Causal relationship between financial capital flows and economic growth in South Africa

A Dissertation

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Financing Equitable, Ethical, Sustainable & Collaborative Development

Declaration

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Abstract

The study's main objective was to test the causal relationship between financial capital flows and economic growth in South Africa. Developing countries rely significantly on foreign capital inflows to supplement domestic savings for investment and growth. Foreign investment is essential to emerging nations' economic growth because it augments domestic savings for expansion and investment. Using a global financial capital pool has significant potential benefits for many developing nations. Due to low growth levels in emerging markets, efforts have been made to identify the factors that hinder growth. Capital flow movements has been one of those factors. There has been sharp reversal of portfolio flows, triggering concerns about financial stability and consequently, economic growth. South Africa's economy is heavily influenced by external financial flows, including foreign direct investment and portfolio investments. Policymakers need empirical evidence to formulate effective strategies that attract sustainable capital inflows while promoting economic growth and development. The study used secondary quantitative data from the World Bank, StatsSA and the South African Reserve Bank. Time series data that spanned from 1990 to 2023 was used for estimation. The study employed stationarity tests, cointegration analysis and the ARDL technique.

The empirical results show that the relationship between Capital flows and GDP is negative. The relationship is marginal though and this suggests that capital flows, to a lesser extent, negatively affects GDP. The empirical results also reveals that the relationship between Terms of Trade and GDP in positive. The study recommended that there is need for government to come up with measures that can make capital flows contribute positively to growth. One measure would be to prolong the duration with which capital flows stay in S.A. in periods of economic uncertainty, capital tend to flow out of South African and this hurts growth.

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List of abbreviations

ARDL	Autoregressive Distributed Lag
CF	Capital Flows
CUSUM	Cumulative Sum of Recursive Residuals
GDP	Gross Domestic Product
INF	Inflation
INV	Investment
SA	South Africa
TOT	Terms of Trade
VECM	Vector Errror Correction Model

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction

Developing countries rely significantly on foreign capital inflows to augment domestic savings which are needed for investment. Using a global financial capital pool has significant potential advantages for many developing nations (Segura-Ubiergo, 2020; Hlaing & Kakinaka, 2023). The economic production of developing countries is constrained by inadequate capital per worker. Current account deficits, or inflows of foreign resources, can be utilized to boost domestic saving and achieve greater rates of growth and capital build-up. The means to finance those resource movements are made possible by access to global capital markets. Zhou et al. (2021) contend that the transfer of skills and knowledge is facilitated by some foreign capital inflows, particularly foreign direct investment (Zhou et al. 2021).

Economically, emerging countries can gain from large capital inflows, but if they are not managed properly, they can also result in excessive economic growth, increased currency rate volatility, and ultimately sizable outflows (Nogueira, 2018). Macroeconomic overheating or an excess of aggregate demand expansion could result from capital inflows. Growing current account deficits, rising real exchange rates, and inflationary pressures are likely signs of this trend (Attra & Ragab, 2022). Economists have been discussing the changing nature of international capital flows since the financial crises of the 1990s, but in recent years, they have been particularly interested in the ways that unregulated capital flows might hurt developing countries (Kohlscheen, 2021). The size of domestic investments and the total saving rate are two ways that foreign capital flows affect each country's output. In some circumstances, the indirect effect may surpass the direct effect and raise output in both wealthy and poor countries, even when net capital flows are flowing to the wealthier countries (Kamber & Mohanty, 2022).

According to Hlaing and Kakinaka (2023), monetary policy performs better than fiscal policy when capital flows are elastic and the floating exchange rate system is employed. Attracting foreign capital has been linked to a number of negative outcomes for many developing market nations, including macroeconomic imbalances and related financial crises. A significant amount of the increase in capital inflows usually ends up in foreign exchange reserves, which impacts the imbalances (Hlaing & Kakinaka, 2023). An increase in the money supply will boost output, creating a trade imbalance that will be corrected by a decline in the exchange rate

(Shweta et al., 2021). Conventional neoclassical theory states that foreign capital flows must reflect variations in anticipated rates of return by location (Hernandez-Vega, 2019). In order to temporarily boost GDP and allow developing countries to run current account deficits, capital should move from developed to developing countries (where capital/labor ratios are lower and capital productivity is higher) (De Santis & Lührmann, 2019). The size of domestic investments and the total saving rate are two ways that foreign capital flows affect each country's output. In some circumstances, the indirect effect may surpass the direct effect and raise output in both wealthy and poor countries, even when net capital flows are flowing to the wealthier countries (Hernandez-Vega, 2019).

Capital flows into a nation can also be influenced or drawn by specific variables. These flows' drivers are divided into "push" and "pull" elements, the former of which are the domestic macroeconomic environment and the latter are the global risk appetite and financial conditions (Kaltenbrunner & Painceira, 2022). The worldwide financial and economic circumstances that impact the entrance of money into the recipient nation are referred to as push factors. The domestic macroeconomic features of the economy are referred to as pull factors. These are the variables over which domestic policymakers have authority to affect the economy's capital influx (Bitar et al. 2018). The growth of the home economy is one of these causes. Additionally, it has been suggested that some pull forces, like economic expansion, can draw in capital flows. One reliable measure of the state of the economy is GDP growth. Generally speaking, nations with strong and steady GDP growth are seen as desirable places to invest. Due to the possibility of greater returns on investment, investors look for possibilities in developing economies. A strong business climate, more consumer spending, and general economic expansion are all indicators of positive GDP growth, and these factors can all draw in capital inflows (Naceur et al. 2015). Capital is more likely to flow to nations with predictable and stable economies. A steadily increasing GDP lowers investor risk by indicating economic stability. An appealing investment climate is created by political stability, low inflation, and prudent fiscal policies, which entice both domestic and foreign investors to invest in that nation (Kamber & Mohanty, 2021).

The preceding conversation illustrates a bidirectional connection between capital flows and economic growth. Not only can capital flows impact growth, but economic growth can also influence capital flows. In the context of South Africa, there has been minimal exploration of this relationship, underscoring the importance of examining the relationship between capital flows and economic growth in South Africa.

1.2 Problem statement

The study seeks to address the following problems:

- The domestic savings have been low, and they have been complemented by capital flows which have a problem of being volatile and this volatility is a pressing to economic growth.
- Economic growth has been subdued and this has acted as a push factor for capital flows, decreasing capital flows and hurting growth further.
- Little has been done on this area of study in South Africa.

The emerging markets cases

Economic growth is one of the macroeconomic objectives that all countries are concerned about. According to O'Byrne (2023) due to low growth levels in emerging markets, efforts have been made to identify the factors that hinder growth. Capital flow movements has been one of those factors (Bostan et al. 2022). There has been sharp reversal of portfolio flows, triggering concerns about financial stability and consequently, economic growth. A record-breaking strong reversal of portfolio flows away from emerging countries, totaling over $120 billion, was caused by the COVID-19 outbreak (Schneider et al. 2020). EMs are more prone to capital flow movements, in part because their economies are smaller and less diversified, and because they have less domestic economic and political stability (O'Byrne, 2023). This make it worthile to explore the relationship between capital flows and economic growth.

South African case

According to Pals and Bruijn (2024) the domestic savings have been low in South Africa and this has opened room for external finance through capital flows. South Africa now relies on the global financial markets to help cover the shortfall in its budget. According to Abedian (2016), Gilad et al. (2023) and SARB (2024) national savings in South Africa make up 15% of GDP, which corresponds to GDP growth of 1.5% or less. However, capital flows have been too volatile becoming what is referred to as hot money. Hot money has exacerbated economic volatilities, damages economic growth prospects, and making South Africa more vulnerable to future adverse shocks (Hlaing & Kakinaka, 2023). When growth is affected, the economy performs poorly, affecting the capital inflow. This harms economic growth further because there would be no additional capital available for investment. This has been the case in South Africa, where capital flows have been volatile due to the changes in international interest rates, international economic developments and poor growth.

Limitations of previous studies

Few studies have been done on this subject matter. Some of the studies done include Goel and Miyajima (2021), Cerutti et al (2019), Dahlhaus and Vasishtha (2020), Makrelov, Eller et al (2020) and Davies and Harris (2021). However, these studies had some limitations. First, the studies did not test for causal linkages on the relationship between capital flows and economic growth. Understanding the direction of the connection between capital flows and economic growth is crucial; is it capital flows causing growth or growth causing capital flows. Second, these studies were done in other emerging market economies such as Turkey, Brazil, India and Malasysia. It is essential to conduct a study within an African context. While emerging markets may share similarities, their circumstances always vary. For instance, each country has distinct legislation and policy frameworks. In light of these limitations, this study employs perfoms a causal test to identify the direction of the relationship.

1.3 Research objectives

The study has the following research objectives:

- To analyse the trends of capital flows and economic growth in S.A
- To test the causal relationship between financial capital flows and economic growth in S.A

1.4 Rationale of the study

Foreign direct investment and portfolio investments have played a considerable role in the development of South Africa’s economy (Zaccheaus, 2024; Sanusi and Dickason-Koekemoer, 2025). Policymakers need empirical evidence to formulate effective strategies that attract sustainable capital inflows while promoting economic growth and development. Fluctuations in financial capital flows can significantly impact macroeconomic stability, economic growth and employment levels. A thorough analysis can provide insights into how these factors interact and their implications for economic stability in South Africa.

The contributions of this study will be important to policymakers in emerging market economies as the Central Banks can use the results from the study to make effective monetary policy Central banks and the government can make more informed monetary policy decisions if they have a thorough understanding of how capital flows affect growth in developing market countries. To do so, they need a study that gives them an objective, scientific-based outlook to work from, which is the purpose of this study. This study shall make an original contribution to monetary and financial economics. To the best of this study's knowledge, a few studies tested the association between capital flows and economic growth in South Africa.

1.5 Organization

The dissertation shall be structured as follows:

Chapter 1: Introduction - The entire study endeavor was given a broad outline in this chapter. Specifically, the chapter presented the background of the research, problem statement, research aim and gave a justification for conducting the research.

Chapter 2: Literature review - The chapter presents the literature that underlines the study. The chapter presents the theoretical and empirical framework associated with the study.

Chapter 3: Research Methodology - The research methods that will be employed will be explained in this chapter. The chapter explains all the procedures that were followed during the data collection and processing process. The chapter discusses all the methods that were employed in the data collection and analysis process.

Chapter 4: Data analysis and Discussion - The results of the investigation are presented in this chapter. The chapter uses econometric methods to present the study findings. The chapter also uses previous literature to critique the findings.

Chapter 5: Conclusion and Recommendations - This will present the findings and offer suggestions. Additionally, the chapter identifies study areas.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter surveys the literature related to this study. The study shall look at previous scholarly work on capital flows and economic growth. The section shall first look at the concepts of capital flows and growth, then provide an outline of capital flows and growth in South Africa. After this, theoreies on economic growth and capital flows will be presented and lastly an empirical analysis of previous studies will be done.

2.2 Definition of concepts

2.2.1 Capital flows

Capital flows are cross-border financial transfers that are recorded in other countries' financial records (IMF, 2014:3). The term "private" denotes that private companies and individuals, rather than the government, are the origin of the revenue flows. Private capital flows are made up of foreign direct investment (FDI) and foreign portfolio investment (FPI). The OECD defines foreign direct investment (FDI) as cross-border investments made in another country by a direct investor with the goal of forming a long-term partnership with a direct investment firm (2008:16). FPI is a type of short-term inert investment that is distinct from the target companies' daily operations and strategic objectives in the recipient nations. Financial instruments used in capital markets investments include stocks and bonds. Investors aim to optimize their profits in the absence of managerial control over the primary asset, unlike foreign direct investment. On the other hand, financing from foreign banks can occur through a foreign bank's branch or subsidiary that operates in a recipient country, or it can come directly from outside (Segura-Ubiergo, 2020). As businesses functioning in a cutthroat market, international banks frequently want to increase their market share and profitability in other parts of the world, particularly in the lucrative upper echelons of the market.

FPI investments help recipient countries close the gap between savings and investment by supplying much-needed foreign currency, lowering current account deficits, and educating the corporate sector about financial accounting and reporting (Segura-Ubiergo, 2020). FPI is favored by asset managers and pension funds due to its high liquidity. It can also be utilized as an alternative to bank financing for other development projects, such infrastructure projects. On the down side, FPI investors are unpredictable and solely concerned with making quick money because they are prone to short-termism. As a result, they are free to take their money out whenever they choose, which could cause market volatility and harm the financial health of specific businesses. The nation's balance of payments may even deteriorate if significant FDI inflows are not offset by large FPI outflows (Kohlscheen, 2021). A significant influx of inbound foreign direct investment may cause the local currency to rise, which would reduce the competitiveness of exports.

2.2.2 Economic growth

Hlaing and Kakinaka (2023) states that economic growth is the gradual increase in an economy's capability to generate goods and services. It can be measured in real or nominal terms that take inflation into account. A country's GDP is the total monetary worth of the goods and services it produces during a certain time period. The GDP has traditionally been thought to be the most accurate indicator of economic growth since it can account for all of a country's economic activity, including goods and services provided both domestically and internationally. Economic growth is the best way to end poverty and improve living conditions in emerging countries. Economic growth, according to Hlaing and Kakinaka (2023), is the steady growth of an country's capability to produce goods and services. Both nominal and real terms—which account for inflation—can be used to measure it. GDP is the total monetary value of goods and services produced in a nation over a specific time period. Since the GDP can measure a nation's entire economic production, including products and services supplied both domestically and abroad, it has long been regarded as the most accurate measure of economic growth. The best strategy to eradicate poverty and raise living standards in developing nations is economic growth.

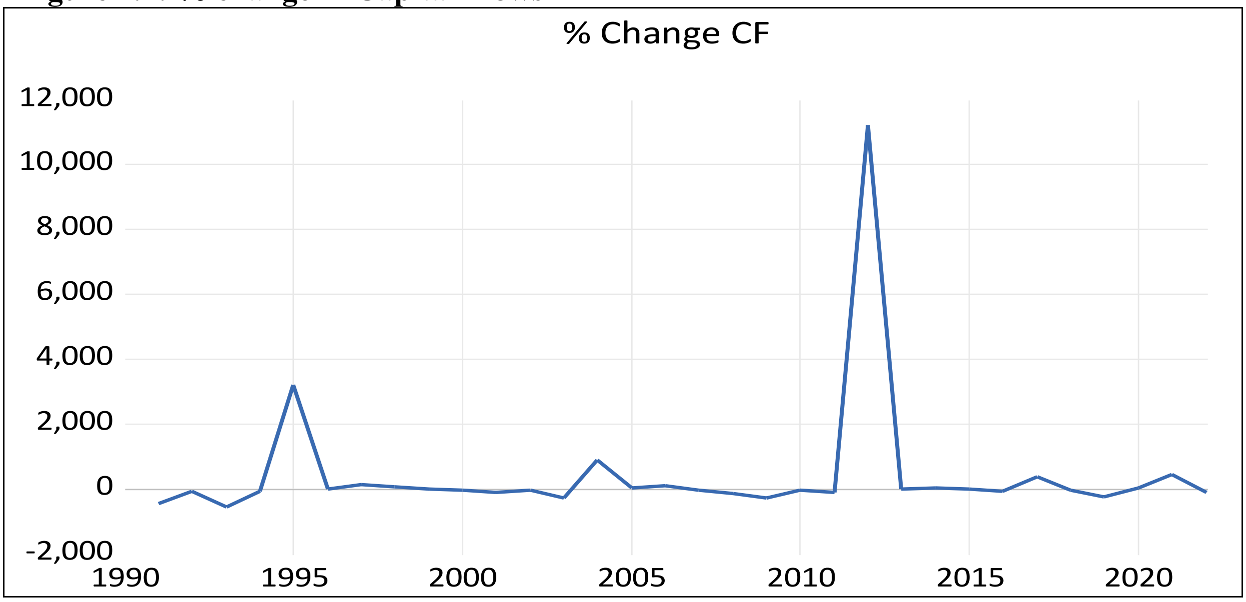
2.3 Overview of capital flows and economic growth in South Africa

2.3.1 Capital flows

After a protracted period of sanctions in the 1980s, South Africa returned to the global financialization movement after holding its first democratic elections in April 1994. Due to the South Africa's relatively low foreign liability stock as a result of the sanctions and later capital account liberalizations, net capital inflows surged, especially after 2003 (Ali et al., 2022). After a successful democratic transition, South Africa's reintegration into the global economy in 1994 was followed by years of limited access to foreign money and capital markets. Capital inflows surged as access to these markets was restored, posing problems similar to those encountered by other developing market economies. The challenges encountered meant that the increase in capital inflows was only temporary, even though limitations were relaxed and the Reserve Bank had time to restock its foreign exchange reserves (Adams and Klobodu, 2018). However, January 1997 saw a significant increase in foreign capital flows into South Africa, which helped the rand to appreciate. Consequently, various macroeconomic and liberalization policies affected capital flows to South Africa.

Smith (2019) finds that between 1989 and 2018, there were seven instances of gross capital flow stops in South Africa. In three of these circumstances, net capital outflows were also stopped. Patel and Cavallino (2019) state that the balance of payments adjustment during these periods was accomplished by lowering the current account deficit in 2008–09 as well as by cutting back on unrecorded transactions and foreign exchange reserves in 1998 and 2001. In the other four instances of halting gross capital influx, however, there was a countervailing repatriation of foreign assets by local citizens. This is a result of South Africa's robust financial foundations, which include a substantial institutional investor base, flexible exchange rates, deep and liquid capital markets, and a credible system for targeting inflation (OECD, 2020). Figure 2.1 shows the capital flows movements in South Africa.

Figure 2.1: % change in Capital Flows



Source: Own computation using statistics from SARB (2024)

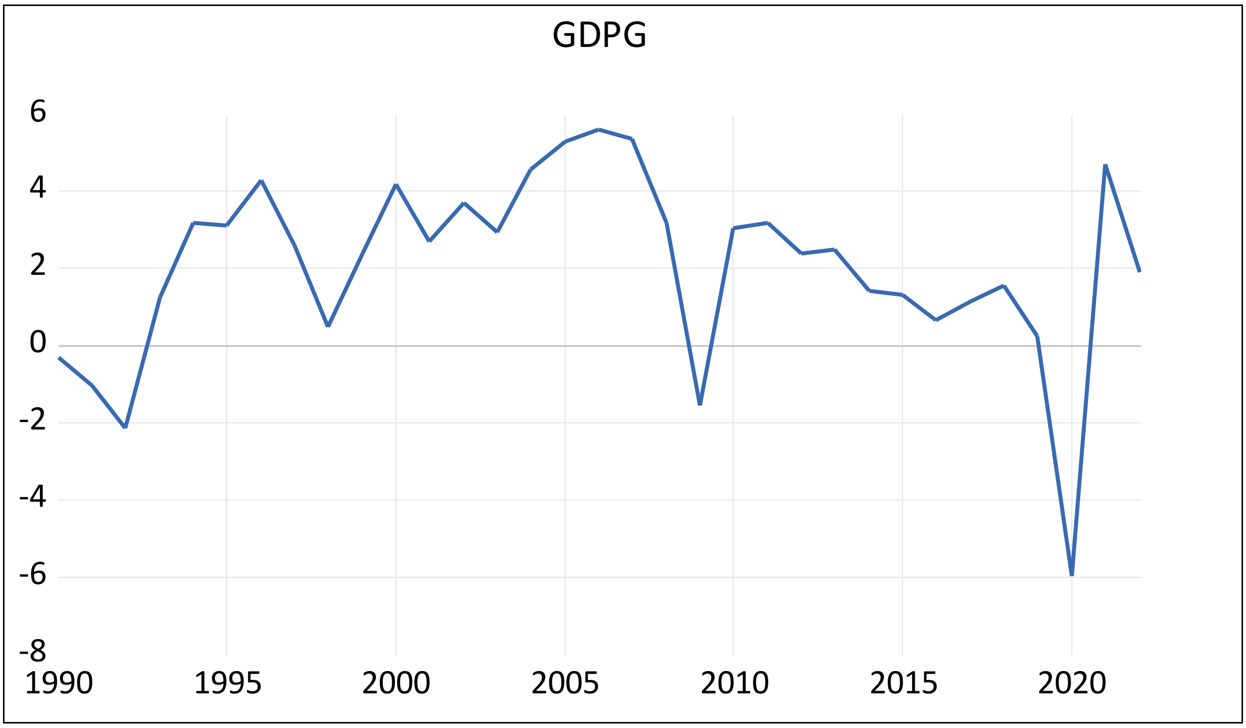
Figure 2.1 shows that the growth rates in capital flow were negative from in the early 90s. This might have been caused by sanctions that were imposed on South Africa. There was sharp increase in the growth rate. This was caused by the changes in political landscape; a new democratic government was elected. From 1995 onwards the growth rate was low and it had a sudden sharp increase in 2005. The global financial crisis is to blame for its subsequent decline in 2008. The growth rate rose in 2010 following the global financial crisis, then declined and stabilized. Another marked decrease was noticed in 2020. This was a result of the COVID pandemic. Significant gross capital inflows (three percent of GDP) were made into South Africa in 2019. However, there were significant gross capital outflows (3.5% of GDP) during 2020, following the Covid-19 pandemic (Reinhart et al. 2021). There was a notable shift in net capital flows as well as gross capital flows, which accounted for 0.5% percent of GDP.

South Africa's liberal economic strategy seeks to attract foreign capital flows to support economic growth and development (Sandrey, 2013). Due to the relative ease with which international investors can enter and depart the domestic capital market, a liberalized economic policy might draw investment and portfolio flows into the market. South Africa is able to gain from globalization thanks to this technique. Theoretically, foreign capital inflows should boost stock markets and other capital markets by increasing demand for stocks and so enabling investment, which in turn spurs growth (Adams and Klobodu, 2018 and Li, Su, Chang, and Ma, 2018). Advocates of liberalization strategies argue that when capital inflows are allocated to enterprises that add value, they should benefit South African equities by raising their liquidity and lowering their cost of capital, which will ultimately increase GDP (Owiredu, Oppong, and Asomaning, 2016).

2.3.2 Economic growth

Prior to Nigeria's 2014 overtake, South Africa was Africa's largest and most developed nation. Services make up the greatest portion of the economy, contributing about 73% of GDP (OECD, 2020). Finance, business, and real estate services are the top three service categories. Transportation, storage, and communication (9.3%), wholesale, retail, and vehicle trade (17%), as well as hotel, accommodation, and catering (15%), come next. Manufacturing accounts for 13.9 percent, mining and quarrying for 8.3 percent, and agriculture for just 2.6 percent. The trends of South Africa’s growth rates are shown in Figure 2.2.

Figure 2.2: GDP Growth



Source: Own computation using statistics from SARB (2024)

Figure 2.2 shows that South Africa's growth rate was negative before 1994 and this can be attributed to the international sanctions that were imposed on South Africa. However, after 1994, the growth rate increased but it was not so high. The global financial crisis was the reason it went negative in 2008. The economy recovered from the global financial crisis and GDP growth averaged 0.8 per cent since then. The growth rate later fell in 2020 due to the COVID pandemic.

2.4 Theoretical literature

2.4.1 Mundell-Fleming Model

The concept of the model is extremely limited. A tiny, open economy with perfect capital mobility is taken into account by the model. This suggests that since the local interest rate is determined by the global interest rate, the economy can readily obtain loans from the global financial markets at the present interest rate (Piazzesi, 2015). As a result, in the small economy under examination, the interest rate is not taken into account while developing policy. This suggests that exchange rate fluctuations are the only factors that can influence macroeconomic adjustment. The majority of the adjustments needed to maintain the officially set exchange rate are caused by changes in exchange prices on international currency markets. In response to changing economic conditions, the central bank permits currency rate changes (Meyer and Sack, 2014).

To explain fluctuations in the currency rate, the Mundell-Fleming model was used (Bukovšak et al., 2020). According to the model, economic leakage will increase as imports rise in tandem with income. This has a significant impact on economic expansion. Due to poor demand, the domestic production sector is projected to collapse as imports increase. Economic growth is hampered by this. Therefore, imports are bad since they may impede economic expansion. Conversely, more exports will be realized when the exchange rate is declining. The industrial process benefits from increased exports. Demand for products made in the country would rise, which would boost the economy.

2.4.2 Pagano's endogenous growth theory

According to Pagano (1993), a nation's financial market system determines its level of economic development. Three methods are used to achieve this: lowering the savings gap, raising business savings, and simplifying capital allocation. The model suggests that these three avenues would increase investment and, consequently, economic growth. Reinvesting surplus funds in the productive areas of the economy is a crucial function of financial institutions. Financial intermediaries create output by efficiently transferring financial resources from those with surpluses to those with deficits (Baillu, 2000). Increased financial intermediation and integration are assumed to be the cause of financial development, while other factors like governmental regulation and financial innovation might also be involved. The Pagano model expanded the AK model to include the role of foreign financing. According to the model, there is a lack of financial resources in the domestic sector. Foreign capital inflows would therefore aid in alleviating the issue. Conversely, foreign investors are more likely to only make investments in countries where their money is secure.

2.4.3 Crowding out effect model

Afonson and Aubyn (2008) assert that capital flows impact domestic investment in two ways, which in turn impacts economic growth. First, there are the impacts of crowding out. Interest rates may rise as a result of more taxes or a greater requirement for government cash in the capital markets to finance the government's increased investment. Private investments would be pushed out as a result of this, since it would restrict the amount of money available to private investors and decrease the anticipated rate of return on private capital. Foreign loans are the second-largest source of financial inflows to developing countries, especially those in Africa, after foreign direct investment. Each subsidiary bank receives a loan from its parent bank. This implies that while domestic investment will be less negatively impacted, private investment will continue to thrive as a result of the arrival of foreign loans. Despite the benefits of foreign loans, researchers like Avico and Akin (2020) contend that they discourage local investment more than they encourage domestic investment. However, the receiving country must have a more advanced financial system that can draw in more capital inflows in the form of loans if a capital flow is to have a crowding-in effect on local investment.

According to Geng and Pan (2019), private companies reduce their investments in areas with higher levels of public debt. Businesses that are located farther from banks in other cities or that rely more on outside funding will experience a greater decline. Additionally, the investments made by private companies are more susceptible to internal cash flow in cities with large levels of public debt. Foreign capital inflows have partially countered the decline in national savings in the majority of African nations, but not sufficiently to stop the real interest rate from rising. Sometimes the crowding-out effect is caused by the insufficient integration of the goods markets rather than the financial markets. The host country gains from increased capital flows, but developing countries lack the necessary financial markets and other institutions to transform foreign resources into economic growth (Avico and Akin, 2020). Crowding out can affect domestic investments, but it can also cause state-owned resource development to be overlooked or undervalued..

2.4.4 Neo-classical theory of capital flows

According to Anetor et al. (2021), the neoclassical model proposes that capital should move downward, or from wealthy to poor countries, because poor countries have lower capital-labor ratios and better returns on capital. According to economic theory, wealthy nations should often transfer their capital to poorer ones. Capital should flow from nations with relatively high capital-to-labor ratios to those with relatively low ratios, according to the core neoclassical paradigm. The basic one-sector neoclassical growth model states that the augmentation of capital is the usual (direct) theoretical pathway through which financial globalization propels economic growth. It is possible to escape poverty through savings and capital growth. Economic theory states that since the returns on new investment opportunities are higher in countries where capital is scarce, capital would move from those with plenty of it to those with little. Such a capital reallocation will encourage investment in the receiving country and produce significant social benefits, as noted by Summers (2000). This hypothesis is based on the notion that returns to capital decrease with the installation of more machinery and the construction of more structures, although in reality, this is not always or even usually the case. Capital has long been cited by neo-classical economists as the main driver of growth. It will lead to economic success as well as higher productivity and efficiency (Simiso, 2020). Regretfully, developing countries do not have the financial means to make capital investments. As a result, it is commonly believed that a lack of capital is what keeps people in poverty. One way to close the loops is to enhance national savings, which will expand the capital stock and boost productivity and quality of life. Building savings requires a higher income. Therefore, higher income from foreign capital inflows like FDI and ODA may result in more capital growth and savings, which could be a means of escaping poverty (Sachs, 2005).

2.5 Empirical literature

This section presents the studies that sought to investigate the relationship between capital flows and economic growth. The section surveys previous studies that were done in different regions. The aim is to get an understanding of what is currently in place with regards to empirical studies. Studies from the developed world and developing countries were surveyed.

2.5.1 Developing countries

Ndambendia, Nkendah, and Njoupouognigni (2010) investigate the relationship between AIDS, foreign direct investment, and growth in selected African countries. The study employed a Fixed Effects model and the results proved that capital flows had a positive relationship with economic growth. Ekeocha, Ekeocha, Malaol, and Oduh (2012) examined the connection between portfolio investment and economic growth in Nigeria from 1981 to 2010. The empirical findings demonstrated a favorable correlation between Nigeria's growth and trade openness and foreign portfolio investment. Onyeisi, Odo, and Anoke (2016) conducted an empirical analysis of the connection between FPI and growth in Nigeria in a different study. The study employed econometric analytical techniques of Granger causality, co-integration, and vector error correction mechanism. Over the course of the study, they found that foreign portfolio investment and growth are co-integrated and that FPI has a substantial long-term effect on Nigerian growth. Using panel Granger causality and co-integration tests, Abbes et al. (2015) found a long-term cointegration between FDI and economic development in a sample of 65 countries from 1980 to 2010. Nonetheless, they demonstrated a one-way causal link between FDI and GDP.

Global risk, interest rate differences, and growth all affect net capital inflows to emerging markets (Ahmed and Zlate 2014). Since they could run counter to the objectives of national macroeconomic policies, rapid increases in capital inflows pose policy challenges (Pradhan et al. 2011). Some studies have suggested capital regulations as a way to reduce spikes in capital inflows, although the results of these policies' efficacy have been mixed (Forbes and Warnock 2012; Ahmed and Zlate 2014; Davis and Presno 2014). It is advised that countries look for policies that strengthen their resilience to capital flow volatility rather than trying to reduce it because of this uncertainty (Forbes and Warnock 2012). This is because macroprudential and structural measures that improve the economy's ability to absorb capital inflows may not be sufficient, when used alone, to address capital flow challenges (Balakrishnan et al. 2012).

In a study conducted between 2000 and 2007 across 44 SSA countries, Deléchat et al. (2009) found a strong positive correlation between real GDP growth and private capital flows. They also demonstrated a positive and high correlation between capital inflows and investment and savings, which they interpreted as indicating that investment is not necessarily a barrier for the nations. Their investigation spans a shorter time period, and they simply employ ordinary least squares (OLS) to ascertain the link. Alley (2015) used panel co-integration to explore 14 SSA countries and found that private capital flows positively affect output and economic development. The region's poor economic performance in response to private capital inflows was identified as the cause of the negative effects of shocks to private capital flow.

Adeola (2017) examined the impact of various foreign capital on growth in selected economies in the Sub-Saharan region. The intention was to see the flow that had substantial impact on economic growth in these Sub-Saharan countries. The estimator used co-integration testing and VECM to achieve this. Over the course of the study, it was discovered that remittances, foreign loan flows, foreign direct investment, government development assistance, and foreign portfolio investment were seen to be influencing economic growth in the SSA countries. Alley (2017) investigated the connection between Sub-Saharan African nations' growth from 2003 to 2013 and delayed private capital flows. Economic growth as measured by the RGDP growth rate is the study's dependent variable, and capital flows as measured by remittances, outflows of foreign direct investment, and outflows of foreign portfolio investment are its independent variable. The study found that risk-sharing private capital (equity and foreign direct investment) and risk-averse private capital (bonds) hindered economic growth and decreased their capacity to compete internationally. The results also demonstrated that capital controls were more effective in halting increases in risk-sharing capital when they were used sparingly.

Adams et al. (2018) examine how capital flows affected Senegal's economic growth between 1970 and 2014 using autoregressive distributed lag (ARDL). All things considered, our research shows that remittances support Senegal's economic growth over time. Conversely, external debt impedes economic growth. But according to the ARDL data, growth and neither aid nor foreign direct investment (FDI) seem to be cointegrated. Therefore, in order to encourage economic development, Senegalese policymakers and the government must foster an environment that would draw in more remittances.

Gabriel et al. (2019) examine the relationship between capital movements and economic growth in Nigeria using data from the Central Bank of Nigeria covering the years 1981 to 2016. The model we discussed was estimated using the error correction model framework and the autoregressive distributed lag technique. The findings of our estimated model demonstrate that capital flows significantly influence Nigeria's economic expansion. In order to attract capital flows into Nigeria and close the financial gap required for the country's economic development, the research recommends the creation of robust, astute, and proactive economic policies.

Okoro, Nzotta, and Alajekwu (2019) examined the effects of foreign capital inflows on Nigeria's economic growth from 1986 to 2016. The result showed that Nigeria's economic growth was impacted over the long run by foreign capital inflows. especially that FDI and REM greatly increased economic growth. However, there was no discernible effect of ODA or EXTDS on economic growth. The study also showed that foreign investment is a useful tool for quickening Nigeria's economic expansion.

Ousama and Mourad (2020) did an examination of capital flows and their influence on growth in MENA nations. The study employed a Fixed Effect Quantile approach. The findings show that there are notable differences between lower and higher quantiles in the impact of private capital flows on economic growth. This implies that only in countries with comparatively low and medium growth rates is the improving influence of private capital flows on economic growth confirmed. Gabriel et al. (2019) examined the effects of capital flows on economic growth in Nigeria. The model of the study was estimated using the ARDL and VECM framework. The estimated model findings show that capital movements have a major impact on Nigeria's economic growth. Therefore, in order to attract capital flows into Nigeria and close the financial gap required for the country's economic development, the study suggests that bold, astute, and aggressive economic strategies be developed.

Okolie et al. (2021) examined the effect of foreign capital flow on Nigeria's economic growth between 1999 and 2020. The study's data came from the IMF and the CBN Statistical Bulletin (2020). According to the report, foreign loan inflows and health and education services considerably impeded economic growth. Meanwhile, foreign remittance inflows significantly aided Nigeria's economic expansion. Despite not being statistically significant, foreign direct investment inflows had a favorable effect on economic growth. According to the study's findings, remittance inflows from abroad are crucial for economic expansion, particularly when foreign debt is managed prudently. It also highlights how accurately foreign direct investment inflows and the costs associated with obtaining healthcare and education elsewhere are taken into account.

Djalab and Said (2023) investigated the effects of foreign capital flows on Algeria's economic growth between 1990 and 2018. Personal remittances (REM), FDI, ODA, and external debt entering Algeria were the four main international capital flow routes that were the focus of this investigation. The study found that no international capital flow channel was statistically significant over either the short or long term, with the exception of foreign direct investment. After conducting this analysis, the study came to the conclusion that Algeria needs to establish the required framework and carry out important changes in order to draw in more international investment. For these flows to substantially accelerate economic growth.

Omolola and Aziakpono's (2022) study examined the relative impacts of the different forms of international money flows on Kenya's economic performance in the short and long terms. This is in light of the fact that one of the main strategies used by the Kenyan government to accomplish the economic pillar of Kenya Vision 2030 is to promote foreign capital inflows. Through 2030, a 10% yearly economic growth rate is to be attained and sustained. Following a very thorough and meticulous model selection procedure, the results clearly demonstrate a very strong long-run causal relationship that only extends from portfolio equity to economic growth, with a positive and significant impact on economic growth. Furthermore, in the short term, portfolio equity greatly accelerates economic progress. The only direction of causality is from economic growth to capital flows; all other capital flows, however, have very weak long-term correlations with economic growth.

2.5.2 Developed countries

De Mello (1999) looked at a sample of OECD and non-OECD nations in a study that was carried out between 1970 and 1990. They came to the conclusion that either capital accumulation or knowledge transfer—which entailed expanding the body of existing knowledge—were responsible for the beneficial benefits of foreign direct investment (FDI) on economic growth. Albulescu (2015) found that both direct and portfolio investments had an impact on long-term economic growth, while short-term debt had no effect prior to a crisis and a negative effect during one. Aizenman, Jinjarak, and Park (2011) found that FDI had a positive effect on growth but that equity investment and portfolio inflows had no effect. These conclusions are supported by Quinn and Toyoda's (2008) study, which used both de jure and de facto indicators of financial openness to demonstrate that capital account liberalization positively impacts growth in both established and emerging market nations.Additional studies by Federico, Vegh, and Vuletin (2013), Cardarelli, Elekdag, and Kose (2010), and Berument and Dincer (2004) also found a positive relationship between capital flows and growth.

According to research by Forte and Moura (2013), depending on factors like local investments and policies, host countries may experience positive or negative effects on development as a result of capital inflows like FDI. This is corroborated by studies of Calderón and Nguyen (2015) showing aid and FDI inflows positively boost growth, while government debt inflows do not. Two-way relationships between FDI and growth were established in several research by Tsai (1994) and Omri and Kahouli (2014). Aga (2014) did a study on the impact of Foreign investment on growth in Turkey. The study study showed a causal association between FDI and economic growth. However, this relationship was found to be significant in the long run and insignficiant in the sort run. This proved that FDI takes time to influence economic growth in Turkey. Xu (2015) investigated how foreign portfolio investments in China were affected by growth performance. Information from the quarterly time series from 2007 to 2015 was used in the study, which used an auto-regressive distributed lag model. According to the study's findings, international portfolio investors benefited greatly from growth performance, while inflation hindered them. Additionally, historical occurrences like the 2008 Asian financial crisis and the 2015 Shanghai Composite Stock Index had a big influence on foreign portfolio investment in China, according to the study.

The effect of growth performance on foreign portfolio investments in China was examined by Xu (2015). The research used data that spanned from 2007-2015. The study's findings demonstrated that while inflation affected international portfolio investors, growth performance significantly benefited them. The study also showed that historical occurrences like the Shanghai Composite Stock Index in 2015 and the Asian financial crisis in 2008 had a big influence on foreign portfolio investments in China. Kee and Wong (2015) find overwhelming evidence of an asymmetric influence of capital flows on economic growth in nine selected Asian countries, with cumulative capital inflows being negligible and cumulative capital outflows being damaging to GDP. Using a small open economy model supplemented with a variety of investment items and endogenous nonlinear credit limits, the study provided an economic explanation for the persistent disparity throughout financial growth phases. Kyriakos (2015) looked into the relationship between economic development, financial flow volatility, and macroprudential regulation. Specifically, the study investigated whether macroprudential regulation lessens the negative impact of capital flow volatility on economic expansion. By lessening the negative effects of erratic capital flows, macroprudential regulation fosters economic growth. The results are valid for a number of macro-prudential policy measures as well as for total capital flows and their component parts. The findings uphold the idea that macroprudential policy policies meant to preserve financial stability promote long-term economic growth.

Su and Makoto's (2023) study looks at how severe capital flow movements affect economic growth in 164 established and emerging economies. The core conclusions show plain distinctions between them. Whereas abrupt halts and retrenchments (sudden dips in capital inflows and outflows) have a detrimental effect on growth in developing countries, whereas abrupt rises in capital inflows are positively connected with growth, severe capital flow waves have no effect on growth in rich countries. The data indicates that both capital inflows and outflows can significantly drop in developing economies. Their research has policy ramifications for financial regulators, especially those in developing nations, suggesting that they ought to focus more on macroprudential capital flow management strategies that stabilize capital flow movements.

2.6 Assessment of Literature

The literature lists the different macroeconomic indicators that capital inflows have an impact on. The consequences vary from nation to nation since they are mostly dependent on the kind of capital entering a country, its degree of financial development, and its macroeconomic situation. Few attempts have been made to determine the growth consequences of the level and volatility of capital flows, despite empirical studies on the relationship between capital flows and growth. Additionally, the empirical data is inconclusive on the effects of capital flows on growth, either positive (Federico, Vegh, and Vuletin (2013), Xu (2015), of Calderón and Nguyen (2015) and Omolola and Aziakpono's (2022)) or negative (Adams et al. (2018), Su and Makoto's (2023), Djalab and Said (2023)). It may be simple to identify these effects by looking at how capital flows and economic growth are related. As was previously mentioned, the research has also tended to focus more on industrialized and emerging nations, with very few empirical investigations on SSA. The association between the volume and volatility of capital inflows and economic growth is established by this study. To examine the distinct impacts of capital inflows on macroeconomic variables, either gross or net inflows are used to measure the inflows. Then, the inflows are separated into debt and private equity.

2.7 Conclusion

Thic chapter discussed the literature that underpins this study. The study first gave a definition of the main concepts. After the definition of terms, the chapter went on to present an outline of capital flows and economic growth in South Africa. The chapter then presented the theories that undrpin the study. The Mundle Flemming Model, Crowding out effect model and other endogenous growth theories were presented. The chapter also surveyed previous studies that are related to the study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter's main objective is to present the research methodology that was applied to the study. This chapter's primary goal is to provide the instruments utilized to investigate the connection between capital flows and economic expansion in South Africa. The chapter presents the research approach, data sources, research design and the estimation techniques that were employed in the study.

3.2 Research Approach

Three central research approaches are used: quantitative, qualitative, and mixed methods. Quantitative and qualitative research methods can be used hand in hand to achieve wide-reaching and deep results (Asteriou & Hall, 2011). In other words, the quantitative data method proves a research's general point through numbers. Qualitative studies are much more concerned with opinions, values and they are very subjective in nature. Mixed methods have elements of both quantitative and qualitative studies. This study uses a quantitative approach to achieve its objectives. The reason for using quantitative approaches is that the study shall collect and analyse secondary data. This cannot be done when a study uses qualitative research. Quantitative research allows data to be gathered from a large pool of sources and there would be a number of observations.

3.2 Research design

Leedy (1997:195) states that a research design is a clear map that provides a direction and a plan for collection and gathering of research data. It focuses on how to choose the population, sample and where to choose these from. It also outlines the way in which the data is analysed and the procedures taken to do the data gathering and analysis (MacMillan and Schumacher, 2001:166). The research deisign is of very much importance in a study because it can give a clear guide of what direction a study should take. The causal-effect research design shall be used in this study. Causal research sometimes called explanatory research, is carried out to determine the extent and nature of cause-and-effect interactions (Moodley, 2015). Causal studies can be carried out to evaluate the impacts of specific changes on established norms and various processes.

3.3 Data sources

The study shall use secondary quantitative data from the SARB, World Bank and StatsSA. The study used annual time series data and the data span is from 1990 to 2023. The study selected 1990 because this is when S.A was almost attaining freedom and financial sanctions were being removed. Choosing 1994, was not feasible as it gave insufficient number of observations. The year 2022 was chosen at the end year because most data sets end in 2022.

3.4 Model specification

This model sought to test the relationship between capital inflow and economic growth. The study adopts Jude and Levieuge (2015), who sought to examine the growth Effect of capital flows. The model used in this study was as follows:

$$GDP_t = \beta_0 + \beta_1 CF_t + \beta_2 INV_t + \beta_3 INF_t + \beta_4 MS_t + \beta_5 PG_t + \beta_6 TOT_t + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (i)$$

where GDP is the gross domestic product and C.F. is foreign capital inflows, Investment. represents Investment, MS represents Money Supply, P.G. represents Population Growth, TOT represents Terms of Trade and μ_t is the error term.

3.4.1 Measurement and definition of Variables

The following table displays the variables that were used in the study.

Table 3.1: Variables

Proxy	**Variable**	**Source**
GDP	Economic growth	SARB
CF	Capital Flows	World Bank
INV	Investment	World Bank
INF	Inflation	World Bank
PG	Population Growth	World Bank
MS	Money Supply	SARB
TOT	Terms of Trade	IMF

a) Economic growth (**GDP**): GDP is a metric that counts all production generated inside a nation's borders and represents the monetary worth of final goods and services (IMF, 2024). This will be the dependent variable in this study. Since GDP had large fluctuations and outliers, it was necessary necessary to covert the natural values into logarithms.

b) Capital flows (**C.F):** The movement of money or investment capital into and out of a nation is referred to as a capital flow. Foreign aid, loans, remittances, portfolio investments, foreign direct investment (FDI), and other forms of flow are possible. Financial markets, international trade, and the financing of economic expansion all depend on capital flows. According to the Neo-Classical theory of capital flows, emerging nations lack the financial resources to invest in capital. Consequently, there is a extensive acceptance that poor growth is perpetuated by a lack of capital. Raising national savings and thereby growing the capital stock, which will lead to increased growth (Sachs, 2005). This variable will be captured using the foreign portfolio flows. The study excluded FDI in order to concentrate on portfolio flows that are highly volatile. These types of flows are known to contribute to economic instability due to the uncertainty they generate in emerging market economies (Bosta et al. 2022).

c) Investment **(INV):** This is the Gross fixed Capital Formaion. The total of the expenses incurred in increasing the economy's fixed assets and net changes in the stock of inventories is known as gross capital formation, formerly known as gross domestic investment (World Bank, 2024). The enlarged reprocessing process is determined by investments (Menshikov, 2015). Building new infrastructure, building homes, constructing roads, and ultimately creating jobs all rely on investment and capital accumulation. Production is expected to increase with investment, and this is good for economic growth. The raw data for investment had large fluctutations and high outliers and because of this, it was necessary to covert the natural values into logarithms.

d) Inflation **(INF**): The CPI was able to record this. The CPI is the consumer price index and it the generally used indicator of inflation in South Africa. It employs a specific basket of products and services to measure changes in inflation by capturing their prices. According to economic theory, inflation can harm economic growth. Increases in inflation can erode the purchasing power of money and this can harm savings and investment. When inflation is increasing production is likely to go down and this decreases economic growth (Adeola, 2017).

e) Population Growth **(P.G).** – this is population growth. This is a reference to population fluctuations over time. Time can bring about changes in the population. For this investigation, the measurement was expressed as a percentage. According to microeconomic theory, an increase in population or househols is likely to increases demand. When demand increases, aggregate demand is likely to increase and this can cause an increase in production and consequently economic growth (Gabriel et al 2019).

f) Money Supply (**MS**) – This includes both demand deposits, or depositors' readily accessible assets listed on financial institutions' accounts, and currency in circulation, or actual cash (Federal Reserve, 2024). Numerous studies have demonstrated how crucial the money supply is in influencing growth. Long-term inflation is brought on by a constant increase in the money supply, which slows economic growth (Doan, 2020). This could lead to a detrimental impact on growth from the money supply. On the other hand, some believe that the money supply influences growth. According to Friedman's money supply theory, the primary factor affecting how quickly the economy expands is changes in the money supply.

g) Terms of Trade (**TOT**) – This is the terms of trade. The ratio of the prices of imported and exported commodities is used to calculate the terms of trade. Therefore, an enhancement in the terms of trade reveals that the average price of exporting goods has increased relative to imported goods (World Bank, 2024). According to Nancy (2021) and Jebran et al. (2018), the terms of trade had a major and favorable impact on economic growth.

3.5 Estimation techniques

This section presents all the techniques that was used to analyse the data. The study employed stationarity tests, cointegration analysis and the ARDL technique.

3.5.1 Testing for stationarity / Unit root

One must first confirm that none of the corresponding regressors are of order I (2) before using ARDL as an appropriate model. The mix of stationary I(0) and non-stationary I(1) regressors is the only way the model may be flexible. If it is determined that the variables are stationarity, a simple OLS estimate can be used. These kinds of scenarios are rare in a time series. Stationarity is the occurrence of statistical characteristics that remain constant over time. A stationarity test is run to make sure there are no misleading regressions in the model before any estimations are made. On the other hand, data is said to be stationary if there is no changes in the mean and variance over a certain time frame (Gujarati, 2004). This suggests that a consistent estimated result that takes into consideration all fluctuating economic situations will be produced by the stable data. A biased t-ratio, a high R-squared, and an incorrect regression problem are all consequences of non-stationary data. A stationarity test on time series data is the first step in regression analysis. According to Brooks (2008:79), regressions that use raw data without a stationarity check may result in misspecification and inaccurate estimates. This happens when there is a difference between the f-statistic and the t-distribution (Costantini and Martini, 2010).

In this work, two-unit root tests were employed to ascertain the stationary nature of a series. The simplest basic test is the Dickey-Fuller test. However, Alexander (2008) claims that it is the least successful unit root test. Because of this flaw, the Phillips-Peron and modified Dickey-Fuller tests were used in this study. However, the ADF was perfomed to augment the main test which was the Phillips-Perron test.

(i) Phillips- Peron test

According to Gujarati and Porter (2009, 758) the Phillis Peron was developed after the ADF. The ADF and extra lag difference components were added to the regression to account for any possibility of correlation in the error term. The PP test used a nonparametric statistical approach to remove serial correlation from the error components, but the ADF and Philips-Peron tests are identical. The addition of multiple lagged difference terms was entirely ignored in the PP test, which, in contrast to the ADF test, included automatic rectification into the D-F technique.

According to Papademetrious and Tarrazas (2009), once the stationarity test results are received, there are basically three choices for deciding whether to move on to the next phase or stop the process: the study can performed an OLS if the variables are stationary at levels. If variables are not stationary at levels, they can be differenced and then a cointergrated test can be done to test their long run association (Cashins & McDermott, 2003:328). The PP test was chosen in this study because it sought to upgrade the ADF and it also has a high statistical power than the ADF test.

3.5.2 Cointegration analysis and ARDL estimation

(i) Lag selection criteria

Estimating the lag length of an autoregressive process for a time series is a crucial econometric exercise in most economic studies. This study employed the VAR lag order selection to select the lags. Brooks (2002: 334) argued 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 recommended 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). In order to select the appropriate lag length, the majority rule is applied.

(ii) Cointegration

When variables are integrated of order (I) the next step to take would be to test for their long ruan association. This is the cointegration test. It is belived that when variables are not stationary at levels, then they are likely to have a long run association with each other (Sjo, 2008). Traditional regression such as the OLS can lead to false results if cointegration is not taken into consideration. This is so because two variable might seem to be interlinked even though there might not be a connection at all. There are a number of tests that can be used to test for coingration. This include the Engel-Granger tests and the Johannesen cointegration tests. These tests seek to test for the long run associated between certain variables. The study used the Bounds Test to test for cointegration. The F-statistic is used to test for long run associations when using the Bounds test. For instance, if the F-statistic is above the I (1) value, then cointegration is present in the model (Kyophilavong et al., 2014:9). This will then require an ARDL model to be estimated. However, if there is no long run association, then there would be no need for the ARDL model to be estimated. The null hypothesis is that there is no cointegration (no long run relationship) between the dependent variable and regressors.

(iii) ARDL

This study used the ARDL model since it is suitable for small and finite sample sizes. Furthermore, it has recently been shown that these regression models are a very helpful tool for figuring out whether there are long-term linkages between economic time-series, even though they have been around for a while (Johnston, 1984). The model is autoregressive in that some of the explanation of yt can be explained by its own lag values. OLS estimation yields skewed coefficient estimates when the dependent variable's lagged values are employed as regressors in an ARDL model (Gujarati, 2004). The ARDL is a dynamic model and it uses past values of its dependent variable for estimation purposes. They are more efficient than the OLS techniques.

In this investigation, ARDL was utilized. To verify that the model was accurate, the study also included a few diagnostic tests. In addition, impulse response and variance decomposition were employed to supplement the ARDL. The ARDL model may be used to ascertain whether or not a long-term relationship existed between the chosen variables once the preconditions necessary for its execution were met. Consequently, the model's suitable number of delays was selected. The corresponding ARDl model for this study is as follows:

$$GDP_t = \beta_0 + \beta_1 GDP_{t-1} + \beta_2 CF_{t-1} + \beta_3 INV_{t-1} + \beta_4 INF_{t-1} + \beta_5 EXCH_{t-1} + \beta_6 PG_{t-1} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots. \dots (ii)$$

where GDP_t is economic growth at time *t*, β_0 is a constant, β is the coefficient and μ_t is the error term at time *t*. INV is investment, INF is inflation, EXCH is exchange rate and PG is population growth.

This model is estimated using an ARDL because the ARDL is able to appropriately estimate long run relationships using the Bounds test (Pesaran et al. 2001). This is also works when there are a limited number of observations or when the time period of the study under investigation is short (Jayaraman, Choong, & Kumar, 2011). The ARDL allows the model to estimate both the short run and the long run models of the study. The short run model is done by a technique called the vector error correction. This also shows the speed of adjustment that the model takes when there is a shock on a model. Muller (2004) states that when the sign is negative, the system is stationary. Furthermore, the results must be less than one because the variables are expressed as percentages. A speed of adjustment of more than 100% would be assumed in the absence of a number greater than one, which is statistically unlikely. The long-term correlations were found after the short-term dynamic and error correction terms of the model were identified.

Johansen and Juselius (1990) cointegration techniques in that it tests for cointegration between variables regardless of the order of integration or mutual cointegration. Also, ARDL reduces the number of parameters to be estimated since the test is not based on a vector autoregression, but on a single ARDL equation (see, Narayan, 2005).

iv) Causality testing

The structures of the causal relationships between variables were analyzed through the Granger causality approach. The Granger causality test is a statistical hypothesis test for determining whether one time series is useful for forecasting another (Narayan, 2005). Granger causality is a statistical concept of causality that is based on prediction. According to Granger causality, if a signal X1 "Granger-causes" (or "G-causes") a signal X2, then past values of X1 should contain information that helps predict X2 above and beyond the information contained in past values of X2 alone. Its mathematical formulation is based on linear regression modeling of stochastic processes (Granger 1969). More complex extensions to nonlinear cases exist, however these extensions are often more difficult to apply in practice. Granger developed a widely used definition of causality that is frequently employed by political scientists interested in the intertemporal flow of effects between two variables *X* and *Y*. *Y* is said to "Granger cause" *X* if information about the history of *Y* improves one's ability to predict the behavior of *X*, above what can be achieved when only information about the history of *X* is used for this purpose (Sanusi & Dickason-Koekemoer, 2025). Thus, if *Y* does not Granger cause *X*, *Y* is strictly exogenous to *X*.

3.5.3 Diagnostic tests

Gujarati (2004:516) argues that all regression models must undergo a series of tests in order to ascertain if they are fit or not. This is known as diagnostic tests. They purpose of these tests is to see if the results of the estimated model can be deemed fit, appropriate and can be accepted. There are a number of tests that can be done to test the fitness of a model. These tests are CUSUM tests, serial correlation LM test, Normality test and heteroskedasticity tests.

(i) Heteroskedasticity

Heteroskedasticity refers to a process in which the variance/co-variance of the errors is constantly changing over time. Studenmund (1992) saw heteroskedasticity as a violation of the classical linear regression model (CLRM) assumption, which states that the observations of the error terms are drawn from a distribution that has a constant variance over time. Heteroscedasticity tends to produce p-values that are smaller than they should be. This effect occurs because heteroscedasticity increases the variance of the coefficient estimates but the OLS procedure does not detect this increase. Consequently, OLS calculates the t-values and F-values using an underestimated amount of variance. This problem can lead the researcher to conclude that a model term is statistically significant when it is actually not significant (Paul, 2015). Heteroskedasticity takes a number of different forms, thereby allowing econometricians to use different tests for heteroskedasticity like the Goldfeld-Quandt test, the Breusch-Pagan test and the White test. In this study, the e Breusch-Pagan test was implemented.

(ii) Normality test

Although there are many normality tests, the Jarque-Bera (JB) test is one of the commonly used tests for normality. The JB normality test statistic is a test for large samples and is based on ordinary least squares (OLS) residuals in determining whether the system is normally distributed or not. The test measures the skewness and kurtosis of a series and determines whether they match into a normal distribution. In large samples, the JB test statistic is formulated under a null hypothesis which states that there is normal distribution; skewness and excess kurtosis are zero.

(iii) Autocorrelation – LM tests

Gujarati (2004) defined autocorrelation as correlation between variables over a period of time. Autocorrelation more often occurs in time series studies in which an observed data set is ordered in time. The Lagrange multiplier (LM) tests for parameter consistency against the alternative hypothesis that a parameter follows a random walk. In this study, the Lagrange multiplier comprised multivariate test statistics for residual serial correlation up until the specified lag order. In a VAR model, the value of R^2 is used and considered to be important when having higher order of autocorrelation. If one or more coefficients in an equation are statistically significant, then the value of R^2 for that equation will be relatively significant, while if none of the variables is significant, R^2 will be relatively low.

(iv) CUSUM test

The CUSUM tests performs a test of whether the coefficients in a time-series regression are stable over time. The test statistic is constructed from the cumulative sum of either the recursive residuals or the ordinary least-squares (OLS) residuals. he test statistic based on the cusum of recursive residuals was introduced in Brown, Durbin, and Evans (1975). Under the null hypothesis, the recursive residuals are shown to be independent and iden- tically distributed as normal with 0 mean and constant variance. The cusum of the recursive residuals also has a mean of 0 under the null hypothesis. If the coefficients change after a certain time period, the plot of the recursive cusum process will drift away from the expected value of 0

3.6 Conclusion

This chapter's primary goal was to describe the methods used to estimate the model's output. A presentation of the many statistical and economic techniques employed in the investigation's approach was given in this chapter. The chapter described the techniques used to determine the order of integration of the residuals from the cointegration regression, including testing for unit roots, ensuring stationarity, and applying the Dickey-Fuller and modified Dickey-Fuller tests. The best method for evaluating cointegration was determined to be the Johansen (1991, 1995) cointegration methodology. The error correction technique was used in the estimation procedure.

CHAPTER FOUR

EMPIRICAL RESULTS

4.1 Introduction

The study's analytical framework, model, and estimating methods were introduced in the previous chapter and are covered in this one as well. The results regarding the relationship between capital flows and economic growth are thus presented in this chapter. As a result, this chapter describes how the ARDL model was used to meet the study's objectives and provide the findings and conclusions.

4.2 Descriptive statistics

Table 4.1 displays the descriptive statistics for the variables in the regression model.

Table 4.1: Descriptive statistics

	LGDP	CF	LINV	LMS	PG	TOT	INF
Mean	26.242	834.73	13.142	13.723	1.3258	88.342	6.6576
Median	26.439	732.22	13.311	13.961	1.2232	86.600	5.7844
Maximum	26.850	1645.91	13.587	15.177	3.0783	125.100	15.334
Minimum	25.559	258.77	12.482	11.807	0.3872	67.700	-0.6920
Std. Dev	0.4582	416.54	0.3975	1.059	0.5297	16.891	3.3867
Skweness	-0.2072	0.4801	-0.3245	-0.3449	1.4502	0.4253	0.7727
Kurtosis	1.3435	2.1485	1.5023	1.7842	5.5160	1.9209	3.9154
Jarque-Bera	4.009	2.2649	3.6633	2.6866	20.271	2.5962	4.4368
	0.1347	0.3222	0.1601	0.2609	0.0000***	9130.32	0.1087
Observations	33	33	33	33	33	33	33

Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation.

Table 4.1 demonstrates that practically every variable had a normal distribution. Only one variable had a p-value that was below 0.05. This was the PG variable. The PG variable was not normally distributed. The descriptive statistics also show that the study had 33 observations. This number of observations is sufficient enough to perform a regression. The statistic also reveal that CF had a higher mean. It had a mean of 834.7 and this was the highest of all the series. PG had the smallest mean of all the series. On the standard deviation, CF had the highest standard deviation (416). This shows that CF had higher fluctuations than all other series. This is despite the fact that its values were in indexes. LINV had the lowest standard deviation. This might have been caused by the fact that the series had been converted into natural logs. This is one of the advantages of coverting data into natural logs. It removes outliers and also reduces the deviations that a series might be having.

4.3 Unit root/stationarity test results

The stationarity tests was determined using the Phillips-Perron (PP). The test was perfomed on both levels and first differencing. This is shown in Table 4.2.

Table 4.2: Phillip Perron test (Trend and Intercept)

Variable	**Level**	**1st Diff**
GDP	-1.1802	-4.2520
CF	-3.8274	-
LINV	-1.1415	-3.4396
LMS	-3.2087	-
TOT	0.2115	-3.1755
PG	-5.4340	-
INF	-3.1874	-

Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation.

Results show that GDP, LINV and TOT were not stationary at levels. A first differencing was done and these variables became stationary. CF, LMS, PG and INF were stationary at levels. The fact that some of the variables had unit root necessitated the study to perform a cointegration test.

Table 4.3: Augmented Dickey-Fuller test with a breakpoint (Trend and Intercept)

Variable	**Level**	**1st Diff**
GDP	-4.9137	-11.39
CF	-5.6396	-
LINV	-3.432	-4.7855
LMS	1.977	-4.4792
TOT	-2.1090	-7.3133
PG	-4.2966	-6.7674
INF	-3.8558	-6.7016

Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation.

Results show that GDP, CF, LINV, LMS, PG, INF and TOT were not stationary at levels. A first differencing was done and these variables became stationary. Only CF was stationary at levels. The fact that some of the variables had unit root necessitated the study to perform a cointegration test.

4.4 Determining optimal lag length

Finding the ideal sequence of lags on initial differenced variables came next after determining the order of integration. Results are shown in Table 4.3.

Table 4.3: VAR lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2328.73	NA	6.57	10.69	151.01	150.79
1	-2158.37	252.79	2.84*	142.86*	145.45*	143.70*
2	-2113.802	46.01*	6.45	143.14	148	144.73

Source: Author's computation based on Eviews 12

The lag selection criteria had a number of tests that it displayed. Following the FPE, AIC, SC and HQ, the optimal lag length of this study is 1. Almost all of the tests suggested that one lag was optimal for the regression to be performed.

4.5 Bounds test approach to cointegration

The Bounds Test was used to test for cointegration. The F-statistic is used to test for long run associations when using the Bounds test. For instance, if the F-statistic is above the I (1) value, then cointegration is present in the model (Shahbaz & Islam, 2011). Results are shown in Table 4.4.

Table 4.4: Bound testing

T statistic	**Value**	**K**
F Statistic	19.476	7
Critical value bounds		
Significance	I(0) Bound	I(1) Bound
10%	1.92	2.89
5%	2.17	3.21
2.5%	2.43	3.51
1%	2.73	3.9

Source: Author's computation based on Eviews 12

The test statistic value turned out to be 19.476 and this was greater than the I(0) and I(1) bound values. The highest value from the I(0) and I(1) bound values was 3.9 and it was way below the test statistic of 19.476. This shows that there was evidence of cointegration. It can thus be said that there was a long run association in the variables under investigation.

4.6 ARDL results

4.6.1 **Long-run relationship**

The long-run ARDL had to be estimated even if cointegration was present in order to compute the elasticities. After estimating the long-run ARDL, the findings are shown in Table 4.5 below.

Table 4.5: ARDL results

Variable	**Coefficient**	**Standard errors**	**t-statistic**	**p-value**
CF	-0.0199**	0.0088	-2.2646	0.0328
INV	0.8912***	0.2639	3.3765	0.0025
MS	-0.3583***	0.1276	-2.8068	0.0098
TOT	0.0168***	0.0057	2.9525	0.0069
PG	-0.0033	0.0691	-0.4848	0.6322
INF	-1.2888	4.0012	-0.0320	0.9747

Note: Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation. Furthermore, ** and ** denote significance at 1% and 5% respectively.

The findings show that there is a negative association between CF (capital flows) and GDP (economic growth). The relationship is marginal though and this suggests that capital flows, to a lesser extent, negatively affects GDP. This is consistent with the crowding out effect model. Afonson and Aubyn (2008) assert that capital flows impact domestic investment in two ways, which in turn impacts economic growth. First, there are the impacts of crowding out. Interest rates may rise as a result of more taxes or a greater requirement for government cash in the capital markets to finance the government's increased investment. Private investments would be pushed out as a result of this, since it would restrict the amount of money available to private investors and decrease the anticipated rate of return on private capital. Nicholas (2024) used shift-share instruments and indirect flow correction to examine how capital flows affect recipient emerging and developing countries. The study discovered that loan and bond inflows have a notably positive impact on economic performance, which becomes apparent after a few years. However, some studies (Coppola et al. 2021; Sanusi et al. 2025) have shown that there can be negative relationship between capital flows and growth. Negative effects of capital flows on economic growth can include: currency overvaluation, increased volatility in exchange rates, asset price bubbles, macroeconomic imbalances, and sudden stops in capital inflows, particularly in developing economies, potentially leading to financial instability and hindering long-term investment and growth when not managed effectively (Jord`a et al. 2020; IMF, 2021)

The findings show that there is a positive relationship between INV (investment) and GDP in South Africa. This is consistent with economic theory. When a business makes an investment in new buildings or initiatives, it gives local workers job prospects. This raises employment and lowers unemployment, which boosts household income and consumption and promotes economic growth (Zafar et al. 2022). Additionally, domestic investments have the power to boost domestic demand. Purchasing goods and services from other local businesses is typically necessary when a business invests in new facilities or projects. Due to the increased demand for these locally produced goods and services, other local firms' output and revenue are stimulated. By stimulating the expansion of economic activity, rising domestic demand can help boost economic growth (Nguyen et al. 2022; Yu et al. 2023).

The empirical findings also show that South Africa's GDP and LMS (money supply) have a negative connection. These results align with economic logic and apriori assumptions. Mpofu (2011) employed the VAR model in his investigation of the relationship between inflation and the money supply. It was discovered that South Africa's inflation rate rose by 0.43% for every 1% rise in the money supply. According to Sabade (2014), advanced nations experiencing severe recessions have been observed to increase their money supply, while other advanced nations experiencing significant inflation pressure have found success lowering their money supply to control inflation. Phiri (2018) indicated that inflation positively impacts economic growth when it falls below a certain threshold of 5.30 percent; however, when inflation rises beyond this barrier, it has an adverse effect.

The empirical findings also show that South Africa's GDP and TOT (terms of trade) have a positive correlation. These results align with economic logic and apriori assumptions. Good trade conditions are meant to increase GDP. Grimes (2006) examined whether variations in terms of trade could account for New Zealand's economic success since 1960 and examined the causes of the country's high and stable terms of trade at the start of 1990. He discovered that a rise in the real price of agricultural exports was the cause of the improvement in trade terms. Trade volatility decreased as a result of export diversification. Also, the stable terms of trade contribute to the increase in New Zealand's economic growth. Cavalcanti et al. (2015) look into how the commodity ToT's level and volatility affect economic growth. They discover that while commodity ToT growth increases real production per capita, volatility has a detrimental effect on economic growth using a larger sample of 118 countries and annual data from 1970 to 2007.

The findings also indicated a favorable correlation between GDP and PG, or population growth. This friendship was not important, though. Additionally, the findings demonstrated that the link between GDP and INF (GDP) is statistically negligible. Economic growth was observed to have a negative correlation with the CPI.

4.6.2 Short run results

Table 4.6 presents the short-term outcomes. -0.6864 was the error correction. This shows that about 68.64% of the disequilibrium from the previous period is corrected in the next period. This suggests a relatively moderate adjustment speed—most of the shock's effects dissipate within two periods.

The short run results show that CF has a negative but insignificant relationship with GDP. This shows that CF does not influence GDP in the short run. INV is seen to be having a positive relationship just like the long run. This suggests that investment positively influence GDP both in the short and long run. MS is seen to be having a negative relationship with GDP. This result is the same as that in the long run. This shows that an increase in money supply negatively affects economic growth. TOT is seen to be having a positive relationship with economic growth. This shows that as the terms of trade increase, GDP will also increase. These results were also found in the long run. PG is seen to be having an insignificant relationship with GDP. This shows that population growth does not influence economic growth. This result was also found in the short run. INF has a negative association with economic growth. This shows inflation negatively influences economic growth in the short run.

0.000657

Table 4.6: Error correction

Variable	**Coefficient**	**Standard errors**	**t-statistic**	**p-value**
ECM (-1)	-0.6864***	0.1943	-3.5314	0.0017
D(CF)	-1.2888	4.0012	-0.0320	0.9747
D(INV)	0.8912***	0.2639	3.3765	0.0025
D(MS)	-0.3583***	0.1276	-2.8068	0.0098
D(TOT)	0.0168***	0.0057	2.9925	0.0069
D(PG)	-0.00065	0.00149	-0.4400	0.6600
D(INF)	-0.0199**	0.0088	-2.2646	0.0328

Note: Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation. Furthermore, ** and ** denote significance at 1% and 5% respectively.

4.7 Causality results

The causality tests are shown in Table 4.7. The results show that there is causality from CF (capital flows) to GDP (economic growth). However, there is no causality from GDP to CF. this shows that the relationship runs one way that is from capital flows to economic growth.

According to Beckmann and Czudaj (2017), capital flows have a significant beneficial impact on GDP. With the exception of Korea, net and gross capital flows show an improvement for about two quarters. Given that effective depreciations are both positively and negatively correlated with GDP, the effect of effective exchange rates on GDP scarcely provides an explanation for the potential transmission of capital movement impacts. Furthermore, we discover that for emerging economies, the impact of net portfolio flows is even more favorable than that of net FDI flows. An additional analysis demonstrated the causal relationship between capital flows and growth. Adeola and Aziakpono (2022) assert that there is a significant and positive correlation between portfolio equity and economic growth, which is the only long-term causal link that exists. Portfolio equity has a very substantial beneficial impact on economic growth in the short term as well.

As for other variables, there is no causality from INF (inflation) to GDP. The relationship runs from GDP to inflation, implying that economic growth increases inflation. There is also no causality from INV (investment) to GDP. The relationship runs from GDP to investment. The same can also for Money supply and GDP. The relationship runs from GDP to money supply. In other words, GDP influences money supply.

Table 4.7: Granger Causality

Null Hypothesis	Obs	F-statistic	Prob
CF does not Granger Cause GDP	32	4.31350	0.0468**
GDP does not Granger Cause CF		1.17990	0.2863
INF does not Granger Cause GDP	32	2.21310	0.1476
GDP does not Granger Cause INF		13.6548	0.0009***
INV does not Granger Cause GDP	32	0.80571	0.3768
GDP does not Granger Cause INV		18.7078	0.0002***
MS does not Granger Cause GDP	32	0.19369	0.6631
GDP does not Granger Cause MS		8.63384	0.0064**
PG does not Granger Cause GDP	32	3.47074	0.0726*
GDP does not Granger Cause PG		0.04131	0.8404
TOT does not Granger Cause GDP	32	0.75459	0.0351**
GDP does not Granger Cause TOT		1.02652	0.3194

Note: CF-Capital Flows, INV is Investment, MS is Money Supply, LGDP is Gross Domestic Product, PG is Population Growth, TOT is Terms of Trade and INF is Inflation. Furthermore, *** , ** and * denote significance at 1%, 5% and 10% respectively.

4.8 Diagnostic results

To assess the overall quality of the model, robustness checks were conducted. Table 4.7 shows the results.

Table 4.7: Normality

Test	Null hypothesis	JB-stat	p-value	Conclusion
Normality	Residuals are normally distributed	0.4071	0.8157	The distribution is normal

The normality test was conducted using the Jarque-Bera Test. Results showed that the Jarque-Bera test statistic turned out to be 0.4071 and the p-value was 0.8157. Since the p-value was above 0.05, it can be said that the residuals were normally distributed. Results of the serial correlation are shown in Table 4.8.

Table 4.8: Serial correlation

Test	Null hypothesis	Obs R^2	p-value	Conclusion
Breusch-Godfrey Test	No serial correlation	3.4293	0.1800	No serial correlation

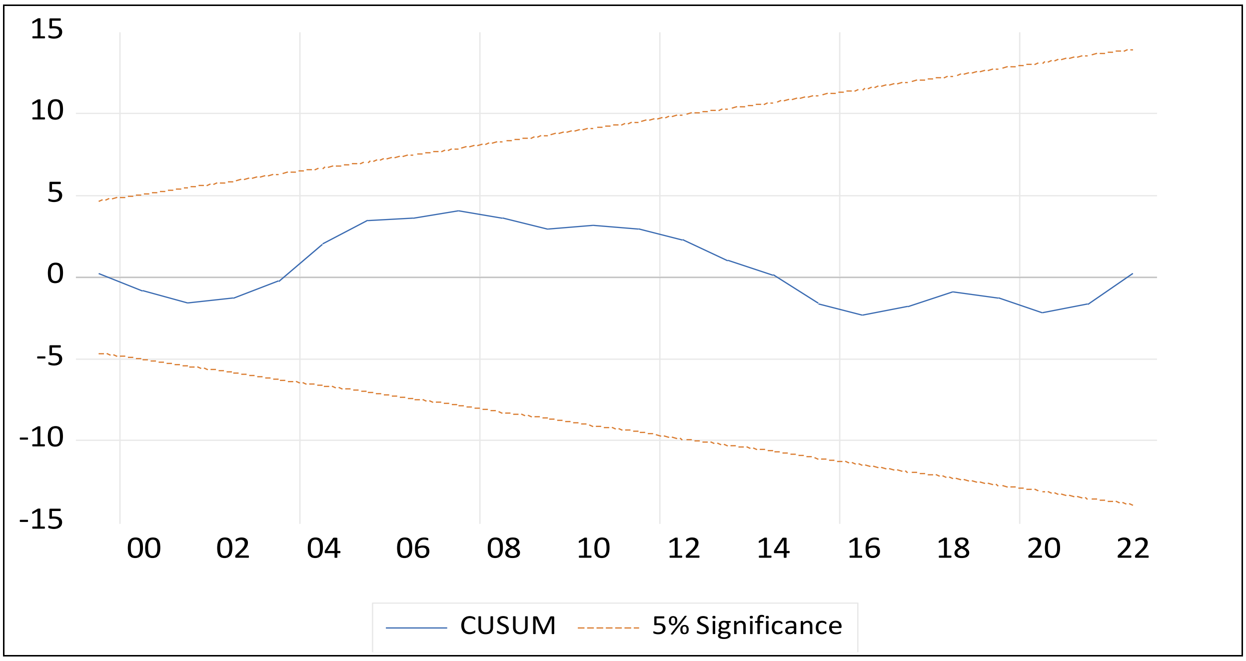
Results show that the test Obs R^2 turned out to be 3.4293 and it p-value turned out to be 0.1800. the p-value was above 0.05 and it can be said that there was no serial correlation in the residuals. The heteroscedasticity test are shown in Table 4.9.

Table 4.9: Heteroscedasticity

Test	Null hypothesis	Obs R^2	p-value	Conclusion
Breusch-Godfrey Test	Residuals are homoscedastic	7.7140	0.3585	No heteroscedasticity

The results showed that the Obs R^2 turned out to be 7.7140 and its p-value was 0.3585. The p-value was greater than 0.05 and this shows that the null hypothesis that residuals are homoscedastic cannot be rejected. In other words, the residuals were free from homoscedasticity. The stability tests are shown in Figure 5.1 test.

Figure 5.1: CUSUM test



The stability test results, CUSUM, are displayed in Figure 5.1. When testing for stability, CUSUM must statically remain inside the 5% critical bound, which is typically depicted by two straight lines. There was no indication that the CUSUMQ plots had crossed the 5% critical boundaries in the above figure 5.3. This demonstrates the stability of the model. The following displays the CUSUM of Squares test.

Figure 5.2: CUSUM of Squares

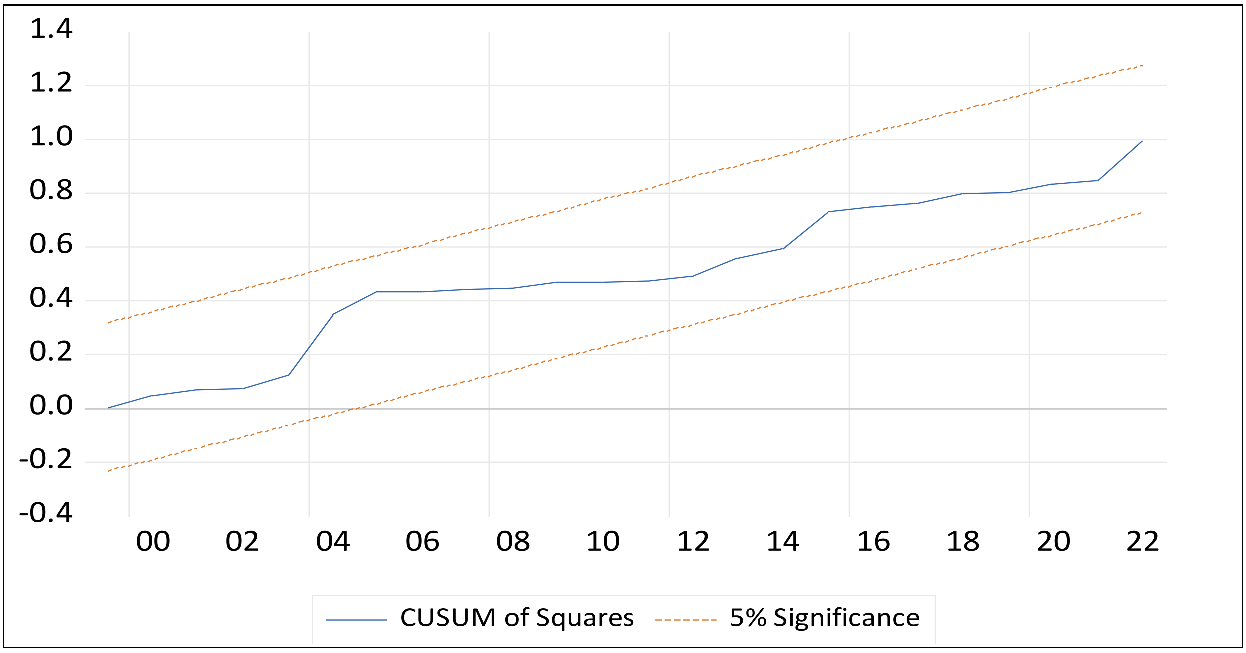


Figure 5.3 displays the results of the stability test: SUM of the Squares. When testing for stability, it is imperative that the CUSUM of Squares statically remain under the 5% critical bound, which is typically shown by two straight lines. Given that the blue line falls inside the red lines, the model was stable. Figure 5.3 shows the cointegrating Vector.

Figure 5.3: Cointegrating Vector

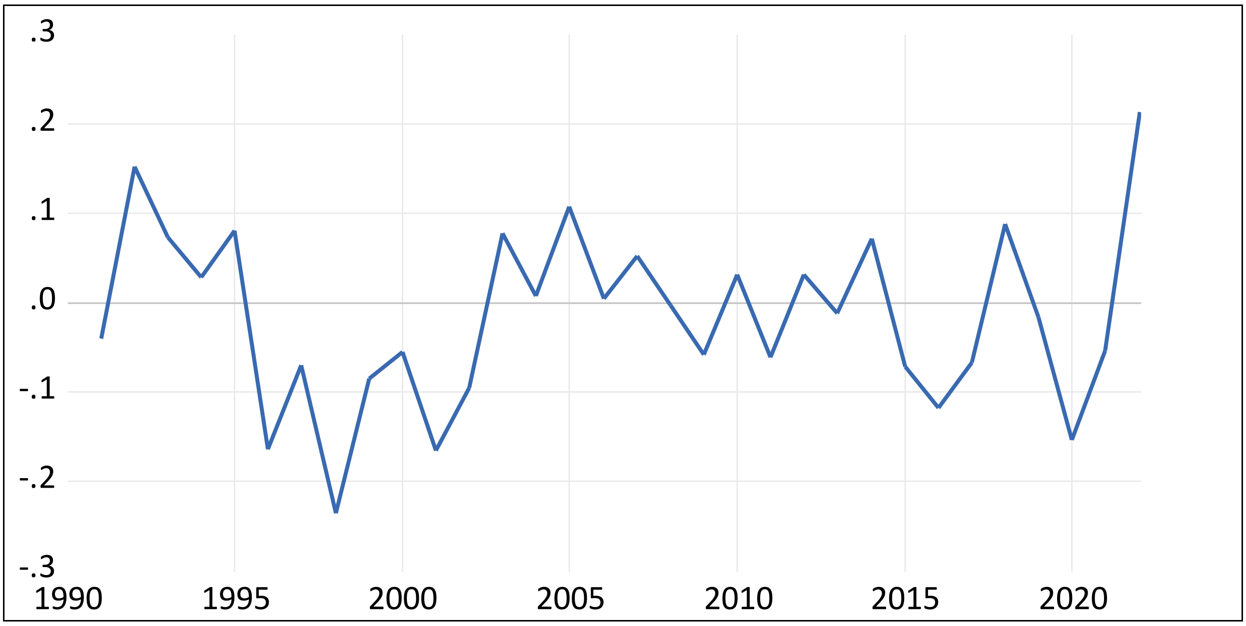


Figure 5.3 shows the cointegrating vector. The blue line is hovering around zero. This shows that it is stationary and the model is peferct. If the blue line was not hov zero then it was going to be a problem for the model. It was not going to be a stable model.

4.9 Conclusion

This chapter presented the study’s results. The chapter described how the study's goals were met and how the ARDL model was used to produce the findings and conclusions. The research findings demonstrated that GDP (economic growth) and CF (capital flows) have a negative connection. The relationship is marginal though and this suggests that capital flows, to a lesser extent, negatively affects GDP. The empirical results also revealed that there is a positive relationship between TOT (terms of trade) and GDP in South Africa. The results show that there is causality from CF (capital flows) to GDP (economic growth). However, there is no causality from GDP to CF.

CHAPTER FIVE

CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

The analysis in the preceding chapter mostly concentrated on utilizing a number of methodologies to estimate the causal relationship between financial capital flows and economic growth in South Africa. This chapter continues by drawing conclusions from the research findings as they were reported in Chapter Five, offering suggestions for the future and outlining the study's ramifications.

5.2 Summary of the study

In order to supplement indigenous savings that are required for investment, developing nations heavily rely on foreign capital inflows. For many developing countries, there are substantial potential benefits to using a global financial capital pool (Segura-Ubiergo, 2020; Hlaing & Kakinaka, 2023). Inadequate capital per worker limits the economic output of developing nations. Foreign resource inflows or current account deficits can be used to increase domestic saving and attain higher growth and capital accumulation rates. Access to international capital markets provides the tools to finance those resource flows. Zhou et al. (2021) argue that certain foreign capital inflows, especially foreign direct investment, enhance the transfer of skills and knowledge.

A nation's capital flows might also be driven by or drawn to certain causes. 'Push' and 'pull' variables are what drive these movements; the former are related to financial circumstances and global risk appetite, while the latter are related to the macroeconomic conditions at home (Kaltenbrunner & Painceira, 2022). The worldwide financial and economic conditions that impact the entrance of money into the recipient country are referred to as push factors. The macroeconomic features of the home economy are referred to as pull forces. According to Bitar et al. (2018), these are the variables over which domestic policymakers have control to affect the flow of capital into the economy. The growth of the home economy is one of these causes. Additionally, it has been stated that some pull forces, like economic expansion, have the power to draw capital flows. GDP expansion.

Huge capital inflows can benefit emerging nations economically, but if they are not handled carefully, they can also lead to excessive economic growth, more currency rate volatility, and finally significant outflows (Nogueira, 2018). Capital inflows have the potential to cause an overabundance of aggregate demand expansion or macroeconomic overheating. Inflationary pressures, real currency rate appreciation, and growing current account deficits are probably indicators of this expansion. Economists have been discussing the changing nature of international capital flows since the financial crises of the 1990s, but recently they have been concentrating more on the negative effects of unregulated capital flows on developing countries.

There haven't been many studies on this topic. Goel and Miyajima (2021), Cerutti et al (2019), Dahlhaus and Vasishtha (2020), Makrelov, Eller et al (2020), and Davies and Harris (2021) are a few of the research that have been conducted. These investigations did, however, have certain shortcomings. The trials had a lengthy study time, to start. A longer study period is required for the South African scenario in order to take the 1994 shift into consideration. International capital flows have an indirect effect on national production through total saving and a direct impact on the size of domestic investments. The discussion that came in this study showed that capital flows and economic growth are correlated in both directions. Growth can be influenced by capital flows, but capital flows can also be influenced by economic growth. Little research has been done on this relationship in the context of South Africa, which emphasizes how crucial it is to look at the causal relationship between capital flows and economic growth in that country.

5.3 Findings of the study

The empirical results show that there is a negative relationship between CF (capital flows) and GDP (economic growth). The relationship is marginal though and this suggests that capital flows, to a lesser extent, negatively affects GDP. The empirical results also reveals that there is a positive relationship between TOT (terms of trade) and GDP in South Africa. The results show that there is causality from CF (capital flows) to GDP (economic growth). However, there is no causality from GDP to CF. this shows that the relationship runs one way that is from capital flows to economic growth. As for other variables, there is no causality from INF (inflation) to GDP. The relationship runs from GDP to inflation, implying that economic growth increases inflation. There is also no causality from INV (investment) to GDP. The relationship runs from GDP to investment. The same can also for Money supply and GDP. The relationship runs from GDP to money supply. In other words, GDP influences money supply.

5.4 Policy implications and recommendations

The study's findings have led to the following suggestions:

- There is need for the South African researve Bank to monitor and control financial capital flows. The results saw that there is a negative relationship. This may suggest that the interaction of growth and capital flows is not bringing positive outcomes. This may then means that the SARB should control how capital flows in and out of South Africa.

- There is need for government to come up with measures that can make capital flows contribute positevly to growth. One measure would be to prolong the duration with which capital flows stay in S.A. in periods of economic uncertainty, capital tend to flow out of South African and this hurts growth.

5.5 Areas of further research

The primary goal of the study was to investigate the association between capital flows and economic growth in South Africa using annual data. Comparing South Africa to other developing countries would be desirable. This comparative analysis could help determine whether South Africa's experience with capital flows aligns with or differs from trends observed in similar economies. It would also shed light on structural factors such as regulatory frameworks, political stability, or macroeconomic policies that influence how capital flows impact growth differently across nations.

5.6 Conclusion

The examination mostly focused on the estimating the causal connection between financial capital flows and economic growth in S.A. Developing nations can gain greatly economically from huge capital inflows, but if they are not handled carefully, they run the risk of overheating their economies, increasing currency rate volatility, and eventually leading to large outflows. The study found that capital flows are bringing negative effects. The empirical results show that the relationship between Capital flows and GDP is negative. The relationship is marginal though and this suggests that capital flows, to a lesser extent, negatively affects GDP. The empirical results also reveals that the relationship between Terms of Trade and GDP in positive.

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