

THE IMPACT OF PORTFOLIO INVESTMENT ON ECONOMIC GROWTH IN SOUTH AFRICA

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I, the undersigned Morris Tenderere, hereby declare that this research is my own original work and that all reference sources have been accurately reported and acknowledged and that this document has not been previously submitted at any University for a similar or any other academic qualification.

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DEDICATION

To my loving and caring parents Mr & Mrs James Tenderere, I gratefully and emotionally dedicate this Masters project to you for always being there when I was in need. Thank you for being a gift and blessing from God.

Abstract

The main objective of this study was to investigate the impact of foreign portfolio investment on economic growth in South Africa. South Africa, just like other several developing countries has recorded large capital inflows in recent years, reversing a trend of outflows. Much of this new capital inflow has been in the form of portfolio investment. This has been attributed to large domestic capital markets in South Africa. This surge in portfolio flows has raised the question whether these flows will be sustained or will instead be reversed in the near future. Some observers argue that the recent flows are inherently unsustainable because in many cases they have short maturities. In light of this, this study, then, sought to establish the impact of portfolio investment on economic growth in South Africa. The study used annual data from 1990 to 2012. The data was tested for stationarity using the Phillips Perron and Augmented Dickey–Fuller tests. This was followed by cointegration, after which the vector error correction modelling was carried out. Diagnostic checks, impulse response and variable decomposition were also conducted. Estimation results revealed that there is a positive relationship between foreign portfolio investments and economic growth in South Africa. The study recommended that the SARB and the government should remove all impediments that make it hard for foreign investors to invest in South Africa. The SARB should also keep interest rates at a rate that is high enough to attract foreign portfolios into South Africa.

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List of Abbreviations

FDI	Foreign Direct Investment
FPI	Foreign Portfolio Investment
IMF	International Monetary Fund
SARB	South African Reserve Bank
SBE	South African Bond Exchange
JSE	Johannesburg Stock Exchange
GDP	Gross Domestic Product

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

In the midst of several incidences of economic and financial crises in the 1990s and 2000s, there has been renewed research interest in analysing the impact of foreign portfolio investment (FPI) on the economic well-being of a host country. Foreign portfolio investment includes, in addition to equity securities and debt securities in the form of bonds and notes, money market instruments and financial derivatives such as options. To put it simply, foreign portfolio investment is a cross-border investment in securities with the intention of profit-making rather than management or legal control (IMF, 1998). While it is widely accepted that investment flow has its own benefits, lessons learned from the financial crisis highlighted that short-term FPI could have adverse effects on the host economy. It is therefore critical to analyse the extent to which a country could benefit from the inflow of FPI. In general, the merits of capital market integration through liberalisation of investment regulations are well-documented in the literature, FPI contributes positively in the development of an efficient domestic capital market and brings several benefits to the host country (Duasa and Kassim, 2009)

Increased FPI leads to greater liquidity in the capital market, resulting in a deeper and broader market (Levine and Zervos, 1996). The spill-over effects of positive competitive pressure to attract foreign investment would necessitate higher industrial standards and regulations through better corporate governance and greater business transparency, resulting in stronger investor protection and thus enhanced investor confidence (Feldman and Kumar, 1995; Shinn, 2000). Increased liquidity in the capital market also means better access to financing at lower cost of capital which is crucial to support economic activity (La Porta, *et al.*, 1998; Bekaert and Harvey, 2003). In this regard, the inflow of FPI into the stock market helps to alleviate financial constraints of firms (Laeven, 2003); Knill (2004). For developing countries, findings have been a little different. Investigations show that they do not benefit as much from foreign investment and most times, face crowding out of their domestic investment due to the inflow of foreign capital. The extent of benefits from foreign private investment depends on their overall macro-economic stability and policy framework.

An OECD (2002) report stated that Foreign portfolio investment increases the liquidity of domestic capital markets, and can help develop market efficiency as well. As markets become more liquid, as they become deeper and broader, a wider range of investments can be financed. New enterprises, for example, have a greater chance of receiving start-up financing. Savers have more opportunity to invest with the assurance that they will be able to manage their portfolio, or sell their financial securities quickly if they need access to their savings. In this way, liquid markets can also make longer-term investment more attractive. Foreign portfolio investment can also bring discipline and know-how into the domestic capital markets. In a deeper, broader market, investors will have greater incentives to expend resources in researching new or emerging investment opportunities. As enterprises compete for financing, they will face demands for better information, both in terms of quantity and quality. This press for fuller disclosure will promote transparency, which can have positive spill-over into other economic sectors. Foreign portfolio investors, without the advantage of an insider's knowledge of the investment opportunities, are especially likely to demand a higher level of information disclosure and accounting standards, and bring with them experience utilizing these standards and a knowledge of how they function (OECD, 2002).

In most economies however, domestic private investment has proven to be insufficient in giving the economy the required boost to enable it meet its growth target because of the mismatch between their capital requirements and saving capacity. Foreign private investment, thus, augments domestic resources to enable the country carry out effectively her development programmes and raise the standard of living of her people. Foreign private investment is made up of Foreign Direct Investment and Foreign Portfolio Investment. Since the mid-1990s, capital account liberalisation and broader economic reform in South Africa has contributed to a transformation of the balance of payments. For most of the period since 1994, net capital inflows have helped to alleviate the key structural constraint of low domestic savings. Increasing openness to both trade and capital flows has also meant that South Africa has become vulnerable to new sources of external shocks in the form of surges and reversals in international capital flows, posing new challenges for macroeconomic management (Aron, Leape and Thomas, 2009). In contrast to the almost complete removal of controls on foreign investors, the liberalisation of restrictions on cross-border investment by South African residents has been implemented in a more gradual manner since 1995.

This has mainly taken the form of phased increases in various allowances for foreign investment by institutional investors (portfolio investment), companies (FDI) and also for

private individuals, subject to tax compliance (Aron, Leape and Thomas, 2009). The effects of foreign portfolio investment on the South African economy are yet to be known because very little has been done on the area. The available studies show both positive and negative relationship between FPI and Economic growth, Lensink and Morrissey (2001) found a positive relationship whereas Bornshier and Jean cited in Abass (2004) found a negative relationship

In light of this, this study seeks to examine the effects of foreign portfolio investment on economic growth in South Africa.

1.2 Problem statement

South Africa is committed to maintaining an open environment for investment. This is core to long-term, sustainable, economic growth. As a low-savings developing economy, with high domestic investment requirements, South Africa requires to attract foreign direct investment in order to support domestic investment financing requirements (National Treasury, 2011). South Africa has re-entered this changing environment in full awareness of the pressing need for economic growth and development, for the creation of jobs and for the generation of income to improve the standard of living of its entire population. Out of its own saving, running at an unsatisfactorily low rate, it will hardly be possible to sustain a high economic growth rate. A net inflow of foreign capital therefore becomes a basic precondition if South Africa is to catch up on the huge backlogs of existing unemployment.

The South African Reserve Bank has recently reclassified capital flows by using three main categories for describing foreign investment flows, namely: foreign direct investment, which involves investment in a firm where foreign investors have at least 10 per cent of the voting rights; foreign portfolio investment which includes the purchase and sale of bonds and equities listed on international and domestic capital markets; and other foreign investment which consists of foreign loans and deposits between banks, companies and governments. South Africa, just like other several developing countries has recorded large capital inflows in recent years, reversing a trend of outflows. Much of this new capital inflow has been in the form of portfolio investment. This has been attributed to large domestic capital markets in South Africa. The African Economic Outlook (2013) report on outlook for direct investment in Africa shows that portfolio investment in South Africa increased from US\$ 6.5 billion in 2011 to US\$ 18.5 billion in 2012. However, this surge in portfolio flows has raised the question whether these flows will be sustained or will instead be reversed in the near future.

Some observers argue that the recent flows are inherently unsustainable because in many cases they have short maturities (Reisen, 2001). Aron et al (2009) further state that increasing openness to both trade and capital flows has also meant that South Africa has become vulnerable to new sources of external shocks in the form of surges and reversals in international capital flows, posing new challenges for macroeconomic management. In South Africa, the size of portfolio flows, and therefore their importance, is much larger than other types of investment. Thus this study seeks to establish the impact of portfolio investment on economic growth in South Africa.

1.3 Objectives

The main objective of this study is to investigate the impact of foreign portfolio investment on economic growth in South Africa. The specific objectives include:

- To examine trends in the flow of foreign portfolio investment and economic growth in South Africa;
- Empirically analyze the relationship between foreign portfolio investment and economic growth in South Africa;
- Suggest policy implications of the study on the growth of the South African economy

1.4 Hypothesis

H_0 : Portfolio investment does not lead to economic growth

H_1 : Portfolio investment leads to economic growth

1.5 Significance of the study

This study seeks to analyse FPI and economic growth in the South Africa and provides recent empirical evidence on whether it is beneficial to the South African economy or otherwise. The study hopes to provide conclusive empirical evidence on the relationship between foreign portfolio investment inflow and economic growth. It is hoped that the findings of the study would contribute towards enriching the relevant literature on the relationship between foreign portfolio investment and economic growth, particularly in the case of emerging markets. Despite its numerous virtues, foreign portfolio investment could have adverse effects on the economy. The potentially damaging aspects of FPI are rooted in its nature which is short-term and thus also volatile. While it is widely accepted that investment flow has its own benefits, lessons learned from the financial crises highlighted that short-term FPI

could have adverse effects on the host economy. It is therefore critical to analyse the extent to which a country could benefit from the inflow of FPI. This study, therefore, seeks to examine if there are any benefits or adverse outcomes from foreign portfolio investment in South Africa. Given the importance of capital inflows for macroeconomic policy in South Africa, there are surprisingly few empirical studies modelling capital flows. As a result, the study could be useful to portfolio managers, the government, and the financial sector as it will come up with results that will be useful for policy purposes.

1.6 Organisation of the Study

This dissertation will be divided into six chapters. Chapter 1 looked at the Background of the study; chapter 2 will examine trends in the flow of foreign portfolio investment and economic growth in South Africa; Chapter 3 focuses on the theoretical framework and literature review. Chapter 4 will deal with the empirical analysis with emphasis on the formulation and estimation of the model. Chapter 5 focuses on model robustness and articulates the policy implications of our results; while chapter six contains the summary and main conclusions of the study.

CHAPTER TWO

AN OVERVIEW OF THE TRENDS IN THE FLOW OF FOREIGN PORTIFOLIO INVESTMENT AND ECONOMIC GROWTH IN SOUTH AFRICA

2.1 INTRODUCTION

The main purpose of this chapter is to give an overview of economic growth and the flow of foreign portfolio investment in South Africa. In this chapter the trends on the development of economic growth and the flow of foreign portfolio investment in South African economy from 1994 to 2011 are presented. The first part of the chapter discusses trends in the flow of foreign portfolio investment with the second part concentrating on trends in economic growth in South Africa. The last section concludes the chapter.

2.2 FOREIGN PORTFOLIO INVESTMENT (FPI)

2.2.1 FPI in South Africa

Fredholm (2006) states that foreign portfolio investment is an investment activity that involves the purchase of stocks, bonds, commodities, or money market instruments that are based in a different country. In some cases, these types of investments are short-term in nature, allowing the investor to quickly take advantage of favourable exchange rates to buy and sell the assets. At other times, the foreign portfolio investment is acquired with plans of holding onto the asset for an extended period of time. FPI (Foreign Portfolio Investment) represents passive holdings of securities such as foreign stocks, bonds, or other financial assets, none of which entails active management or control of the securities' issuer by the investor. It is very easy to sell off the securities and pull out the foreign portfolio investment. Hence, FPI can be much more volatile than FDI. For a country on the rise, FPI can bring about rapid development, helping an emerging economy move quickly to take advantage of economic opportunity, creating many new jobs and significant wealth. However, when a country's economic situation takes a downturn, sometimes just by failing to meet the expectations of international investors, the large flow of money into a country can turn into a stampede away from it (Levin Institute, 2013)

The South African Reserve Bank (2013) reclassified capital flows by using three main categories for describing foreign investment flows, namely: foreign direct investment, which involves investment in a firm where foreign investors have at least 10 per cent of the voting rights; foreign portfolio investment which includes the purchase and sale of bonds and equities listed on international and domestic capital markets; and other foreign investment which consists of foreign loans and deposits between banks, companies and governments.

Foreign portfolio investment includes, in addition to equity securities and debt securities in the form of bonds and notes, money market instruments and financial derivatives such as options. To put it simply, foreign portfolio investment is a cross-border investment in securities with the intention of profit-making rather than management or legal control (IMF, 1998). Since the mid-1990s, capital account liberalisation and broader economic reform in South Africa has contributed to a transformation of the balance of payments. Many investors have rediscovered South Africa since the democratisation process started in 1994. Political developments paved the way for the re-introduction of the South African economy to the world economy, and for the awakening of new interest in its economic potential. South Africans have suddenly found themselves in a world where there is keen competition, and where a number of emerging and developing countries are sometimes slightly ahead in a race for the excess savings of more developed communities (Wesso, 2001).

For most of the period since 1994, net capital inflows have helped to alleviate the key structural constraint of low domestic savings. Increasing openness to both trade and capital flows has also meant that South Africa has become vulnerable to new sources of external shocks in the form of surges and reversals in international capital flows, posing new challenges for macroeconomic management. Capital inflows since the transition have been dominated by portfolio investment, contrasting with the experience of many other developing and emerging economies where FDI has had a more significant role, at least in terms of the composition of flows (Aron, Leap and Thomas, 2010)

2.2.2 Importance of Foreign Capital flows in South Africa

Wesso (2001) notes that out of its own saving, running at an unsatisfactorily low rate of only 15,5 per cent of gross domestic product in the fourth quarter of 2000, it will hardly be possible to sustain a high economic growth rate. A net inflow of foreign capital therefore becomes a basic precondition if South Africa is to catch up on the huge backlogs of existing

unemployment. Support the above assertion and note that since the mid-1990s, capital account liberalisation and broader economic reform in South Africa has contributed to a transformation of the balance of payments. For most of the period since 1994, net capital inflows have helped to alleviate the key structural constraint of low domestic savings. Increasing openness to both trade and capital flows has also meant that South Africa has become vulnerable to new sources of external shocks in the form of surges and reversals in international capital flows, posing new challenges for macroeconomic management. Tax reforms, fiscal discipline and the gradual liberalisation of exchange control are all aimed at increasing South Africa's attractiveness as a destination for foreign investment. Apart from changes in investor sentiment, capital flows are also sensitive to changes in economic growth, government deficits, exchange-rate-adjusted returns on investment and domestic inflation relative to those in other economies. Identifying relevant factors is therefore crucial in designing an effective policy

2.3 Factors Contributing to the Increase in Portfolio Investment Flows

A wide range of factors has prompted the increase in private capital flows to developing countries and opinions differ as to the relative contribution of “push” factors reflecting changes in developed country markets and “pull” factors arising from changes in developing countries. The last two decades have seen a large growth in the financial sector in developed countries and in increasing availability of funds for investment. This reflects the impact of financial deregulation, the growing number of people saving for retirement and the increasing prominence of institutional funds managing savings, pensions and insurance. The direction of an increasing proportion of such funds to developing countries may be prompted by push factors. Thus Fernandez-Arias (1994) emphasises the impact of low interest rates and low economic growth in developed countries which “push” investors to seek higher returns in emerging markets.

2.3.1 Financial liberalization

Financial liberalization refers to reduction of any sort of regulations on the financial industry of a given country. It is the process of breaking away from a state of financial repression. As financial repression has been most commonly associated with government fixing of interest rates and its adverse consequences on the financial sector as well as on the economy, financial liberalization, in turn, has come to be most commonly associated

with freeing of interest rates. It is therefore understood as a process involving a much broader set of measures geared toward the elimination of various restrictions on the financial sector, such as the removal of portfolio restrictions on the banking sector, the form of the external sector, as well as changes in the institutional framework of monetary policy (Ucer, 2000).

Positive political developments in the early 1990s encouraged efforts by South Africa to integrate its economy with the rest of the world. On March 13, 1995, in a bid to stimulate economic growth, the government re-abolished the financial rand system and lifted all controls on non-resident investors, allowing them full access to the JSE Securities Exchange and the South African Bond Exchange (SABE, 2013). Liberalization of the JSE has resulted in massive increases in stock turnover and foreign investment in local financial assets. Since 1998, data from the South African Reserve Bank shows that liquidity of the JSE has averaged above 30%. Net Purchases of equity by foreign investors increased from R0.19 billion to R40.60 billion over the period 1994 – 1999. Over the same period, net bond purchases rose from R1.88 billion to R4.3 billion. According to the Rand Commission, by 2002, non-residents were responsible for over a third and over an eighth of the turnover on the JSE and the SABE respectively (Tswamuno, Pardee and Wunnava, 2007)

Financial liberalization offers the opportunity to compete internationally. Furthermore, if service providers in some developing economies are not competitive enough to succeed on world markets, overseas companies will be attracted to invest, bringing with them international best practices and better skills and technologies. The entry of foreign service providers is not necessarily a negative development and can lead to better services for domestic consumers, improve the performance and competitiveness of domestic service providers, as well as simply attract foreign capital into the country.

2.3.2 Privatization

Privatization may have several meanings. Primarily, it is the process of transferring ownership of a business, enterprise, agency, public service or public property from the public sector to the private sector, either to a business that operates for a profit or to a nonprofit organization. It may also mean government outsourcing of services or functions to private firms. Today, there is widespread agreement that the primary engine that can

pull the African economies to these levels is the private sector, both domestic and foreign direct investment and that there must be a public-private partnership. This is where privatization comes in. It is not an end in itself, but it is a key tool for improving the efficient allocation of resources, for mobilizing investment, and for stimulating private sector development. Privatization does this because it brings into the open the inefficiency of state run businesses, makes investment opportunities available, highlights the need and becomes the catalyst for capital market development and contributes towards openness by forcing government dialogue with the public (Abidjan, 1997).

Kamal and Shehad (2002) argue that privatization and foreign investments are linked in three ways, the direct impact suggest that privatization, especially when accompanied by measures to liberalize the market and open it up to competition, attracts foreign investors who not only acquire State-owned enterprises (SOEs), the right to develop a new infrastructure facility or the right to deliver infrastructure services but also bring in new investments, thus increasing the FDI stock, Indirect impact way stipulates that privatization leads to the development of capital markets, which, with the proper regulatory framework, attract foreign portfolio investments. Furthermore, the development of capital markets encourages FDI by providing investors with a liquid market. The third way is catalytic impact where privatization puts the developing country on the investors' "radar screen" and generates interest in it. Furthermore, the commitment to privatization and liberalization gives firm evidence to investors that the political and regulatory risks of expropriation, restrictions on capital accounts and repatriation of profits are being reduced.

2.3.3 Change in exchange controls

In more recent years, traditional exchange control restrictions on cross-border transactions have been replaced by the prudential regulation of foreign risk exposures for financial institutions. The sequenced approach has avoided the need for costly policy reversals, even during periodic domestic currency crises and more recently the global financial crisis. Indeed, according to the Government, the framework for prudential regulation of foreign exposure was one factor moderating the impact of the global crisis in South Africa in 2008-9 (National Treasury, 2009). Exchange control reform and global financial integration have resulted in a substantial increase in inward investment in South Africa, much of which has been in the form of portfolio equity inflows, as explored in the following section. In parallel, the strategy of gradual removal of restrictions on outward investment by South African

residents has enabled significant portfolio diversification for retirement funds and other institutional investors and the further international expansion of South African firms, while avoiding large and potentially destabilising capital outflows.

2.3.4 Low interest rates

Following the low interest rates environment in mature markets, investors and fund managers have generally gone searching for better yield elsewhere. Such searches, though by far targeted towards Eastern Europe, Latin America and Asia, are finally finding their way to African markets. Concerns about political and economic policy risks seem to have been marked down overtime. Better information, in-depth analysts' research, and indeed the consolidation of democratic governance structures have ensured that investors start to understand that Africa is not the same (Muhanga and Soteli, 2012)

2.4 FPI: Debt market

Aron et al (2010) pointed out that Foreign portfolio investment in South African debt securities has been more volatile than equity investment. Net portfolio investment in debt securities has been negative on a per quarter basis on many occasions since 1997, although this does not necessarily translate into a net outflow of capital from South Africa if investors chose to invest the proceeds in alternative South African assets. Balance of payments data on portfolio debt investment includes flows associated with the issue and repayment of international bonds by South African entities, as well as non-resident purchases and sales of domestic (rand-denominated) bonds. Much of the volatile pattern of portfolio debt investment is accounted for by non-resident investment in local debt securities (Leape and Thomas, 2009). The domestic bond market is highly liquid, providing scope for a rapid turnover of interest rate positions by international investors. More generally, the developed domestic bond market historically has enabled South Africa to maintain a low level of external (or foreign currency) public debt and to avoid the associated exposure to shocks that have affected many developing countries.

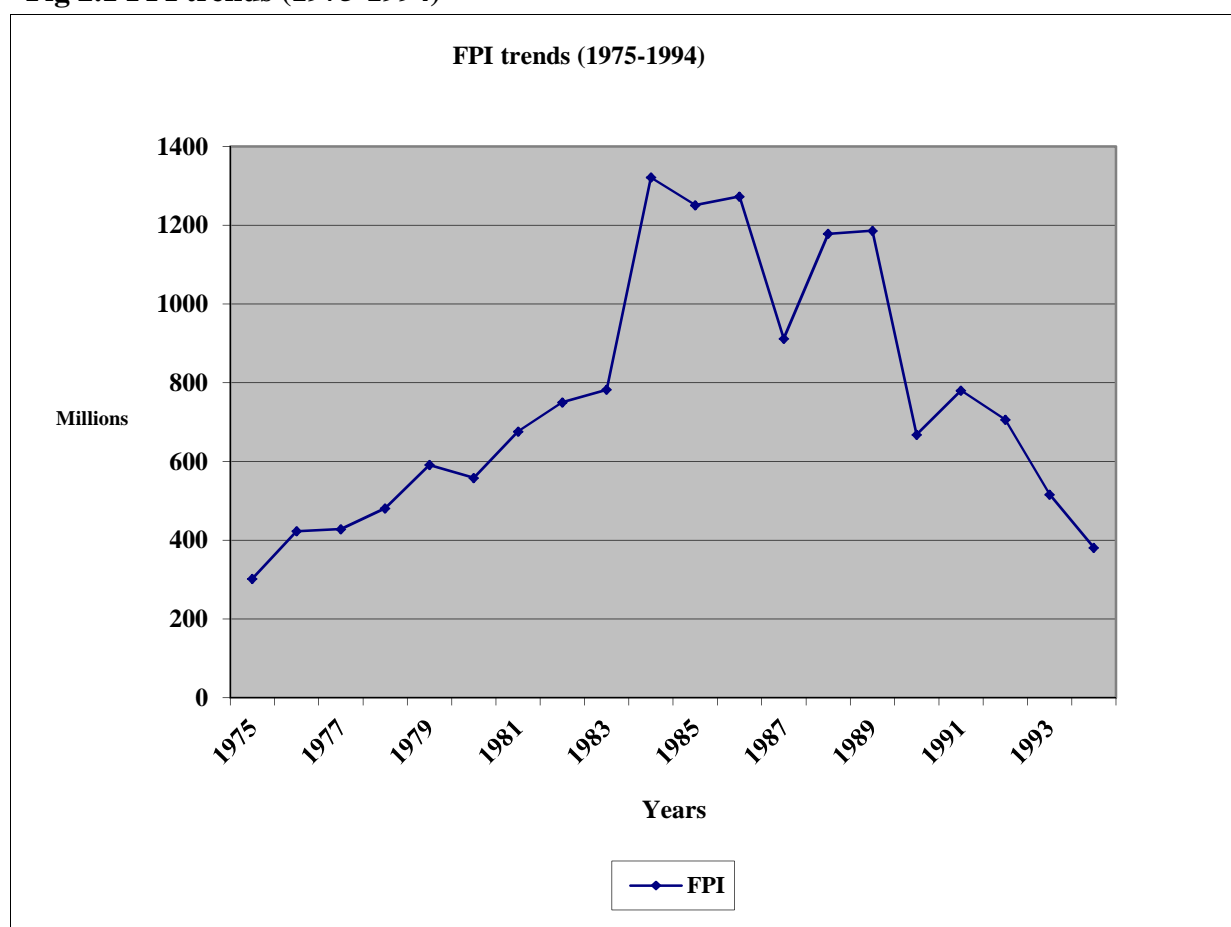
2.4 Foreign Portfolio Investment trend during the apartheid era (1975-1994)

This section is divided into three parts. The first part looks the pre 1994 period. The main aim of this part is to give an overview of the trends in FPI during the apartheid era. There were many sanctions that were imposed on South Africa and these affected the flow of FPI

into South Africa. This needs to be looked at on its own. The second part shall look at FPI trends between 1994 and 2000 and the last part of this section shall look at the period between 2000 and 2012. This is done because there was a change of monetary policy after 2000. In 2000, South Africa adopted the inflation targeting regime and they used the repo rate to control inflation. This might have some implications in the flow of FPI into South Africa.

The existence of large domestic capital markets in South Africa has supported high volumes of inward portfolio investment. This is particularly the case for portfolio equity investment, which has become an important source of reasonably long-term external financing for South Africa. The equity market in South Africa is substantially larger than the average for middle-income economies and is also liquid, especially in terms of the value of shares traded. Foreign portfolio equity investment has also been facilitated by cross-listings on major international stock exchanges by several South African companies. Figure 2.1 shows the FPI trends between 1975 and 1994.

Fig 2.1 FPI trends (1975-1994)



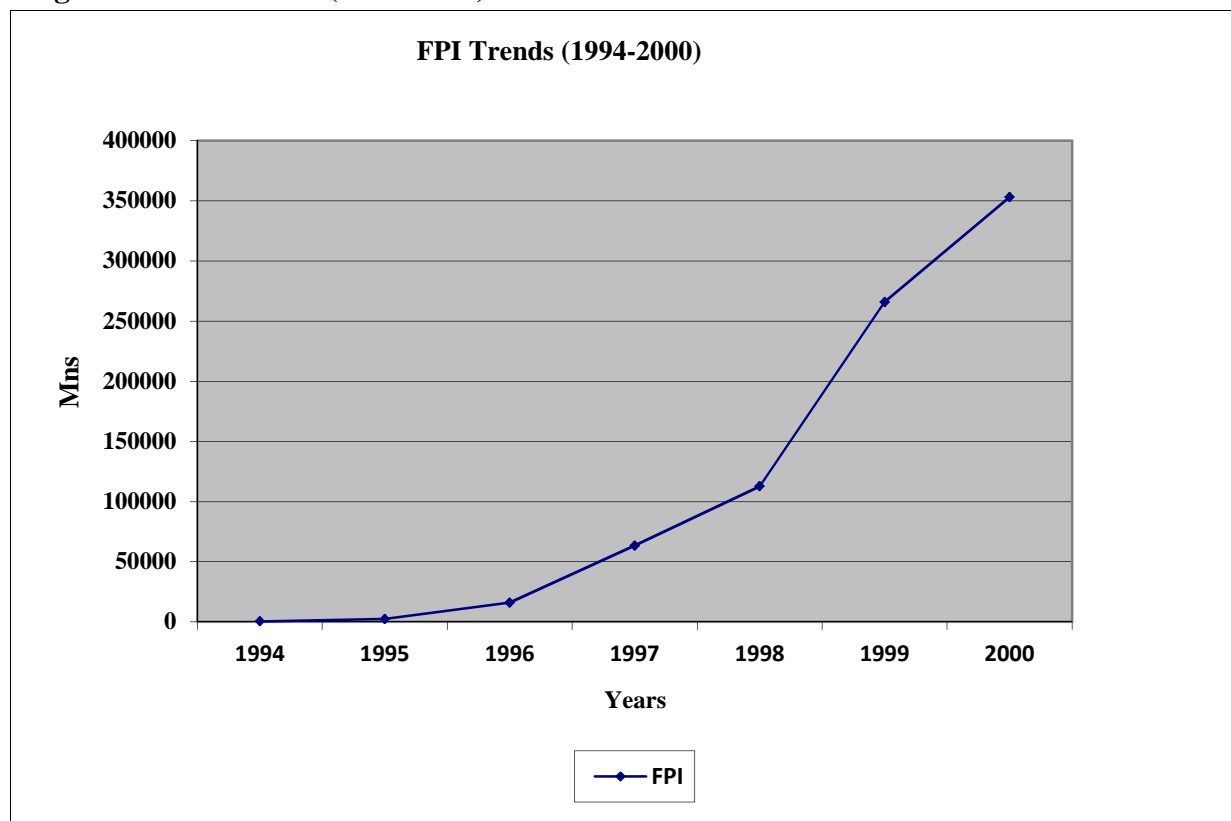
Source: SARB (2014)

Figure 2.1 above shows a considerable low but steadily increasing FPI in the 1970s. A sharp increase in FPI was witnessed between 1977 and 1979 but FPI slightly fell between 1979 and 1980. However this was short-lived; there was a sharp increase from 1980 until 1984. A significant and sharp increase between 1983 and 1984 was witnessed but the FPI began to fall on the onset of 1985. The trend reversed on the onset of 1985s due to political instability that intensified. Many foreign investors in South Africa were increasingly subject to political pressure in their home countries by the growing international campaign against apartheid. This made them to leave SA and invested elsewhere. “During the 1980s, this campaign intensified appreciably as political instability in South Africa increased, and economic conditions also weakened. Foreign direct investors began to exit from SA, with about 225 US corporations, and about 20 per cent of UK firms, departing between 1984 and 1988. Nonetheless, there were still more than 450 foreign firms with direct investments in South Africa in 1990” (Gelb and Black, 2013). Foreign investors in South Africa were increasingly subject to political pressures in their home countries by the growing international campaign against apartheid. Further maintain that from 1985, portfolio inflows also ceased, as foreign bank creditors imposed a debt repayment schedule on the South African government and public sector borrowers. The resulting capital outflows and further economic contraction were significant in shifting white political sentiment, especially within business, against apartheid.

Figure 2.1 also shows that FPI was on the significant decline from 1985 until 1987 where it regained momentum and had a sharp increase between 1987 and 1989 but this reached a peak and never increased until 1989. A sharp and significant decrease between 1989 and 1990. This was caused by the continued isolation of South Africa by other countries because of its apartheid policies. From 1991 there was a steady decline till 1994. Gelb and Black (2010) highlighted that portfolio inflows also ceased in 1985, as foreign bank creditors imposed a debt repayment schedule on the South African government and public sector borrowers. The resulting capital outflows and further economic contraction were significant in shifting white political sentiment, especially within business, against apartheid. Political changes like the unbanning of proscribed organisations and the initiation of constitutional negotiations in 1990, leading to a democratic election in 1994 ended the disinvestment pressures and portfolio investment inflows resumed. South Africa had a ‘new dawn’ of foreign investment in the mid-1990s. Starting even before 1994, there was a commitment to lowering the fiscal deficit and price inflation, reducing tariffs and liberalising the capital account and the

financial system. Through the 1990s, the policy regime became far more liberal and outward-oriented, with the explicit aim of attracting new foreign investment. The trends between 1994 and 2000 are shown on Figure 2.2

Figure 2.2 FPI trends (1994-2000)



Source: SARB (2014)

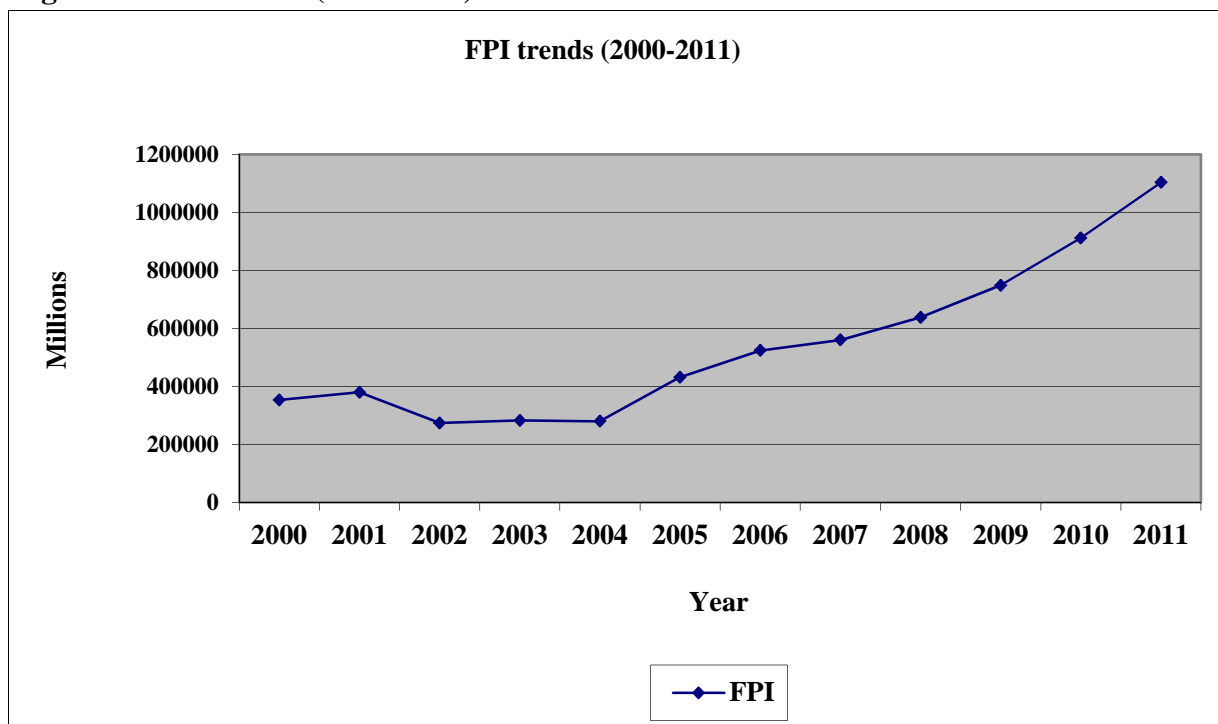
Figure 2.2 shows the FPI trends between 1994 and 2000. The Figure shows that the FPI was fairly low on the onset of 1994. The South African economy was reintegrating itself in the global economy. The FPI, however, started to increase from 1995 after South Africa had fully reintegrated itself in the global economy. Figure 2.3 shows that there was a marked increase in FPI between 1997 and 1999. This surge in 1997-1999 is consistent with portfolio rebalancing effects by both non-residents and residents. The removal of the financial rand and South Africa's increasing integration with global financial markets (for instance, characterised by the inclusion of South Africa in major emerging market indices) encouraged foreign investors to increase exposure to South African companies in their portfolios. This surge in inflows was, in part, facilitated by an "asset swap" mechanism that enabled South African institutional investors to swap blocks of domestic assets for foreign assets (up to a given limit) with non-resident investors (Aron and Thomas, 2010). The introduction of asset

swaps formed the first major reform of exchange controls for the South African institutional investor sector (dominated by retirement funds and long-term insurance) and was intended to support foreign diversification in institutional portfolios while safeguarding the balance of payments.

The swaps helped to minimise the impact of the surge in inward investment, although demand for South African assets exceeded the supply available through the asset swap channel: total portfolio inflows net of portfolio outflows by South African residents amounted to 4.5 percent of GDP in 1997, 2.7 percent in 1998, and 6.4 percent in 1999 (Aron and Thomas, 2010). Strong inflows of equity investment were recorded in this period despite a more general decline in the US dollar volume of foreign portfolio investment in developing countries in 1998 following the contagion of emerging market crises. The unbanning of proscribed organisations and the initiation of constitutional negotiations in 1990, leading to a democratic election in 1994 – ended the disinvestment pressures and direct and portfolio investment inflows resumed. Gelb and Black (2013) argue that like the other three countries in the CNEM study, and other emerging markets, South Africa had a ‘new dawn’ of foreign investment during the 1990s. At the same time, the substantial stock of existing foreign investment and the very highly-developed domestic capital market – the legacies of prior investment – heavily influenced the level and composition of inflows during the 1990s, and the mode of entry of foreign investment.

Through the 1990s, the policy regime became far more liberal and outward-oriented, with the explicit aim of attracting new foreign investment. Gelb and Black (2013) note that foreign investment in particular has been identified by many policymakers as the key to improved growth, as illustrated by the single most important economic policy statement since 1994 – the Growth, Employment and Redistribution (GEAR) policy announced in June 1996. The argument was largely macroeconomic – low domestic savings were identified as the binding constraint on growth, to be alleviated by net capital inflows. Thus it is safe to say that soon after South Africa’s reintegration with the global economy the FPI began to rise significantly. A significant increase was seen between 1996 and 1998 and there was a sharp increase between 1998 and 2000. This shows that between 1994 and 2000, the FPI was increasing sharply. A review of the trends from 2000 until 2011 is presented in Figure 2.3 below.

Figure 2.3 FPI trends (2000-2011)



Source: SARB (2014)

Figure 2.3 shows that FPI was steadily decreasing on the onset of 2000. The FPI was steadily falling between 2001 and 2004. In other words, there was a gradual decrease in FPI. However this later changed after 2004. The FPI began to increase sharply and significantly from 2004 until 2011. There has been considerable success in attracting portfolio inflows, reflecting the developed financial markets, and progress with macroeconomic stabilisation. The period of portfolio rebalancing was followed by a slump in equity investment between 2001 and 2003.⁹ Domestic factors may have contributed to increased investor uncertainty in this period, including the sharp drop in the rand at the end of 2001 and concerns about the form and impact of empowerment policies in the mining sector (Aron and Smith, 2010).

However, a broader decline in capital flows to emerging economies also took place at this time. The net portfolio equity flow to developing countries in 2001-2002 was at its lowest level in US dollar terms since the early 1990s (World Bank, 2008), reflecting a more general weakness in investor confidence in both developed and emerging equity markets. Equity investment in South Africa recovered in 2004-2005 and then surged in 2006 to 5.6 percent of GDP, its highest recorded level relative to GDP since 1999, in line with a substantial increase in foreign portfolio equity investment in developing countries (Aron and Smith, 2010).

By 2000, “gross non-resident transactions (purchases plus sales) represented 52 per cent of turnover on the equity market, and 23 per cent on the bond market (SARB, 2003). Between 1995 and 2002, South Africa received two-thirds of gross market-based capital flows to Sub-Saharan Africa, and 101 per cent of net portfolio equity flows. South Africa’s share of all developing countries flows were 3.3 per cent and 22 percent respectively” (Gelb and Black, 2013).

Following the transition to democracy in 1994, the South African Government implemented a series of policy reforms aimed at normalising the foreign exchange market and international financial relations more generally. For most of the period since 1994, net capital inflows have helped to alleviate the key structural constraint of low domestic savings. Increasing openness to both trade and capital flows has also meant that South Africa has become vulnerable to new sources of external shocks in the form of surges and reversals in international capital flows, posing new challenges for macroeconomic management. Gelb and Black (2013) state that capital inflows since the transition have been dominated by portfolio investment, contrasting with the experience of many other developing and emerging economies where FDI has had a more significant role, at least in terms of the composition of flows.

In contrast to the complete removal of controls on foreign investors, the liberalisation of restrictions on cross-border investment by South African residents has been implemented in a more gradual manner since 1995. This has mainly taken the form of phased increases in various allowances for foreign investment by institutional investors (portfolio investment), companies (FDI) and also for private individuals, subject to tax compliance (Leape and Thomas, 2009). The strategy has prioritised macroeconomic stabilisation and financial sector development over the rapid elimination of controls, as generally supported in recent international debates (Prasad and Rajan, 2008)

2.5 A comparison of South Africa’s foreign Portfolio inflows with those of the BRIC countries

The BRICS association should strengthen South Africa’s economic and political clout in the global arena. The BRICS as a bloc are demanding a more meaningful voice at multilateral institutions such as the United Nations, the World Bank, and the International Monetary Fund, where they are seeking major reforms; an agenda dear to South Africa. There are significant economic ties among the group, with the potential for much more. China is South Africa’s largest trading partner country, having overtaken the United States in 2010, and

South Africa's trade with Asia is higher than with Europe. South Africa, like Brazil and Russia, has a comparative advantage in natural resources, while China and India have huge unmet needs: the two sides are natural trading partners in that respect. The association also has the potential to make South Africa more attractive for foreign investors, especially in Greenfield investments, something lacking to date. On the policy front, the country has the opportunity to tap into BRICS' experience in tackling social challenges, which, in many respects, are broadly similar. However South Africa is still lagging behind in terms of the volume of Foreign Portfolio investments it receives. This is shown by table 2.1 below

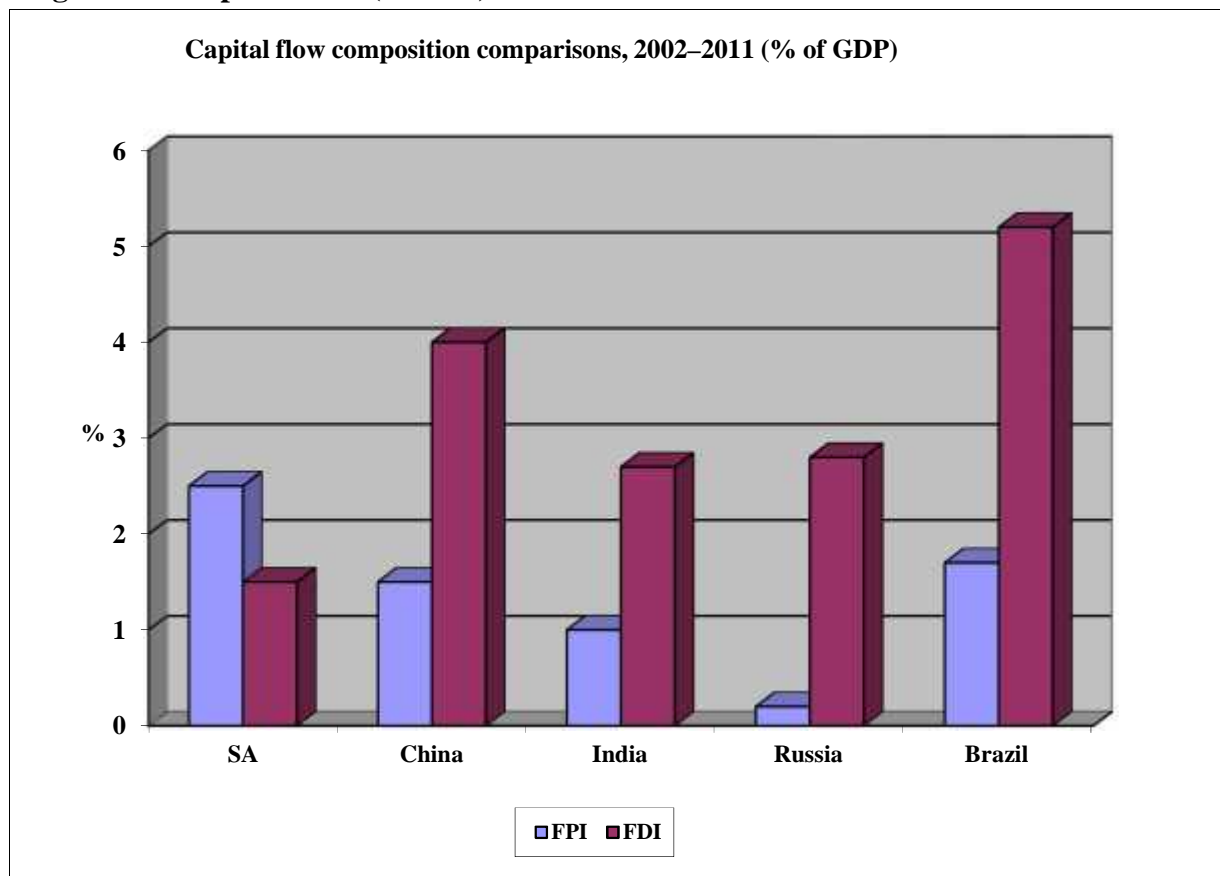
Table 2.1: Key indicators for the BRICS (Brazil, Russian Federation, India, China, and South Africa), 2011

Indicator	Brazil	Russia	India	China	SA
Gross domestic product (GDP) in purchasing power parity (PPP) terms	2017	2690	3778	9091	507
GDP per capita, PPP (current international \$)	10 412	18 963	3 270	6 828	10 278
Gross savings rate (percent of GDP)	14.6	22.7	33.6	53.6	15.4
Portfolio inflows, net (\$ billions)	37.1	3.4	21.1	28.2	9.4

Source: *World Bank(2012)*

Table 2.1 shows that South Africa receives the least in terms of foreign portfolio investment. In 2010 it received 9.4 billion and only Russia received less than South Africa. this might be the reason why South Africa's GDP is also the least of all BRIC countries. table also shows that South Africa's savings rate is poor. With a shortfall in national savings to cover its domestic investment, South Africa has had to rely on fairly large current account deficits. Financing them requires foreign investment, which, by and large, has been adequate though heavily biased toward portfolio flows rather than the more reliable foreign direct investment (FDI). Figure 2.5 below shows portfolio inflows in BRIC countries.

Figure 2.5: Capital flows (BRICS)



Source: *World Bank*(2012)

Figure 2.5 shows that, for South Africa, between 2002 and 2010 portfolio investment by foreigners averaged 2.4 percent of GDP, compared with FDI of only 1.5 percent. This contrasts with other BRIC countries, where FDI inflows were more than 2.5 percent of GDP. However, South Africa's foreign portfolio investment flows were much higher than any other BRIC country. Foreign portfolio investment average 2.5 percent of GDP and this was higher than any other BRIC country. The composition of FDI and portfolio flows matters for the recipient country, especially one as savings-starved as South Africa. FDI is far more reliable as a source of external financing. As seen in the global crisis, in times of financial distress, sharp swings in market sentiment can suddenly reverse portfolio flows, with potentially damaging consequences for income growth (Levchenko and Mauro 2007; Tong and Wei 2011).

2.6 TRENDS IN ECONOMIC GROWTH IN SOUTH AFRICA

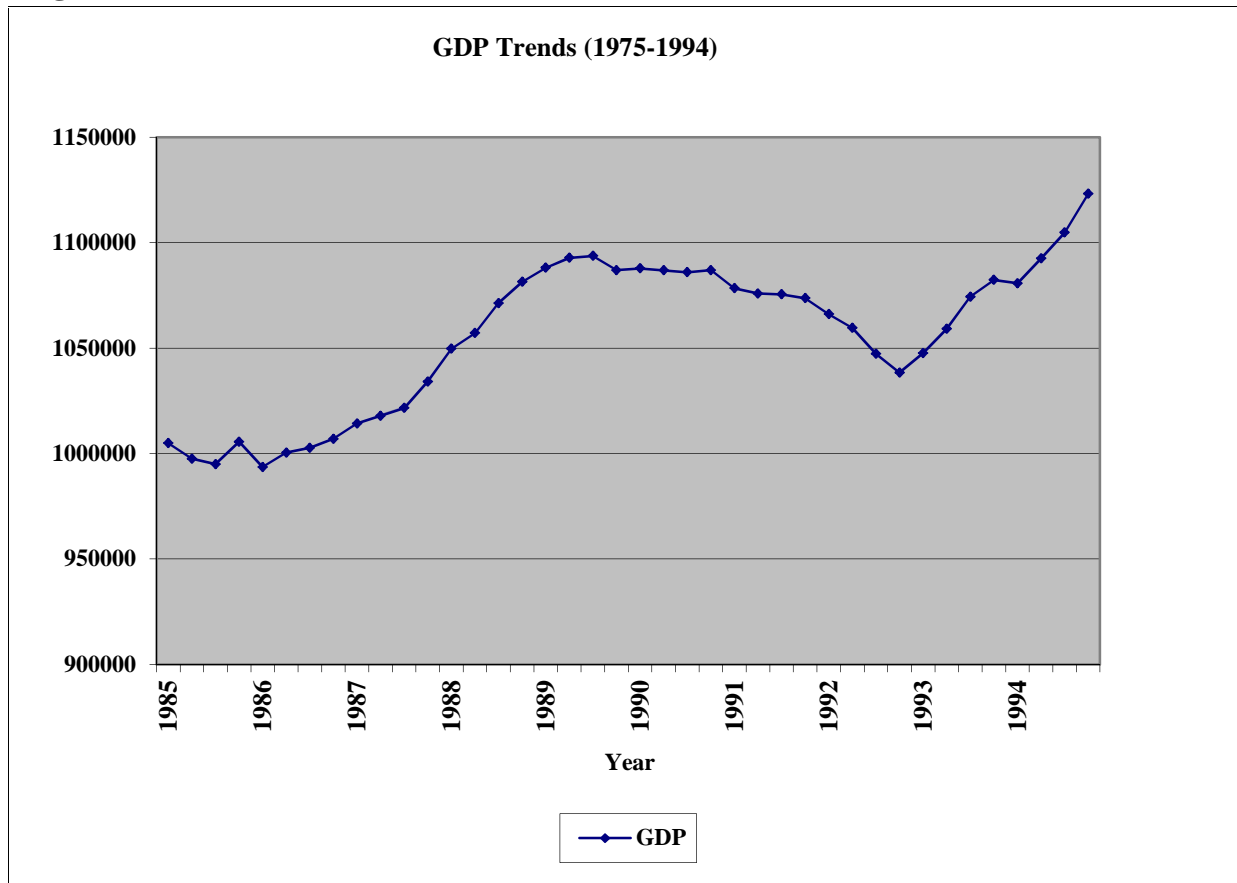
2.6.1 Economic growth in South Africa

This section presents the statistics on South Africa's economic growth performance for the period between 1975 and 2012. The focus is on overall GDP as it is the widely used proxy or measure for economic growth. The section is divided into two parts; the apartheid era (1975-1994) and the post-apartheid era (1995-2012). The reason for this division is to allow a comparison between the two periods and also the periods faced different economic conditions and circumstances. Prior to 1994 South Africa's economic performance was severely affected by the prevailing political conditions. Hence there is need to look at the pre-1994 period on its own. This will assist the study in examining the economic growth trends and also to find explanations as to why the South African economy performed the manner it performed.

2.6.2 Economic growth trend during the apartheid era (1975-1994)

The South African economy during the 70s was largely driven by inwardly-focused policies aimed at industrialisation and import substitution. Over this period (70s to the 80s), most South African companies were highly protected from international competition and foreign market pressures. This inward orientation allowed local industries to grow in such a manner that could not have been economically feasible in the absence of the import protection and, towards the latter part of the apartheid regime, international sanctions. During the early 1970s, this protection boosted domestic demand and hence both investment and overall GDP growth. Figure 2.6 shows the growth trends between 1975 to 1985.

Figure 2.6: GDP trends from 1975 to 1994



Source: SARB (2014)

Figure 2.6 above shows that economic growth was fairly low between 1975 and 1978; it was steady and it showed little signs of rising. The economic showed a significant rise in growth from 1980 till 1983 where it started to shows signs of falling and it remained with that trend til 1985. However, the trend was reversed in subsequent years (1985) as pressure for political change intensified, both domestically and internationally. Economic growth and investment in South Africa suffered tremendously in the face of political isolation, with numerous economic agents being effectively excluded from participating in international trade.

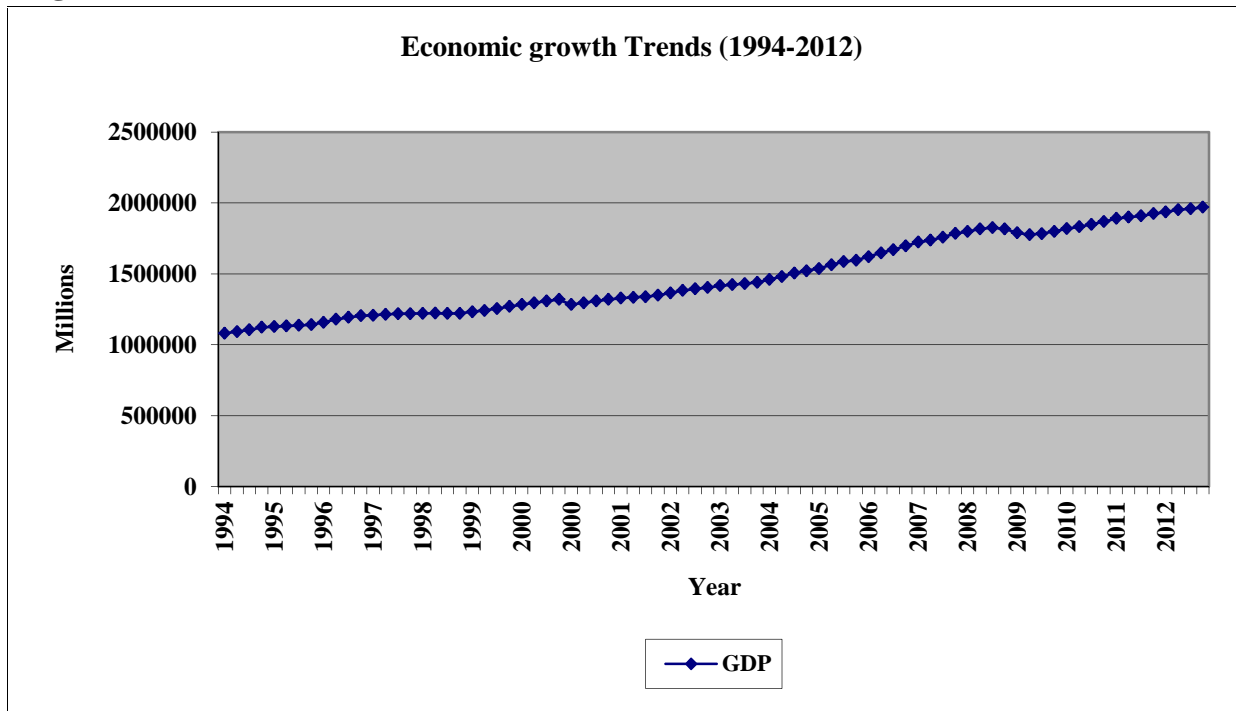
Economic sanctions can come in two different forms: trade and financial restrictions. Trade sanctions are aimed at the restriction or cessation of imports and exports between state actors and the target nation. Financial sanctions seek to control or manipulate the flow of private foreign capital into the country targeted by sanctions. Financial sanctions appear in South Africa as disinvestment and divestment. Disinvestment is the reduction or withdrawal of all forms of foreign capital that is invested in the country, as well as banks not making any new investments. Divestment is the breaking of financial and economic relations with companies that profit from business done with South Africa (Brewer 2000).

In the 80s the furthering unrest in the country began to worry many of the foreign investors in South Africa. While many of these private businesses were feeling the pressure in their home country to disinvest, the political instability of the country was the primary concern for many of the foreign companies. It was only after this withdrawal of funds and business from the country in the mid-1980s did South Africa begun to feel the squeeze put on by their foreign debts. Figure 2.6 also shows that the economy was facing a steady decline in growth between 1985 and 1988. After 1988 the economy experienced a sharp increase in growth but this sharp increase was short-lived. The economy started to slowdown in growth in 1989 and it continued with this trend until the year 1993. After 1993 the economy showed some positive signs of growth. In 1993 the economy experienced a sharp increase in growth and it maintained the steady increase in 1994.

2.6.2 The Post-Apartheid Period (1995-2012)

The democratic government inherited the economic and social legacies of apartheid when it assumed power in 1994. Poverty was widespread, unemployment was extremely high and access to quality education, health facilities and other basic public amenities by the historically disadvantaged segments of the population was extremely limited. As the new South Africa was welcomed by the international community, the external challenges associated with its re-integration in a fast globalising world economy compounded the domestic predicaments. The economy of South Africa started to show some positive and significant changes; the growth rate started to increase. Faulkner and Loewald (2008) further argue that another political economy factor in South Africa's improved growth performance since 1994 has been the policy response to reintegration with the world economy and globalisation. Figure 2.7 below shows an overview of the trends in economic growth for the period between 1994 and 2012.

Figure 2.7: GDP trends from 1994 to 2012



Source: SARB (2013)

Figure 2.7 above shows that the growth rate after 1994 was fairly strong and it was stable. It did not have any significant fluctuations. It showed a steadily and slowly rising trend. GDP growth has been fairly strong since 1994, with the exception of 1998 due to the Asian financial crisis. “The improvement in South Africa’s real growth performance from 1994 relative to the previous ten-year period was associated with a marked improvement in overall domestic expenditure (from 0.6% to 3.2% p.a.). This, in turn, consisted primarily of increased expenditure on fixed investment (5.1% p.a.) and household goods and services (3.7% p.a.). Although real exports of goods and services increased by 4.0% p.a. from 1995, real imports increased by 5.4% p.a., implying a deterioration in net exports over the ten-year period” (Du Plessis and Smit, 2007).

In 1997, growth in GDP dropped sharply from 2.6 per cent from 4.3 per cent in 1996. Du Plessis and Smit (2007) attribute this to the effects of the global financial crisis. Also the Asian financial crisis and the world recession contributed to this dismal performance. The average real GDP growth rate for the decade since 1994 (i.e. 1995 – 2004, inclusive) was 3.0% and in per capita terms 1.0%. This represents a substantial improvement on the 0.8% average growth rate (-1.3% in per capita terms) for the previous ten years (i.e. 1985 – 1994)(Du Plessis and Smit, 2007). However, the country’s growth performance in that period was so mediocre (the worst since the second World War, as can be seen in figure 1) that it

seems ill suited as a benchmark. The 3 percent average growth rate for the first ten years after apartheid was also a disappointment relative to the expectations of many; and substantially below what was deemed necessary to support a lasting transition to democracy in South Africa. In 1999 there was considerable improvement to 2.4 per cent growth rate from 0.5 per cent recorded in 1998. The strides towards high growth rate continued in 2000 with South Africa registering a 4.2 per cent growth rate. The progress slowed down with a slight decrease in growth rate to 2.7 per cent in 2001.

Figure 2.7 also shows that the economy of South Africa had a steadily rising trend after the year 2000. The GDP was rising but with a low rate. Significant changes in the manner with which the GDP was rising was observed in the period between 2006 and 2008. However in 2008 there was a gradual decrease in GDP but the economy become resilient after the year 2009 and it started to show some signs of growth. Growth recovered significantly thereafter and has sustained an average annual rate of 5% since 2004. Solid contributions to overall growth were posted in recent years by service related sectors such as: financial, insurance, business services and real estate; transport, storage and communications, as well as the retail and wholesale trade sector, which includes catering and accommodation and motor trade services. These sectors have all benefited from progressively stronger domestic economic activity and rising income levels, particularly the growing Black middle class, as well as South Africa's increasing attractiveness as an investment and tourism destination.

Since 2000 when the inflation targeting framework came into effect, South Africa enjoyed positive and sustained growth rates with 2006 recording a growth rate of 5.6 per cent, the highest since 1981. According to Mnyande (2010) the South African economy recorded a rate of growth in gross domestic product (GDP) of 5.4% in 2006, its best performance since 1984, before moderating to 5.1% in 2007. This strong growth was driven largely by robust consumer demand in recent years, strong inflows of foreign capital into South Africa, thus reflecting increased investor confidence and the extraordinary performance of domestic financial assets. The slight moderation in GDP growth towards 5.1% in 2007 (5.4% in 2006) may be attributable to the lagged impact of an incrementally higher interest rate environment and adverse developments globally towards the end of the year. The latter were triggered largely by the sub-prime mortgage crisis in the United States.

In 2007 the rate dropped to 3.6 per cent. GDP growth declined in 2008 and even turned negative in 2009, at the height of the global financial crisis. According to Mnyande (2010),

the year 2009 was disappointing for most parts of the world especially advanced economies. South Africa for the first time since independence recorded a negative growth rate of negative 1.5 per cent for the year as a whole. 2010 was a relief as seen by an improved growth rate to 2.9 per cent. Since late 2008, the world economy has experienced the worst economic crisis since the Great Depression of the 1930s. The crisis reflected deep imbalances in trade and the financialisation of the advanced economies. These structural problems had a deep effect on South Africa. Fundamentally, the global economic crisis reflected the structural shift in production from the US and Europe to the global South and especially East Asia led by China. In the advanced economies, this shift in production and trade was associated with rising inequalities on the one hand and increasing financialisation on the other. Financialisation refers to a growing dependence on financial services and on financial returns rather than production of new value through agriculture, mining, manufacturing and value added services. It fosters speculation and asset bubbles.

2.6.3 Summary of economic growth trends

The performance of the South African economy fluctuated considerably in the post-War era, but particularly since the early 1980s. Two trends stand out: firstly, the decline in real per capita GDP since 1981 and, secondly, the growth revival since 1995 (Du Plessis and Smit, 2007). South Africa experienced sluggish economic growth between the years of 1984 and 1993 owing to internal political instability, trade and financial isolation. South Africa however experienced considerable improvement in economic growth since the advent of democracy in 1994; this increase in growth can be attributed to improved macro-economic performance as a result of improved policies and removal of financial sanctions in 1994. A calm political environment coupled with increased foreign direct investment ensured improvement in the performance of the economy. The inception of democracy in 1994 created the possibility of a peaceful and a more stable future which led to the restoration of investor confidence.

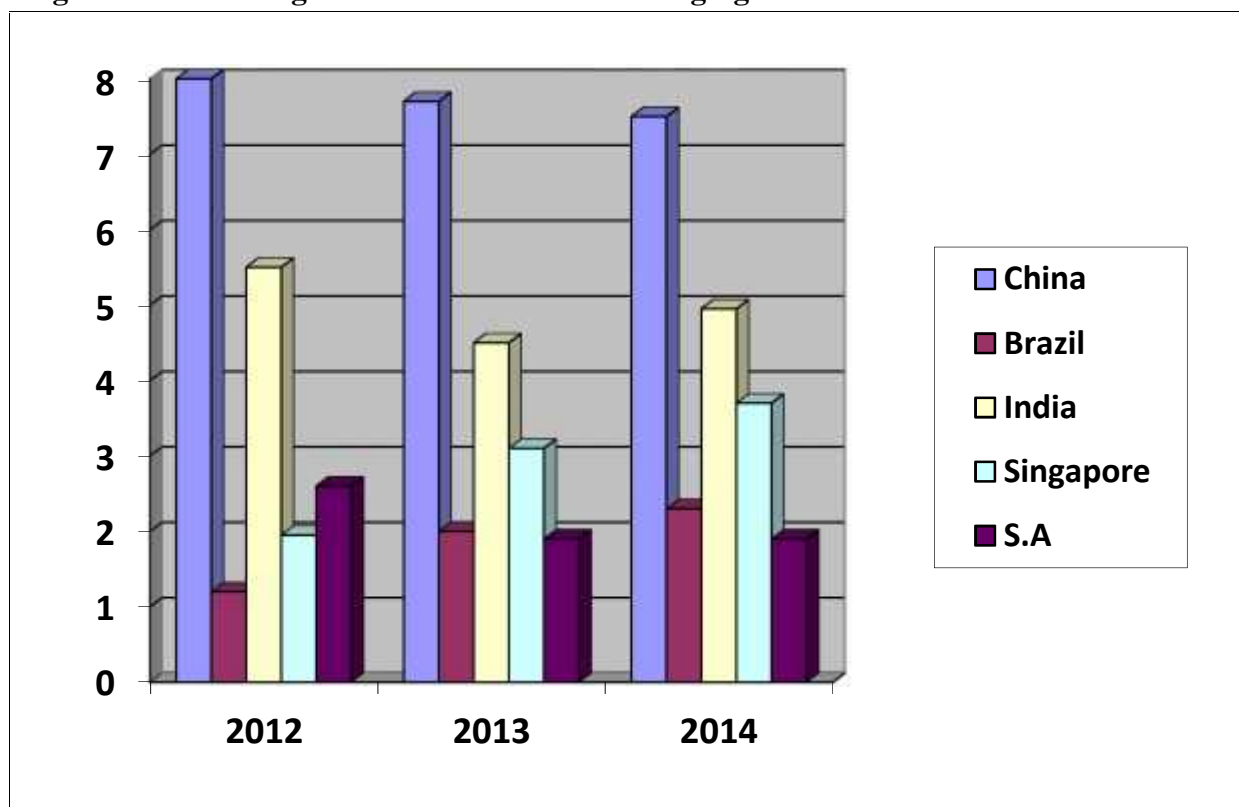
According to Faulkner and Loewald (2008) the decade prior to the year 1994, South Africa was under economic sanctions and investor confidence was low which made it hard for the economy to attract investment. International capital flows are of great importance for the South African economy due to a long-standing mismatch between domestic savings and domestic investment. The change in the contribution of foreign savings to the financing of domestic investment from a negative in the period prior to 1994 to a positive in the past ten years is an important part of the benefit of South Africa's political transition.

During the period 1985 to 1993 South Africa experienced a near-absolute balance of payments constraint, requiring the maintenance of a surplus on the current account in order to finance the capital outflows following the debt crises in 1985 and the financial sanctions imposed on the Apartheid government. The democratic transition in 1994 re-opened the international financial markets to South Africa allowing for a normalization of the capital account of the balance of payments. Under these circumstances, it was generally expected that foreign capital inflows, especially foreign direct investment (FDI), would contribute considerably to the financing of investment. Unfortunately this expectation has not been realized. FDI flows has generally disappointed in the ten years since 1995.

2.6.4 Economic growth in selected emerging markets

This section compares South Africa's economic growth rate with that of other emerging market economies. This is done to see the performance of South Africa's economy compared with other emerging economies. Figure 2.9 below shows a comparison of South Africa's annual growth rate with those of other selected emerging market economies.

Figure 2.9: Annual growth rates of selected emerging economies from 2000 to 2012



Source: *Trading Economics (2014)*

Figure 2.9 shows that China has been performing quite well; its growth rate has been between 7 and 8%. This has been a result of China's ability to expand its market all over the world. It

can also be seen that India has been having an expanding economy and this also has been attributed to its export-led growth strategies. South Africa's annual growth rate has been in the decline since 2012. The economy has not been performing well as compared to other emerging economies. This highlights the need for South Africa to increase its growth potential.

2.4 Conclusion

This Chapter sought to give an overview of the foreign portfolio and economic growth trend from 1975 until 2012. This was achieved by looking at graphical analysis of foreign portfolio investment and GDP. Graphical analysis made it easy to observe the trends of the two variables. It was found out that foreign portfolio investment was fairly low in the 1970s and it later declined significantly in the 80s. This was caused by the political situation that South Africa was going through. However this changed after 1994, when South Africa attained its freedom. The trends in FPI began to rise significantly and the new government implemented policies that attracted foreign investors. On the other hand, economic growth, like FPI, was fairly low in the 70s and the 80s but later increased after 1994.

CHAPTER 3

REVIEW OF LITERATURE

3.1 Introduction

The main aim of this chapter is to provide an overview of the literature that underpins the relationship between foreign portfolio investment and economic growth. The chapter reviews both theoretical and empirical literature with the first part of the chapter reviewing the theories that explain the relationship between economic growth and portfolio investment. The second part of the chapter reviews the empirical literature.

3.2 Theoretical literature

Theories concerning the link between foreign portfolio investment and economic growth have been put forward by various theorists. This study shall look at different views to foreign portfolio investment and economic growth and to see the view that is applicable to this world and South Africa at large. Of the theories that explain foreign portfolio investment and economic growth, Auerbach-Kotlikoff (AK), Harrod Dormar and the Classical model versions seem to provide some explanation on the direct relationship between foreign portfolio investment and economic growth.

3.2.1 Neoclassical models

The neoclassical theory predicts that capital should flow from rich to poor countries. Under the standard assumptions such as countries produce the same goods with the same constant returns to scale production function and the same factors of production capital and labour differences in income per capita reflect differences in capital per capita. Thus, if capital were allowed to flow freely, the return to investment in any location should be the same. Lucas (1990) compares the U.S. and India in 1988 and finds that, if the neoclassical model were true, the marginal product of capital in India should be about 58 times that of the U.S. In the face of such return differentials all capital should flow from U.S. to India. Such flows were not observed. Lucas questions the validity of the assumptions that give rise to these differences in the marginal product of capital.

Laura et.al (2003) suggests that the main theoretical explanations for the Lucas paradox can be grouped into two categories. The first group of explanations includes differences in fundamentals that affect the production structure of the economy. These can be omitted

factors of production, government policies, and institutions. All of these affect the marginal product of capital via the production function. The second group of explanations focuses on international capital market imperfections, mainly sovereign risk and asymmetric information. Although the capital is productive and has a high return in developing countries, it does not go there because of the market failures. Lucas (1990) suggests that international capital market failures cannot be an explanation for the lack of flows before 1945 since during that time all of the third world was subject to European legal arrangements imposed through colonialism. Hence, investors in the developed countries could expect contracts to be enforced in a similar fashion both in the home and in the foreign country. Lucas paradox is the institutional quality. It is found that this is a causal relationship that holds true even after controlling for other variables that might determine capital inflows.

The traditional classical macroeconomic theory of FDI hypothesises that the rate of profit has a tendency to drop in industrialised countries, often due to domestic competition, which creates the propensity for firms to engage in FDI in underdeveloped countries. The neo-classical approach states that, due to the shortage of and relatively high expense of labour in affluent countries, they tend to transfer production facilities to poorer, labour-intensive countries. In both cases, capital flows from capital-intensive countries to capital-poor countries, as firms strive to increase overall profits. The work on institutions and economic development shows that countries with better institutions, such as secure property rights and non-corrupt governments, invest more in physical and human capital, use these factors more efficiently, and achieve a higher level of income.

According to Laura et.al (2003), the Lucas Paradox is related to some of the major puzzles in international macroeconomics and finance. These are the high correlation between savings and investment in OECD countries (the Feldstein-Horioka puzzle), the lack of investment in foreign capital markets by the home country residents (the home bias puzzle) and the low correlations of consumption growth across countries (the lack of international capital market integration or the risk sharing puzzle). All of these puzzles deal with the question of the lack of international capital flows, more specifically the lack of international portfolio equity holdings. However, the empirical literature on these issues is extremely thin and not in agreement. In particular, it is not clear as to what is more important in explaining the Lucas paradox: fundamentals or market failures? Some researchers provide indirect historical evidence that emphasizes the role of schooling, natural resources, and demographic factors as a reason for the European investment into the new world.

Razin and Sadka (1990) are also pre-occupied by the form capital flows. In particular, they wish to account for why portfolio investment is more volatile and less prevalent relative to FDI in developing countries. To this end, they suppose that there is some split between a manager's knowledge of a firm's efficiency and the owner's assessment. The only way for an owner to have full knowledge of a firm's true efficiency level is to buy a controlling interest in the firm. With superior information, a controlling owner can optimize the firm's capital stock through additional capital investment. The alternative is to purchase the firm as a portfolio investor

Without being able to observe the firm's true efficiency level, portfolio investors instruct the firm manager to adjust the firm's capital stock according to an expected level of efficiency, which inevitably is less profitable than optimizing according to the true efficiency level. The market knows that controlling owners have superior knowledge of a firm's profitability. Selling one's interest as a controlling owner naturally engenders a degree of suspicion in the marketplace which selling as a portfolio investor does not a surprising and compelling application of the classic lemon problem. Of course, the lemon problem would be irrelevant if there were no shocks in the economy that might motivate an investor to sell her interest in the firm. But the authors have planted liquidity shocks in the model. The shocks fall idiosyncratically across investors, with some investors consistently more prone to liquidity shocks than others. These "illiquidity-prone" agents are less entranced by the idea of purchasing a controlling interest through direct investment.

Controlling ownership permits better management and higher profits, but liquidation of the direct investment incurs a lemon cost when buyers insist on paying less than they would to portfolio investors, not knowing if the direct investor is cashing out to cover (for instance) a hypothetical margin call or because she has inside information that the firm got a bad efficiency draw. Thus, investors with a lower propensity for liquidity shocks engage in FDI while illiquidity-prone investors such as open-ended mutual funds engage in foreign portfolio investment, making portfolio investment much more volatile than FDI. If the liquidity shocks are correlated with an aggregate shock, then the economy where aggregate shocks are more prevalent attracts very few of the illiquidity-prone investors who prefer portfolio investment. There is incompleteness in the FDI/portfolio investment model: why can't an investor about to purchase a controlling interest in a firm buy a put option to sell at a price above the market's skeptical lemon-loss price before the purchase takes place? There appears to be an

unexploited arbitrage opportunity. Markusen's problem is a bit different in form, but with a similar incompleteness

3.2.2 Harrod-Domar model

Gupta (2009) discusses the Harrod- Domar model and showed that their main concern was with the conditions required for smooth and uninterrupted growth in national income. In this model, capital accumulation plays a crucial role in the process of economic growth. Unlike the classical economists who only considered the capacity side of capital accumulation and the Keynesians who considered only adequacy of demand and neglect the problem of increase in capacity through investment in the long run, Harrod and Domarintergrated the two analyses. The essence of the Harrod-Domar model starts from full employment equilibrium level of income, continuous maintenance of this equilibrium requires that the volume of spending generated by investment must be sufficient to absorb the increased output resulting from investment. Given the marginal propensity to save, the more the capital is accumulated and the larger the initial national income, the larger must be the absorption volumeof net investment

This model described the economic mechanism that more investment leads to more growth. According to Harrod (1939, 1948) and Domar (1946) the capitalist system is inherently unstable by using the production function. However, they explained how the aggregate supply expanded, which means the investment has two effects, one on the aggregate demand side such as business expends more, and the other on the aggregate supply side whereby more investment increases capital stock and produces more business as follows:

(i) Production function (supply side)

The production side is represented by the following equation:

$$Y = aK \quad (3) \dots\dots\dots 3.1$$

where a is the productivity of capital, so, the determent of changing in capital will be changing the income as:

$$\Delta Y = \alpha, \Delta K \dots\dots\dots 3.2$$

Also, how the capital was changed by business and government / or investment:

$$K = I \dots\dots\dots 3.3$$

Return to the equilibrium conditions of (S) saving ratio, (s) is propensity to save of national income (Y) as follows:

$$S = s Y \dots\dots\dots 3.4$$

2) The investment (I) is defined as the change in the capital stock (K), and can be represented ΔK such that:

$$I = \Delta K \dots\dots\dots 3.5$$

However because the total capital stock (K) is retentively/ direct to the total national income/ output (Y) as expressed by the capital-output ratio (k) it will follow that:

$$K = k \Delta Y \dots\dots\dots 3.6$$

3) Additionally, because national saving (S) should be equal investment (I), the equation will be:

$$S = I \dots\dots\dots 3.7$$

But from all equations (3.4 – 3.7) will be the following:

$$sY = k \Delta Y \dots\dots\dots 3.8$$

Therefore, following that, the final question will appear as follows;

$$\frac{\Delta Y}{Y} = \frac{s}{k} \dots\dots\dots 3.9$$

where (s) is the ratio of national saving, (k) the national capital-output ratio, $(\frac{\Delta Y}{Y})$ measures the growth of output. From the Equation 11 the most fundamental strategy of economic growth is simply to increase the proportion of national income saved, but this would raise s and then increase $\frac{\Delta Y}{Y}$ at the rate of GDP. According to Harrod-Domar is growth model, which has come under attack by new growth theory, investment does not matter for long-term growth (next part of “new” economic theory). The assumption and prospective of neoclassical growth theory will now consider how to understand the source of growth used in empirical models for developed and developing countries. The neoclassical growth theory was born as the result of Harrod-Domar is model and the new growth theory developed as the result of the neoclassical growth theory.

3.2.3 Endogenous growth model

The discussion of the AK framework will rely much on Pagano (1993) who used it to analyse the impact of financial flows on a closed economy and Bailliu (2000) who extended it to

incorporate the international capital flows. In the closed-economy version of the AK model, the aggregate production of the economy is given by:

$$Y_t = AK_t \dots\dots\dots 3.10$$

where output is a linear function of the aggregate capital stock. This type of production function can be viewed as a reduced form for a composite of physical and human capital, where the two types of capital are reproducible with identical technologies (Chamberlin & Yueh, 2006:564). In this simplified model it is assumed that there is no population growth and the economy produces only one good, which can be consumed or invested. By assuming that the capital stock depreciates at a rate of u per period, gross investment equals:

$$I_t = K_{t+1} - (1-u)K_t \dots\dots\dots 3.11$$

Bailliu (2000) points out that in this model financial intermediaries are responsible for transforming savings into investment. In doing this, they absorb resources so that a rand saved by households will generate less than a rand's worth of investment. Assuming that a fraction, W , of each rand saved is available for investment, whereas $1-W$ is retained by the financial intermediaries as a reward for the services supplied. This transaction cost can be seen as the spread between lending and borrowing rates charged by banks. In the closed-economy version of the model, capital market equilibrium requires that the fraction of savings by domestic residents left after financial intermediaries have taken their share must equal gross investment. Thus, equilibrium in the capital market ensures that:

$$WS_t = I_t \dots\dots\dots 3.12$$

Pagano (1993) and Bailliu (2000) shows that using equation (1) through (3) and dropping the time indices, the growth rate of output g can be written as:

$$g = A \left[\frac{1}{Y} \right] - u = A W s - u \dots\dots\dots 3.13$$

where s denotes the gross savings rate. Equation (4) thus represents the steady-state growth rate of a closed-economy AK model with financial intermediation. This equation reveals two main channels through which financial development can affect economic growth. The first channel is the efficiency with which savings are allocated to investment. This will be best done by banks, whose increased participation in intermediation will result in a drop in the spread between their lending and borrowing rates. This will result in the proportion of savings channelled to investment increasing. Thus in equation 4 above g will increase in response to an increase in W .

The second channel arises since with increased financial intermediation there can be an improvement in the allocation of capital (Bailliu, 2000). It is argued that an important function of a financial intermediary is to allocate funds to those projects where the marginal product of capital is highest. In this model, an improvement in the allocation of capital translates into higher growth, because it increases the overall productivity of capital, A . As financial intermediation increases, banks are assumed to gain experience in evaluating alternative investment projects and are thus better able to select high-yielding projects (Greenwood and Javanovic, 1990). In addition, they are able to channel a larger proportion of funds to projects where the marginal product of capital is higher, because they are also better able to provide risk sharing and can thus induce individuals to invest in riskier but more productive investments (Bencivenga and Smith, 1991).

Bailliu (2000), shows that this model can be extended by incorporating external financial flows. Assuming that foreigners will invest through financial intermediaries, it is argued that their involvement will result in a larger pool of savings which will be available for investment. Thus, extending equation 3 in the presence of international capital flows the capital market equilibrium becomes:

$$w^*(S_t + NCF_t) = I_t^* \dots\dots\dots 3.14$$

Where NCF_t represents net international capital flows. The steady-state growth rate is now given by:

$$g^* = A^* \frac{1^*}{Y} - u = A^* w^* \frac{(S + NCF)}{Y} - u = A^* w^* s^* - u \dots\dots\dots 3.15$$

Bailliu (2000) shows that comparing the steady-state growth rate of the AK framework with financial intermediation and international capital flows in 4' and the closed economy AK model with financial mediation in equation 4 will highlight various channels through which capital flows can influence economic growth. Firstly, capital flows can promote economic growth if they lead to an increase in the investment rate. Thus g^* will be higher than g if s^* is larger than s , ceteris paribus. It is assumed that international finance will be used to finance investment and not consumption. Also investment financed by foreign capital must not crowd out domestically financed investment. Secondly, capital flows can foster economic growth if they lead to investments that are associated with positive spillovers. These positive externalities include competition which will result in domestic firms becoming more productive. Also it is believed that foreign firms can help restructure key sectors of the

economy by making them more competitive and export oriented (United Nations Centre of Transnational Corporations (UNCTC, 1995)).

The AK model, discussed above, points to the positive effects of external financial flows on economic growth. However, other studies (Carkovic and Levine, 2002; Lumbila, 2005; Trevino and Upadhyaya, 2003; Alfaro et al., 2004) suggest that foreign capital does not have an independent effect on economic growth. It is argued that its effect is dependent on the initial country conditions that allow it to exploit its spillovers. These conditions include the openness of the economy and the development of the financial system. In the same vein, the dependency theorists argue that dependence on foreign capital will impact negatively on economic growth and the distribution of income (Bornschier and Chase-Dunn, 1985). These authors wrote with respect to FDI; however this can be extended to other forms of capital. It is believed that foreign investment will create an industrial structure in which monopoly is predominant leading to an 'enclave' economy in which local investors are excluded (Ajayi, 2006).

3.3 Empirical Literature

Due to popular belief that oil price shocks are harmful to the economy, several researchers have made attempts to find the effects of oil price shocks on the economy. This section explores the work of previous researchers in an attempt to understand the empirical aspect of the link between foreign portfolio investment and economic growth.

3.3.1 Literature from developed countries

Lensink and Morrissey (2001) in a cross-country study of 88 countries including 20 developing countries studied the effect of volatility of FDI flows on growth over the 1970-1998 period. They estimated the standard model using crosssection, panel data and instrumental variable techniques. Whilst all results were not entirely robust, there was a consistent finding that FDI has a positive effect on growth whereas volatility of FDI has a negative impact. Mishara and Mody (2001) observed that foreign private investment has been associated with higher growth in some advanced countries

Choe (2003) utilize a panel VAR model to explore the interaction between FDI and economic growth in eighty countries mostly in Europe, America and Asia for the period 1971-1995. He finds evidence of Granger causality relationship between FDI and economic growth. The evidence is plausible in either direction, however stronger effects were visible from economic

growth to FDI rather than the opposite. Ledyeva and Linden (2006) determined the FDI impact on per capita growth in 74 Russian regions during period of 1996-2003. Their framework related real per capita growth rate to initial levels of state variables, such as the stock of physical capital and the stock of human capital, and control variables viewed as important factors in the Russian economy's regional development in the analyzed period. Their results imply that in general FDI (or related investment components) do not contribute significantly to economic growth in Russia in the analyzed period. However some evidence of positive aggregate FDI effects in higher-income regions is relevant. However FDI seems not to play any significant role in the recent growth convergence process among Russian regions.

Butkiewicz and Yanikkaya (2008) conducted a study on a panel of 114 developed and developing countries over the period going from 1970 to 1997. The study has the aim of testing the contribution of capital account liberalization on the economic growth. These authors conclude that foreign direct investments, start the development process and of the growth in all the countries of the periphery. The second contribution of the study reveals that the countries which receive important volumes of direct investment flowing and portfolio investment will carry out a rapid growth. The authors affirm that if a country imposes restrictions on the capital what reduces its good being in terms of growth. Their results are corroborated with others like those of Rodrik (1998) and Klein and Olivei (2008), through two investigations of 100 countries respectively during the periods 1975-1989 and 1986-1995. These authors conclude that a country which does not impose a restriction on capital flows is lucky more to carry out a rapid growth than that closed

Jyun-Yi and Hsu (2008) examined the effect of foreign direct investment on economic growth. Threshold regression techniques developed by Caner and Hansen (2004) formed the basis of the study. The sample of the study covers 62 countries from both the developing and developed world for the period from 1975 - 2000. Initial GDP, human capital and the volume of trade were used as threshold variables. Under the threshold regression, initial GDP and human capital were found to be important factors in explaining FPI. FPI was found to have a positive and significant impact on growth when host countries have better levels of initial GDP and human capital.

3.3.2 Literature from developing countries

Aremu (1997) submitted that foreign Private Investment accelerate the pace of economic development of the LDCs up to a point where a satisfactory rate of growth can be achieved on a self sustaining basis. He observe that the main responsibility of foreign private, investment in LDCs is to raise the standard of living of its people so as to enable them move from economic stagnation to self-sustaining economic growth. He therefore concluded his study by recommending that foreign private investment should continue to rise till a certain level of income is reached in the undeveloped countries.

Bornshier and Jean cited in Abass (2004) in a multiple regression analysis of variance in growth of GNP per capital in 76 developing countries (Nigeria inclusive) between 1960 to 1975, found out that their flow of foreign direct investment were associated negatively with growth in income per capital. Other studies by Michael Dolan and Brain Tomlin appeared basically to confirm Bormshier's observations. Robert Johnson cited in Abass (2004) in his regression analysis of growth per GNP in 72 countries between 1960 to 1978, found stocks of foreign direct investment to be positively associated with economic growth at statistically significant level for relatively advanced economies. He therefore concluded that once the size of a developing country is taken into account, the level of direct investment has no consistent effect on growth.

Agarwal (1997) examined the determinants of foreign portfolio investment (FPI) and its impact on the national economy in six developing Asian countries. Regression results showed that inflation rate, real exchange rate, index of economic activity and the share of domestic capital market in the world stock market capitalisation are four statistically significant determinants of FPI. The first variable had a negative coefficient while the last three variables possessed positive coefficients. Foreign direct investment, total foreign trade and current account deficit variables were found to be statistically insignificant. Regarding the impact of FPI on the national economies, it was found that the index of economic activities and inflation rate show an upward trend. Volatility in portfolio flows had not increased over time. Ratio of foreign debt and debt-servicing to GDP has declined. But the rule of thumb regarding the issue of sustainability of FPI suggested that India and Indonesia have crossed the upper bounds of permissible debt ratios.

Durham (2003) examined the effects of foreign portfolio investment (FPI) and "other" foreign investment (OFI) on economic growth using data on 88 countries from 1977 through

2000. Most measures suggested that FPI had no effect, and some results indicated that OFI had a negative impact on growth that is somewhat mitigated by initial financial and/or legal development. However, these results are questionable due to possible simultaneity bias. The empirical analyses also examined whether non-FDI foreign investment affected growth indirectly. FPI did not correlate positively with macroeconomic volatility, but the results indicated that the negative indirect effect of OFI through macroeconomic volatility comprises a substantial portion of the gross negative effect of OFI on growth.

Akinlo (2004) also investigated the impact of foreign investment (FPI) on economic growth in Nigeria, for the period 1970–2001. The ECM results showed that both private capital and lagged foreign capital have small, and not a statistically significant effect, on the economic growth. The results seem to support the argument that extractive FPI might not be growth enhancing as much as manufacturing FDI. Durham (2004) examined the effects of foreign direct investment (FDI) and equity foreign portfolio investment (EFPI) on economic growth using data on 80 countries from 1979 through 1998. The study used instrumental variables (IV) estimation and entails a five-equation two-stage least-squares (2SLS) system. The results largely suggested that lagged FDI and EFPI did not have direct, unmitigated positive effects on growth, but some data were consistent with the view that the effects of FDI and EFPI are contingent on the ‘absorptive capacity’ of host countries, with particular respect to financial or institutional development. Moreover, extreme bound analysis (EBA) of significant results indicated that the estimates are robust compared to other empirical studies on growth.

Abass (2004) sought to understand the effects and impact of foreign direct investments on the Nigerian economy as well as our ability to attract adequate amounts, sufficient enough to accelerate the pace of our economic growth and development. From related research and studies, it was revealed that multinational corporations are highly adaptive social agents and therefore, the degree to which they can help in improving economic activities through foreign direct investment will be heavily influenced by the policy choice of the host country. Secondary data were collected for the period 1970 to 2005. In order to analyse the data, both econometric and statistical method were used. Tables were produced in order to create a visual impression of the dependence of Nigeria economy on that of donor countries such as Western Europe and North America. The economic regression model of ordinary least square was applied in evaluating the relationship between foreign direct investment and major economic indicators such as gross domestic product, gross fixed capital formation and

index of industrial production. The model revealed a positive relationship between foreign direct investment and each of these variables, but that foreign direct investment has not contributed much to the growth and development of Nigeria. This is evident in reality of enormous repatriation of profits, dividends, contract fees, and interest payments on foreign loans.

Agarwal (2006) examines the determinants of foreign portfolio investment (FPI) and its impact on the national economy in six developing Asian countries. Regression results show that inflation rate, real exchange rate, index of economic activity and the share of domestic capital market in the world stock market capitalization are four statistically significant determinants of FPI. The first variable has a negative coefficient while the last three variables possess positive coefficients. Foreign direct investment, total foreign trade and current account deficit variables are found to be statistically insignificant. Regarding the impact of FPI on the national economies, it is found that the index of economic activities and inflation rate show an upward trend. Volatility in portfolio flows has not increased overtime. Ratio of foreign debt and debt-servicing to GDP has declined. But the rule of thumb regarding the issue of sustainability of FPI suggests that India and Indonesia have crossed the upper bounds of permissible debt ratios.

Duasa (2009) examined the relationship between foreign portfolio investment (FPI) and Malaysia's economic performance. In particular, the study analysed the relationship between FPI and real gross domestic product (GDP) using the widely adopted Granger causality test and the more recent Toda and Yamamoto's (1995) non-causality test to establish the direction of causation between the two variables. Similar method is also applied on the relationship between volatility of FPI and real GDP. Additionally, the study used an innovation accounting by simulating variance decompositions and impulse response functions for further inferences. Using quarterly data covering the period from 1991 to 2006, the study found evidence that economic growth caused changes in the FPI and its volatility and not vice versa. The findings suggested that economic performance is the major pull factor in attracting FPI into the country. The study also found out that economic growth causes the FPI inflow but not its volatility. However, neither the FPI nor its volatility caused economic growth. Thus, the findings of this study suggested that FPI or its volatility was not a crucial factor in determining the economic performance of Malaysia.

Osinubi and Maghionyeodiwe (2010) analysed the direction and significance of the effect of foreign private investment on economic growth in Nigeria. Secondary data for the period 1970-2005 was used for the study. Among their findings was that Foreign Private Investment, domestic investment growth and Net export growth were positively related to economic growth in Nigeria. More so the Foreign Private Investment, domestic investment growth, net export growth and the lagged error term were statistically significant in explaining variations in Nigeria's economic growth. Al-Iriani and Fatima Al-Shamsi (2010) used recent growth theories and econometric techniques to empirically test for the association between foreign direct investment and economic growth in the six countries comprising the Gulf Cooperation Council (GCC). Theoretically, recent endogenous growth models identify FPI as one of the determinants of growth through its role in technological diffusion. However, the endogeneity of FDI makes it possible that economic growth affects the flow of FPI. Results obtained from a heterogeneous panel analysis indicate a bi-directional causality between FPI and GDP in the panel of the GCC. This result supports the endogenous growth hypothesis, at least for this group of countries.

Aizenman et al (2011) investigated the relationship between economic growth and lagged international capital flows, disaggregated into FDI, portfolio investment, equity investment, and short term debt. They followed about 100 countries during 1990-2010 when emerging markets became more integrated into the international financial system. Their investigation looked at the relationship both before and after the global crisis and the results showed a complex and mixed picture. The relationship between growth and lagged capital flows depends on the type of flows, economic structure, and global growth patterns. The research also found that there is a large and robust relationship between FDI- both inflows and outflows - and growth. The relationship between growth and equity flows is smaller and less stable. Finally, the relationship between growth and short-term debt is nil before the crisis, and negative during the crisis.

Olumuyiwa (2013) look at the impact of Foreign Portfolio Investment inflow and economic growth in a pre and post deregulated Nigerian economy, a Granger causality test was used as the estimated technique between 1970 - 2010. However, the analysis de-aggregates the economy into three period; 1970 to 1986, 1986 to 2010 and 1970 to 2010, to test the causality between foreign investment inflow (FPI) and economic growth (GDP). However, the result of the causality test shows that there is causality relationship in the pre-deregulation era that is

(1970-1986) from economic growth (GDP) to foreign direct investment inflow (FPI) which means GDP causes FPI, but there is no causality relationship in the post-deregulation era that is (1986-2010) between economic growth (GDP) and foreign direct investment inflow (FPI) which means GDP causes FPI. However, between 1970 to 2010 it shows that is causality relationship between economic growth (GDP) and foreign investment inflow (FPI) that is economic growth drive foreign investment inflow into the country and vice versa.

3.3.3 Literature from South Africa

Wesso (2001) covers the period from 1991 to 2000, capturing more of the period of capital account liberalisation, but does not explore changes in the composition of flows as a total net capital flows measure is used, including both resident and non-resident transactions. The study followed convention in examining the expected determinants of flows in levels as I(1) variables, finding cointegration amongst a range of potential regressors. The time period, however, at ten years of data is very short for a cointegration analysis. The dependent variable was total net flows relative to GDP, without separating out resident and non-resident flows. The domestic inflation rate relative to foreign inflation¹⁴ and the real GDP growth rate are found to cointegrate with capital flows.

Fedderke and Liu (2002) used annual data up to 1995 only and thus do not cover the period of capital account liberalisation, which is one of the main topics of interest in this study. They examined three constructed measures of capital flight, together with total net capital flows in South Africa, including both resident and non-resident investment. They used the Johansen method (1998, 1990) and model all but one of their potential determinants of flows only in differences, excluding any long-term relationships between capital flows and the interest differential and the exchange rate. They employed three fundamental regressors: the real growth rate of South Africa; the bilateral exchange rate adjusted interest rate differential between South Africa and the US, entering as a differenced variable; and the bilateral exchange rate to the US dollar expressed relative to a constant¹³, entering as a differenced variable. They include two dummy-type indices to capture political instability and political rights (Fedderke *et al.*, 2001), the latter entering as a differenced variable. They dummied out the years 1980 and 1981-84, capturing the financial liberalisation in 1980 (the lifting of some credit limits on lending rates) and the gold boom years, respectively. The authors found in an error correction specification, a relationship between the I(1) variables, the SA growth rate and total flows, with significant I(0) variables in the differenced interest differential and

differenced bilateral exchange rate relative to a constant, and they confirmed the impact of political risk in attracting capital inflows.

Fedderke and Romm (2004) studied growth impact and determinants of Foreign Direct Investments in South Africa using the vector error correction model. The primary objective of the study was to provide a structural analysis of the growth impact of FDI in South Africa and its determinants. The study used aggregate time series data in South Africa for the period 1960 to 2002. The empirical results showed that growth impact of FDI was positive in South Africa, thus confirming the positive spill-over effect of foreign capital on output in South Africa. While there is a crowd-out of domestic investment from foreign direct investment, this impact is restricted in the short run. Ahmed *et al.* (2005) examine capital flows in a dynamic annual panel of 81 developing countries for 1975-2002, distinguishing between FDI and portfolio investment, and between portfolio debt and equity investment. In common with the time series studies above, their results indicated that total portfolio investment and portfolio equity investment are explained by GDP growth (positive effect), although the result was weak for equities, but growth was not significant in specifications for debt investment.

Aron, Leape and Thomas (2010) developed models for net non-resident capital flows, disaggregated into components (models for bond investment to follow in a revised version), for longer samples than previously examined. Richly specified error correction models for total capital net inflows and portfolio equity net inflows relative to GDP offer consistency with several common drivers. These are positive effects from annual rates of change of real US GDP and of the real US stock market index and, a corresponding negative effect from the annual change in the real JSE index expressed in dollars, a negative effect from the inflation differential relative to the US and for a long-term bond differential with respect to the US, a positive impact from improvements in the government surplus to GDP ratio for South Africa, a negative effect from changes in a US equity market volatility index, VXO, capturing risk aversion, and a positive effect from the change in an index based on the S&P credit rating. Several plausible institutional effects are relevant, captured via impulse dummies, and other variables, such as the current account balance, interest rate differential and real gold price enter the models with expected signs.

Empirical literature on the effect of foreign direct investment on economic growth is limited, especially in South Africa. However, vast literature has been done outside South Africa. This

study shall contribute to the South African literature by providing more knowledge on the relationship between foreign portfolio investment and economic growth.

3.4 An assessment of literature

From the studies above, it was seen that foreign portfolio investment can contribute positively to economic growth. However, despite its numerous virtues, FPI could have adverse effects on the host economy. The potentially damaging aspects of FPI are rooted in its nature which is short-term and thus also volatile (Duasa and Kassim, 2009). In particular, FPI volatility has often been quoted as the major reason behind financial market distress, leading to financial crisis. Lessons learned from the Asian financial crisis of 1997-1998 show that large and abrupt reversal of portfolio investment often causes panic in the financial market, since it is taken as a manifestation of impending financial crisis [Knill (2004); Sula and Willet (2006)]. More importantly, as highlighted by Henry (2003) and Demirguc-Kunt and Detragiache (1999), based on the experience of many countries which experienced financial crisis, the volatility of portfolio investment further exacerbates the impact of a financial crisis. FPI instability complicates the implementation of macroeconomic stabilisation policies by the policymakers. Uncertainties in the flow of FPI result in unpredictable behaviour of money supply, exchange rate level and stock market volatility (Patro and Wald, 2005).

This study seeks to analyse FPI in South African case and provides recent empirical evidence on whether it is beneficial to the South African economy or otherwise. The study hopes to provide conclusive empirical evidence on the relationship between FPI inflow and economic growth. It is hoped that the findings of the study would contribute towards enriching the relevant literature on the relationship between foreign portfolio investment and economic growth, particularly in the case of developing countries.

3.5 Conclusion

This chapter reviewed literature that's explains the link between foreign portfolio investment and economic growth. The study explored empirical literature from the developed world, developing world and South Africa. Literature consulted in the study showed that there is a positive relationship between FPI and economic growth. But few studies indicated that there is no link between the two and others showed a negative relationship. Growth and foreign investment theories were also consulted and consideration was given to the AK model,

Harrod-Domar model and the Classical theory of international investment. All these theories attempt to explain the link between FPI and economic growth.

CHAPTER FOUR

METHODOLOGY AND ESTIMATION

4.1 Introduction

The focus of this chapter is on the research methodology applicable to the study. The main purpose of this chapter is to present the tools that shall be used to examine the relationship between foreign portfolio investment and economic growth. The chapter shall look at the model specification, data sources, testing for stationary and lastly, model estimation.

4.2 Data sources and Specification of the model

4.2.1 Data sources

This study makes use of secondary data. Information and statistics will be sourced from the South African Reserve Bank publications, International Financial Statistics (IFS) published by the International Monetary Fund (IMF). The study uses quarterly data from 1990 to 2008. The period gives a clear trend of what happened shortly before SA got its freedom in 1994 and after apartheid when trade and investment reforms such as trade and financial liberalisation were implemented. In addition, 1990 to 2008 produces enough observations to run a regression model.

4.2.2 Model specification

The study will adopt a model which was developed by Osinubi and Maghionyeodiwe (2010). The model is based on the endogenous growth model which emphasizes the importance of external finance as a factor that determines economic growth as it bridges the gap between domestic supply and demand. For that purpose, the VAR model contains the following five variables which are Gross Domestic Product, Foreign Portfolio Investment Exchange Rate, Exports and Interest Rates. The model is estimated as follows:

$$GDP = F(FPI, EXCH, EXP, INT)$$

Where GDP will be a function of Foreign Portfolio Investment, Exchange rate (EXCH), Interest rates (INT) and exports (EXP).

The model, in its linear form, shall take the form:

$$GDP_t = \beta_1 FPI_t + \beta_2 EXCH_t + \beta_3 EXP_t + \beta_4 INT_t + \mu \dots \dots \dots (4.1)$$

Where GDP_t (Gross domestic product) is at time t , FPI is foreign portfolio investment, EXCH is the real exchange rate, EXP is exports, INT is interest rates and μ is the error term.

4.2.3 Definition of variables and Expected priori

Real Exchange rate - measure of how much, on average, South African produced goods and services will cost relative to equivalent basket of foreign produced goods and services. This is the real effective exchange rate of the rand: Average for the period - 15 trading partners - Trade in manufactured goods.

Exports – the inclusion of export variable in is based on Osinubi and Maghionyeodiwe (2010) study as it is well documented in the literature that trade, especially exports may increase competition and enable countries to purchase goods from abroad and to provide opportunities to gain access to new technology.

Interest rate- This shows the nominal prime lending rate and it is expressed in percentages. The official interest rate is the repo rate. This is the rate at which central banks lend or discount eligible paper for deposit money banks, typically shown on an end-of-period basis. The Repo rate as determined by the SARB will be used in the study. The repo rate only came into effect in 1998; therefore, for periods prior to 1998 the bank rate the bank rate is used as a proxy to the repo rate.

Foreign portfolio investment - ; foreign portfolio investment which includes the purchase and sale of bonds and equities listed on international and domestic capital markets

Real GDP - GDP at constant prices (Constant 2005 prices. Seasonally adjusted at annual rate) is used to capture economic growth. GDP is the variable that can measure economic growth. This is a measure of economic activity. It is defined as the logarithm of the Gross domestic product.

4.2.4 Expected priori

The exchange rate sign is expected to be negative. It is believed that when there is instability on the currency, and then there would be detriments to economic growth. The export sign is expected to be positive. An increase in exports is expected to contribute positively on economic growth. The interest rate sign is expected to be negative; an increase in interest rates is expected to depress growth. When interest rise, the cost of borrowing will be high and this reduces the amount with which firms borrow. This, in turn, reduces investment as firms will not be having a strong financial base to do further investment.

The foreign portfolio investment sign is expected to be positive. Foreign portfolios can be seen as a source of savings. As such, an increase in savings can be beneficial to firms as they will have a broad financial base which promotes investment. Thus a positive sign is expected.

Table 4.1 presents a summary of the variables used in the model, their description and the expected, a priori on the coefficients.

Table 4.1: Expected priori

Variable	Description of Variable	Expected sign
Exchange Rate	Rand/US exchange rate	Negative (-)
Interest Rates	Repo rate	Negative (-)
Exports	South African exports	Positive (+)
Foreign Portfolio Investment	Foreign Portfolio investment into SA	Positive (+)

4.3 Estimation procedures

In analysing data the data will be tested for stationarity first. For the study to get robust results, stationarity tests using the Augmented Dickey Fuller and Phillips-Perron tests will be carried out to check if the random time series is stationary. Cointegration tests using the Johansen approach (1988) will be conducted to see if there is a long term relationship between the variables. The VAR/VECM will be used for estimation purposes. Diagnostic tests will then be used to test the robustness of the model.

4.3.1 Testing for stationary

Time series data are assumed by econometricians to be non-stationary (Kennedy, 1996). In other words, time series data do not have a fixed stationary mean. This means that the data series grow over time in a fairly steady, constant manner, reflecting smoothly evolving economic forces. If the data that is used in the research is non stationary, it would result in some problems in the regression for example the spurious regression problem, biased t-ratios and a high R-Squared. Columbus (2001:124) concurs with the above assertion by arguing that the direct application of OLS to non stationary data produces regressions that are misspecified and spurious in nature. Gujarati (2003: 806) shows that if the dependent variable is a function of a non-stationary process, the regression will produce spurious results. In such

a case, the results will be meaningless. This test is important as it helps to avoid the problem of spurious regression. In defense of this point, Harris (1995: 27) writes that “if a variable contains a unit root then it is non-stationary and unless it combines with other non-stationary series to form a stationary cointegration relationship, then regression involving the series can falsely imply the existence of a meaningful economic relationship.

In this case significant t-ratios and a high r-squared will be obtained even though the trending variables are completely unrelated. Thus, unit root or stationarity tests should be done on all the variables before proceeding with the tests for co integration and estimation of parameters. If the data are not stationary, differencing can be used to create a stationary series with the same volatility as the original series. Differencing enables data with a trend (non stationary data) to be converted into stationary data. Charman and Malehorn (2005:357) note that this is accomplished by subtracting successive values of a variable and then using the differences as a new variable. This study applies one informal measure; graphical analysis and two formal measures of unit root, which are the Augmented Dickey Fuller (1980) and the Phillips Perron Test.

4.3.1.1 Augmented Dickey Fuller Test

Another formal measure of unit root is the Augmented Dickey Fuller (1980) test. The Augmented Dickey Fuller test is a test for a unit root in a time series sample. Morrison and Winston (1995:83) held that an Augmented Dickey Fuller test (ADF) is used to test for non-stationarity by testing for the presence of a unit root. The calculated value of the ADF is compared with the critical value. We reject H_0 if t-statistic is $<$ critical values and consider that the series are stationary. We do not reject H_0 if t-statistic $>$ critical values and consider that the series are non stationary.

This ADF suggests that the tau τ statistic must take larger negative values than usual in order for the null hypothesis ($\rho = 0$, a unit root or non-stationary process) to be rejected in favour of the alternative that is $\rho < 0$, which indicates a stationary process. To preclude the possibility that the error term in one of the above equations (under DF), are autocorrelated, some additional terms are included. These additional terms are usually the lagged values of the dependent variables (Hill *et al.*, 2001: 344). The ADF test is comparable to the simple DF test, but the slight difference is that the first involves adding an unknown number of lagged first differences of the dependent variable to capture autocorrelation in omitted variables that would otherwise enter the error term. The power of the Dickey-Fuller unit root test tends to

be low and, as a result, the test tends to fail to reject the null hypothesis of a unit root as many times as it should. To cater for this shortfall, the ADF can be used. The ADF test corrects for high-order serial correlation by adding a lagged differenced term on the right-hand side in the DF equation (5.5). Consequently, the ADF employs the following equation:

$$y_t = c_1 + c_2t + \omega y_{t-1} + \sum_{i=1}^p d_i \Delta y_{t-i} + v_t \dots \dots \dots (4.2)$$

Equation 4.2 can be estimated without including a trend term c_2t and without a constant, c_1 . The null hypothesis is that there exists a unit root in the time series (nonstationary time series). That is $H_0: \omega = 1$ against the alternative hypothesis that the time series is stationary (no unit root), which is $H_a: \omega < 1$.

4.3.1.2 Phillips Perron Test

The tests are similar to the ADF tests, but they incorporated automatic correction to the DF procedure to allow for autocorrelated residuals. The Phillips Peron test performs better than (or at least as well as) the ADF test in terms of comparative power and yields tighter confidence intervals (Cashins and McDermott, 2003:328).

The Phillips Perron unit root test differs from the ADF tests mainly in how they deal with serial correlation and heteroscedasticity in the errors. The Phillips Peron test is based on the model:

$$X_t = \eta + \beta_t + \pi X_{t-1} + \psi_t \dots \dots \dots (4.3)$$

With the unit root null hypothesis expressed by $H_0: \pi = 1$; the stationary process ψ_t is not assumed to be white noise and serial correlation and heteroscedasticity in the ψ_t term are handled in the test statistic (Donner and Barbosa, 2008:160).

4.3.2 Estimation techniques

In estimating the VAR, this study will take into account a combination of macroeconomic theory and statistical results. Macroeconomic variables are very often non-stationary in levels. Thus, we employ vector autoregressive (VAR) based co-integration tests using the methodology developed in Johansen (1995). But first the VAR lag selection criteria is employed, followed by the Johansen cointegration test and then the Vector Error Correction model. These are explained below.

4.3.2.1 Lag selection criteria

When running regressions on time-series data, it is often important to include lagged values of the dependent variable as independent variables. “In technical terminology, the regression is now called a vector autoregression (VAR). For example, when trying to sort out the determinants of GDP, it is likely that last year's GDP is correlated with this year's GDP. If this is the case, GDP lagged for at least one year should be included on the right-hand side of the regression” (Sjo, 2008). Estimating the lag length of autoregressive process for a time series is a crucial econometric exercise in most economic studies. This study employs the VAR lag order selection to select the lags. Brooks (2002: 334) argues that economic theory will often have little to say on what an appropriate lag length is for a VAR and how long changes in the variables should take to work through the system. Brooks recommends the use of multivariate versions of the information criteria, which includes the sequential modified likelihood ratio (LR), Akaike information criterion (AIC), Final prediction error (FPE) Schwarz information criterion (SC) and the Hannan-Quinn information criterion (HQ).

4.3.2.2 Cointegration test

The theory of cointegration was developed in the 1980s and 90s by several researchers such as Engle and Granger (1987), Johansen (1988) and Engle and Yoo (1987) and others. Similarly, Robinson and Marinucci (2003: 334) reconfirm that cointegration analysis has been developed as a major theme of time series econometrics and generated much applied interest, prompting considerable methodological and theoretical developments during the 1990s. The purpose of these cointegration tests is to determine whether the variables in the model are cointegrated or not). Testing for cointegration is necessary step to check if the model has empirically meaningful relationships. If variables have different trends processes, they cannot stay in fixed long-run relation to each other, implying that the model cannot be modelled in the long-run. The superior test for cointegration is Johansen’s test. Co-integration will be tested to determine the need of using a Vector Error Correction model (VECM).

The purpose of cointegration tests is to determine whether the variables in our exports model are cointegrated or not. Gujarati (2002, pg. 830) suggest that cointegration of two or more times series suggest that there is a long-run or equilibrium relationship between them. The economic interpretation of cointegration is that if two or more series are linked to form an equilibrium relationship spanning the long- run, then even though the series themselves may be non-stationary, they will move closely together over time and their difference will be stationary. The concept of cointegration was first introduced into the literature by Granger

(1980). Cointegration implies the existence of a long-run relationship between economic variables. The principle of testing for cointegration is to test whether two or more integrated variables deviate significantly from a certain relationship (Abadir and Taylor, 1999). In other words, if the variables are cointegrated, they move together over time so that short-term disturbances will be corrected in the long-term. This means that if, in the long-run, two or more series move closely together, the difference between them is constant. Otherwise, if two series are not cointegrated, they may wander arbitrarily far away from each other (Dickey et. al., 1991).

Granger (1981) showed that when the series becomes stationary only after being differenced once (integrated of order one), they might have linear combinations that are stationary without differencing. In the literature, such series are called “cointegrated”. If integration of order one is implied, the next step is to use cointegration analysis in order to establish whether there exists a long-run relationship among the set of the integrated variables in question. Earlier tests of cointegration include the simple two-step test by Engle and Granger (EG hereafter) (1987). However, the EG method suffers from a number of problems. Alternatively, Engle and Yoo (1987) (EY, hereafter) 3-step procedure have been widely recognized as dealing with most of these problems. Nevertheless, a problem remains which is that both EG and EY methods cannot deal with the case where more than one cointegrating relationship is possible. Hence, Johansen’s Vector Auto Regression (VAR) test of integration (Johansen, 1988) uses a ‘systems’ approach to cointegration that allows determination of up to r linearly independent cointegrating vectors ($r \leq g-1$, where g is the number of variables tested for cointegration). The Johansen’s procedure is useful in conducting individual cointegration tests, but does not deal with cointegration test in panel settings.

Recognizing the shortcomings of traditional procedures, this study utilized the two types of the heterogeneous panel cointegration test developed by Pedroni (1997, 1999) which, in addition to using panel data thereby overcoming the problem of small samples, allows different individual cross-section effects by allowing for heterogeneity in the intercepts and slopes of the cointegrating equation. The Johansen approach is chosen since it has a number of advantages over the Engle-Granger two stage approach to cointegration. As this is a VAR based technique, less concern is needed over whether the explanatory variables are exogenous or endogenous. In addition, restrictions can be applied to the cointegrating vectors, which is not possible with the Engle-Granger approach. This Johansen approach is

preferred as it captures the underlying time series properties of the data and is a systems equation test that provides estimates of all cointegration relationships that may exist within a vector of non-stationary variables or a mixture of stationary and non-stationary variables.

4.3.2.3 Vector Error Correction Model

A vector error correction model (VECM) is a restricted VAR designed for use with non-stationary series that are known to be cointegrated. The vector autoregression (VAR) is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modelling by treating every endogenous variable in the system as a function of the lagged values of all of the endogenous variables in the system. A VECM is a restricted VAR designed for use with non-stationary series that are known to be co-integrated. Sjo (2008) held that the VECM has co-integration relations built into the specification so that it restricts the long-run behaviour of the endogenous variables to converge to their co-integrating relationships while allowing for short-run adjustment dynamics. The co-integration term is known as the correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments estimated. To take the simplest possible example, consider a two variable system with one cointegration equation and no lagged difference terms. The cointegration equation is:

$$Y_{2,t} = \beta y_{1,t} \dots\dots\dots(4.4)$$

The VECM will, then, take the form:

$$\Delta Y_{1,t} = \alpha_1 (Y_{1,t-1} - \beta Y_{2,t-1}) + \epsilon_{1,t} \dots\dots\dots(4.5)$$

$$\Delta Y_{2,t} = \alpha_2 (Y_{2,t-2} - \beta Y_{1,t-2}) + \epsilon_{2,t} \dots\dots\dots(4.6)$$

In this simple model, the only right-hand side variable is the error correction term. In long run equilibrium, this term is zero. However, if and deviate from the long run equilibrium, the error correction term will be nonzero and each variable adjusts to partially restore the equilibrium relation. The coefficient measures the speed of adjustment of the i -th endogenous variable towards the equilibrium.

4.3.3 Impulse Response Analysis

Impulse response analysis traces out the responsiveness of the dependent variable in the VAR to shocks to each of the other variables. A shock to the i -th variable not only directly affects the i -th variable but is also transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR. An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables (E-Views, 2010). It shows the sign, magnitude and persistence of real and nominal shocks to the balance sheet channel. A shock to a variable in a VAR not only directly affects that variable, but is also transmitted to all other endogenous variables in the system through the dynamic structure of the VAR. For each variable from the equations separately, a unit or one-time shock is applied to the forecast error and the effects upon the VAR system over time are observed.

The impulse response analysis is applied on the VECM and, provided that the system is stable, the shock should gradually die away (Brooks, 2002: 341). There are several ways of performing impulse response analysis, but the Cholesky orthogonalisation approach to impulse response analysis, which is a multivariate model extension of the Cholesky factorization technique, is preferred in this study. This approach is preferred because, unlike other approaches, it incorporates a small sample degrees of freedom adjustment when estimating the residual covariance matrix used to derive the Cholesky factor (Lütkepohl, 1991: 155-158).

4.3.4 Variance Decomposition Analysis

While impulse response functions trace the effects of a shock to one endogenous variable on to the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR. Thus, the variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR (E-Views, 2010). Further information on the linkages in the balance sheet channel can be obtained from variance decompositions analysis. It measures the proportion of forecast error variance in a variable that is explained by innovations in itself and the other variables. Variance decompositions performed on the VECM give the proportion of the movements in the dependent variables that are due to their 'own' shocks versus shocks to the other variables (Brooks, 2002: 342). Brooks also observed that own series shocks explain most of the forecast error variance of the series in a VAR. The

same factorization technique and information used in estimating impulse responses is applied in the variance decompositions.

4.3.5 Diagnostic tests

Gujarati (2004:516) argues that diagnostic tests should be performed so that the model finally chosen is a good model in the sense that all the estimated coefficients have the right signs, they are statistically significant on the basis of the t and F tests, the R- Squared value is reasonably high and the Durbin-Watson d has acceptable value (around 2). In this regard, this study employs the Histogram and Normality test, LM Test, the Heteroscedasticity test and the Ramsey test.

4.3.5.1 Autocorrelation LM Test

The Lagrange Multiplier (LM) test used in this study is a multivariate test statistic for residual serial correlation up to the specified lag order. The lag order for this test should be the same as that of the corresponding VAR (Harris, 1995: 82). The test statistic for the chosen lag order (m) is computed by running an auxiliary regression of the residuals (μ_t) on the original right-hand explanatory variables and the lagged residuals (μ_{t-m}). Johansen (1995: 22) presents the formula of the LM statistic and provides detail on this test. The LM statistic tests the null hypothesis of no serial correlation against an alternative of autocorrelated residuals.

4.3.5.2 Heteroscedasticity

According to Brooks (2002, pg. 148), there are a number of formal statistical tests for heteroscedasticity. One such popular test is the White's (1980) general test for heteroscedasticity. The test is useful because it has a number of assumptions such as that it assumes that the regression model estimated is of the standard linear. After running the regression residuals are obtained and then test regression is run by regressing each product of the residuals on the cross products of the regressors and testing the joint significance of the regression. The null hypothesis for the White test is homoskedasticity and if we fail to reject the null hypothesis then we have homoskedasticity. If we reject the null hypothesis, then we have heteroskedasticity. This test is an extension of White's (1980) test to systems of equations, as extended by Kelejian (1982). It tests the null hypothesis that the errors are both homoskedastic (no heteroskedacity problem) and independent of the regressors and that there is no problem of misspecification. The test regression is run by regressing each cross product of the residuals on the cross products of the regressors and testing the joint significance of the regression. The failure of any one or more of the conditions just mentioned above could lead

to a significant test statistic. Thus, under the null of no heteroskedacity and no misspecification, the test statistic should not be significant.

4.3.5.3 Residual Normality Test

This method makes a small sample correction to the transformed residuals before computing the Jarque-Bera statistic. The joint test is based on the null hypothesis that residuals are normally distributed. A significant Jarque-Bera statistic, therefore, points to non-normality in the residuals. The Jarque Bera test is a goodness of fit measure to departure from normality, based on the sample kurtosis and skewness. Machiwal and Jha (2012:48) states that the test statistic *JB* is defined as

$$JB = \frac{n}{6} \left(S^2 + \frac{(k-3)^2}{4} \right) \dots\dots\dots (4.7)$$

Where *n* = number of observations, *S* = sample skeness and *k* = sample kurtosis.

The *JB* test is based on the result that a normally distributed random variable has skewness equal to zero and kurtosis equal to 3. In other words, the test of normality compares skewness and kurtosis to 0 and 3, their values under normality. The test statistic is *JB*. The statistic *JB* has an asymptotic chi-square distribution with two degrees of freedom and can be used to test the null hypothesis that the data are from a normal distribution. However, the absence of normality in the residuals may not render cointegration tests invalid. A more important issue in carrying out the cointegration analysis is whether the residuals are uncorrelated and homoskedastic (Islam and Ahmed, 1999: 105).

4.4 Conclusion

The main purpose of this chapter was to present the techniques that shall be used in estimating the results of the model. The Chapter presented the various statistical and econometric tools that shall be used as methodology. The chapter presented the steps that shall be followed: checking for stationarity, testing for unit roots when testing for the order of integration of the residuals from the cointegration regression, using the Dickey-Fuller (DF) test and the augmented Dickey-Fuller (ADF) test. The Johansen (1991, 1995) cointegration technique has been chosen as the preferred technique for testing cointegration. For the estimation purposes the error correction mechanism is used.

CHAPTER FIVE

PRESENTATION OF EMPIRICAL RESULTS

5.1 Introduction

The focus of this chapter is to present the main findings of the study. The chapter presents the results from the estimation process that was conducted. The chapter used the estimation techniques that were presented in chapter four. The chapter is organised as follows: unit root results are presented first, followed by the lag selection criteria. After the lag selection criteria is the cointegration test, followed by the VECM results, diagnostic tests and impulse response function and variance decomposition respectively.

5.2 Estimation procedures

5.2.1 Correlation matrix

Collinearity was performed to see if there is no linear correlation between explanatory variables. Logic behind assumption of no multicollinearity is if two variables are collinear it becomes difficult to separate the individual effect of each variable on the dependent variable. In order to check multicollinearity among independent variables, a correlation analysis was performed. The closer the r coefficient approaches ± 1 , regardless of the direction, the stronger is the existing association indicating a more linear relationship between the two variables. However, a suggested rule of thumb is that if the pair wise correlation between two regressors is very high, in excess of 0.8, multicollinearity may pose serious problem (Bryman, 2006)

Table 5.1: Correlation

Variable	EXCH	EXPORT	INT	LFPI
EXCH	1.000000	-0.036400	-0.438391	0.725148
EXPORT	-0.036400	1.000000	0.030277	-0.002645
INT	-0.438391	0.030277	1.000000	-0.503776
LFPI	0.725148	-0.002645	-0.503776	-0.503776

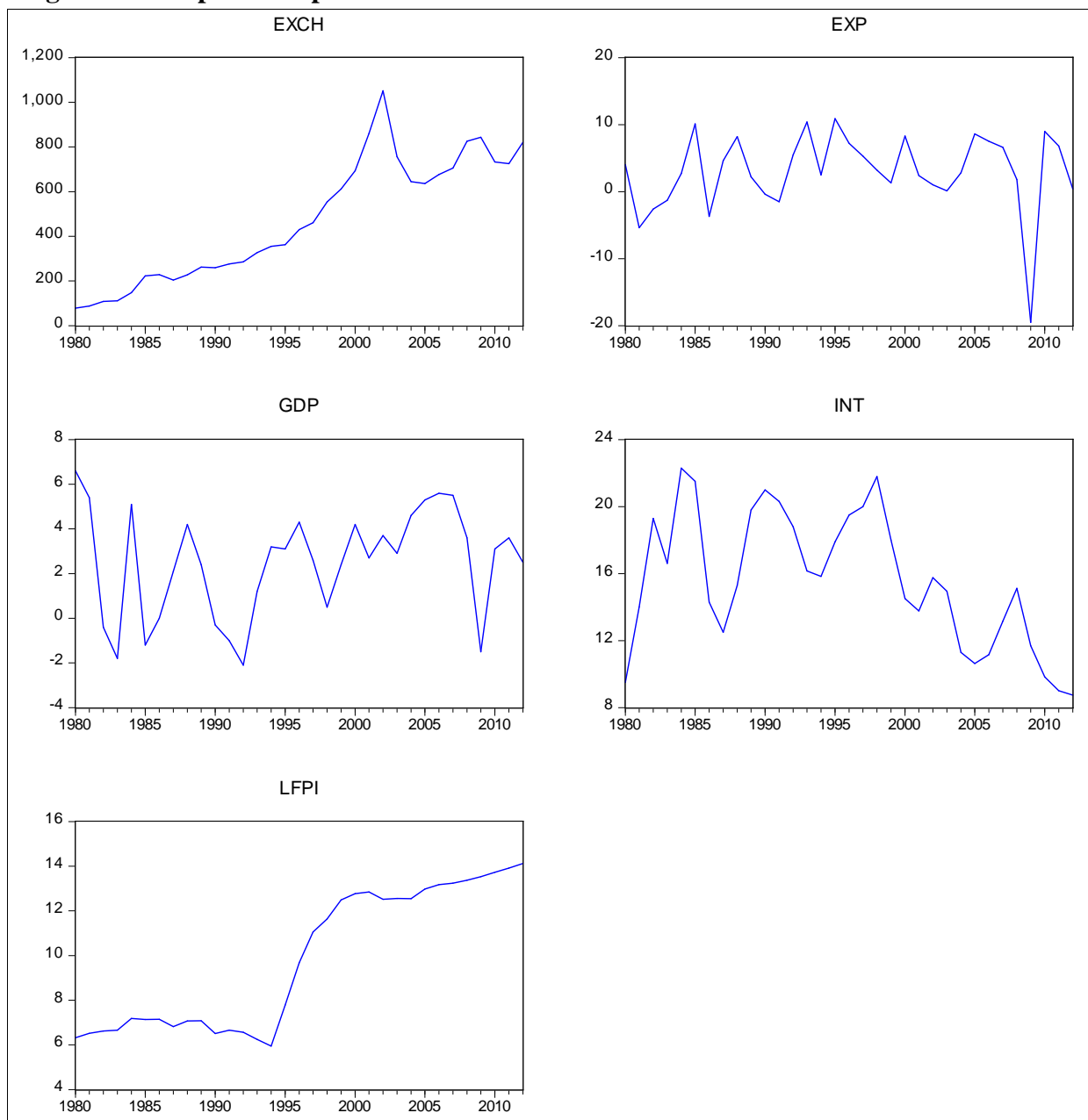
Source: Primary data computed from Eviews 8

Table 5.1 shows that the highest correlation coefficient value is 0.725148 which is below 0.8. Since the highest correlation numbers are lower than 0.8, the results clearly show that none of the independent variables are highly correlated and no multi-collinearity amongst independent variables exist.

5.2.2 Testing for stationarity

This study applied two tests for unit root testing; the informal approach (graphical plots) and the formal approach (Augmented Dickey Fuller Test and the Phillip Perron test). The first test was done. Data was plotted on graph and the series were observed. The graphs below shows the series on their levels. The informal test to be employed is the graphical analysis of the series. This preliminary examination is important. Figure 5.1 displays the graphs at their levels.

Figure 5.1 Graphical Representation of the Variables in Levels



Source: Primary data computed from Eviews 8

Figure 5.1 show that all variables have a time variant mean and variance suggesting that they are not stationary in their levels. The first impression that we get from the plots in Figure 5.1 is that two of the variables (EXCH and LFPI) seem to be trending upward and one variable (INT) trending downward, albeit with fluctuations. The other variable (GDP and EXP) does not show any trend, but also show fluctuations over time. Figure also shows that all the variables have a time variant mean and variance suggesting that they are not stationary in their levels. The variables are not hovering around their means and their variances are clearly not constant over time. Thus, based on this analysis, the stationarity status of the variables is can be ascertained. However, visual inspection alone is not enough to determine the stationarity status of variables. Therefore, what is required here is some kind of formal hypothesis testing procedure.

5.2.2.1 Augmented Dickey Fuller test

The Augmented Dickey Fuller test is a test for a unit root in a time series sample. Morrison and Winston (1995:83) held that an Augmented Dickey Fuller test (ADF) is used to test for non-stationarity by testing for the presence of a unit root. The Augmented Dickey Fuller is better than the Dickey Fuller test. The test was applied to the data under different deterministic trend assumptions, but those that included a constant and no trend produced robust results. The option with no trend and no intercept produced ‘explosive’ results, while the option with both a trend and intercept made test statistics less significant. As a result of this only the results from the option with a constant only were taken. The results from the Augmented Dickey Fuller are presented in the table below:

Table 5.2: ADF Tests

ADF Test		
Variables	Level	1 ST Difference
LFPI	0.994522	-4.560153**
GDP	-4.156062	-8.662521**
EXCH	0.994522	-4.560153**
INT	-1.253446	-5.476679**
EXP	-0.435645	-5.439014**

Notes: The MacKinnon (1996) critical values at 1%, 5% and 10% are -3.653730, -2.957110 and -2.617434 respectively. Thus *, **, *** denotes the rejection of the null hypothesis of a unit root at 10%, 5% and 1% respectively

It should be remembered that the ADF tests the null hypothesis of a unit root. Therefore, a rejection of the null hypothesis means the series does not have a unit root. The results show that all variables are not stationary at level series. However, when the test is applied to first differences of the series, they all become stationary. This may suggest that there may be a long run association in these variables and as a result of this all the variables are carried forward to co-integration tests.

5.2.2.2 Phillips Perron Test

The second formal test to be applied was the Phillips Perron test. The tests are similar to the ADF tests, but they incorporated automatic correction to the DF procedure to allow for auto-correlated residuals. The test was applied to the data under different deterministic trend assumptions, but those that included a constant and no trend produced robust results. The option with no trend and no intercept produced ‘explosive’ results, while the option with both a trend and intercept made test statistics less significant. As a result of this only the results from the option with a constant only were taken. Results from Phillips Perron test are presented in Table 5.3 below.

Table 5.3: Phillips Perron Tests

Phillips Perron Test		
Variables	Level	1ST Difference
LFPI	-1.056674	-9.305738**
GDP	-0.1098062	-4.156062***
EXCH	0.839758	-5.221950**
INT	-2.356734	-6.243436**
EXP	-0.476546*	-5.468739*

Notes: The MacKinnon (1996) critical values at 1%, 5% and 10% are -3.653730, -2.957110 and -2.617434 respectively.

Thus *, **, *** denotes the rejection of the null hypothesis of a unit root at 10%, 5% and 1% respectively

Results based on the Phillips Perron support those from the ADF. Results show that all variables are not stationary at level series, which is one the requirements of the Johansen cointegration test. Since there are variables that are not stationary at levels there is a possibility that there might be co-intergration in these variables. We therefore perform a co-integration test.

5.2.3 Lag selection criteria

A major requirement in conducting Johansen (1992, 1995) co integration tests and estimation of a VAR system, either in its unrestricted or restricted Vector Error Correction (VEC) forms, is the choice of an optimal lag length. When running regressions on time-series data, it is often important to include lagged values of the dependent variable as independent variables. “In technical terminology, the regression is now called a vector autoregression (VAR). For example, when trying to sort out the determinants of GDP, it is likely that last year's GDP is correlated with this year's GDP. If this is the case, GDP lagged for at least one year should be included on the right-hand side of the regression” (Sjo, 2008).

Estimating the lag length of autoregressive process for a time series is a crucial econometric exercise in most economic studies Vector autoregressive (VAR) models are widely used in forecasting and in analysis of the effects of structural shocks. A critical element in the specification of VAR models is the determination of the lag length of the VAR. In this regard, a VAR lag order selection criteria was performed and it came up with the following results that are displayed in table 5.4 below.

Table 5.4 VAR lag order selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-468.3113	N/A	10.31208	32.64216	32.87790	32.71599
1	-382.9387	135.4185*	16.55230	28.47853	29.89298	28.92152
2	-359.1832	29.48961	21.35920*	28.56436	31.15751	29.37650
3	-338.1696	18.83979	45.98408	28.83928*	32.61113*	30.02058*
4	-282.2597	30.84684	18.66745	26.70756	31.65812	28.25802

Source: Primary data computed from Eviews 8

As shown in Table 5.4, the HQ AIC and SC criteria suggests the use of 3 lags, while the FP and LR criterion suggests the use of 2 and 1 lag, respectively, should be accommodated in the VAR.. Thus, subsequent analyses were based on VAR with 3 lags.

5.2.4 Johansen Co- integration tests

The next stage in the examination of statistical properties of the series was a test for cointegration among the endogenous variables in the VAR system in equation 1. This was implemented in E-Views using procedures from Johansen (1992, 1995) system based techniques. In testing for the number of cointegrating vectors among economic time series, Johansen's (1992, 1995) system approach is to estimate the matrix in an unrestricted form, and then test whether we can reject the restrictions implied by the reduced rank of (E-Views, 2007). The software provides procedures for conducting both a maximum Eigen value and trace statistic based co integration tests, which were employed in this study.

The advantage of the co-integration approach is that it allows one to integrate the long-run and short-run relationship between variables within a unified framework. Two conditions must be met for two or more variables to be co-integrated. First, they must be integrated of the same order. Secondly, linear combinations of the variables from the regression of the non stationary variables (in levels form) must be stationary. In this study, we use the Johansen's (Johansen 1988; Johansen and Juselius 1990) maximum likelihood approach to test for co-integration. This approach has been shown to be superior to Engle and Granger's (1987) residual-based approach. Table 5.5 and Table 5.6 present the Johansen co-integration test on the Trace statistic and the Maximum eigenvalue test. The Trace and Maximum eigenvalue form of the Johansen test rejects the null hypothesis of no co-integration.

Table 5.5: Johansen co-integration test (Trace)

Hypothesized No of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob**
None *	0.669128	75.76062	69.81889	0.0155
At most 1	0.563362	42.57987	47.85613	0.1431
At most 2	0.302829	17.72036	29.79707	0.5868
At most 3	0.203358	6.898640	15.49471	0.5895
At most 4	0.002601	0.078131	3.841466	0.7798

Source: Primary data computed from Eviews 8

When the p-value is less than 5% we reject the null hypothesis. But when the p-value is more than 5% we cannot reject the null hypothesis. In table 5.5 on None* the p-value is 0.0155% and therefore we reject the null hypothesis; the p-value is less than 5%. The second null

hypothesis (At most 1) states that there is at least one co-integrated relationship. The p-value for at most 1 is 0.1431 which is above 0.05 and as a result of this we cannot reject this hypothesis. This suggests that there is 1 co-integrated equation. It can thus be said that the Trace statistic indicates the presence of 1 co-integrating equation. Table 5.6 present the results from the Maximum Eigen statistic.

Table 5.6: Johansen co-integration test (Maximum eigenvalue)

Hypothesized No of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob**
None *	0.669128	33.18075	33.87687	0.0404
At most 1	0.563362	33.18075	27.58434	0.1074
At most 2	0.302829	10.82172	21.13162	0.6651
At most 3	0.203358	6.820509	14.26460	0.5106
At most 4	0.002601	0.078131	3.841466	0.7798

Source: Primary data computed from Eviews 8

Table 5.6 shows that the Maximum Eigen test indicates the presence of 1 co-integrating equation. On None* the p-value is 0.0404% and therefore we reject the null hypothesis; the p-value is less than 5%. The second null hypothesis (At most 1) states that there is at least one co-integrated relationship. The p-value for at most 1 is 0.1074 which is above 0.05 and as a result of this we cannot reject this hypothesis. This suggests that there is 1 cointegrated equation. Both the Trace and Maximum Eigen tests indicate that there is at least 1 co-integrating relationship in this model. The co-integration test has proved that the variables are co-integrated, and as a result of this the VEC model can be done. Thus, we estimate VECMs restricted on 1 cointegrating vector.

5.2.5 Cointegrating Equation Normalised on GDP

On the basis of evidence from various diagnostic and specification tests, the final specification of the statistical model in Equation 4 was finally estimated as a Vector Error Correction (VEC) model, with one CE imposed, up to 4 lags allowed for each of the endogenous variables in the VAR and with constant (no trend) allowed in the CE. Results from the VECM model are presented in Table 5.7 below.

Table 5.7: VECM Results

Variable	Coefficient	Standard error	t-statistic
Constant	18.46562	-	-

LFPI	1.544615	0.78846	4.49562
EXP	-0.039871	0.04485	-0.88907
INT	0.586358	0.05784	-10.1370
EXCH	-0.008340	0.00123	-6.078065

Adjusted $R^2 = 0.7412$

Source: Primary data computed from Eviews 8

The standard approach in interpreting the long-run VECM results was applied in which all the results were multiplied by -1. The estimation results are shown in table 5.7. The adjusted R^2 turned out to be 0.7412 and this is reasonably high. In other words, the results suggest that the statistical fit of the model to the data is satisfactory (as indicated by the value of adjusted R^2). Adjusted R^2 is a measure of the closeness of fit in the regression model. Results from Table 5.7 shows that GDP and FPI have a positive long run relationship with INT. A one percentage change in FPI leads to a 1.54 unit increase in GDP. In economics theory, FPI contributes positively in the development of an efficient domestic capital market and brings several benefits to the host country. Increased FPI leads to greater liquidity in the capital market, resulting in a deeper and broader market (Levine and Zervos, 1996). The spill-over effects of positive competitive pressure to attract foreign investment would necessitate higher industrial standards and regulations through better corporate governance and greater business transparency, resulting in stronger investor protection and thus enhanced investor confidence (Shinn, 2000). However, the results are inconsistent with those of Duasa and Kassim (2009) who established that FPI has no impact on economic growth. Results from Table 5.7 also indicate that there is a negative long run relationship between EXP and GDP. This is incompatible with economic theory. It goes back to the classical economic theories by Adam Smith and David Ricardo, who argued that international trade plays an important role in economic growth, and that there are economic gains from specialization. It was also recognized that exports provide the economy with foreign exchange needed for imports that cannot be produced domestically (Stait, 2005). However, this relationship is not statistically significant.

Table 5.7 also shows that there is a positive relationship between INT and GDP. A 1 percentage point increase in interest rates leads to a 0.586 unit decrease in GDP. The positive relationship between INT and GDP is compatible with economic theory. In theoretical suggestions, the association between interest rates and economic growth as recognised in the

literature on growth can be found in the Mundel-Flemming model. When interest rates rise, there will be more foreign capital inflows and other investment into South Africa. These might contribute positively to GDP and a positive relationship between interest rates and GDP can be established. These results are also consistent with empirical findings. For instance, Obamuyi and Olorunfemi (2011) examined the implications of financial reform and interest rate behavior on the economic growth in Nigeria. Study results revealed that financial reform and interest rates have significant impact on economic growth in Nigeria; also, results implied that the interest rate behaviour is important for economic growth. However, results from this study are inconsistent with a number of empirical findings. Giovanni and Shambaugh (2007) explored the connection between interest rates in major industrial countries and annual real output growth in other countries. The results show that high foreign interest rates have a contractionary effect on annual real GDP growth in the domestic economy, but that this effect is centered on countries with fixed exchange rates. The paper then examined the potential channels through which major-country interest rates affected other economies.

Furthermore, results show that there is a weak negative relationship between EXCH and GDP in the long run. An appreciation in the rand exchange rate is seen to be depressing economic growth. This is consistent with economic theory and empirical evidence. For instance, David, Umeh and Ameh (2010) examined the impact of exchange rate on growth in Nigeria. A regression model was used to estimate data for the period between 1986 and 2005. The result of the regression analysis revealed that the exchange rate exerted a negative impact on the manufacturing output.

Table 5.8: Error correction model results

Variable	Coefficient	Standard error	t-statistic
DLGDP	-0.1572089	0.05574	-2.82172
DINT	1.634949	0.42334	3.86202
DEXP	0.715642	0.31454	2.27524
DLFPI	0.139042	0.15129	2.90881
DEXCH	8.763134	17.9908	0.48709

Source: *Primary data computed from Eviews 8*

In Table 5.8, the coefficient of D (GDP) of -0.157 shows that the speed of adjustment is approximately 15.7 percent. This means that if there is a deviation from equilibrium, only 15.7 per cent is corrected in one quarter as the variable moves towards restoring equilibrium.

This means that there is no strong pressure on economic growth to restore long run equilibrium whenever there is a disturbance.

Table 5.8 shows that, in the short run, INT and GDP have a positive relationship. An increase in interest rates has a positive impact on GDP. A percentage change in interest rate leads to a 1.6 percentage change in GDP. This result was not expected because increases are expected to lead to a contraction in the GDP. However it must be noted that there may be other factors that may lead to an increase in GDP after increases in interest rates. For example when interest rates rise, there will be more foreign capital inflows and other investment into South Africa. These might contribute positively to GDP and we get a positive relationship between interest rates and GDP. Our results are in line with those of De Gregorio and Guidotti (1995) cited in Oosterbaan et al. (2000). De Gregorio and Guidotti (1995) cited in Oosterbaan et al. (2000) suggest that the relationship between real interest rates and economic growth might resemble an inverted U-curve: Very low (and negative) real interest rates tend to cause financial disintermediation and hence to reduce growth. A high deposit rate of interest encourages savings and economic growth in view of the link between savings, investment and economic growth. However the results from this study go against McKinnon-Shaw (1973). McKinnon-Shaw (1973) argued that financial repression – indiscriminate distortions of financial prices including interest rates – reduces real rate of growth. One of the basic arguments of McKinnon-Shaw model is an investment function that responds negatively to the effective real loan rate of interest and positively to the growth rate.

Table 5.8 also show that EXP and GDP have a positive relationship in the short-run. This relationship was expected because exports contribute positively to GDP. When exports increase it is expected that economic growth increase also. According to Stait (2005) exports of goods and services represent one of the most important sources of foreign exchange income that ease the pressure on the balance of payments and create employment opportunities. Results from this study are consistent with empirical literature. There are a number of studies that proved the existence of a positive relationship between exports and economic growth, for example, Bahmani-Oskoei, Bahmani-Oskoei and Alse (1993), Jin (1995), Levin and Raut (1997), and Khalifa Al-Youssif (1997). Most of this literature attributes the effects of exports on economic growth to several factors. One of the key factors however is that exports promote thresholds effects due to economies of scale, increased capacity utilization, productivity gains, and greater product variety.

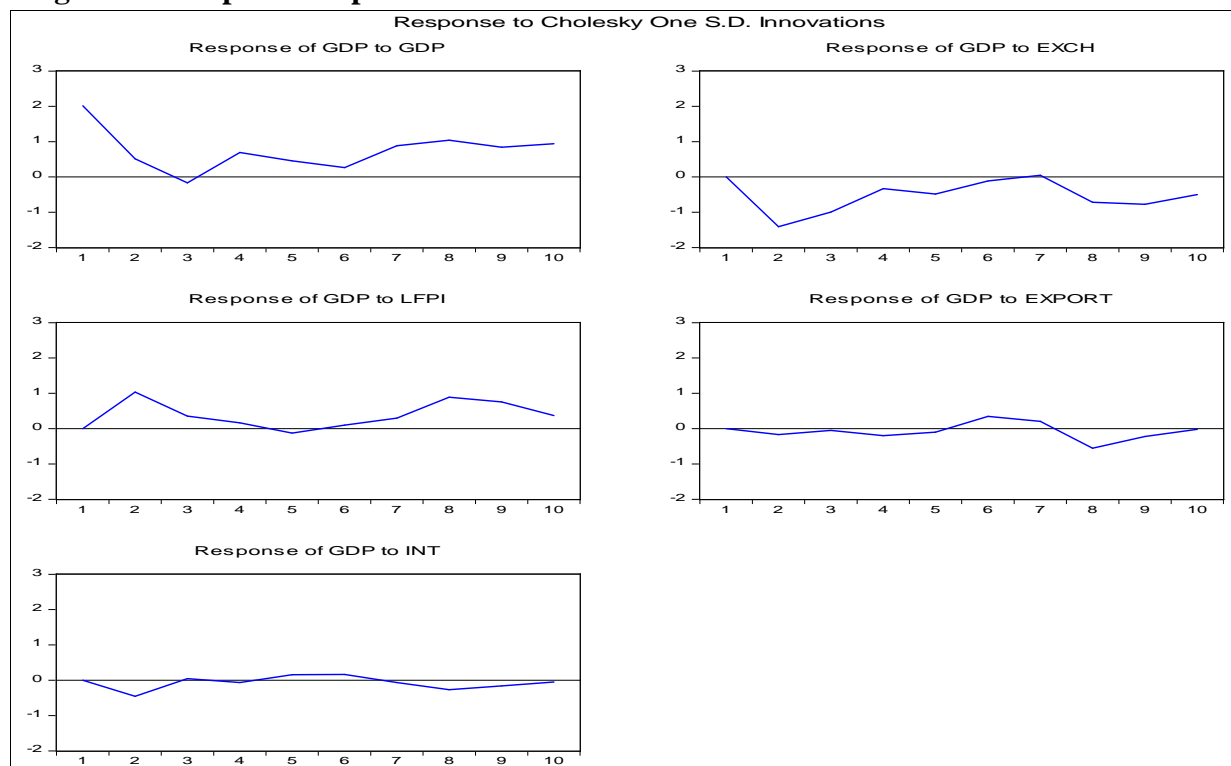
In addition, the empirical show that LFPI and GDP have a positive relationship in the short run. A one percentage increase in FPI leads to a 1.39 percentage increase in economic growth. The findings of this study corroborate with economic theory and empirical evidence. In economics theory, FPI contributes positively in the development of an efficient domestic capital market and brings several benefits to the host country. Increased FPI leads to greater liquidity in the capital market, resulting in a deeper and broader market (Levine and Zervos, 1996). The spill-over effects of positive competitive pressure to attract foreign investment would necessitate higher industrial standards and regulations through better corporate governance and greater business transparency, resulting in stronger investor protection and thus enhanced investor confidence (Shinn, 2000). However our results are inconsistent with those of Duasa and Kassim (2009). FPI was seen to have no impact on economic growth. Furthermore, Choong et al (2010) empirically investigate the effect of three different types of private capital flows on economic growth in 51 recipient developed and developing countries during 1988-2002. They find that FDI has a positive impact on growth, while both foreign debt and portfolio investment have a negative impact on growth.

Results from Table 5.8 also show that there is a positive relationship between EXCH and GDP in the short-run. A devaluation or reduction, in value, of the rand exchange rate leads to increases in GDP. A one unit decrease in the value of the rand leads to a 8.76 unit increase in GDP. However the results are not statistically significant.

5.2.6 Impulse response function

Impulse response analysis reveals a wealth of information pertaining to the dynamic effects of a model. These impulse response functions show the dynamic response of each variable to a one-period standard deviation shock to the innovations of each paired variable. The results from the impulse response analysis performed on the VECM regression a 10 year period are presented in Figure 5.2

Figure 5.2: Impulse Response Function



Source: Primary data computed from Eviews 8

Fig. 5.2 presents the impulse responses of LFPI, INT, EXP, and EXCH. The effect of the innovation on GDP is noticeable. However, the response is very weak on all the variables (less than 1%). The increase in LFPI leads to an immediate increase in GDP in the first two quarters but this subsides and later increase again in the 8th quarter. The increase slows down to initial levels in the long run but it remains persistently positive. A shock to the repo rate has an enormous negative impact on GDP. In the long run this effect seems to be maintained. An exchange rate shock will have a negative impact on GDP. However, the response of inventory investment is overall weak (a peak of 0.01%) in both the short and long run.

5.2.7 Variance decomposition

Variance decomposition analysis provides a means of determining the relative importance of shocks in explaining variations in the variable of interest. In the context of this study, it therefore provides a way of determining the relative importance of shocks to each of the variables in the model. The main question we are posing here is: What proportion of the variance in GDP due to its own shock or due to other shocks? All the results are presented in Tables 5.9

Table 5.9: Variance Decomposition

Period	S.E	GDP	LFPI	EXCH	EXPORT	INT
1	2.014569	100.0000	0.000000	0.000000	0.000000	0.000000
2	2.760645	56.72511	14.04521	26.12896	0.369379	2.731340
3	2.961462	49.60770	13.64641	33.99622	0.351669	2.397996
4	3.071171	51.23103	12.97473	32.76745	0.753544	2.273249
5	3.150342	50.79120	12.49088	33.49162	0.816622	2.409683
6	3.188064	50.27907	12.29588	32.83179	1.982121	2.611140
7	3.328877	53.16530	12.07222	30.13155	2.197392	2.433552
8	3.721841	50.36809	15.35975	27.84084	3.972228	2.459088
9	3.976247	48.62351	17.06907	28.19848	3.789713	2.319237
10	4.133447	50.16486	16.60093	27.56418	3.508912	2.161114

Table 5.9 shows that for the 4-quarters ahead forecast error variance, reported in column 2 of Table 6, GDP explains approximately 50 per cent of its variation, while all its determinants explain the other 50%. Of this 50 per cent, LFPI explains about 12 per cent, exchange rate about 30 per cent, INT about 2 percent, and EXP explains less than 1% of the variation in GDP. After a period of two years, GDP still explains approximately 50 per cent of its own variation, while its determinants explain the remaining 50% per cent. The influence of the EXCH decreases slightly to about 28 per cent, explaining the second largest component of the 50 per cent variation in GDP that is explained by its determinants. The foreign interest rate explains the third largest component (16%) of the 50 per cent variation in GDP that is explained by its determinants.

EXP accounts for about 3 per cent and INT, about 2 per cent, with its impact remaining constant over time while EXP with its impact increasing slightly over time. Thus, the national EXCH explains the largest component of the variation in GDP followed by the FPI and EXP. Shocks to the other variables continued to explain a less significant proportion of the variation in the GDP.

5.2.8 Diagnostic checks

The VAR model was subjected to rigorous diagnostic tests. Diagnostic checks are crucial in this analysis because if there is a problem in the residuals from the estimation of the model, it will be an indication that the model is not efficient such that parameter estimates from such a

model may be biased. Results from the different diagnostic tests carried are presented in Table 5.10

Table 5.10: Diagnostic tests

Test	Null Hypothesis	Chi-square	Probability
Lagrange Multiplier (LM)	No serial correlation	0.126	0.975
White (CH-sq)	No conditional heteroskedasticity	0.935	0.762
Jarque-Bera (JB)	There is a normal distribution	10.671 ¹	0.621

In table 5.10 the LM results suggest that we cannot reject the null hypothesis of no serial correlation. The probability (0.975) is greater than 0.05 and as a result the null hypothesis of no heteroskedasticity or no misspecification will thus not be rejected. Therefore, the model does not suffer from any misspecifications hence can be relied on. The null hypothesis for the Jarque-Bera test states that there is a normal distribution. The results obtained for this particular test show a Jarque-Bera probability of 0.621. The null hypothesis was only going to be rejected if the probability was less than 5%. In this case probability is greater therefore we fail to reject the null hypothesis of a normal distribution. The model does not suffer from heteroscedasticity as shown by the 0.762 probability from the White test. Results show that the model is robust.

5.3 Conclusion

This chapter analyzed the relationship between Foreign Portfolio Investment and Economic growth in South Africa. It started by analyzing the time series properties of the data by employing both informal and formal tests for stationarity. The variables were found not to be integrated of the same order. This motivated the use of the Johansen cointegration test to test for co-integration. Johansen co-integration and VECM tests provided evidence that there are both the long and short run relationships among the variables.

¹ JB statistic

Results showed that there is a negative long run relationship between economic growth and foreign portfolio investment. These results are consistent with empirical evidence. Results also indicated that there is a positive long run relationship between exports and economic growth. This is compatible with economic theory. It goes back to the classical economic theories by Adam Smith and David Ricardo, who argued that international trade plays an important role in economic growth, and that there are economic gains from specialization. It was also revealed that there is a negative relationship between interest rate and economic growth. The negative relationship between interest rates and economic growth is compatible with economic theory. In theoretical suggestions, the association between interest rates and economic growth as recognised in the literature on growth can be found in the neoclassical growth framework and the McKinnon-Shaw hypothesis.

Impulse response and variance decomposition analyses were performed to determine the signs and strength of the effects between the classes of variables. The effect of the innovation on GDP was noticeable. However, the response is very weak on all the variables (less than 1%). Variance decomposition results revealed that the effect of other variables on economic growth exists. It was seen that the exchange rate explains the largest component of the variation in GDP followed by the FPI and EXP. Shocks to the other variables continued to explain a less significant proportion of the variation in GDP. Diagnostic tests were carried out and it was seen that the model is robust.

CHAPTER SIX

SUMMARY, CONCLUSION, POLICY RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

6.1 Conclusion

The main objective of this study was to investigate the relationship between foreign portfolio investment and economic growth in South Africa. To achieve this objective, a number of sequential chapters were done. Chapter one introduced the study and it gave background of the study. The chapter also set the main objectives and objectives of the study, it presented the problem statement and it justified the need to conduct the study. Following chapter one was chapter two which gave an outline of foreign portfolio investment and economic growth in South Africa. The chapter presented the foreign portfolio trends in South Africa. It also gave an explanation of the pattern of trends in South Africa. Chapter two also presented the economic growth trends in South Africa and it also explained the economic growth trends.

Chapter three presented the literature that attempted to explain the link between foreign portfolio investment and economic growth. In an attempt to understand the relationship between foreign portfolio investment and economic growth the chapter reviewed the literature and previous studies that aimed at investigating the empirical relationship between foreign portfolio investment and economic growth in various countries. The explored theoretical literature, and it was found that the AK model, Neoclassical model and Endogenous model explained the link between foreign portfolio investment and economic growth. The chapter also looked at the empirical literature that attempted to explore the relationship between the two variables. The empirical literature revealed that there are both positive and negative effects of external financial flows on economic growth. Empirical studies also pointed out conditions, which if present, may result in countries realising the benefits of foreign portfolio on investment.

The data was obtained mainly from South African Reserve Bank. Real figures were used for the work for the study. The study shall used annual data from 1990 to 2012. An analysis of data was performed using the outlined methodology. The data was tested for stationarity using the Dickey Fuller and Augmented Dickey–Fuller tests. This was followed by cointegration, after which the vector error correction modelling was carried out. Diagnostic checks, impulse response and variable decomposition were also conducted. When testing for stationarity, all variables in this study were stationary in their first differences hence they

proved to be integrated of the first order. The study adopted one lag which was used in the cointegration analysis. Both the trace and maximum eigen cointegration test reflected that there is one cointegrating equation that exist at 5% significance level. This led to the use of the vector error correction model (VECM). All the explanatory variables, except for exports, proved to be statistically significant in explaining economic growth. Diagnostic checks performed proved that the model was quite suitable in capturing the influence of the explanatory variables on economic growth in South Africa.

Estimation results revealed that there is a positive relationship between foreign portfolio investments and economic growth in South Africa. The results were not surprising because FPI are a form of investment and as a result they should promote growth. FPI contributes positively in the development of an efficient domestic capital market and brings several benefits to the host country. Increased FPI leads to greater liquidity in the capital market, resulting in a deeper and broader market. The spill-over effects of positive competitive pressure to attract foreign investment would necessitate higher industrial standards and regulations through better corporate governance and greater business transparency, resulting in stronger investor protection and thus enhanced investor confidence.

It was also realised that there is a positive relationship between interest rates and economic growth. This result is consistent with economics theory. In theoretical suggestions, the association between interest rates and economic growth as recognised in the literature on growth can be found in the Mundel-Flemming model. When interest rates rise, there will be more foreign capital inflows and other investment into South Africa. These might contribute positively to GDP and a positive relationship between interest rates and GDP can be established. The results were also statistically significant. Exports were seen to have a negative relationship with economic growth. However, the result was not statistically significant. The exchange rate was seen to have a weak negative relationship with economic growth; an appreciation of the rand was seen to be causing more economic growth. The results are consistent with both economic theory and empirical literature. An appreciation in the value of the rand leads to more imports. When the value of the rand increases, foreign goods and services become cheaper in South Africa. South Africa is an oil importer and oil affects almost every sector of the South African economy. When the rand appreciates, the price of oil becomes cheap and this contributes positively to growth. Cheap oil prices reduce the cost of production in South Africa. The results presented by the study are in line with

economic theory and empirical literature. Resultantly, policy recommendations can be made and relied on.

6.2 Policy implications and recommendations

The results of this study have a number of policy implications. The positive relationship between foreign portfolio investments and economic growth signals the need for the SARB and the government to use foreign portfolio investment as a complement for weak savings in the country. There should be measures that increase the flow of foreign portfolio investment. These measures should be effective and they should not twist the functioning of investment flows. The SARB and the government should remove all impediments that make it hard for foreign investors to invest in South Africa. The SARB should also keep interest rates at a rate that is high enough to attract foreign portfolios into South Africa.

The analysis has shown that the repo rate plays an important role in determining GDP in South Africa. Thus, from a policy point of view, the Central Bank should be cautious when using interest rates to influence consumer spending. Too high interest rates result in decreased economic activity in form of lower consumer spending but on the other hand this can attract foreign investment. The SARB, therefore, needs to strike a balance between domestic factors and also foreign factors when determining the level of interest rates. The SARB uses interest rate to control inflation and as a result it should do so in a way that does not depress economic growth. The SARB can also use other monetary policy techniques to influence consumer spending. Monetary policy techniques such as open market operations can be used to either increase or depress spending. These might not affect domestic demand as do the use of interest rates.

Our analysis has also shown that there is a strong negative link between exports and economic growth. This result was surprising because exports should contribute positively to economic growth. However, it must be noted that there might be other factors that may be influencing this relationship. For instance exchange rate changes may cause exports to be weak and imports stronger. In this respect, it seems clear that the exchange rate should be seen as an important variable when formulating policy. The SARB should ensure that there is always a competitive exchange rate that promotes export promotion and consequently economic growth. The government should also make efforts to promote export-led growth in South Africa. This could increase production, employment and consequently economic growth.

6.3 Limitations of the study

Altogether, this study has successfully achieved its objectives. Despite achieving its objectives, there were some limitations. Firstly the data frequency was relatively big. The study used annual data. Quarterly data may provide more useful results than annual data. Using more frequent observations better captures dynamics of foreign portfolio investment and economic growth interrelationships. However data is not always available in the required format.

The areas for further research that emerge from this study include the transmission mechanism between foreign portfolio investments and economic growth in South Africa.

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