UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

GORDON INSTITUTE OF BUSINESS SCIENCE
University of Pretoria

DEMYSTIFYING THE RESOURCE NATIONALISM:

HOW SOUTH AFRICA CAN INCREASE FDIs INTO MINING INDUSTRY

KOLBAY JAPAROV

11369052

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

7TH November

ABSTRACT

The outcome of this comparative international research provides the basic recommendations for South African policymakers on how to approach the debates around nationalisation of the mines. The dependent variable FDI was tested through the seven hypotheses. 20 resource rich countries were chosen and data was obtained from the World Bank, the Frazer Institute Annual Survey of Mining Companies and the Raw Materials Group. Regression models were run to compare the results for the total sample and two sub-sets.

The outcomes of the statistical analyses revealed that geological data and political stability have the highest correlation with the independent variable FDI. Political stability was the only independent variable to have high correlations with all independent variables, implying that politics drives economics. No static regression model was obtained suggesting that each country will require a unique approach by MNCs to invest. In the light of Black Economic Empowerment (BEE), forced joint ventures in fact boost the FDIs in the mining sector.

KEY WORDS

Mining, Foreign Direct Investments, Resource Nationalism

DECLARATION

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

_____

Kolbay Japarov

7th November 2012

ACKNOWLEDGEMENTS

Firstly, I would like to dedicate this work to the hearts and souls of Kerimkul Japarov's family whose personal sacrifices made my formal education possible. Secondly, I would like to thank my wife Nazik and my daughter Marjan for reminding me about the things that truly matter in life. I would also like to thank my supervisor, Dr Johan Olivier and all GIBS faculty members for guiding me and sharing with me my MBA journey.

CHAPER 1 - INTRODUCTION

South Africa (SA), just like other resource rich countries, is facing a dilemma in terms of maximising the economic benefits from its natural resources. In light of this dilemma, it is vital that SA retains its intention to be a distinctive player on the international mining stage. This will require an immense and collaborative effort of all relevant stakeholders to create the competitive advantage and provide the confidence for potential investors in making the SA mining industry the choice international investments destination.

1.1 OVERVIEW OF SOUTH AFRICAN MINING INDUSTRY

South Africa is blessed with mineral wealth and is home to 52 commodities (Chamber of Mines Report, 2010). Citigroup reported that the untapped mineral wealth of South Africa was estimated at 2.5 trillion United States Dollars (USD) and made South Africa the richest country in terms of these mineral deposits (Citigroup Report, 2011).

Figure 1: SA Mineral Wealth as a percentage of Global Reserves (Chamber of Mines, 2010)

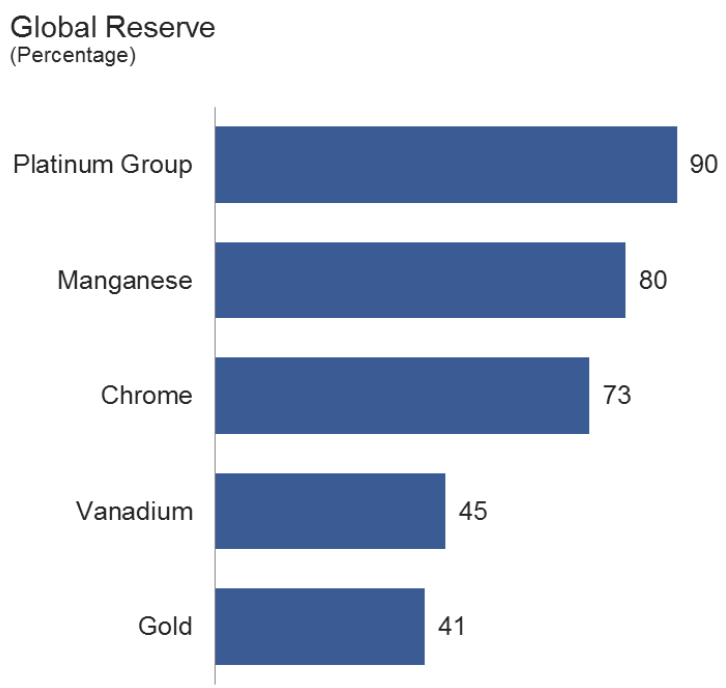


Figure 1 depicts how South Africa has positioned itself as a dominant player in world mineral industry.

Historically, mining has been an important driver of economic growth in South Africa. This is well supported by the fact that the mining industry contributes, directly, 9% and, indirectly, 20% of total South African Gross Domestic Product (GDP) with almost 500,000 employees (Chamber of Mines Report, 2010). According to the Chamber of Mines, the real GDP of the mining sector accounted for R100.6 billion in 2010 (Chamber of Mines Report, 2010).

The Economist Intelligence Report (2011) indicated that South Africa has received Foreign Direct Investments (FDIs) average of $ 3.2 billion between 2007 and 2011, which is well below other developing countries. In terms of FDI inflow as a percentage of GDP, which is 1.18 %, it ranked at number 71.

The similar situations take place in mining as well. There has been decline in investment from 2007 to 2011 (Chamber of Mines Report, 2010). This is mainly due to the global crisis that badly hit the SA mining sector. Moreover, microeconomic constraints, such as insufficient infrastructure (electricity & rail), red tape constraints (water licenses), uncertainty in policy, human capital, low productivity and escalating costs, also contributed to the poor performance in investment over the period of 2007 to 2010 (Chamber of Mines Report, 2010). One of the major roles of the mining in economic activities is job creation.

1.2 CONTROVERSY AROUND RESOURCE NATIONALISM

Recent calls for nationalisation of the mines by the African National Congress (ANC) Youth League has triggered fierce debates in South Africa. Many analysts are of the opinion that nationalisation will lead to the decrease of FDIs in the mining industry. This is perfectly supported by Ernest & Young Africa Attractiveness Report 2010,

where SA was poorly rated and ranked seventh during the period of 2007 to 2010 behind countries such as Algeria, Tunisia, Angola, Egypt, Nigeria and Libya.

Recently, the ANC's expert panel has come out strongly against the idea of nationalisation on the grounds that the official purchase of listed mining companies' shares, at an estimated cost of 1 trillion Rand ($130 billion), is far beyond the government's means (Economist, 2012).

Moreover, in his speech on Mining Indaba (2012), Presidency Minister Trevor Manual announced the results of the report prepared by group on nationalisation of mines (Business Day, 2012). This report dismissed nationalisation of mines, but talks about the "partnerships" (Business Day, 2012). The proposed strategy of new "partnerships" will definitely lead to the change in structure of ownerships. Eventhough the report was not officially revealed to the public, experts expect the higher intervention by the state in the mining industry.

Furthermore, a New Growth Plan suggested that the state has to set up a state-owned mining company that would co-exist with a strong private mining sector. This promotes beneficiation as well as greater utilisation of the mineral resource base of the country for developmental purposes, including potential development through a sovereign wealth fund (New Growth Plan, 2010).

1.3 LONMIN MARIKANA DISASTER

On 16th of August, 2012 the Marikana disaster opened a bloody page in the history of the mining industry in South Africa (Business Day, 2012). This event prompted South Africa to relook at issues around poverty and equality. It also created the precedent whereby the labour unions demanded the increase in the wages by means of violence. Many mining Multi National Companies (MNCs) suspended their

operations for fear of the compromised safety of their employees. The situation has deteriorated to the extent that other unions in South Africa also went on strikes.

These wild cat strikes have heavily impacted the economy of South Africa. According to the United Nations Conference on Trade and Development's latest Global Investment Trends Monitor, foreign direct investment inflows plummeted by 43.6% in preceding year: the largest decline among the developing economies (Business Day, 2012).

It was followed by Moody, the rating agency downgraded South Africa from A3 to Baa1 (Business Day, 2012). This downgrade reflected the government's "diminishing capacity" to handle its political and economic challenges, and created a more negative investment climate in the wake of strikes in the mining industry (Business Day, 2012).

This is clearly an indication of the fact that South Africa is at a crossroads. The key for South Africa will be to eliminate uncertainty and regain the confidence of potential investors.

1.4 RESEARCH PROBLEM

Many resource rich countries have started to seek ways in which to increase the stake of ownership in their respective mineral industries (Economist, 2011). Thus, these countries have been trumpeting about the resource nationalism for quite some time. According to Ernest & Young Report (2010), 25 resource rich countries have shown anticipation for boosting their take of profits. South Africa was not exempted from the general trend of debates around resource nationalism.

South Africa hosts the largest mineral reserves, ranks as the fifth largest mining economy by GDP value, leads the world's platinum production and is the fourth largest gold producer, yet the country lags far behind in foreign direct investment and mineral production (Energy&Minerals, 2011). Many recent reports have shown a worsening investment climate for mineral industry in resource rich South Africa. Moreover, Raw Metals Group Database (2011) indicated that South Africa is not benefiting in the investment boom occurring across the whole of Africa (Energy&Minerals, 2011).

Figure 2: Mining Project Investments (Energy&Minerals, Annual Survey of Global Mining Investments, 2011)

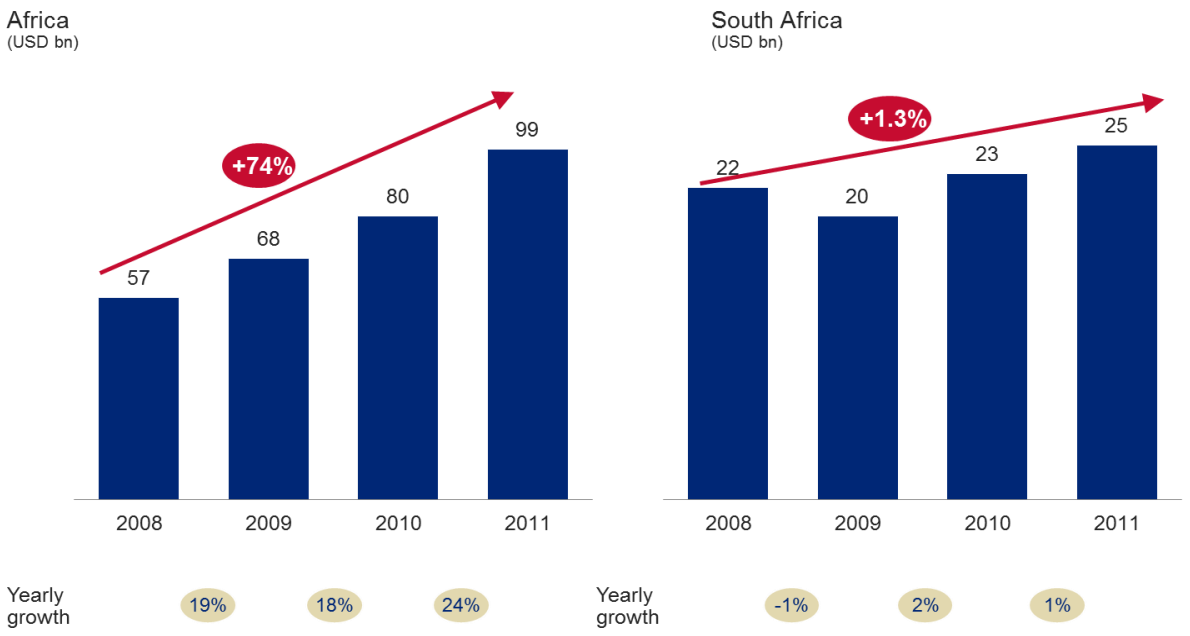
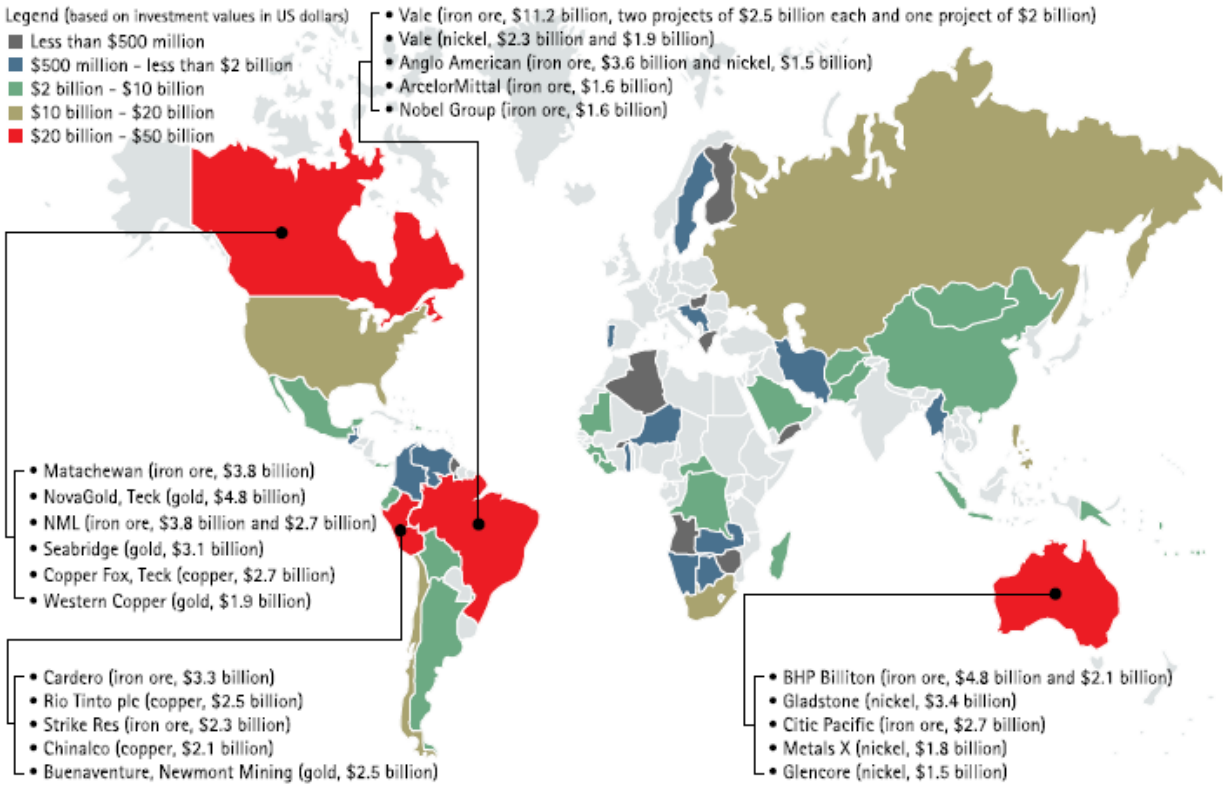


Figure 2 illustrates that the investment in Africa have increased by almost 74% from 2008 to 2011. This is not true for South Africa. There has been only 13.6 % improvement of the investment in the mining sector in South Africa from 2008 to 2011.

Moreover, it is important to see the future trends in terms of the investment in the mining industry. Figure 3 illustrates the 2010 to 2020 investment trend in mineral rich countries. It is obvious that South Africa is losing the credits as a perfect destination of foreign capital in mining industry.

Figure 3: Mining Investment Map 2010-2020 (E&MJ, Annual Survey of Global Mining Investments, 2010)



This research will seek to focus on the impact on resource nationalism on foreign direct investment in the South African mining sector. The foundation for the possible recommendations will be built from a comparative international study that will be undertaken. For the sake of comparison, 20 mineral rich countries were identified. Some of these countries have experience with or a history of nationalism and privatisation.

CHAPTER 2 – LITERATURE REVIEW

2.1 RESOURCE NATIONALISM

There has been extensive literature review about resource nationalism. This is especially true in the credit crisis, where the mineral industry is one the biggest contributors to the foreign exchange of its host countries.

Resource nationalism refers to mercantilistic and state-directed approached to the management of natural resources (Wilson, 2011). It also results in potential to use power of state control or dominance of natural resources for political and economic purposes, including relationships with foreign investors (Click & Weiner, 2008).

Resource nationalism is understood today as referring to a wide range of strategies that domestic elites employ in order to increase their control of natural resources (Domjan & Stone, 2010). This is very much true for those countries, that are willing to boost soaring profits from their respective mineral rich resources.

Due to the scarcity of the resources, Moran (1971) argued that the state should not follow a large number of ways to maximize benefits for its economy and rather deploy a selective approach for intervention policies to gain higher level of visible results. These intervention policies may consist of tightening the regulatory framework, increases in corporate tax, forced partnerships (e.g. Black Economic Empowerment (BEE) in South Africa) and, in extreme cases, resource nationalism.

Bremmer and Johnston (2008) suggested four major types of resource nationalism which differ in the factors motivating the policy and impact on industry and investment patterns:

- *Revolutionary resource nationalism* (e.g. Russia, Venezuela);
- *Economic resource nationalism* (e.g. Kazakhstan, Mongolia, Algeria);

- *Legacy resource nationalism* (e.g. Mexico, Kuwait); and
- *Soft resource nationalism* (e.g. Organisation for Economic Co-operation and Development (OECD) countries, Brazil)

Soft resource nationalism refers to the imposition of royalty increases or tax changes through established regulatory or legislative channels, rather than in arbitrary action (Bremmer & Johnston, 2009). This is well supported by the recent interest of the ANC, the South African ruling party, about imposing a 50% windfall tax on mining "super profits" and a 50% capital-gains tax on the sale of prospecting rights (Economist, 2012).

Examples from the oil industry have shown that ownership structures changed from being centred around a few companies owning oil into powerful hydro-carbon producer states owning and exploiting their own reserves (Sharifzyanova, Kirchner & Kretzschmar, 2010). Moreover, Otto (1997) argued that despite the reasons that some nations saw mining substantially expand under state ownership (e.g. China), in many others the mineral sector stagnated, declined or never developed (Otto, 1997).

2.2 DETERMINANTS OF FOREIGN DIRECT INVESTMENTS

A large amount of research has been done empirically to investigate the fundamental key drivers of FDIs. As globalisation is spreading around the world the prominence of FDIs has been increasing substantially. Most of the multinational companies (MNCs) are forced to leave saturated domestic holds to seek the means of competitive advantages by moving their capital to other countries as means of FDIs.

Literature review suggested that there are many theoretical models around the major determinants of the FDIs. None of the FDIs related theoretical models alone can lead to the successful decision making by multinational companies. The success of the

decisions to invest or not invest lies in how effectively a decision maker can interrogate, collectively, all applicable models based on the assumptions made.

Probably the most extensive literature survey was done by Faeth (2009) who suggested grouping all of FDIs related research into eight theoretical models. These theoretical models perfectly illustrate how FDIs research has evolved over time. The eight theoretical models, as per Faeth (2009), are as follows:

- *Early studies of determinants of FDI*;
  These studies took place in the period of 1960 to 1972 and focused mostly on different factors such as cost, trade barriers and the investment climate. Market growth, maintaining market share and size of the market, from a marketing perspective were identified as one of the key determinants of FDIs. Moreover, lower costs of labour, the low cost of raw material and financial inducements by the host governments had equal importance in influencing FDIs. Political stability was acknowledged to be the most important factor by some scholars, whereas others claimed that foreign exchange and positive attitude to foreign investment were key factors.

- *Neoclassical Trade Theory view on FDI determinants*;
  The notion of FDIs in the light of Neoclassical Trade Theory was seen as part of the international capital trade. This hypothesis was tested by means of Hecksher-Ohlin model which used the 2x2x2 framework. This model suggested equilibrium relationship among the factors: two countries (host and foreign), two production factors (such as capital and labour), two goods (perfectly competitive goods). Later on, the Hecksher-Ohlin model was challenged by other scholars who believed that the model did not cater for a different array of assumption, for example, full employment, perfect competition and constant return of scale.

- *Ownership advantages as determinants of FDI*;
  Factors such as research and development (R&D), advertising expenditure, managerial resources, technology, capital intensity, labour skills, firm size

and, scale of economies were all part of the ownership advantages which led to a significant inflow of FDI by MNCs to the host country.

- *Aggregate variables as a determinants of FDI*;
  Empirical studies indicated the importance of factors such as market size, market growth and trade barriers in determining the FDIs. Moreover, these studies showed that, in fact, these factors must be incorporated with the theoretical models to explain FDIs.

- *Determinates of FDI in the ownership, location, and internalisation advantage (OIL) framework*;
  These studies illustrated how the OIL framework used a combination of factors to determine the FDIs. This combination consisted of ownership advantages, market size and characteristics, factor costs, protection, regime type, infrastructure, property rights and industrial disputes.

- *Determinants of horizontal and vertical FDI*;
  The empirical studies indicated that the strong relevance of proximity-concentration hypothesis was used to explain how market size, transport costs and trade barriers would increase the FDI: whereas the factor endowments were only relevant in few cases.

- *Determinants of FDI according to diversified FDI and risk diversification model*; *and*
  These studies explained the reason why risk factors such as market based risk, exchange rate and interest rate could determine the FDIs and must be incorporated with other theoretical models of FDIs.

- *Policy variables as determinants of FDI*.
  Policy variables such as corporate taxes, tax concessions, tariffs and other fiscal and financial investment incentives had significant influence on FDIs movements.

2.3 GENERAL DETERMINANTS OF FDIs IN THE MINING INDUSTRY

After the first democratic election in post-apartheid South Africa, there was a large consensus around the need to attract both international and local investors by creating the global competitive investment environment (Dale, 1997). This consensus prompted the formulation of a new mineral policy for South Africa, which states the following:

"*Government has committed itself to a continuing process of economic liberalisation, thus strengthening the competitive capacity of the economy, fiscal and tariff reform and bureaucratic deregulation. These are essential steps towards enhancing the country's competitiveness, attracting foreign direct and portfolio investment and creating a climate conducive to business expansion. The mining industry among others will benefit in the long term from these developments*."

(A Minerals and Mining Policy for South Africa, 1998)

It is very much evident that the need for boosting investment in the mining sector has been never so important for the sustainable economic growth of South Africa. Resource rich countries pursue the investments in the mining industry for the following reasons (Kumar, 1990):

- To finance new investments in exploration activity and development of new mines; and
- To expand or rehabilitate existing mines, including investment in new technology.

There are many factors to consider for resource rich countries in order to maximize the foreign investment policies. For example, Johnson (1990) conducted a survey on major mining MNCs and found of non-negotiable investment decision criteria factors. More than half of the respondents highlighted the major investment criteria factors

that influence decision making process for mining MNCs such as security of tenure, right to repatriate profits, management control, equity control and fixed tax terms.

Subsequently, possibly the most comprehensive survey ever was conducted by Otto (1997). This United Nation Global survey indicated 60 different factors influencing the investment decisions of large mining multinationals.

Figure 4 illustrates the rankings of each factor. (Otto, 1997)

Ranking Exploration Stage	Mining Stage	Decision Criteria
1	N.a	• Geological potential for target mineral
2	3	• Measure of profitability
3	1	• Security of tenure
4	2	• Ability to repatriate profits
5	9	• Consistency and constancy of mineral policies
6	7	• Company has management control
7	11	• Mineral ownership
8	6	• Realistic foreign-exchange regulations
9	4	• Stability of exploration/mining terms
10	5	• Ability to predetermine tax liability
11	8	• Ability to predetermine environmental obligations
12	10	• Stability of fiscal regime
13	12	• Ability to raise external financing
14	16	• Long-term national stability
15	17	• Established mineral titles system
16	N.a	• Ability to apply geological assessment techniques
17	13	• Method and level of tax levies
18	15	• Import-export policies
19	18	• Majority equity ownership held by company
20	21	• Right to transfer ownership
21	20	• Internal (armed) conflicts
21	14	• Permitted external accounts
22	19	• Modern mineral legislation

Applying the first five factors from Figure 4, in the light of the debate around resource nationalism in South Africa, one can easily notice the above mentioned factors are in place and will not largely influence the decision making of potential investors. However, there is clearly the need to seek answers in terms of the mineral ownership in the South African context.

There is no doubt that one of the key factors to consider in terms of attracting foreign direct investment into a resource rich country is mineral ownership. Filho (2002) suggested that international investors would certainly wish to see legislation that guarantees ownership of the extracted ore and freedom to market it (Filho, 2002).

Additionally, legislation that vests ownership of the extracted mineral to the government and imposes marketing restrictions, such as supply of the local market or sales through a government agency, will not create a conducive environment to attract foreign investments (Filho, 2002). Moreover, the effective mineral title management must be in place in order to reduce the conflicting claims to ownership and rights (Morgan, 2002).

For the purpose of attracting foreign direct investments, policy makers such as International Financial Institutions, encouraged the resource rich countries to decrease their controlling stake in the mining industry and to amend policies and regulations to create an investor friendly environment (Haselip&Hilson, 2005).

This is perfectly illustrated by the latest trend in mining foreign direct investment into countries of Latin America where countries such as Brazil, Chile and Argentina have experienced the highest level of development in mining sector through the changes in the policies favouring the legal reforms and privatisation (Frazer Institute, 2011).

With regards to Sub Saharan Africa, major changes were advised to improve the strategy of attracting foreign direct investment by Kumar (1990):

- Institutional infrastructure;
- Geological studies and their promotion;
- General business climate and investor confidence;
- Contractual terms;
- Foreign exchange policy;

- Aspects relating to the environment; and
- Transfer of technology and training.

In general, one can sum up major categories of factors that can influence FDIs in the mining industry as follows:

- *Human Capital*;
  There is absolutely no doubt that human capital plays an enormous role in determining the FDIs. Framework of New Growth Theory talked about how FDIs affect the economic growth through human capital (Kok&Ersoy, 2009). Moreover, a lack of highly skilled, educated and healthy workforce could be detrimental for multinationals entering the country (Gwenhamo, 2011).

- *Geological*;
  Untapped mineral wealth of SA was evaluated as 2.5 trillion USD and made SA the richest country in terms of deposits (Citigroup Report, 2011). Geological prospecting will lead to a higher level of exploration activities as it will increase the odds that a mining company will discover a mineral deposit (Vivoda, 2010).

- *Political*;
  Countries with a high rate of free elections, with secure tenure and well established democratic systems that possess tested mining legislation and provide protection against government or other means of taking property will always create conducive environment for FDIs (Behre Dolbear Mining Investment Rankings for Countries, 2011). In addition, Otto (2006) suggested that national mineral policies must be consistent, clear and concise in order to attract FDIs. Furthermore, most finance research finds that nationalisation increases in countries with a higher political risk and less efficient legal frameworks (Sharifzyanova, Kirchner & Kretzschmar, 2010).

- *Environmental and Social*; *and*

The importance of managing the stakeholders, particularly in communities that multinationals operate in, has been growing day by day. ISO 14001 and Yale University Environmental Performance Index are only few of many key performance indicators which companies have to measure themselves against. Local communities have the power to impact on security of tenure between exploration and mining (Vivoda, 2010).

- *Economical*.

  Not only is attracting FDI not the same thing as development, it also contributes to development that depends on macroeconomic and structural conditions in the host economy (United Nations Conference on Trade and Development Report, 2011). It is generally accepted that explanatory variables such as property rights, trade openness and market size impact the level of FDI inflow in economy. For instance, the larger market allows companies to benefit from economies of scale that arise from low distribution costs and bulk-buying of inputs (Gwenhamo, 2011). Additionally, mining activities are very much capital intensive. Normally, huge capital investment is needed to viably mine the mineral deposits (Vivoda, 2010)

Not only mining multinationals follow the academic researchers to determine their intention to invest, they also pay much attention to think-tank houses such as the Frazer Institute, Metal Economics Groups and Behre Dolbear Group. These think-tank groups tend to use a more qualitative approach in investment decision making. For instance, the Fraser Institute Annual Survey of Mining Companies sent questionnaires to almost 5,000 exploration, development, and other mining-related companies around the world (Frazer Institute Annual Report, 2012).

In order to establish the rankings, Fraser Institute Annual Survey utilises the Policy Potential Index (PPI) which is a measure for the overall policy attractiveness of the 93 jurisdictions in the survey. In terms of PPI, South Africa scored 18 places worse than previously from being ranked 49 in 2009 to 67 in 2011.

Moreover, the 2011 Ranking of the countries for mining investment conducted by the Behre Dolbear Group, focuses more on political risk of potential countries for mining investments (Behre Dolbear Group, 2011). South Africa was rated very low and placed in 19th place. This was mainly due to the uncertainty in the future land reforms and nationalisation of mines.

2.4 SPECIFIC DETERMINANTS OF FDIs IN THE MINING INDUSTRY

After taking the closer look at general concepts of FDIs in the mining industry, it is worthwhile to explore the specific determinants of FDIs in the mining industry. The determinants such corporate tax, political instability, geological data, private sector participation, mining regulations, profit repatriation, environmental regulations and existence of joint ventures will be covered in detail in the following sections.

2.4.1 CORPORATE TAX

Return on capital is based on the increasing or decreasing cost of energy, resources, labour and tax. Tax is perceived to have a negative impact on the profitability of FDIs. This is true in certain countries of the world. Bellak and Leibrecht (2009) suggested that tax in Central and Eastern European countries (CEEC) has a negative impact on FDIs. Moreover, their empirical results indicated that FDIs were inversely proportional to tax burden and proved that in eight CEEC host nations the 1% decrease of tax burden contributed to an extra 1.45% FDIs inflow (Bellak & Leibrecht, 2009). Scholes and Wolfson (1990) proposed the hypothesis that most of the US based MNCs would increase their FDIs to other countries when US tax rates increased (Scholes&Wolfson, 1990).

According to Blonigen (2005) certain types of FDIs would not be so sensitive to the tax burden. Firstly, he stated that a firm would want to finance new FDIs by means of retained earnings, before turning to new infusions from the parent country. Secondly, it would mean that FDIs by means of retained earnings, should only respond to host

country tax rates, not parent country tax rates or the parent country's method of dealing with double taxation issues (Blonigen, 2005).

The mining industry is not different from other industries, where priority lies in profit generation and increase to shareholder values. Many resource rich countries would imposed high tax rates in order to cut MNEs profit margins. In his mining investment criteria survey, Otto (1998) identified that 4 out 15 top-ranked criteria were related to taxation such as measure of profitability, ability to predetermine tax liability, stability of fiscal regime and the method and level of tax levies.

Many countries realised that in terms of promotion of the investment climate in the mining sector some sort of general tax stabilisation would be required. Another factor identified by mining companies was the "ring-fencing" approach of some mining rich countries (Otto, 1998). According to the ring-fencing principle, independent operation of the company is taxed independently or accounts from individual operation maybe aggregated for tax purposes (Otto, 1998).

2.4.2 POLITICAL INSTABILITY

There is no doubt that political instability plays an enormous role in the decision making process of mining MNEs. It is a measure of likelihood that the government in power will be destabilised or overthrown in an undemocratic and unconstitutional way (Mengistu&Adhikary, 2011). Implications of political instability on FDIs is based on the hypothesis that the political instability leads to a disruption in doing business and marketing activities (Akhter, 1993).

Political stability is profound in guiding resource allocation in effectively run markets and fostering economic confidence in undertaking long-term investments (Mengistu &Adhikary, 2011). Moreover, a stable political environment will decrease the risk regulation changes and licenses being revoked without warning (Vivoda, 2011).

There is a general tendency that in politically unstable countries MNCs are more concerned with the safety of their employees and equipment. This situation leads to more operating costs incurred by MNCs due to the security measures for land, mining equipment and working employees (Penney, 2007).

Most of the resource rich countries tend to have some political instability. Some would argue that it is due to the lack institutional strength, whereas others would say it is due to a lack of understanding of how to create a favourable investment climate. Not only do these mineral-rich countries have political instability, but also have examples of debt default, foreign exchange restrictions, civil unrest, breach of contractual agreements and irresponsible economic measures (Filho, 2002). Filho also argued that it is not only about political instability, it is more about the reputation of the country (Filho, 2002). As a result, it is up to the host country and its government to create sustainable economic development to enhance the FDIs inflow.

One of the ways to build sustainable economic development will be through proper governance. Gani (2007) explained that proper governance attributes can influence the FDIs as the sound and fair observance of the rule of law are likely to attract more FDIs: whereas political stability can reduce the risk of doing business (Gani, 2007).

2.4.3 ENVIRONMENTAL REGULATIONS

It is important to realise that environmental regulations have become one of the key drivers of FDIs in mining, especially in developing mineral rich countries. In fact, this is well stated in many mineral policies to ensure the promotion of the FDIs in the mining industry. The recent empirical studies around environmental regulation and FDIs indicated that many MNCs have drastically improved the environmental policies in developing mineral rich countries (Vivoda, 2012).

Usual trade-offs between job creation and environmental issues have kept busy many local newspapers, magazines and internet posts. Potential investors and FDI recipients in mineral rich countries have to consider environmental factors when pursuing their developmental goals (Kumar, 1990).

Filho (2002) argued that government should find the fine balance in creating a legal framework which will guarantee environmental protection and will not scare away the investments. He added how important it is to clearly set the environmental standards, such as environmental impact assessments, environmental protection plans, and monitoring of flora, fauna, water, noise and air. The ultimate goal is to conduct mining operations with minimum harm to the environment and surrounding communities (Filho, 2002).

The effects of more stringent environmental regulations are weakly deterred by prospective new operations in pollution intensive sectors (List, 2001). However, most of the mining activities tend to take place in remote and naturally sensitive areas. As a result, most of the MNCs tend to address environmental issues only on a country level which leads to unforeseen and undesirable consequences.

Cole, Elliott and Fredriksson (2006) claimed that the impact of the stringent environmental regulations on the FDIs was high when the degree of corruptibility of local government was low (Cole, Elliott & Fredriksson, 2006). This is why the local government and local communities involvement in the early stage of formulation of the environmental policies would be very much useful for MNCs moving forward. In many cases, local communities fought against the mining activities and consequently contributed to the late start-up of productions (Vivoda, 2010).

2.4.4 GEOLOGICAL

One of the things that will definitely trigger the investment appetite of potential investor is geological potential of the mineral rich country. Even before compiling the business case the potential investors will run the models to ensure there will be desirable rates on return on their investments. These sophisticated financial models will use the geological data as a starting point. The questions that should be asked are about the size of the reserve, qualities of the minable mineral and mining methods to be deployed.

Proper geological prospecting will determine the level of exploration activities and will increase the odds of MNCs to discover potential mineral deposits (Vivoda, 2010). Moreover, the availability and credibility of the publicly accessible geological database is a paramount factor to increase the transparency of mineral related information (Vivoda, 2010). This is true due to the fact that potential investor generally rely on credible geological data.

Compiling an efficient geological data set, promotion of the prospecting activities by both private and state owned enterprises and ensuring that the geological data is collected in right time and in right manner are all important tools to consider (Filho, 2002). There is an absolute need for establishing the central point where all this geological information is kept, updated, analysed and shared. As a result, government involvement is critical. General management and maintenance of the open-file systems whereby investors can have full access, at a reasonable cost, to geological data such as airborne survey results, geochemical, geophysical and seismic data and detailed mapping is absolutely critical if not crucial (Filho, 2002).

2.4.5 MINING REGULATIONS

Mining is a capital intensive business. Thus, it is important for MNCs to be well aware of the mining regulatory framework in the mineral rich host country. Mining

laws of the mineral rich countries establishes the significant conditions of operating for potential investors. These conditions will include requirements of obtaining and retaining the exploration and mining titles, management control, transferability of titles, size of the areas, duration of exploration and mining rights, ownership of mineral and marketing rights and land access (Filho, 2002).

In other words, the ultimate goal of the mining laws is to balance the requirements of the government to have control of the operations to ensure that the greatest national benefit with a mining companies' requirements for security and minimum government intervention (Morgan, 2002).

Naito (1998) referred to the mining law as a principle regulatory instrument governing mineral activities and defining both the rights and obligations of mining title holders and the powers of government officers. Additionally, Naito (1998) suggested the basic framework for Asian mining law addressing topics such as government authority, restriction of mineral activities, exploration and mining rights and obligations and the environment (Naito,1998).

Most of the mineral rich countries provide a two-step process in which a company first gains, the right to explore and then, should economic deposit be discovered the right to mine (Vivoda, 2010).

Workable rules must be within the international well-accepted mining standards. Whether the mining laws are workable can be easily determined based on the experience of the international mining company (Morgan, 2002). It is important to use the following questions as a checklist to see whether or not mining laws are workable (Morgan, 2002):

- How are the rights obtained?
- What rights can be obtained?

- How can rights be lost?
- What means are there to appeal for reinstatement of a right that has been lost?
- How flexible is the system?
- How complete is the system?

The key factor is how consistent and transparent the mining rules are. Stable legal system which allows "inter alia" the enforcement of mineral rights, management of operations by the company and transferability of title will lead to the increase in FDIs in mining industry (Filho, 2002). Moreover, likelihood of an increase in FDIs is higher when regulations and procedures are clear, efficient and transparent, and all levels of government are consistent and effective in their application of the regulations (Vivoda, 2010).

2.4.6 PRIVATE SECTOR PARTICIPATION

Increasing competition among the mineral rich countries wanting to be the main recipients of FDIs, forced these countries to create investor friendly climates. This will be only possible by targeted, clear and efficient investment promotions. These investment promotions are well-incorporated in the mineral policy of the FDIs recipient country. Noito (1998) suggested that the main aim of a mineral policy document must be to attract investment (Noito, 1998).

Otto (1997) elaborated more on this topic and highlighted that the main fundament behind investment promotion, lies in first bringing the geological potential to the investors' attention and then assuring them that investment risks are low and manageable (Otto, 1997). This will require proper channels of communication to be in place in order to sell the world the idea that the investment climate is reformed, modern and a foreign investment friendly place (Filho, 2002).

Broad sectorial investment promotion includes things such as privatisation and trade liberalisation. Private sector participation is key to inviting investment. It is also a measure of how well a mineral rich country understands the importance of the private sector participation in order to create jobs and empowerment.

Good evidence of private sector participation comes from infrastructure projects in Chile. Hill (2011) claimed that private participation in infrastructure implies more than the capital investment. Moreover, policy makers also rely on the private sector to plan, build and operate infrastructure, and to manage the commercial risks associated with infrastructure development (Hill, 2011).

2.4.7 JOINT VENTURE

Many MNCs face the challenge of joint ventures (JVs): which can be either forced or unforced. Lu and Ma (2008) suggested that unique competencies that local partners generally offer can increase the odds of the competitive advantages of MNCs. Their empirical research revealed that local partners can make the differential contributions to the JV, but what remained an issue was the contextual conditions under which a local partner might or might not confer advantages to the MNCs (Lu & Ma, 2008).

In China, the government imposes equity requirements or requires foreign investors to take a local JV partner (Vivoda, 2010). Whereas in India, most of the minerals' foreign equities go up to 100% and there is no difference in caps on foreign equity holdings during exploration and mining stages (Vivoda, 2010).

In mining terms JVs might be considered as ownership sharing. However, eventhough there many specialists that claimed that JVs might be beneficial, in mining it might create some unforeseen issues. The main issue around joint ownership concerns who should be in charge, meaning, who should be in full

management control over the mining operations. Since the operational standards of companies are not the same, potential JVs will create some degree of misalignment as well as misunderstandings among participants. FDIs in mining will have better chances to increase if the potential investors are guaranteed the operational flexibility to form the corporate structure to suit the operational environment (Vivoda , 2010).

The mineral policy of a mineral rich country must clearly indicate the concept of ownership of the mineral deposit to the potential investor. Legislations that ensure the mineral ownership to state-owned enterprises or enforce marketing restriction such as domestic supply or sales through a government agency, will definitely jeopardise the country's investment promotion and this will most certainly have a negative impact on the FDIs (Filho, 2002). Conflicting claims around the mineral ownership must be avoided and an effective mineral policy should reduce the risk of such conflicts (Morgan, 2002).

CHAPTER 3 – RESEARCH QUESTIONS

3.1 RESEARCH CONTRUCTS

Literature review has indicated the wide range of the FDIs determinants in the mining industry. For the purpose of this research the specific seven determinates of FDIs were chosen.

To begin with, understanding the geological potential of the mineral rich country was the key to increasing the odds of foreign investments. This was followed with the importance of political stability: which is mainly due to the fact that most of the mineral rich countries tend to have a higher degree of political instability.

Private sector participation was identified as a key driver of the host nation to open its doors to foreign investment. It is also a measure of how well the host country can promote an investment friendly climate. It was also important to note how transparent the mining regulation should be in order to attract more foreign capital.

Tax rates are another key element of FDIs in the mining industry. The existence of joint ventures and the role of environmental regulations are just as important to consider.

To this end, suggested research construct is based on the following elements:

- Quality and reliability of geological data;
- Political stability;
- Private sector participation;
- Transparency of mining regulations;
- Tax rates;
- Strict environmental regulation; and

- Forced joint ventures.

See Figure 5, which indicates the proposed research construct.

3.2 RESEARCH HYPOTHESIS

Due to the above literature review, the research seeks to analyse the impact resource nationalism has on the FDIs in the mining industry. The following research hypothesises (RH) will be investigated:

H_1: Lower tax levels will attract more FDIs in mining industry;

H_2: The more reliable geological data is the more FDIs inflows in mining industry will be;

H_3: More politically stable countries will attract more of FDIs in mining industry than less stable countries;

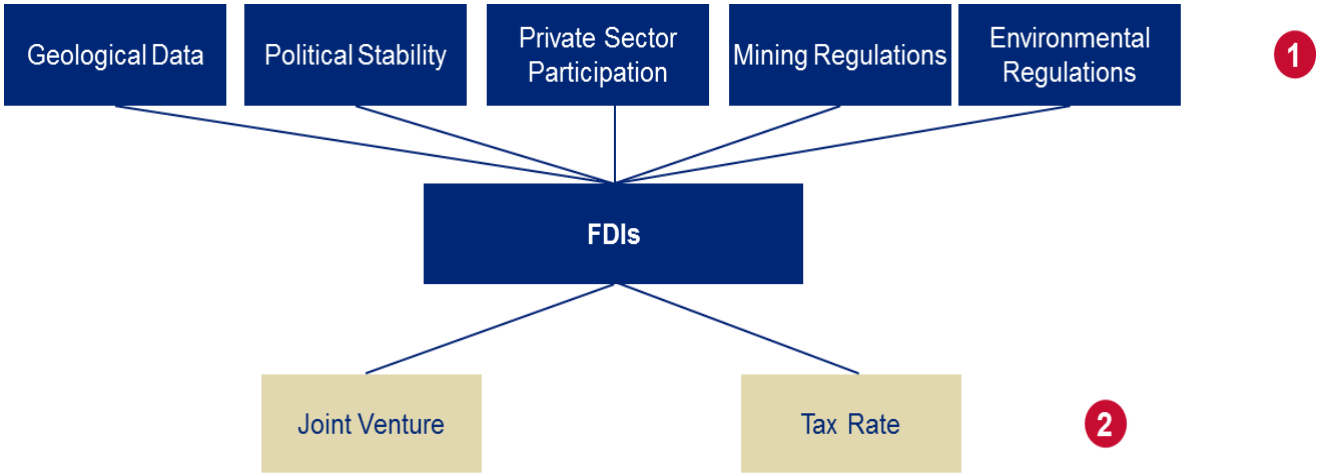
H_4: Strict environmental regulations will attract FDIs in mining industry;

H_5: Transparency in mining regulations will lead to better FDIs in flows in mining industry;

H_6: Forced joint ventures in mineral rich countries will decrease the levels of FDIs in mining industry; and

H_7: Higher private sector participation in mining industry will create more competitive investment climate.

Figure 5: Proposed Research Construct

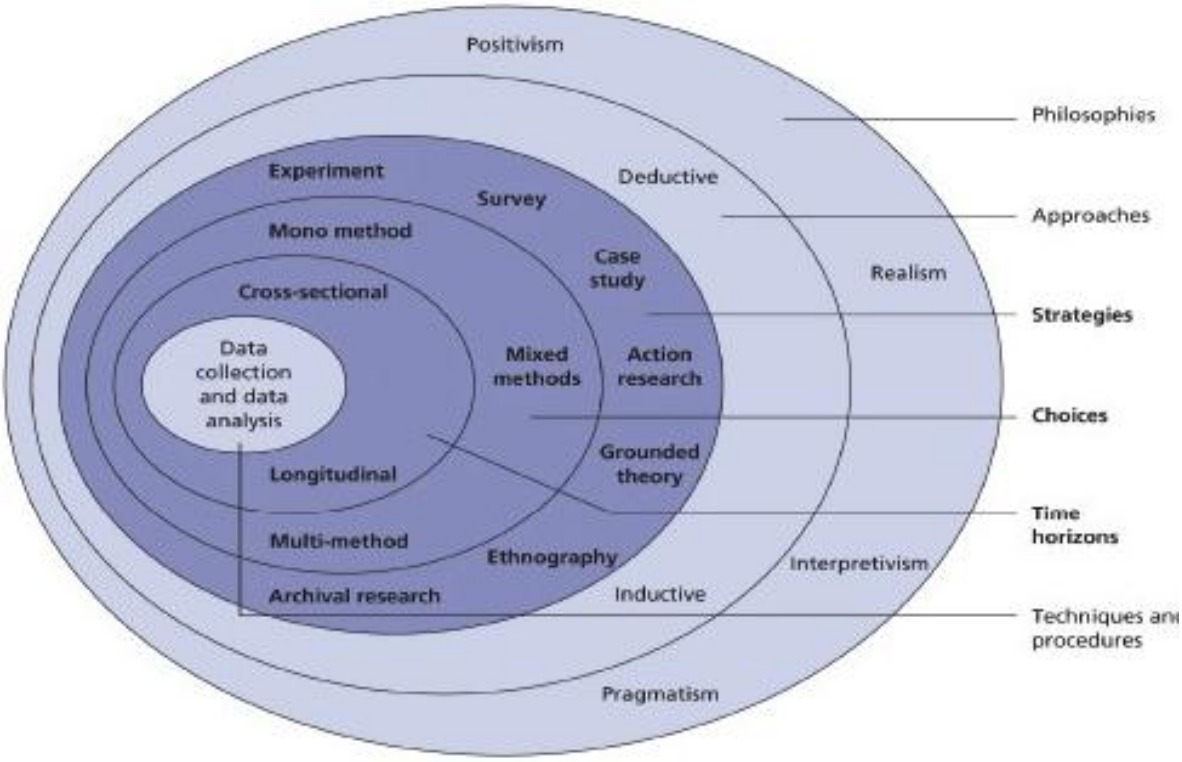


CHAPTER 4 – RESEARCH METHODOLOGY

In order to make the process of choosing the research design to be as manageable as possible the concept of a research "onion" will be used (Saunders & Lewis, 2012). This metaphor will assist in gaining a deeper understanding of the research processes that will be encountered during the research phase.

Figure 6: The research onion

Source: Mark Saunders and Philip Lewis (2012).



4.1 CHOICE OF APPROACH

A deduction approach will be employed to conduct the proposed research. Saunders and Lewis (2012) describe the deduction approach as an approach which involves the testing of the theoretical proposition by using a research strategy designed to

perform the required test. There are five main sequential stages in a deductive approach (Saunders & Lewis, 2012):

1. Define research questions from the general theory that exists;
2. Operationalise these questions;
3. Seek answers to the questions defined at stage 1;
4. Analyse the results of the inquiry to determine whether it supports the theory or suggests a need for its modification; and
5. Confirm the initial theory, or modify it in light of the findings.

Moreover, Saunders and Lewis (2012) continue with four key characteristics of a deductive approach. These are:

- Explain casual relationships between the variables;
- Operationalise the relevant concepts (Stage 2);
- Collect and analyse data to answer the research questions (Stage 3 & 4); and
- Use the clearly structured methodology to facilitate the replication.

In this case, the deduction research approach will be used for the following reasons (Saunders & Lewis, 2012):

- To explain causal relationship among variables such as nationalisation vs FDI;
- To collect data from the Raw Material Group about the level of FDI activities in the mining industry for each country and to see whether it supports the theoretical framework or suggests any modifications;
- To achieve reliability ;and
- To identify the ownership by the state in other countries.

4.2 TYPE OF THE STUDY

The proposed research design will be quantitative and descriptive in nature. Saunders and Lewis (2012) suggested the descriptive study seeks to describe accurately persons, events or situations (Saunders&Lewis, 2012). In this research, secondary data from the World Bank Doing Business Report, the Frazer Institute and the Raw Materials Group Annual Survey of Global Mining Investments will be reanalysed in order to achieve the desired outcomes.

4.3 STRATEGY

The strategy to be followed will be based on experiment. Experiment strategy consist of casual links between variables (e.g. the level of political uncertainty) will cause the change in other dependent variable (e.g. FDIs in mining industry) (Saunders&Lewis, 2012). Experiment is type research strategy involves things such as (Saunders&Lewis, 2012):

- The selection of a sample of individuals from known population;
- The allocation of samples to different experimental conditions;
- The introduction of planned change to one or more of the variables; and
- Measurement on a small number of variables and control of other variables.

There is also a need for cross-sectional research design. Cross-sectional research design consists of a particular topic at a particular time (Saunders&Lewis, 2012). Thus, the research intends to look at the data of FDIs in mining industry between 2007 and 2011.

4.4 DATASET

The major part of the required data will come from 15 developing countries. In order to prevent further isolation of independent variables, five countries with

nationalisation experience and five countries with no nationalisation will be benchmarked against one another. All these countries are depicted in Figure 7.

Due to the fact that the nature of selection was based on the mining potential of the target countries, the list of countries for a future study will be taken from the survey on mining from Canadian based Frazer Institute. Priority will be placed on the countries, which have examples of resource nationalism or those that reverted back from nationalisation to privatisation. It is important to note that most of the data reported will be recorded in terms of the US Dollar value.

Figure 7: Dataset Countries

	TOTAL DATASET	NATIONALISED	NO NATIONALISED
COUNTRIES	• Canada • USA • Australia • Indonesia • Papua New Guinea • Philippines • Botswana • Ghana • South Africa • Argentina • Brazil • Chile • Colombia • Mexico • Peru • Venezuela • Kazakhstan • Mongolia • Russia • Turkey	• Argentina • Chile • Kazakhstan • Russia • Venezuela	• Australia • Brazil • Canada • Mongolia • Peru

Data for the dependent variable FDI was analysed from the Raw Materials Group, which releases the Annual Survey of Global Mining Investment. This survey is compiled from more than 3000 mining projects around the world varying from a prefeasibility studies stage to the construction stage.

Based on previous researches, Vivoda (2010) compiled the key FDI determinants in the mining industry, which will have impact on decision-making process for potential investors. Thus, there will be seven independent variables such as geological (G), political (P), investment promotion (IP), regulatory (R), fiscal (F), financial (FI), and environmental and social (ES). The data for the independent variables was taken from the Fraser Institute's Annual Report Survey of Mining Companies and the World Bank reports.

To fulfil the data requirements for the following independent variables were proposed:

- x_1: Quality and reliability of geological data;

  Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of the quality of geological data.

- x_2: Political stability of the countries;

  Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of the political stability.

- x_3: Private sector participation;

  World Bank, Global Competitiveness report.

- x_4: Transparency of mining regulations;

  Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of mining regulations.

- x_5: Tax rates;

  Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of the corporate tax.

- x_6: Strictness environmental regulations.

Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of the environmental regulation: and

- x_7: Existence of forced joint ventures.

  Fraser Institute's Annual Report Survey of Mining Companies provides the rankings of forced joint ventures.

4.5 ANALYSING DATA

To begin with, scatter diagrams will be used to analyse the relationship among the variables. This will provide an understanding of just how each independent variable will affect the dependant variable. Moreover, graphical representation of scatter diagrams will assist in determining priority amongst the list of independent variables. Furthermore, a correlation test will be run in order to identify any possible connection amongst the independent variables.

There might be instances when two or more independent variables will show the same high level of correlation. This will lead to a situation where each of these independent variables will contribute to the same level of importance to the model (Albright, 2009). This phenomenon is known as multicollinearity.

One of the strategies to determine the multicollinearity is to test how stable variables are by dividing the data set into different parts and to observe if there have been drastic changes (Albright, 2009). Moreover, looking at the high correlation of the coefficients might lead to multicollinearity.

In order to find the solution to multicollinearity, there is a strong need to understand the causes of multicollinearity. A big enough sample size of the research is enough to reduce the impact of multicollinearity (Albright, 2009). Another way would be to conduct a joint hypothesis test instead of conducting single t-tests. Furthermore,

there is a need to ensure that the right dummy and variables were used in the regression model (Albright, 2009).

Due to the fact that the data represents the time series, there will be a need to detect non-randomness in data, and to identify an appropriate time series model if the data is not random. This is due to the fact that time series variables are generally related to their own past values (Albright, 2009). This property of many time series variables is called autocorrelation (Albright, 2009).

One of the ways to measure autocorellation is to deploy the Durbin-Watson statistics. This statistics enables one to check whether there is any serious autocorrelation in the residuals (Albright, 2009).

Once the data from the countries is gathered, an analysis will be conducted to determine what influences FDI has in the mining sector in those countries. This analysis will be done by means of a regression model of a 95% confidence level, suggested by Saunders and Lewis (2012). The following variables will be used in the regression model:

x_1: Quality and reliability of geological data;

x_2: Political stability of the countries;

x_3: Private sector participation;

x_4: Transparency of mining regulations;

x_5: Tax rates;

x_6: Strictness environmental regulations; and

x_7: Existence of forced joint ventures.

The proposed regression formula for FDIs in the mining industry is as follows:

$$FDI = A + x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + E$$

Based on the assumption, in this case E is distributed through the given data range and A is a intercept. By manipulating the independent variables, the formula above will predict the value of the dependent variable, namely, FDIs in mining.

4.6 RESEARCH LIMITATIONS

The following limitations were identified:

- In some countries, nationalisation initiatives took place long before the establishment of the World Bank Database.
- The dummy variable for certain countries might be different.
- Consistency in the treatment of variations in the results is founded from the countries.
- In some countries there is no clear distinction in terms of the sectorial inflow of FDIs.(e.g. FDIs in mining and petroleum are combined)

CHAPTER 5 – RESULTS

This chapter consist of two parts. In first part, each independent variable will be tested to identify the strength of relationship with the dependent variable. The second part will cover the step wise multiple regression, where each variable will be added to the regression model. A total sample and two "nationalised" and "no nationalised" samples were used.

As it was previously mentioned, there will be instances when two or more independent variables will show the same high level of correlation. This will lead to the situation where each of these independent variables will contribute to the same level of importance to the model (Albright, 2009). This phenomenon is known as multicollinearity.

Multicollinearity can be detected by testing how stable variables are and by dividing the data set into different parts and observing if there have been drastic changes (Albright, 2009).

There was a need to detect non-randomness in the data and to identify an appropriate time series model if the data is not random. This is due to the fact that time series variables are generally related to their own past values (Albright, 2009). This property of many time series variables is called autocorrelation (Albright, 2009).

One of the ways to measure the autocorellation is to deploy the Durbin-Watson statistics. This statistics enables one to check whether there is any serious autocorrelation in the residuals (Albright, 2009).

5.1 DATA DESCRIPTION

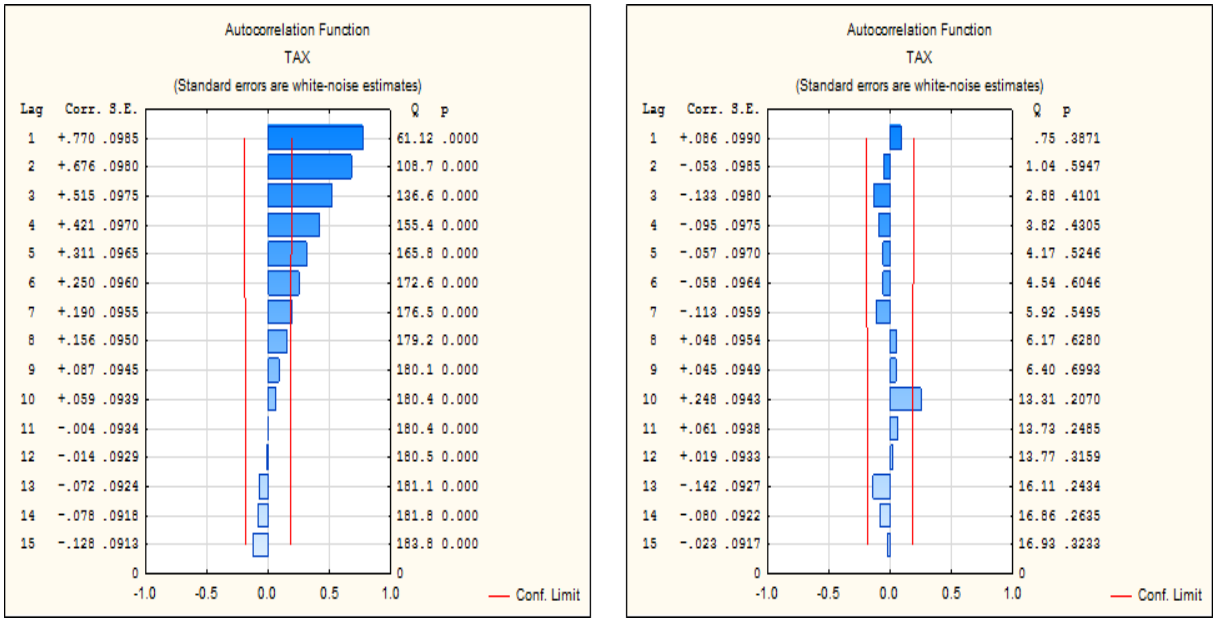
In this part, in order to see the strength in relationship each independent variable was tested against the dependent variable. Moreover, the tests provided results to better understand the relationship among the independent variables as well.

5.1.1 CORPORATE TAX

Before analysing the data, the Tax data set was tested for autocorrelation. Figure 8 graphically indicates how raw data was well above the level of significance and how it was normalised to get appropriate results.

Figure 8: Autocarrelation Tax

Before **After**



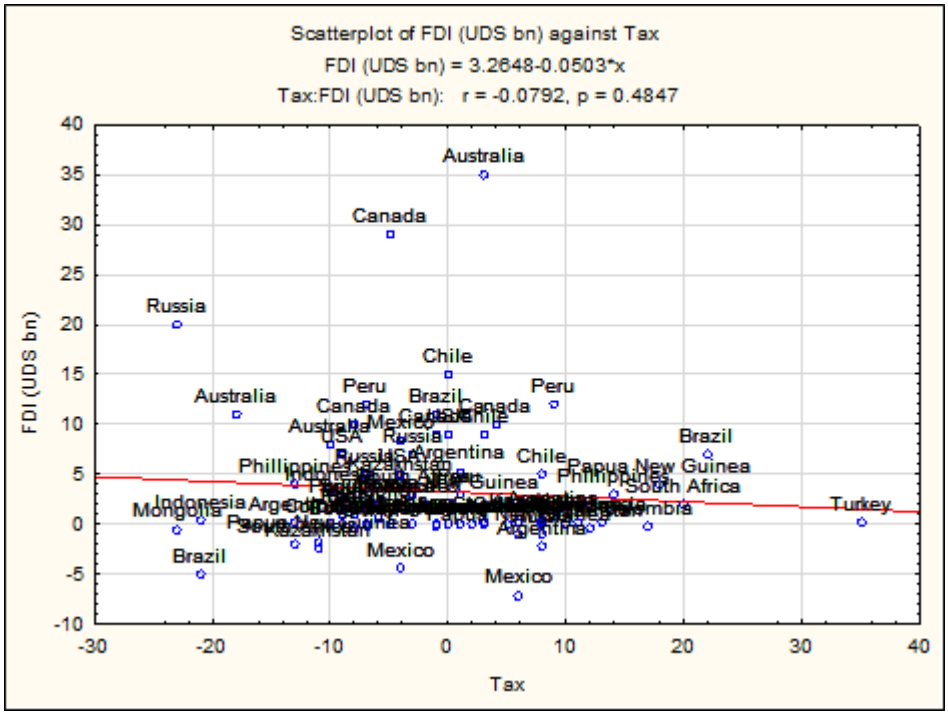
The total data set showed no relationship between the independent Tax variable and the dependent FDI variable. In the Durbin-Watson test, correlation coefficient (r) came out very weak, meaning the strength of the relationship was almost negligible at -0.079245. Figure 9 demonstrates the results, and marked correlations are significant among the independent Tax variable with other independent variables such as Geological, Political, Environmental Regulation and Mining Regulation at $p < .05000$ N=80.

Figure 9: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Tax	1.0000	.0478	.3510	.4685	.5302	.4885	.0932	-.0792
	p= ---	p=.673	p=.001	p=.000	p=.000	p=.000	p=.411	p=.485

By means of a scatterplot, the above mentioned is graphically well represented on how negligible the relationship between the dependant variable and the independent variable is

Figure 10: Scatterplot FDI against Tax



Then, the Spearman rank order was deployed to test the basis of difference and raw data. On the basis of differences, the p-value came out to be 0.82302 and raw data p-value was found to be 0.864169; meaning that both differences and raw data indicated low level of significance between the independent Tax variable and the dependent FDI variable.

Figure 11: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	80	-0.0254	-0.22441	0.823022		Tax & FDI (UDS bn)	100	0.017323	0.171519	0.864169

Moreover, the Spearman rank order has illustrated that on a country level Botswana came out the best with a p-value of 0.051317. It was followed by Ghana, Brazil and Papua New Guinea with p-values of 0.183503, 0.2 and 0.2 respectively. Countries such as Canada, Australia, Philippines, Chile, Colombia, Venezuela, Kazakhstan and Mongolia demonstrated p-values well above 0.6. For the rest of the countries, p-values varied from 0.2 to 0.4.

Figure 12: Botswana, Spearman Rank Order

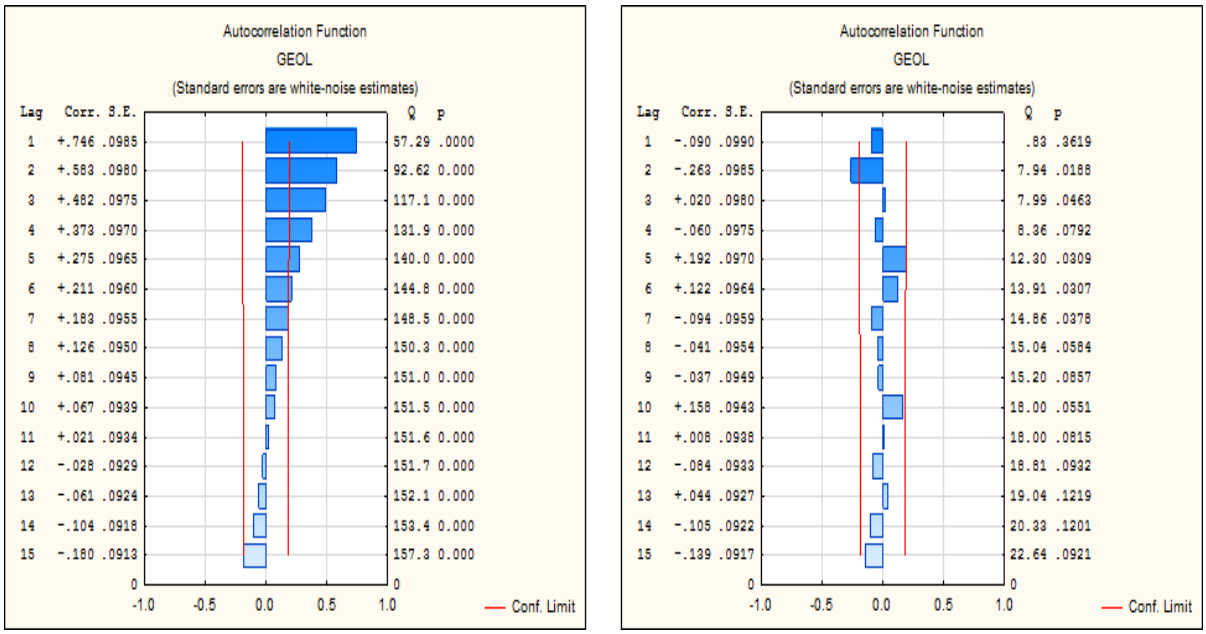
	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

5.1.2 GEOLOGICAL

The Geological data set was tested for autocorrelation. Figure 13 below, graphically indicates how the raw data was normalised.

Figure 13: Autocorrelation Geological

Before **After**



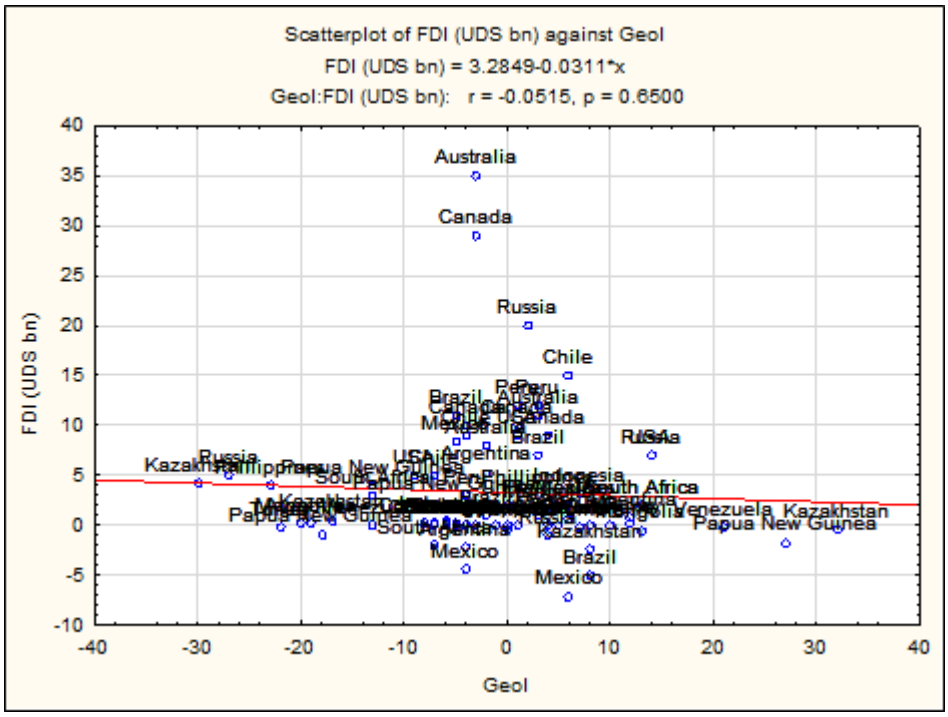
The total data set for Geological showed no relationship between the independent Geological variable and the dependent FDI variable. Using the Durbin-Watson test, correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at -0.0515. Figure 14 demonstrates the fact that the correlations between the independent variable Geological and the independent Political variable is significant at p < .05000 N=80.

Figure 14: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Geol	.0478 p=.673	1.0000 p= ---	.2524 p=.024	.0651 p=.566	.1754 p=.120	.0570 p=.616	.0527 p=.643	-.0515 p=.650

Moreover, the scatterplot well supports the findings above and graphically represents the negligible relationship between the dependant FDI variable and the independent Geological variable.

Figure 15: Scatterplot FDI against Geological



Then, the Spearman rank order was deployed to test on basis of differenced and raw data. On the basis of differences the p-value came out to be 0.33751 and on the raw data basis the p-value was found 0.000001, indicating correlations were statistically significant between the independent Geological variable and the dependent FDI variable.

Figure 16: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
Geol & FDI (UDS bn)	80	-0.108622	-0.96503	0.33751		Geol & FDI (UDS bn)	100	0.474398	5.334822	0.000001

Moreover, the Spearman rank order has indicated that on a country level Colombia came out the best with the highest significance level of a p-value of 0.051317. It was followed by Kazakhstan, Turkey, Brazil and Canada with p-values of 0.2, 0.2, 0.2 and 0.367544 respectively. Countries such as Australia, Indonesia, Papua New Guinea, Botswana, South Africa, Chile, Peru, Venezuela, Mongolia and Russia demonstrated p-values well above 0.6. For the rest of the countries, p-values varied from 0.367544 to 0.4.

Figure 17: Colombia, Spearman Rank Order

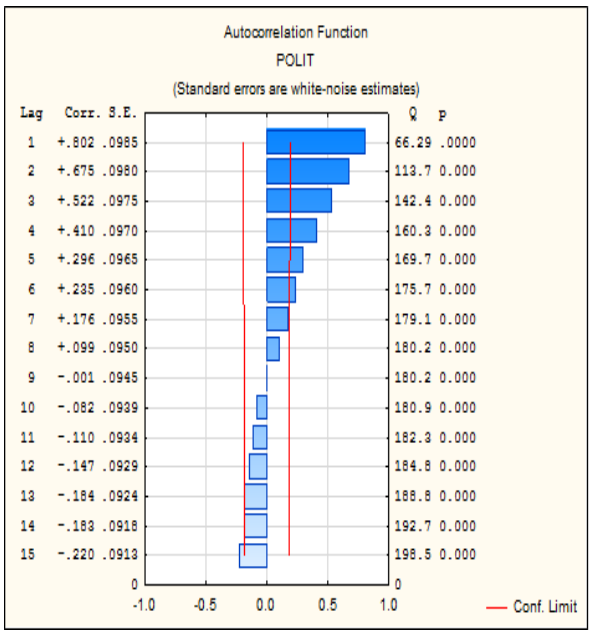
	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
Geol & FDI (UDS bn)	4	-0.948683	-4.24264	0.051317
Polit & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
EnReg & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
MinReg & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
JV & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
PrivSec & FDI (UDS bn)	4	-0.5	-0.8165	0.5

5.1.3 POLITICAL STABILITY

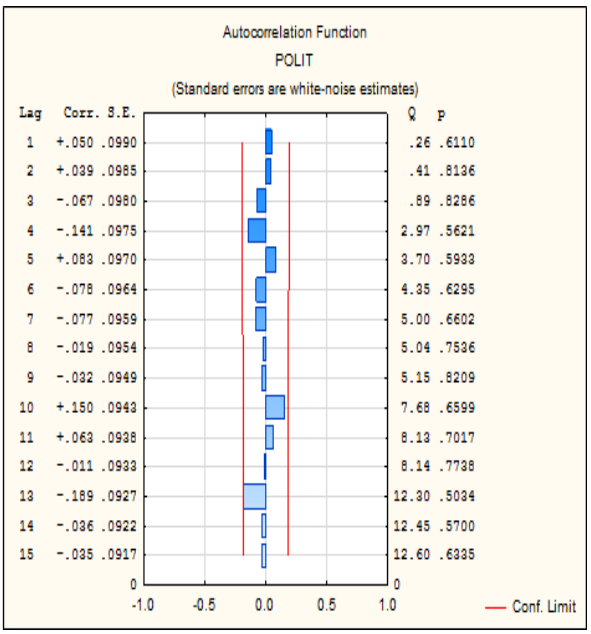
The Political data set was tested for autocorrelation. Figure 18, below, graphically indicates how the raw data was normalised.

Figure 18: Autocorrelation Political Stability

Before



After



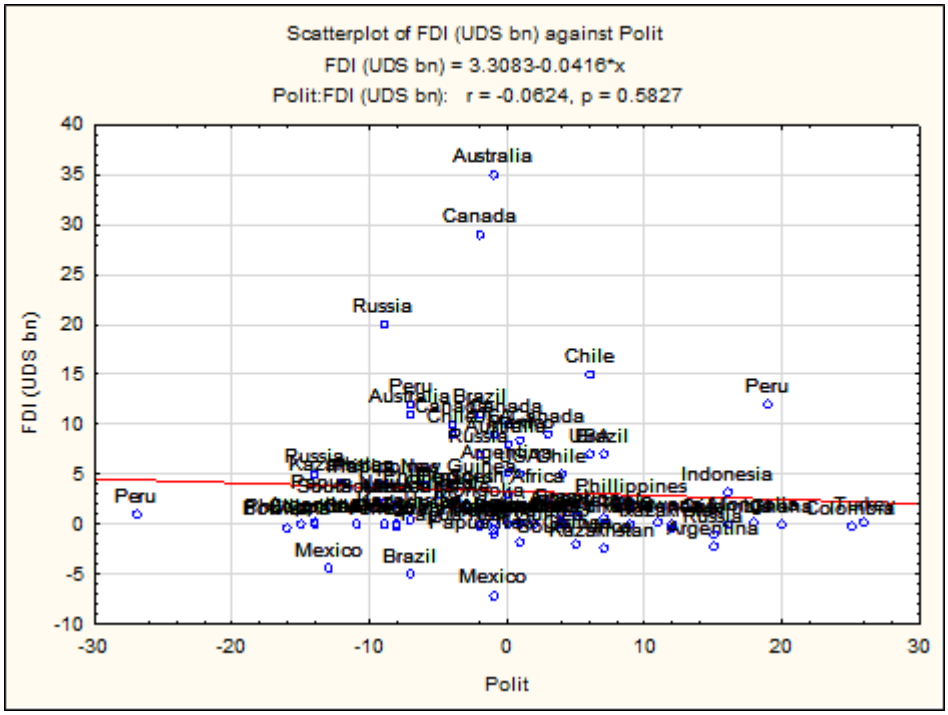
The total data set for Political stability showed no relationship between the independent Political variable and the dependent FDI variable. Using the Durbin-Watson test, correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at -0.0624. Figure 19 demonstrates the results and marked correlations are significant at $p < .05000$ N=80 among independent variable such as Political Stability, Tax, Geological, Environmental Regulations, Mining Regulations, Joint Ventures and Private Sector Participation.

Figure 19: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Polit	.3510 p=.001	.2524 p=.024	1.0000 p= ---	.3882 p=.000	.2841 p=.011	.2404 p=.032	.3134 p=.005	-.0624 p=.583

The scatterplot below well supports the fact of a negligible relationship between the dependant FDI variable and the independent Political variable.

Figure 20: Scatterplot FDI against Political



Then, the Spearman rank order was deployed to test on basis of difference and raw data. On the basis of differences the p-value came out to be 0.309381 and on the raw data basis the p-value was found to be 0.013085, indicating correlations were statistically significant between the independent Political variable and the dependent FDI variable.

Figure 21: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value
Polit & FDI (UDS bn)	80	-0.115084	-1.02319	0.309381

RAW DATA	Valid	Spearman	t(N-2)	p-value
Polit & FDI (UDS bn)	100	0.247384	2.527537	0.013085

The Spearman rank order has indicated that on a country level Botswana came out best with the highest significance level of the p-value at 0.051317. It was followed by Kazakhstan, Papua New Guinea, Canada, Colombia and Peru with p-values of 0.2, 0.2, 0.367544, 0.367544 and 0.367544 respectively. Countries such as Australia, Indonesia, Philippines, Ghana, South Africa, Argentina, Brazil, Chile, Mexico, Mongolia and Russia demonstrated p-values between 0.6 and 1.

Figure 22: Botswana, Spearman Rank Order

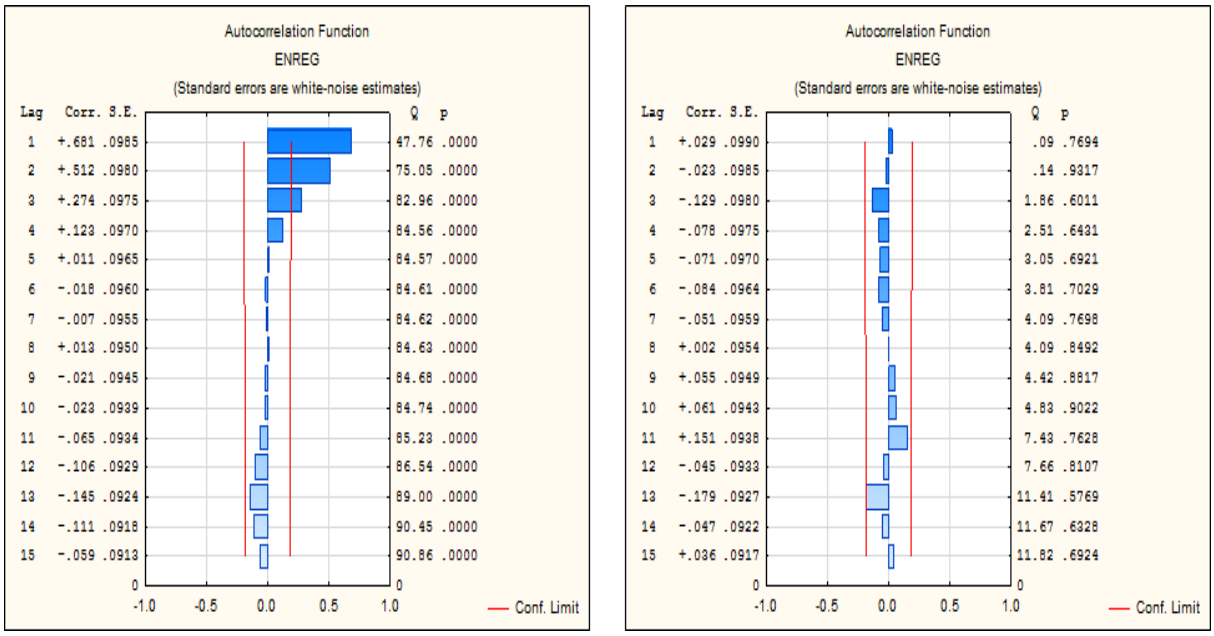
	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

5.1.4 ENVIRONMENTAL REGULATIONS

The Environmental regulations data set was tested for autocorrelation. Figure 23, below, graphically indicates how the raw data was normalised.

Figure 23: Autocorrelation Environmental Regulation

Before **After**



The total data set for Environmental Regulations showed a very weak relationship between the independent Environmental Regulation variable and the dependent FDI variable. Using the Durbin-Watson test, the correlation coefficient (r) came out very weak and the strength of relationship was almost negligible at -0.1088. It is worth

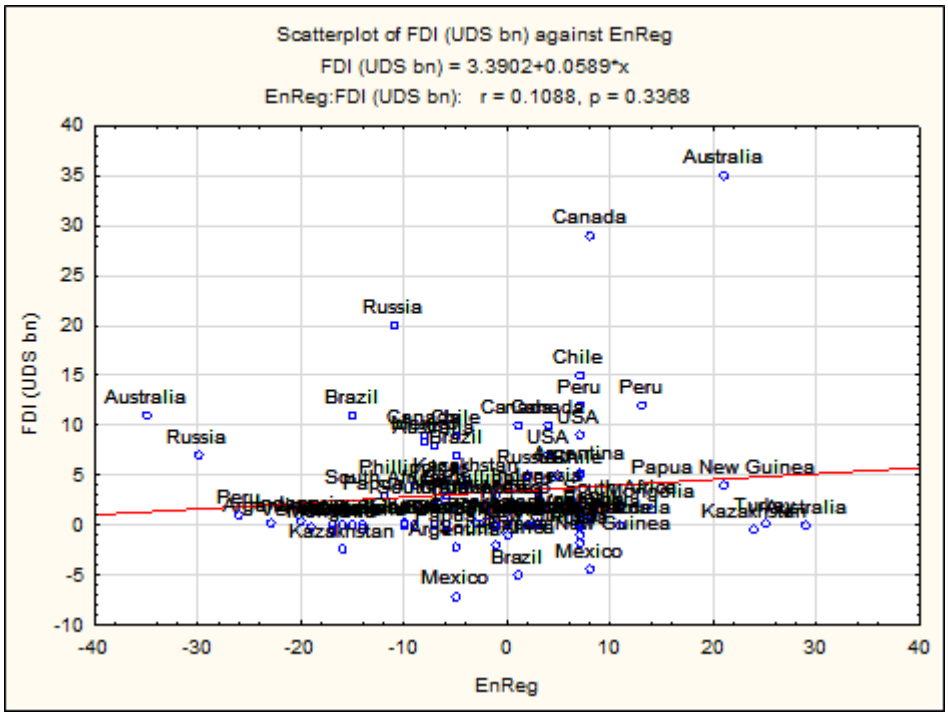
noting that the correlation coefficient (r) came out to be higher than those for Tax, Geological and Political independent variables. Figure 24 indicates of correlations which were significant at p < .05000 among the independent variables such as Environmental Regulation, Corporate Tax, Political Stability, Mining Regulations and Joint Ventures.

Figure 24: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
EnReg	.4685	.0651	.3882	1.0000	.4056	.2922	.0121	.1088
	p=.000	p=.566	p=.000	p= ---	p=.000	p=.009	p=.915	p=.337

The scatterplot below well supports the fact of a negligible relationship between the dependant FDI variable and the independent Environmental Regulation variable.

Figure 25: Scatterplot FDI against Environmental Regulations



Then, the Spearman rank order was deployed to test on basis of difference and raw data. On the basis of differences the p-value came out to be 0.562834 and on the raw data basis the p-value was found to be 0.492274 indicating that no correlations

were statistically significant between the independent Environmental Regulations variable and the dependent FDI variable.

Figure 26: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
EnReg & FDI (UDS bı	80	0.065657	0.58112	0.562834		EnReg & FDI (UDS bn)	100	-0.069460	-0.689283	0.492274

The Spearman rank order has indicated that on a country level both Canada and Peru scored the highest significance level of p-value at 0.051317. They were followed by Botswana, Ghana, South Africa, Argentina, Brazil, with p-values of 0.166667, 0.225403, 0.367544, 0.262135 and 0.2 respectively. Countries such as Turkey, Kazakhstan, Mexico, Colombia, Australia, Indonesia, Philippines and Papua New Guanine demonstrated p-values between 0.6 and 1.

Figure 27: Canada and Peru, Spearman Rank Order

Canada						Peru				
	Valid - N	Spearman - R	t(N-2)	p-value			Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772		Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544
Geol & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544		Geol & FDI (UDS bn)	4	-0.055556	-0.078689	0.944444
Polit & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544		Polit & FDI (UDS bn)	4	0.632456	1.154701	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.24264	0.051317		EnReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
MinReg & FDI (UDS bn)	4	0.632456	1.1547	0.367544		MinReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
JV & FDI (UDS bn)	4	0.632456	1.1547	0.367544		JV & FDI (UDS bn)	4	0.948683	4.242641	0.051317

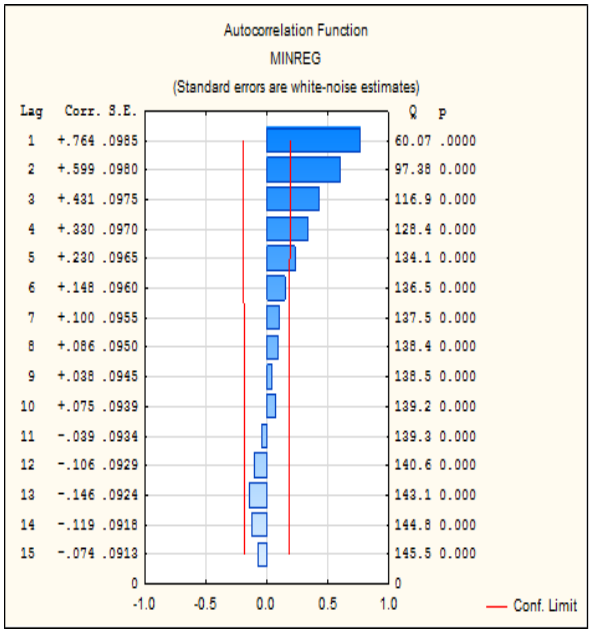
5.1.5 MINING REGULATIONS

The Mining regulations data set was tested for autocorrelation. Figure 28 graphically indicates how the raw data was normalised.

The total data set for mining regulations suggested a very weak relationship between the independent Mining Regulation variable and the dependent FDI variable. Using the Durbin-Watson test, the correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at -0.0446.

Figure 28: Autocorrelation Mining Regulation

Before



After

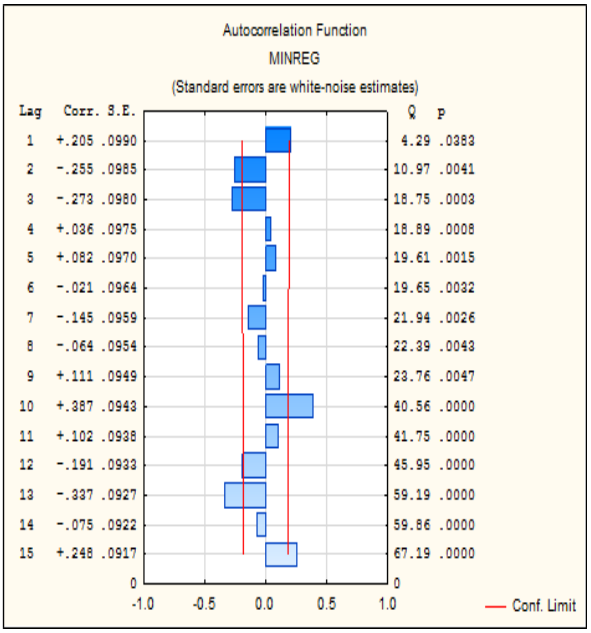


Figure 29 demonstrates marked correlations were found to be significant at $p < .05000$ among the independent variables such as Environmental Regulations, Corporate Tax, Political Stability and Joint Ventures.

Figure 29: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
MinReg	.5302 p=.000	.1754 p=.120	.2841 p=.011	.4056 p=.000	1.0000 p= ---	.2550 p=.022	.1056 p=.351	-.0446 p=.694

The Scatterplot below well supports the fact of a negligible relationship between the dependant FDI variable and the independent Mining Regulation variable.

Then, the Spearman rank order was deployed to test on basis of difference and raw data. On the basis of differences the p-value came out to be 0.4354409 and on the raw data basis the p-value was found 0.221040 indicating that no correlations were

statistically significant between the independent Mining Regulations variable and the dependent FDI variable.

Figure 30: Scatterplot FDI against Mining Regulations

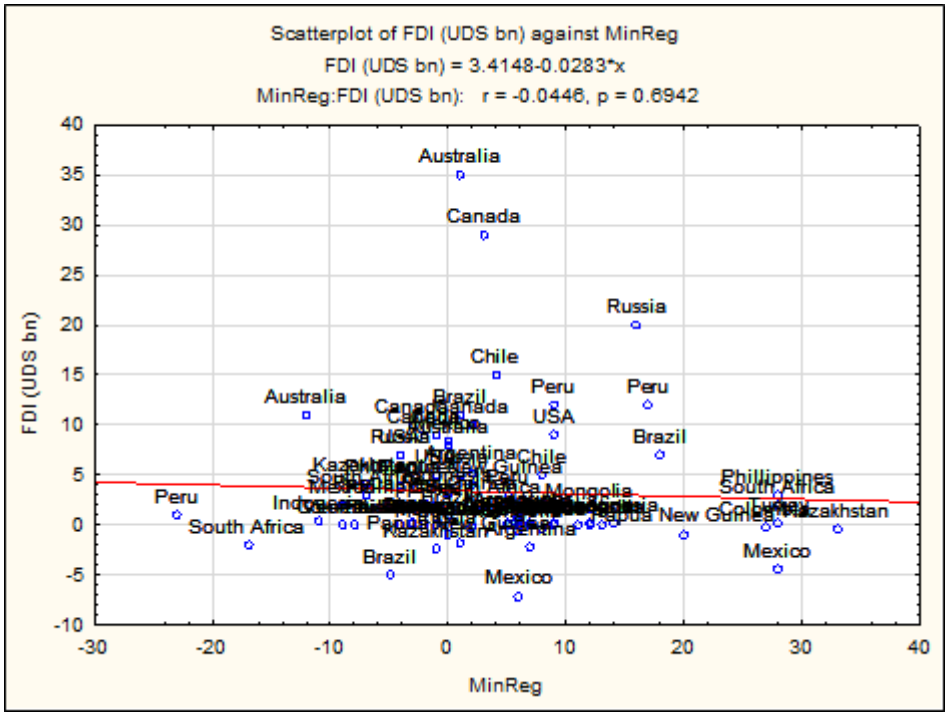


Figure 31: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value
MinReg & FDI (UDS	80	-0.088424	-0.78401	0.435409

RAW DATA	Valid	Spearman	t(N-2)	p-value
MinReg & FDI (UDS bn)	100	0.123460	1.231614	0.221040

The Spearman rank order has indicated that on a country level Peru scored the highest significance level of p-value at 0.051317. It was followed by Canada, Indonesia Ghana, Argentina, Brazil, Colombia and Venezuela with p-values of 0.367544, 0.4, 0.225403, 0.2, 0.2, 0.367544 and 0.367544 respectively. Countries such as Turkey, Russia, Mongolia, Kazakhstan, Mexico, Chile, South Africa, Australia, Philippines and Papua New Guanine demonstrated p-values between 0.4 and 1.

Figure 32: Peru, Spearman Rank Order

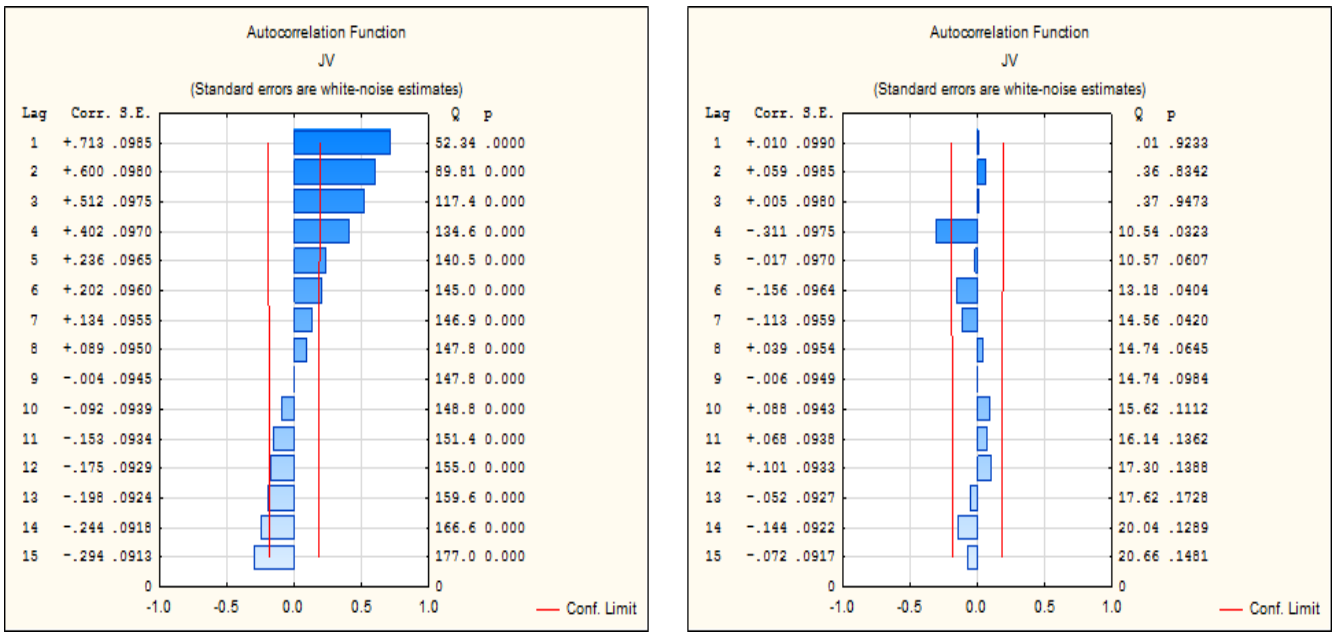
	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544
Geol & FDI (UDS bn)	4	-0.055556	-0.07869	0.944444
Polit & FDI (UDS bn)	4	0.632456	1.154701	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
MinReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
JV & FDI (UDS bn)	4	0.948683	4.242641	0.051317

5.1.6 JOINT VENTURES

The Joint Venture data set was tested for autocorrelation. Figure 33, below, graphically indicates how the raw data was normalised.

Figure 33: Autocorrelation Joint Ventures

Before **After**



The total data set for Joint Venture suggested a very weak relationship between the independent Joint Venture variable and the dependent FDI variable. Using the Durbin-Watson test, correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at 0.0074. Figure 34 demonstrates the fact that marked correlations were found to be significant at $p < .05000$ among

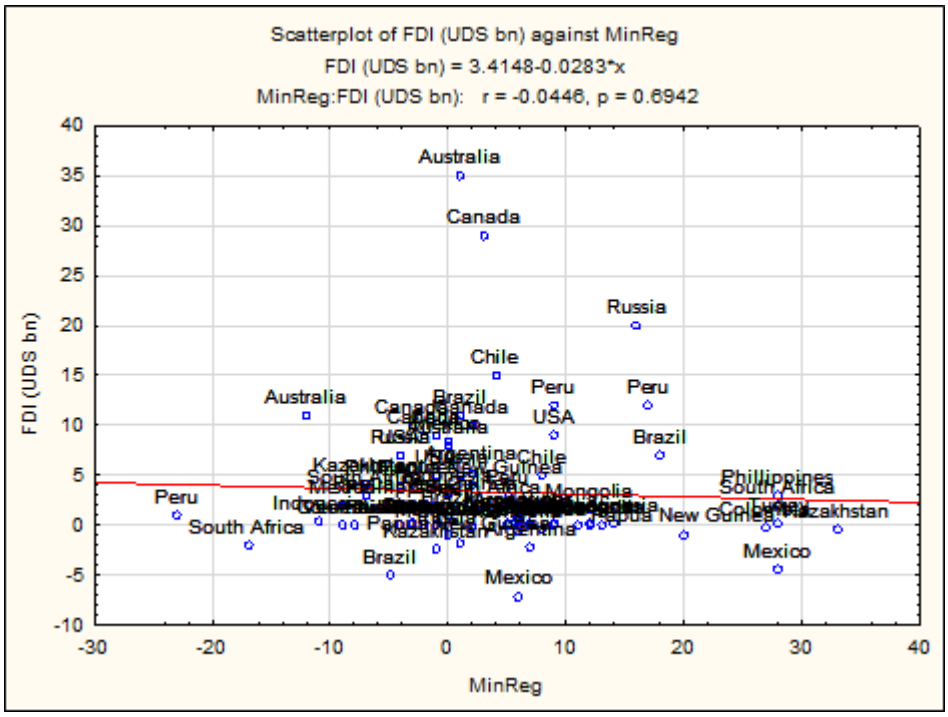
independent variables such as Corporate Tax, Political Stability, Environmental Regulations and Mining Regulations.

Figure 34: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
JV	.4885	.0570	.2404	.2922	.2550	1.0000	.0513	.0074
	p=.000	p=.616	p=.032	p=.009	p=.022	p= ---	p=.651	p=.948

The scatterplot below well supports the fact of a negligible relationship between the dependant FDI variable and the independent Joint Venture variable.

Figure 35: Scatterplot FDI against Joint Venture



Then, the Spearman rank order was deployed to test on basis of difference and raw data. On the basis of differences the p-value came out to be 0.962463, but on the raw data basis the p-value was found at 0.014193 demonstrating that correlations were statistically significant between the independent Joint Venture variable and the dependent FDI variable.

Figure 36: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
JV & FDI (UDS bn)	80	0.002497	0.02205	0.982463		JV & FDI (UDS bn)	100	0.244573	2.496984	0.014193

The Spearman rank order has indicated that on a country level Peru scored the highest significance level of p-value at 0.051317. It was followed by Canada, Botswana, South Africa, Philippines, Chile and Russia with p-values of 0.367544, 0.367544, 0.367544, 0.2, 0.2 and 0.2 respectively. As for the rest of the countries the p-values vary between 0.4 and 1.

Figure 37: Peru, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544
Geol & FDI (UDS bn)	4	-0.055556	-0.07869	0.944444
Polit & FDI (UDS bn)	4	0.632456	1.154701	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
MinReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
JV & FDI (UDS bn)	4	0.948683	4.242641	0.051317

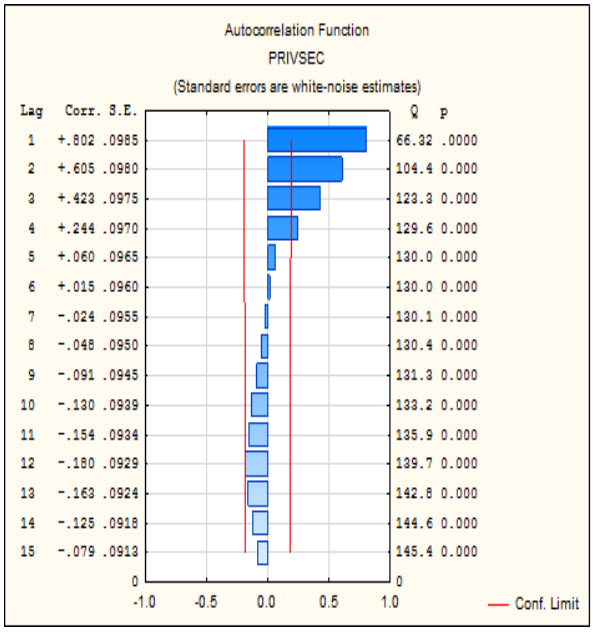
5.1.7 PRIVATE SECTOR PARTICIPATION

The Private Sector Participation data set was tested for autocorrelation. Figure 38, graphically indicates how raw data was normalised.

The total data set for Private Sector participation suggested a very weak relationship between the independent Private Sector Participation variable and the dependent FDI variable. Using the Durbin-Watson test, the correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at -0.0982.

Figure 38: Autocorrelation Private Sector Participation

Before



After

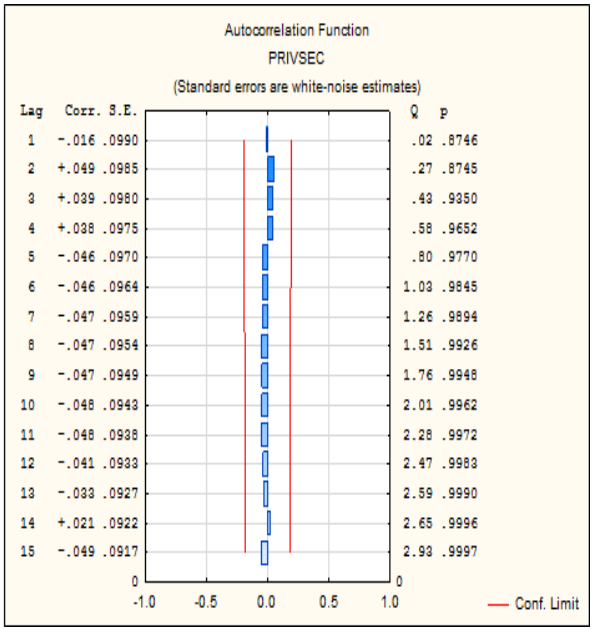


Figure 39 demonstrates the results and marked correlations between the independent Private Sector Participation and the independent Political Stability variables were found to be significant at $p < .05000$.

Figure 39: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
PrivSec	.0932 p=.411	.0527 p=.643	.3134 p=.005	.0121 p=.915	.1056 p=.351	.0513 p=.651	1.0000 p= ---	-.0982 p=.386

The scatterplot below well supports the fact of negligible relationship between dependant FDI variable and independent Private Sector Participation variable.

Then, the Spearman rank order was deployed to test on basis of difference and raw data. On the basis of differences the p-value came out to be 0.18998 and on the raw data basis the p-value was found 0.054673, demonstrating that no correlations were

found to be statistically significant between the independent Private Sector Participation variable and the dependent FDI variable.

Figure 40: Scatterplot FDI against Private Sector Participation

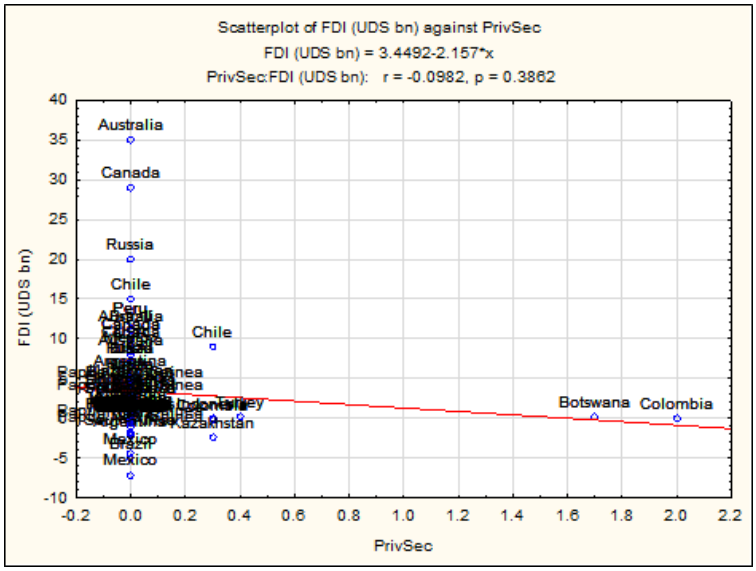


Figure 41: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value
PrivSec & FDI (UDS b	80	-0.148055	-1.32216	0.18998

RAW DATA	Valid	Spearman	t(N-2)	p-value
PrivSec & FDI (UDS bn)	100	0.192764	1.944741	0.054673

The Spearman rank order has indicated that on a country level Peru scored the highest significance level of p-value at 0.183503. It was followed by Indonesia, Kazakhstan and Turkey with p-values of 0.225403 for all three countries. The rest of the countries did not demonstrate any p-values.

Figure 42: Botswana, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

5.2 REGRESSION RESULTS

The Regression model fit was estimated to the whole data set as well as to two other data subsets. The data sub-set “nationalised” refers to the five countries which had previous experience of resource nationalism, and the data sub-set “no nationalised” refers to the five countries which had no experience of resource nationalism.

A backward Stepwise regression was employed. In total, eight steps were followed. After the first step the p-value of Mining Regulation was estimated at 0.847806 and came out to be highest of all independent variables, thus was removed from the proposed model. In step two, the independent variable Geological was removed due to the fact that the p-value was way above 0.05. The rest of the steps followed the same logic and Figure 43 has depicted all steps in detail.

The Stepwise regression model on whole data set indicated the coefficients r and r^2 came out to be zero. Moreover, the standard error was found to be high enough to have any associations. The results demonstrated that the proposed regression model formula was invalid for the total data set. Figure 44 provides an overall view on the stepwise regression.

Figure 43: Backwards Stepwise Regression, Whole Dataset

	Steps	Degr. of - Freedom	F to - remove	P to - remove	F to - enter	P to - enter	Effect - status
Tax	Number 1	1	0.981654	0.325109			In
Geol		1	0.091022	0.763751			In
Polit		1	0.201028	0.655238			In
EnReg		1	2.176145	0.144525			In
MinReg		1	0.037099	0.847806			Removed
JV		1	0.148044	0.701546			In
PrivSec		1	0.276539	0.600595			In
Tax	Number 2	1	1.360139	0.247310			In
Geol		1	0.115265	0.735203			Removed
Polit		1	0.205481	0.651677			In
EnReg		1	2.178121	0.144286			In
PrivSec		1	0.294200	0.589194			In
JV		1	0.154818	0.695120			In
MinReg		1			0.037099	0.847806	Out
Tax	Number 3	1	1.348815	0.249218			In
JV		1	0.151671	0.698062			Removed
Polit		1	0.309339	0.579764			In
EnReg		1	2.232783	0.139362			In
PrivSec		1	0.286109	0.594328			In
Geol		1			0.115265	0.735203	Out
MinReg		1			0.060576	0.806279	Out
Tax	Number 4	1	1.217440	0.273391			In
PrivSec		1	0.294474	0.588977			In
Polit		1	0.286178	0.594263			Removed
EnReg		1	2.337670	0.130485			In
JV		1			0.151671	0.698062	Out
Geol		1			0.111579	0.739298	Out
MinReg		1			0.066604	0.797064	Out
Tax	Number 5	1	1.513260	0.222437			In
PrivSec		1	0.576859	0.449895			Removed
EnReg		1	2.078694	0.153476			In
Polit		1			0.286178	0.594263	Out
JV		1			0.126437	0.723154	Out
Geol		1			0.208735	0.649081	Out
MinReg		1			0.081355	0.776255	Out
Tax	Number 6	1	1.730592	0.192239			Removed
EnReg		1	2.172885	0.144539			In
PrivSec		1			0.576859	0.449895	Out
Polit		1			0.568422	0.453216	Out
JV		1			0.121967	0.727877	Out
Geol		1			0.245850	0.621443	Out
MinReg		1			0.117471	0.732740	Out
EnReg	Number 7	1	0.933875	0.336845			Removed
Tax		1			1.730592	0.192239	Out
PrivSec		1			0.779485	0.380047	Out
Polit		1			1.016551	0.316497	Out
JV		1			0.050885	0.822129	Out
Geol		1			0.269544	0.605127	Out
MinReg		1			0.741857	0.391741	Out
EnReg	Number 8	1			0.933875	0.336845	Out
Tax		1			0.492917	0.484719	Out
PrivSec		1			0.759426	0.386183	Out
Polit		1			0.304438	0.582691	Out
JV		1			0.004215	0.948404	Out
Geol		1			0.207482	0.650014	Out
MinReg		1			0.155731	0.694194	Out

Figure 44: Summary,Stepwise Regression Whole Dataset

	Comment - (B/Z/P)	FDI (UDS bn) - Param.	FDI (UDS bn) - Std.Err	FDI (UDS bn) - t	FDI (UDS bn) - p	-95.00% - Cnf.Lmt	+95.00% - Cnf.Lmt	Multiple - R	Multiple - R^2	Adjusted - R^2
Intercept		3.306250	0.734128	4.503644	0.000023	1.845005	4.767495	0.00	0.00	0.00
Tax	Pooled									
Geol	Pooled									
Polit	Pooled									
EnReg	Pooled									
MinReg	Pooled									
JV	Pooled									
PrivSec	Pooled									

Then, two sub-sets were added to run the test. The coefficients of correlation r and r^2 came out as zero indicating there was no strength in association of the sub-set "nationalised" and the sub-set "no nationalised". The standard error was estimated at 2648.757.

Figure 45: Summary,Stepwise Regression for "Nationalised" and "No Nationalised"

	SS	Degr. of - Freedom	MS	F	p
Intercept	1247.689	1	1247.689	18.37084	0.000115
Nationalised		1			
No Nationalised		0			
Year		0			
Tax		0			
Geol		0			
Polit		0			
EnReg		0			
MinReg		0			
JV		0			
PrivSec		0			
Error	2648.757	39	67.917		

Moreover, the T-test was run to compare the two sub-set. The sub-set "nationalised" indicated a very weak statistical significance to the dependent FDI variable with a p-value of 0.913181. The same applies to the sub-set "no nationalised" where the p-value was estimated as 0.786681. Figures 46 and 47 indicated the how randomly the two sub-sets are distributed.

Figure 46: Box & Whisker, No Nationalised 0 and Nationalised 1

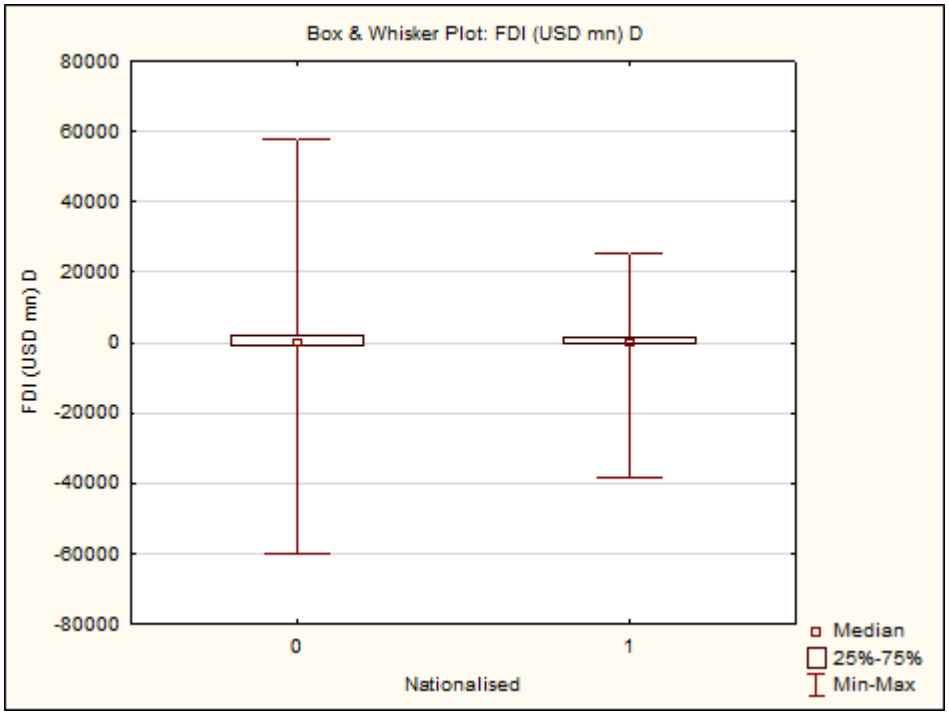
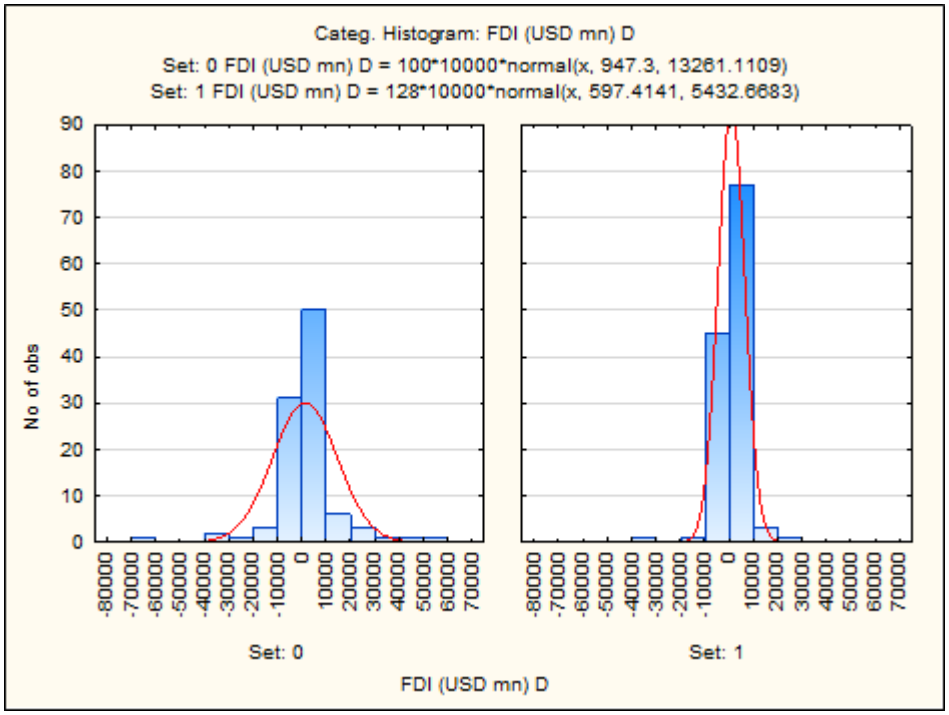


Figure 47: Histogram, No Nationalised 0 and Nationalised 1



5.3 CONCLUSION TO RESULTS

In conclusion, the statistical results indicated a high level of correlation among the independent variables. No multicollinearity was observed. Autocorrelation was tackled by means of the Durbin-Watson test and the Spearman rank order. The independent variables such as Geological, Political Stability and Joint Ventures have shown the highest correlations with the dependent variable FDI. The regression model for both the total sample and subsets indicated that none of the independent variables had statistically significant r and r^2 values. These will be discussed in details in next chapter.

CHAPTER 6 – DISCUSSION OF RESULTS

Discussions in this chapter will be mainly around the results of whole data set as well as the two other sub-sets, one being “nationalised” and the other “no nationalised”. Additionally, the relationship between the independent variables and the dependent FDI variable will be covered in details. Moreover, it will be worthwhile to discuss the strength of the relationship among the independent variables.

In Chapter 3, it was mentioned that some of the research hypotheses aim to test whether independent variables were directly proportional to the dependent FDI variable or not. Directly proportional means that should the independent variable increase then so does the dependent FDI variable. These directly proportional independent variables are:

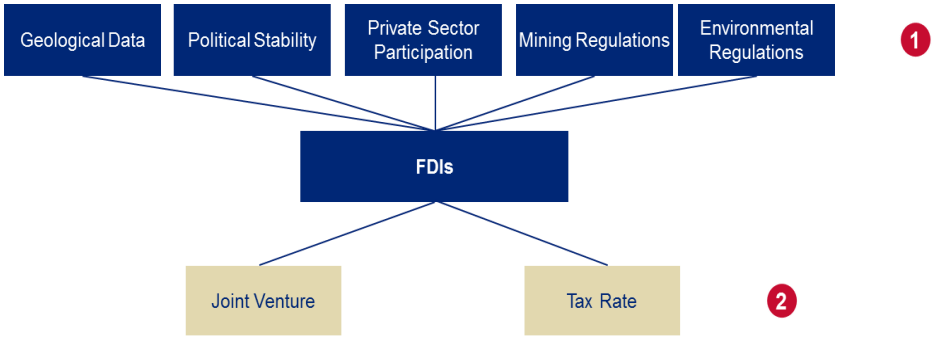
- Geological;
- Political Stability:
- Private Sector Participation;
- Mining Regulations; and
- Environmental Regulations.

And, the inversely proportional variables are:

- Joint Venture; and
- Tax rate.

Figure 48 summarises the relationship of the independent variable with the dependent FDI variable. Number 1 indicates the direct proportional relationship, whereas number 2 indicates an inversely proportional relationship.

Figure 48: Proposed Research Construct



6.1 CORPORATE TAX

In this session the main aim was to test the following hypothesis:

H_1: Lower tax levels will attract more FDIs in the mining industry.

The Durbin-Watson test indicates a very weak correlation coefficient (r) -0.079245. This means that the strength between Corporate Tax and FDI variables was almost negligible. It was also support by the Spearman test for the whole data set as well as for differences of a given data set. The P-values in two cases indicated no statistical significance.

Figure 49: Spearman Rank Order, Differences and Raw Data

DIFFERENCED	Valid - N	Spearman	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	80	-0.0254	-0.22441	0.823022		Tax & FDI (UDS bn)	100	0.017323	0.171519	0.864169

However, the literature review indicated a different observation. According to this observation, tax was perceived as a negative burden on the profitability. This was found to be true in certain countries (Bellak & Leibrecht, 2009).

It is believed that corporate tax has a direct impact on retained earnings. However, most of the mining MNCs would partially utilise their retained earnings to finance a new upcoming project. Under normal circumstances most of the mining projects

would be financed by both debt and equity. Thus, making finance by means of debt is more common than 100% equity finance.

An interesting observation was identified on the relationship amongst the independent variables. For instance, Corporate Tax had a low relationship with political stability with r-value of 0.3510, but statistically significant at p-value of 0.00. It is important to note that most of the developing countries indicated a fairly significant relationship between Tax and Political Stability.

Figure 50: Correlation Results

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Tax	1.0000	.0478	.3510	.4685	.5302	.4885	.0932	-.0792
	p= ---	p=.673	p=.001	p=.000	p=.000	p=.000	p=.411	p=.485

Most of the corporate taxes are generally enforced by the mining regulations in the host country. Thus, these results were very much supportive of the argument above. Correlation coefficient (r) between Tax and Mining Regulation came out to be moderately strong with 0.5302 and statistically significant at p-value 0.0001.

The results also demonstrated how Tax interacts with Joint Venture. The correlation coefficient estimated as 0.4885 at a statistically significant p-value of 0.0001. This implies that most of the Joint Ventures of MNCs take place with local partners. These types of transactions always have tax benefits.

Environmental Regulation is another independent variable which has a fairly strong relationship with Tax. Correlation coefficient (r) was estimated as 0.4685 and statistically significant at p-value of 0.0001.

Another interesting observation from the results was that independent variables such as Political Stability, Environmental Regulation, Mining Regulation and Joint Venture at statistically significant p-values demonstrated a positive correlation with Tax.

On the country levels only Botswana indicated a strong relationship between tax and FDI, suggesting that in other countries corporate tax is not seen as a driver of FDI in the mining industry

Figure 51: Botswana, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

The results indicated that lower tax rates will not have a significant effect on FDI, thus proving that H_1 was tested to be negative.

6.2 GEOLOGICAL

The main hypothesis to be tested is:

H_2: The more reliable geological data is the more FDI inflows in the mining industry will be.

The Durbin-Watson test on differences demonstrated a very weak correlation coefficient (r) of -0.0515. With no statistical significance, the relationship between the independent Geological data variable and the dependent FDI variable was deemed to be negligible. That being said, Figure 52 suggested a fairly strong correlation coefficient (r) of 0.474398 and is statistically significant at p-value of 0.000001.

Moreover, a positive correlation coefficient (r) proves the point of a positive relationship, meaning that an increase in the quality of Geological data will increase the level of FDIs in the mining sector. Or, a decrease in the quality of Geological data will decrease the level of FDIs in the mining sector.

Figure 52: Spearman Rank Order, Differences and Raw Data

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value
Geol & FDI (UDS bn)	80	-0.108622	-0.96503	0.33751

RAW DATA	Valid	Spearman	t(N-2)	p-value
Geol & FDI (UDS bn)	100	0.474398	5.334822	0.000001

The findings above were in line with the findings in the literature review which indicated how important geological data was. Moreover, Vivoda (2011) stated that availability and credibility of a publicly accessible geological database was a significant factor in increasing the transparency of mineral related information. This implies that the more reliable and more accessible geological data is the more favourable the mineral rich country becomes. Thus, quality and accessibility of geological data will increase the odds of potential investments in the mining industry.

Before the investment decision process even commences, many MNCs ask the question of how much of the economically feasible mineral is lying underground. This strongly supports, by findings, of how geological data can impact FDIs in the mining industry.

Another point to be mentioned is the relationship between the independent Political Stability variable and the independent Geological variable. Figure 53 implied that there is moderately weak correlation coefficient (r) between two independent variables. Political stability will definitely impose a somewhat favourable investment climate in the host country. Ultimately, it will be in the governments' best interest to ensure that the geological data is reliable, and most importantly, available for the potential investors.

Figure 53: Correlation Results

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Geol	.0478	1.0000	.2524	.0651	.1754	.0570	.0527	-.0515
	p=.673	p= ---	p=.024	p=.566	p=.120	p=.616	p=.643	p=.650

Out of whole set, Colombia demonstrated the strongest relationship between the Geological variable and FDI. This implies that recent democratic reforms in Colombia are sending out a positive message to potential investors.

In conclusion, it is evident in statistical analyses how strongly geological data affects the FDI. Moreover, since each and every country is on different level of gathering, storing and proving the geological data, it was interesting to see that in countries such as Australia and Canada the importance of the quality of geological data was not seen as an important aspect in determining the FDI in mining. Thus, H_2 which demonstrates the direction of the relationship between the quality of geological data and FDI in the mining was tested as positive.

Figure 54: Colombia, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
Geol & FDI (UDS bn)	4	-0.948683	-4.24264	0.051317
Polit & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
EnReg & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
MinReg & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
JV & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
PrivSec & FDI (UDS bn)	4	-0.5	-0.8165	0.5

6.3 POLITICAL STABILITY

The main hypothesis to be tested is:

H_3: More politically stable countries will attract more FDIs in the mining industry than less stable countries.

Test results from the Durbin-Watson test on differences proposed a very weak correlation coefficient (r) of -0.0624 at no statistical significance. However, the Spearman test on raw data suggested a fairly strong relationship between the independent Political Stability variable and the dependent FDI variable, with a correlation coefficient (r) of 0.247384 and a statistically significant p-value of 0.013085.

This was well supported by the positive correlation coefficient (r). Figure 55 clarifies the fact that the independent Political Stability variable is directly proportional to the dependent FDI variable

Figure 55: Spearman Rank Order, Differences and Raw Data

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
Polit & FDI (UDS bn)	80	-0.115084	-1.02319	0.309381		Polit & FDI (UDS bn)	100	0.247384	2.527537	0.013085

The literature review indicated similar results. Akhter (1993) argued that political instability would lead to a disruption in doing business and marketing activities. Moreover, a stable political environment will decrease the risk of regulatory changes and of licences being revoked without warning (Vivoda, 2011). Furthermore, Gani (2007) explained that proper governance attributes can influence the FDIs as the sound and fair observance of the rule of law are likely to attract more FDIs whereas political stability can reduce the risk of doing business (Gani, 2007).

In general, most of the developing countries created a platform whereby the political will and commitment determines the future direction of the country. Another point worth mentioning is the relationship between the independent Political Stability variable and other independent variables. Figure 56 implied that the independent Political Stability variable impacts other independent variables with a moderately strong correlation coefficient (r) at a statistically significant p-value. This is the only independent variable which affects all the other independent variables.

Figure 56: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Polit	.3510	.2524	1.0000	.3882	.2841	.2404	.3134	-.0624
	p=.001	p=.024	p= ---	p=.000	p=.011	p=.032	p=.005	p=.583

Most importantly, the correlation coefficient (r) is positive within all the independent variables. This implies that all things being equal, an increase in Political Stability will create an increase in the other independent variables.

Once again, Botswana came the first in this category with very strong relationship of independent Political Stability variable and the dependent FDI variable with a correlation coefficient (r) of 0.948683. This finding really supports the fact that Botswana stands out as one of the few stable countries in Africa.

Figure 57: Botswana, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

To sum up, prominent findings of the statistical analyses indicate the importance of political stability. This is true in developing countries such as Peru, Papua New Guinea and Kazakhstan where p-values were close enough to the Botswana values. Thus, the general accepted rule that politics drive economics is very much true with regards to the developing world.

This situation is very different in developed countries. Potential investors do not see any hurdles in political stability of countries such as Australia or Canada. That is

why, even when supported by statistical results, political stability in developed countries does not play an important role in the decision making process of potential investors. Investors are already aware of the fact that the political platform is strong enough for them to focus on other determinants of FDI in mining.

Thus, H_3 was tested positively to indicate the fact that more politically stable countries will attract more FDIs in the mining industry than less stable countries.

6.4 ENVIROMENTAL REGULATIONS

The main hypothesis to be tested is:

H_4: Strict environmental regulations will attract FDIs in the mining industry

The whole data set for Environmental regulations illustrated a relatively weak relationship between the independent Environmental Regulations. Test results from the Durbin-Watson test on differences proposed a correlation coefficient (r) of 0.1088 at no statistical significance. The same results came out from the Spearman test on the raw data.

Figure 58: Spearman Rank Order, Differences and Raw Data

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
EnReg & FDI (UDS br	80	0.065657	0.58112	0.562834		EnReg & FDI (UDS bn)	100	-0.069460	-0.689283	0.492274

According to the literature review, the effects of more stringent environmental regulations are weakly deterred by prospective new operations in pollution intensive sectors (List, 2001). The usual trade-offs between job creations and environmental issues have kept busy many local newspapers, magazines and internet posts. Potential investors and FDI recipients in mineral rich countries have to consider environmental factors when pursuing their developmental goals (Kumar, 1990).

In terms of environmental regulations, it is important to distinguish between mineral rich developing countries and mineral rich developed countries. Mineral rich developing countries tend to experience more on-going problems with proper governance and corruption, mainly due to the lack of institutional strength. Moreover, the impact of the stringent environmental regulations on the FDIs was high when the degree of corruptibility of local government was low (Cole, Elliott & Fredriksson, 2006).

Even though some of the developing countries indicated a moderate relationship between Environmental Regulations and FDI, it was not a prevailing factor in the rest of the developing countries. The results illustrated the irrelevance of strict environmental regulations in developing countries. This is not true for developed countries. For instance, in terms of correlation coefficient (r), Canada came out as the highest in the developed world and Peru as the highest in the developing world.

Figure 59: Spearman Rank Order

Canada

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.316228	-0.4714	0.683772
Geol & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
Polit & FDI (UDS bn)	4	-0.632456	-1.1547	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.24264	0.051317
MinReg & FDI (UDS bn)	4	0.632456	1.1547	0.367544
JV & FDI (UDS bn)	4	0.632456	1.1547	0.367544

Peru

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544
Geol & FDI (UDS bn)	4	-0.055556	-0.078689	0.944444
Polit & FDI (UDS bn)	4	0.632456	1.154701	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
MinReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317
JV & FDI (UDS bn)	4	0.948683	4.242641	0.051317

The data suggested that MNCs tend to operate in any environmental regulatory environment. In other words, with all other things being equal, companies will have no difficulties in operating in a strict environmental regulatory environment as well as in a weak environmental regulatory environment. Growing public environmental opposition came out very clearly in Canada. In Peru, most of the MNCs are forced to comply with stringent environmental regulations due to the fact that most of the mining operations take place in remote rural areas. Dust, noise and contamination of drinkable water can cause large difficulties for MNCs operating in such rural areas.

In some cases, there was evidence when locals closed all the roads of the main supply line to the mining operations.

Figure 60: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
EnReg	.4685	.0651	.3882	1.0000	.4056	.2922	.0121	.1088
	p=.000	p=.566	p=.000	p= ---	p=.000	p=.009	p=.915	p=.337

Figure 60 demonstrates how strong the relationship among independent variables is. It is worthwhile to note that the independent Environmental Regulation variable has a positive correlation with four other independent variables. Generally, environmental regulations are by-product of mining regulations. As a result, it supports the general tendency whereby a host country enforces the environmental regulations by means of mining regulations.

In conclusion, the results discussed above indicated that environmental regulations do not have an impact on FDIs in the mining industry. Potential investors tend to weigh their options in order to leverage against the possible environmental liabilities. But in most cases, MNCs tend to stick to higher environmental standards, not because of strict environmental regulation, but simply to keep the good corporate image of an environmentally friendly company. Thus, H_4 was tested negatively, meaning that strict environmental regulations will attract more FDIs in the mining industry.

6.5 MINING REGULATIONS

The main hypothesis to be tested is:

H_5: Transparency in mining regulations will lead to better FDIs in-flows in the mining industry.

In this category, similar results were obtained as in the environmental regulation category. This is mainly due to the fact that mining regulations in most of the resource rich countries entails certain aspects of environmental regulations. Both the Durbin-Watson test on differences and the Spearman tests came out with very weak correlations between the independent and dependent variable.

Figure 61: Spearman Rank Order, Differences and Raw Data

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
MinReg & FDI (UDS l	80	-0.088424	-0.78401	0.435409		MinReg & FDI (UDS bn)	100	0.123460	1.231614	0.221040

The literature review identified consistency and transparency of mining regulations as a key factor. A stable legal system which allows “inter alia” the enforcement of mineral rights, management of operations by the company and transferability of title will lead to the increase in FDIs in the mining industry (Filho, 2003). Moreover, the likelihood of an increase in FDIs is higher when regulations and procedures are clear, efficient and transparent, and all levels of government are consistent and effective in their application of the regulations (Vivoda, 2011).

It is more than likely that the main reason why the literature review findings are different than in the statistical analyses would be because of the fierce competition among the mining MNCs. The recent commodity boom led to the situation where mining MNCs were more worried about the volumes of the raw material than the consistency of mining regulations. The data used for the FDI was comprised from 2007 to 2011, inclusive. This is exactly when the mining boom took place.

Mining is all about the volumes and prices. However, it would be interesting to observe how mining MNCs will respond to the fact that the commodity cycle would be at the bottom.

Once again, one can easily notice how all independent variables have a positive relationship with Political Stability. This is not different in Mining Regulations, where

Political Stability will determine what type of regulations must be enforced in order to maximise the mineral wealth of the host company. Figure 62 is a true reflection of the point discussed above.

Figure 62: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
MinReg	.5302	.1754	.2841	.4056	1.0000	.2550	.1056	-.0446
	p=.000	p=.120	p=.011	p=.000	p= ---	p=.022	p=.351	p=.694

Another point to consider is that MNCs in developing countries tend to have more weight in saying how conducive mining regulations should be: whereas in developed countries, mining regulatory institutions are strong enough to have their own opinion about how mining laws and regulations should be.

An interesting point to mention is regarding the relationship between the mining regulations and joint ventures. In most of the developing resource rich countries, local partnerships are compulsory and prescribed by mining regulations. This form of relationship is considered to be the cost of doing business in the host country.

However, in countries such as Peru, Canada, Indonesia, Ghana, Argentina, Brazil and Colombia, results indicated moderately fair correlation coefficients. These countries are perfect examples of how consistent mining regulations can increase FDI in mining. In fact, according to the whole data set, Peru, Canada and Brazil are some of the top recipients of FDIs in mining for the last five consecutive years.

However, even though some countries displayed a positive relationship, this is not true for the whole data set: thus causing H_5 to test negatively.

6.6 JOINT VENTURE

The hypothesis to be tested is:

H_6: Forced joint ventures in mineral rich countries will decrease the levels of FDIs in the mining industry.

After normalisation of the whole data, Joint Venture results were analysed. According to the Durbin-Watson test on differences, correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible at 0.0074. However, the Spearman rank order was deployed to test on the basis of difference and raw data. On the basis of differences the p-value came out to be 0.962463, but on the raw data basis the p-value was found to be 0.014193, demonstrating that correlations were statistically significant between the independent Joint Venture variable and the dependent FDI variable.

Figure 63: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value
JV & FDI (UDS bn)	80	0.002497	0.02205	0.982463

RAW DATA	Valid	Spearman	t(N-2)	p-value
JV & FDI (UDS bn)	100	0.244573	2.496984	0.014193

Referring to the literature review, many mining MNCs perceive that the forced joint venture will have an adverse effect on the FDIs due to the ownership structure. The main issue around ownership is who should be in charge of the mining operations. Since the operational standards of companies are not the same, potential JVs will create some degree of misalignment as well as misunderstandings among participants (Vivoda, 2011).

The statistical analyses above refuted that fact that many MNCs believe that joint ventures with local partners do not work. Moreover, it is paramount to highlight that the findings are actually a true reflection of the case of developing countries. Peru, Botswana, South Africa, Philippines, Chile and Russia came out as reasonably good at attracting FDIs in mining through joint ventures. This is not true in Australia and

Canada where joint venture is the form of provincial government imposes profit sharing to mining MNCs.

Positive correlation results indicate a directly proportional relationship between the joint venture and FDI variables. Moreover, Figure 64 demonstrates the fact that marked correlations were found to be significant at $p < .05000$ amongst independent variables such as Joint Venture, Corporate Tax, Political Stability, Environmental Regulations and Mining Regulations. Once again, political framework has a direct impact on joint ventures and ultimately on FDIs.

Figure 64: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
JV	.4885 p=.000	.0570 p=.616	.2404 p=.032	.2922 p=.009	.2550 p=.022	1.0000 p= ---	.0513 p=.651	.0074 p=.948

In conclusion, H_6 tested positively indicating the positive relationship between joint venture and FDI. Whereas in the beginning H_6 was testing the fact that forced joint ventures in mineral rich countries will decrease the levels of FDIs in the mining industry

6.7 PRIVATE SECTOR PARTICIPATION

The main hypothesis to be tested is:

H_7: Higher private sector participation in the mining industry will create a more competitive investment climate.

The total data set for Private Sector Participation suggested a very weak relationship between the independent Private Sector Participation variable and the dependent FDI variable. Both the Durbin-Watson test and Spearman test results demonstrated

that correlation coefficient (r) came out very weak and the strength of the relationship was almost negligible.

Figure 65: Differenced and Raw Data, Spearman Rank Order

DIFFERENCED	Valid - N	Spearman - R	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
PrivSec & FDI (UDS b	80	-0.148055	-1.32216	0.18998		PrivSec & FDI (UDS bn)	100	0.192764	1.944741	0.054673

The literature review demonstrated how private sector participation was key to inviting investment. It is also a measure of how well a mineral rich country understands the importance of private sector participation in order to create jobs and empowerment.

Good evidence of private sector participation comes from infrastructure projects in Chile. Hill (2011) claimed that private participation in infrastructure implies more than the capital investment. Moreover, policy makers also rely on the private sector to plan, build and operate infrastructure, and to manage the commercial risks associated with infrastructure development (Hill, 2011).

The Private Sector Participation and the independent Political Stability variables were found to be significant at $p < .05000$. Again, the importance of how politics is driving the economic growth is demonstrated. This is mainly due to the fact that private sector participation will increase if political stability increases. There is no incentive for the private sector to participate in mining unless the government makes it economically feasible.

Figure 66: Correlations on Difference

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
PrivSec	.0932	.0527	.3134	.0121	.1056	.0513	1.0000	-.0982
	p=.411	p=.643	p=.005	p=.915	p=.351	p=.651	p= ---	p=.386

Private sector participation is the engine of job creation. As a result, most of the developing countries such as Peru, Indonesia, Kazakhstan and Turkey demonstrated high levels of correlations, with Botswana being the leader in this category.

Figure 67: Botswana, Spearman Rank Order

	Valid - N	Spearman - R	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.316228	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.333333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

These results are not surprising if one looks at the GDP growth of the aforementioned countries, which was at least 5% per year for the last five consecutive years.

In conclusion, the whole data set indicated that the private sector participation has no impact on the level of FDIs in the mining industry, making H_7 test negatively.

6.8 REGRESSION RESULTS

Regression results were obtained by means of the whole data set then by adding two data sub-sets such as “nationalised” and “no nationalised”. It is important to acknowledge the fact that good practice requires the building of regression models based on information from the theory. In this case, a statistical toolkit was allowed to pick up independent variables for the regression model.

The following model was tested:

$$FDI = A + x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + E$$

This backwards stepwise regression model indicated that the multiple (r) values came out to be zero in all cases. Backwards stepwise regression begins with all independent variables and then deletes them one at a time until further deletion would do no more harm (Albright, 2009). In each step, the independent variable with the highest p-value was removed. As a result, none of the independent variables demonstrated a p-value of less than the 0.05. In the first step, the p-value of Mining Regulation came out to be 0.847806 which is very much above 0.05. The same logic was used to identify the regression model, and the detailed results are presented in Figure 68.

Figure 68: BackwardsStepwise Regression p-value and f-values, Whole Dataset

	Steps	Degr. of - Freedom	F to - remove	P to - remove	F to - enter	P to - enter	Effect - status
MinReg	Number 1	1	0.037099	0.847806			Removed
Geol	Number 2	1	0.115265	0.735203			Removed
JV	Number 3	1	0.151671	0.698062			Removed
Polit	Number 4	1	0.286178	0.594263			Removed
PrivSec	Number 5	1	0.576859	0.449895			Removed
Tax	Number 6	1	1.730592	0.192239			Removed
EnReg	Number 7	1	0.933875	0.336845			Removed

Figure 69: Backwards Stepwise Regression, Whole Dataset

	Comment - (B/Z/P)	FDI (UDS bn) - Param.	FDI (UDS bn) - Std.Err	FDI (UDS bn) - t	FDI (UDS bn) - p	-95.00% - Cnf.Lmt	+95.00% - Cnf.Lmt	Multiple - R	Multiple - R^2	Adjusted - R^2
Intercept		3.306250	0.734128	4.503644	0.000023	1.845005	4.767495	0.00	0.00	0.00
Tax	Pooled									
Geol	Pooled									
Polit	Pooled									
EnReg	Pooled									
MinReg	Pooled									
JV	Pooled									
PrivSec	Pooled									

The interpretation of these statistical results simply means that there is no constant regression model in determining the FDI inflow in a resource rich country. This means that FDI inflow determinants would vary for each of the resources rich countries. This will lead to situation where the decision making process to invest or not to invest will depend on the context in which the country has found itself.

The same situation was observed for two subsets as well. None of the independent variables demonstrated a p-value of less than 0.05. Moreover, coefficients of correlation (r) and r^2 came out as zero, indicating there was no strength in the association of sub-set "nationalised" and sub-set "no nationalised". The standard error was estimated as 2648.757.

Figure 70: Stepwise Regression for "Nationalised" and "No Nationalised"

	Steps	Degr. of - Freedom	F to - remove	P to - remove	F to - enter	P to - enter	Effect - status
JV	Number 1	1	0.012542	0.911577			Removed
PrivSec	Number 2	1	0.020793	0.886278			Removed
Tax	Number 3	1	0.065259	0.800004			Removed
Geol	Number 4	1	0.150907	0.700165			Removed
MinReg	Number 5	1	0.397017	0.532846			Removed
Polit	Number 6	1	0.439905	0.511513			Removed
EnReg	Number 7	1	0.824929	0.369621			Removed

Figure 71: Summary,Stepwise Regression for "Nationalised" and "No Nationalised"

	SS	Degr. of - Freedom	MS	F	p
Intercept	1247.689	1	1247.689	18.37084	0.000115
Nationalised		1			
No Nationalised		0			
Year		0			
Tax		0			
Geol		0			
Polit		0			
EnReg		0			
MinReg		0			
JV		0			
PrivSec		0			
Error	2648.757	39	67.917		

This brings up a very interesting point whereby the whole data set and two sub-sets produced no static regression model. This implies that each mineral rich country will have its own way of approaching FDIs. Potential investors should understand each variable and the implications of each variable on FDI in the mining industry.

6.9 SUMMARY

The results in this chapter indicated the same results in terms of building the regression model for both the total data set and two sub-sets. There is a further need to have a deeper appreciation as to the determinants of FDIs in resource rich countries.

What is important to note is how political stability impacts FDIs. This is true in South African terms. The recent Marikana disaster deteriorated in the way which decreased the year to date FDI inflows by almost 44% (Business Day, 2012). This event was obviously noticed by rating institutions such as Moody's. According to the agency's recent report, SA was downgraded from A3 to Baa1 (Business Day, 2012). The main reasons for this downgrade were indicated as the future of political stability and the investment climate in South Africa. Moreover, only two hypotheses were accepted. Figure 72 demonstrates the summary of the results.

Figure 72: Summary of Results

	Status
H_1: Lower tax levels will attract more FDIs in mining industry	Reject
H_2: The more reliable geological data is the more FDIs inflows in mining industry will be	Accept
H_3: More politically stable countries will attract more of FDIs in mining industry than less stable countries	Accept
H_4: Strict environmental regulations will attract FDIs in mining industry	Reject
H_5: Transparency in mining regulations will lead to better FDIs in flows in mining industry	Reject
H_6: Forced joint ventures in mineral rich countries will decrease the levels of FDIs in mining industry	Reject
H_7: Higher private sector participation in mining industry will create more competitive investment climate	Reject

CHAPTER 7 – CONCLUSION

7.1 IMPLICATIONS FOR SOUTH AFRICA

The results of this internationally comparative research will be used to recommend the way forward for South Africa in terms of the attraction of FDIs into the mining industry. The Lonmin Marikana Disaster again ignited not only the talks around the nationalisation of mines, but also raised burning issues around the socio-economic challenges that South Africa faces; and thus making the mining industry the epicentre of the South African future of developmental economics.

The results indicated how quality of geological data and political stability were important drivers of FDIs in the mining industry. Historically, South Africa has good governance around credibility on accessibility of geological data. Joint ventures like BEE requirements were not deterrent to FDIs, instead, joint ventures boost the FDI. Thus, in the light of the latest events that took place in the mining industry of South Africa, it would be worthwhile to talk about nationalisation of mines under political stability.

Referring to the fact that the independent variable Political Stability had an impact on other independent variables indicates the fact that in the developing world, politics drives economics. It is well supported by the fact that political institutions in South Africa failed to prevent the Marikana disaster. Many wild cat strikes are still ongoing in the mining industry, and many mining MNCs suspended their operations for fear of compromised safety.

The regression model results indicated that there was no static formula to calculate the FDIs for a mineral rich country. This proves how unique approaches will be taken by mining MNCs to evaluate potential mining investment. Investment decision

making processes must be taken in the context of the country that is the recipient of FDIs.

In terms of political stability, uncertainty still prevails in the South African political Olympus. It was followed by a drop of the total investments by 44% (UNCTAD, 2012) and Moody's downgrade of South Africa. It is evident that necessary steps would be required by the ruling party, the ANC, in order to ensure that South Africa will become the main recipient of FDIs. After all, political stability is a reputational issue.

7.2 RECOMMENDATION FOR FUTURE RESEARCH

After summarising results and discussion about the future implementations for South Africa, the following are the recommendations for future research:

- Availability of infrastructure should be included as one of the independent variables, since most of the developing countries lack the infrastructure to support large scale mining operations;
- To prevent normalisation of the data, the data for investing activities should be taken directly from the financials of the companies;
- The data from prefeasibility, exploration and exploitation should be analysed carefully to prevent double accounting;
- The regression model should be built based on the theory obtained through the literature review;
- Social responsibility, in terms of community engagement, should be investigated as a measure for the FDI inflows; and
- The success of BEE joint ventures in the mining industry should be investigated further in the South African context.

REFERENCES

A Minerals and Mining Policy for South Africa 1998 Retrieved 04/004/2012, 2012 from http://www.info.gov.za/greenpapers/1998/green2~1.htm

Akhter, S. H. (1993). Foreign direct investments in the developing countries: The openness hypothesis and policy implications. *The International Trade Journal, 7*(6), 655-672.

Albright, S., Winston, W., & Zappe, C. (2009). Data analysis and decision making (3rd ed.). USA: South-Western Cengage Learning.

Allix, M. (2012, October 25*).* Investment in SA down 43.6%, says UN report*. Business Day.* Retrieved from http://www.bdlive.co.za/economy/2012/10/25/investment-in-sa-down-43.6-says-un-report

Annual statistics reports Chamber of Mines 2010 Retrieved 02/01/2012, 2012 from http://www.bullion.org.za/

Behre Dolbear 2011 Ranking of Countries for Mining Investment Retrieved 11/02/2012, 2012*,* from http://www.dolbear.com/announcements/asd

Bellak, C., & Leibrecht, M. (2009). Do low corporate income tax rates attract FDI? Evidence from Central and East European countries. *Applied Economics, 41*, 2691-2703.

Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal, 33*, 383-403. doi: 10.1007/s11293-005-2868-9

CitiGroup Report 2011 Retrieved 11/02/2012, 2012, from http://www.citigroup.com

Click, W. R., & Weiner, J. R. (2008). Resource nationalism meets the market: Political risk and the value of petroleum reserves. *Journal of International Business Studies, 41*, 783-803. doi:10.1057/jibs.2009.90

Cole, M. A., Elliott, R. J., & Fredriksson, P. G. (2006). Endogenous pollution havens: Does FDI influence environmental regulation? *Scandinavian Journal of Economics, 108*(1), 157-178. doi:10.1111/j.1467-9442.2006.00439.x

Craemer, M. (2012, February 11*).* Wish you were mine*. Economist.* Retrieved from http://www.economist.com/node/21547285

Dale, M. O. (1997). South Africa: development of a new mineral policy. *Resource Policy, 23*(1/2), 15-25.

Domjan, P., & Stone, M. (2010). A Comparative Study of Resource Nationalism in Russia and Kazakhstan 2004-2008. *Europe-Asia Studies, 62*(1), 35-62. doi:10.1080/09668130903385374

Energy & Mineral Journal's Annual Survey of Global Mining Investments. Retrieved from 10/06/2012, 2012, from http://www.e-mj.com

Ericsson. M., & Larsson, V. (2012). The rate of new project announcements slowed in late 2011. Is the boom in mining investment starting to fade, or is this just a momentary adjustment. *Engineering & Mining Journal*, *12*, 24-29.

Ernest & Young. (2010). Africa Attractiveness Report 2010 Retrieved 10/02/2012, 2012, from http://www.ey.com

Faeth, E. (2009). Determinants of foreign direct investment: A tale of nine theoretical models. *Journal of Economic Survey, 21*(1), 165-196. doi:10.11/j.1467-6419.2008.0056.x

Filho, C. V. (2002). *Main considerations in the formulation of mining policies to attract foreign investment* (Report No. 307). The Institute of Metals, Minerals and Mining.

Fraser Institute. (2012). Annual Survey of Mining Companies Retrieved 10/02/2012, 2012, from http://www.fraserinstitute.org

Gani, A. (2007). Governance and foreign direct investment links: evidence from panel data estimations. *Applied Economics, 14*, 753-756.

Gwenhamo, F. (2011). Foreign Direct Investment in Zimbabwe: The role of institutional and macroeconomic factors. *South African Journal of Economics, 79*(3), 211-223.

Haselip, J., & Hilson, G. (2005). Winners and losers from industry reforms in the developing world: experiences from the electricity and mining sectors. *Resources Policy*, *30*(2), 87-100.

Hill, A. (2011). Foreign infrastructure investment in Chile: The success of public-private partnerships through concessions contracts. *Northwestern Journal of International Law and Business, 32*, 165-190.

Isa, M., & Mkokeli, S. (2012, September 28). Surprise downgrade reflects SA's 'reduced capacity'. *Business Day.* Retrieved from http://www.bdlive.co.za/economy/2012/09/28/surprise-downgrade-reflects-sas-reduced-capacity

Johnson, C. (1990). Ranking countries for mineral exploration. *Natural Resources Forum, 79*(3), 211-223.

Kok, R., & Ersoy, A. B. (2009). Analyses of FDI determinants in development countries. *International Journal of Social Economics, 36*(1/2), 105-123. doi: 10.1108/03068290910921226

Kumar, R. (1990). Public reform to expand mining investment in sub-Saharan Africa. *Resources Policy*, *16*(4), 242-55.

List, J. A. (2001). US country-level determinants of inbound FDI: evidence from a two-step modified count data model. *International Journal of Industrial Organisation*, *19*, 953-973.

Lu, W. J., & Ma, X. (2008). The contingent value of local partners' business group affiliations. *Academy of Management Journal, 51*(2), 295-314.

Mengistu, A. A., & Adhikary, B. K. (2011). Does good governance matter for FDI inflows? Evidence from Asian economies. *Asia Pacific Business Review, 17*(3), 281-299.

Mining Report dismisses the nationalisation of mines. (2012, 2012/03/07). *BUSINESS DAY ONLINE.*

Moran, T.H. (1971). New deal or raw deal in raw materials? *Foreign Policy*, *5*,119-134.

Morgan, P. C. (2002). *Mineral title management – the key to attracting foreign mining investment in developing countries?* (Report No. 307). The Institute of Metals, Minerals and Mining.

Naito, K. (1998). Mineral projects in Asian countries: Geology, regulation, fiscal regimes and the environment. *Resource Policy, 24*(2), 87-93.

New Growth Plan (2010). Retrieved 12/02/2012, 2012, from http://www.info.gov.za/view/DownloadFileAction?id=135748

Otto, J. M. (1997). A national mineral policy as a regulatory tool. *Resource Policy, 23*(1/2), 1-25.

Saunders, M., & Lewis, P. (2012). *Doing research in business & management.* Essex, England: Pearson Education Limited

Seccombe, A., & Mkokeli, S. (2012, February 07). Mining Indaba: Mining report dismisses nationalization of mines. *Business Day.* Retrieved from http://www.bdlive.co.za/articles/2012/02/07/mining-indaba-mining-report-dismisses-nationalisation-of-mines 10.1057/jibs.2009.90

Sharifzyanova, L., Kirchner, A., & Kretzschmar, L. G. (2010). Resource Nationalism: Limits to Foreign Direct Investment Retention. *The Energy Journal, 31*(2), 27-52.

The Economist. (2011). Foreign direct investment and the challenge of political risk Retrieved from 6/07/2012, 2012, http://graphics.eiu.com/upload/WIP_2007_WEB.pdf

UNCTAD *(*2011). *Economic Development in Africa 2011* Retrieved 17/02/2012, 2012, from http://unctad.org/en/Docs/aldcafrica2011_en.pdf

Vivoda, V. (2010). Determinants of foreign direct investment in the mining sector in Asia: A comparison between China and India. *Resources Policy, 36*, 49-59. doi: 10.1016/j.resourpol.2010.08.005

Wilson, J. D. (2011). Resource nationalism or resource liberalism? Explaining Ausralia's approach to Chinese investment in its minerals sectors. *Australian Journal of International Affairs*, *65*(3), 283-304. doi:10.1080/10357718.2011.563779

APPENDIX A - SPEARMAN RANK ORDER, DIFFERENCED COUNTRIES

Country=Canada Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.31623	-0.4714	0.683772
Geol & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544
Polit & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544
EnReg & FDI (UDS bn)	4	0.948683	4.24264	0.051317
MinReg & FDI (UDS bn)	4	0.632456	1.1547	0.367544
JV & FDI (UDS bn)	4	0.632456	1.1547	0.367544
PrivSec & FDI (UDS bn)	4			

Country=Australia Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.4	-0.61721	0.6
Geol & FDI (UDS bn)	4	-0.4	-0.61721	0.6
Polit & FDI (UDS bn)	4	0	0	1
EnReg & FDI (UDS bn)	4	-0.4	-0.61721	0.6
MinReg & FDI (UDS bn)	4	0.4	0.617213	0.6
JV & FDI (UDS bn)	4	-0.4	-0.61721	0.6
PrivSec & FDI (UDS bn)	4			

Country=Indonesia Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.6	-1.06066	0.4
Geol & FDI (UDS bn)	4	0.316228	0.4714	0.683772
Polit & FDI (UDS bn)	4	0.2	0.28868	0.8
EnReg & FDI (UDS bn)	4	0.2	0.28868	0.8
MinReg & FDI (UDS bn)	4	-0.6	-1.06066	0.4
JV & FDI (UDS bn)	4	-0.4	-0.61721	0.6
PrivSec & FDI (UDS bn)	4	-0.7746	-1.73205	0.225403

Country=Papua New Guinea Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.8	1.88562	0.2
Geol & FDI (UDS bn)	4	-0.4	-0.61721	0.6
Polit & FDI (UDS bn)	4	-0.8	-1.88562	0.2
EnReg & FDI (UDS bn)	4	0.2	0.28868	0.8
MinReg & FDI (UDS bn)	4	0	0	1
JV & FDI (UDS bn)	4	0.4	0.61721	0.6
PrivSec & FDI (UDS bn)	4			

Country=Phillippines Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	-0.4	-0.61721	0.6
Geol & FDI (UDS bn)	4	-0.4	-0.61721	0.6
Polit & FDI (UDS bn)	4	0.2	0.288675	0.8
EnReg & FDI (UDS bn)	4	0.4	0.617213	0.6
MinReg & FDI (UDS bn)	4	0.258199	0.377964	0.741801
JV & FDI (UDS bn)	4	0.8	1.885618	0.2
PrivSec & FDI (UDS bn)	4			

Country=Botswana Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.948683	4.242641	0.051317
Geol & FDI (UDS bn)	4	-0.31623	-0.47141	0.683772
Polit & FDI (UDS bn)	4	0.948683	4.242641	0.051317
EnReg & FDI (UDS bn)	4	0.833333	2.132007	0.166667
MinReg & FDI (UDS bn)	4	-0.33333	-0.5	0.666667
JV & FDI (UDS bn)	4	0.632456	1.154701	0.367544
PrivSec & FDI (UDS bn)	4	0.816497	2	0.183503

Country=Ghana Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.816497	2	0.183503
Geol & FDI (UDS bn)	4	-0.54433	-0.91766	0.455669
Polit & FDI (UDS bn)	4	0.258199	0.37796	0.741801
EnReg & FDI (UDS bn)	4	-0.7746	-1.73205	0.225403
MinReg & FDI (UDS bn)	4	-0.7746	-1.73205	0.225403
JV & FDI (UDS bn)	4	-0.2582	-0.37796	0.741801
PrivSec & FDI (UDS bn)	4			

Country=South Africa Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.632456	1.1547	0.367544
Geol & FDI (UDS bn)	4	-0.33333	-0.5	0.666667
Polit & FDI (UDS bn)	4	-0.31623	-0.4714	0.683772
EnReg & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544
MinReg & FDI (UDS bn)	4	0.316228	0.4714	0.683772
JV & FDI (UDS bn)	4	0.632456	1.1547	0.367544
PrivSec & FDI (UDS bn)	4			

Country=Argentina Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0	0	1
Geol & FDI (UDS bn)	4	0.6	1.06066	0.4
Polit & FDI (UDS bn)	4	-0.4	-0.61721	0.6
EnReg & FDI (UDS bn)	4	0.737865	1.54604	0.262135
MinReg & FDI (UDS bn)	4	-0.8	-1.88562	0.2
JV & FDI (UDS bn)	4	0	0	1
PrivSec & FDI (UDS bn)	4			

Country=Brazil Spearman Rank Order Correlations Marked correlations are significant at p <.05000				
	Valid - N	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	4	0.8	1.88562	0.2
Geol & FDI (UDS bn)	4	-0.8	-1.88562	0.2
Polit & FDI (UDS bn)	4	0.4	0.61721	0.6
EnReg & FDI (UDS bn)	4	-0.8	-1.88562	0.2
MinReg & FDI (UDS bn)	4	0.8	1.88562	0.2
JV & FDI (UDS bn)	4	-0.10541	-0.14991	0.894591
PrivSec & FDI (UDS bn)	4			

Country=Chile Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	0.2	0.288675	0.8		
Geol & FDI (UDS bn)	4	0.4	0.617213	0.6		
Polit & FDI (UDS bn)	4	0.4	0.617213	0.6		
EnReg & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
MinReg & FDI (UDS bn)	4	0.210819	0.304997	0.789181		
JV & FDI (UDS bn)	4	0.8	1.885618	0.2		
PrivSec & FDI (UDS bn)	4	0.258199	0.377964	0.741801		
Country=Colombia Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	-0.31623	-0.4714	0.683772		
Geol & FDI (UDS bn)	4	-0.94868	-4.24264	0.051317		
Polit & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544		
EnReg & FDI (UDS bn)	4	-0.31623	-0.4714	0.683772		
MinReg & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544		
JV & FDI (UDS bn)	4	-0.31623	-0.4714	0.683772		
PrivSec & FDI (UDS bn)	4	-0.5	-0.8165	0.5		
Country=Mexico Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544		
Geol & FDI (UDS bn)	4	-0.63246	-1.1547	0.367544		
Polit & FDI (UDS bn)	4	0.4	0.61721	0.6		
EnReg & FDI (UDS bn)	4	-0.4	-0.61721	0.6		
MinReg & FDI (UDS bn)	4	-0.6	-1.06066	0.4		
JV & FDI (UDS bn)	4	-0.4	-0.61721	0.6		
PrivSec & FDI (UDS bn)	4					
Country=Peru Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
Geol & FDI (UDS bn)	4	-0.05556	-0.07869	0.944444		
Polit & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
EnReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317		
MinReg & FDI (UDS bn)	4	0.948683	4.242641	0.051317		
JV & FDI (UDS bn)	4	0.948683	4.242641	0.051317		
PrivSec & FDI (UDS bn)	4					
Country=Venezuela Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	-0.31623	-0.47141	0.683772		
Geol & FDI (UDS bn)	4	-0.31623	-0.47141	0.683772		
Polit & FDI (UDS bn)	4	1				
EnReg & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
MinReg & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
JV & FDI (UDS bn)	4	-0.31623	-0.47141	0.683772		
PrivSec & FDI (UDS bn)	4					

Country=Kazakhstan Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	0.2	0.28868	0.8		
Geol & FDI (UDS bn)	4	-0.8	-1.88562	0.2		
Polit & FDI (UDS bn)	4	-0.8	-1.88562	0.2		
EnReg & FDI (UDS bn)	4	0.2	0.28868	0.8		
MinReg & FDI (UDS bn)	4	-0.4	-0.61721	0.6		
JV & FDI (UDS bn)	4	-0.2	-0.28868	0.8		
PrivSec & FDI (UDS bn)	4	-0.7746	-1.73205	0.225403		
Country=Mongolia Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	0.4	0.617213	0.6		
Geol & FDI (UDS bn)	4	-0.4	-0.61721	0.6		
Polit & FDI (UDS bn)	4	0	0	1		
EnReg & FDI (UDS bn)	4	1				
MinReg & FDI (UDS bn)	4	0.4	0.617213	0.6		
JV & FDI (UDS bn)	4	0.4	0.617213	0.6		
PrivSec & FDI (UDS bn)	4					
Country=Russia Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	-0.8	-1.88562	0.2		
Geol & FDI (UDS bn)	4	0	0	1		
Polit & FDI (UDS bn)	4	-0.4	-0.61721	0.6		
EnReg & FDI (UDS bn)	4	-0.8	-1.88562	0.2		
MinReg & FDI (UDS bn)	4	0.4	0.61721	0.6		
JV & FDI (UDS bn)	4	-0.8	-1.88562	0.2		
PrivSec & FDI (UDS bn)	4					
Country=Turkey Spearman Rank Order Correlations Marked correlations are significant at p <.05000						
	Valid - N	Spearman	t(N-2)	p-value		
Tax & FDI (UDS bn)	4	0.632456	1.154701	0.367544		
Geol & FDI (UDS bn)	4	0.8	1.885618	0.2		
Polit & FDI (UDS bn)	4	1				
EnReg & FDI (UDS bn)	4	0.4	0.617213	0.6		
MinReg & FDI (UDS bn)	4	0.4	0.617213	0.6		
JV & FDI (UDS bn)	4	1				
PrivSec & FDI (UDS bn)	4	0.774597	1.732051	0.225403		

APPENDIX B - SPEARMAN RANK ORDER, TOTAL DATA SET

DIFFERENCED	Valid - N	Spearman	t(N-2)	p-value		RAW DATA	Valid	Spearman	t(N-2)	p-value
Tax & FDI (UDS bn)	80	-0.0254	-0.22441	0.823022		Tax & FDI (UDS bn)	100	0.017323	0.171519	0.864169
Geol & FDI (UDS bn)	80	-0.10862	-0.96503	0.33751		Geol & FDI (UDS bn)	100	0.474398	5.334822	0.000001
Polit & FDI (UDS bn)	80	-0.11508	-1.02319	0.309381		Polit & FDI (UDS bn)	100	0.247384	2.527537	0.013085
EnReg & FDI (UDS bn)	80	0.065657	0.58112	0.562834		EnReg & FDI (UDS bn)	100	-0.069460	-0.689283	0.492274
MinReg & FDI (UDS bn)	80	-0.08842	-0.78401	0.435409		MinReg & FDI (UDS bn)	100	0.123460	1.231614	0.221040
JV & FDI (UDS bn)	80	0.002497	0.02205	0.982463		JV & FDI (UDS bn)	100	0.244573	2.496984	0.014193
PrivSec & FDI (UDS bn)	80	-0.14806	-1.32216	0.18998		PrivSec & FDI (UDS bn)	100	0.192764	1.944741	0.054673

APPENDIX C – CORRELATIONS, TOTAL DATA SET

	Tax	Geol	Polit	EnReg	MinReg	JV	PrivSec	FDI (UDS bn)
Tax	1.0000	.0478	.3510	.4685	.5302	.4885	.0932	-.0792
	p= ---	p=.673	p=.001	p=.000	p=.000	p=.000	p=.411	p=.485
Geol	.0478	1.0000	.2524	.0651	.1754	.0570	.0527	-.0515
	p=.673	p= ---	p=.024	p=.566	p=.120	p=.616	p=.643	p=.650
Polit	.3510	.2524	1.0000	.3882	.2841	.2404	.3134	-.0624
	p=.001	p=.024	p= ---	p=.000	p=.011	p=.032	p=.005	p=.583
EnReg	.4685	.0651	.3882	1.0000	.4056	.2922	.0121	.1088
	p=.000	p=.566	p=.000	p= ---	p=.000	p=.009	p=.915	p=.337
MinReg	.5302	.1754	.2841	.4056	1.0000	.2550	.1056	-.0446
	p=.000	p=.120	p=.011	p=.000	p= ---	p=.022	p=.351	p=.694
JV	.4885	.0570	.2404	.2922	.2550	1.0000	.0513	.0074
	p=.000	p=.616	p=.032	p=.009	p=.022	p= ---	p=.651	p=.948
PrivSec	.0932	.0527	.3134	.0121	.1056	.0513	1.0000	-.0982
	p=.411	p=.643	p=.005	p=.915	p=.351	p=.651	p= ---	p=.386
FDI (UDS I	-.0792	-.0515	-.0624	.1088	-.0446	.0074	-.0982	1.0000
	p=.485	p=.650	p=.583	p=.337	p=.694	p=.948	p=.386	p= ---

APPENDIX C – REGRESSION, TOTAL DATA SET

	Steps	Degr. of - Freedom	F to - remove	P to - remove	F to - enter	P to - enter	Effect - status
Tax	Number 1	1	0.981654	0.325109			In
Geol		1	0.091022	0.763751			In
Polit		1	0.201028	0.655238			In
EnReg		1	2.176145	0.144525			In
MinReg		1	0.037099	0.847806			Removed
JV		1	0.148044	0.701546			In
PrivSec		1	0.276539	0.600595			In
Tax	Number 2	1	1.360139	0.247310			In
Geol		1	0.115265	0.735203			Removed
Polit		1	0.205481	0.651677			In
EnReg		1	2.178121	0.144286			In
PrivSec		1	0.294200	0.589194			In
JV		1	0.154818	0.695120			In
MinReg		1			0.037099	0.847806	Out
Tax	Number 3	1	1.348815	0.249218			In
JV		1	0.151671	0.698062			Removed
Polit		1	0.309339	0.579764			In
EnReg		1	2.232783	0.139362			In
PrivSec		1	0.286109	0.594328			In
Geol		1			0.115265	0.735203	Out
MinReg		1			0.060576	0.806279	Out
Tax	Number 4	1	1.217440	0.273391			In
PrivSec		1	0.294474	0.588977			In
Polit		1	0.286178	0.594263			Removed
EnReg		1	2.337670	0.130485			In
JV		1			0.151671	0.698062	Out
Geol		1			0.111579	0.739298	Out
MinReg		1			0.066604	0.797064	Out
Tax	Number 5	1	1.513260	0.222437			In
PrivSec		1	0.576859	0.449895			Removed
EnReg		1	2.078694	0.153476			In
Polit		1			0.286178	0.594263	Out
JV		1			0.126437	0.723154	Out
Geol		1			0.208735	0.649081	Out
MinReg		1			0.081355	0.776255	Out
Tax	Number 6	1	1.730592	0.192239			Removed
EnReg		1	2.172885	0.144539			In
PrivSec		1			0.576859	0.449895	Out
Polit		1			0.568422	0.453216	Out
JV		1			0.121967	0.727877	Out
Geol		1			0.245850	0.621443	Out
MinReg		1			0.117471	0.732740	Out
EnReg	Number 7	1	0.933875	0.336845			Removed
Tax		1			1.730592	0.192239	Out
PrivSec		1			0.779485	0.380047	Out
Polit		1			1.016551	0.316497	Out
JV		1			0.050885	0.822129	Out
Geol		1			0.269544	0.605127	Out
MinReg		1			0.741857	0.391741	Out
EnReg	Number 8	1			0.933875	0.336845	Out
Tax		1			0.492917	0.484719	Out
PrivSec		1			0.759426	0.386183	Out
Polit		1			0.304438	0.582691	Out
JV		1			0.004215	0.948404	Out
Geol		1			0.207482	0.650014	Out
MinReg		1			0.155731	0.694194	Out