesper100people2009till2016, Tradeopenessaverage2009till2016, Sumallgovernancevariables2009till2016						

Table 21

Coefficients output for from analysis part one, period 2009 until 2016

Coefficients[a]											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-3.232	2.484		-1.301	.203					

	Tradeopenessaverage2009till2016	13.215	3.004	.623	4.399	.000	.481	.620	.593	.907	1.103
	Sumallgovernancevariables2009till2016	.540	.262	.372	2.061	.048	.012	.347	.278	.558	1.794
	logInfrastructureinvestmenttelephonesper100people2009till2016	-5.159	1.538	-.628	-3.353	.002	-.211	-.516	-.452	.519	1.928
a. Dependent Variable: FDIoverGDP2009TILL2016											

Source: Own study

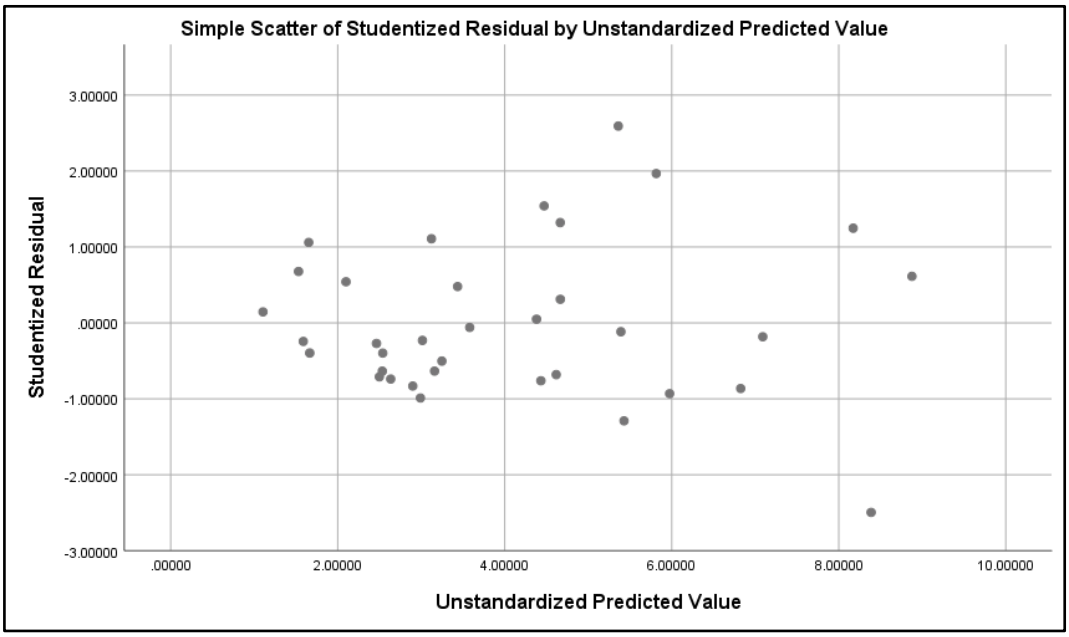

Figure 20. Simple Scatterplot of the Studentized Residual against the Unstandardized Predicted Value

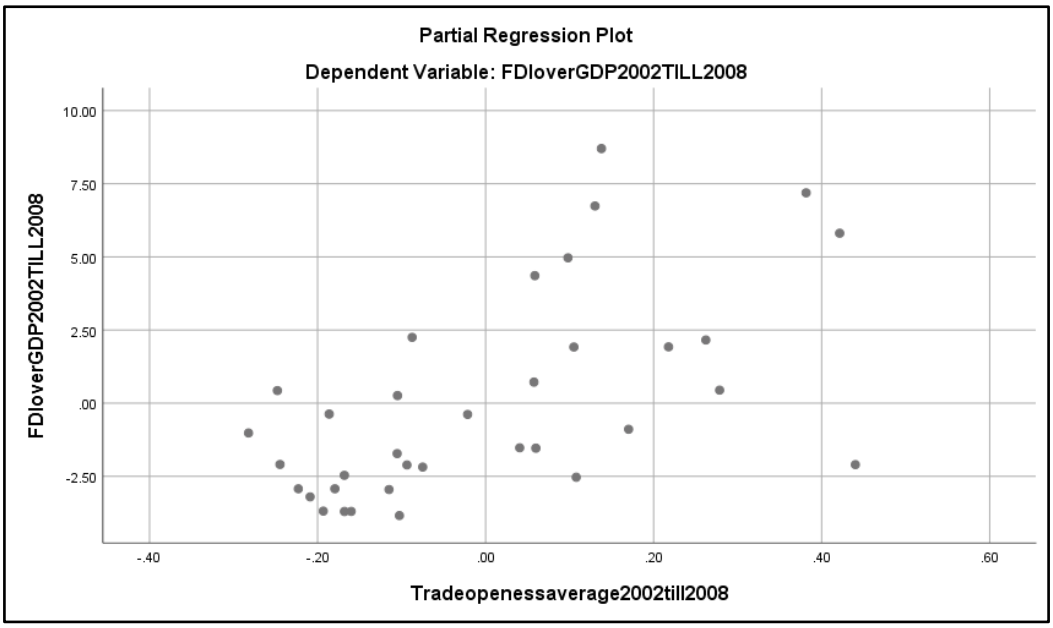

Figure 21. Partial Regression Plot of FDI against trade openness for the period 2002 until 2008(Analysis Part Two)

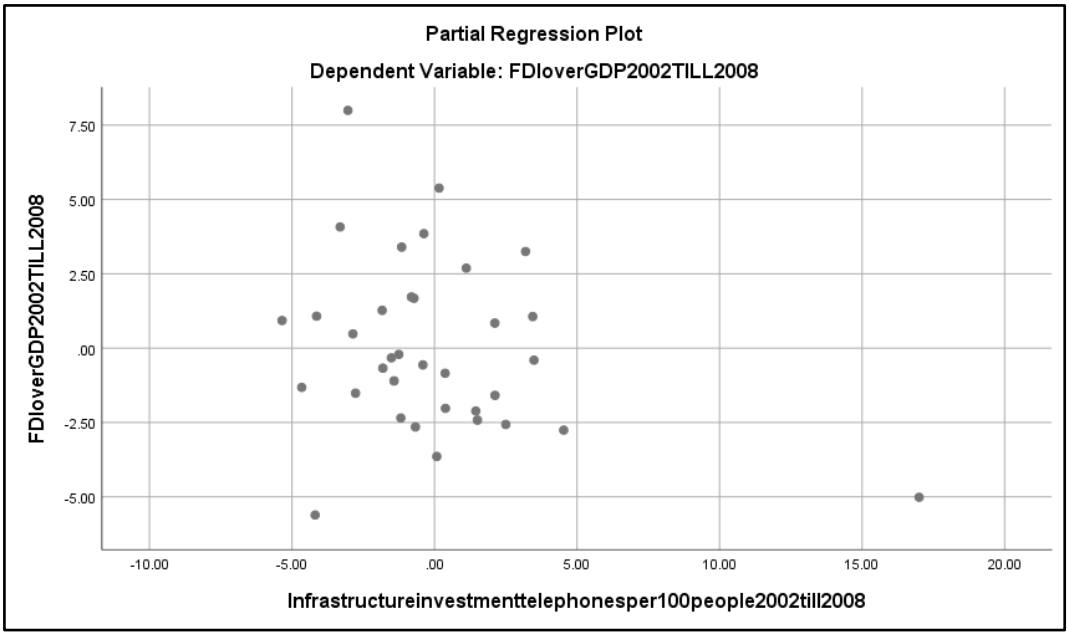

Figure 22. Partial Regression Plot of FDI against Infrastructure Investment for the period 2002 until 2008(Analysis Part Two)

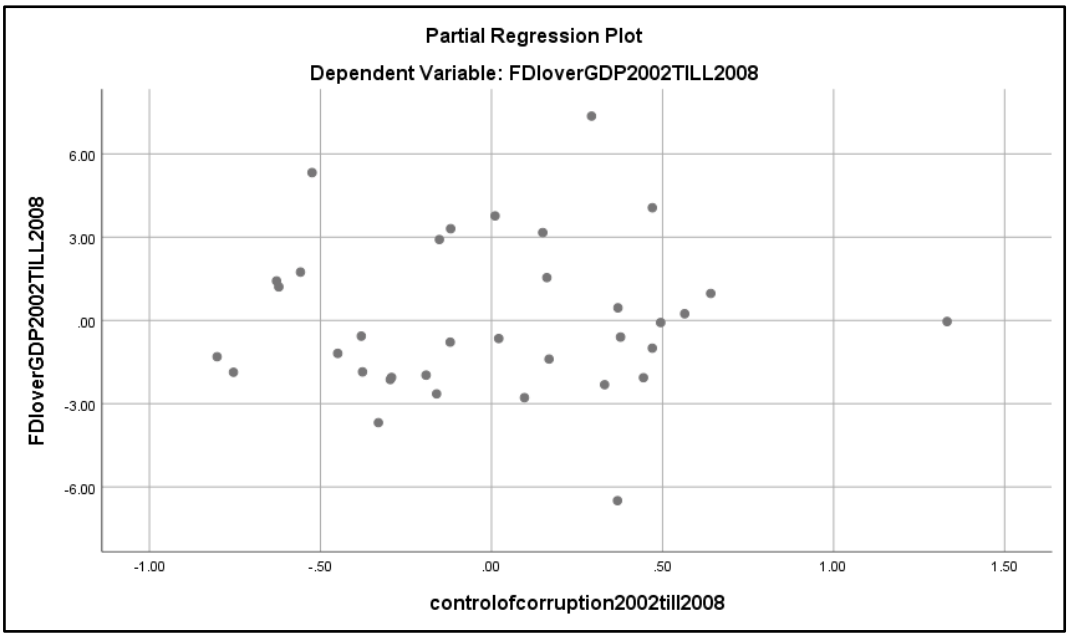

Figure 23. Partial Regression Plot of FDI against Control of Corruption for the period 2002 until 2008(Analysis Part Two)

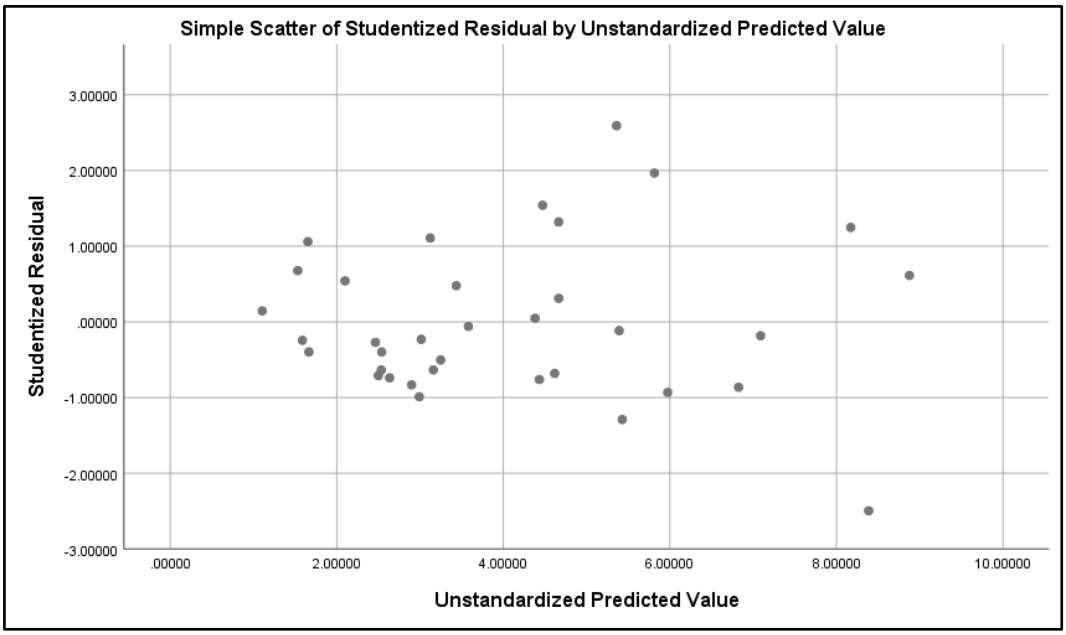

Figure 24. Simple Scatterplot of Studentized Residual against the Unstandardised Precited Value for the period 2002 until 2008(Analysis part two)

Table 22

Model summary output from analysis part two, period 2002 until 2008

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.597[a]	.357	.294	2.89577	.357	5.725	3	31	.003	2.713
a. Predictors: (Constant), controlofcorruption2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008										
b. Dependent Variable: FDIoverGDP2002TILL2008										

Source: Own study

Table 23

Correlations output from analysis part two, period 2002 until 2008

Correlations					
		FDIoverGDP2002TILL2008	Tradeopenessaverage2002till2008	Infrastructureinvestmenttelephonesper100people2002till2008	controlofcorruption2002till2008
Pearson Correlation	FDIoverGDP2002TILL2008	1.000	.514	-.042	-.091
	Tradeopenessaverage2002till2008	.514	1.000	.446	.147
	Infrastructureinvestmenttelephonesper100people2002till2008	-.042	.446	1.000	.616
	controlofcorruption2002till2008	-.091	.147	.616	1.000
Sig. (1-tailed)	FDIoverGDP2002TILL2008	.	.001	.405	.301
	Tradeopenessaverage2002till2008	.001	.	.004	.199
	Infrastructureinvestmenttelephonesper100people2002till2008	.405	.004	.	.000
	controlofcorruption2002till2008	.301	.199	.000	.
N	FDIoverGDP2002TILL2008	35	35	35	35
	Tradeopenessaverage2002till2008	35	35	35	35

	Infrastructureinvestmenttelephonesper100people2002till2008	35	35	35	35
	controlofcorruption2002till2008	35	35	35	35

Source: Own study

Table 24

Coefficients output from analysis part two, period 2002 until 2008

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.938	1.502		-.625	.537	-4.002	2.125					
	Tradeopenessaverage2002till2008	10.133	2.475	.670	4.094	.000	5.085	15.181	.514	.592	.590	.775	1.290
	Infrastructureinvestmenttelephonesper100people2002till2008	-.227	.129	-.361	-1.756	.089	-.490	.037	-.042	-.301	-.253	.492	2.032
	controlofcorruption2002till2008	.182	1.054	.032	.173	.864	-1.967	2.332	-.091	.031	.025	.601	1.665
a. Dependent Variable: FDIoverGDP2002TILL2008													

Source: Own study

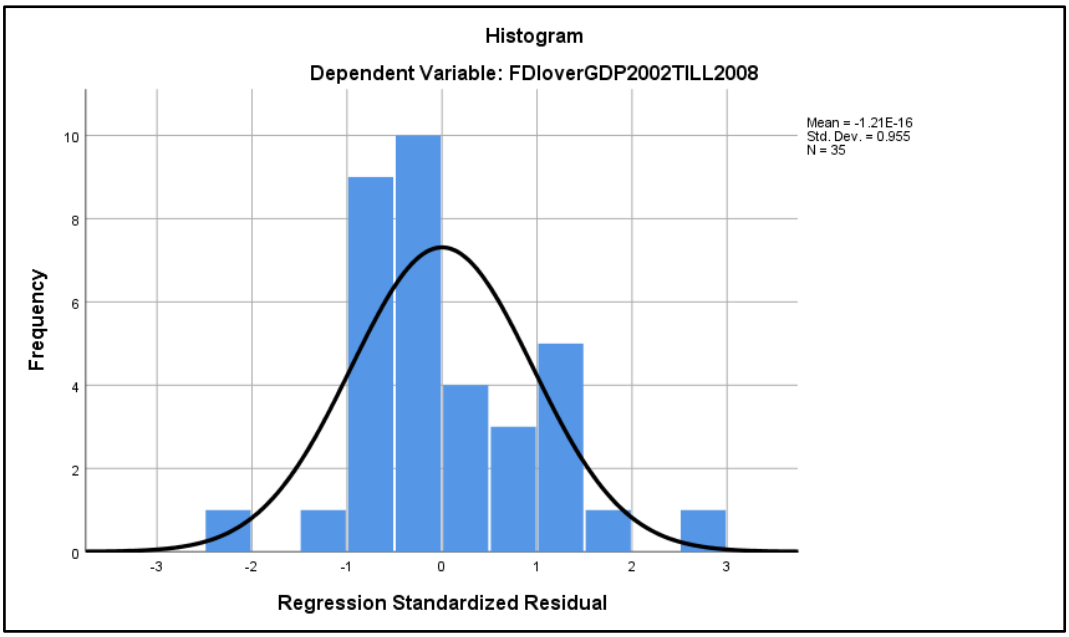

Figure 25. Histogram plotted for the period 2002 until 2008.

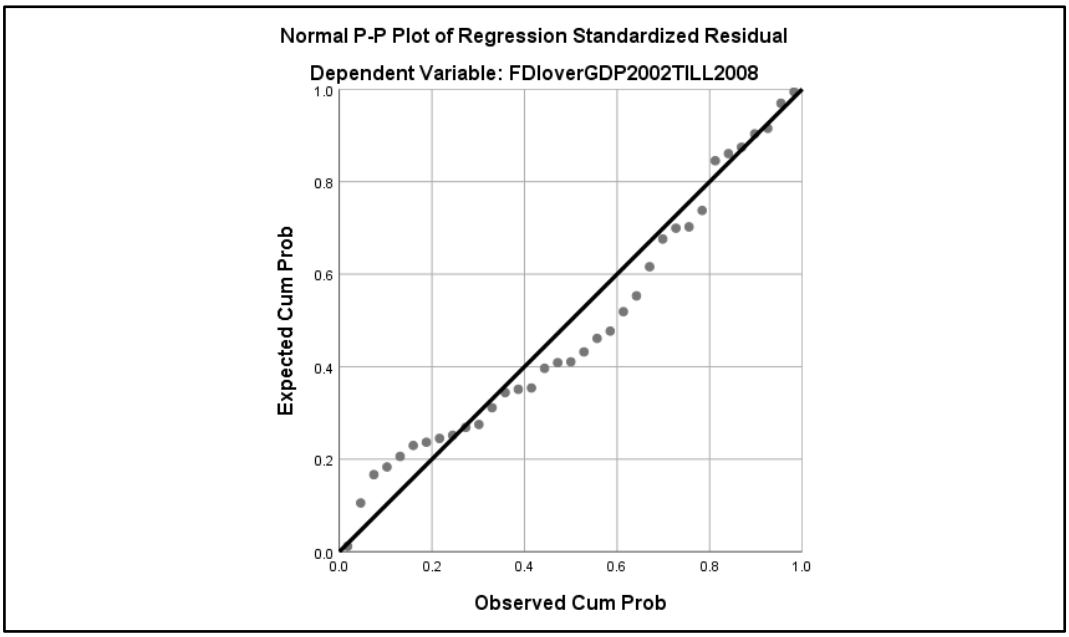

Figure 26. Normal P-P Plot of the Regression Standardized Residual for the period 2002 until 2008.

Table 25

Model summary output from analysis part two, period 2002 until 2008

Source: Own study

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.597[a]	.357	.294	2.89577	.357	5.725	3	31	.003	2.713
a. Predictors: (Constant), controlofcorruption2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008										
b. Dependent Variable: FDIoverGDP2002TILL2008										

Table 26

ANOVA output from analysis part two, period 2002 until 2008

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.026	3	48.009	5.725	.003b
	Residual	259.950	31	8.385		
	Total	403.975	34			
a. Dependent Variable: FDIoverGDP2002TILL2008						
b. Predictors: (Constant), controlofcorruption2002till2008, Tradeopenessaverage2002till2008, Infrastructureinvestmenttelephonesper100people2002till2008						

Table 27

Coefficients output from analysis part two, period 2002 until 2008

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.938	1.502		-.625	.537	-4.002	2.125					

	Tradeopenessaverage2002till2008	10.133	2.475	.670	4.094	.000	5.085	15.181	.514	.592	.590	.775	1.290
	Infrastructureinvestmenttelephonesper100people2002till2008	-.227	.129	-.361	-1.756	.089	-.490	.037	-.042	-.301	-.253	.492	2.032
	controlofcorruption2002till2008	.182	1.054	.032	.173	.864	-1.967	2.332	-.091	.031	.025	.601	1.665
a. Dependent Variable: FDIoverGDP2002TILL2008													

Source: Own study

Table 28

Model summary from analysis part two, period 2009 until 2016

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.622[a]	.387	.319	2.95990	.387	5.675	3	27	.004	2.000
a. Predictors: (Constant), controlofcorruption2009till2016, Tradeopenessaverage2009till2016, Infrastructureinvestmenttelephonesper100people2009till20016										
b. Dependent Variable: FDIoverGDP2009TILL2016										

Source: Own study

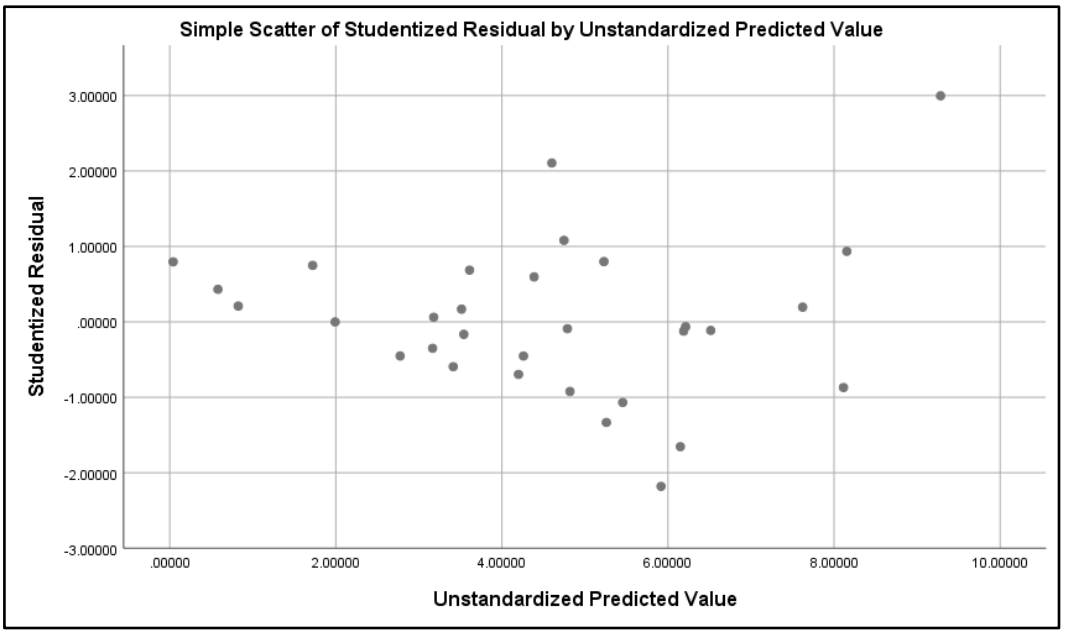

Figure 27. Simple Scatterplot of Studentized Residual against the Unstandardised Predicted Value (Analysis part two, period 2009 until 2016)

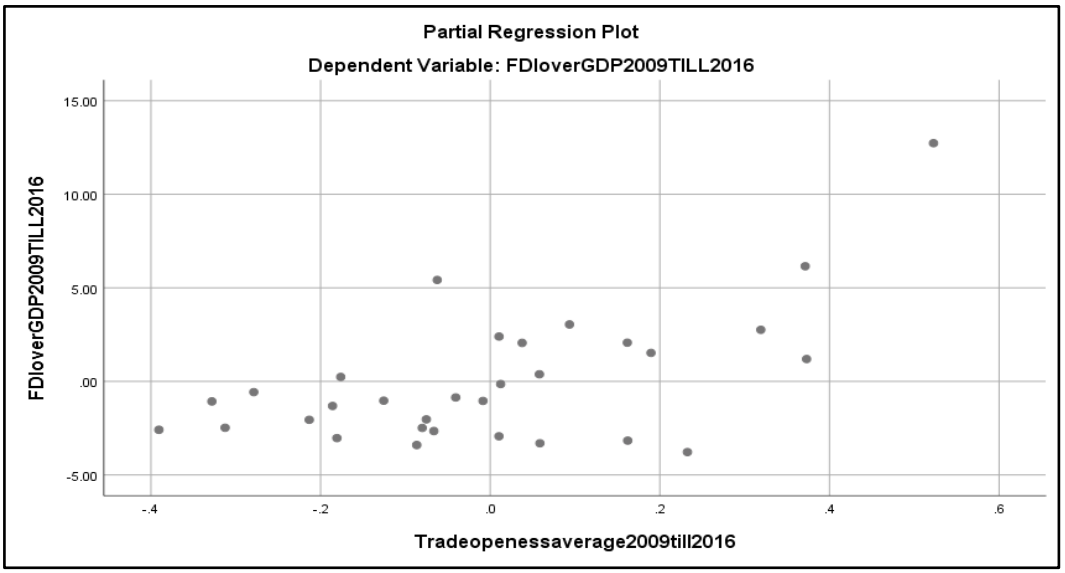

Figure 28. Partial Regression Plot of FDI against Trade Openness for the period 2009 until 2016(analysis part two).

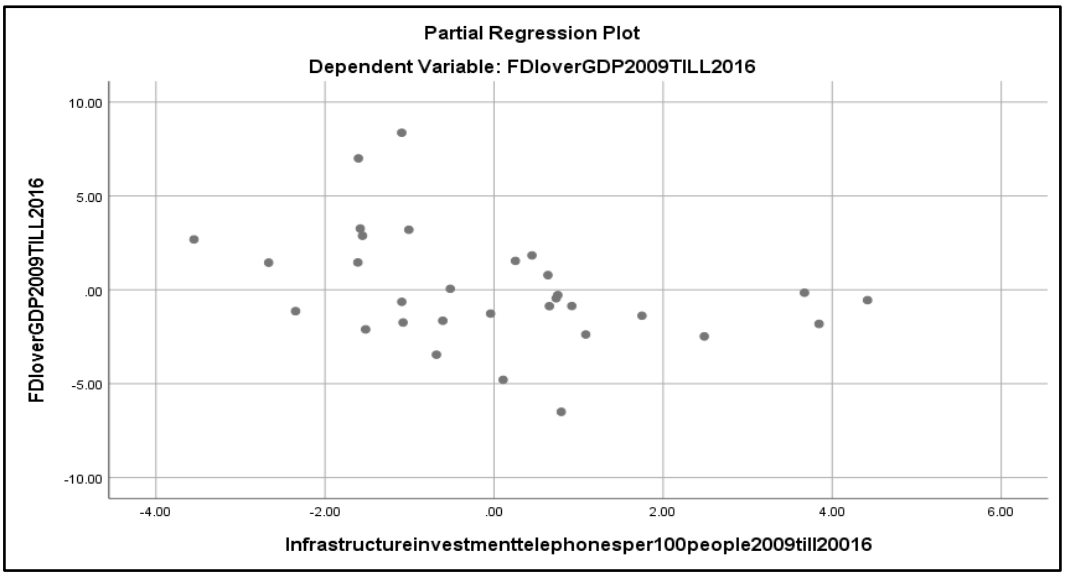

Figure 29. Partial Regression Plot of FDI against Infrastructure Investment for the period 2009 until 2016(analysis part two).

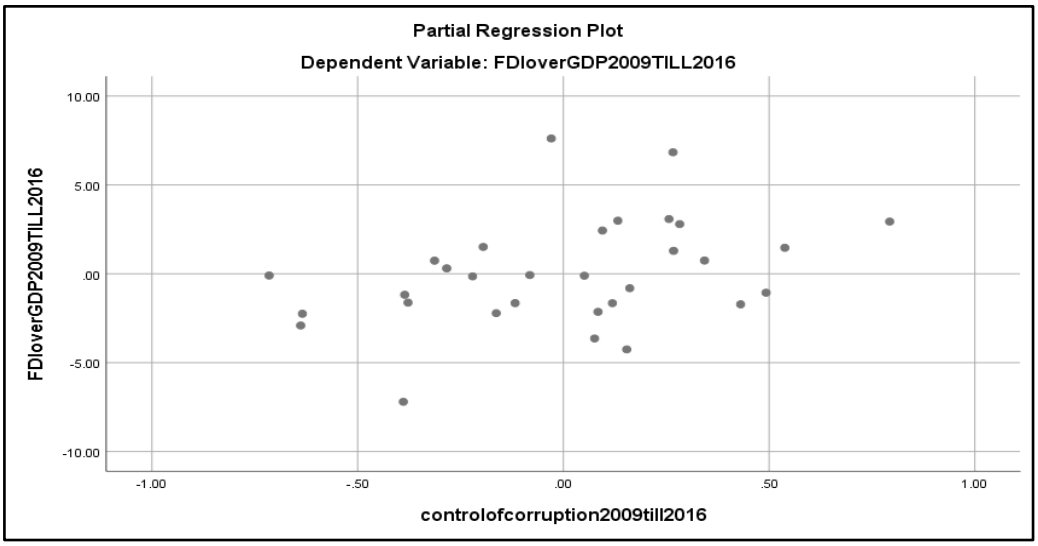

Figure 30. Partial Regression Plot of FDI against Control of Corruption for the period 2009 until 2016(analysis part two).

Table 29

Correlations output from analysis part two, period 2009 until 2016

Correlations					
		FDIoverGDP2009TILL2016	Tradeopenessaverage2009till2016	Infrastructureinvestmenttelephonesper100people2009till2016	controlofcorruption2009till2016
Pearson Correlation	FDIoverGDP2009TILL2016	1.000	.523	-.057	.092
	Tradeopenessaverage2009till2016	.523	1.000	.143	-.028
	Infrastructureinvestmenttelephonesper100people2009till2016	-.057	.143	1.000	.731
	controlofcorruption2009till2016	.092	-.028	.731	1.000
Sig. (1-tailed)	FDIoverGDP2009TILL2016	.	.001	.380	.311
	Tradeopenessaverage2009till2016	.001	.	.221	.440
	Infrastructureinvestmenttelephonesper100people2009till2016	.380	.221	.	.000
	controlofcorruption2009till2016	.311	.440	.000	.
N	FDIoverGDP2009TILL2016	31	31	31	31
	Tradeopenessaverage2009till2016	31	31	31	31
	Infrastructureinvestmenttelephonesper100people2009till2016	31	31	31	31
	controlofcorruption2009till2016	31	31	31	31

Source: Own study

Table 30

Coefficients output from analysis part two, period 2009 until 2016

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.673	2.231		.302	.765	-3.904	5.249					
	Tradeopenessaverage2009till2016	9.621	2.469	.605	3.896	.001	4.554	14.688	.523	.600	.587	.941	1.062
	Infrastructureinvestmenttelephonesper100people2009till20016	-.610	.289	-.481	-2.114	.044	-1.202	-.018	-.057	-.377	-.319	.438	2.282
	controlofcorruption2009till2016	3.052	1.492	.461	2.046	.051	-.009	6.114	.092	.366	.308	.447	2.237
a. Dependent Variable: FDIoverGDP2009TILL2016													

Source: Own study

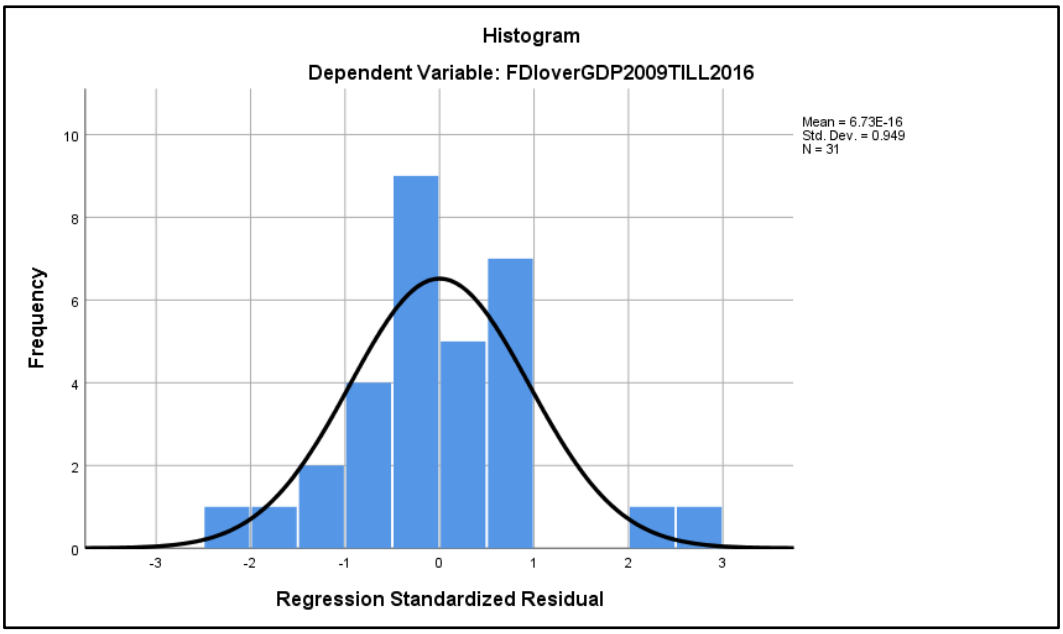

Figure 31. Histogram plotted for the period 2009 until 2016(analysis part two).

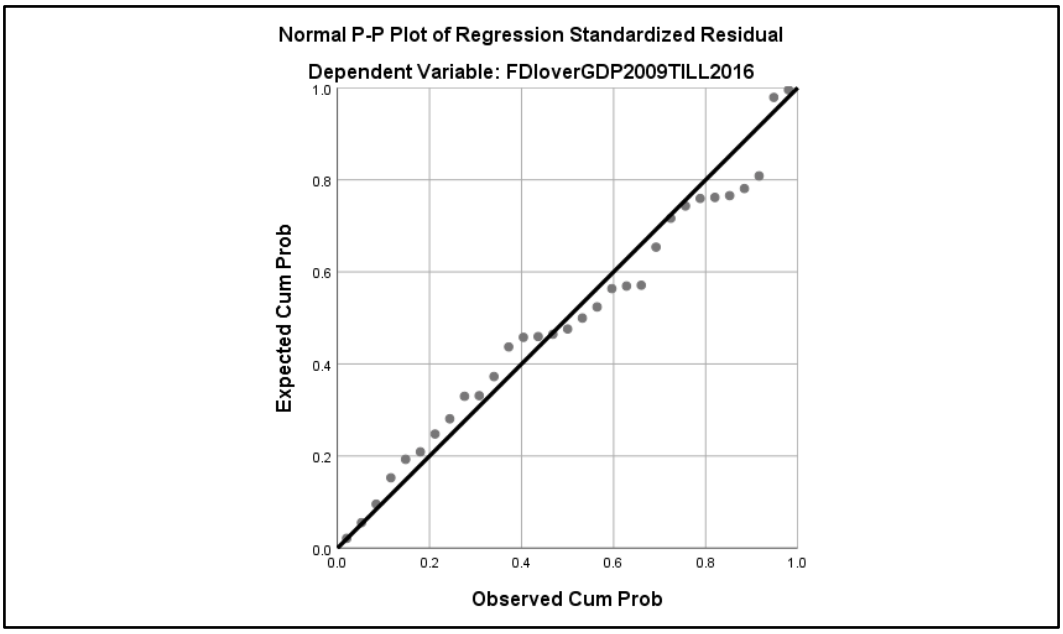

Figure 32. Normal P-P plotted for the period 2009 until 2016(analysis part two).

Table 31

Model Summary output from analysis part two, period 2009 until 2016

Model Summary[b]						
	R				Change Statistics	

Model		R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.622[a]	.387	.319	2.95990	.387	5.675	3	27	.004	2.000
a. Predictors: (Constant), controlofcorruption2009till2016, Tradeopenessaverage2009till2016, Infrastructureinvestmenttelephonesper100people2009till20016										
b. Dependent Variable: FDIoverGDP2009TILL2016										

Source: Own study

Table 32

ANOVA output from analysis part two, period 2009 until 2016

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	149.148	3	49.716	5.675	.004[b]
	Residual	236.547	27	8.761		
	Total	385.695	30			
a. Dependent Variable: FDIoverGDP2009TILL2016						
b. Predictors: (Constant), controlofcorruption2009till2016, Tradeopenessaverage2009till2016, Infrastructureinvestmenttelephonesper100people2009till20016						

Source: Own study

Table 33

Coefficients output from analysis part two, period 2009 until 2016

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.673	2.231		.302	.765	-3.904	5.249					

	Tradeopenessaverage2009till2016	9.621	2.469	.605	3.896	.001	4.554	14.688	.523	.600	.587	.941	1.062
	Infrastructureinvestmenttelephonesper100people2009till2016	-.610	.289	-.481	-2.114	.044	-1.202	-.018	-.057	-.377	-.319	.438	2.282
	controlofcorruption2009till2016	3.052	1.492	.461	2.046	.051	-.009	6.114	.092	.366	.308	.447	2.237
a. Dependent Variable: FDIoverGDP2009TILL2016													

Source: Own study

ETHICS ACCEPTANCE LETTER

Gordon Institute of Business Science
University of Pretoria

08 May 2018

Milner Aimee

Dear Milner

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee

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