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The effect of exchange rate and inflation on foreign direct investment and its relationship with economic growth in South Africa

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ABSTRACT

Foreign investors prefer to enter the South African market via portfolio flows. While other emerging markets are actively pursuing foreign direct investment (FDI) and taking advantage of its spillover effect, South Africa is losing out on the opportunity. South Africa is considered to be one of the most attractive investment destinations, with an abundance of natural resources, a sophisticated financial market and a relatively stable political environment. Why is South Africa trailing behind? And what are the economic factors that can influence FDI? And How can South Africa become more attractive?

Linear regression analysis was done on economic data, collected from 30 countries, to determine the relationship between FDI inflow, economic growth, exchange rate and inflation. Experts in the field of macroeconomics were interviewed to gain a better understanding of these relationships and apply them in a South African context.

This research found that FDI follows economic growth, but the reverse is inconclusive. Inflation has a negative impact, while the effect of exchange rate was debated. The reason for portfolio flows into South Africa was identified in the literature review, and it suggested that the success of South Africa created the preference toward portfolio flows.

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Masters of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

Jason Kiat

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1 PROBLEM DEFINITION

1.1 Introduction

Foreign direct investment (FDI) is a major component of capital flow for emerging markets. Its contribution towards economic growth is widely argued, but most researchers concur that the benefits out weigh its cost on the economy (Musila & Sigué, 2006).

McAleese (2004) states that "FDI embodies a package of potential growth-enhancing attributes, such as technology and access to international market." But the host country must satisfy certain preconditions in order to absorb and retain these benefits, and not all emerging markets possess such qualities (Borensztein, De Gregorio and Lee, 1997; Collier and Dollar, 2001; Seetanah and Khadaroo, 2007)

Monetary policy can shape the economic environment that is conducive in attracting FDI into host countries. However the characteristics of monetary policy presents the "impossible trinity" – a trilemma problem where trade-offs must be done in order to maintain economic stability. Two of these anchors are inflation autonomy and exchange rate variability. These trade-offs can impact on the host country's attractiveness on FDI inflow (Lahrèche-Révil and Bénassy-Quéré, 2002; Gelb, 2005; Umezaki, 2006).

1.2 Motivation for the Research

South Africa is heavily biased against FDI when compared to other emerging market during the last decade. South Africa's average FDI inflow between 1994-2002 is 1.5% of gross domestic product (GDP), the 16 emerging markets that were chosen in the study have an average of 2.6% of GDP while the world average is 2.7% (Ahmed, Arezki and Funke, 2006).

South Africa requires FDI to assist in alleviating some of its socio-economic problems, such as unemployment, high level of unskilled labour and finance capital deficits (Akinboade, Siebrits and Roussot, 2006). Volatile currency and climbing inflation do not improve the odds for South Africa to attract FDI.

The objective of this research is to have a better understanding of the relationship between FDI and growth, and the impact of the two monetary anchors on FDI by studying economic indicators from other countries. Using the literature review provides suggestions on the reason for foreign investor's preference on portfolio flow in South Africa, and policy implications on exchange rate and inflation for South Africa to attract FDI effectively.

1.3 The Research Problem

This research will examine two macroeconomic factors, namely currency exchange rate and inflation, that influences the level of FDI in emerging markets;

whether the current macroeconomic policies in South Africa are conducive to its FDI growth and suggest areas of improvement, if any, regarding to exchange rate and inflation policies.

While economic growth is one of the determinants responsible for higher FDI inflow (Accolley, 2003; Fedderke and Romm, 2006; Jenkins and Thomas, 2002; Nonnemberg and Cardoso de Mendonça, 2004), this research will use empirical data to examine whether higher FDI inflow can induce economic growth.

This research aims to test whether any relationship exists between FDI inflow into a country and the country's macroeconomic situation regarding its exchange rate and inflation rate. Data from other emerging markets will be used as comparison to establish these relationship.

This research is by no means proving the causality of FDI in its entirety nor economic growth being generated solely from FDI. FDI and economic growth are dependent on a wide variety of factors, covering economic factors to socio-political factors (Fedderke and Romm, 2006). FDI is very much dependent upon foreign investors' perception on the status of the targeted country. These perceptions are made up of partly, economic factors, as well as socio-economic factors such as unemployment and political stability, especially crime and HIV/AIDS infection, in a South African context.

This research serves to provide a better understanding in the role FDI plays in the growth of an emerging economy.

2 LITERATURE REVIEW

2.1 Introduction

A substantial amount of research has been done on foreign direct investment (FDI). This research focuses on the effect of exchange rates, inflation and the bidirectional influences between FDI and economic growth, especially in developing countries. This literature review draws from past studies and provides an explorative view of these relationships.

2.2 The Definition of Emerging Markets

There has been much debate as to the factors constituting an emerging market. There were nine countries that were included in the International Financial Corporation (IFC) in 1981 (Hoyer-Ellefsen, 2003), and as of 2007, the number of emerging markets has grown to include 33 countries.

Rahman and Bhattacharyya (2003, p. 363) suggest that there is no universally accepted definition for emerging markets, and it should be defined within the context of the discussion. In their case, they define emerging markets to have the following factors; “promise of substantial economic growth in the future”, “economy was opened in the recent past for FDI and trade liberalisation process would continue in the future” and it must have “institutional infrastructure”. Mody (2004) classifies emerging markets based on risks, commitment and flexibility of the country’s policies.

Hoyer-Ellefsen (2003, p. 2) indicates that Standard and Poor's (S&P)/IFC define emerging markets based on two criteria:

1. Low to middle income countries as defined by the World Bank
2. and low "investable" market capitalisation when compared to the country's GDP.

2.2.1 Characteristic of Emerging Markets

Hoyer-Ellefsen (2003) listed various common characteristics of an emerging market. They are;

- Market size
- Market openness
- Market efficiency
- Market transparency, or opacity
- Market liquidity.

Füss (2002) finds that emerging markets have a relatively unstable political regime, high sovereign debt and extremely volatile currency.

As of 2007, the S&P/IFC emerging market index have included 33 countries in their classification. They are determined by the income level, as specified by the World Bank, and the level of attractiveness for foreign investors (S&P, 2007).

2.2.2 Emerging vs. Frontier Market

Frontier markets, like emerging markets do not seem to have a universally agreed definition. However, frontier markets are recognised as the "new"

emerging markets (Quinn, 2008). In an interview with the Wall Street Journal, Michael Hartnett (2008), the chief economist of Merrill Lynch labels frontier markets as the “Emerging-emerging” markets.

It is understood that frontier markets are smaller emerging markets. Equity trading in these regions are relatively young and unsophisticated. These markets have poor institution, but are rich in commodities such as mineral and oil. These markets are among some of the strongest growth in the world, riding on the commodity boom (Quinn, 2008).

Numbers of financial service providers such as Merrill Lynch and MSCI Barra have launch indices that specifically classify frontier markets (Walley, Edwards and Purvis, 2008; MSCI Barra, 2008). S&P/IFC Frontier markets indices have identified twenty-four countries that can be described as frontier markets (S&P, 2008).

2.2.3 Country Classifications

The World Bank classifies countries according to their gross national income (GNI) per capita. As of 2008, there are 209 countries included in the classification. The countries under consideration must have a population greater than 30,000 people. They are classified into four categories:

1. High Income – GNI per capita exceed US$11,456
2. Upper Middle Income – from US$3,706 to US$11,455
3. Lower Middle Income – from US$936 to US$ 3,705
4. and Low Income countries with US$935 or less.

2.3 The Role of FDI and Economic Growth

The relationships between FDI and a country's economic growth are still a subject of great debate. It is akin to the "chicken and egg" question. Economic growth is largely measured by the level of productivity in the country. The rates at which the country can grow, based on the growth theory, depends on the way countries deploy their resources, such as their labour forces, stock of capital and technology. When countries are lacking of these resources within their borders, they must rely on foreign investors to bring in these resources in the form of foreign direct investment (Sawyer & Sprinkle, 2006; Lipsey & Chrystal, 2006).

Fedderke and Romm (2006) suggest that FDI has the potential to provide technologies, skills and capital that is not available to the host country domestically through the "spillover effect" (p. 740). But whether the host country has the abilities to absorb these effects to generate growth depends on the quality of its economic policies. One of the components that mark a good policy is its ability to create a stable business environment, as defined by the World Bank (Collier and Dollar, 2001).

Borensztein *et al.* (1997) finds that countries with a more sophisticated human capital allow a more efficient transfer of technologies and knowledge from FDI. Similarly, Moran, Graham and Blomström (2005) have compiled various studies, questioning whether FDI can improve the host country's economic growth. They have concluded that the effect of FDI on the host country's growth

depends much on the host country's economic openness. The more liberalised the economy, the more likely the positive benefits of FDI to be transfered to the host country. Likewise, the more restricted the economy, the more negative the impact of FDI on growth.

In a study of 39 Sub Saharan African countries, Seetanah and Khadaroo (2007) find that not only does FDI generate growth, though the contribution is small when compared to other growth factors, FDI also follows economic growth.

Though many studies seem to imply that FDI is congruent to growth via spill-over of resources, Nonnemberg and Cardoso de Mendonça (2004) however, find that strong GDP growth can induce FDI inflow but FDI does not necessarily induce economic growth. They use China as an example to demonstrate this point. China is one of the largest developing economies with some of the largest growth in the world, this in turn ensures that China is also one of the largest recipients of FDI. But there is little evident that says these FDI contribute toward China's growth.

In their econometric model, they use a lagged dependent variable to include the market response to the changes in the economy. They find that the lag response is significant regarding FDI and growth.

Carkovic and Levine (2002) find that FDI does not induce economic growth independently. FDI on growth is affected by microeconomic conditions of the country such as the host country's specific competitive advantage and its

business environment. They also suggest that past studies have ignored the lagged effect between these two variables, thus giving a distorted view.

In terms of spillover, Narula and Marin (2003) find that, although MNCs do employ more skilled labours and have higher spending on training in Argentina, the effective knowledge and technology transfer present little difference when compared to domestic firms of similar size. This is echoed in a study done on Estonia (Vahter, 2005).

Alfaro (2003, p. 13) finds that the impact of FDI on growth varies across sectors. The benefit depends on the "spillover potential" of the industry. Blalock and Gertler (2005) show that technology transfer is possible by FDI via a vertical supply chain in the manufacturing sector in Indonesia. This highlights that the benefits of FDI on growth cannot be generalised across different countries or across sectors. Each market has specific conditions that could enhance or hinder these benefits on the host country's economic growth.

2.3.1 Determinants of FDI

Despite the contradictory view on the relationship between FDI and growth, it is still highly recommended that emerging markets should actively pursue FDI (Odenthal and Zimmy, 1999; Jenkins and Thomas, 2002; Nwankwo, 2006). The potential benefits from the spillover of technologies and skills are partly responsible for this sentiment, but also the fact that FDI is a highly resilient form of capital flow for the host country increases the attractiveness of FDI. Investment of a foreign firm via FDI is less likely to repatriate funds during

financial crisis when compared to other forms of foreign financing such as portfolio investment (Kyereboah-Coleman and Agyire-Tettey, 2008).

Various studies have been done on determining factors that influence FDI inflow into a host country. Some are economic factors such as the target country's market size, income level, market growth rate, inflation rates and current account positions, while others are socio-economic determinants namely political stability and quality of infrastructure. (Thomas, Leape, Hanouch & Rumney, 2005; Wint & Williams, 2002)

The World Investment Prospects Survey 2007 – 2009 (2007, p. 10-12) suggests several reasons for firms to enter a particular market. They are classified into three categories:

1. Market-related factors
    - Size of local market
    - Growth of local market
    - Access to regional market
2. Resource-related factors
    - Access to skilled labour
    - Access to natural resources
    - Access to capital markets and financial services
3. Seeking efficiency
    - Labour efficiency
    - Cost efficiency

The Survey also suggests that the firm will consider the "overall quality of the business environment" and "competitive pressure" (p. 11-12) before considering the worthiness of the target market.

2.4 Exchange Rate and FDI

In the past, economists believed that there is no advantage to be gained by purchasing foreign capital and/or assets. As the economic system works in a long-term equilibrium, any firm purchasing foreign assets at a "bargain", in the hope of taking advantage of stronger currency in their home country against the targeted country, can be equalised by price adjustment of the assets in the long run (Froot and Stein, 1989). Froot and Stein (1989) argue that the economy is distorted by "informational imperfection" (p. 4), and opportunities are not equal across borders. There are merits in holding foreign assets. The difference in cultures, work ethics and way of life can have markedly different efficiency outcome.

Today, there exists a "common wisdom" regarding the relationship between FDI and exchange rate. When a country's currency devalues, it is viewed as an opportunity for foreign investors to purchase assets at a reduced cost. This is especially true when foreign firms have identified specific assets in their targeted markets (Blonigen, 1997).

Barrell and Pain (1996) find that investors tend to postpone their investment when the currency in the targeted market strengthens. This occurs when

investors are speculating the currency to depreciate in the future and thus maximise the profit of their investment at a later stage. Because of this reactionary nature of investors' behaviour, they have also noted that there is a significant time lag between exchange rate changes and FDI movement.

Ahn *et al*. (1998) note mixed sentiment toward increasing FDI competitiveness by devaluating currency. However, they find that empirical research generally shows a positive impact.

Erramilli and D'Souza (1995) find that exchange rate volatility is one of the contributors toward external uncertainty in an economy that have a major effect on FDI inflow. Campa (1993) notes that lack of information in a volatile environment would deter investment, and unlike portfolio flows, FDI offers investors very few instruments to hedge against such risk (Bénassy-Quéré, Fontagné and Lahrèche-Révil, 2001).

In a study in Ghana, Kyereboah-Coleman and Agyire-Tettey (2008) find that volatility in exchange rate has a significantly negative impact on FDI inflow and that inappropriate macroeconomic policy can result in overvaluing the currency; therefore, discouraging FDI. Similar to the findings from Barrell and Pain, they also note that the lag in FDI is highly significant.

However, high exchange rate volatility does not always imply a negative effect on FDI Inflow. Qin (2002) finds that if a low differential in purchasing power parity exists between trading countries, two-way FDI can occur. And FDI

would become an instrument for local producers to hedge their risk in a volatile exchange rate environment.

2.5 Inflation and FDI

A host country's economic instability can be a major deterrent to FDI inflow. As briefly discussed in previous sections, any form of instability introduce a form of uncertainty that distort investors' perception on the future profitability in the country (Erramilli and D'Souza, 1995).

Akinboade, Siebrits and Roussot (2006, p. 190-191) state that "low inflation is taken to be a sign of internal economic stability in the host country. High inflation indicates the inability of the government to balance its budget and the failure of the central bank to conduct appropriate monetary policy." In other words, inflation can be used as an indicator of the economic and political condition of the host country, but the differences between "high" inflation and "low" inflation is not distinct (Ahn, Adji and Willett, 1998).

A few literatures offer some distinctions on the level of inflation. Rogoff and Reinhart (2002) find that high inflation does not happened in the absence of other macroeconomic problems. The cost of inflation can have prominent effect on the economy's growth. This hindrance is more prominent at an inflation rate at 40% and higher, but they also note that a country with higher inflation rate, especially below the 40% level, is worse off than a country with slightly lower

inflation. The comparative figure they quoted was 10% compare to 5% (p. 30).

Lipsey and Chrystal (2006, p. 578) offer a definition for hyperinflation. They state it as “Inflation so rapid that money ceases to be useful as a medium of exchange and a store of value.” But they also concede that countries with inflation rate higher than 50%, to some 200% plus, have proven to be manageable as the population adjusts in “real term”.

These literature have highlighted that inflation destroys the value of currency. The impact on growth is negative, and in turn, a negative impact on FDI.

Glaister and Atanasova (1998) mention the effect of high inflation had on employment in Bulgaria. Although they did not draw direct inferences to the relationship between FDI and inflation, they seem to suggest that high inflation can cause various problems within the country to reduce its attractiveness to foreign investors.

Coskun (2001, p. 225) suggests that lower inflation and interest rate coupled with other factors such as “full membership with the EU” and high economic growth can attract foreign investors and increase the FDI inflow into Turkey.

Wint and Williams (2002) show that a stable economy attracts more FDI, thus a low inflation environment is desired in countries that promote FDI as a source of capital flow.

2.6 Policy Implications

There are typically three frameworks that a central bank can use to define their monetary policy. They are inflation, exchange rate and monetary aggregates (Ortiz and Sturzenegger, 2007).

Akinboade, Niedermeier and Siebrits (2001) find that when compared to the other two anchors, inflation targeting provides the most transparency and the most effective focus on reducing inflation.

De Wet (2003) identifies four factors that monitor the monetary policy when policy-makers adopt inflation targeting to control inflation. They are, credibility of the reserve bank, target expectation, reserve bank's independency and efficiency in policy implementation.

Levy-Yeyati and Sturzenegger (2003) show that there is a relationship between economic growth and the exchange rate regime. They find that having a fixed rate regime may hinder growth and instability in the country's output.

In order to achieve economic stability, Umezaki (2006, p. 2) finds that there are three vectors that characterise monetary policy,

1. The degree of autonomy in monetary policy
2. The degree of variability of exchange rate
3. The degree of mobility of capital

These form a trilemma model where only two of the three desirable options can be pursued (Lahrèche-Révil and Bénassy-Quéré, 2002).

Goldfajn and Olivares (2001) find that developing countries would allow a higher volatility of reserves and interest rate in exchange for a low volatility on their exchange rate in order to compete on FDI.

2.7 FDI in South Africa

In the mid 70s through to the mid 80s, FDI inflow into South Africa has seen a large decline. This was attributed largely to the international pressure on the Apartheid regime and the political uncertainty. As democracy slowly returned to South Africa in the early 90s, so did foreign investment, both in the form of direct investment and portfolio flows. The government introduced a series of liberalisation and economic reform to attract more direct investment into the country. South Africa had to liberalise their capital control to prepare for entry into the world stage in the post-sanction environment. In the trilemma framework, this left government to choose between exchange rate stability or independent monetary policy. South African government chose the latter (Gelb, 2005).

After the Asian financial crisis in 1997, South Africa abandoned exchange rate control ad formally adopted inflation targeting in 2000 (Du Plessis, Smit and Sturzenegger 2007; SARB, 2008), and SARB successfully limited inflation within their 4% – 6% targets (SARB, 2008).

Akinboade, Siebrits and Roussot (2006, p. 189-199) find that South Africa has rich natural resources, relatively low cost of doing business, good infrastructure compared to the rest of Africa, a relatively stable political regime and South Africa offers some of the highest return on investment, all of which are highly conducive to FDI inflow.

However, South Africa remains a relatively low recipient of FDI when compared to the rest of the emerging markets

The reason for the slow growth in FDI has to do with South African corporate history. Large corporations in South Africa were allowed to dominate their respective sector and expand into other sectors during the Apartheid era. As the economy opens, each of these corporations were the major players within their respective fields. It was difficult for foreign investors to invest into the country and compete with these big players (Lagace, 2006).

Furthermore, Lagace (2006) reported that South Africa has a sophisticated, very well developed financial market, developed in its early history from the demand of the mining industry. It is a less risky option for foreign investors to invest in the country through the capital market rather than purchasing assets. Portfolio inflow is preferred for its liquidities.

Following the currency crisis in 2001, some economists felt that South African Rand was overvalued by up to 50% this effectively promoted import while deter-

ring both export and FDI. However, SARB discarded this as an unavoidable volatility that is "beyond its control" (Gelb, 2005, p. 22).

2.8 Summary

The purpose of the literature review is to collect past research to gain insight into the relationships of economic growth, exchange rate and inflation to FDI inflow.

1. Strong economic growth in the host country attracts FDI, but the host country is required to have good infrastructure capacity, sophisticated human capital in order to take advantage of the spillover benefits.
2. Overvaluing currency can deter FDI as it is perceived to higher the cost of entry.
3. Inflation does not affect FDI directly, but it does have an influence on factors such as unemployment, labour wages and economic growth. These factors form important criteria in foreign investor's decision process of entering a market.
4. It is impossible to satisfy all three criteria in the trilemma problem in a sustainable manner. This will result in a trade-off decision in policy making process and that could severely deter FDI.

3 RESEARCH HYPOTHESES

The aim of the research is to observe the relationship between economic growth as measured by GDP growth, exchange rate and inflation with the change in FDI inflow into a particular country. The literature review thus far indicates that these factors are interdependent; therefore, the following hypotheses can be derived.

3.1 Hypothesis 1

Strong economic growth implies a higher return for foreign investors and investment increase (Nonnemberg and Cardoso de Mendonça, 2004). Gross domestic products (GDP) is a measure of the country's productivity thus a good representation of economic growth (Lipsey and Chrystal, 2006). It is hypothesised that the change in economic growth, as measured in GDP, will cause a change in FDI inflow,

$$H_1: \quad \Delta FDI_{t+i} = \lambda_1 \Delta GDP_t + \varepsilon_1 \qquad (1)$$

ε_1 denotes a correction factor. All other factors that can influence FDI inflow are assumed to be included in this correction factor. λ_1 denotes the slope and i denotes the time for the market to react to the changes.

Furthermore, it can be hypothesised that this is a positive relationship, i.e. λ is positive.

3.2 Hypothesis 2

As foreign currency devalues, investors see this as an opportunity to purchase assets at a cheaper price and thus maximising their profits (Barrell and Pain 1996; Blonigen, 1997). It is hypothesised that the change in exchange rate will cause a change in FDI inflow,

$$H_2: \quad \Delta FDI_{t+i} = \lambda_2 \Delta FOREX_t + \varepsilon_2 \qquad (2)$$

ε_2 denotes a correction factor. All other factors that can influence FDI inflow are assumed to be included in this correction factor. λ_2 denotes the slope and i denotes the time for the market to react to the changes.

Furthermore, as one currency devalued against another, the quoted exchange rate increases; therefore, it can be hypothesised that this is a positive relationship, i.e. λ is positive.

3.3 Hypothesis 3

High inflation is an indication of economic instability and it destroys the value of money (Lipsey and Chrystal, 2006). Value destruction implies a negative impact on economic growth and it can infer that the impact on FDI is negative. It is hypothesised that the change in inflation will cause a change in FDI inflow,

$$H_3: \quad \Delta FDI_{t+i} = \lambda_3 \Delta INFLAT_t + \varepsilon_3 \qquad (3)$$

ε_3 denotes a correction factor. All other factors that can influence FDI inflow are assumed to be included in this correction factor. λ_3 denotes the slope and i denotes the time for the market to react to the changes.

Furthermore, it can be hypothesised that this is a negative relationship, i.e. λ is negative.

3.4 Hypothesis 4

FDI is a form of foreign capital that has the ability to import capital stock, skills and technologies into the host country. These are the factors that are important for the growth of an economy (Fedderke and Romm, 2006). It is hypothesised that the change in FDI inflow, will cause a change in economic growth, as measured in GDP,

$$H_4: \quad \Delta FDI_{t+i} = \lambda_4 \Delta GDP_t + \varepsilon_4 \qquad (4)$$

ε_4 denotes a correction factor. All other factors that can influence GDP growth are assumed to be included in this correction factor. λ_4 denotes the slope and i denotes the time for the market to react to the changes.

Furthermore, it can be hypothesised that this is a positive relationship, i.e. λ is positive.

4 RESEARCH METHODOLOGY

4.1 Research Design

This research followed the economic trends of 30 chosen countries of various statuses, as specified by the World Bank and the Standard and Poor (S&P) / International Finance Corporation (IFC) Emerging and Frontier markets indices, from 1981 to 2007 to further define these relationships.

This research was done in two parts. The first part comprised of collecting and analysing data obtained from various databases and tested the relationships of the above mentioned variables using regression analysis. The second part involved expert interviews to validate the results and discussed the current South African economic environment regarding to FDI.

4.2 Part One: Data Analysis

The hypotheses were tested, by observing the economic trends of the chosen countries. The longitudinal study was chosen to cater for the changing nature of businesses and their environment over time (Zikmund, 2003).

Time-lags were anticipated within the data, caused by market response to policy adjustment. These lags experienced by the markets varied. It depended on the market openness, information availability and market uncertainties (Jenkin *et al*, 2002; Hoyer-Ellefsen, 2003; McAleese, 2004). Therefore, a cross-sectional analysis was not suitable for this research.

4.2.1 Population

The population for this research comprised of all the markets in the world. The sample was obtained from the IMF database, based on the availability of the required data. As of 2008, IMF features 180 countries of economic data within its database. City-states, such as Hong Kong and Taiwan, that belong to a larger sovereign nation, i.e. China, were not included in the population for this research. This reduced the countries available to 167 countries for the analysis. These countries were the population of relevance.

4.2.2 Sampling

A sample of 29 countries was selected from the chosen population, with South Africa as the thirtieth country. The criteria for the selection followed the World Bank's country classification (2008) and the S&P/IFC emerging and frontier market indices (2007). For the purpose of this research, the countries were categorised into three groups. They were Developed economy, Emerging economy and Frontier economy. Judgemental selection was applied with the World Bank Classification to form the following assumptions,

Assumption 1: All high income countries, as classified by the World Bank are developed countries.

Assumption 2: Frontier markets consist of only lower and lower middle income countries as classified by the World Bank.

These assumptions were important for the sample selection because there is no universally agreed characteristic for emerging markets and frontier markets (Rahman *et al*., 2003). Assumption 1 allowed the 34 emerging markets as identified by S&P/IFC indices to be reduced to 23 countries. And Assumption 2 reduced the 22 Frontier markets, as identified by S&P/IFC indices, to 10 countries. A list of 10 countries were randomly selected from the developed and emerging countries grouping, making the frontier market group self-selected since there were 10 left after accommodating the assumptions, to obtain a sample size of 30 countries. The list of chosen countries is presented in Annexure A.

This research focuses on observing correlations and economic trends, and requires having a large amount of economic data from 1981. The selection process was designed to ensure maximum data availability in the sample, thus reducing the probabilistic error from non-respond error (Albright, Winston and Zappe, 2006).

4.2.3 Unit of Analysis

Based on the stated hypotheses, there were four specific variables that were required for this research. They were the percentage changes in FDI inflow (∆FDI), the percentage changes in GDP growth (∆GDP), the percentage changes in exchange rate (∆FOREX) and the percentage changes in inflation (∆INFLAT).

The research compared the changes, rather than the actual level of the economic variables of these countries; therefore, the unit of analysis will be the country's changes of each variable, year on year. The dependent variable for hypothesis H_1, H_2 and H_3 was identified as ΔFDI, while ΔGDP, ΔFOREX and ΔINFLAT were the independent variables. For hypothesis H_4, the aim was to test whether a change in FDI can have a positive influence on GDP growth; therefore, ΔFDI was treated as the independent variable while ΔGDP as dependent.

These variables were not mutually exclusive since each one is intricately related to another. Hypothesis H_1 tests the relationship between ΔFDI and ΔGDP in a form of equation (1),

$$\Delta FDI_{t+i} = \lambda_1 (\Delta GDP_t) + \varepsilon_1 \quad (1)$$

This does not imply that ΔFOREX and ΔINFLAT have no influence on ΔGDP. But their effects and other economic effects that affect both ΔFDI and ΔGDP were assumed to be included in the correction factor, ε_1. Similarly, the same assumptions were applied to all the other hypotheses.

4.2.4 Data Collection

This research depended largely on secondary data obtained from the IMF Database. Additional data were obtained from the World Bank, the World Factbook as published by the Central Intelligent Agency (CIA), and various web-based economic monitors. These organisations provided reliable data from past studies that are freely available within the public domain.

Exchange rate data obtained was expressed relative to US Dollars, with USas the exception which US exchange rate was expressed relative to the British Pound. Some economies have adjusted their currency during the time horizon under reviewed. Measured was taken to ensure that consistency in the dataset was achieved across 27 years.

4.2.5 Missing Data

Even with a carefully designed selection process, it was not enough to ensure all relevant data are available from the IMF database. Other databases, such as the CIA World Factbook and from independent researchers, were consulted to fill in most of the missing data from 1981.

Collecting missing data presented some major challenges. Frontier markets included some of the relatively young and small markets in terms of international trade. Some countries' economic information wasnot available from 1981.

Countries that were part of the former Soviet Union do not have economic data pre-1993. This was due to the newly formed nation-states after the collapse of the communist regime (CIA, 2004)

Currency for members of the European Union (EU) were converted to Euros (€) in 1999. In order to obtain a more representative view of the country's own economy in terms of its exchange rate, a website established by the University of British Columbia was consulted (Antweiler, 2006).

Data were obtained to the best of the researcher's ability. A maximum of 27 observations and a minimum of 14 observations per country per variables were obtained. The expected numbers of observation were 3240 individual observations (30 countries, 4 variables per country for 27 years). Actual observations obtained were 3083. The difference was less than 5%. The missing data were treated as non-respond error. These numbers of observations were based on the percentage change of the economic indicators, year on year.

4.2.6 Data Manipulation

Data collected was the actual level experienced by the market, as quoted per annum. This research called for the percentage change of each variable, year on year. Manual calculations were done to convert from the actual data collected to the data required for the purpose of this research.

4.2.7 Data Analysis

Albright *et al.* (2006, p. 562) states that "regression analysis is a study of relationships between variables". This research is to determine the relationships as stated in the hypotheses. The hypotheses stated for this research followed a linear manner, thus any nonlinearity relationship that is inherent in the dataset was ignored. Nonlinearity and other factors that could affect the dependent variable, change of FDI at time t+i for H_1 to H_3 and change of GDP at time t+i for H_4, was assumed to be accounted for in the form of the correction factor, ε.

Barell and Pain (1996) and Tomlin (2000) and others have found that there are an inherent time-lag in the data when analysing economic data. This is caused by the time taken for the market to react to policy changes and the changes in the economy. This study has performed a first round linear regression to the obtained data, and found that most of the data do not produce any significant relationships between any of the variables.

Data was then lagged manually in accordance to the hypotheses, i.e. matching ΔFDI at year 3 to ΔGDP at year 1, in order to draw a better picture on these relationships. The analysis followed the method of lagging as described in Albright *et al.* (2006, p. 716 – 717).

The time-lag in the dataset was unknown; thus, a method of trial and error was used to obtain a correlation with the lowest p-value within a 5 year lag, in order to present the most significant correlation. This research does not attempt to draw a conclusion on a unique correlations and slopes between these variables, but to observe the direction, i.e. positive or negative, of the correlations and slopes. The difficulty in reaching a unique correlation lies in the fact that no economy is the same.

Some other statistical methods can be more efficient in dealing with lagged variables and causality testing such as the Granger Causality test (Ng, 2007; Zhang, 2007). This research aims to observe simple linear relationships in the collected data. Ordinary Least Square (OLS) method was adequate for the purpose of this research.

4.2.8 Outliers

For each linear regression, outliers were observed and removed from the data-set via visual observation. The analysis produced Normality Graph of the residual and Box Plots were used to identify these outliers. Some perceived outliers did not have a large impact on the outcome of the results and they were then retained as valid observations.

4.3 Part Two: Interviewing Experts

After the analyses were completed and trends were observed, interviews were scheduled with some of the experts in the field of macroeconomics. Judgemental sampling was used to determin potential candidates. 10 Invitations were sent to various financial institutions and academics, 6 returned with the desire to participate in the research. Unfortunately, 3 had to cancel due to the global financial crisis in October 2008. In the end, only 3 candidates were available to participate in this research.

Although there are only 3 participants, each of them have different knowledge and have a different stance with regards to South African economy. One is an experienced economist in the financial sector; another is an academic who owns a research institute focusing on FDI; And the last participant is an ex-economic lecturer turned entrepreneur. The researcher has obtained their permission to mention their assistance to this research, but not to the extent of providing direct quotes from them. The list of participants and their respective résumés are included in Annexure B.

Interviews were conducted in two parts, an informal discussion on the methodology and the findings of the analyses and semi-structured question and answer sessions bringing the findings more into the South African context. The semi-structured sessions followed a designed questionnaire with four questions regarding to FDI, economic growth, exchange rates and inflation in South Africa. A sample of the questionnaire is presented in Annexure C.

4.4 Research Limitations

When the research was conducted, various limitations of the research were noted,

1. There are many factors, such as technology, political stabilities, investor's perceptions and various other socio-economic factors, which can influence the flow of FDI and economic growth in the host country (Moran *et al*., 2005). This research focusing on economic factors, namely exchange rate and inflation, is by no means proving the causality of these factors on FDI and growth.
2. The time scale for this research is quoted annually. Therefore the minimum time that a lag could take place is 1 year. Any correlation between these variables that has a lag less than 1 year cannot be detected in this research.
3. Alfaro (2002) found that the benefit of FDI is sector dependent. This research analysed national data; thus any sector contribution were not detected.

4. Exchange rate and price inflation in an economy are not mutually exclusive. Along with capital mobility, they form the “Impossible Trinity” frameworks that require trade-offs for the stability of the economy (Lahrèche-Révil and Bénassy-Quéré, 2002). This research has ignored this relationship and examined each variable independently to observe the effect each have on FDI.

5 RESULTS

5.1 Introduction

The objective of this research is to test the relationship of exchange rate, inflation and economic growth to the FDI inflow into a specific country. A sample containing economic data of 30 countries across more than two decades was chosen to establish these relationships. Economic data were obtained from the database provided by the International Monetary Fund (IMF), United Nation Conference of Trade and Development (UNCTAD), The World Bank and the World Factbook, published by the Central Intelligence Agency (CIA).

These 30 countries were divided into three categories based on their respective level of development in accordance to the World Bank classification and S&P/IFC classification of emerging and frontier markets. Correlation analysis and Regression were done, using the Number Crunching Statistical Software (NCSS).

The summary results from these analyses are presented in this section. The more descriptive results of the analyses are presented in Annexure C.

5.2 Developed Countries

For the purpose of this research, Developed Countries are defined as countries that have a population of more than 30,000; with GNI per capita exceeding US$11,456 (The World Bank, 2008) and do not feature in both the S&P/IFC Emerging Market Indices (2007) and the Frontier Market Indices (2007).

5.2.1 Austria

Correlation and linear regression analysis was done on the economic data from Austria, from 1981 to 2007.

Table 1 – Results summary: Austria

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	-0.5488	12.8016	-0.3457	3
H_2	1.3971	18.8725	0.2066	3
H_3	-0.7108	16.9661	-0.3129	2
H_4	-0.2988**	14.1657	-0.4288	5

Notes: * significant at 5% level
** significant at 10% level

5.2.2 Denmark

Correlation and linear regression analysis was done on the economic data from Denmark, from 1981 to 2007.

Table 2 – Results summary: Denmark

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.6082*	-16.8945	0.4683	3
H_2	-3.4453	16.8783	-0.2342	2
H_3	-2.6956	12.565	-0.3487	5
H_4	-0.4163**	-25.7894	-0.3877	1

Notes: * significant at 5% level
** significant at 10% level

5.2.3 Finland

Correlation and linear regression analysis was done on the economic data from Finland, from 1981 to 2007.

Table 3 – Results summary: Finland

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	1.0957*	51.2403	0.4323	1
H_2	7.6257*	15.5461	0.6351	5
H_3	-0.5261	5.806	-0.3058	2
H_4	0.1012	2.0801	0.2694	1

Notes: * significant at 5% level

** significant at 10% level

5.2.4 France

Correlation and linear regression analysis was done on the economic data from France, from 1981 to 2007.

Table 4 – Results summary: France

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2537*	18.577	0.4294	1
H_2	-1.0946	25.3798	-0.3034	1
H_3	-0.6235**	12.2947	-0.3603	1
H_4	-0.4912	14.9656	-0.2458	1

Notes: * significant at 5% level

** significant at 10% level

5.2.5 Japan

Correlation and linear regression analysis was done on the economic data from Japan, from 1981 to 2007.

Table 5 – Results summary: Japan

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.9016	43.6913	0.3698	3
H_2	4.3735	4.8982	0.1728	3
H_3	-0.3248	9.2796	-0.1397	3
H_4	0.036	0.2626	0.1157	1

Notes: * significant at 5% level

** significant at 10% level

5.2.6 Netherlands

Correlation and linear regression analysis was done on the economic data from Netherlands, from 1981 to 2007.

Table 6 – Results summary: Netherlands

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.5247*	17.3688	0.7267	4
H_2	2.846**	24.0422	0.4011	1
H_3	-0.224	3.9069	-0.2398	1
H_4	-0.7144	38.5499	-0.2596	2

Notes: * significant at 5% level

** significant at 10% level

5.2.7 Spain

Correlation and linear regression analysis was done on the economic data from Spain, from 1981 to 2007.

Table 7 – Results summary: Spain

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.4579*	11.4539	0.5332	1
H_2	1.6955*	2.6484	0.6789	5
H_3	-0.5464	11.1787	-0.3462	3
H_4	-0.5996*	16.2576	-0.5195	2

Notes: * significant at 5% level

** significant at 10% level

5.2.8 Switzerland

Correlation and linear regression analysis was done on the economic data from Switzerland, from 1981 to 2007.

Table 8 – Results summary: Switerzland

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.1542	15.4763	0.2693	1
H_2	3.0343**	2.6737	0.3855	3
H_3	-0.4768	0.2528	-0.3205	1
H_4	0.4273	-5.2625	0.2896	1

Notes: * significant at 5% level

** significant at 10% level

5.2.9 United Kingdom

Correlation and linear regression analysis was done on the economic data from United Kingdom, from 1981 to 2007.

Table 9 – Results summary: United Kingdom

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.3112	14.8085	0.2945	2
H_2	-3.4	15.0869	-0.5211	1
H_3	-0.1782	8.8977	-0.0985	1
H_4	-0.3057**	-2.7838	-0.3834	3

Notes: * significant at 5% level

** significant at 10% level

5.2.10 United States of America

Correlation and linear regression analysis was done on the economic data from the United States of America, from 1981 to 2007.

Table 10 – Results summary: United States of America

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.1892	16.1256	0.2241	1
H_2	1.3953	23.0336	0.1924	1
H_3	-0.7913**	22.4263	-0.3853	2
H_4	-0.2318	4.512	-0.3006	2

Notes: * significant at 5% level

** significant at 10% level

5.3 Emerging Markets

For the purpose of this research, Emerging Markets are defined as countries that have a population of more than 30,000; with GNI per capita less than US$11,455 (The World Bank, 2008) and only feature in the S&P/IFC Emerging Market Indices (2007).

5.3.1 Argentina

Correlation and linear regression analysis was done on the economic data from Argentina, from 1981 to 2007.

Table 11 – Results summary: Argentina

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2345*	32.5644	0.5606	2
H_2	0.1354**	-5.5706	0.4535	2
H_3	-0.1613	-3.3223	-0.3603	3
H_4	0.4789	-82.1173	0.2792	3

Notes: * significant at 5% level
** significant at 10% level

5.3.2 Brazil

Correlation and linear regression analysis was done on the economic data from Brazil, from 1981 to 2007.

Table 12 – Results summary: Brazil

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.0616**	21.9021	0.3617	3
H_2	0.0448*	3.2192	0.4826	1
H_3	-0.328**	28.8121	-0.3797	1
H_4	1.9443**	-17.606	0.3657	1

Notes: * significant at 5% level
** significant at 10% level

5.3.3 Chile

Correlation and linear regression analysis was done on the economic data from Chile, from 1981 to 2007.

Table 13 – Results summary: Chile

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2554*	29.0656	0.4208	1
H_2	0.581	19.0866	0.2279	3
H_3	-0.259**	24.8346	-0.345	1
H_4	-0.7047*	24.3117	-0.4752	3

Notes: * significant at 5% level

** significant at 10% level

5.3.4 China

Correlation and linear regression analysis was done on the economic data from China, from 1981 to 2007.

Table 14 – Results summary: China

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.8516*	22.1805	0.775	1
H_2	1.2891**	17.5687	0.3519	2
H_3	-0.0593	27.3693	-0.1636	2
H_4	0.1992*	-4.8978	0.5454	1

Notes: * significant at 5% level

** significant at 10% level

5.3.5 Egypt

Correlation and linear regression analysis was done on the economic data from Egypt, from 1981 to 2007.

Table 15 – Results summary: Egypt

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.4751	20.0334	0.256	2
H_2	3.0596**	-7.6197	0.4142	2
H_3	0.3922	12.2166	0.3144	2
H_4	-0.3209*	-2.838	-0.4733	3

Notes: * significant at 5% level

** significant at 10% level

5.3.6 India

Correlation and linear regression analysis was done on the economic data from India, from 1981 to 2007.

Table 16 – Results summary: India

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	1.1254*	20.9513	0.5298	1
H_2	4.6093	36.0277	0.2967	1
H_3	0.6853	43.9881	0.2932	1
H_4	0.2495*	6.2256	0.5298	1

Notes: * significant at 5% level

** significant at 10% level

5.3.7 Nigeria

Correlation and linear regression analysis was done on the economic data from Nigeria, from 1981 to 2007.

Table 17 – Results summary: Nigeria

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2116*	19.1485	0.6533	4
H_2	-0.7812**	42.1011	-0.4006	3
H_3	-0.2281**	29.95	-0.3977	3
H_4	1.1692	-16.9621	0.3424	4

Notes: * significant at 5% level

** significant at 10% level

5.3.8 Russia

Correlation and linear regression analysis was done on the economic data from Russia, from 1981 to 2007.

Table 18 – Results summary: Russia

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.5192*	72.3152	0.5807	1
H_2	-0.4577	56.7946	-0.4011	1
H_3	-0.1383	42.5481	-0.1889	1
H_4	-0.5214	-9.7191	-0.3984	2

Notes: * significant at 5% level

** significant at 10% level

5.3.9 South Africa

Correlation and linear regression analysis was done on the economic data from South Africa, from 1981 to 2007.

Table 19 – Results summary: South Africa

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.6123	71.8808	0.3455	1
H_2	-2.7475	100.1032	-0.1549	1
H_3	-2.1364	79.3946	-0.2995	1
H_4	-0.1714**	28.0729	-0.3464	2

Notes: * significant at 5% level

** significant at 10% level

5.3.10 Sri Lanka

Correlation and linear regression analysis was done on the economic data from Sri Lanka, from 1981 to 2007.

Table 20 – Results summary: Sri Lanka

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.3206	16.6597	0.3193	2
H_2	-4.9768	65.6457	-0.2903	2
H_3	-0.3077	24.7822	-0.3028	5
H_4	0.3367*	-1.9567	0.4193	3

Notes: * significant at 5% level

** significant at 10% level

5.4 Frontier Markets

For the purpose of this research, Frontier Markets are defined as countries that have a population of more than 30,000; with GNI per capita less than US$3,705 (The World Bank, 2008) and only feature in the Frontier Market Indices (2007).

5.4.1 Angola

Correlation and linear regression analysis was done on the economic data from Angola, from 1981 to 2007.

Table 21 – Results summary: Angola

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2981	12.9857	0.4191	5
H_2	0.036**	-7.9263	0.509	3
H_3	-0.2912	43.7747	-0.3553	1
H_4	0.1369	-15.2777	0.216	2

Notes: * significant at 5% level
** significant at 10% level

5.4.2 Bangladesh

Correlation and linear regression analysis was done on the economic data from Bangladesh, from 1981 to 2007.

Table 22 – Results summary: Bangladesh

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	-1.616*	-12.6941	-0.422	3
H_2	-12.086*	53.1524	-0.5475	3
H_3	0.5517*	-24.4668	0.5639	3
H_4	0.0402	-0.9889	0.2349	2

Notes: * significant at 5% level
** significant at 10% level

5.4.3 Côte d'Ivoire

Correlation and linear regression analysis was done on the economic data from Côte d'Ivoire, from 1981 to 2007.

Table 23 – Results summary: Côte d'Ivoire

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.144**	10.0001	0.4157	1
H_2	1.7438**	-5.9016	0.4648	4
H_3	0.2463*	-2.3939	0.5868	4
H_4	-1.4952*	-62.4895	-0.8815	5

Notes: * significant at 5% level

** significant at 10% level

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5.4.4 Ecuador

Correlation and linear regression analysis was done on the economic data from Ecuador, from 1981 to 2007.

Table 24 – Results summary: Ecuador

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	-0.036	14.238	-0.1971	2
H_2	N/A	N/A	N/A	N/A
H_3	-0.2517*	14.9379	-0.4947	2
H_4	1.037**	-9.8171	0.4588	3

Notes: * significant at 5% level

** significant at 10% level

5.4.5 Ghana

Correlation and linear regression analysis was done on the economic data from Ghana, from 1981 to 2007.

Table 25 – Results summary: Ghana

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.5062**	-15.7575	0.5157	1
H_2	0.4053**	-29.6346	0.4574	5
H_3	0.1806**	-20.4456	0.4292	1
H_4	0.4048	12.4838	0.3506	1

Notes: * significant at 5% level

** significant at 10% level

5.4.6 Kenya

Correlation and linear regression analysis was done on the economic data from Kenya, from 1981 to 2007.

Table 26 – Results summary: Kenya

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2937**	-35.5806	0.4829	1
H_2	1.2726	-47.7203	0.2472	1
H_3	-0.2425	-44.6279	-0.3143	4
H_4	0.3926*	-18.8207	0.658	1

Notes: * significant at 5% level

** significant at 10% level

5.4.7 Namibia

Correlation and linear regression analysis was done on the economic data from Namibia, from 1981 to 2007.

Table 27 – Results summary: Namibia

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.3036**	7.659	0.4595	5
H_2	-1.4093*	4.6237	-0.5241	1
H_3	-0.5772	-7.8342	-0.374	1
H_4	0.3806	-4.3966	0.2991	1

Notes: * significant at 5% level

** significant at 10% level

5.4.8 Tunisia

Correlation and linear regression analysis was done on the economic data from Tunisia, from 1981 to 2007.

Table 28 – Results summary: Tunisia

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.1731**	-5.0904	0.451	2
H_2	-1.7215	13.0452	-0.368	3
H_3	-0.3644	-7.2592	-0.3482	1
H_4	0.4642*	-2.6289	0.5603	1

Notes: * significant at 5% level

** significant at 10% level

5.4.9 Ukraine

Correlation and linear regression analysis was done on the economic data from Ukraine, from 1981 to 2007.

Table 29: Results summary: Ukraine

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	0.2371	24.6424	0.4284	1
H_2	0.142*	3.6495	0.7285	1
H_3	-0.1946	22.053	-0.2754	1
H_4	-0.5413	-12.2459	-0.3711	1

Notes: * significant at 5% level

** significant at 10% level

5.4.10 Vietnam

Correlation and linear regression analysis was done on the economic data from Vietnam, from 1981 to 2007.

Table 30 – Results summary: Vietnam

	Slope (λ)	Y-Int (ε)	Cor	Lags (i)
H_1	1.1745*	15.5954	0.6848	2
H_2	-1.5185*	15.3967	-0.8448	4
H_3	-0.1018	-1.3603	-0.3427	3
H_4	0.1136**	-5.2841	0.4424	1

Notes: * significant at 5% level

** significant at 10% level

5.5 Interview Results

The three participants were interviewed for this research. The methodology and findings were discussed and their opinions on the prospect of FDI regarding to South Africa was

5.5.1 Methodology and Findings

This section is done in an informal conversation. Methodology of the research and findings were discussed.

All participants are concerned with the choice of using real GDP growth as a factor to show the effect of FDI. Their concern was that the benefits of FDI can be positive to certain sectors while having a negative impact on others. They share the same view that using GDP per capita may provide a better understanding to the benefit of FDI in the host country.

Some of them feel that the minimum one-year lagged variable is too long, especially with exchange rate as it is quoted daily. Much information cannot be revealed as many changes can, and will happen in one year that an annual rate would not be sensitive to these changes. They feel that monthly or quarterly figures would be more appropriate for this research. This is also the reason for their disagreement with the findings on exchange rate.

They have also voiced more concerns with the findings regarding to exchange rate. They have noted that the effect of financial crises experienced by

some of these economies in the past 27 years is not reflected in the research. They then stated that financial crises are a period where the economic environment is drastically altered and these instances should not be generalised into the research.

5.5.2 FDI and South Africa

This portion of the interview was done with the aid of a questionnaire, filled in by the researcher during the interview. Four questions were asked regarding to South African environment on FDI.

1. The participants feel that it is a pity that foreign investors prefer to invest in portfolio rather than direct investment as South Africa could benefit from skills imported by some of these MNCs, and competition to stimulate the economy.

   They cited some of the reasons as to why this phenomenon has occurred. They unanimously agreed that crime is the primary factor. With today's technology, portfolio investment can be managed without the investor's physical presence in the country. FDI, however, poses a personal security risk.

   One of the participants feels that South African inefficiency at government level and firm level made FDI difficult to implement, while another

suggests that most of the major sectors in South Africa are occupied by "big players". If MNCs would like to compete in these sectors, they must have deep pockets in order to "put up a good fight".

2. The responses to Question 2 and 3 are summarised in this section since there are overlaps in their answers. These two questions stimulated some of the most diverse responses from all three participants. For the ease of summarising their responses, each participant is designated with number 1, 2 and 3.

   Participant 1 feels that South African Reserve Bank has done some good work with regards to inflation targeting, however, he does feel that the adjustment to interest rate is not speedy enough. He believes that if inflation targeting were not adopted in 2000, the economy condition in South Africa would have been far worse.

   He also feels that it is desirable to have less volatile currency, however, it is currently beyond the control of the reserve bank. Stabilising the currency requires large foreign reserve and South Africa is running on current account deficit and it is depleting the already small reserve that it has.

   Participant 2 feels that South Africans are overly concerned with inflation. The chronically low saving rate in South Africa calls for a greater concern. He notes that South Africa needs to have an open capital

account thus the reserve bank can only choose between inflation or currency stability. He feels that currency was overvalued during the period between 2002 to 2006, and South Africa should have taken that opportunity to devalue the currency to promote trade with other countries, while allowing the market to adjust against inflation.

Participant 3 shares a similar point of view with participant 2 with regards to inflation. He feels that there are other factors that call for more immediate attention. Factors such as unemployment and labour efficiency can be more effective in attracting FDI. In terms of exchange rate, however, his opinion was that South Africa does not have a floating currency due to capital movement to outside the border by residents remains costly and inefficient. This creates opaqueness in currency regime for foreign investors.

3. In terms of the way forward with FDI in South Africa, all three participants concur that South Africa does need to increase its FDI flow into the country, and it depends on the government rather than monetary regime. One participant comments that the success of Asia in attracting FDI is their pragmatic approach to economy while South Africa is still arguing on political ideology. Opening the border to allow competition to become more intense and increase in fiscal activities can ensure the benefits of FDI are not repatriated.

6 DISCUSSION OF RESULTS

Hypothesis 1: A positive change in GDP Growth will result in a positive change in FDI inflow, i years later.

Table 31 – Hypothesis 1 Results

	$H_1 : \Delta FDI_{t+i} = \lambda_1 \Delta GDP_t + \varepsilon_1$			
	Slope (λ_1)	Y-Int (ε_1)	Correlation	Lag (i)
Developed Markets				
Austria	-0.5488	12.8016	-0.3457	3
Denmark	0.6082*	-16.8945	0.4683	3
Finland	1.0957*	51.2403	0.4323	1
France	0.2537*	18.577	0.4294	1
Japan	0.9016	43.6913	0.3698	3
Netherlands	0.5247*	17.3688	0.7267	4
Spain	0.4579*	11.4539	0.5332	1
Switzerland	0.1542	15.4763	0.2693	1
UK	0.3112	14.8085	0.2945	2
US	0.1892	16.1256	0.2241	1
Emerging Markets				
Argentina	0.2345*	32.5644	0.5606	2
Brazil	0.0616	21.9021	0.3617	3
Chile	0.2554*	29.0656	0.4208	1
China	0.8516*	22.1805	0.775	1
Egypt	0.4751	20.0334	0.256	2
India	-0.1249	11.175	-0.3085	2
Nigeria	0.2116*	19.1485	0.6533	4
Russia	0.5192*	72.3152	0.5807	1
South Africa	0.6123	71.8808	0.3455	1
Sri Lanka	0.3206	16.6597	0.3193	2
Frontier Markets				
Angola	0.2981	12.9857	0.4191	5
Bangladesh	-1.616*	-12.6941	-0.422	3
Côte d'Ivoire	0.144**	10.0001	0.4157	1
Ecuador	-0.036	14.238	-0.1971	2
Ghana	0.5062*	-15.7575	0.5157	1
Kenya	0.2937**	-35.5806	0.4829	1
Namibia	0.3036**	7.659	0.4595	5
Tunisia	0.1731**	-5.0904	0.451	2
Ukraine	0.2371	24.6424	0.4284	1
Vietnam	1.1745*	15.5954	0.6848	2

Notes: * significant at 5% level
** significant at 10% level

30 results were obtained from the linear regression analyses, 27 of which show a positive correlation. 13 of these relationships are significant at 5%. The average lag for all economy is 2.07 years.

For the developed markets, 9 of the 10 countries show a positive correlation, of which 5 counts are significant at 5%. The average lag for the developed markets is 2 years.

For the emerging markets, 9 of the 10 countries show a positive correlation, of which 5 counts are significant at 5%. The average lag for the developed markets is 1.9 years.

For the frontier markets, 8 of the 10 countries show a positive correlation, of which 2 counts are significant at 5%. The average lag for the developed markets is 2 years.

Table 32 – T-test Results: H_1

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	30	0.2948	0.5013	0.0915	0.1076	0.4820
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha=.05)**	**Power (Alpha=.01)**
λ_1<>0	3.2203	0.0032	Yes	Yes	0.87535	0.677029
λ_1<0	3.2203	0.9984	No	No	0.000001	0
λ_1>0	3.2203	0.0016	Yes	Yes	0.933057	0.771028

For testing the relationship between ΔFDI_{t+l} and ΔGDP_t, a null hypothesis is established as ΔFDI_{t+l} is independent of ΔGDP_t. T-test shows a p-value of 0.0032; thus the null hypothesis is rejected at both 5% and 10% level.

Furthermore, the p-value for the null hypothesis that this relationship is negative, i.e. $\lambda_1 < 0$ is 0.0016; thus this null hypothesis is rejected at both 5% and 10% level.

Individual t-test for each economy shows that frontier market is the only exception where there is not enough evidence to show that an increase in GDP can cause a positive increase in FDI inflow. These t-tests are presented in Annexure E.

The results of the analysis confirmed Nonnemberg and Cardoso de Mendonça (2004) and the IMF (2007) findings that economic growth is a major determinant and driver for FDI inflow. The average time lag shows that in the past 27 years, emerging markets ihave been favoured for investment. Investors respond quicker to emerging markets changes.

The experts felt that these findings were expected since strong economic growth is one of the first signs for investors to consider investing into these economies. However, South Africa's challenge is not on the economic growth, but rather other factors that have negative effect on both economic growth and the countries attractiveness. They unanimously agreed that crime in South Africa is the biggest concern for foreign investors and cited it as one of many reasons causing foreign investors to prefer portfolio flows.

Hypothesis 2: A positive change in Exchange Rate will result in a positive change in FDI inflow, i years later.

Table 33 – Hypothesis 2 Results

	$H_2 : \Delta FDI_{t+i} = \lambda_2 \Delta FOREX_t + \varepsilon_2$			
	Slope (λ_2)	Y-Int (ε_2)	Correlation	Lag (i)
Developed Markets				
Austria	1.3971	18.8725	0.2066	3
Denmark	-3.4453	16.8783	-0.2342	2
Finland	7.6257*	15.5461	0.6351	5
France	-1.0946	25.3798	-0.3034	1
Japan	4.3735	4.8982	0.1728	3
Netherlands	2.846**	24.0422	0.4011	1
Spain	1.6955*	2.6484	0.6789	5
Switzerland	3.0343**	2.6737	0.3855	3
UK	-3.4*	15.0869	-0.5211	1
US	1.3953	23.0336	0.1924	1
Emerging Markets				
Argentina	0.1354**	-5.5706	0.4535	2
Brazil	0.0448*	3.2192	0.4826	1
Chile	0.581	19.0866	0.2279	3
China	1.2891**	17.5687	0.3519	2
Egypt	3.0596**	-7.6197	0.4142	2
India	4.6093	36.0277	0.2967	1
Nigeria	-0.7812**	42.1011	-0.4006	3
Russia	-0.4577	56.7946	-0.4011	1
South Africa	-2.7475	100.1032	-0.1549	1
Sri Lanka	-4.9768	65.6457	-0.2903	2
Frontier Markets				
Angola	0.036**	-7.9263	0.509	3
Bangladesh	-12.086*	53.1524	-0.5475	3
Côte d'Ivoire	1.7438**	-5.9016	0.4648	4
Ecuador	N/A	N/A	N/A	N/A
Ghana	0.4053	-29.6346	0.4574	5
Kenya	1.2726	-47.7203	0.2472	1
Namibia	-1.4093*	4.6237	-0.5241	1
Tunisia	-1.7215	13.0452	-0.368	3
Ukraine	0.142	3.6495	0.7285	1
Vietnam	-1.5185*	15.3967	-0.8448	4

Notes: * significant at 5% level
** significant at 10% level

29 results were obtained from the linear regression analyses, 18 of which show a positive correlation. 8 of these relationships are significant at 5%. The average lag for all economy is 2.34 years.

For the developed markets, 7 of the 10 countries show a positive correlation, of which 3 counts are significant at 5%. The average lag for the developed markets is 2.5 years.

For the emerging markets, 6 of the 10 countries show a positive correlation, of which only 1 count is significant at 5%. The average lag for the developed markets is 1.8 years.

For the frontier markets, 5 of the 10 countries show a positive correlation, of which 4 counts are significant at 5%. The average lag for the developed markets is 2.7 years.

Table 34 – T-test Results: H_2

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_2)	29	0.0706	3.5344	0.6563	-1.2738	1.4150
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha=.05)**	**Power (Alpha=.01)**
λ_2<>0	0.1076	0.9151	No	No	0.0512	0.0104
λ_2<0	0.1076	0.5425	No	No	0.0401	0.0076
λ_2>0	0.1076	0.4575	No	No	0.0618	0.0131

For testing the relationship between ΔFDI_{t+l} and $\Delta FOREX_t$, a null hypothesis is established as ΔFDI_{t+l} is independent of $\Delta FOREX_t$. T-test shows a p-value of 0.9151; thus there is not enough evidence to reject the null hypothesis.

Furthermore, the p-value for the null hypothesis that this relationship is negative, i.e. $\lambda_2 < 0$ is 0.4575; thus this null hypothesis can not be rejected due to lack of evidence.

For this test, the alternative hypothesis states that when currency devalue, there will be a positive impact on FDI inflow. Individual t-test for each economy shows that none of the economies have enough evidence to accept this alternative hypothesis. Developed market is the only economy where the p-value is very close to 10%. These t-tests are presented in Annexure E.

The results of the analysis indicate that the influence of foreign exchange on FDI is murky at best. With p-value very close to 50% it shows that the data can neither confirm nor deny the relationship.

Two of the experts interviewed suggested that the result obtained from the analysis is cause by two factors.

1. The time lag considered for this research. Exchange rate is often quoted daily and it changes rapidly, evidently seen from financial crisis. By generalising the exchange rate into annual average rate in order to compare with annual average figure of FDI inflow, the research will inevitably lose most of the significant correlation. Quarterly data is more suitable for this kind of analysis.
2. Currency devaluation does not necessarily mean better returns for foreign investors. A controlled devaluation of currency signals a stable economy while currency weakening freely can be caused by a

multitude of reasons, such as capital leaving the country. In the latter instant, devaluation is “controlled” by market sentiments and speculation. This is a signal for crisis.

The experts’ opinions correspond to literature on the causality of financial crises. Financial crises are caused by a sudden movement of large amounts of capital away from its home country. Currency loses its value due to these capital flights and further deepen the crisis (Edwards, 2001; Doraisami, 2007). Financial crises also explains the irregularity in the data.

Data from the developed countries shows that it is able to accept the alternate hypothesis at 10% significance. Financial crises in the past have had less profound impact on developed countries when compared to lesser developed economies.

For this research, the time horizon was 27 years, within which numerous financial crises have occurred. In order to gain more insight into the relationship between FDI inflow and exchange rate, separate research should be done with the following corrections;

1. The time scale should shorten to at least quarterly measurement in order to isolate instances that can influence the behaviour of FDI and exchange rate.
2. The analysis should not include any year where financial crisis has occurred. During financial crisis the behaviour of the economy

is different from normal economic conditions and cannot be generalised into the analysis.

Hypothesis 3: A negative change in Inflation will result in a positive change in FDI inflow, i years later.

Table 35 – Hypothesis 3 Results

	$H_3 : \Delta FDI_{t+i} = \lambda_3 \Delta INFLAT_t + \varepsilon_3$			
	Slope (λ_3)	Y-Int (ε_3)	Correlation	Lag (i)
Developed Markets				
Austria	-0.7108	16.9661	-0.3129	2
Denmark	-2.6956	12.565	-0.3487	5
Finland	-0.5261	5.806	-0.3058	2
France	-0.6235**	12.2947	-0.3603	1
Japan	-0.3248	9.2796	-0.1397	3
Netherlands	-0.224	3.9069	-0.2398	1
Spain	-0.5464	11.1787	-0.3462	3
Switzerland	-0.4768	0.2528	-0.3205	1
UK	-0.1782	8.8977	-0.0985	1
US	-0.7913**	22.4263	-0.3853	2
Emerging Markets				
Argentina	-0.1613	-3.3223	-0.3603	3
Brazil	-0.328**	28.8121	-0.3797	1
Chile	-0.259**	24.8346	-0.345	1
China	-0.0593	27.3693	-0.1636	2
Egypt	0.3922	12.2166	0.3144	2
India	0.6853	43.9881	0.2932	1
Nigeria	-0.2281**	29.95	-0.3977	3
Russia	-0.1383	42.5481	-0.1889	1
South Africa	-2.1364	79.3946	-0.2995	1
Sri Lanka	-0.3077	24.7822	-0.3028	5
Frontier Markets				
Angola	-0.2912	43.7747	-0.3553	1
Bangladesh	0.5517*	-24.4668	0.5639	3
Côte d'Ivoire	0.2463*	-2.3939	0.5868	4
Ecuador	-0.2517*	14.9379	-0.4947	2
Ghana	0.1806**	-20.4456	0.4292	1
Kenya	-0.2425	-44.6279	-0.3143	4
Namibia	-0.5772	-7.8342	-0.374	1
Tunisia	-0.3644	-7.2592	-0.3482	1
Ukraine	-0.1946	22.053	-0.2754	1
Vietnam	-0.1018	-1.3603	-0.3427	3

Notes: * significant at 5% level
** significant at 10% level

30 results were obtained from the linear regression analyses, 25 of which show a negative correlation. 3 of these relationships are significant at 5%. The average lag for all economy is 2.03 years.

For the developed markets, all 10 countries show a negative correlation, of which 2 counts are significant at 10%. The average lag for the developed markets is 2.1 years.

For the emerging markets, 8 of the 10 countries show a negative correlation, of which 3 counts are significant at 10%. The average lag for the developed markets is 1.9 years.

For the frontier markets, 7 of the 10 countries show a negative correlation, of which 3 counts are significant at 5%. The average lag for the developed markets is 2.1 years.

Table 36 – T-test Results: H_3

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_3)	30	-0.3561	0.6604	0.1206	-0.6027	-0.1095
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha=.05)**	**Power (Alpha=.01)**
λ_3<>0	-2.9533	0.0062	Yes	Yes	0.8144	0.5825
λ_3<0	-2.9533	0.0031	Yes	Yes	0.8922	0.6873
λ_3>0	-2.9533	0.9969	No	No	0.0000	0.0000

For testing the relationship between ΔFDI_{t+l} and $\Delta INFLAT_t$, a null hypothesis is established as ΔFDI_{t+l} is independent of $\Delta INFLAT_t$. T-test shows a p-value of 0.0062; thus the null hypothesis is rejected at both 5% and 10% level.

Furthermore, the p-value for the null hypothesis that this relationship is positive, i.e. $\lambda_3 > 0$ is 0.0031; thus this null hypothesis is rejected at both 5% and 10% level.

Individual t-test for each economy shows that developed market is the only exception where there is enough evidence to show that a decrease in inflation can cause a positive increase in FDI inflow, while the evidence is not as clear in both emerging markets and frontier markets. This can be attributeD to the fact that less developed economies are relatively unstable and contribute to a higher volatility in inflation. These t-tests are presented in Annexure E.

There are few literatures that relate inflation directly with FDI. Inflation generally has more impact on its domestic environment and in turn, impacts on a foreign investor's decision to enter a particular market. Glaister and Atanasova (1998) noted the impact of inflation on unemployment in Bulgaria, and the unemployment will then have an effect on FDI. But generally, inflation has a negative impact on the country's economy (Rogoff and Reinhart, 2002), and a poor economy can result in a decrease in FDI (Nonnemberg and Cardoso de Mendonça, 2004). Therefore, an increase in inflation can cause an increase in FDI, and the data confirms this.

One of the experts considers the SARB as too focused on the regulating inflation while not paying any attention to foreign exchange market. As his view is that exchange rate have a bigger impact on FDI inflow than inflation. However,

the data shows that inflation have a more significant impact on FDI than exchange rate.

Hypothesis 4: A positive change in FDI inflow will result in a positive change in GDP Growth, i years later.

Table 37 – Hypothesis 4 Results

	$H_4 : \Delta GDP_{t+i} = \lambda_4 \Delta FDI_t + \varepsilon_4$			
	Slope (λ_4)	Y-Int (ε_4)	Correlation	Lag (i)
Developed Markets				
Austria	-0.2988**	14.1657	-0.4288	5
Denmark	-0.4163**	-25.7894	-0.3877	1
Finland	0.1012	2.0801	0.2694	1
France	-0.4912	14.9656	-0.2458	1
Japan	0.036	0.2626	0.1157	1
Netherlands	-0.7144	38.5499	-0.2596	2
Spain	-0.5996*	16.2576	-0.5195	2
Switzerland	0.4273	-5.2625	0.2896	1
UK	-0.3057**	-2.7838	-0.3834	3
US	-0.2318	4.512	-0.3006	2
Emerging Markets				
Argentina	0.4789	-82.1173	0.2792	3
Brazil	1.9443**	-17.606	0.3657	1
Chile	-0.7047*	24.3117	-0.4752	3
China	0.1992*	-4.8978	0.5454	1
Egypt	-0.3209*	-2.838	-0.4733	3
India	0.9623*	15.6367	0.5303	1
Nigeria	1.1692	-16.9621	0.3424	4
Russia	-0.5214	-9.7191	-0.3984	2
South Africa	-0.1714	28.0729	-0.3464	2
Sri Lanka	0.3367*	-1.9567	0.4193	3
Frontier Markets				
Angola	0.1369	-15.2777	0.216	2
Bangladesh	0.0402	-0.9889	0.2349	2
Côte d'Ivoire	-1.4952*	-62.4895	-0.8815	5
Ecuador	1.037**	-9.8171	0.4588	3
Ghana	0.4048	12.4838	0.3506	1
Kenya	0.3926*	-18.8207	0.658	1
Namibia	0.3806	-4.3966	0.2991	1
Tunisia	0.4642*	-2.6289	0.5603	1
Ukraine	-0.5413	-12.2459	-0.3711	1
Vietnam	0.1136**	-5.2841	0.4424	1

30 results were obtained from the linear regression analyses, 17 of which show a positive correlation. 5 of these relationships are significant at 5%. The average lag for all economy is 2 years.

For the developed markets, 3 of the 10 countries show a positive correlation, none of which are significant. The average lag for the developed markets is 1.9 years.

For the emerging markets, 6 of the 10 countries show a positive correlation, of which 3 counts are significant at 5%. The average lag for the developed markets is 2.3 years.

For the frontier markets, 8 of the 10 countries show a positive correlation, of which 2 counts are significant at 5%. The average lag for the developed markets is 1.8 years.

Table 38 – T-test Results: H_4

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_4)	30	0.0604	0.6766	0.1235	-0.1922	0.3131
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha=.05)**	**Power (Alpha=.01)**
λ_4<>0	0.4890	0.6285	No	No	0.0760	0.0185
λ_4<0	0.4890	0.6857	No	No	0.0169	0.0026
λ_4>0	0.4890	0.3143	No	No	0.1216	0.0315

For testing the relationship between ΔGDP_{t+l} and ΔFDI_t, a null hypothesis is established as ΔGDP_{t+l} is independent of ΔFDI_t. T-test shows a p-value of 0.6285; thus there is not enough evidence to reject the null hypothesis.

Furthermore, the p-value for the null hypothesis that this relationship is negative, i.e. $\lambda_4 < 0$ is 0.3143; thus this null hypothesis can not be rejected due to lack of evidence.

For this test, the alternative hypothesis states that FDI inflow is conducive to GDP Growth. Individual t-test for each economy shows that none of the economies have enough evidence to accept this alternative hypothesis. Developed countries however show the opposite, higher FDI inflow have a negative impact on growth. The p-value for this hypothesis is accepted at 0.0025. These t-tests are presented in Annexure E.

The results of the analysis indicate that the impact of FDI on economic growth is mixed and it is reflected in the literature review. This is attributed to the ability of the host country to draw and retain the benefits of FDI (Collier and Dollar, 2001).

The benefit of FDI is also sector dependent. The manufacturing sector has a better ability to absorb skills and technologies when compared to some other industries (Alfaro, 2003; Blalock and Gertler, 2005). The inconclusive finding may be offset by countries with more sectors that is unable to absorb and convert the spillover of FDI into economic growth.

The experts felt that FDI can be effective in contributing towards economic growth, but will require adequate infrastructures to transfer these benefits. It is surprising to find that FDI into developed countries promote value destruc-

tion rather then value creation. The experts offers the following explanation;

It is speculated that developed countries have highly saturated markets. Additional competition from foreign investors in the form of FDI only serve to further crowding the market. Saturated markets reduce the profitability of the investment and as such, foreign investors would repatriate their investment after the realisation and thus destroying values.

An interesting observation from the analysis is the lag in emerging markets. Emerging markets have consistently have a lower lag than other economy while when measuring the lag from FDI converting into economic growth, emerging markets have the highest lag. Therefore a conclusion can be made from the analysis that,

1. Emerging markets are favoured by foreign investors as prime investment location. The economic indicators are observed closely by these investors and quick responds can happens.
2. However, it takes longer for emerging markets to convert FDI benefits into economic growth. This observation highlights that the need of good infrastructures to absorb the benefits of FDI.

7 CONCLUDING REMARK

Foreign direct investment is an important component of capital financing for an emerging economy. It is a resilient form of capital flow and carries spillover benefits that are conducive to growth. Unlike most emerging economies, however, that South Africa has little success in attracting FDI. This research aims to explore the relationship of FDI to growth, exchange rate and inflation. Using the literature and the findings to suggest the policy implication regarding exchange rate and inflation for attracting FDI and offers an explanation on the preference on portfolio flow.

7.1 Findings and Recommendation

1. The data shows that FDI follows economic growth. This relationship is found to be significant.
2. The relationship between FDI and exchange rate were found to be inconclusive. Expert interviews suggest that research methodology should be refined and the result may prove that a devaluation of currency can induce FDI inflow.
3. The data finds that high inflation has a negative impact on FDI inflow. The relationship is more significant in developed economies than those in the lesser developed economies, but this can be attributed to more volatile economic environment.
4. The data finds the effect of FDI on economic growth to be inconclusive.

Expert interviews and literature suggest that this effect is industry-dependence, and it is distorted by the ability of the economy to absorb the benefits of FDI.

5. South Africa's monetary policy has maintained an open capital account; thus the reserve bank only has two choices in this trilemma problem. Experts' opinions are mixed with regards to this issue. Based on the data analysis, inflation seems to have more impact on FDI than exchange rate; thus maintaining inflation stability could ensure economic stability and in turn, stimulate FDI.
6. The literatures also suggest a wide variety of factors that can influence FDI. Given the current situation of the foreign reserve and current account deficits, experts' opinions suggest that promoting export and strengthening foreign reserve can provide leverage on exchange rate stability. Experts also suggest that improving government efficiency, lowering trade barriers and increasing attention on fiscal activity can ensure economic growth and increase the attractiveness of South Africa for foreign investors.
7. The literature review and the expert interviews show the reason that portfolio flow is preferred was because of South African success in the financial market and a legacy of monopoly. A sophisticated financial market allows an easy access into South Africa with relatively low risk. Many major sectors in South Africa are dominated by monopolies or oligopolies. MNCs are required to be massive in size before they can tackle the competitive environment in these sectors. Lastly, Crime is cited as a great concern for foreign investors entering into South Africa.

7.2 Future Research Opportunities

This research has identified a number of improvements in terms of the methodology and limitations that can provide future research opportunities.

1. This research focuses on monetary policy parameters with regards to FDI. There is a wide array of socio-economic and political factors that have major influence on the country's attractiveness to foreign investors. A better understanding of these factors can allow policy makers to market South Africa as a prime investment destination more effectively.
2. The effect of time lagged variables was considered in this research but underplayed the importance of how market reacts to economic changes. A study on South African market responsiveness on changes can improve South Africa's attractiveness as market responsiveness is one of the determinants for FDI. This was briefly mentioned in the literature review.
3. The spillover effect is sector dependent. Investigation on which sector is most efficient in capturing the spillover effect in South Africa. This could help the South African government to promote that particular sector to absorb the benefit from FDI.
4. The analysis of exchange rate and FDI in this research suffered from data availability. Examining the relationship with a shorter time lag may yield a more representative results.

7.3 Final Comments

The researcher undertook this research to better understand the economic drivers of FDI and the monetary environment in South Africa. It is hoped that the findings in this research can contribute toward the great body of knowledge in foreign direct investment.

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ANNEXURE A: LIST OF CHOSEN COUNTRIES

Developed Markets		Emerging Markets		Frontier Markets	
Countries	World Bank Classification	Countries	World Bank Classification	Countries	World Bank Classification
Austria	High	Argentina	Upper middle	Angola	Lower middle
Denmark	High	Brazil	Upper middle	Bangladesh	Low
Finland	High	Chile	Upper middle	Côte d'Ivoire	Low
France	High	China	Lower middle	Ecuador	Lower middle
Japan	High	Egypt	Lower middle	Ghana	Low
Netherlands	High	India	Lower middle	Kenya	Low
Spain	High	Nigeria	Low	Namibia	Lower middle
Switzerland	High	Russia	Upper middle	Tunisia	Lower middle
UK	High	South Africa	Upper middle	Ukraine	Lower middle
US	High	Sri Lanka	Lower middle	Vietnam	Low

ANNEXURE B: INTERVIEW PARTICIPANTS

Mr Rudolf Gouws

Mr Rudolf Gouws joined Rand Merchant Bank (RMB) in 1986 as the Chief Economist. From 199 to 1986, he was the Chief Economist of the Nedbank Group, having previously worked for Standard Bank and Senbank. He chaired the Economic Policy Committee of Business South Africa (BSA) from 1996 to 2003, and served in the National Economic Development and Labour Council (NEDLAC). He is an extraordinary professor of Economics at the University of Stellenbosch. He holds the following qualifications, MA (Economic) – University of Stellenbosch; AEP – School of Business Leadership (SBL), University of South Africa (UNISA). (Gouws, 2008)

Mr Stephen Gelb

Stephen Gelb is an economist with more than 20 years of experience in South African economic policy issues. Stephen studied economics in Cape Town and Toronto. He was an activist in the Canadian anti-apartheid movement between 1976 and 1984. Returning to South Africa in 1984, he was an advisor to COSATU, the South African Council of Churches and the UDG on economic policy issues until 1990. Stephen then worked as an advisor to the ANC government during the early 1990's. He has been a consultant to a number of South African government departments and agencies, including the treasury, the Department of Trade & Industry, the Office of the Deputy President and NEDLAC. He worked with the Office of the President from 1999, as leader of a major study of domestic fixed investment in South Africa, and was research coordinator in the Government's MAP Technical Team between November 2000 and July 2001.

He has taught at various universities including York University (Toronto), The New School for Social Research (New York City), the University of Durban-Westville, KZN and currently the University of the Witwatersrand where he is visiting Professor in Development Studies. Stephen also spent more than 4 years at the Development Bank of Southern Africa.

Mr Rael Lissoos

Rael Lissoos, whilst lecturing economics, founded his first company Channel Campus, and through a series of strategic alliances & mergers, this company created interactive video-based educational material, as well as South Africa's first educational website - learn.co.za. He then went on to co-found Learnthings (learnthings.co.uk) a joint venture with the UK Guardian Media Group. After years in content creation, he shifted his focus to educational content delivery in under-serviced areas. During installations at remote schools, he realized there was a serious problem in communication systems in under-serviced areas due to infrastructure and price. VoIP servers were therefore included in wireless deployments to facilitate communication. This led to the formation of Dabba Telecommunications. Dabba currently deploys voice and data solutions in rural and low income urban areas throughout South Africa; and has developed a unique business model that allows for local community ownership.

ANNEXURE C: QUESTIONNAIRE USED FOR THE INTERVIEW

1. The research has shown that SA has, historically, favoured portfolio inflow rather than FDI (Ahmed *et al*, 2006) when compared to other emerging markets. Why do you think that is the case?

2. The research indicated that high inflation in the host country can deter FDI, and SA exercise inflation targeting using interest rate as a major control to monitor the inflation rate. Is inflation targeting effective in attracting FDI? What happens if the economy's inflation is heighten due to external shock?

3. Exchange rate level has a major influence on FDI inflow. Pegging SA currency can reduce the volatility, but it is unfavourable for SA, which is a largely commodity export economy. SA has a relatively small foreign reserve, and it is a large contributor to the volatility of Rands. Do you think that keeping a floating currency in SA is a good policy? The trade-off between attracting FDI and keeping a floating currency, is it a justifiable sacrifice?

4. Given the current political events, additional uncertainty will hinder FDI flow into SA. Should SA, given its current economic condition, actively pursue FDI into the country? If so, is the current monetary policy regarding inflation and exchange rate adequate? What area of changes, regarding to monetary policy, would you recommend?

ANNEXURE D: RESULTS DESCRIPTION

Austria

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (12.8016) + (-0.5488)\ \Delta GDP_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_1) is 12.8016 with a standard error of 19.8280. The slope (λ_1) is -0.5488 with standard error of 0.3724. The correlation between ΔFDI_{t+3} and ΔGDP_t is -0.3457. The significant level of this relationship is 0.16.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (18.8725) + (1.3971)\ \Delta FOREX_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_2) is 18.8725 with a standard error of 17.3573. The slope (λ_2) is 1.3971 with standard error of 1.5176. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.2066. The significant level of this relationship is 0.3688.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAvT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (16.9661) + (-0.7108)\ \Delta INFLAT_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_3) is 16.9661 with a standard error of 16.4302. The slope (λ_3) is -0.7108 with standard error of 0.4950. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is -0.3129. The significant level of this relationship is 0.1673.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+5} = (14.1657) + (-0.2988)\ \Delta FDI_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_4) is 14.1657 with a standard error of 10.7358. The slope (λ_4) is -0.2988 with standard error of 0.1484. The correlation between ΔGDP_{t+5} and ΔFDI_t is -0.4288. The significant level of this relationship is 0.0593.

A summary of the results is presented in Table 1.

Denmark

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-16.8945) + (0.6082)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is -16.8945 with a standard error of 49.0731. The slope (λ_1) is 0.6082 with standard error of 0.2504. The correlation between ΔFDI_{t+3} and ΔGDP_t is 0.4683. The significant level of this relationship is 0.0242.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (16.8783) + (-3.4453)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 16.8783 with a standard error of 36.1255. The slope (λ_2) is -3.4453 with standard error of 3.0486. The correlation between ΔFDI_{t+2} and $\Delta FOREX_t$ is -0.2342. The significant level of this relationship is 0.2706.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (12.565) + (-2.6956)\ \Delta INFLAT_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_3) is 12.565 with a standard error of 38.1669. The slope (λ_3) is -2.6956 with standard error of 1.6198. The correlation between ΔFDI_{t+5} and $\Delta INFLAT_t$ is -0.3487. The significant level of this relationship is 0.1117.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-25.7894) + (-0.4163)\ \Delta FDI_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_4) is -25.7894 with a standard error of 36.9907. The slope (λ_4) is -0.4163 with standard error of 0.2111. The correlation between ΔGDP_{t+1} and ΔFDI_t is -0.3877. The significant level of this relationship is 0.0612.

A summary of the results is presented in Table 2.

Finland

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (51.4203) + (1.0957)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is 51.4203 with a standard error of 24.1122. The slope (λ_1) is 1.0957 with standard error of 0.4987. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4323. The significant level of this relationship is 0.0394.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (15.5461) + (7.6257)\ \Delta FOREX_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_2) is 15.5461 with a standard error of 24.6656. The slope (λ_2) is 7.6257 with standard error of 2.0737. The correlation between ΔFDI_{t+5} and $\Delta FOREX_t$ is 0.6351. The significant level of this relationship is 0.0015.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (5.806) + (-0.5261)\ \Delta INFLAT_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_3) is 5.806 with a standard error of 16.154. The slope (λ_3) is -0.5261 with standard error of 0.3973. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is -0.3058. The significant level of this relationship is 0.203.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (2.0801) + (0.1012)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is 2.0801 with a standard error of 11.6023. The slope (λ_4) is 0.1012 with standard error of 0.079. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.2694. The significant level of this relationship is 0.2138.

A summary of the results is presented in Table 3.

France

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (18.577) + (0.2537)\ \Delta GDP_t$$

This is established with 25 observations in the dataset. The y-intercept (ε_1) is 18.577 with a standard error of 7.5132. The slope (λ_1) is 0.2537 with standard error of 0.1113. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4294. The significant level of this relationship is 0.0322.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (25.3798) + (-1.0946)\ \Delta FOREX_t$$

This is established with 26 observations in the dataset. The y-intercept (ε_2) is 25.3798 with a standard error of 8.4604. The slope (λ_2) is -1.0946 with standard error of 0.7016. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is -0.3034. The significant level of this relationship is 0.1318.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (12.2947) + (-0.6235)\ \Delta INFLAT_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_3) is 12.2947 with a standard error of 8.1008. The slope (λ_3) is -0.6235 with standard error of 0.3441. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.3603. The significant level of this relationship is 0.0837.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (14.9656) + (-0.4912)\ \Delta FDI_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_4) is 14.9656 with a standard error of 15.4280. The slope (λ_4) is -0.4912 with standard error of 0.4130. The correlation between ΔGDP_{t+1} and ΔFDI_t is -0.2458. The significant level of this relationship is 0.247.

A summary of the results is presented in Table 4.

Japan

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (43.6913) + (0.9016)\ \Delta GDP_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_1) is 43.6913 with a standard error of 40.0819. The slope (λ_1) is 0.9016 with standard error of 0.6539. The correlation between ΔFDI_{t+3} and ΔGDP_t is 0.3698. The significant level of this relationship is 0.1931.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (4.8982) + (4.3735)\ \Delta FOREX_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_2) is 4.8982 with a standard error of 50.7056. The slope (λ_2) is 4.3735 with standard error of 5.719. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.1728. The significant level of this relationship is 0.4538.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (9.2796) + (-0.3248)\ \Delta INFLAT_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_3) is 9.2796 with a standard error of 50.1933. The slope (λ_3) is -0.3248 with standard error of 0.5282. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is -0.1397. The significant level of this relationship is 0.5459.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (0.2626) + (0.036)\ \Delta FDI_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_4) is 0.2626 with a standard error of 13.4795. The slope (λ_4) is 0.036 with standard error of 0.0709. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.1157. The significant level of this relationship is 0.6175.

A summary of the results is presented in Table 5.

Netherlands

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (17.3688) + (0.5247)\ \Delta GDP_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_1) is 17.3688 with a standard error of 11.9186. The slope (λ_1) is 0.5247 with standard error of 0.1138. The correlation between ΔFDI_{t+4} and ΔGDP_t is 0.7267. The significant level of this relationship is 0.0002.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (24.0422) + (2.846)\ \Delta FOREX_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_2) is 24.0422 with a standard error of 17.3897. The slope (λ_2) is 2.846 with standard error of 1.6247. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.4011. The significant level of this relationship is 0.099.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (3.9069) + (-0.224)\ \Delta INFLAT_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_3) is 3.9069 with a standard error of 13.1182. The slope (λ_3) is -0.224 with standard error of 0.208. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.2398. The significant level of this relationship is 0.295.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (38.5459) + (-0.7144)\ \Delta FDI_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_4) is 38.5459 with a standard error of 33.9568. The slope (λ_4) is -0.7144 with standard error of 0.5942. The correlation between ΔGDP_{t+2} and ΔFDI_t is -0.2596. The significant level of this relationship is 0.2433.

A summary of the results is presented in Table 6.

Spain

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (11.4539) + (0.4579)\ \Delta GDP_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_1) is 11.4539 with a standard error of 6.4638. The slope (λ_1) is 0.4579 with standard error of 0.1713. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.5332. The significant level of this relationship is 0.0155.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (2.6484) + (1.6955)\ \Delta FOREX_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_2) is 2.6484 with a standard error of 6.2178. The slope (λ_2) is 1.6955 with standard error of 0.4322. The correlation between ΔFDI_{t+5} and $\Delta FOREX_t$ is 0.6789. The significant level of this relationship is 0.001.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (11.1787) + (-0.5464)\ \Delta INFLAT_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_3) is 11.1787 with a standard error of 6.582. The slope (λ_3) is -0.5464 with standard error of 0.3311. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is -0.3462. The significant level of this relationship is 0.1145.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (16.2576) + (-0.5996)\ \Delta FDI_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_4) is 16.2576 with a standard error of 7.2402. The slope (λ_4) is -0.5996 with standard error of 0.2205. The correlation between ΔGDP_{t+2} and ΔFDI_t is -0.5195. The significant level of this relationship is 0.0132.

A summary of the results is presented in Table 7.

Switzerland

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (15.4763) + (0.1542)\ \Delta GDP_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_1) is 15.4763 with a standard error of 17.6398. The slope (λ_1) is 0.1542 with standard error of 0.1337. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.2693. The significant level of this relationship is 0.2649.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (2.6737) + (3.0343)\ \Delta FOREX_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_2) is 2.6737 with a standard error of 17.9778. The slope (λ_2) is 3.0343 with standard error of 1.6664. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.3855. The significant level of this relationship is 0.0844.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (0.2528) + (-0.4768)\ \Delta INFLAT_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_3) is 0.2528 with a standard error of 19.1774. The slope (λ_3) is -0.4768 with standard error of 0.3322. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.3205. The significant level of this relationship is 0.1683.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-5.2625) + (0.4273)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is -5.2625 with a standard error of 27.1635. The slope (λ_4) is 0.4273 with standard error of 0.3531. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.2896. The significant level of this relationship is 0.2437.

A summary of the results is presented in Table 8.

United Kingdom

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (14.8085) + (0.3112)\ \Delta GDP_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_1) is 14.8085 with a standard error of 10.9652. The slope (λ_1) is 0.3112 with standard error of 0.2449. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.2945. The significant level of this relationship is 0.221.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (15.0869) + (-3.4)\ \Delta FOREX_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_2) is 15.0869 with a standard error of 10.154. The slope (λ_2) is -3.4 with standard error of 1.2153. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is -0.5211. The significant level of this relationship is 0.0108.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (8.8977) + (-0.1782)\ \Delta INFLAT_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_3) is 8.8977 with a standard error of 11.6734. The slope (λ_3) is -0.1782 with standard error of 0.393.

The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.0985. The significant level of this relationship is 0.9548.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (-2.7838) + (-0.3057)\ \Delta FDI_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_4) is -2.7838 with a standard error of 9.9655. The slope (λ_4) is -0.3057 with standard error of 0.1736. The correlation between ΔGDP_{t+3} and ΔFDI_t is -0.3834. The significant level of this relationship is 0.0952.

A summary of the results is presented in Table 9.

United States of America

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (16.1256) + (0.1892)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is 16.1256 with a standard error of 10.8348. The slope (λ_1) is 0.1892 with standard error of 0.1795. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.2241. The significant level of this relationship is 0.3039.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (23.0336) + (1.3953)\ \Delta FOREX_t$$

This is established with 26 observations in the dataset. The y-intercept (ε_2) is 23.0336 with a standard error of 12.1076. The slope (λ_2) is 1.3953 with standard error of 1.4529. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.1924. The significant level of this relationship is 0.3464.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (22.4263) + (-0.7913)\ \Delta INFLAT_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_3) is 22.4263 with a standard error of 12.1219. The slope (λ_3) is -0.7913 with standard error of 0.404. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is -0.3853. The significant level of this relationship is 0.063.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (4.512) + (-0.2318)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is 4.512 with a standard error of 10.6309. The slope (λ_4) is -0.2318 with standard error of 0.1605. The correlation between ΔGDP_{t+2} and ΔFDI_t is -0.3006. The significant level of this relationship is 0.1634.

A summary of the results is presented in Table 10.

Argentina

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (32.5644) + (0.2345)\ \Delta GDP_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_1) is 32.5644 with a standard error of 13.9243. The slope (λ_1) is 0.2345 with standard error of 0.084. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.5606. The significant level of this relationship is 0.0125.
For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (-5.5706) + (0.1354)\ \Delta FOREX_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_2) is -5.5706 with a standard error of 10.2538. The slope (λ_2) is 0.1354 with standard error of 0.0687. The correlation between ΔFDI_{t+2} and $\Delta FOREX_t$ is 0.4535. The significant level of this relationship is 0.0675.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-3.3223) + (-0.1613)\ \Delta INFLAT_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_3) is -3.3223 with a standard error of 10.9779. The slope (λ_3) is -0.1613 with standard error of 0.1044. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is -0.3603. The significant level of this relationship is 0.1419.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (-82.1173) + (0.4789)\ \Delta FDI_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_4) is -82.1173 with a standard error of 32.0067. The slope (λ_4) is 0.4789 with standard error of 0.3683. The correlation between ΔGDP_{t+3} and ΔFDI_t is 0.2792. The significant level of this relationship is 0.2082.

A summary of the results is presented in Table 11.

Brazil

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (21.9021) + (0.0616)\ \Delta GDP_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_1) is 21.9021 with a standard error of 12.1375. The slope (λ_1) is 0.0616 with standard error of 0.0364. The correlation between ΔFDI_{t+3} and ΔGDP_t is 0.3617. The significant level of this relationship is 0.1071.
For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (3.2192) + (0.0448)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 3.2192 with a standard error of 13.7348. The slope (λ_2) is 0.0448 with standard error of 0.0173. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.4826. The significant level of this relationship is 0.0169.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (28.8121) + (-0.328)\ \Delta INFLAT_t$$

This is established with 25 observations in the dataset. The y-intercept (ε_3) is 28.8121 with a standard error of 12.1972. The slope (λ_3) is -0.328 with standard error of 0.1666. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.3797. The significant level of this relationship is 0.0612.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-17.606) + (1.9443)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is -17.606 with a standard error of 68.0615. The slope (λ_4) is 1.9443 with standard error of 1.0799. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.3657. The significant level of this relationship is 0.0862.

A summary of the results is presented in Table 12.

Chile

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (29.0656) + (0.2554)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is 29.0656 with a standard error of 8.1867. The slope (λ_1) is 0.2554 with standard error of 0.1202. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4208. The significant level of this relationship is 0.0456.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (19.0866) + (0.581)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 19.0866 with a standard error of 11.2029. The slope (λ_2) is 0.581 with standard error of 0.5291. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.2279. The significant level of this relationship is 0.2841.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (24.8346) + (-0.259)\ \Delta INFLAT_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_3) is 24.8346 with a standard error of 8.099. The slope (λ_3) is -0.259 with standard error of 0.1409. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.345. The significant level of this relationship is 0.078.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (24.3117) + (-0.7047)\ \Delta FDI_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_4) is 24.3117 with a standard error of 14.7482. The slope (λ_4) is -0.7047 with standard error of 0.2918. The correlation between ΔGDP_{t+3} and ΔFDI_t is -0.4752. The significant level of this relationship is 0.0254.

A summary of the results is presented in Table 13.

China

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (22.1805) + (0.8516)\ \Delta GDP_t$$

This is established with 26 observations in the dataset. The y-intercept (ε_1) is 22.1805 with a standard error of 5.7451. The slope (λ_1) is 0.8516 with standard error of 0.1418. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.775. The significant level of this relationship is 0.0000.
For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (17.5687) + (1.2891)\ \Delta FOREX_t$$

This is established with 25 observations in the dataset. The y-intercept (ε_2) is 17.5687 with a standard error of 10.1854. The slope (λ_2) is 1.2891 with standard error of 0.7149. The correlation between ΔFDI_{t+2} and $\Delta FOREX_t$ is 0.3519. The significant level of this relationship is 0.0845.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (27.3693) + (-0.0593)\ \Delta INFLAT_t$$

This is established with 25 observations in the dataset. The y-intercept (ε_3) is 27.3693 with a standard error of 9.0628. The slope (λ_3) is -0.0593 with standard error of 0.0746. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is -0.1636. The significant level of this relationship is 0.4347.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-4.8978) + (0.1992)\ \Delta FDI_t$$

This is established with 25 observations in the dataset. The y-intercept (ε_4) is -4.8978 with a standard error of 5.7689. The slope (λ_4) is 0.1992 with standard error of 0.0638. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.5454. The significant level of this relationship is 0.0048.

A summary of the results is presented in Table 14.

Egypt

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (20.0334) + (0.4751)\ \Delta GDP_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_1) is 20.0334 with a standard error of 12.523. The slope (λ_1) is 0.4751 with standard error of 0.4228. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.256. The significant level of this relationship is 0.276.
For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (-7.6197) + (3.0596)\ \Delta FOREX_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_2) is -7.6197 with a standard error of 15.0934. The slope (λ_2) is 3.0596 with standard error of 1.5424. The correlation between ΔFDI_{t+2} and $\Delta FOREX_t$ is 0.4142. The significant level of this relationship is 0.0619.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (12.2166) + (0.3922\ \Delta INFLAT_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_3) is 12.2166 with a standard error of 11.3091. The slope (λ_3) is 0.3922 with standard error of 0.2716. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is 0.3144. The significant level of this relationship is 0.1651.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (-2.838) + (-0.3209)\ \Delta FDI_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_4) is -2.838 with a standard error of 6.0273. The slope (λ_4) is -0.3209 with standard error of 0.137. The correlation between ΔGDP_{t+3} and ΔFDI_t is -0.4733. The significant level of this relationship is 0.0302.

A summary of the results is presented in Table 15.

India

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (20.9513) + (1.1254)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is 20.9513 with a standard error of 16.0814. The slope (λ_1) is 1.1254 with standard error of 0.3931. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.5298. The significant level of this relationship is 0.0093.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (36.0277) + (4.6093)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 36.0277 with a standard error of 32.8842. The slope (λ_2) is 4.6093 with standard error of 3.163. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.2967. The significant level of this relationship is 0.1592.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (43.9881) + (0.6853)\ \Delta INFLAT_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_3) is 43.9881 with a standard error of 18.0053. The slope (λ_3) is 0.6853 with standard error of 0.4763. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is 0.2932. The significant level of this relationship is 0.1643.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (6.2256) + (0.2495)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is 6.2256 with a standard error of 7.7531. The slope (λ_4) is 0.2495 with standard error of 0.0871. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.5298. The significant level of this relationship is 0.0093.

A summary of the results is presented in Table 16.

Nigeria

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (19.1485) + (0.2116)\ \Delta GDP_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_1) is 19.1485 with a standard error of 12.7629. The slope (λ_1) is 0.2116 with standard error of 0.0595. The correlation between ΔFDI_{t+4} and ΔGDP_t is 0.6533. The significant level of this relationship is 0.0024.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (42.1011) + (-0.7812)\ \Delta FOREX_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_2) is 42.1011 with a standard error of 17.5377. The slope (λ_2) is -0.7812 with standard error of 0.3996. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.4006. The significant level of this relationship is 0.0647.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (29.95) + (-0.2281)\ \Delta INFLAT_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_3) is 29.95 with a standard error of 14.4296. The slope (λ_3) is -0.2281 with standard error of 0.1177. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is -0.3977. The significant level of this relationship is 0.0668.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+4} = (-16.9621) + (1.1692)\ \Delta FDI_t$$

This is established with 21 observations in the dataset. The y-intercept (ε_4) is -16.9621 with a standard error of 57.5235. The slope (λ_4) is 1.1692 with standard error of 0.7359. The correlation between ΔGDP_{t+4} and ΔFDI_t is 0.3424. The significant level of this relationship is 0.1286.

A summary of the results is presented in Table 17.

Russia

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (72.3152) + (0.5192)\ \Delta GDP_t$$

This is established with 14 observations in the dataset. The y-intercept (ε_1) is 72.3152 with a standard error of 19.2514. The slope (λ_1) is 0.5192 with standard error of 0.2302. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.5807. The significant level of this relationship is 0.0477.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (56.7946) + (-0.4577)\ \Delta FOREX_t$$

This is established with 14 observations in the dataset. The y-intercept (ε_2) is 56.7946 with a

standard error of 19.215. The slope (λ_2) is -0.4577 with standard error of 0.3305. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is -0.4011. The significant level of this relationship is 0.1962.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (42.5481) + (-0.1383)\ \Delta INFLAT_t$$

This is established with 13 observations in the dataset. The y-intercept (ε_3) is 42.5481 with a standard error of 17.5331. The slope (λ_3) is -0.1383 with standard error of 0.2274. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.1889. The significant level of this relationship is 0.5565.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (-9.7191) + (-0.5214)\ \Delta FDI_t$$

This is established with 14 observations in the dataset. The y-intercept (ε_4) is -9.7197 with a standard error of 23.8323. The slope (λ_4) is -0.5214 with standard error of 0.4002. The correlation between ΔGDP_{t+2} and ΔFDI_t is -0.3984. The significant level of this relationship is 0.2249.

A summary of the results is presented in Table 18.

South Africa

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (71.8808) + (0.6123)\ \Delta GDP_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_1) is 71.8808 with a standard error of 57.8369. The slope (λ_1) is 0.6123 with standard error of 0.3629. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.3455. The significant level of this relationship is 0.1063.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (100.1032) + (-2.7475)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 100.1032 with a standard error of 69.0788. The slope (λ_2) is -2.7475 with standard error of 3.7348. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is -0.1549. The significant level of this relationship is 0.4697.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (79.3946) + (-2.1364)\ \Delta INFLAT_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_3) is -79.3946 with a standard error of 56.9629. The slope (λ_3) is -2.1364 with standard error of 1.4509. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.2995. The significant level of this relationship is 0.155.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (28.0729) + (-0.1714)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is 28.0729 with a standard error of 33.2707. The slope (λ_4) is -0.1714 with standard error of 0.1013. The correlation between ΔGDP_{t+2} and ΔFDI_t is -0.3464. The significant level of this relationship is 0.1054.

A summary of the results is presented in Table 19.

Sri Lanka

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (16.6597) + (0.3206)\ \Delta GDP_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_1) is 16.6597 with a standard error of 12.1197. The slope (λ_1) is 0.3206 with standard error of 0.2128. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.3193. The significant level of this relationship is 0.1475.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (65.6457) + (-4.9768)\ \Delta FOREX_t$$

This is established with 24 observations in the dataset. The y-intercept (ε_2) is 65.6457 with a standard error of 30.988. The slope (λ_2) is -4.9768 with standard error of 3.4974. The correlation between ΔFDI_{t+2} and $\Delta FOREX_t$ is -0.2903. The significant level of this relationship is 0.1688.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (24.7822) + (-0.3077)\ \Delta INFLAT_t$$

This is established with 19 observations in the dataset. The y-intercept (ε_3) is 24.7822 with a standard error of 13.4664. The slope (λ_3) is -0.3077 with standard error of 0.2349. The correlation between ΔFDI_{t+5} and $\Delta INFLAT_t$ is -0.3028 The significant level of this relationship is 0.2076.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (-1.9567) + (0.3367)\ \Delta FDI_t$$

This is established with 23 observations in the dataset. The y-intercept (ε_4) is -1.9567 with a standard error of 11.6518. The slope (λ_4) is 0.3367 with standard error of 0.1591. The correlation between ΔGDP_{t+3} and ΔFDI_t is 0.4193. The significant level of this relationship is 0.0464.

A summary of the results is presented in Table 20.

Angola

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (12.9857) + (0.2981)\ \Delta GDP_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_1) is 12.9857 with a standard error of 28.0671. The slope (λ_1) is 0.2981 with standard error of 0.2042. The correlation between ΔFDI_{t+5} and ΔGDP_t is 0.4191. The significant level of this relationship is 0.1751.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-7.9263) + (0.036)\ \Delta FOREX_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_2) is -7.9263 with a standard error of 35.0595. The slope (λ_2) is 0.036 with standard error of 0.0184. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.509. The significant level of this relationship is 0.0757.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (43.7747) + (-0.2912)\ \Delta INFLAT_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_3) is -43.7747 with a standard error of 27.2324. The slope (λ_3) is -0.2912 with standard error of 0.2048. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.3553. The significant level of this relationship is 0.1769.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (-15.2777) + (0.1369)\ \Delta FDI_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_4) is -15.2777 with a standard error of 18.3585. The slope (λ_4) is 0.1369 with standard error of 0.1865. The correlation between ΔGDP_{t+2} and ΔFDI_t is 0.216. The significant level of this relationship is 0.4785.

A summary of the results is presented in Table 21.

Bangladesh

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-12.6941) + (-1.616)\ \Delta GDP_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_1) is -12.6941 with a standard error of 12.9492. The slope (λ_1) is -1.616 with standard error of 0.8964. The correlation between ΔFDI_{t+3} and ΔGDP_t is -0.422. The significant level of this relationship is 0.0915.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (53.1524) + (-12.086)\ \Delta FOREX_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_2) is 53.1524 with a standard error of 27.0718. The slope (λ_2) is -12.086 with standard error of 4.6178. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is -0.5475. The significant level of this relationship is 0.0187.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-24.4668) + (0.5517)\ \Delta INFLAT_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_3) is -24.4668 with a standard error of 11.8266. The slope (λ_3) is 0.5517 with standard error of 0.2086. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is 0.5639. The significant level of this relationship is 0.0184.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+2} = (-0.9889) + (0.0402)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is -0.9889 with a standard error of 2.7932. The slope (λ_4) is 0.0402 with standard error of 0.0444. The correlation between ΔGDP_{t+2} and ΔFDI_t is 0.2349. The significant level of this relationship is 0.3812.

A summary of the results is presented in Table 22.

Côte d'Ivoire

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (10.0001) + (0.144)\ \Delta GDP_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_1) is 10.0001 with a standard error of 10.7292. The slope (λ_1) is 0.144 with standard error of 0.0788. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4157. The significant level of this relationship is 0.0862.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (-5.9016) + (1.7438)\ \Delta FOREX_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_2) is -5.9016 with a standard error of 10.1754. The slope (λ_2) is 1.7438 with standard error of 0.8577. The correlation between ΔFDI_{t+4} and $\Delta FOREX_t$ is 0.4648. The significant level of this relationship is 0.0601.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (-2.3939) + (0.2463)\ \Delta INFLAT_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_3) is -2.3939 with a standard error of 8.3292. The slope (λ_3) is 0.2463 with standard error of 0.0908. The correlation between ΔFDI_{t+4} and $\Delta INFLAT_t$ is 0.5868. The significant level of this relationship is 0.0169.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+5} = (-62.4895) + (-1.4952)\ \Delta FDI_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_4) is -62.4895 with a standard error of 11.2768. The slope (λ_4) is -1.4952 with standard error of 0.2832. The correlation between ΔGDP_{t+5} and ΔFDI_t is -0.8815. The significant level of this relationship is 0.0007.

A summary of the results is presented in Table 23.

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Ecuador

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (14.238) + (-0.036)\ \Delta GDP_t$$

This is established with 22 observations in the dataset. The y-intercept (ε_1) is 14.238 with a standard error of 6.5428. The slope (λ_1) is -0.036 with standard error of 0.04. The correlation between ΔFDI_{t+2} and ΔGDP_t is -0.1971. The significant level of this relationship is 0.3792.

Ecuador pegged its currency to the US Dollar. Thus the change in FDI is independent of the change in exchange rate. Hypothesis 2 is not applicable for Ecuador.
For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (14.9379) + (-0.2517)\ \Delta INFLAT_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_3) is 14.9379 with a standard error of 4.3195. The slope (λ_3) is -0.2517 with standard error of 0.1042. The correlation between ΔFDI_{t+2} and $\Delta INFLAT_t$ is -0.4947. The significant level of this relationship is 0.0266.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+3} = (-9.8171) + (1.037)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is -9.8171 with a standard error of 12.2222. The slope (λ_4) is 1.037 with standard error of 0.5797. The correlation between ΔGDP_{t+3} and ΔFDI_t is 0.4588. The significant level of this relationship is 0.0989.

A summary of the results is presented in Table 24.

Ghana

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-15.7575) + (0.5062)\ \Delta GDP_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_1) is -15.7575 with a standard error of 6.4996. The slope (λ_1) is 0.5062 with standard error of 0.2248. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.5157. The significant level of this relationship is 0.0409.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (-29.6346) + (0.4053)\ \Delta FOREX_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_2) is -29.6346 with a standard error of 10.3507. The slope (λ_2) is 0.4053 with standard error of 0.2274. The correlation between ΔFDI_{t+5} and $\Delta FOREX_t$ is 0.4574. The significant level of this relationship is 0.1001.
For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-20.4456) + (0.1806)\ \Delta INFLAT_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_3) is -20.4456 with a standard error of 7.5392. The slope (λ_3) is 0.1806 with standard error of 0.0981. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is 0.4292. The significant level of this relationship is 0.0856.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (12.4838) + (0.4048)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is 12.4838 with a standard error of 9.5853. The slope (λ_4) is 0.4048 with standard error of 0.2703. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.3506. The significant level of this relationship is 0.1537.

A summary of the results is presented in Table 25.

Kenya

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-35.5806) + (0.2937)\ \Delta GDP_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_1) is -35.5806 with a standard error of 12.7858. The slope (λ_1) is 0.2937 with standard error of 0.1537. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4829. The significant level of this relationship is 0.0803.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-47.7203) + (1.2726)\ \Delta FOREX_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_2) is -47.7203 with a standard error of 17.7773. The slope (λ_2) is 1.2726 with standard error of 1.333. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.2472. The significant level of this relationship is 0.3559.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (-44.6279) + (-0.2425)\ \Delta INFLAT_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_3) is -44.6279 with a standard error of 12.7411. The slope (λ_3) is -0.2425 with standard error of 0.2317. The correlation between ΔFDI_{t+4} and $\Delta INFLAT_t$ is -0.3143. The significant level of this relationship is 0.3198.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-18.8207) + (0.3926)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is -18.8207 with a standard error of 10.3495. The slope (λ_4) is 0.3926 with standard error of 0.1123. The correlation between ΔGDP_{t+4} and ΔFDI_t is 0.658. The significant level of this relationship is 0.003.

A summary of the results is presented in Table 26.

Namibia

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+5} = (7.659) + (0.3036)\ \Delta GDP_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_1) is 7.659 with a standard error of 15.1126. The slope (λ_1) is 0.3036 with standard error of 0.1627. The correlation between ΔFDI_{t+5} and ΔGDP_t is 0.4595. The significant level of this relationship is 0.0848.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (4.6237) + (-1.4093)\ \Delta FOREX_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_2) is 4.6237 with a standard error of 12.6883. The slope (λ_2) is -1.4093 with standard error of 0.6352. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is -0.5241. The significant level of this relationship is 0.0449.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-7.8342) + (-0.5772)\ \Delta INFLAT_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_3) is -7.8342 with a standard error of 14.8256. The slope (λ_3) is -0.5772 with standard error of 0.4526. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.374. The significant level of this relationship is 0.231.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-4.3966) + (0.3806)\ \Delta FDI_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_4) is -4.3966 with a standard error of 17.4481. The slope (λ_4) is 0.3806 with standard error of 0.3368. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.2991. The significant level of this relationship is 0.2788.

A summary of the results is presented in Table 27.

Tunisia

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (-5.0904) + (0.1731)\ \Delta GDP_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_1) is -5.0904 with a standard error of 7.9803. The slope (λ_1) is 0.1731 with standard error of 0.0857. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.451. The significant level of this relationship is 0.0603.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (13.0452) + (-1.7215)\ \Delta FOREX_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_2) is 13.0452 with a standard error of 10.3341. The slope (λ_2) is -1.7215 with standard error of 1.0252. The correlation between ΔFDI_{t+3} and $\Delta FOREX_t$ is 0.368. The significant level of this relationship is 0.1104.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (-7.2592) + (-0.3644)\ \Delta INFLAT_t$$

This is established with 20 observations in the dataset. The y-intercept (ε_3) is -7.2592 with a standard error of 6.2938. The slope (λ_3) is -0.3644 with standard error of 0.2312. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.3482. The significant level of this relationship is 0.1325.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-2.6289) + (0.4642)\ \Delta FDI_t$$

This is established with 17 observations in the dataset. The y-intercept (ε_4) is -2.6289 with a standard error of 9.3961. The slope (λ_4) is 0.4642 with standard error of 0.1903. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.5603. The significant level of this relationship is 0.0298.

A summary of the results is presented in Table 28.

Ukraine

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (24.6424) + (0.2371)\ \Delta GDP_t$$

This is established with 10 observations in the dataset. The y-intercept (ε_1) is 24.6424 with a standard error of 14.0454. The slope (λ_1) is 0.2371 with standard error of 0.1768. The correlation between ΔFDI_{t+1} and ΔGDP_t is 0.4284. The significant level of this relationship is 0.2168.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (3.6495) + (0.142)\ \Delta FOREX_t$$

This is established with 10 observations in the dataset. The y-intercept (ε_2) is 3.6495 with a standard error of 10.7385. The slope (λ_2) is 0.142 with standard error of 0.0472. The correlation between ΔFDI_{t+1} and $\Delta FOREX_t$ is 0.7285. The significant level of this relationship is 0.0169.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+1} = (22.053) + (-0.1946)\ \Delta INFLAT_t$$

This is established with 10 observations in the dataset. The y-intercept (ε_3) is 22.053 with a standard error of 15.9592. The slope (λ_3) is -0.1946with standard error of 0.2401. The correlation between ΔFDI_{t+1} and $\Delta INFLAT_t$ is -0.2754. The significant level of this relationship is 0.4412.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-12.2459) + (-0.5413)\ \Delta FDI_t$$

This is established with 10 observations in the dataset. The y-intercept (ε_4) is -12.2459 with a standard error of 20.329. The slope (λ_4) is -0.5413 with standard error of 0.479. The correlation between ΔGDP_{t+1} and ΔFDI_t is -0.3711. The significant level of this relationship is 0.2911.

A summary of the results is presented in Table 29.

Vietnam

For hypothesis 1, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in GDP at year t (ΔGDP_t). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+2} = (15.5954) + (1.1745)\ \Delta GDP_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_1) is 15.5954 with a standard error of 8.1762. The slope (λ_1) is 1.1745 with standard error of 0.3125. The correlation between ΔFDI_{t+2} and ΔGDP_t is 0.6848. The significant level of this relationship is 0.0017.

For hypothesis 2, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in exchange rate at year t ($\Delta FOREX_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+4} = (15.3967) + (-1.5185)\ \Delta FOREX_t$$

This is established with 15 observations in the dataset. The y-intercept (ε_2) is 15.3967 with a standard error of 8.4788. The slope (λ_2) is -1.5185 with standard error of 0.29. The correlation between ΔFDI_{t+4} and $\Delta FOREX_t$ is 0.8448. The significant level of this relationship is 0.0003.

For hypothesis 3, the null hypothesis states that the change in FDI at year t+i (ΔFDI_{t+i}) is independent of the change in inflation at year t ($\Delta INFLAT_t$). The estimated linear equation that describe this relationship is

$$\Delta FDI_{t+3} = (-1.3603) + (-0.1018)\ \Delta INFLAT_t$$

This is established with 16 observations in the dataset. The y-intercept (ε_3) is -1.3603 with a standard error of 6.2801. The slope (λ_3) is -0.1018 with standard error of 0.0841. The correlation between ΔFDI_{t+3} and $\Delta INFLAT_t$ is -0.3427. The significant level of this relationship is 0.2516.

For hypothesis 4, the null hypothesis states that the change in GDP at year t+i (ΔGDP_{t+i}) is independent of the change in FDI at year t (ΔFDI_t). The estimated linear equation that describe this relationship is

$$\Delta GDP_{t+1} = (-5.2841) + (0.1136)\ \Delta FDI_t$$

This is established with 18 observations in the dataset. The y-intercept (ε_4) is 0.1136 with a standard error of 0.0576. The slope (λ_4) is 0.1136 with standard error of 0.0576. The correlation between ΔGDP_{t+1} and ΔFDI_t is 0.4424. The significant level of this relationship is 0.066.

A summary of the results is presented in Table 30.

ANNEXURE E: T-TEST RESULTS

Hypothesis 1 – Developed Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.3948	0.4512	0.1427	0.0720	0.7175
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	2.7669	0.0219	Yes	Yes	0.6931	0.3798
λ_1<0	2.7669	0.9891	No	No	0.0000	0.0000
λ_1>0	2.7669	0.0109	Yes	Yes	0.8175	0.5103

Hypothesis 1 – Emerging Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.3417	0.2819	0.0891	0.1401	0.5433
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	0.8336	0.0040	Yes	Yes	0.9253	0.7065
λ_1<0	0.8336	0.9980	No	No	0.0000	0.0000
λ_1>0	0.8336	0.0020	Yes	Yes	0.9700	0.8192

Hypothesis 1 – Frontier Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.1478	0.6995	0.2212	-0.3526	0.6482
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	0.6683	0.5207	No	No	0.0921	0.0226
λ_1<0	0.6683	0.7396	No	No	0.0117	0.0018
λ_1>0	0.6683	0.2604	No	No	0.1525	0.0400

Hypothesis 2 – Developed Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	1.4428	3.1484	1.0810	-1.0027	3.8882
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	1.3346	0.2148	No	No	0.2230	0.0711
λ_1<0	1.3346	0.8926	No	No	0.0020	0.0002
λ_1>0	1.3346	0.1074	No	No	0.3407	0.1186

Hypothesis 2 – Emerging Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.0756	2.7020	0.8544	-1.8573	2.0085
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	0.0885	0.9314	No	No	0.0507	0.0102
λ_1<0	0.0885	0.5343	No	No	0.0421	0.0081
λ_1>0	0.0885	0.4657	No	No	0.0591	0.0122

Hypothesis 2 – Frontier Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	9	-1.4595	4.1684	1.3895	-4.6636	1.7446
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	-1.0504	0.3242	No	No	0.1531	0.0428
λ_1<0	-1.0504	0.1621	No	No	0.2475	0.0748
λ_1>0	-1.0504	0.8379	No	No	0.0045	0.0006

Hypothesis 3 – Developed Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_3)	10	-0.7098	0.7256	0.2295	-1.2288	-0.1907
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_3<>0	-3.0930	0.0129	Yes	Yes	0.7858	0.4821
λ_3<0	-3.0930	0.0064	Yes	Yes	0.8857	0.6171
λ_3>0	-3.0930	0.9936	No	No	0.0000	0.0000

Hypothesis 3 – Emerging Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_3)	10	-0.2541	0.7388	0.2336	-0.7826	0.2477
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_3<>0	-1.0875	0.3051	No	No	0.1639	0.0475
λ_3<0	-1.0875	0.1525	No	No	0.2616	0.0819
λ_3>0	-1.0875	0.8475	No	No	0.0039	0.0005

Hypothesis 3 – Frontier Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_3)	10	-0.1045	0.3349	0.1059	-0.3441	0.1351
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_3<>0	-0.9864	0.3497	No	No	0.1433	0.0399
λ_3<0	-0.9864	0.1748	No	No	0.2322	0.0696
λ_3>0	-0.9864	0.8252	No	No	0.0052	0.0007

Hypothesis 4 – Developed Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	-0.2493	0.3486	0.1102	-0.4987	0.0000
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	-2.2621	0.0500	No	Yes	0.5235	0.2380
λ_1<0	-2.2621	0.0250	Yes	No	0.6711	0.3455
λ_1>0	-2.2621	0.9750	No	No	0.0001	0.0000

Hypothesis 4 – Emerging Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.3372	0.8313	0.2629	-0.2574	0.9319
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	1.2828	0.2316	No	No	0.2096	0.0655
λ_1<0	1.2828	0.8842	No	No	0.0023	0.0003
λ_1>0	1.2828	0.1158	No	No	0.3234	0.1101

Hypothesis 4 – Frontier Markets

Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Slope (λ_1)	10	0.9033	0.6854	0.2168	-0.3970	0.5837
Alternative Hypothesis	**T-Value**	**Prob Level**	**Reject H0 at .050**	**Reject H0 at .100**	**Power (Alpha =.05)**	**Power (Alpha =.01)**
λ_1<>0	0.4306	0.6769	No	No	0.0673	0.0150
λ_1<0	0.4306	0.6616	No	No	0.0204	0.0035
λ_1>0	0.4306	0.3384	No	No	0.1064	0.0253