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THE SOVEREIGN WEALTH FUND AS A SOLUTION TO THE RESOURCE CURSE

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Abstract

Despite rational thinking suggesting that a country rich in resources should have higher socioeconomic growth and development, the results of many resource rich countries have not been encouraging. This phenomenon has been studied widely and has been termed the resource curse and denotes how a country with abundant natural resources tends to have lower economic growth and generally display poorer development levels than countries with fewer natural resources.

The Sovereign Wealth Fund (SWF) has been proposed by the International Monetary Fund (IMF) as a tool to curb the resource curse and many resource rich countries have recently started SWFs. The recent activity of SWFs has sparked a lot of interest in this topic but most of the studies conducted to date have failed to determine the effect of the SWF on a country's socioeconomic development and on its ability to mitigate the resource curse.

This research is unique in that it establishes the impact of the creation of a SWF on the socioeconomic performance of resource rich countries by examining the Human Development Index of these countries. In addition, the research examines the key success factors of a SWF and establishes a framework that can be used to ensure that the SWF is effective.

The study has found that the establishment of a SWF is not a guarantee of success and that governance is the most significant success factor in a SWFs effectiveness. As a result, the SWF is proposed as one solution to the resource curse and a SWF framework is presented with governance as a key success factor.

This research is particularly relevant to the resource dependent economies of Africa that have lagged the rest of the world in many socioeconomic measures such as the Human Development Index and income inequality. The effective deployment of a SWF is one option that these economies can utilise to ensure that their resource riches are translated into socioeconomic development.

Keywords

Resource curse

Sovereign Wealth Fund

Resource rich countries

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.

Julien Joseph Rajan

04 December 2013

Name

Signature

Date

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Abbreviations

GDP: Gross Domestic Product

GNI: Gross National Income

HDI: Human Development Index

IMF: International Monetary Fund

OECD: Organization for Economic Cooperation and Development

PPP: Purchasing Power Parity

SWF: Sovereign Wealth Fund

UNDF: United Nations Development Fund

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1. Chapter 1: Introduction

1.1 Background

1.1.1 The Resource Curse

Can a resource rich country convert its resource wealth into socioeconomic growth and development? Despite rational thinking suggesting that this should be possible, the results of many countries are not encouraging (Hammond, 2011). History has shown that resource rich countries such as Nigeria and Venezuela have had their per capita Gross Domestic Product (GDP) shrink while resource poor countries such as Singapore and Korea have shown elevated growth (Sala-i-Martin & Subramanian, 2003; Hammond, 2011).

The above phenomenon is referred to by many as the “Resource Curse” and denotes how a country with abundant natural resources tends to have less economic growth and development than countries with fewer natural resources (Van der Ploeg, 2011). Whilst the resource curse has been visible in many countries, the reasons for and solutions to the resource curse have been greatly debated and no single theory and solution exists (Van der Ploeg, 2011; Cabrales & Hauk, 2011).

1.1.2 Africa’s Potential and its Reliance on Resources

As a region, Sub Saharan Africa lags the rest of the world in most social and economic factors. This is reflected by Africa’s position in the Human Development Index which is a composite index measuring the health, education and living standards. Against a global average of 0.694, Sub Saharan Africa has the lowest score of any region with a value of 0.475 (United Nations Development Program, 2013b).

Africa’s economy is heavily reliant on resources. A recent report by the Africa Progress Panel (2013) has shown that 20 African countries have economies where 25% or more of their exports are based on resources and 12 countries have economies where 75% or more of their exports are based on resources.

In the last decade, Africa has had six of the ten fastest growing countries (The Economist, 2011) and this trend is expected to continue into the next decade with an average expected growth rate of 6% (The Economist, 2013).

Many African countries will rely on their resource wealth to continue and sustain this growth.

Although this growth brings with it immense opportunities, there are also concerns that African countries will not see their people benefit broadly (The Economist, 2013). Whilst the resource curse has been widespread, the results also show that it is not inevitable and that many countries, such as Botswana and Norway, have escaped the resource curse (Iimi, 2007). Based on history and the lessons that have been learnt, what should the resource rich countries of Africa do to overcome the resource curse?

1.1.3 The Sovereign Wealth Fund as One Solution

The International Monetary Fund (IMF) has proposed that resource rich countries start Sovereign Wealth Funds (SWFs) to mitigate the resource curse (Davis, 2001) and several African countries including Nigeria, Angola and Ghana have recently started SWFs (Ncube, 2013). The expectation of these countries is that the establishment of SWFs will enable them to effectively manage their resource wealth and thus overcome the resource curse.

Whilst SWFs have been in existence since 1953 (Winder, 2010), they have recently received a lot of attention due to large investments injected by SWFs from emerging countries in developed economies (Ainina & Mohan, 2010). Developed economies have raised concerns about the true investment objectives of SWFs with many questioning whether the objectives are financial or geo-political. These concerns have not been allayed by secretive and opaque SWF structures and practices (Cai & Clacher, 2009).

Most of the recent research has focused on these concerns and a few frameworks have been proposed to improve the governance and transparency of these funds (Monk, 2009).

1.2 The Research Problem and Motivation

Whilst supported by the IMF, the outcome of resource rich countries with SWFs is mixed with several successes and failures (Heuty & Aristi, 2009). This suggests that the SWF in isolation is unlikely to overcome the resource curse.

Most recent SWF studies focus on the concerns of the countries that are being invested in (Tsani, Ahmadov & Aslanli, 2010). This has resulted in a number of frameworks to analyse and improve SWFs from an investor/host country perspective (Monk, 2009). No studies have been conducted to assess the impact of SWFs on the socioeconomic development of the home country and to further understand how these funds should be structured and run so as to be effective from a home country perspective (Tsani, Ahmadov & Aslanli, 2010).

As a SWF is setup to alleviate the negative effects of resource abundance in its home country, then any research conducted needs to focus on the impact and benefits to the home country (Santiso, 2008).

Despite the lack of an effective, home country focused framework and the mixed results from resource rich countries with SWFs, many developing countries are starting SWFs (Ncube, 2013). Of the 69 SWFs currently in existence, 29 have been started since 2005 and this includes several African countries (SWF Institute, 2013).

The presence of a successful SWF framework can assist these resource rich countries to understand what critical success factors are required for the SWF to be effective and for the country to translate its resource riches into broad socioeconomic development. This in turn will enable Africa and other developing countries to grow and thus bring about the much-needed improvement to their citizens.

1.3 Research Aim and Objectives

This research topic is: **'The Sovereign Wealth Fund as a Solution to the Resource Curse'** and this research is unique in two ways. Firstly, the research establishes the aggregate effect of the establishment of a SWF on the socioeconomic performance of a resource rich country. Secondly, the socioeconomic performance of countries with SWFs is analysed so as to identify key success factors. These success factors are then incorporated into a framework for resource rich countries wishing to use a SWF in order to overcome the resource curse. This approach results in the following two research questions.

Research Question 1: Can the establishment of a SWF mitigate some of the negative aspects of the Resource Curse?

Research Question 2: What success factors should a SWF have so as to be successful in alleviating the effects of the Resource Curse?

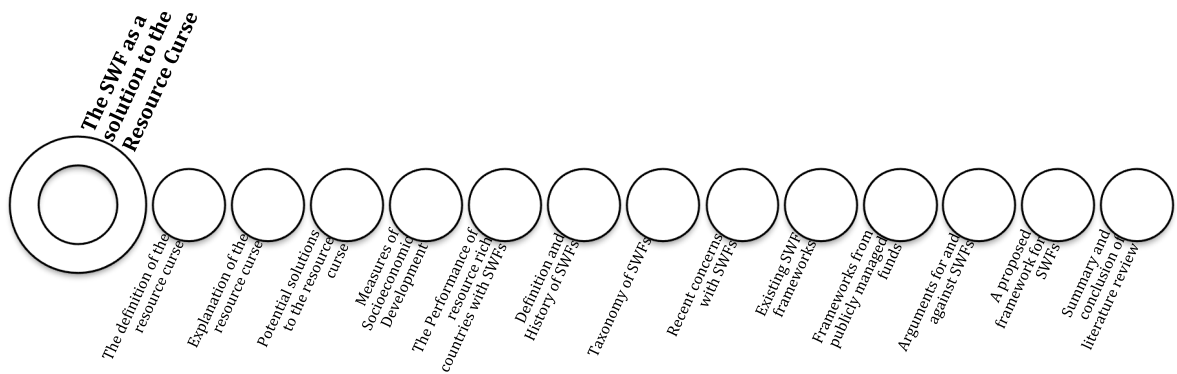
1.4 Research Scope

Whilst the outcome of this research is expected to be useful to African countries, the research has a global focus and includes all resource rich countries that have established SWFs and have run these SWFs for a period of five years or more. The research uses a quantitative approach and utilises, amongst others, a matched pairs t-test and regression analyses. Secondary data from reputable sites such as the World Bank has been used.

2. Chapter 2: Literature Review

The literature review is split into several topics that are shown below in **Figure 1**. The literature review starts by analysing the resource curse and its sources. The Sovereign Wealth Fund (SWF) is introduced as a solution to the resource curse and is analysed. The literature review ends with a proposed framework for a successful SWF.

Figure 1: Topics Discussed Under the Literature Review



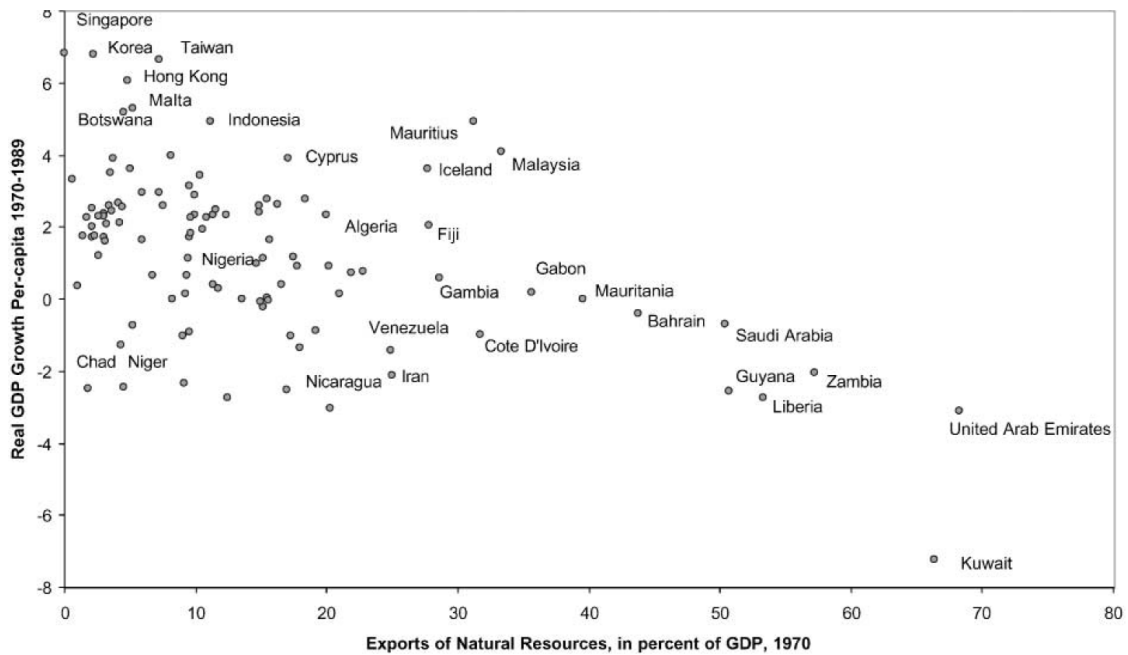
2.1 Definition of the Resource Curse

An analysis of the economic development of countries since World War 2 provides some interesting insights. On average, the successful countries are countries that have not had natural resources including countries such as Japan, South Korea and Singapore (Shaxson, 2007). This is contrasted against resource rich countries such as Nigeria, Angola and Venezuela that have fared poorly (Frankel, 2010). This phenomenon has been debated extensively and has been referred to by some as the 'resource curse'. Studies by Sachs and Warner (1995) and Auty (1993) have shown that, on average, not only have resource rich countries not translated their natural resources into economic growth, but these resources have been harmful to the economy resulting in a decrease in certain economic measures.

Figure 2 shows the negative relationship between natural resources and per capita GDP growth that Sachs and Warner discovered (Sachs & Warner, 2001).

Research on this topic has also revealed that this ‘curse’ affects developing countries (Sachs & Warner, 1995) and that this curse is prevalent in countries with point based natural resources (Isham, Woolcock, Pritchett & Busby, 2005). These are resources that are extracted from a small geographic or economic base and include resources such as oil, minerals and plantation crops such as sugar and bananas (Isham, Woolcock, Pritchett & Busby, 2005).

Figure 2: Negative Relationship Between Resources and Economic Growth (Sachs & Warner, 2001)



Sovacool (2010) additionally points out that this resource curse is not only limited to a negative effect on economic growth but also on social development. There are several country examples of the Resource Curse with two dramatic examples being Nigeria and Angola (Hammond, 2011; Herringshaw, 2004).

Since oil was discovered in Nigeria in 1965, oil revenues have grown to constitute approximately 80% of government revenues and 95% of exports (Africa Progress Panel, 2013). Nigeria has grown to be the second largest producer of oil in Africa and has received approximately USD 350bn in oil revenues between 1970 and 2000 (Sala-i-Martin & Subramanian, 2003). Despite this, the country has not fared well with the GDP per capita (in Purchasing Power Parity terms) decreasing in real terms from USD 1,113 in 1970 to USD 1,084 in 2000. Furthermore, the share of the population subsisting on less than one US dollar per day has increased from 36% in 1970 to 70% in 2000 (Sala-i-Martin & Subramanian, 2003).

Angola is another country with significant resource wealth (Hammond, 2011). Angola surpassed Nigeria as Africa's largest oil producer in 2008 and was the world's fourth largest producer of diamonds (Hammond, 2011). Despite finding oil in 1955, the country has since had 35 years of resource fuelled war and, whilst the country's GDP per capita has slowly increased since the end of the war, most of the population has received no benefit (Hammond, 2011). Angola currently ranks amongst the worst globally in many social indicators with life expectancy reducing to 37 years in 2006 and infant mortality increasing to 19% (Sovacool, 2010).

Whilst, on average, most resource rich countries have been negatively affected, there are a wide variety of outcomes with positive examples such as Botswana and Malaysia (Van der Ploeg, 2011). Botswana is the largest producer of diamonds and mining contributes approximately 40% to its revenue (Iimi, 2007). It has experienced several decades of strong economic growth with growth averaging 7.8 % since the 1980s (Iimi, 2007). In addition, Botswana has been able to attain some of the highest education enrolment figures in the region (Iimi, 2007).

Although the evidence suggests that there is a resource curse, there are a wide variety of outcomes. Consequently, it is important to understand the factors leading to countries displaying the resource curse.

2.2 Explanation of the Resource Curse

2.2.1 Introduction

Whilst the resource curse has been widely observed and studied, it is a complex phenomenon and no one theory exists to explain it (Frankel, 2010). The various propositions that exist to explain the curse can be broadly grouped into economic, political and social factors that will be described below (Shaxson, 2007). Whilst many factors have been proposed, there has been much unresolved debate relating to which factor is the primary contributor and which are symptoms that show a causal relationship to the resource curse (Sala-i-Martin & Subramanian, 2003).

2.2.2 Economic Factors Leading to the Resource Curse

One of the most widely accepted economic factors relates to the Dutch disease (Van der Ploeg, 2011; Hammond, 2011). This disease is named after what transpired in the Netherlands shortly after large oil reserves were discovered in the North Sea region in the 1960s (Sovacool, 2010). Unexpectedly, this seemingly positive development had negative effects on the Dutch economy. The Dutch currency strengthened resulting in important industries such as manufacturing and agriculture being less competitive.

In any economy, there are three main sectors, namely, the resource traded sector, the non-resource traded sector and the non-traded sector. In an economy that is heavily dependent on resources, the resource-traded sector grows and the non-traded sector (which includes services and construction) also grows as this supports the resource-traded sector and this crowds out the non-resource sector (Sovacool, 2010). This is due to the local currency strengthening and increasing inflation due to capital inflows related to resource based exports and investments. This collectively results in the country's non-resource traded sector weakening, as its products are not competitive globally (Sovacool, 2010).

The non-resource traded sector includes industries such as manufacturing and agriculture and is seen to be the country's engine for growth (Van der Ploeg, 2011). These industries are beneficial as they provide a large amount of employment per capital employed and also increase the diversification of the economy (Sovacool, 2010). Resource based investments, while large, are very capital intensive and also result in very specific, immobile assets being constructed (Sovacool, 2010). These assets cannot be redeployed once the resources have been depleted and also provide limited employment as they are fairly automated (Iimi, 2007).

In addition, resource based sectors are notorious for providing limited upstream and downstream linkages (Sovacool, 2010). They traditionally involve a mineral or fuel that can be extracted and exported without the need for further downstream industries. This limits downstream linkages and limits the participation of the labour force (Sovacool, 2010). The real 'disease' that results is a concentrated economy that is heavily dependent on resources and that has a weak manufacturing sector.

Not only is this inefficient for the country, but it also results in an economy that is not sustainable once the resources have been depleted (Van der Ploeg, 2011).

A second economic factor relates to volatility in government revenues introduced by resource revenues (Sala-i-Martin & Subramanian, 2003). This is a result of a combination of the resource rich country's concentrated economy and highly volatile resource prices (Hammond, 2011). Governments depend on the resource revenues, not only for normal government expenditures, but also for loan repayments and resource price collapses and volatility can have a detrimental impact on the country's fiscus (Di John, 2011). It is further suggested that these highly volatile resource prices cause the highly volatile growth rates that are often associated with resource rich countries (Van der Ploeg, 2011).

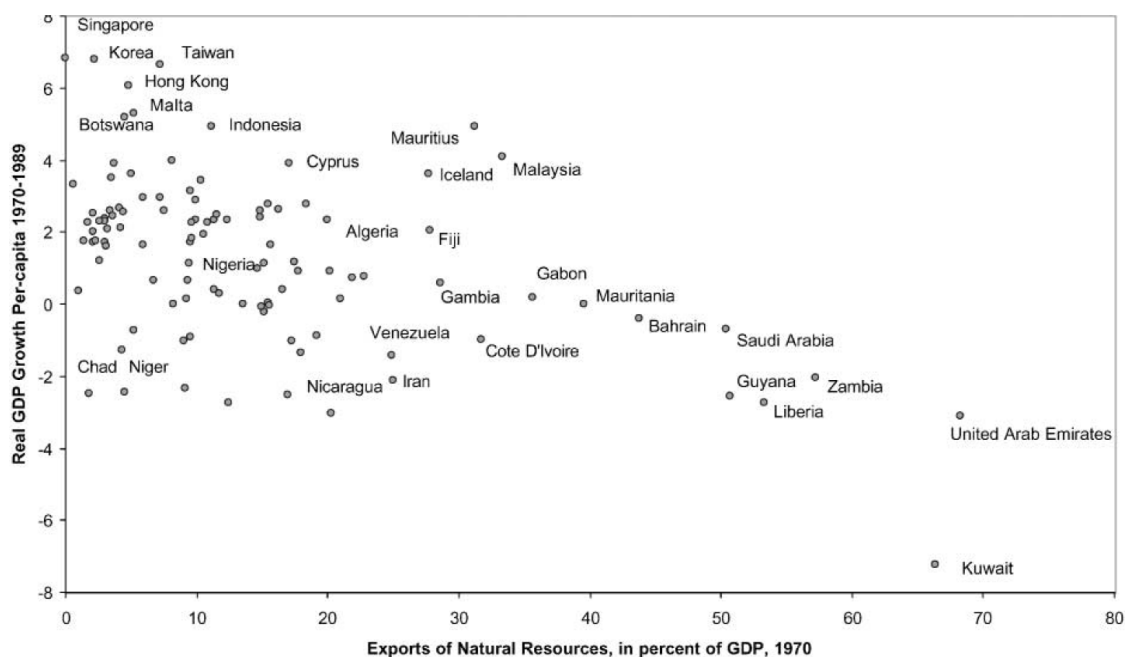
Atkinson and Hamilton (2003) provide another perspective on economic contributors arguing that countries where growth has lagged are those where the combination of natural resource, macroeconomic and public expenditure policies have led to a low rate of genuine saving. Genuine saving is based on the Hartwick rule for sustainable development and this provides a guide on investments that need to be made by a country to ensure that the country is sustainable post its resource depletion (Hamilton & Hartwick, 2005).

Figure 3: Genuine Saving Equation (Van der Ploeg, 2011)

$$\begin{aligned} \text{Genuine Saving} &= \text{public savings} + \text{private savings} - \text{depreciation of public and private investments} \\ &+ \text{current spending on education} \\ &- \text{value of net depletion of exhaustible natural resources and renewable resources (forests)} \\ &- \text{damages of stock pollutants} \end{aligned}$$

The genuine saving equation is shown above in **Figure 3**. It is argued that a positive genuine saving rate results in a nation becoming richer and in increasing social welfare while a negative genuine saving results in a nation losing wealth and in its social welfare worsening (Van der Ploeg, 2011). The results from an analysis by Atkinson and Hamilton (2003) are shown below in **Figure 4** and this presents a shocking picture with resource rich countries having a lower genuine saving rate. This means that even if a country is growing, it is not fully investing its resources for future generations. Examples of resource rich countries with low genuine savings are Nigeria and Angola with a genuine savings rate of -30%.

Figure 4: Inverse Relationship Between Resources and Genuine Saving (Atkinson & Hamilton, 2003)



A final economic factor relates to the quality of policies that are present in the country. Arezki and Van der Ploeg (2010) found that, in addition to good institutions (which will be discussed later), a country also needs open trade policies as they found that countries with less restrictive trade policies were not as badly affected by the resource curse. This view is supported by Yang (2009) who argues that, in developing countries, policies are more important in overcoming the resource curse. Yang (2009) goes on to state that while most argue that sound institutions will result in good policies, this is not always the case and that resource rich countries that have bad institutions can adopt good macroeconomic policies to overcome the curse.

2.2.3 Political Factors Leading to the Resource Curse

A commonly discussed political factor that causes the resource curse is rent seeking behaviour that occurs in the host country governments (Goorha, 2006). Rent seeking is described as actions that seek to create, maintain, or change the rights and institutions on which rents are based (Di John, 2011). Rents refer to the extra income earned from exclusive ownership of a scarce resource (Di John, 2011).

This theory implies that natural resources elicit a political contest to capture ownership as command of resources by the government or an elite transfers wealth to the holders (Di John, 2011). It is reasoned that rent seeking results in governments being less likely to develop institutions such as the rule of law as these could affect their command of these resources (Frankel, 2010).

Furthermore, Van der Ploeg (2011) argues that rent seeking is an unproductive task focused on the short term and on patronage and inefficient self-preservation tasks. Van der Ploeg (2011) contrasts rent seeking against productive activities such as a leader focusing on the long term with activities such as investing in growth creating assets and in the welfare of the people.

Rent seeking behaviour also sows the seeds of discord and can result in conflict and war among domestic stakeholders (Sala-i-Martin & Subramanian, 2003). Whilst the research is not unanimous in this regard, some studies have shown that resource dependence is correlated with war, and wars in resource rich countries such as Sierra Leone, Angola and Sudan come to mind (Frankel, 2010).

Resource dependent countries are also prone to having high levels of corruption according to Van der Ploeg (2011). This is based on evidence from 55 countries using Transparency International's corruption perception index. A high level of corruption in turn is associated with low levels of growth (Van der Ploeg, 2011).

A further political factor relates to the governments of resource rich countries not being accountable to the population of the country (Shaxson, 2007). In resource rich countries, the government gets a large portion of its revenues from companies that exploit resources. As the government gets little of its revenues from the population, there is an unhealthy relationship resulting in less political bargaining between the government and the population, with the government not being accountable to the taxpayers or the population (Shaxson, 2007).

Recent thinking that has become prominent in this field suggests that the quality of institutions in a country is a big determinant of whether a country with resources can convert its resource wealth into broad economic development (Cabrales & Hauk, 2011; Van der Ploeg, 2011; Acemoglu & Robinson, 2012).

This view suggests that natural resources result in weak institutions that, in turn, result in corruption, rent seeking, and poor governance and these collectively have a negative effect on the growth rate (Sala-i-Martin & Subramanian, 2003). Cabrales and Hauk (2011) explain that institutions affect the behaviour of politicians as they define the policy space and limit their discretion.

Further research from Cabrales and Hauk (2011) has shown that the quality of institutions in a country with weak institutions will erode when resources are discovered. This is particularly true of point resources such as oil and minerals as they are easily appropriable (Sala-i-Martin & Subramanian, 2003). This erosion in the quality of institutions takes place as it allows political elites to block institutional improvements since this can weaken their power (Acemoglu and Robinson, 2006).

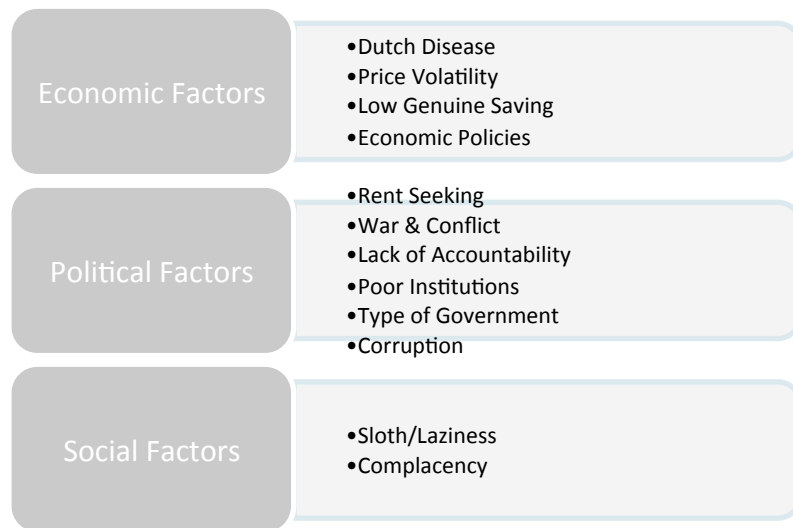
2.2.4 Social Factors Leading to the Resource Curse

Sachs and Warner (1995) identify that social factors can result in the resource curse. They suggest that countries with resources tend to be lazy and complacent and that “easy riches lead to sloth” (Sachs & Warner, 1995, p.4). They contrast a country like Singapore with Nigeria and suggest that Singapore had no choice but to aggressively pursue economic growth through innovative ways while Nigeria could rely on revenues that it received from its oil. It is further suggested that abundance in natural resources can lead to the government being overconfident and, as a result, the country makes incorrect policy decisions (Sachs & Warner, 1995). This can result in the country maintaining unsustainable policies without changing them (Van der Ploeg, 2011).

2.3 Potential Solutions to the Resource Curse

In the previous section, various factors leading to the resource curse have been discussed and these have been summarised in **Figure 5** below.

Figure 5: Summary of the Factors Leading to the Resource Curse



In order to address the economic factors that cause the resource curse, the International Monetary Fund (IMF) has suggested that resource rich countries start a 'Sovereign Wealth Fund (SWF)' (Davis, 2001). This is a separate fund run by the country that saves revenues from resources (Van der Ploeg, 2011). The country can use this fund in order to provide stability against resource price fluctuations, for designated economic and social development or as a savings fund for future generations (Iimi, 2007).

Whilst the IMF has recommended the use of a SWF, this has not been accepted universally with Sala-i-Martin and Subramanian (2003) and Van der Ploeg (2011) arguing that the non economic factors that cause a resource curse (such as weak institutions) will cause the Sovereign Wealth Fund (SWF) to be ineffective.

2.4 Measures of Socioeconomic Development

Most of the prominent resource curse studies described earlier have used Gross Domestic Product (GDP) per capita as a measure of socioeconomic performance (Sachs & Warner, 1995; Auty, 1993). Despite the GDP per capita measure providing a composite country level measure of economic development, it has been widely criticised for only focusing on the economic aspects of a country as it excludes the social aspects (Stanton, 2007). The United Nations Development Program's (UNDP) Human Development Index (HDI) was created in 1990 and has become the most widely used country level measure of socioeconomic development (Ivanova, Arcelus & Srinivasan, 1999).

This index is a composite index measuring the health, education and the living standards (United Nations Development Program, 2013a). **Table 1** below shows the three dimensions and four indicators that make up the index.

Table 1: Composition of the Human Development Index

Index				
Human Development Index				
Dimensions (3)	Health	Education		Living standards
Indicators (4)	Life expectancy at birth	Mean years of schooling	Expected years of schooling	Gross National Income per capita

The HDI has its shortcomings and has been constantly improved since its inception. Whilst the HDI is not perfect, it is seen by many to be the most comprehensive measure of human and socioeconomic development and has country level data available from 1990 till 2013 (Taner, Sezen & Mihci, 2011).

2.5 Performance of Resource Rich Countries with Sovereign Wealth Funds

The performance of resource rich countries with SWFs has been mixed with research showing countries like Norway and Botswana that have overcome the resource curse (Cabral & Hauk, 2011) and other countries like Timor Leste and Venezuela that have not been successful (Hammond, 2011).

Most literature cites the Norway SWF as a role model to other funds (Heuty & Aristi, 2009). Norway discovered oil in 1969 and oil production started shortly afterwards in 1971. In response to the large incomes received from this resource, the government started the Petroleum fund in 1990 and this morphed into the Government Pension Fund in 2006 (Heuty & Aristi, 2009). Norway's socioeconomic performance is remarkable with it currently having one of the highest per capita GDPs (in PPP terms) in the world with a figure of USD 46,300 (Govind, 2008). Norway is also rated as having the third best quality of life in 2007/2008 (Govind, 2008).

What is remarkable about the Norway SWF is the strong governance, accountability and transparency of the fund along with developed processes and frameworks that support it (Heuty & Aristi, 2009).

As an example, the fund is very clear about its objectives and goals and the fund results are published quarterly and annually for all interested persons to see. The Central bank, which manages the fund, reports to the ministry of finance and visits the Norwegian parliament on a quarterly basis to update them on the fund's performance (Canner & Grennes, 2010). The fund is also independently audited on an annual basis by the office of the auditor general who reports directly to parliament (Canner & Grennes, 2010). There are also several guidelines and procedures in place to manage the fund (Canner & Grennes, 2010). An example of this includes the ethical guidelines that the fund uses in making decisions on what companies to invest in and the clear guidelines that exist on when money from the fund can be used in the country's budget (Heuty & Aristi, 2009).

Another good example of a resource rich country with a SWF is Botswana. Botswana is heavily dependent on its diamond resources with Botswana being the largest diamond producer in the world and having 70-80% of its exports based on diamond production (Alfaro, Spar, & Allibhoy, 2005). They have also had a SWF since 1994 (SWF Institute, 2013). Botswana's per capita GDP has grown from USD 840 in 1975 to USD 7,652 in 2000 (Alfaro, Spar, & Allibhoy, 2005). At the same time, social factors such as the infant mortality rate has improved by more than 100% (Alfaro, Spar, & Allibhoy, 2005). Botswana has invested in diversifying its economy away from mining and this has resulted in mining's contribution to the GDP reducing from 49% in 1985 to 33% in 1999 (Alfaro, Spar, & Allibhoy, 2005).

However, in many cases, the establishment of a SWF has not coincided with positive socioeconomic results. Timor Leste (formerly known as East Timor) discovered oil and gas under the Timor Sea in the late 90s resulting in large inflows of revenue (Heuty & Aristi, 2009). Based on this resource discovery and the resultant revenues, the international community suggested it start a SWF to accumulate resource windfalls so as to shelter the economy from swings in commodity prices. Their SWF, which was started in 2005, had assets of 4.5 billion USD in 2009 (Heuty & Aristi, 2009). Despite this, the number of Timorese living in poverty jumped 14% between 2001 to 2009 with nearly half the population living in poverty by 2009 (Heuty & Aristi, 2009).

Despite having a SWF since 1998 (SWF Institute, 2013), Venezuela has not been able to overcome the Resource Curse (Hammond, 2011). Venezuela is the ninth largest producer of oil globally and oil contributes 80% to its exports and 35% to its GDP. Notwithstanding its oil riches, its per capita GDP has reduced by 27% between 1979 and 1999 (Hammond, 2011).

These mixed results demonstrate that establishing a SWF automatically does not overcome the resource curse and that there are success factors in the running of the SWF that need to be understood through a more detailed understanding of the SWF.

2.6 Definition and History of Sovereign Wealth Funds

The term SWF was first coined by Rozanov (2005) and since then, there has been much debate about the definition of a SWF. The most complete definition available is that proposed by the IMF sanctioned International Working Group of SWFs, which defines an SWF as (Backer, 2009, p.119):

“special purpose investment funds or arrangements, owned by the general government. Created by the general government for macroeconomic purposes, SWFs hold, manage, or administer assets to achieve financial objectives, and employ a set of investment strategies, which include investing in foreign financial assets. The SWFs are commonly established out of balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, fiscal surpluses, and/or receipts resulting from commodity exports.”

From the various definitions, there are some key elements of a SWF that separate it from other funds. The most obvious element relates to the fact that the SWF is a government investment vehicle (Monk, 2009). While the SWF is state owned, the state is seen as a fiduciary of the ultimate owner, which are the citizens of the country (Heuty & Aristi, 2009).

As an SWF is a state run investment, its objectives are different to other funds. The objectives of the SWF are national objectives that serve a variety of macroeconomic purposes. This implies that these funds are not only compelled to maximise wealth but are driven to achieve national strategic objectives (Beck & Fidora, 2008).

SWFs are not a new phenomenon and have been in existence since the 1950s with the first known SWF being started in 1953 by Kuwait (Winder, 2010). SWFs have recently increased in prominence from a number and value point of view (Bahgat, 2008). SWFs are currently estimated to control around USD 5.8 trillion collectively and this is up from around USD 500 billion in 1990 (Helleiner & Lundblad, 2008; SWF Institute, 2013).

This growth is reflected by the fact that 35 of the 69 SWFs that are currently in existence have been created since 2005 (SWF Institute, 2013). Of the 69 SWFs that exist, 58% are being funded by oil and gas and most of the funds come from emerging economies in Asia (40%) and the Middle East (35%) (Truman, 2008). A list of the ten largest SWFs is shown in **Appendix A**.

2.7 Taxonomy of Sovereign Wealth Funds

Not all SWFs are the same and there are various ways to categorise SWFs (Ghahramani, 2013; IMF, 2008). The most common ways to categorise SWFs are based on where their revenue originates from and on what their objectives are (Ghahramani, 2013). A summary of these methods of categorisation is shown below in **Table 2**.

Table 2: Taxonomy of Sovereign Wealth Funds (compiled from Global Financial report- IMF, 2007)

Commodity	Source of Funding	Objectives
Commodity	Fiscal budget surpluses	Stabilisation funds
Non commodity	Fiscal surpluses (savings)	Intergenerational Savings Funds
	Balance of payment surpluses	Reserve Investment Corporations
		Development Funds
		Pension Reserve Funds

Most SWFs get their income from commodity exports such as oil and resources while some SWFs are based on non-commodities. The latter are funded from foreign exchange reserves that result from high savings rates from individuals and/or businesses (Heuty & Aristi, 2009).

In addition to whether a SWF gets its funding from commodities or non-commodities, further categorisation can be done on where the funding originates from. Some SWFs are funded from fiscal budget surpluses that are either due to export revenues or from the country exercising some spending restraint (Monk, 2009).

The SWF can also be funded from fiscal surpluses originating from public savings (as is the case in some non-commodity SWFs) and lastly, SWFs can be funded from balance of payment surpluses (Monk, 2009).

The most widely used method of categorising SWFs is based on their objectives. The first SWFs started out as stabilisation funds for their oil-rich countries to protect themselves against cyclical and unstable oil prices (Jen, 2007). These funds allow the country to put aside money when resource prices are high thereby insulating the economy and the budget from commodity price fluctuations. Such SWFs generally need their funds to be available at short notice and consequently invest in liquid assets with a low risk (Heuty & Aristi, 2009). This, in effect, mitigates against one of the sources of the resource curse by protecting against commodity price volatility (Heuty & Aristi, 2009).

An alternative SWF objective is to act as an intergenerational savings fund. This fund is created as the country realises that revenues from non renewable resources such as oil will eventually run out. The objective of this fund is to convert windfalls from these non-renewable resources into assets that will provide income in future years when the resource has been depleted. As these funds are not required at short notice, they are generally invested in less liquid and more risky assets (Heuty & Aristi, 2009). A good example of this type of fund is found in Norway with their SWF being funded from Norway's petroleum resources (Caner & Grennes, 2010).

Reserve investment funds are funds whose primary objective is to maximise the return on a country's excess foreign reserves. These types of funds are found in some of the rich Middle East oil states that have significant oil reserves and these countries realise that they can maximise their investment returns by investing offshore (Ghahramani, 2013).

Development funds are created in order to fund socioeconomic projects such as infrastructure or education. These funds are specifically put in place to raise a country's output and to diversify the economy away from resources. This, in effect, diminishes the Dutch disease by supporting and encouraging other industries (Ghahramani, 2013). A good example of a development fund is Singapore's Temasek Holdings. This was initially used to invest in strategic government owned companies that it realised were important to either create jobs or grow the economy (Lhaopadchan, 2010).

The last type of SWF that is categorised based on its objective is a pension reserve fund. These funds are used to supplement the funding of future pension contingencies and are required as the current pension contributions are not sufficient (Ghahramani, 2013).

2.8 Recent Concerns with Sovereign Wealth Funds

In recent years, SWFs have come into the public spotlight for many reasons. The main reason for this relates to many SWFs from developing countries investing in companies from developed countries (Cai & Clacher, 2009; Lhaopadchan, 2010; Helleiner, 2009). Some examples of this include the China Investment Corporation taking a USD 9.7 billion stake in Morgan Stanley in 2008 and Singapore's Temasek Holdings acquiring a USD 5 billion stake in Merrill Lynch (Ainina & Mohan, 2010).

These investments have caused anxiety and concern in the countries being invested in (Ainina & Mohan, 2010). This concern stems from the fact that the SWFs are growing rapidly and there is a shift in financial flows from emerging regions such as Asia and the Middle East to developed economies such as the USA and Europe (Monk, 2009). Further concerns relate to the objectives of the SWFs with many countries having concerns about whether the SWF objectives are financial or geo-political (Cai & Clacher, 2009; Monk, 2009).

Whilst these SWFs have assisted and bailed out many companies that have been badly affected by the 2008 global financial crises, the concerns by developed countries relate to the true objectives of these SWFs with concerns that these SWFs are using their economic clout to pursue political objectives (Caner & Grennes, 2010). These concerns are not allayed by the fact that most SWFs have traditionally been very secretive and opaque in their objectives and operations (Fox, DelVecchio, Khayum, Gatenio, Blackburn & Wolfson, 2008). Whilst a few funds like the Norway SWF provide comprehensive information, most funds do not publish annual reports and do not have independent audits. An extreme example of this is the United Arab Emirates SWF, which does not even disclose the total value of its fund with a wide range of estimates from outsiders estimating this fund at between 250 and 875 billion USD (Caner & Grennes, 2010).

With SWFs growing significantly over the last ten years, they are now major players in the world financial market and have also overtaken other funds such as hedge funds by value (Jen, 2007). This has resulted in some concerns on the type of investments being made and how these could affect global financial markets (Jen, 2007).

In response to the above global concerns from investment recipient countries, the IMF has set up a SWF International Working Group, which has put together a set of voluntary Generally Accepted Principles and Practices known as the Santiago Principles (Tsani, Ahmadov & Aslanli, 2010). Furthermore, most of the research and literature on SWFs has focused on the above concerns of developed countries being invested in as opposed to the SWF host country (Santiso, 2008).

2.9 Existing Sovereign Wealth Fund Evaluation Frameworks

The Santiago Principles were put in place by the IMF sanctioned International Working Group of SWFs mainly to establish 'trust' between SWFs and the investment recipient countries (Monk, 2009). The Santiago Principles contain a total of 24 principles that are arranged in four broad areas. These four areas are the Legal framework, Objectives and coordination with macroeconomic policies, Institutional framework and governance structure, and Investment and risk management framework (International Working Group, 2008).

Whilst the Santiago principles provide a framework for host nations to measure, two criticisms that are pronounced against them are that the principles are qualitative in nature and there is no enforcement of these principles (Tsani, Ahmadov & Aslanli, 2010). A copy of the Santiago Principles is shown in **Appendix B.1**.

Truman developed the Blueprint for SWF Best Practices in 2008 and its purpose was to evaluate the various SWFs in order to determine if they are improving as per the objective of the International Working Group of SWFs (Truman, 2008). This was the first quantitative evaluation and it provides a scorecard that evaluates countries based on four main components and 29 questions (Truman, 2008). The main components of the blueprint are: Structure, Governance, Accountability and Transparency, and Behaviour (Truman, 2008). The detailed framework is shown in **Appendix B.2**.

The SWF institute is an independent organisation and has created the Linaburg-Maduell Transparency Index that measures the transparency of all SWFs on a quarterly basis (Tsani, Ahmadov & Aslanli, 2010). Like the Blueprint for SWFs, this is a quantitative evaluation and provides a ranking of SWFs. The index has ten questions, which are each ranked between 1 and 10, and each SWF gets an average ranking of the ten questions. This ranking is done by the members of the SWF Institute (SWF Institute, 2013) and the detailed questions that form part of this index are shown in **Appendix B.3**. Whilst the SWF Institute has a quantitative measure, this measure only focuses on transparency and excludes other important factors (Monk, 2009).

No frameworks were found that describe how a SWF should be run from a home country perspective. All the frameworks that exist are focused on the recipients of the fund related investments (Tsani, Ahmadov & Aslanli, 2010). As a result, none of these frameworks are sufficient as they do not contribute to the SWF being run effectively for the benefit of the host country and its citizens who are the ultimate beneficiaries of the SWF.

All three frameworks discussed above do promote similar characteristics namely, transparency, accountability and governance. Since SWFs can be created to assist countries in dealing with their resource riches, it is argued that a useful framework needs to focus on the home country and not on the concerns of the countries being invested in (Tsani, Ahmadov & Aslanli, 2010).

2.10 Frameworks from Publicly Managed funds

Since the existing frameworks presented for SWFs are not focused on the host country, other publicly managed funds are analysed in order to find frameworks that can be used.

Mitchell, Piggott and Kumru (2008) investigated public sector funds such as public pension funds in order to find best practices that could be applied to other publicly managed funds such as SWFs. They argued that many of the same governance principles applied to all forms of publicly managed investment pools (Mitchell, Piggott & Kumru, 2008).

Building on prior work conducted by Carmichael and Palacios (2004), Mitchell, Pigott and Kumru (2008) devised performance criteria regarding the funds covering governance, accountability, and investment policies. They referred to the World Bank's guidelines for pension funds and gave a breakdown of all the guidelines into the above three criteria. The World Bank standards present a checklist of 19 guidelines that are applicable to the management of public pension funds. Reference is also made to the OECD's guidelines for the management of public pension funds and Mitchell, Pigott and Kumru (2008) converted the OECD guidelines checklist into the three categories (governance, accountability and investment practices). These are shown in detail in **Appendix C**.

Whilst these frameworks cover governance and accountability that are applicable to SWFs, investment practices are not relevant to SWFs as SWF objectives are not necessarily related to wealth creation (Beck & Fidora, 2008).

2.11 Arguments for and Against Sovereign Wealth Funds

One major factor leading to the resource curse is economic factors such as the Dutch disease and resource price volatility (Hammond, 2011). These economic factors can be overcome by setting up a SWF as it can be used to save windfalls during periods of high commodity prices and these windfalls can be used during periods of low commodity prices (Monk, 2009). Furthermore, the SWF can be used to overcome the Dutch disease by investing in and supporting other industries so that the economy is not dependant on resources (Heuty & Aristi, 2009).

Whilst a SWF addresses the economic factors related to the resource curse, it does not address the social and political factors. In addition, there is no universally accepted framework on how to run a SWF. This has resulted in the mixed results of resource rich countries with SWFs (Heuty & Aristi, 2009).

Heuty and Aristi (2009) argue that a SWF is not necessarily needed, as it is possible to save money through the central bank or through a separate vehicle for development. They do accept that one benefit of a SWF in a developing country is that it can protect the revenues from being used for other corrupt purposes (Heuty & Aristi, 2009).

Tsani, Ahmadov and Aslanli (2010) support this view, stating that the creation of a SWF can act as a commitment mechanism and this can limit the corruption and rent seeking from the countries' governments.

Many in the field propose having good institutions and having a transparent and accountable government (Shaxson, 2007; Frankel, 2010; Iimi, 2007). Both of these resolve the political and social factors causing the resource curse (Shaxson, 2007). These researchers argue that good institutions negate the need to have a SWF.

Frankel (2010) contends that a Sovereign Wealth Fund addresses some of the sources of the resource curse but suggests that this cannot be implemented in isolation. His suggestion is that the SWF needs to be supported by the fund being run in a transparent and professional manner and that the fund should be free of political interference (Frankel, 2010).

It is clear from many researchers and from analysing the Norwegian SWF that transparency is very important. Heuty and Aristi (2009), however, argue that transparency is worth very little in a country where civil society cannot act on information released and cannot influence government action. The argument is that transparency is only effective in a country where the civil society or citizenry is active enough to hold the government accountable (Heuty & Aristi, 2009).

In line with this thinking, Auty (2003) and others (Iimi, 2007) suggest that good governance is what separates successful from unsuccessful resource rich countries. Auty (2003) suggests that sanctions should be placed on countries with anti-social governance practices and this will lead to an improvement in the quality of governance. Shaxson (2007) supports this view and argues that good governance is present in both Norway and Botswana and this has resulted in their successful economic growth.

Whilst the IMF has proposed the SWF, they further suggest that the country needs to have sound economic policies and needs to have clear fiscal rules on how to treat mineral revenues (Iimi, 2007). Auty (2001) goes on to suggest that the solution to overcoming the resource curse lies in the policy difference between countries. He suggests that countries need to focus on creating an enabling environment by concentrating on economic policies such as monetary, fiscal and exchange rate policies (Auty, 2003).

Van der Ploeg (2011), Heuty and Aristi (2009) reason that saving for the future might not be the best thing for a country to do as the money can add a lot more value if invested in the present. Examples of this include investment in education, health and infrastructure (Van der Ploeg, 2011). Heuty and Aristi (2009) state that what is needed is a long term development-focused approach whilst still trying to maintain short term stability. Whereas some SWFs in the Middle East and Asia have created SWFs that are 'Reserve Investment Corporations', this is not the case with all SWFs as some are 'Development Funds' and these funds' objectives are to invest in the present (Ghahramani, 2013).

It is also argued that institutional mechanisms need to be developed to support the SWF. This includes fiscal rules and guidelines as in the case of the Norwegian SWF (Heuty & Aristi, 2009). All other institutions, rules and guidelines need to be integrated and supportive of the SWF (Heuty & Aristi, 2009).

From the various views presented above, there are clear reasons why a SWF can be useful as one option to mitigate the resource curse. However, it is also clear that the establishment of a SWF does not guarantee success and that the SWF needs to be supported by certain success factors.

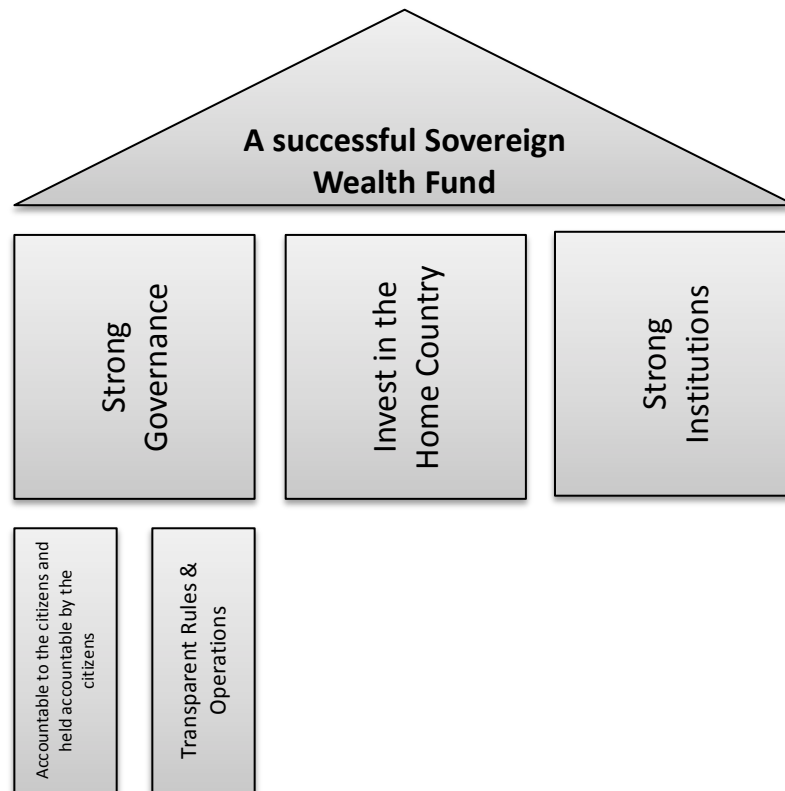
2.12 A Proposed Framework for a Sovereign Wealth Fund

Many countries have SWFs of varying sizes and objectives (Ghahramani, 2013). Despite this, the results of resource rich countries with SWFs are mixed, suggesting that a SWF on its own does not overcome the Resource Curse (Heuty & Aristi, 2009).

SWFs have recently grown in size and in investments and, based on the concerns from developed economies, some frameworks to guide and analyse SWFs have been created (Tsani, Ahmadov & Aslanli, 2010). In addition, many generic frameworks are available from the World Bank and the OECD for the management of public funds. Many common themes can be extracted from all these frameworks including the importance of Governance, Accountability and Transparency (Mitchell, Pigott & Kumru, 2008).

One major criticism that is levelled at the SWF frameworks presented to date is that they do not focus on the host country, but rather on the country that the SWF is investing in (Tsani, Ahmadov & Aslanli, 2010). Based on the literature review conducted by the author, a SWF framework is proposed and shown in **Figure 6** below.

Figure 6: Proposed Framework for a Successful Sovereign Wealth Fund



This framework includes the three common themes from all existing frameworks, namely, governance, transparency and accountability (Tsani, Ahmadov & Aslanli, 2010; Mitchell, Pigott & Kumru, 2008). There are many definitions in use for governance and many of the definitions include transparency and accountability as a part of governance (Ainina & Mohan, 2010). As a result, transparency and accountability have been incorporated in the model as significant drivers of governance. One important aspect about accountability is that the citizenry must be in a position to hold the government accountable (Heuty & Aristi, 2009).

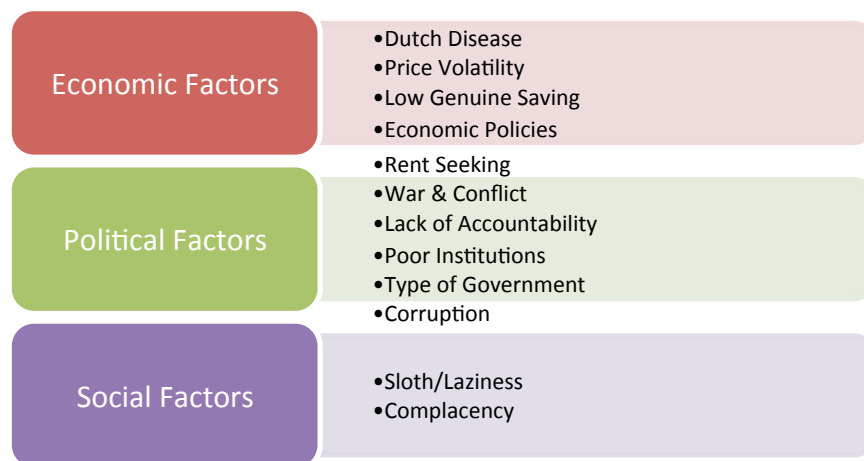
In addition, further factors are added to ensure that the SWF is effective in its home country so as to overcome the resource curse. The fund must invest in the home country in order to improve the socioeconomic conditions in the country and to diversify the economy away from resources (Van der Ploeg, 2011).

Finally, the fund needs to have strong institutions and economic policies that support the SWF (Heuty & Aristi, 2009).

2.13 Summary and Conclusion of Literature Review

The Resource Curse is a theory that describes how, on average, resource rich countries are unable to transfer their resource wealth into socioeconomic growth (Sachs & Warner, 1995). Whilst there is much debate about this phenomenon, no one theory exists to explain its occurrence (Frankel, 2010). All commonly debated factors leading to the resource curse have been grouped by the author into Economic, Political and Social factors and presented in **Figure 7** below.

Figure 7: Summary of the Factors Leading to the Resource Curse (colour coded)



The results of resource rich countries have been varied indicating that a resource curse is not a foregone conclusion for resource rich countries (Sachs & Warner, 1995).

The Sovereign Wealth Fund has been proposed by the IMF (Davis, 2001) as a solution to the resource curse because it addresses the economic factors that cause the resource curse. The establishment of SWFs faces some criticism and the results of resource rich countries with SWFs have been varied, suggesting that a SWF on its own will not result in the country overcoming the resource curse (Van der Ploeg, 2011).

SWFs have grown in recent years and 69 countries currently have SWFs with most of the funds established in emerging economies (Ainina & Mohan, 2010). A lot of research has focused on these funds in recent years, mainly due to the concerns that developed countries have had regarding these funds.

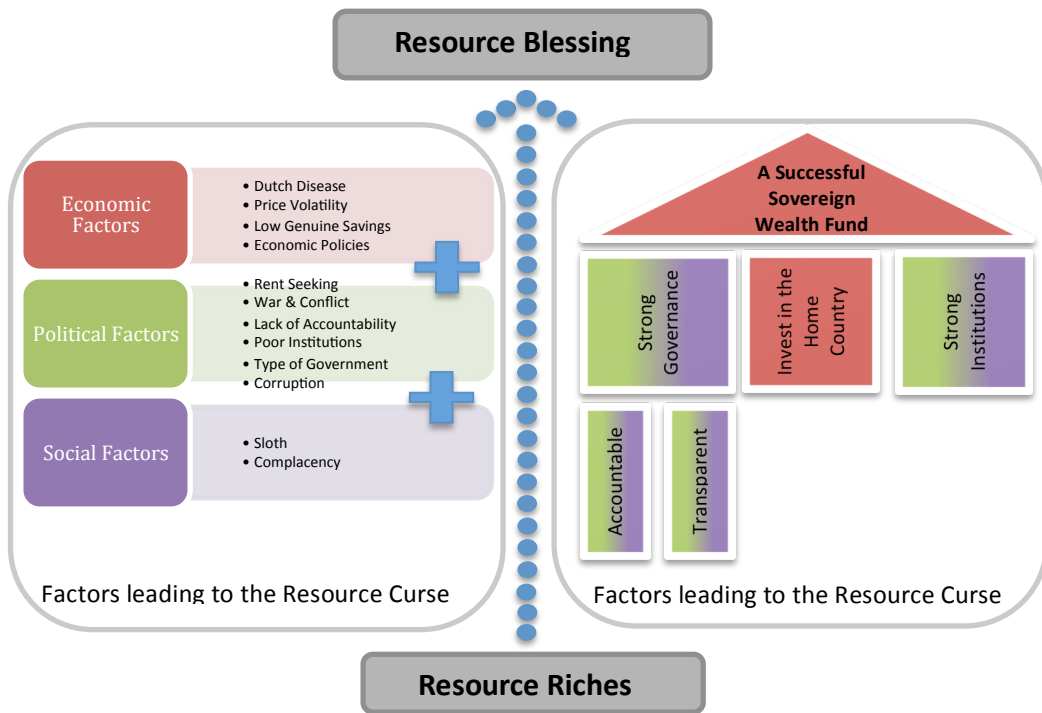
The concerns from developed countries relate to the increasing investments that SWFs from emerging markets are making in developed countries and in their opaque objectives and operational practices (Helleiner, 2009). Subsequent SWF research and resultant frameworks have tried to address these concerns.

No studies exist that investigate the effect of the SWF on the socioeconomic development of resource rich countries. In addition, whilst frameworks exist to examine SWFs, these are focussed on the concerns of host countries and not on the ultimate beneficiaries of these funds, namely the home countries (Tsani, Ahmadov & Aslanli, 2010). An examination of existing frameworks has shown that governance, transparency and accountability are important in a SWF and other publicly managed funds (Tsani, Ahmadov & Aslanli, 2010; Mitchell, Pigott & Kumru, 2008).

In addition, research and analyses of effective SWFs have shown that strong institutions and economic policies that support the SWF are important (Heuty & Aristi, 2009). Lastly, in order for the fund to be effective in its home country, it needs to invest in social and economic development and the fund's managers need to be held accountable by the citizenry (Van der Ploeg, 2011).

Based on these, a framework for a successful SWF has been proposed by the author. This framework is consolidated along with the factors causing the resource curse and shown in **Figure 8** below. The framework has been constructed with various colours so as to show which aspects of the SWF framework address the various resource curse factors.

Figure 8: Proposed Framework for a Successful Sovereign Wealth Fund (colour coded)



3. Chapter 3: Research Questions and Hypotheses

The objective of this chapter is to outline the two research questions and the six hypotheses associated with this research project.

The literature review in Chapter 2 has shown that many resource rich countries seem to suffer from the resource curse and that the Sovereign Wealth Fund (SWF) has been recommended by some, including the international Monetary Fund (IMF), as a solution to overcome the resource curse (Davis, 2001). Despite this recommendation, no study has been conducted to determine its effectiveness resulting in a lot of debate.

In order to study the effects of the SWF, the Human Development Index (HDI) of various countries has been studied. This measure has been chosen as it is widely regarded as the most complete socioeconomic measure and has information dating back to 1990 (Stanton, 2007).

The following research questions and hypotheses have been formulated in support of this study.

Research Question 1: Can the establishment of a SWF mitigate some of the negative aspects of the resource curse?

Hypothesis 1: The Null hypothesis states that the HDI following the establishment of the SWF is less than or equal to the HDI before the establishment of the SWF. The Alternate hypothesis states that the HDI after the establishment of the SWF is greater than the HDI before the establishment of the SWF. This is shown below:

Null hypothesis: $HDI_{SWF} - HDI \leq 0$

Alternate hypothesis: $HDI_{SWF} - HDI > 0$

Where HDI_{SWF} is the HDI after the establishment of a SWF and HDI is the HDI before the establishment of the SWF.

Hypothesis 1a: This hypothesis is only conducted on data by considering a period of 5 years before and 5 years after the establishment of the SWF.

Hypothesis 1b: This hypothesis is only conducted on data by considering a period of 5 years before and 9 years after the establishment of the SWF.

Hypothesis 1c: This hypothesis is conducted on all available data.

The above hypotheses will be tested using different methods on an aggregated and individual country level.

Since the literature suggests that not all countries that have a SWF are successful, certain success factors are required to ensure that a SWF is successful in overcoming the resource curse. This leads to the second research question.

Resource Question 2: What success factors should a SWF have so as to be successful in alleviating the effects of the Resource Curse?

Hypothesis 2: A SWF with strong governance is associated with a country increasing its HDI. Where β_1 is the regression coefficient for the governance success factor, then $H_0: \beta_1 = 0$; $H_1: \beta_1 \neq 0$

Hypothesis 3: A SWF with transparent rules and operations is associated with a country increasing its HDI.

Where β_2 is the regression coefficient for the transparency success factor, then $H_0: \beta_2 = 0$; $H_1: \beta_2 \neq 0$

Hypothesis 4: A SWF with an accountable government is associated with a country increasing its HDI.

Where β_3 is the regression coefficient for the accountability success factor, then $H_0: \beta_3 = 0$; $H_1: \beta_3 \neq 0$

Hypothesis 5: A SWF with strong institutions is associated with a country increasing its HDI. Where β_4 is the regression coefficient for the institutions success factor, then $H_0: \beta_4 = 0$; $H_1: \beta_4 \neq 0$

Hypothesis 6: A SWF that invests in its home country is associated with a country increasing its HDI.

Where β_5 is the regression coefficient for the investments in the home country success factor, then $H_0: \beta_5 = 0$; $H_1: \beta_5 \neq 0$

4. Chapter 4: Research Methodology

4.1 Research Design

The research design that has been chosen is a quantitative design. The decision to choose a quantitative method has been driven by the research questions. In this project, two specific research questions have been posed that need to be validated through the use of empirical assessments using numerical measurement and analysis. A quantitative approach is also seen to be an objective approach that does not rely on the researcher's interpretation (Zikmund, Carr & Griffin, 2012).

In support of the quantitative method chosen, the researcher has drawn reliable country level secondary data from sources such as the World Bank. Whilst there are some concerns from the researcher about the availability of country level historical data and about the validity of certain proxies, all reasonable attempts have been made to address these concerns. The available data is numerical, continuous data and consequently, this design utilises statistical tools such as a matched pairs t-test and regression analysis.

4.2 Population

The population under consideration includes all countries that meet the following criteria:

- The country is a resource rich country. This is measured by considering the percentage of GDP that is made of resource-based rents. A country is defined as resource rich if this percentage is more than five percent. This number is based on studies that have used this threshold as the definition of a resource dependant country (Van der Ploeg, 2011). Resources include oil, natural gas, coal, minerals and forests.
- The country has to have started a SWF at a national level.
- The country's SWF must have been in existence for at least 5 years, in other words, it must have been created before 2007.

4.3 Unit of Analysis

Welman and Kruger (2005) define the unit of analysis as the members or elements of the population. For this research, the unit of analysis is the socioeconomic performance of the country and this is measured using the United Nations Development Program's Human Development Index (HDI). This index is a composite index measuring the health (life expectancy at birth), education (mean years of schooling and expected years of schooling) and the living standards (Gross National Income (GNI) per capita) (United Nations Development Program, 2013a).

Most of the literature on the resource curse uses Gross Domestic Product (GDP) per capita as an economic measure, but this measure does not include the social development in a country. The HDI, in contrast, includes social and economic measures and is the most recognised composite measure available for socioeconomic development (Stanton, 2007). In addition, the HDI has been measured at a country level since 1990 and consequently presents several years of data for analysis.

4.4 Sampling Method and Sample Size

No sampling method has been used. All the countries that are in the population (there are 18 countries) have been included as part of the analysis.

4.5 Research Approach and Data Analysis

4.5.1 Introduction

The data analysis process has been split into three phases. The first phase involved generic data preparation and the latter two phases addressed the two research questions and associated hypotheses.

4.5.2 Generic Data Preparation

The generic data preparation step is described in **Appendix D**. This step involved the selection of the countries for analysis based on the population described in **4.2** above.

Of the 69 SWFs that are in existence, a final list of 18 countries with SWFs has been selected for analysis. This data preparation process involved 8 hours of work.

The unit of analysis that has been used to assess the socioeconomic performance of a country is the United Nations' HDI. This index is one that has been modified and improved over time and the latest results are shown on the United Nations Development Program's website (United Nations Development Program, 2013a).

The latest iteration of the Human Development Index is made of four equally weighted indicators that are life expectancy at birth, mean years of schooling, expected years of schooling and the GNI per capita.

The human development index that is available had two shortcomings. The first was that it consisted only of values for the following years: 1980, 1990, 2000, 2005, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. No annual data was available for the years in between those shown above. In addition, the HDI data, on average, increases annually and it was suspected that the average annual increase in HDI values could affect the result of the various analyses.

Based on the above concerns, the data and indices were reworked and modified. The HDI index was reconsolidated from its contributing indicators (see **Table 1**) to provide an annual HDI value for all years between 1980 and 2011 and this value was called the 'original HDI'. In addition, an 'adjusted HDI' value was calculated by removing the 'average' increase associated with the HDI values based on the HDI category and the year in consideration. The above preparation methodology is described in **Appendix E** and a total of 30 hours was spent on this process.

4.5.3 Research Question 1: The Effect of the Sovereign Wealth Fund in Overcoming the Resource Curse

This phase consisted of three sets of analysis with the aim to triangulate the answer to Research Question 1 and Hypotheses 1. As limited data was available, different methods were used in an attempt to gain confidence in the results.

All statistical tests were conducted to a 95% confidence level, which results in a level of significance (p-value) of 0.05. The three methods used were:

- A descriptive approach and a HDI growth analysis. This involved considering the change in slopes of the various countries before and after the creation of the SWF, which measures the change in the HDI growth rate. This was calculated using Microsoft Excel and was also plotted visually.
- A matched pairs t-test approach. A matched pairs t-test or a paired observation is a method that is used to test a variable before and after an event, provided the variable before and after relates to the same population (Weiers, 2010). In this case, the t-test is appropriate as it is conducted on the HDI growth rate of the same country before and after the introduction of the SWF. This method involved consolidating all the HDI annual growth data before and after the creation of the SWF and conducting a t-test to see if there is a significant difference in the HDI growth. As the null hypothesis associated with this test is: $HDI_{SWF} - HDI \leq 0$, a left tailed t-test was conducted (Weiers, 2010). The StatPlus add-in for Microsoft Excel was used for this analysis.
- Multiple linear regression analysis on individual countries. According to Weiers (2010), a regression analysis is a statistical method of estimating relationships among variables. This is done by providing a best-fit linear mathematical equation between the dependent variable (this is the variable that is affected) and independent variables (these are the variables that affect the dependent variable) (Weiers, 2010). The primary objective of this analysis was to observe whether there is a significant effect of the occurrence of the SWF on the HDI values. In this analysis, all countries were analysed individually with the dependent variable being the HDI and the independent variables being the year and the SWF. The effect of the SWF is analysed by using a dummy variable. A dummy variable is one that either has a value of one or zero depending on whether the characteristic is present or absent (Weiers, 2010). In this instance, a value of zero is used prior to the establishment of a SWF and a value of one is used after the establishment of the SWF. The StatPlus add-in for Microsoft Excel was used for this analysis

4.5.4 Research Question 2: The Determination of Sovereign Wealth Fund Success Factors

In order to answer the second research question, a correlation analysis and a stepwise regression analysis have been used.

Whilst the regression analysis determines the linear relationship between independent and dependent variables, the correlation analysis measures the strength of the relationship between the various variables (Wegner, 2010). The correlation analysis, also measures the correlation between independent variables. A high correlation between independent variables is called multicollinearity and is unwanted as it can cause the partial regression coefficients to become statistically unreliable and hard to interpret (Wegner, 2010). In order to cater for high multicollinearity, a stepwise regression method is suggested by Weiers (2010) and has been used. In this method, the number of independent variables is reduced by only considering each independent variable at a time and by starting with the independent variable that explains the greatest variation in the dependent variable (Weiers, 2010). This process was particularly important, as the primary goal of the research question was to interpret the partial regression coefficients so as to understand the relationship between the dependent variable and the various independent variables.

For the regression analysis conducted, the dependent variable (Y) is the HDI of the country and the five independent variables are the SWF success factors: governance, transparency, accountability, institutions and local investment. These five variables originate from **Figure 8** in the literature review. Whilst transparency and accountability have been incorporated as part of governance in the model shown in **Figures 6** and **8**, these characteristics have been separately analysed in this analysis.

The regression equation is shown below and represents the relationship between the independent variables and the Human Development Index (HDI). The regression analysis was conducted to a 95% confidence level, which results in a level of significance (p-value) of 0.05.

$Y = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \beta_3 \cdot X_3 + \beta_4 \cdot X_4 + \beta_5 \cdot X_5$, where:

Y= Human Development Index	
β_0 = constant	
β_1 = Governance coefficient of regression	X_1 = Governance proxy
β_2 = Transparency coefficient of regression	X_2 = Transparency proxy
β_3 = Accountability coefficient of regression	X_3 = Accountability proxy
β_4 = Institutions coefficient of regression	X_4 = Institutions proxy
β_5 = Local investment coefficient of regression	X_5 = Local investment proxy

For this section of the analysis, the original HDI values for all the countries have been used. In addition, proxies have been identified for the various proposed SWF success factors and these are described briefly below:

- Governance. The World Bank’s Governance Indicators (The World Bank, 2013a) excluding the voice and accountability component.
- Transparency. The Freedom of the Press survey from Freedom House (2013) was used.
- Voice and Accountability. The voice and accountability component of the World Bank’s Governance Indicators (The World Bank, 2013a).
- Institutions. Components of the International Finance Corporation’s (IFC) Doing Business Index (2013) was used. The components chosen related to the procedures required to execute various aspects in a country.
- Local Investment. A composite measure of the % of GDP invested in education and health care.

All of the above data needed to be consolidated and aggregated into various indices that could be used in the regression analysis. A detailed description of the above proxies as well as the methodology followed is shown in **Appendix F** and this process took approximately 40 hours to complete.

4.6 Reliability and Validity

Reliability is an indication of internal consistency within the data that is being analysed (Zikmund, Carr & Griffin, 2012). A measure is reliable when the same result is obtained every time it is measured. In this case, the data that has been used is secondary data from reliable sources.

The sources are reliable as they are generated by globally recognised institutions such as the World Bank and the United Nations or have been used in similar studies that have been published in reputable journals. Furthermore, all data sources, such as the World Bank, recalculate their historical data regularly based on their latest methodology, and the latest data has been used for this study (i.e. data has not been taken from historical reports).

Validity, on the other hand, refers to how accurate the measure is or how accurately a certain measure reflects the intended concept (Zikmund, Carr & Griffin, 2012). As with attempts to ensure reliable results, only trusted sources have been used and the researcher has understood the data methodology so as to ensure that it is a good proxy for the intended concept. All proxies used have been used in previously published research to measure the same construct.

4.7 Research Limitations

This research is limited in a number of ways. These are:

- The Human Development Index (HDI) was selected to represent the socio-economic performance of a country. This is one of many measures that can be used and other options include the GDP per capita or social measures such as poverty. Analysis of different measures as the unit of analysis is likely to yield different results.
- One shortcoming of the HDI (along with other socioeconomic measures) is that it is a structural measure that is changed over long periods of time and any analysis of the HDI should take place over decades rather than years. This requirement is not supported by the fact that most SWFs have only started in the last five to ten years. More years of analysis will result in results that have a higher consistency and reliability.
- The proxies that have been chosen to represent the various SWF success factors have been selected as they are seen to be the best of the measures that are available and that have historical data. One limitation is that the measures selected are proxies for success factors and some of these measures, whilst being the best available, are not measures of the exact success factors but proxies that could not be valid.

5. Chapter 5: Results

5.1 Introduction

This section of the research report presents the results and findings emanating from the methodology described in Chapter 4. This section is split into two sub-sections each separately disclosing the results associated with the two research questions. In both instances, the Human Development Index (HDI) has been analysed in various countries over various periods of time.

A full list of all the SWFs that are currently in existence along with the relevant resource contribution to GDP is shown in **Appendix G**. The final list of 18 countries that has been analysed is shown below in **Table 3** along with the SWF's name and the year that they were established.

Table 3: List of SWF Countries to be Used for Analyses

Ser #	Country	Sovereign Wealth Fund Name	Inception
1	Algeria	Revenue Regulation Fund	2000
2	Australia	Australian Future Fund	2006
3	Bahrain	Mumtalakat Holding Company	2006
4	Botswana	Pula Fund	1994
5	Brunei	Brunei Investment Agency	1983
6	Chile	Pension Reserve Fund	2006
7	East Timor (Timor Leste)	Timor-Leste Petroleum Fund	2005
8	Equatorial Guinea	Fund for Future Generations	2002
9	Gabon	Gabon Sovereign Wealth Fund	1998
10	Indonesia	Government Investment Unit	2006
11	Kazakhstan	Kazakhstan National Fund	2000
12	Malaysia	Khazanah Nasional	1993
13	Mauritania	National Fund for Hydrocarbon Reserves	2006
14	Norway	Government Pension Fund – Global	1990
15	Qatar	Qatar Investment Authority	2005
16	Trinidad & Tobago	Heritage and Stabilization Fund	2000
17	Venezuela	FEM	1998
18	Vietnam	State Capital Investment Corporation	2006

5.2 Research Question 1: The Effect of the Sovereign Wealth Fund in Overcoming the Resource Curse

The newly constructed original HDI index has been used for the analysis conducted.

Appendix H shows the complete set of HDI data (i.e. original and adjusted).

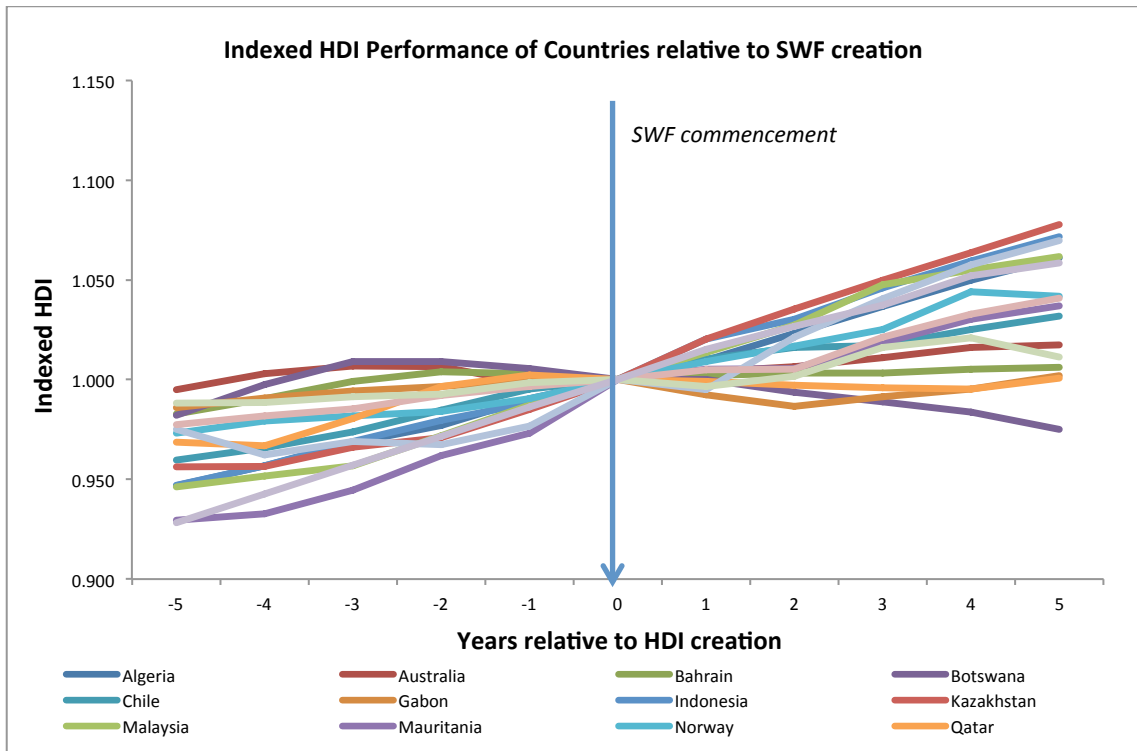
5.2.1 Analysis and Results: Descriptive and HDI Growth Analysis

The original HDI values have been used for this assessment and two sets of data have been extracted in order to answer hypotheses 1a and 1b. The first set considers a sample of 18 countries only looking at a period of five years before and five years after the creation of the SWF (hypothesis 1a). The second set of data considers a sample of eight countries by looking at a period of five years before and nine years after the creation of the SWF (hypothesis 1b).

The data is aligned around the year that the SWF is created. This is designed so that the periods around the SWF creation can be compared from one country to the other. In addition, the HDI values for each country are indexed against the HDI value of that country at the year that the SWF was created. This is done so that all countries have an indexed HDI value of 1 at the year that the SWF is created and this enables the trends before and after the creation of the SWF to be analysed.

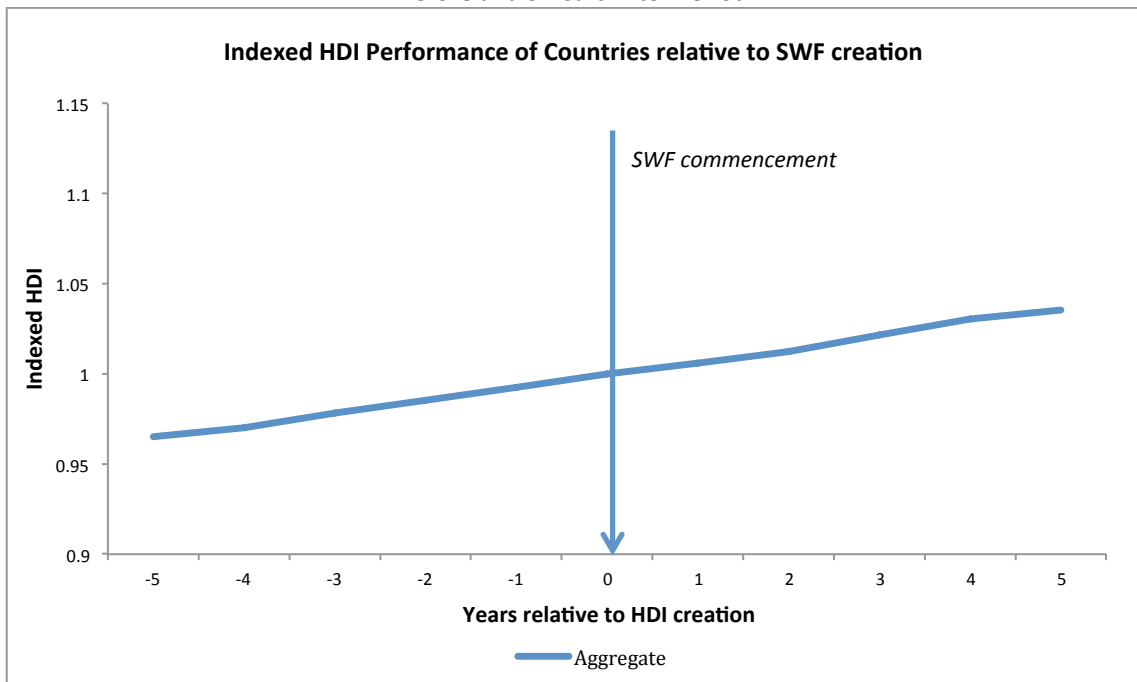
Figure 9 shows the indexed performance of all countries considering the five years before and five years after period.

Figure 9: Indexed HDI (original) Performance of All Countries Considering the 5 Years Before and 5 Years After Period



In addition, the aggregated performance of all the countries is worked out so as to detect the aggregated performance. This aggregation has been conducted assuming an equal weighting for all countries. These results are shown in **Figure 10** below.

Figure 10: Aggregated Indexed HDI (original) Performance of All Countries Considering the 5 Years Before and 5 Years After Period



Figures 11 and 12 show the indexed performance of countries considering the 5 years before and 9 years after period.

Figure 11: Indexed HDI (original) Performance of All Countries Considering the 5 Years Before And 9 Years After Period

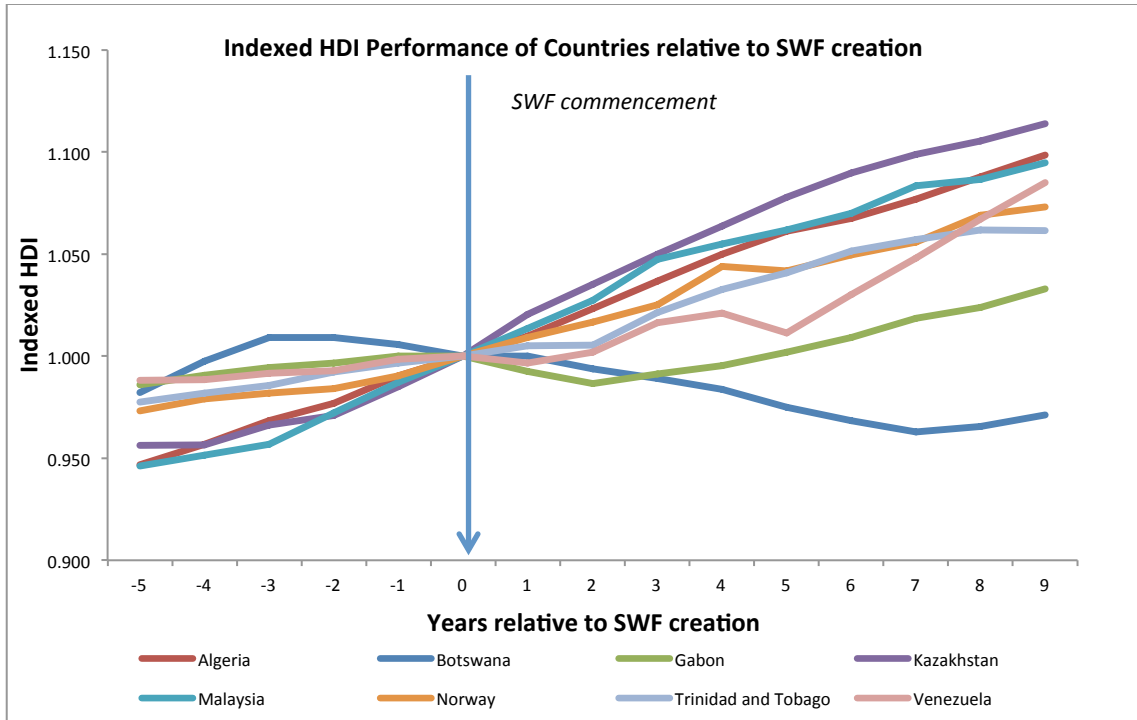
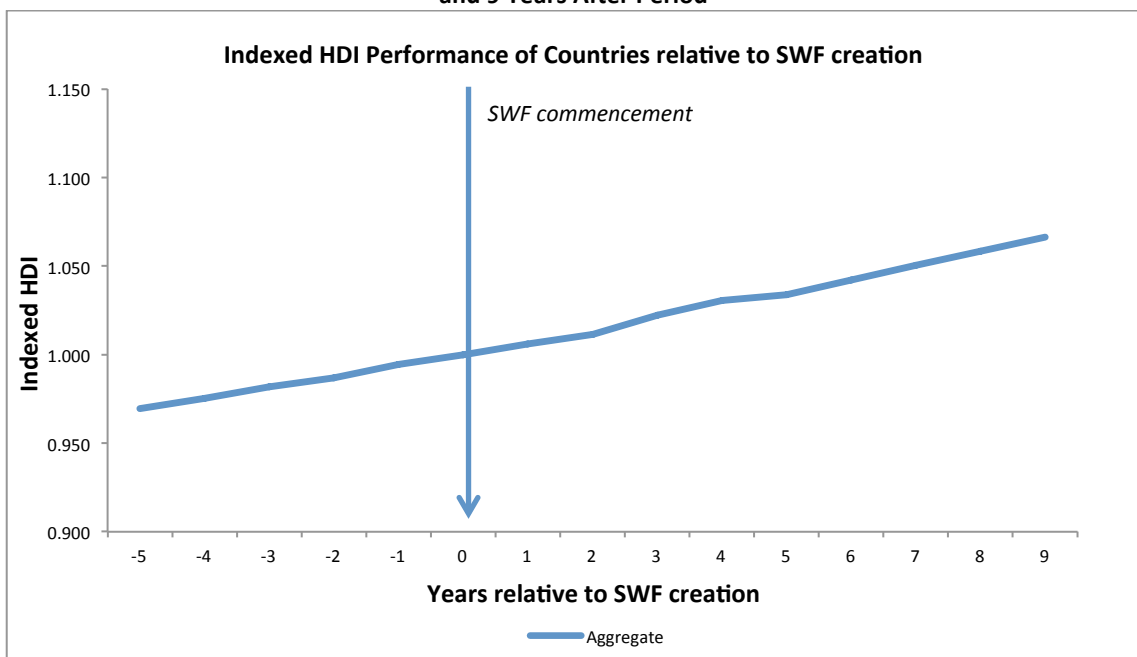


Figure 12: Aggregated Indexed HDI (original) Performance of Countries Considering the 5 Years Before and 9 Years After Period



What is clear from **Figures 9 to 12** is that varying results are visible with some countries doing better after the establishment of the SWF. In addition, the results of country HDI performance are not the same when comparing the two time periods. Finally, the aggregated HDI trend of all countries is positive with the aggregated HDI score increasing on an annual basis.

A further analysis was done on the two sets of data by considering the change in HDI slope before and after the introduction of the SWF. This analysis effectively measures whether the HDI growth rate is different after the introduction of the SWF. The results of this analysis for both time periods are shown below in **Tables 4 and 5**.

Table 4: HDI Growth Analysis of the 5 Years Before and 5 Years After Period Around the Introduction of the SWF (original HDI)

Country	HDI Growth Analysis			
	Before	After	Difference	Difference as a %
Australia	0.001	0.003	0.002	241%
Timor-Leste	0.002	0.006	0.004	179%
Trinidad & Tobago	0.003	0.006	0.003	81%
Kazakhstan	0.006	0.011	0.005	78%
Norway	0.005	0.007	0.003	56%
Indonesia	0.006	0.008	0.002	35%
Algeria	0.007	0.008	0.001	15%
Malaysia	0.007	0.008	0.001	15%
Venezuela	0.002	0.002	0.000	-4%
Vietnam	0.009	0.007	-0.002	-18%
Chile	0.007	0.005	-0.001	-21%
Mauritania	0.007	0.003	-0.003	-48%
Bahrain	0.003	0.001	-0.002	-64%
Gabon	0.002	0.000	-0.002	-85%
Qatar	0.005	0.000	-0.005	-98%
Botswana	0.002	-0.003	-0.005	-239%
Aggregate	0.005	0.005	0.000	0%

Table 5: HDI growth Analysis of the 5 Years Before and 9 Years After Period Around the Introduction of the SWF (original HDI)

Country	HDI Growth Analysis			
	Before	After	Difference	Difference as a %
Venezuela	0.002	0.006	0.005	298%
Norway	0.005	0.007	0.002	52%
Trinidad & Tobago	0.003	0.005	0.002	52%
Kazakhstan	0.006	0.009	0.003	45%
Gabon	0.002	0.002	0.001	30%
Algeria	0.007	0.007	0.000	3%
Malaysia	0.007	0.007	0.000	-2%
Botswana	0.002	-0.002	-0.004	-189%
Aggregate	0.004	0.005	0.001	23%

It is clear from the two tables above that the results of the various countries differ and that the results of the analysis vary based on the time period that is analysed. It is also interesting to note that whilst the aggregate effect of the change in HDI growth is 0% in the 5 years before and 5 years after period, the aggregate effect in the 5 years before and 9 years after period is a 23% growth.

The countries from the above two tables have been grouped based on their HDI growth into quartiles (in the case of the 5 years before and 5 years after period) and into terciles (in the case of the 5 years before and 9 years after period) and these are shown graphically in **Figures 13 to 19**.

Figure 13: Indexed HDI (original) Performance of Top quartile Countries Considering the 5 Years Before and 5 Years After Period

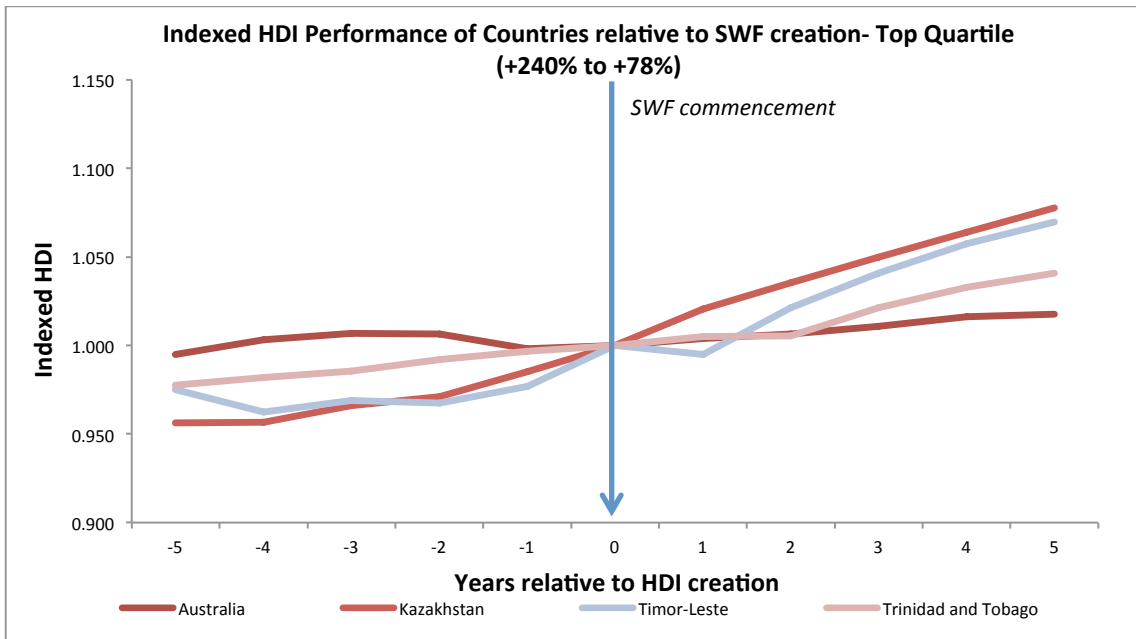


Figure 14: Indexed HDI (original) Performance of Second Quartile Countries Considering the 5 Years Before and 5 Years After Period

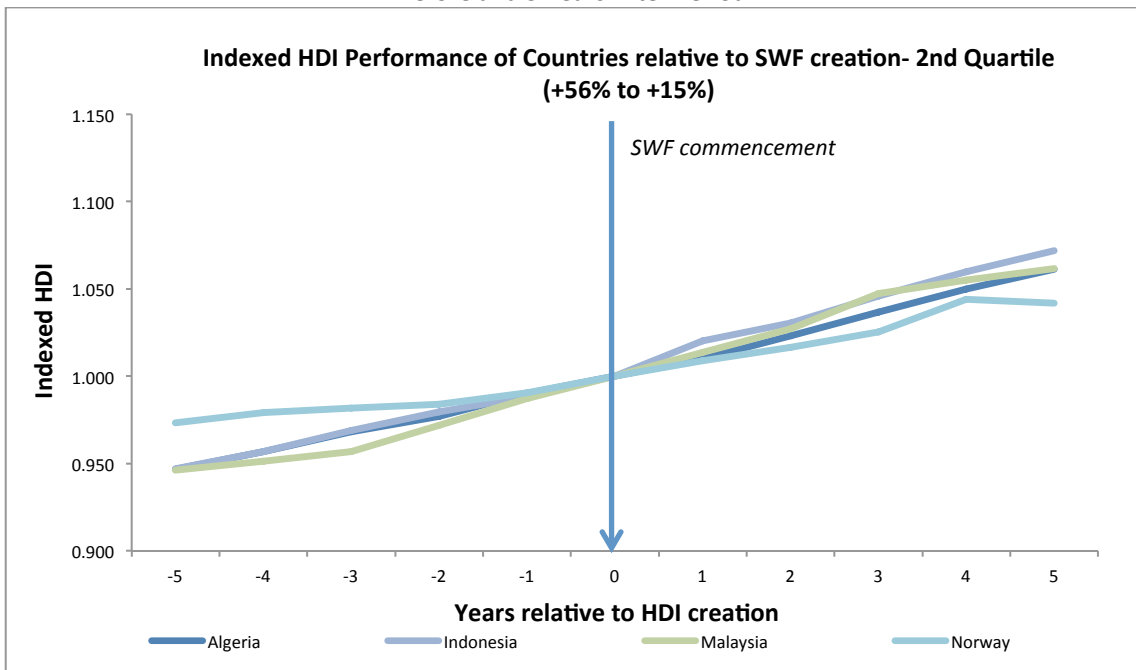


Figure 15: Indexed HDI (original) Performance of Third Quartile Countries Considering the 5 Years Before and 5 Years After Period

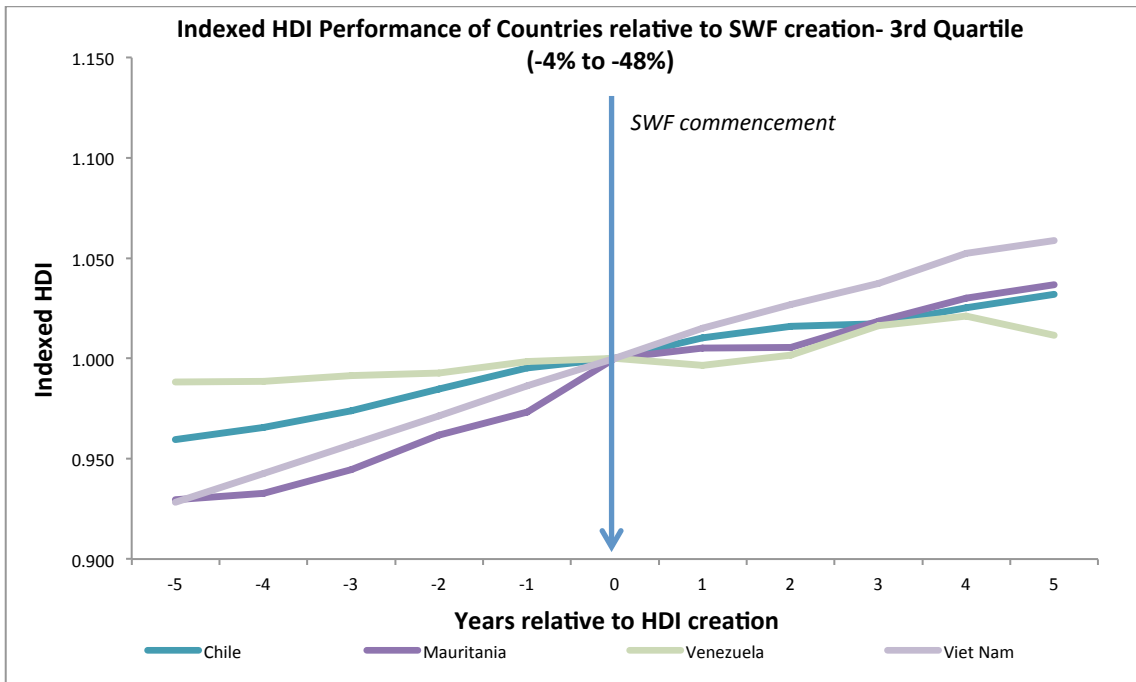


Figure 16: Indexed HDI (original) Performance of Fourth Quartile Countries Considering the 5 Years Before and 5 Years After Period

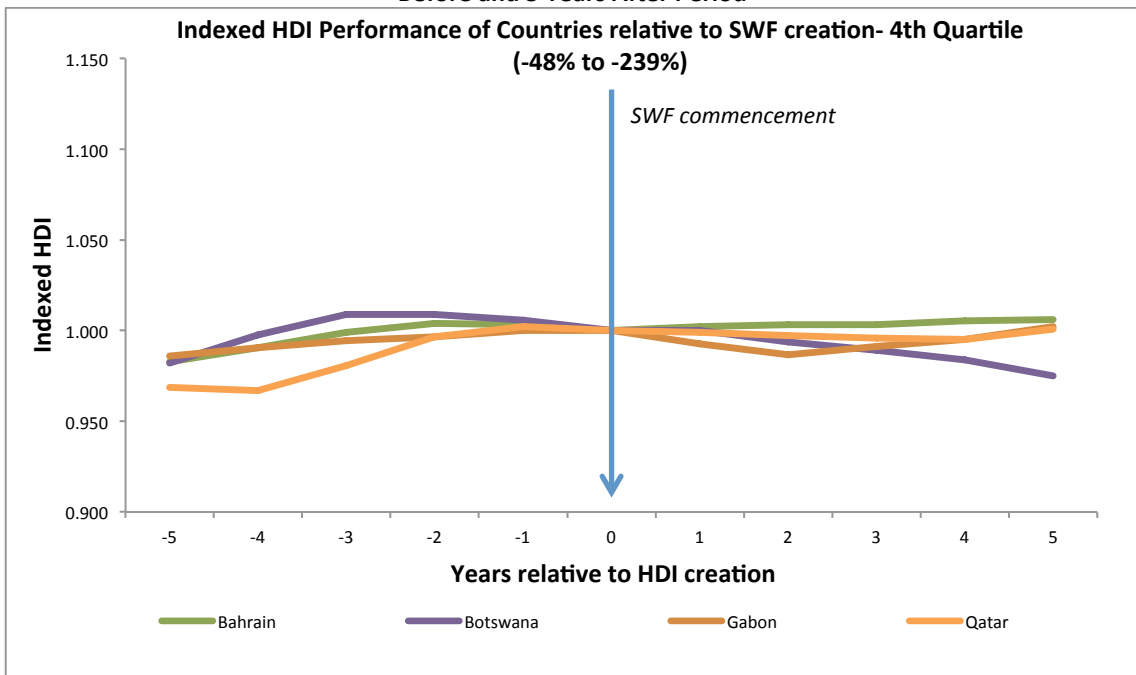


Figure 17: Indexed HDI (original) Performance of Top Tercile Countries Considering the 5 Years Before and 9 Years After Period

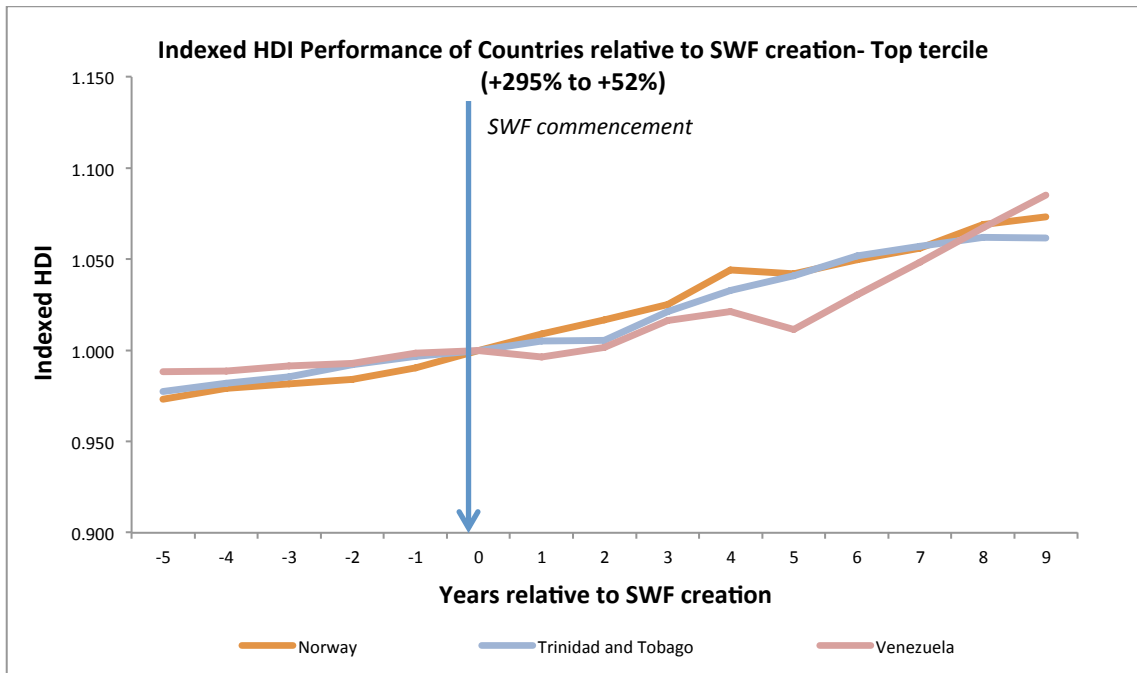


Figure 18: Indexed HDI (original) Performance of Second Tercile Countries Considering the 5 Years Before and 9 Years After Period

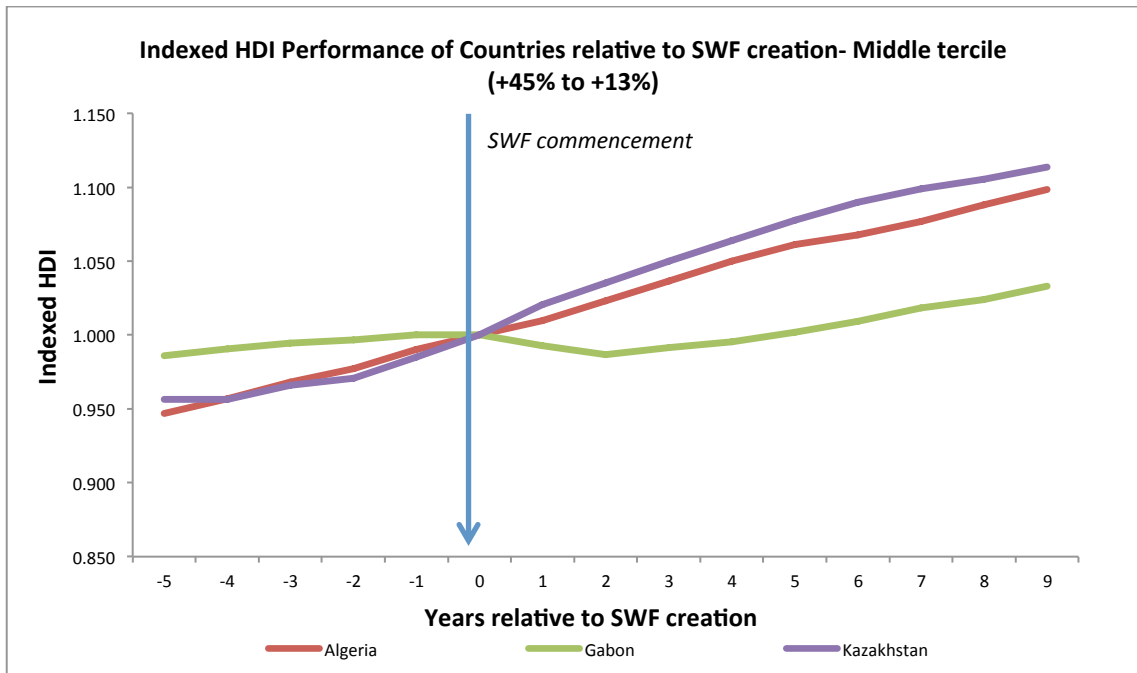
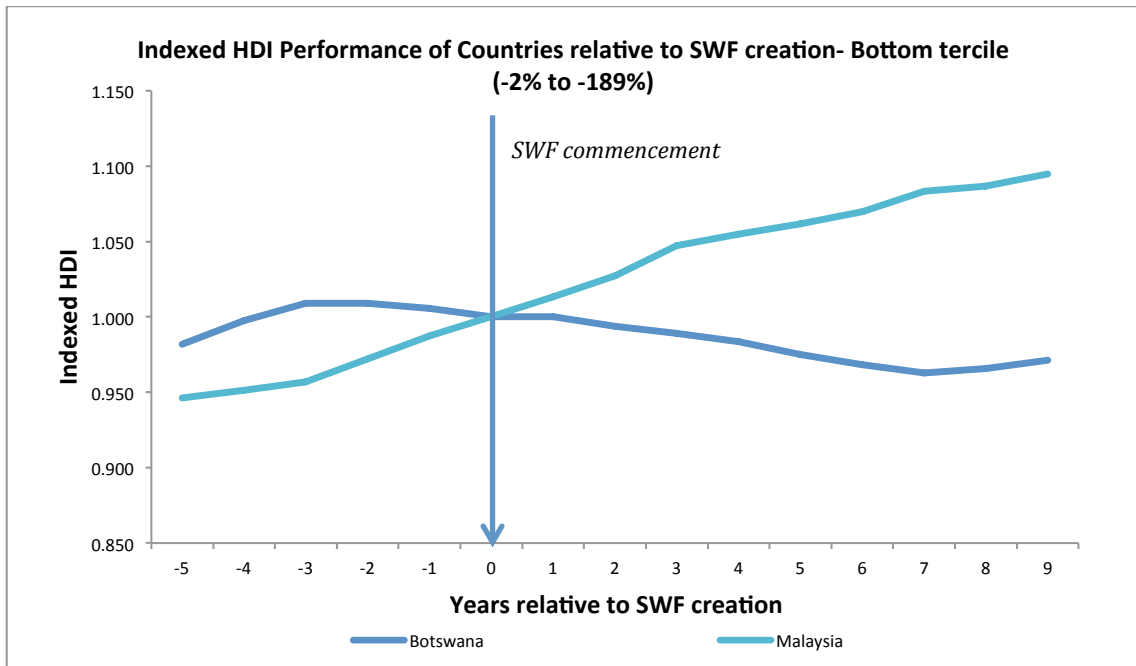


Figure 19: Indexed HDI (original) Performance of Last Tercile Countries Considering the 5 Years Before and 9 Years After Period



The aggregate effect of the SWF introduction on countries does not seem significant based on the above analysis. As a result, whilst not a statistical test, the above analysis shows that the null hypothesis of hypotheses 1a and 1b cannot be rejected suggesting that the HDI after the establishment of the SWF is less than or equal to the HDI before the establishment of the SWF.

5.2.2 Analysis and Results: Matched Pairs T-Test

A matched pairs t test has been used to see if there is a difference in the HDI before and after the establishment of the SWF. This test used the adjusted HDI and only considered a five year before and five year after period thus answering hypothesis 1a. The adjusted HDI was used as the values before and after the SWF establishment were to be compared against each other and these values take out the average HDI growth. This period was selected so as to have the same number of points before and after the creation of the SWF for analysis.

The data for each year was converted into a % annual HDI growth for all 16 countries that form part of this sample.

The % annual HDI growth was then consolidated into two columns - one before the establishment of the SWF and the second after. The matched pairs t-test was then conducted on these two columns. The hypothesis for this test is as follows:

The null hypothesis states that $D \leq 0$ and the alternate hypothesis is $D > 0$

Where $D = HDI_{SWF} - HDI$

The null hypothesis states that the HDI after the establishment of the SWF is less than or equal to the HDI before the establishment of the SWF. The alternate hypothesis states that the HDI after the establishment of the SWF is greater than that before the establishment of the SWF. A one-tailed matched pairs t-test is conducted against a 95% confidence level. The results of the t-test are shown below in **Table 6**.

Table 6: Matched Pairs T-Test for Annual HDI Growth Before and After the Establishment of a SWF (Adjusted HDI; 5 years before and 5 years after)

	Sample size	Mean
Before SWF introduction	80	0.72037
After SWF introduction	80	0.70414
One-tailed distribution		
p-level	0.42974 **	

** indicates that the results are significant, ** indicates that the results are not significant*

The above results show that the p value is 0.4297, which is more than 0.05 (the p value associated with a 95% confidence level). Therefore there is not sufficient evidence to reject the null in favour of the alternate hypothesis for hypothesis 1a.

Thus the HDI value after the establishment of the SWF is less than or equal to the value before its establishment. This result is also reflected in the mean values of the two sets of data. The sample before the establishment of the SWF has a higher mean HDI annual increase of 0.72 compared to the average increase of 0.70 after the establishment of the SWF (see **Table 6**).

5.2.3 Analysis and Results: Regression Analysis

As a final method of triangulating on an answer to Research Question 1 and hypothesis 1c, a regression analysis was conducted per country on the original HDI data against the year and the existence of the SWF (as a dummy variable). The regression equation is shown below:

$$Y = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2, \text{ where:}$$

Y= Human Development Index	
β_0 = Constant	
β_1 = SWF coefficient of regression	X_1 = SWF Presence (1 for SWF, 0 for none)
β_2 = Year coefficient of regression	X_2 = Year

The above regression analysis was done for each country considering all the data available (i.e. not restricting the data before and after the creation of the SWF to a fixed number of years). All regression analysis conducts two sets of hypothesis tests. The first test is to see if the entire equation is valid and the associated Null and Alternate hypotheses are shown below.

The Null hypothesis: $\beta_0 = \beta_1 = \beta_2 = 0$. This states that all coefficients are equal to zero.

The Alternate hypothesis: $\beta_i \neq 0$. This states that at least one coefficient is not equal to zero.

The second hypothesis test is to see if the individual independent variables can be used and this is reflected below:

The Null hypothesis: $\beta_i = 0$. This states that the coefficient is equal to zero.

The Alternate hypothesis: $\beta_i \neq 0$. This states that the coefficient is not equal to zero.

A summary of the results from the regression analysis is shown below in **Table 7**.

Table 7: Summary of Regression Analysis on Individual Countries (original HDI)

Category	Country	R Squared	P Value (total)	P Value (SWF)	SWF Coefficient
Significant with positive SWF Coefficient	Algeria	0.993	0.000*	0.026*	0.008
	Indonesia	0.995	0.000*	0.011*	0.007
	Malaysia	0.993	0.000*	0.000*	0.019
	Norway	0.981	0.000*	0.013*	0.012
	Trinidad & Tobago	0.901	0.000*	0.001*	0.021
Significant with negative SWF Coefficient	Australia	0.921	0.000*	0.001*	-0.019
	Bahrain	0.982	0.000*	0.000*	-0.030
	Brunei Darussalam	0.988	0.000*	0.009*	-0.007
	Gabon	0.952	0.000*	0.000*	-0.030
Not Significant	Kazakhstan	0.829	0.000*	0.168**	0.022
	Equatorial Guinea	0.939	0.000*	0.077**	0.009
	Mauritania	0.987	0.000*	0.256**	0.004
	Venezuela	0.820	0.000*	0.947**	0.001
	Vietnam	0.987	0.000*	0.606**	0.003
	Chile	0.995	0.000*	0.621**	-0.001
	Timor-Leste	0.905	0.000*	0.899**	-0.001
Low correlation	Botswana	0.639	0.000*	0.123**	-0.031
	Qatar	0.652	0.009*	0.641**	-0.004

* indicates that the results are significant, ** indicates that the results are not significant

Table 7 summarises the R squared (i.e. the percentage of the variation that is explained by the independent variables), the p value for the overall equation, the p value for the SWF variable and the value of the SWF coefficient.

If the p value is less than 0.05, it suggests that there is significant evidence (at a 95% confidence level) to reject the null hypothesis, which means that the coefficients are not equal to zero and are significant.

All of the regressions have high R squared values with only Botswana and Qatar having values less than 0.9. This suggests that there is high correlation between the dependent and independent variables. All the p values associated with the overall regression are less than zero suggesting that for all countries, at least one coefficient is significant.

Nine of the eighteen countries have p values for the SWF that are less than 0.05 suggesting that their SWF coefficients are significant and four of these have positive coefficients. A positive SWF coefficient indicates that the presence of the SWF has a positive impact on the HDI value.

Therefore for the following nine countries, there is sufficient evidence to reject the null hypothesis (at a 95% confidence level): Algeria, Australia, Bahrain, Brunei, Gabon, Indonesia, Malaysia, Norway, Trinidad and Tobago. However, only 5 of these countries have positive SWF coefficients indicating that the presence of the SWF has a positive effect on the HDI. These five countries are: Algeria, Indonesia, Malaysia, Norway and Trinidad and Tobago.

Based on the above results, there is not sufficient evidence to reject the null hypothesis of hypothesis 1c suggesting that the HDI after the establishment of the SWF is less than or equal to the HDI before the establishment of the SWF.

5.2.4 Conclusion: Research Question 1

The divergent outcomes of countries' HDI performance after the introduction of the SWF indicates that, at an aggregate level, the HDI performance of countries after the introduction of the SWF is the same or less than before the introduction of the SWF. As a result, there is insufficient evidence to reject the null hypothesis of hypotheses 1a, 1b and 1c. Consequently, the answer to Research Question 1 is that the establishment of a SWF at an aggregate level does not mitigate some of the negative aspects of the resource curse.

5.3 Research Question 2: The Determination of Sovereign Wealth Fund

Success Factors

5.3.1 Analysis and Results: Regression Analysis

A regression analysis was conducted in order to answer Research Question 2 and Hypotheses 2 to 6. The data that the regression was conducted on is shown in **Appendices J** and **K**. The regression can be represented by the following equation with the HDI being the dependent variable and the proxies for the five SWF success factors being the independent variables.

$Y = \beta_0 + \beta_1.X_1 + \beta_2.X_2 + \beta_3.X_3 + \beta_4.X_4 + \beta_5.X_5$, where:

Y= Human Development Index	
β_0 = Constant coefficient of regression	
β_1 = Governance coefficient of regression	X_1 = Governance proxy
β_2 = Transparency coefficient of regression	X_2 = Transparency proxy
β_3 = Accountability coefficient of regression	X_3 = Accountability proxy
β_4 = Institutions coefficient of regression	X_4 = Institutions proxy
β_5 = Local investment coefficient of regression	X_5 = Local investment proxy

The hypothesis testing is again conducted in two phases with the first test to see the overall significance of the regression. The hypotheses being tested in this section are hypothesis 2, hypothesis 3, hypothesis 4, hypothesis 5 and hypothesis 6 and are as follows:

The Null hypothesis: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$. This states that all coefficients are equal to zero.

The Alternate hypothesis: $\beta_i \neq 0$. This states that at least one coefficient is not equal to zero.

The second hypothesis test is to see if the individual independent variables can be used and this is reflected below:

The Null hypothesis: $\beta_i = 0$. This states that the coefficient tested is equal to zero.

The Alternate hypothesis: $\beta_i \neq 0$. This states that the coefficient is not equal to zero.

Prior to commencing with the standard hypothesis testing, a correlation was conducted to assess the correlation between the various variables. The results of this are shown in **Table 8** below.

Table 8: Correlation Results Showing the Pearson Correlation Coefficient Between Variables

Success Factor	HDI	Governance	Transparency	Accountability	Local Investment	Institutions
HDI	1.					
Governance	0.7243	1.				
Transparency	0.3678	0.6122	1.			
Accountability	0.5098	0.7067	0.9500	1.		
Local Investment	0.1967	0.4274	0.6464	0.6586	1.	
Institutions	0.3324	0.6001	0.6141	0.68983	0.6842	1.

The above results show a high correlation between governance and the HDI. The correlation also shows a high correlation between the various independent variables. A correlation of more than 0.4 is considered to be excessive and this multicollinearity between the independent variables is expected to affect the results of the regression analysis.

As a consequence of this high correlation, a stepwise regression was conducted on the data and the results of the stepwise regression are shown below in **Table 9**.

Table 9: Results of Stepwise Regression

Model Summary

Model	R	R square	Adjusted R square	Std Error of the Estimate
1	0.724	0.524	0.519	0.08674

Model 1: Dependent Variable: HDI. Predictors: (Constant), Governance

ANNOVA

Model		Sum of Squares	df	Mean Square	F	Significance
1	Regression	0.763	1	0.763	101.367	0.000*
	Residual	0.692	92	0.08		
	Total	1.455	93			

Model 1: Dependent Variable: HDI. Predictors: (Constant), Governance

Coefficients

Model		Unstandardised Coefficients		Standardised Coefficients		Significance
		B	Std Error	Beta	t	
1	Constant	0.483	0.028		17.046	0.000*
	Governance	0.498	0.049	0.724	10.068	0.000*

Model 1: Dependent Variable: HDI. Predictors: (Constant), Governance

Excluded variables

Model		Beta In	t	Significance	Partial Correlation	Collinearity Stats Tolerance
1	Transparency	-0.121	-1.340	0.184	-0.139	0.625
	Accountability	-0.004	-0.041	0.968	-0.004	0.501
	Local Investment	-0.138	-1.751	0.083	-0.181	0.817
	Institutions	-0.160	-1.800	0.075	-0.185	0.640

Model 1: Dependent Variable: HDI. Predictors: (Constant), Governance

* indicates that the results are significant, ** indicates that the results are not significant

The stepwise regression only provides one output model with governance as the only independent variable. All other independent variables (transparency, accountability, local investment and institutions) have been excluded due to high multicollinearity. The R squared for the model is 0.52 showing a medium correlation. As a result of this, the hypothesis testing for hypotheses 3, 4, 5 and 6 could not be completed.

From the ANNOVA table in **Table 9**, the overall model is significant as the p value is below 0.05. Therefore, there is sufficient evidence to reject the null hypothesis of hypothesis 2. Further analysis of the significance of individual coefficients shows that the p-value associated with governance is below 0.05 indicating that, to a 95% level of confidence, the null hypothesis can be rejected and the β_i associated with governance is significant.

Further analysis of the coefficient (see standardised coefficient) shows that governance has a positive coefficient of 0.724. This indicates that a positive change in the governance has a strong and positive impact on the HDI. In addition, there is a significant constant value of 0.483

Based on this stepwise regression, the relationship between the HDI and its independent variables can be described as follows:

$$\text{HDI} = 0.483 + 0.724 \times \text{Governance}$$

5.3.1 Conclusion: Research Question 2

A high level of multicollinearity between the various SWF success factors has excluded hypotheses 3, 4, 5 and 6 from being analysed. The regression analysis does, however, provide sufficient evidence to reject the null hypothesis associated with hypothesis 2, indicating that there is a significant and positive correlation between a country increasing its HDI and the governance success factor. This relationship is reflected by the following regression equation:

$$\text{HDI} = 0.483 + 0.724 \times \text{Governance}$$

As a result, the answer to research question 2 is that the governance success factor is important in order for a SWF to alleviate the effects of the Resource Curse.

6. Chapter 6: Discussion of Results

6.1 Introduction

The previous chapter presented the results to the two research questions that have been posed. This chapter will discuss these results in relation to the literature review from Chapter 2. Each research question will be answered separately in separate subsections below.

6.2 Research Question 1: The Effect of the Sovereign Wealth Fund in Overcoming the Resource Curse

6.2.1 Descriptive and HDI Growth Rate Analysis

The results of the various countries' socioeconomic performance relative to the creation of the SWF in **Table 7** shows a wide range of outcomes.

Of the 18 countries analysed in the five years before and five years after analysis, 50 % of the countries show an improvement in their HDI growth rate of more than 15 %. The aggregate effect, however, of the SWF on the HDI growth rate over this period is 0%.

An analysis of the eight countries in the five years before and nine years after analysis reveals slightly different results. In this instance, only Botswana has done very badly and five countries have managed to increase their HDI growth by more than 30%. Interestingly, the aggregate effect in this set of data is an average increase in the HDI growth rate of 22%. A summary of the changes in HDI growth rate is shown below in **Table 10**.

Table 10: Summary of HDI Growth Rate Analysis

Difference in HDI Growth Rate as a Percentage			
Country	5,5 Period	5,9 Period	Comments
Algeria	15%	3%	Marginal improvement in both periods
Australia	241%		Significant improvement in 5,5 period
Bahrain	-64%		Significant decline in 5,5 period
Botswana	-239%	-189%	Significant decline in both periods
Chile	-21%		Marginal decline in 5,5 period
Gabon	-85%	30%	Contradicting performance
Indonesia	35%		Improvement in 5,5 period
Kazakhstan	78%	45%	Significant improvement both periods
Malaysia	15%	-2%	Contradicting performance
Mauritania	-48%		Decline in 5,5 Period
Norway	56%	52%	Significant improvement both periods
Qatar	-98%		Significant decline in 5,5 period
Timor-Leste	179%		Significant improvement in 5,5 period
Trinidad and Tobago	81%	52%	Significant improvement both periods
Venezuela	-4%	298%	Significant improvement in 5,9 period
Vietnam	-18%		Decline in 5,5 Period

The summary above shows some areas where the same results were obtained in the two periods (Botswana, Kazakhstan, Norway, Trinidad and Tobago and Algeria) but it also shows some contradictions such as Venezuela and Gabon. What is interesting is that the aggregate change in the HDI growth rate over the 5 years before and 9 years after period shows a 22% growth suggesting that an improvement in HDI growth rates could take place over a longer period of time.

It is debatable about how long it will take for the effects of a SWF to be visible in the HDI. Unlike a light switch, the SWF implementation will take years and the effects will only be visible in decades to come. This is reflected in the measures that make up the HDI (such as life expectancy and GDP) which take decades before to any meaningful trend can be observed. As result, it is interesting to observe that the results between the five year and nine year periods are different with the longer period analysis showing a positive change in the HDI growth rates.

6.2.2 Matched Pairs T-Test

The matched pairs t-test that was conducted on the 5 years before and 5 years after period on adjusted HDI data indicates that , at an aggregate level, there is no increase in the HDI growth rate after the establishment of the HDI. This correlates with the results from the previous section, which showed no aggregated change in the HDI growth rate after the establishment of the SWF.

6.2.3 Regression Analysis

The results of the country regression analysis are similar to that found earlier. On the whole, nine out of the 18 countries were not significant and were excluded. Of the nine countries that were significant, only five of these nine countries were positively affected by the introduction of the SWF. The results of the regression are shown in **Table 11** and these are similar to results of the HDI growth rate analysis.

Table 11: Summary of Country Regression Analysis

Not Significant		Significant	SWF Coefficient
Country	Country		
Botswana	Algeria		+ve
Qatar	Indonesia		+ve
Timor-Leste	Malaysia		+ve
Venezuela	Norway		+ve
Vietnam	Trinidad and Tobago		+ve
Chile	Australia		-ve
Equatorial Guinea	Bahrain		-ve
Kazakhstan	Brunei Darussalam		-ve
Mauritania	Gabon		-ve

6.2.4 Conclusion and Comparison to Literature Review

Table 12 below summarises the findings from the various analyses conducted above.

Table 12: Summary of the Various Analyses Related to Research Question 1

Country	HDI Growth Analysis		Regression Analysis	Summary
	5,5 Period	5,9 Period		
Algeria	+ve	Neut	+ve	+ve
Australia	+ve		-ve	
Bahrain	-ve		-ve	-ve
Botswana	-ve	-ve	Not Significant	-ve
Brunei Darussalam			-ve	
Chile	-ve		Not Significant	
Eq Guinea			Not Significant	
Gabon	-ve	+ve	-ve	-ve
Indonesia	+ve		+ve	+ve
Kazakhstan	+ve	+ve	Not Significant	+ve
Malaysia	+ve	Neut	+ve	+ve
Mauritania	-ve		Not Significant	
Norway	+ve	+ve	+ve	+ve
Qatar	-ve		Not Significant	
Timor-Leste	+ve		Not Significant	
Trin & Tobago	+ve	+ve	+ve	+ve
Venezuela	Neut	+ve	Not Significant	
Vietnam	-ve		Not Significant	

The first conclusion from the above analysis is that, at an aggregated level, the introduction of a SWF does not result in an increase in the HDI. Most of the analysis yielded mixed results with not all countries doing better after the establishment of the SWF.

The above conclusion matches the findings from the literature review and supports the views of authors such as Van der Ploeg (2011) and Heuty and Aristi (2009). Their views were that the SWF on its own would not address the effects of the resource curse. This ties in with the model shown in **Figure 7**, which concludes that the resource curse is caused by 3 major factors, which are economic, political and social. The SWF addresses the economic factors but does not address the political and social aspects that cause the resource curse. As political and social factors can result in the resource curse, it is not a surprise that all countries that have implemented the SWF have not been successful.

What is also apparent is that the duration that is analysed strongly affects the results that are obtained. This was expected, as a limited number of countries and years were available for this analysis.

In addition, the HDI is made up of indicators such as the life expectancy and average years of schooling and an effective analysis of these indicators requires several years of data in order to identify statistically significant trends. It is possible that the SWF is effective in overcoming the resource curse over a longer period of time, and analysis of more years of data is required to confirm this.

It is also interesting that there is a contradiction in the performance of some countries against what was expected from the literature review. An obvious example of this is Botswana. Whilst the literature has been overwhelming in its praise of Botswana's socioeconomic performance (Alfaro, Spar & Allibhoy, 2005), this trend was not observed in the analysis. This is explained in two ways. At a country level, there are many other factors that can affect the country's HDI and through the process of aggregating many countries together, this individual country level effect can be diluted out. Considering individual countries can be misleading as other factors such as recessions can affect the outcome of the analysis. The second reason is that the analysis conducted considers the socioeconomic growth around the introduction of the SWF. It is likely, as in the case of Botswana, that the major socioeconomic growth took place prior to the introduction of the SWF.

6.3 Research Question 2: The Determination of Sovereign Wealth Fund

Success Factors

6.3.1 Regression Analysis- Correlation Analysis

The correlation analysis conducted showed a strong correlation between HDI and governance, a medium correlation between accountability and governance and a weak correlation between transparency, local investment, institutions and governance.

The correlation analysis also showed a high correlation between the various independent variables and the subsequent stepwise regression excluded the transparency, accountability, institutions and local investment success factors (see **Table 8**).

The high correlation between governance and transparency and accountability is understood and was expected as many articles refer to transparency and accountability as being drivers of governance (Ainina & Mohan, 2010) and the models in **Figures 6** and **8** in the literature review reflect this.

In addition, a deeper investigation of the various measures that have been used as proxies shows that many of these separate measures share underlying data. As an example, the World bank's governance indicator is made up of several hundred measures as some of these underlying measures have aspects related to transparency and institutions (Kaufmann, Kraay & Mastruzzi, 2010). This is likely to have contributed to the high level of multicollinearity (in other words, to a high level of correlation between independent variables).

What is also likely to explain this multicollinearity is that there is an underlying relationship between the various characteristics. An example of this analogy is a country that improves its transparency is likely to improve its accountability as it gets criticised for poor delivery. This principle is also supported by Kaufmann, Kraay and Mastruzzi (2010) who indicate that an improvement in one of the six governance dimensions invariably results in increases in the other dimensions and that there is a high degree of correlation between the above six dimensions.

This underlying relationship and the dispute on what is considered to be the primary contributor is also evident from the literature review, with many of the authors' views on the source of the resource curse varying. An example of this is the view held by Sala-i-Martin and Subramanian (2003) which suggests that weak institutions are the primary contributor to the resource curse as they result in corruption, rent seeking, and poor governance and these collectively have a negative effect on the growth rate.

6.3.2 Regression Analysis- Stepwise Regression

The results of the stepwise regression analysis exclude all independent variables except governance due to multicollinearity. The impact of governance on the regression is significant and the final regression equation is:

$$\text{HDI} = 0.483 + 0.724 \times \text{Governance}$$

The above equation shows that governance is significant and has a positive impact on the HDI. In other words, an increase in governance results in an increase in the HDI.

This positive and significant correlation of governance was expected, with most of the literature supporting the need for governance to counter the social and political causes of the resource curse (Auty, 2003; Iimi, 2007). It is also worth noting that the above regression explains 52% of the variance in the HDI.

6.3.2 Conclusion and Comparison to Literature Review

It is clear from the regression analysis conducted that governance is an important factor and that it has a significant impact on the HDI growth in a country. This correlates with the findings from the literature review where several authors have proposed governance as a necessary characteristic in overcoming the resource curse (Mitchell, Pigott & Kumru, 2008; Truman, 2008, Auty, 2003; Iimi, 2007). This governance needs to be supported by transparent operations and a SWF that is accountable to the citizens of the country.

The high multicollinearity and the subsequent rejection of transparency and accountability is understood as the measure used for governance (i.e. the World Bank's governance index) incorporates transparency and accountability as strong drivers of governance. The view of the researcher and the literature review supports this view that transparency and accountability are important characteristics of good governance (Ainina & Mohan, 2010).

The rejection of institutions and local investment as successful characteristics is seen as a type 2 statistical error. A type 2 error occurs when the null hypothesis is accepted when it is actually false. In this case, the null hypothesis states that the coefficients for institutions are 0 and this is accepted based on the evidence from the regression.

The impact of local investments is also seen to be an important aspect in overcoming the resource curse, as these local investments overcome the resource curse by developing much needed infrastructure and skills (Van der Ploeg, 2011).

These local investments are also important as they increase the genuine saving of a country by investing the unsustainable revenues from non renewable resources into infrastructure and skills that can result in sustainable future revenues and growth (Van der Ploeg, 2011).

The exclusion of the above two success factors is suspected to be mainly due to a high underlying correlation between the success factors. Whilst the regression analysis considers the linear relationship and the strength of the relationship, it does not determine the causality of the relationship. In other words, the regression analysis does not determine which factors cause the various results.

6.4 Conclusion

The two research questions posed have been answered and discussed in this section. The answer to the first research question supports the findings from the literature review that the introduction of a SWF on its own is not a solution to overcoming the resource curse. The finding of the second research question indicates that governance in the SWF is the most significant success factor for ensuring that the SWF is effective in a country overcoming the effects of the resource curse.

7. Chapter 7: Conclusion

7.1 Introduction

The previous chapter discussed and presented results to the two research questions that have been posed. This chapter will review the background and objectives of this study. A summary of the main findings will follow with recommendations to key stakeholders. The limitations of the study will be identified along with areas for future research. Lastly, a conclusion to the study will be presented.

7.2 Research Background and Objectives

The “Resource Curse” denotes how a country with abundant natural resources tends to have less economic growth and development than countries with fewer natural resources (Van der Ploeg, 2011). Whilst the resource curse has been visible in many countries, the reasons and solutions to the resource curse have been greatly debated and no single theory and solution exists (Van der Ploeg, 2011; Cabrales & Hauk, 2011).

As a region, Sub Saharan Africa lags behind the rest of the world in most social and economic measures. This is reflected by Africa’s position in the Human Development Index (HDI) which is a composite index that measures health, education and living standards. Against a global average of 0.694, Sub Saharan Africa has the lowest score of any region with a value of 0.475 (United Nations Development Program, 2013b).

Africa’s economy is heavily reliant on resources and many forecast a sustained increase in Africa’s growth with its regional growth rate surpassing other global regions (Freeland, 2012). In the last decade, Africa has had the most countries in the ten fastest growing countries (The Economist, 2011) and this trend is expected to continue into the next decade with an average expected growth rate of 6% (The Economist, 2013). Many African countries will rely on their resource wealth to drive this growth.

While this growth brings with it immense opportunities, there are also concerns that Africa’s citizens will not positively benefit from this growth as in the case of other developing countries which were researched in previous resource curse studies (The Economist, 2013).

Whilst the resource curse has been widespread, the results also show that it is not inevitable and that many countries, such as Botswana and Norway, have escaped the resource curse (Iimi, 2007). Based on history and the lessons that have been learnt, what should the resource rich countries of Africa do to overcome the resource curse?

One solution proposed by the International Monetary Fund (IMF) is that resource rich countries start a Sovereign Wealth Fund (SWF) to mitigate the impact of the resource curse (Davis, 2001), and several African countries including Nigeria, Angola and Ghana have recently started SWFs (Ncube, 2013). The expectation of these countries is that the establishment of SWFs will enable them to effectively manage their resource wealth and thus overcome the resource curse.

Whilst supported by the IMF, the outcome of resource rich countries with SWFs is mixed with several successes and failures (Heuty & Aristi, 2009). This suggests that the establishment of a SWF is unlikely to overcome the resource curse. In addition, all SWF frameworks presented to date have focussed on the SWF investment destinations and not on the SWF home country, which is intended to be the beneficiary of the SWF.

Despite the lack of an effective, home country focused SWF framework and the mixed results from resource rich countries, many developing countries are starting SWFs (Ncube, 2013). Of the 69 SWFs currently in existence, 29 have been started since 2005 and this includes African countries such as Nigeria, Angola and Ghana (SWF Institute, 2013).

Against this context, two research questions have been posed:

Research Question 1: Can the establishment of a Sovereign Wealth Fund mitigate some of the negative aspects of the resource curse?

Resource Question 2: What success factors should a SWF have so as to be successful in alleviating the effects of the Resource Curse?

7.3 Main Findings

The resource curse is caused by three sets of factors namely, economic, political and social factors. The SWF addresses the economic factors causing the resource curse but does not address the other factors that lead to the resource curse. The literature review suggests that a SWF supported by governance, strong institutions and local investment will be successful in overcoming the resource curse.

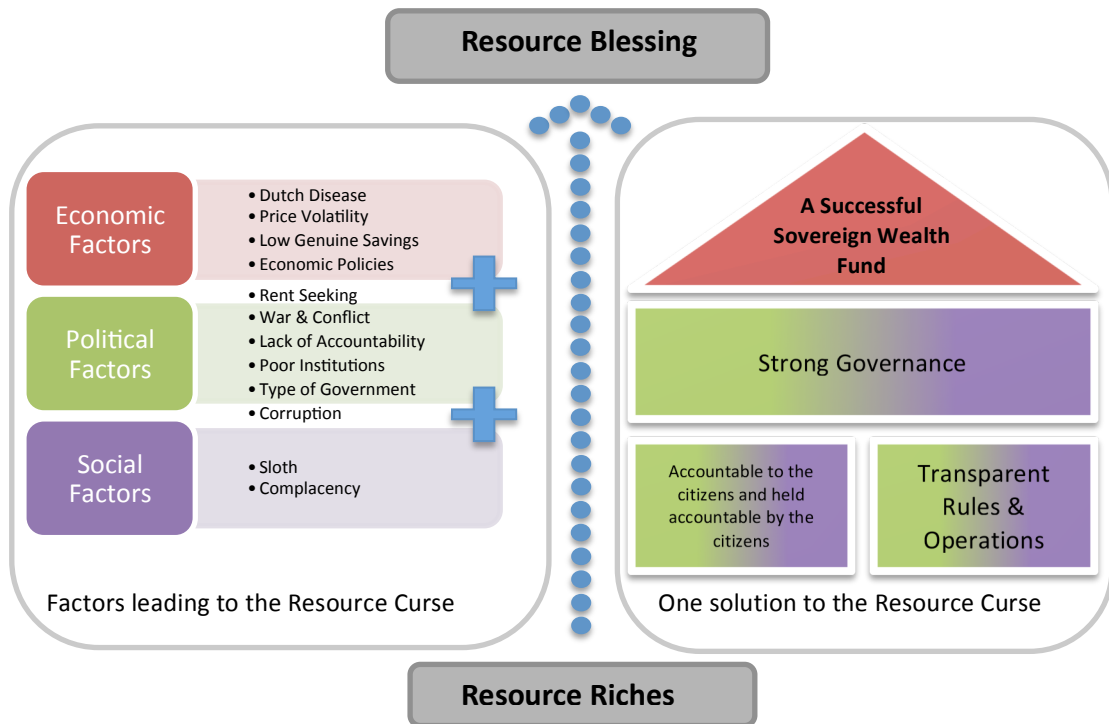
The analyses conducted has shown that resource rich countries that have implemented the SWF have not all improved their socioeconomic performance (measured by the HDI of the country).

In order to understand the success factors behind countries that have successfully overcome the resource curse through the SWF, an analysis of SWF success factors was conducted and has shown that governance is the most significant factor. This governance needs to be supported by a transparent SWF and fund managers that are accountable to and held accountable by the country's citizens (who are seen to be the ultimate beneficiaries of the fund).

Based on the above findings, the framework in **Figure 20** is presented as a summary of this study. The framework presents the factors causing the resource curse on the left hand side and presents the SWF as one potential solution to the resource curse. The framework indicates that the establishment of a SWF does not guarantee success and needs to be supported by strong governance with transparency and accountability as key drivers of this governance.

The framework is colour coded with the colours shown on SWF framework corresponding with the factors causing the resource curse on the left hand side. The combined effect of this SWF framework is a country converting its resource riches into a resource blessing.

Figure 20: A SWF Framework for Resource Rich Countries to Overcome the Resource Curse



7.4 Overall Recommendation

The resource curse is a genuine problem and overcoming this curse remains a challenge to resource rich countries. Whilst the curse exists in many resource rich countries, some countries have been able to successfully overcome this curse. In broad terms, the establishment of a SWF is one of many solutions that a resource rich country can pursue but is not a blanket solution to the resource curse. In order for a country to be successful in overcoming the resource curse, a framework is proposed in **Figure 20**, which suggests that strong governance in the SWF is the key success factor. This governance needs to be supported by transparent rules and operations and by a fund that is accountable to and held accountable by the country's citizens.

7.4.1 Recommendations to Resource Rich Countries

The history and track record of resource rich countries shows the risks and opportunities presented by resources. The SWF is one solution that can overcome the curse and the framework shown in **Figure 20** is proposed to overcome the curse.

This framework suggests that good governance is the most significant success factor and that good governance practices should be encompassed in the SWF. This governance can be supported by making the rules and operations of the SWF transparent to all stakeholders. This transparency will enable the population of the country to hold the SWF managers and the government accountable for the performance of the fund. This last principle is important, as the country's population are the ultimate beneficiaries of the Fund.

7.4.2 Recommendations to Resource Extraction Companies

The performance of many resource rich countries has not been promising and many of these countries have used multinational resource extraction companies. In this day and age, companies are expected to perform responsibly and their associated performance is reflected in the share price.

One aspect that companies need to acknowledge is that the resource curse exists and companies are recommended to incorporate assisting the home country in overcoming the resource curse as part of their responsible practices. The framework provided in **Figure 20** relies on strong governance, which is supported by transparency and accountability. One of the many actions that companies can do to support this is to declare all the royalties, taxes and other payments that they direct to the host country. This transparency, supported by active citizens will mitigate some of the negative effects of the resource curse.

7.4.3 Recommendations to Citizens of Resource Rich Countries

The SWF can be implemented as one solution to mitigate the negative effects of the resource curse. This fund needs to be supported by good governance and the citizens of the country, as the ultimate beneficiaries of the SWF, need to take an active role in the SWF.

A strong and active population should hold the SWF managers and the government accountable for the performance of the fund and this should mitigate against corruption and other inefficient practices that result from resource abundance.

7.5 Limitations of the research

The Human Development Index (HDI) was selected to represent the socio-economic performance of a country. This is one of many measures that can be used and other options include the GDP per capita or social measures such as poverty. The one shortcoming of the HDI (along with other socioeconomic measures) is that it is a structural measure that is changed over long periods of time and any analysis of the HDI should take place over decades and not years. This requirement is not supported by the fact that most SWFs have only started in the last five to ten years. More years of analysis will lead to results that have a higher consistency and reliability.

The proxies that have been chosen to represent the various SWF success factors have been selected as they are seen to be the best of the measures that are currently available and that have historical data. One limitation is that the measures selected are proxies for success factors and some of these measures, whilst being the best available, are not measures of the exact success factors but proxies that could not be valid.

This study does not test causality or directionality. In this research, a high correlation was found between HDI and governance and amongst the various success factors. Whilst a regression analysis tests for correlation, these correlations are non-directional. As a result, it is not clear if increasing governance causes an increasing HDI or if an increasing HDI causes increasing governance.

7.6 Implications for Future Research

Further research on this topic should consider longer periods of time. It is recommended that a minimum period of ten years before and after the introduction of the SWF be analysed. This analysis should provide sufficient time for the SWF to take effect and should remove the effects of other cyclical economic phenomenon.

This study has shown that there is a high correlation between governance, local investment and institutions. This high correlation is suspected to be mostly due to an underlying relationship between these factors.

Further research should focus on studying the causality and directionality between these various success factors so that the primary success factor can be identified.

This study has identified the key strategic SWF success factor. Further studies should identify and study the associated tactical and operational detail associated with this success factor. Such a study can narrow in on the governance success factor and identify the operational aspects related to good governance in a SWF.

7.7 Conclusion

This study has uniquely answered two questions related to SWFs. Whilst the SWF has been purported by the IMF to be a solution to the resource curse, it is clear from the literature and the analysis conducted that the establishment of a SWF is not a guarantee of overcoming the resource curse.

The results of certain resource rich countries with SWFs have been promising and a strong correlation has been found between socioeconomic development and good governance. As a result, the SWF is proposed as one solution to the resource curse and a framework is presented in **Figure 20**. This framework suggests that strong governance is key in the success of the SWF and this governance needs to be supported by a transparent SWF. In addition, this SWF needs to be accountable to and be held accountable by the citizens of the host country as these citizens are the ultimate beneficiaries of the resources and of the SWF.

This study has presented the first home country focussed SWF framework targeting resource rich countries. It is the author's hope that this research will contribute to improved and sustainable resource driven growth through Africa and other emerging economies.

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Appendices

Appendix A: Ten largest Sovereign Wealth Funds by size as of 24 July 2013 (www.swfinstitute.org)

Ser#	Country	Sovereign Wealth Fund Name	Assets \$Billion	Inception	Origin
1	Norway	Government Pension Fund – Global	\$737.2	1990	Oil
2	UAE – Abu Dhabi	Abu Dhabi Investment Authority	\$627	1976	Oil
3	China	SAFE Investment Company	\$567.9**	1997	Non-Commodity
4	Saudi Arabia	SAMA Foreign Holdings	\$532.8	n/a	Oil
5	China	China Investment Corporation	\$482	2007	Non-Commodity
6	Kuwait	Kuwait Investment Authority	\$386	1953	Oil
7	China – Hong Kong	Hong Kong Monetary Authority Investment Portfolio	\$326.7	1993	Non-Commodity
8	Singapore	Government of Singapore Investment Corporation	\$247.5	1981	Non-Commodity
9	Russia	National Welfare Fund	\$175.5*	2008	Oil
10	Singapore	Temasek Holdings	\$173.3	1974	Non-Commodity

Appendix B: Existing Sovereign Wealth Fund Frameworks

B.1 Santiago Principles (International Working Group, 2008)

Key Areas	Principle	Sub Principle	
Legal framework, objectives, and coordination with macroeconomic policies	1	1.1	The legal framework for the SWF should ensure legal soundness of the SWF and its transactions.
		1.2	The key features of the SWF's legal basis and structure, as well as the legal relationship between the SWF and other state bodies, should be publicly disclosed.
	2	The policy purpose of the SWF should be clearly defined and publicly disclosed	
	3	Where the SWF's activities have significant direct domestic macroeconomic implications, those activities should be closely coordinated with the domestic fiscal and monetary authorities, so as to ensure consistency with the overall macroeconomic policies.	
	4	There should be clear and publicly disclosed policies, rules, procedures, or arrangements in relation to the SWF's general approach to funding, withdrawal, and spending operations.	4.1 4.2
5	The relevant statistical data pertaining to the SWF should be reported on a timely basis to the owner, or as otherwise required, for inclusion where appropriate in macroeconomic data sets.		
Institutional framework and governance structure	6	The governance framework for the SWF should be sound and establish a clear and effective division of roles and responsibilities in order to facilitate accountability and operational independence in the management of the SWF to pursue its objectives.	
	7	The owner should set the objectives of the SWF, appoint the members of its governing body(ies) in accordance with clearly defined procedures, and exercise oversight over the SWF's operations.	
	8	The governing body(ies) should act in the best interests of the SWF, and have a clear mandate and adequate authority and competency to carry out its functions.	

Key Areas	Principle		Sub Principle	
Institutional framework and governance structure	9	The operational management of the SWF should implement the SWF's strategies in a independent manner and in accordance with clearly defined responsibilities.		
	10	An annual report and accompanying financial statements on the SWF's operations and performance should be prepared in a timely fashion and in accordance with recognized international or national accounting standards in a consistent manner.		
	11	The owner should set the objectives of the SWF, appoint the members of its governing body(ies) in accordance with clearly defined procedures, and exercise oversight over the SWF's operations.		
	12	The SWF's operations and financial statements should be audited annually in accordance with recognized international or national auditing standards in a consistent manner.		
	13	Professional and ethical standards should be clearly defined and made known to the members of the SWF's governing body(ies), management, and staff.		
	14	Dealing with third parties for the purpose of the SWF's operational management should be based on economic and financial grounds, and follow clear rules and procedures.		
	15	SWF operations and activities in host countries should be conducted in compliance with all applicable regulatory and disclosure requirements of the countries in which they operate.		
	16	The governance framework and objectives, as well as the manner in which the SWF's management is operationally independent from the owner, should be publicly disclosed.		
	17	Relevant financial information regarding the SWF should be publicly disclosed to demonstrate its economic and financial orientation, so as to contribute to stability in international financial markets and enhance trust in recipient countries.		
Investment and risk management framework	18	The SWF's investment policy should be clear and consistent with its defined objectives, risk tolerance, and investment strategy, as set by the owner or the governing body(ies), and be based on sound portfolio management principles.	18.1	The investment policy should guide the SWF's financial risk exposures and the possible use of leverage.

Key Areas	Principle	Sub Principle		
Investment and risk management framework	18	The SWF's investment policy should be clear and consistent with its defined objectives, risk tolerance, and investment strategy, as set by the owner or the governing body(ies), and be based on sound portfolio management principles.	18.2	The investment policy should address the extent to which internal and/or external investment managers are used, the range of their activities and authority, and the process by which they are selected and their performance monitored.
		18.3	A description of the investment policy of the SWF should be publicly disclosed.	
	19	The SWF's investment decisions should aim to maximize risk-adjusted financial returns in a manner consistent with its investment policy, and based on economic and financial grounds.	19.1	If investment decisions are subject to other than economic and financial considerations, these should be clearly set out in the investment policy and be publicly disclosed.
			19.2	The management of an SWF's assets should be consistent with what is generally accepted as sound asset management principles.
	20	The SWF should not seek or take advantage of privileged information or inappropriate influence by the broader government in competing with private entities.		
	21	SWFs view shareholder ownership rights as a fundamental element of their equity investments' value. If an SWF chooses to exercise its ownership rights, it should do so in a manner that is consistent with its investment policy and protects the financial value of its investments. The SWF should publicly disclose its general approach to voting securities of listed entities, including the key factors guiding its exercise of ownership rights.		
	22	The SWF should have a framework that identifies, assesses, and manages the risks of its operations.	22.1	The risk management framework should include reliable information and timely reporting systems, which should enable the adequate monitoring and management of relevant risks within acceptable parameters and levels, control and incentive mechanisms, codes of conduct, business continuity planning, and an independent audit function.
			22.2	The general approach to the SWF's risk management framework should be publicly disclosed.
23	The assets and investment performance (absolute and relative to benchmarks, if any) of the SWF should be measured and reported to the owner according to clearly defined principles or standards.			
24	A process of regular review of the implementation of the GAPP should be engaged in by or on behalf of the SWF.			

B.2 Blueprint for SWF Practices (Truman, 2008)

Main Component	Questions	
Structure	Objective stated	
	Fiscal Treatment	Source of funding
		Use of fund earnings
		Integrated with budget
		Guidelines followed
	Investment strategy	
Changes in the structure		
	Separate from international reserves	
Governance	Role of government	
	Role of managers	
	Decisions made by managers	
	Guidelines for corporate responsibility Ethical guidelines	
Accountability & Transparency	Investment strategy implementation	Categories
		Benchmarks
		Credit ratings
		Mandates
	Investment activities	Size
		Returns
		Location
		Specific investments
		Currency composition
	Reports	Annual
	Quarterly	
Audit	Audited	
	Published	
	Independent	
Behaviour	Portfolio adjustment	
	Limits on stakes	
	No controlling stakes	
	Policy on leverage	
	Derivatives	Policy on derivatives
		For hedging only

B.3 Linaburg-Maduell Transparency Index (SWF Institute, 2013)

Principles of the Linaburg-Maduell Transparency Index	
1	Fund provides history including reason for creation, origins of wealth, and government ownership structure
2	Fund provides up-to-date independently audited annual reports
3	Fund provides ownership percentage of company holdings, and geographic locations of holdings
4	Fund provides total portfolio market value, returns, and management compensation
5	Fund provides guidelines in reference to ethical standards, investment policies, and enforcer of guidelines
6	Fund provides clear strategies and objectives
7	If applicable, the fund clearly identifies subsidiaries and contact information
8	If applicable, the fund identifies external managers
9	Fund manages its own web site
10	Fund provides main office location address and contact information such as telephone and fax

Appendix C: World Bank and OECD Guidelines for Publicly Managed Pension Funds

C.1 World Bank Guidelines for Public Pension Fund Performance (Mitchell, Pigott & Kumru ,2008)

1	GOVERNANCE
1.1	Are the roles of the respective parties in the public pension scheme clear?
1.2	Are the terms under which the managing agency and its governing members appointed and terminated well understood?
1.3	Are there adequate fit and proper person protections to prevent the agency from being deliberately manipulated by the government or the Board of the agency?
1.4	Is the management agency open and transparent about its governance structures?
1.5	Is the scheme open to periodic review; do the government and/or the managing agency welcome constructive criticism?
1.6	How well does the agency's internal and/or external governance systems compare with those imposed by the regulator of private pensions?
2	ACCOUNTABILITY
2.1	Does the public have access to adequate information about the governance structures of the public pensions scheme and its managing agency, either through explicit laws, annual reports, publications and/or web sites? Is disclosure of potential conflicts of interest of Board members required and imposed?
2.2	Is the scheme subject to regular independent audit for both governance and performance?
2.3	Are the financial performance and financial state of the scheme revealed publicly on a regular basis based on sound accounting standards?
2.4	Is the scheme's financial performance reported against established benchmarks?
2.5	Is the government open about its liabilities under the scheme and subject to independent actuarial reviews?
2.6	Are the incentive structures within the scheme transparent to the public, linked to delegated responsibilities and risk based?
3	INVESTMENT
3.1	Is the investment policy fully documented and publicly available?
3.2	Is the stated purpose of the scheme to benefit the members of the scheme and, if not, are there potential conflicts between stated objectives?
3.3	Does the policy permit lending to government and/or members and, if so, are there transparent guidelines identifying the issues involved and governing how such investments will take place?
3.4	Is the target rate of return based on a long-term funding ratio objective and is it consistent with this objective? Does the investment policy identify how it will deal with actual or potential market dominance?
3.5	Have all major risks been identified and taken into consideration in forming the investment policy? Has the tolerable level of risk been defined by the Board.
3.6	Are the processes involved in delegating the implementation of the investment policy to managers clearly defined? Are benchmark criteria for hiring and firing managers clear and the information needed by the Board to act on them available?
3.7	Are the investment parameters defined in terms of restrictions and prohibitions or in terms of modern portfolio concepts?

C.2 OECD Guidelines for Public Pension Fund Management (Mitchell, Pigott & Kumru , 2008)

GOVERNANCE
Identification of responsibilities; Governing body; Expert advice; Custodian; Suitability; Redress; Self-investment.
ACCOUNTABILITY
Auditor; Actuary; Accountability; Internal controls; Reporting; Disclosure; Rigorous process for investment; Publicly available investment policy; Identification of investors; Procedures for investment policy review; Transparent and market based valuation and accounting.
INVESTMENT
Retirement income objective and prudential principles; Prudent person standard; Fiduciary duty; Clear investment objectives (liabilities); Strategic asset allocation; Risk management; Investment options; Portfolio limits; International investment; Regular assessment of limits and controls.

Appendix D: Generic Data Preparation Process

A list of all SWFs that are currently in existence was obtained from the SWF Institute (2013). This resulted in a total of 69 SWFs from various countries. From this list, the following shortlist was examined which excluded 24 SWFs and resulted in a balance of 45 SWFs:

- Where a country has multiple SWFs, the first established SWF is considered
- State or provincial SWFs are excluded as this study only assesses the performance of the country.

The next step of the generic data preparation process was to restrict SWFs to those that are from resource rich countries and those that have had SWFs in operation for more than the minimum number of years selected.

- In order to ensure that sufficient data is available for analysing the SWFs, all SWFs created after 2006 have been excluded. This is to ensure that a minimum of five years worth of data (2007, 2008, 2009, 2010 and 2011) is available for analysis after the establishment of the SWF. This resulted in 14 countries being excluded from the analysis. Any countries with SWFs created on or before 1980 were also excluded as very little information is available before 1980. This resulted in a further three countries being excluded.
- Lastly, only countries that are resource rich have been used for this analysis. The World Bank's 'Natural Resources as a percentage of GDP' indicator was used and this indicator includes oil rents, natural gas rents, coal rents, mineral rents, and forest rents (The World Bank, 2013b). The percentage of GDP is considered at the year that the SWF was created and only countries with five percent or more are considered. Botswana and Timor Leste have very low GDP percentage figures on the World Bank database, but these have been included based on other evidence that these are resource rich countries (Alfaro, Spar & Allibhoy, 2005; Heuty & Aristi, 2009). This process resulted in a further eight countries being excluded.

The above process resulted in a final list of 18 countries being available for analysis.

Appendix E: Development of the Human Development Index and the Creation of the Original and the Adjusted Human Development Index

All the data used to generate the Human Development Index (i.e. the four indicators in Table 1) were individually obtained. This data was obtained from the World Bank (The World Bank, 2013b), UNESCO/Barro-Lee (Barro Lee, 2013) and from UNDP (UNDP, 2013). Most of the data available for the GNI was sporadically available for the countries and years being analysed. As a result, the GDP per capita (in 2005 Purchasing Power Parity terms) was used as a substitute. All the indicators are indexed using the UNDP methodology in order to get to an index between 0 and 1 and the four indicators are finally consolidated into one index that is the geometric mean of the four indexes. Again, this final index is between 0 and 1, with 0 being the worst and 1 being the highest. During this process, it was realised that insufficient information was available for Azerbaijan and Libya. As a result, these two countries were excluded resulting in only 18 countries remaining for analysis.

Now that annual HDI values are available for each country between 1980 and 2011, this data was split into an 'original HDI' value and an 'adjusted HDI' value. The original HDI value is the value that was created above. This value, on average, increases over the years and this increase could hide the effect of the SWF. As a result, a set of adjusted HDI values was created by considering the average growth of the HDI. This growth information is available from the UNDP and it provides an average growth rate for different time periods and for different category countries (based on their HDI values). This original HDI value was then adjusted for the average growth (based on the HDI category and the time period) to obtain an 'adjusted' HDI value. The table below shows the average growth rates of the HDI that were used to make this adjustment.

Table F.1: Average growth rates of the HDI by time period and HDI category

Year on Year growth (as a %)				
HDI Category	Defn of Category (HDI Value)	1980-1990	1991-2000	2001-2011
Very high human development	HDI>0.80	0.52	0.56	0.36
High human development	0.71<HDI<0.8	0.77	0.54	0.72
Medium human development	0.53<HDI<0.71	1.35	1.29	1.32
Low human development	HDI<0.53	1.01	0.91	1.71
Average		0.54	0.82	1.03

Appendix F: Human Development Index Success Factors Data Preparation

Process

For governance, the World Bank's World Governance Indicators have been used (The World Bank, 2013a). This indicator consists of the following six components: voice and accountability, political stability and the absence of violence, government effectiveness, regulatory law, rule of law and control of corruption. Each of these components along with an aggregated value is available for all countries from 1996 to 2012. All the values for this set of data are between a lowest score of -2.5 and a highest score of +2.5. For the purposes of this analysis, the voice and accountability index was taken out of governance as it was to be tested separately, and a new governance index was built up using the remaining five components. Each component was indexed to a value between zero and one and the geometric mean was used to get an aggregated value of governance. The equation used to generate an indexed value is the same as that used by the UNDP in the HDI and is shown below.

$$\frac{\textit{Actual value} - \textit{lowest value}}{\textit{Highest value} - \textit{lowest value}}$$

The voice and accountability component of the governance indicator described above was used to get an index for accountability. This voice and accountability component was available in a value between -2.5 and +2.5 for all countries between 1996 and 2012. As with the governance index, this value was converted into an index between zero and one.

The proxy that has been used for the transparency in a country is Freedom House's Freedom of the Press survey (Freedom House, 2013). This is an annual survey and information is available on all countries from 1993 to 2012. The survey provides a ranking between 0 and 100 with 0 being very free and 100 being not free. This data was converted into an index between zero and one with zero being not free and one being very free.

The proxy chosen for the amount of local investment is an aggregated value considering the % of GDP invested in education and in healthcare. Information was obtained from the World Bank (The World Bank, 2013b) for each country of the total health expenditure as a % of GDP and the total education expenditure as a % of GDP. Each of these values was available for the countries being analysed between 1995 and 2011.

Each of the values was indexed to a value between zero and one and the geometric mean of the two values was obtained to get an index for local investment.

The last proxy relates to institutions. The International Finance Corporation (IFC) and the World Bank have a Doing Business ranking that ranks countries between 1 and 185 (International Finance Corporation, 2013). Whilst this ranking is available between 2003 and 2012, the ranking is not available as an index. As a result, the individual components of the ranking were analysed and the researcher constructed an index. The researcher decided to construct an index based on the number of procedures in place to conduct various tasks. The Doing Business survey includes the number of procedures associated with the following six tasks in its ranking: starting a business, construction permits, registering a property, export across borders, import across borders and enforcing contracts. A sub index for each of the six tasks was developed (again between zero and one) and this was consolidated into an Institutions index by obtaining the geometric mean of all six procedures. The less the number of procedures, the higher the index value associated with the institutions in the country.

Once all the indices were available, they were consolidated into one list. The years with data missing were taken out (e.g. there is transparency data from 1993 but institutions' data are only available from 2003). In addition, data associated with the years when the SWF was not in existence were taken out. This resulted in a list with all countries, years, HDI values and proxies for the five SWF success factors for years that a SWF had been in existence. The various countries and the years were next taken out leaving only the HDI value and values for the five SWF success factors.

Appendix G: List of all Sovereign Wealth Funds and Associated Resource Rents as a % of GDP

Ser#	Country	Sovereign Wealth Fund Name	Assets \$Billion	Inception	Age since 2011	Resource as a % of GDP
1	Algeria	Revenue Regulation Fund	\$77.2	2000	11	32
2	Australia	Australian Future Fund	\$88.7	2006	5	7
3	Azerbaijan	State Oil Fund	\$34.1	1999	12	32
4	Bahrain	Mumtalakat Holding Company	\$7.1	2006	5	36
5	Botswana	Pula Fund	\$6.9	1994	17	0.5
6	Brunei	Brunei Investment Agency	\$30	1983	28	67
7	Chile	Pension Reserve Fund	\$5.9	2006	5	22
8	China	SAFE Investment Company	\$567.9	1997	14	4
9	East Timor	Timor-Leste Petroleum Fund	\$13.6	2005	6	0.6
10	Equatorial Guinea	Fund for Future Generations	\$0.08	2002	9	81
11	Gabon	Gabon Sovereign Wealth Fund	\$0.4	1998	13	30
12	Indonesia	Government Investment Unit	\$0.3	2006	5	14
13	Ireland	National Pensions Reserve Fund	\$19.4	2001	10	0
14	Kazakhstan	Kazakhstan National Fund	\$61.8	2000	11	39
15	Kiribati	Revenue Equalization Reserve Fund	\$0.6	1956	55	0
16	Kuwait	Kuwait Investment Authority	\$386	1953	58	43
17	Libya	Libyan Investment Authority	\$65	2006	5	69
18	Malaysia	Khazanah Nasional	\$39.1	1993	18	11
19	Mauritania	National Fund for Hydrocarbon Reserves	\$0.3	2006	5	22
20	Mexico	Oil Revenues Stabilization Fund of Mexico	\$6.0	2000	11	4
21	New Zealand	New Zealand Superannuation Fund	\$18.5	2003	8	2
22	Norway	Government Pension Fund – Global	\$737.2	1990	21	11
23	Oman	State General Reserve Fund	\$8.2	1980	31	42
24	Peru	Fiscal Stabilization Fund	\$7.1	1999	12	2
25	Qatar	Qatar Investment Authority	\$115	2005	6	56
26	Singapore	Temasek Holdings	\$173.3	1974	37	0
27	South Korea	Korea Investment Corporation	\$56.6	2005	6	0
28	Trinidad & Tobago	Heritage and Stabilization Fund	\$4.7	2000	11	34
29	UAE – Abu Dhabi	Abu Dhabi Investment Authority	\$627	1976	35	41
30	Venezuela	FEM	\$0.8	1998	13	16
31	Vietnam	State Capital Investment Corporation	\$0.5	2006	5	18

Appendix H: Original and Adjusted Human Development Index (displayed by country)

Country	Year	HDI	Adjusted HDI
Algeria	1980		
Algeria	1981		
Algeria	1982		
Algeria	1983		
Algeria	1984		
Algeria	1985		
Algeria	1986		
Algeria	1987	0.5734	0.5658
Algeria	1988	0.5805	0.5728
Algeria	1989	0.5877	0.5799
Algeria	1990	0.5925	0.5847
Algeria	1991	0.5960	0.5881
Algeria	1992	0.6011	0.5934
Algeria	1993	0.6033	0.5956
Algeria	1994	0.6068	0.5991
Algeria	1995	0.6118	0.6040
Algeria	1996	0.6183	0.6105
Algeria	1997	0.6257	0.6178
Algeria	1998	0.6313	0.6233
Algeria	1999	0.6400	0.6318
Algeria	2000	0.6462	0.6380
Algeria	2001	0.6525	0.6443
Algeria	2002	0.6612	0.6526
Algeria	2003	0.6699	0.6612
Algeria	2004	0.6785	0.6696
Algeria	2005	0.6858	0.6768
Algeria	2006	0.6899	0.6809
Algeria	2007	0.6960	0.6869
Algeria	2008	0.7030	0.6938
Algeria	2009	0.7099	0.7006
Algeria	2010	0.7163	0.7112
Algeria	2011	0.7193	0.7141
Australia	1980		
Australia	1981		
Australia	1982		
Australia	1983		
Australia	1984		
Australia	1985		
Australia	1986		
Australia	1987		

Australia	1988		
Australia	1989		
Australia	1990		
Australia	1991		
Australia	1992		
Australia	1993	0.8929	0.8880
Australia	1994	0.8946	0.8896
Australia	1995	0.9086	0.9036
Australia	1996	0.9158	0.9107
Australia	1997	0.9254	0.9203
Australia	1998	0.9268	0.9217
Australia	1999	0.9332	0.9280
Australia	2000	0.9373	0.9321
Australia	2001	0.9374	0.9322
Australia	2002	0.9451	0.9417
Australia	2003	0.9487	0.9453
Australia	2004	0.9483	0.9450
Australia	2005	0.9404	0.9371
Australia	2006	0.9422	0.9389
Australia	2007	0.9459	0.9426
Australia	2008	0.9483	0.9450
Australia	2009	0.9525	0.9491
Australia	2010	0.9573	0.9540
Australia	2011	0.9588	0.9554
Bahrain	1980	0.6708	0.6619
Bahrain	1981	0.6746	0.6657
Bahrain	1982	0.6790	0.6700
Bahrain	1983	0.6950	0.6858
Bahrain	1984	0.7005	0.6912
Bahrain	1985	0.7105	0.7011
Bahrain	1986	0.7183	0.7128
Bahrain	1987	0.7220	0.7165
Bahrain	1988	0.7281	0.7226
Bahrain	1989	0.7334	0.7278
Bahrain	1990	0.7382	0.7325
Bahrain	1991	0.7497	0.7440
Bahrain	1992	0.7541	0.7500
Bahrain	1993	0.7656	0.7614
Bahrain	1994	0.7702	0.7661
Bahrain	1995	0.7766	0.7725
Bahrain	1996	0.7797	0.7755
Bahrain	1997	0.7807	0.7766
Bahrain	1998	0.7847	0.7805
Bahrain	1999	0.7858	0.7816
Bahrain	2000	0.7936	0.7893
Bahrain	2001	0.7999	0.7956

Bahrain	2002	0.8062	0.8034
Bahrain	2003	0.8131	0.8103
Bahrain	2004	0.8170	0.8141
Bahrain	2005	0.8164	0.8135
Bahrain	2006	0.8139	0.8110
Bahrain	2007	0.8156	0.8127
Bahrain	2008	0.8165	0.8136
Bahrain	2009	0.8166	0.8137
Bahrain	2010	0.8182	0.8153
Bahrain	2011	0.8188	0.8159
Botswana	1980	0.4768	0.4720
Botswana	1981	0.4926	0.4876
Botswana	1982	0.5098	0.5047
Botswana	1983	0.5268	0.5215
Botswana	1984	0.5438	0.5366
Botswana	1985	0.5596	0.5522
Botswana	1986	0.5718	0.5642
Botswana	1987	0.5847	0.5769
Botswana	1988	0.6017	0.5937
Botswana	1989	0.6153	0.6071
Botswana	1990	0.6250	0.6167
Botswana	1991	0.6322	0.6242
Botswana	1992	0.6322	0.6242
Botswana	1993	0.6301	0.6221
Botswana	1994	0.6265	0.6186
Botswana	1995	0.6267	0.6187
Botswana	1996	0.6227	0.6148
Botswana	1997	0.6197	0.6118
Botswana	1998	0.6163	0.6085
Botswana	1999	0.6109	0.6031
Botswana	2000	0.6068	0.5991
Botswana	2001	0.6033	0.5956
Botswana	2002	0.6050	0.5972
Botswana	2003	0.6086	0.6006
Botswana	2004	0.6147	0.6066
Botswana	2005	0.6212	0.6131
Botswana	2006	0.6274	0.6192
Botswana	2007	0.6368	0.6285
Botswana	2008	0.6429	0.6345
Botswana	2009	0.6421	0.6337
Botswana	2010	0.6467	0.6383
Botswana	2011	0.6491	0.6407
Brunei Darussalam	1980	0.7798	0.7739
Brunei Darussalam	1981	0.7731	0.7672
Brunei Darussalam	1982	0.7766	0.7707
Brunei Darussalam	1983	0.7788	0.7729

Brunei Darussalam	1984	0.7821	0.7762
Brunei Darussalam	1985	0.7815	0.7756
Brunei Darussalam	1986	0.7804	0.7745
Brunei Darussalam	1987	0.7855	0.7795
Brunei Darussalam	1988	0.7901	0.7841
Brunei Darussalam	1989	0.7937	0.7877
Brunei Darussalam	1990	0.7982	0.7921
Brunei Darussalam	1991	0.8026	0.7982
Brunei Darussalam	1992	0.8076	0.8032
Brunei Darussalam	1993	0.8118	0.8073
Brunei Darussalam	1994	0.8155	0.8110
Brunei Darussalam	1995	0.8196	0.8150
Brunei Darussalam	1996	0.8227	0.8181
Brunei Darussalam	1997	0.8239	0.8193
Brunei Darussalam	1998	0.8255	0.8209
Brunei Darussalam	1999	0.8317	0.8271
Brunei Darussalam	2000	0.8342	0.8296
Brunei Darussalam	2001	0.8363	0.8317
Brunei Darussalam	2002	0.8403	0.8374
Brunei Darussalam	2003	0.8457	0.8427
Brunei Darussalam	2004	0.8506	0.8476
Brunei Darussalam	2005	0.8538	0.8508
Brunei Darussalam	2006	0.8589	0.8558
Brunei Darussalam	2007	0.8592	0.8562
Brunei Darussalam	2008	0.8586	0.8555
Brunei Darussalam	2009	0.8599	0.8569
Brunei Darussalam	2010	0.8612	0.8582
Brunei Darussalam	2011	0.8630	0.8600
Chile	1980	0.6529	0.6443
Chile	1981	0.6594	0.6506
Chile	1982	0.6569	0.6482
Chile	1983	0.6619	0.6531
Chile	1984	0.6707	0.6618
Chile	1985	0.6809	0.6719
Chile	1986	0.6881	0.6790
Chile	1987	0.6948	0.6856
Chile	1988	0.7017	0.6924
Chile	1989	0.7123	0.7069
Chile	1990	0.7192	0.7137
Chile	1991	0.7275	0.7220
Chile	1992	0.7347	0.7308
Chile	1993	0.7287	0.7248
Chile	1994	0.7342	0.7303
Chile	1995	0.7423	0.7383
Chile	1996	0.7486	0.7446
Chile	1997	0.7547	0.7506

Chile	1998	0.7592	0.7551
Chile	1999	0.7645	0.7604
Chile	2000	0.7699	0.7658
Chile	2001	0.7757	0.7715
Chile	2002	0.7807	0.7751
Chile	2003	0.7873	0.7817
Chile	2004	0.7962	0.7905
Chile	2005	0.8046	0.8018
Chile	2006	0.8084	0.8056
Chile	2007	0.8168	0.8139
Chile	2008	0.8215	0.8186
Chile	2009	0.8224	0.8194
Chile	2010	0.8289	0.8260
Chile	2011	0.8342	0.8313
Equatorial Guinea	1980		
Equatorial Guinea	1981		
Equatorial Guinea	1982		
Equatorial Guinea	1983		
Equatorial Guinea	1984		
Equatorial Guinea	1985		
Equatorial Guinea	1986		
Equatorial Guinea	1987		
Equatorial Guinea	1988		
Equatorial Guinea	1989		
Equatorial Guinea	1990		
Equatorial Guinea	1991		
Equatorial Guinea	1992		
Equatorial Guinea	1993		
Equatorial Guinea	1994		
Equatorial Guinea	1995		
Equatorial Guinea	1996		
Equatorial Guinea	1997		
Equatorial Guinea	1998		
Equatorial Guinea	1999	0.5109	0.5058
Equatorial Guinea	2000	0.5145	0.5094
Equatorial Guinea	2001	0.5305	0.5252
Equatorial Guinea	2002	0.5312	0.5245
Equatorial Guinea	2003	0.5355	0.5287
Equatorial Guinea	2004	0.5466	0.5396
Equatorial Guinea	2005	0.5503	0.5433
Equatorial Guinea	2006	0.5450	0.5381
Equatorial Guinea	2007	0.5525	0.5455
Equatorial Guinea	2008	0.5585	0.5514
Equatorial Guinea	2009	0.5597	0.5526
Equatorial Guinea	2010	0.5600	0.5528
Equatorial Guinea	2011	0.5624	0.5553

Gabon	1980	0.5685	0.5609
Gabon	1981	0.5792	0.5715
Gabon	1982	0.5867	0.5789
Gabon	1983	0.5972	0.5892
Gabon	1984	0.6089	0.6008
Gabon	1985	0.6180	0.6098
Gabon	1986	0.6240	0.6157
Gabon	1987	0.6241	0.6158
Gabon	1988	0.6281	0.6198
Gabon	1989	0.6357	0.6273
Gabon	1990	0.6409	0.6324
Gabon	1991	0.6464	0.6378
Gabon	1992	0.6473	0.6391
Gabon	1993	0.6509	0.6426
Gabon	1994	0.6540	0.6457
Gabon	1995	0.6564	0.6481
Gabon	1996	0.6580	0.6496
Gabon	1997	0.6601	0.6517
Gabon	1998	0.6601	0.6518
Gabon	1999	0.6552	0.6469
Gabon	2000	0.6513	0.6431
Gabon	2001	0.6544	0.6461
Gabon	2002	0.6570	0.6484
Gabon	2003	0.6615	0.6529
Gabon	2004	0.6663	0.6576
Gabon	2005	0.6724	0.6636
Gabon	2006	0.6760	0.6672
Gabon	2007	0.6818	0.6730
Gabon	2008	0.6856	0.6767
Gabon	2009	0.6875	0.6785
Gabon	2010	0.6936	0.6845
Gabon	2011	0.6978	0.6887
Indonesia	1980	0.4405	0.4361
Indonesia	1981	0.4465	0.4420
Indonesia	1982	0.4519	0.4474
Indonesia	1983	0.4610	0.4564
Indonesia	1984	0.4687	0.4640
Indonesia	1985	0.4745	0.4697
Indonesia	1986	0.4815	0.4767
Indonesia	1987	0.4882	0.4834
Indonesia	1988	0.4933	0.4884
Indonesia	1989	0.4998	0.4948
Indonesia	1990	0.5041	0.4991
Indonesia	1991	0.5099	0.5053
Indonesia	1992	0.5147	0.5101
Indonesia	1993	0.5203	0.5156

Indonesia	1994	0.5280	0.5232
Indonesia	1995	0.5361	0.5293
Indonesia	1996	0.5443	0.5374
Indonesia	1997	0.5499	0.5430
Indonesia	1998	0.5453	0.5384
Indonesia	1999	0.5488	0.5418
Indonesia	2000	0.5544	0.5474
Indonesia	2001	0.5604	0.5533
Indonesia	2002	0.5663	0.5589
Indonesia	2003	0.5734	0.5659
Indonesia	2004	0.5798	0.5723
Indonesia	2005	0.5849	0.5773
Indonesia	2006	0.5918	0.5841
Indonesia	2007	0.6038	0.5959
Indonesia	2008	0.6098	0.6018
Indonesia	2009	0.6190	0.6109
Indonesia	2010	0.6271	0.6189
Indonesia	2011	0.6343	0.6260
Kazakhstan	1980		
Kazakhstan	1981		
Kazakhstan	1982		
Kazakhstan	1983		
Kazakhstan	1984		
Kazakhstan	1985		
Kazakhstan	1986		
Kazakhstan	1987		
Kazakhstan	1988		
Kazakhstan	1989		
Kazakhstan	1990	0.6823	0.6737
Kazakhstan	1991	0.6764	0.6679
Kazakhstan	1992	0.6751	0.6665
Kazakhstan	1993	0.6667	0.6582
Kazakhstan	1994	0.6561	0.6478
Kazakhstan	1995	0.6518	0.6435
Kazakhstan	1996	0.6519	0.6437
Kazakhstan	1997	0.6585	0.6501
Kazakhstan	1998	0.6617	0.6533
Kazakhstan	1999	0.6714	0.6629
Kazakhstan	2000	0.6816	0.6729
Kazakhstan	2001	0.6955	0.6867
Kazakhstan	2002	0.7057	0.6965
Kazakhstan	2003	0.7156	0.7105
Kazakhstan	2004	0.7251	0.7199
Kazakhstan	2005	0.7346	0.7293
Kazakhstan	2006	0.7429	0.7376
Kazakhstan	2007	0.7491	0.7437

Kazakhstan	2008	0.7534	0.7480
Kazakhstan	2009	0.7592	0.7538
Kazakhstan	2010	0.7623	0.7568
Kazakhstan	2011	0.7708	0.7653
Malaysia	1980	0.5960	0.5880
Malaysia	1981	0.6039	0.5959
Malaysia	1982	0.6113	0.6032
Malaysia	1983	0.6204	0.6122
Malaysia	1984	0.6288	0.6204
Malaysia	1985	0.6316	0.6233
Malaysia	1986	0.6343	0.6259
Malaysia	1987	0.6390	0.6305
Malaysia	1988	0.6433	0.6348
Malaysia	1989	0.6470	0.6384
Malaysia	1990	0.6506	0.6420
Malaysia	1991	0.6609	0.6521
Malaysia	1992	0.6713	0.6628
Malaysia	1993	0.6799	0.6713
Malaysia	1994	0.6891	0.6804
Malaysia	1995	0.6985	0.6897
Malaysia	1996	0.7123	0.7084
Malaysia	1997	0.7174	0.7135
Malaysia	1998	0.7219	0.7181
Malaysia	1999	0.7275	0.7236
Malaysia	2000	0.7367	0.7328
Malaysia	2001	0.7389	0.7349
Malaysia	2002	0.7444	0.7391
Malaysia	2003	0.7544	0.7490
Malaysia	2004	0.7613	0.7558
Malaysia	2005	0.7622	0.7567
Malaysia	2006	0.7662	0.7607
Malaysia	2007	0.7706	0.7651
Malaysia	2008	0.7745	0.7689
Malaysia	2009	0.7751	0.7695
Malaysia	2010	0.7802	0.7746
Malaysia	2011	0.7830	0.7774
Mauritania	1980		
Mauritania	1981		
Mauritania	1982		
Mauritania	1983		
Mauritania	1984		
Mauritania	1985		
Mauritania	1986	0.3678	0.3641
Mauritania	1987	0.3721	0.3684
Mauritania	1988	0.3747	0.3709
Mauritania	1989	0.3765	0.3727

Mauritania	1990	0.3733	0.3695
Mauritania	1991	0.3771	0.3737
Mauritania	1992	0.3841	0.3807
Mauritania	1993	0.3950	0.3915
Mauritania	1994	0.4032	0.3996
Mauritania	1995	0.4103	0.4066
Mauritania	1996	0.4170	0.4132
Mauritania	1997	0.4183	0.4145
Mauritania	1998	0.4236	0.4198
Mauritania	1999	0.4316	0.4278
Mauritania	2000	0.4319	0.4280
Mauritania	2001	0.4334	0.4295
Mauritania	2002	0.4350	0.4276
Mauritania	2003	0.4405	0.4331
Mauritania	2004	0.4485	0.4410
Mauritania	2005	0.4539	0.4462
Mauritania	2006	0.4663	0.4585
Mauritania	2007	0.4688	0.4609
Mauritania	2008	0.4689	0.4611
Mauritania	2009	0.4750	0.4670
Mauritania	2010	0.4804	0.4724
Mauritania	2011	0.4835	0.4754
Norway	1980	0.8122	0.8081
Norway	1981	0.8137	0.8095
Norway	1982	0.8173	0.8131
Norway	1983	0.8233	0.8190
Norway	1984	0.8290	0.8248
Norway	1985	0.8325	0.8282
Norway	1986	0.8376	0.8333
Norway	1987	0.8399	0.8355
Norway	1988	0.8419	0.8375
Norway	1989	0.8473	0.8429
Norway	1990	0.8555	0.8511
Norway	1991	0.8632	0.8588
Norway	1992	0.8698	0.8650
Norway	1993	0.8771	0.8723
Norway	1994	0.8931	0.8882
Norway	1995	0.8913	0.8864
Norway	1996	0.8980	0.8931
Norway	1997	0.9034	0.8984
Norway	1998	0.9146	0.9096
Norway	1999	0.9181	0.9130
Norway	2000	0.9252	0.9201
Norway	2001	0.9259	0.9208
Norway	2002	0.9304	0.9271
Norway	2003	0.9389	0.9356

Norway	2004	0.9470	0.9437
Norway	2005	0.9504	0.9470
Norway	2006	0.9533	0.9499
Norway	2007	0.9537	0.9503
Norway	2008	0.9520	0.9486
Norway	2009	0.9509	0.9475
Norway	2010	0.9531	0.9497
Norway	2011	0.9546	0.9512
Qatar	1980		0.0000
Qatar	1981		0.0000
Qatar	1982		0.0000
Qatar	1983		0.0000
Qatar	1984		0.0000
Qatar	1985		0.0000
Qatar	1986		0.0000
Qatar	1987		0.0000
Qatar	1988		0.0000
Qatar	1989		0.0000
Qatar	1990		0.0000
Qatar	1991		0.0000
Qatar	1992		0.0000
Qatar	1993		0.0000
Qatar	1994		0.0000
Qatar	1995		0.0000
Qatar	1996		0.0000
Qatar	1997		0.0000
Qatar	1998		0.0000
Qatar	1999		0.0000
Qatar	2000	0.8045	0.8000
Qatar	2001	0.8030	0.7985
Qatar	2002	0.8144	0.8115
Qatar	2003	0.8276	0.8246
Qatar	2004	0.8325	0.8295
Qatar	2005	0.8305	0.8275
Qatar	2006	0.8298	0.8268
Qatar	2007	0.8283	0.8254
Qatar	2008	0.8271	0.8241
Qatar	2009	0.8265	0.8236
Qatar	2010	0.8311	0.8282
Qatar	2011	0.8427	0.8398
Timor-Leste	1980		0.0000
Timor-Leste	1981		0.0000
Timor-Leste	1982		0.0000
Timor-Leste	1983		0.0000
Timor-Leste	1984		0.0000
Timor-Leste	1985		0.0000

Timor-Leste	1986		0.0000
Timor-Leste	1987		0.0000
Timor-Leste	1988		0.0000
Timor-Leste	1989		0.0000
Timor-Leste	1990		0.0000
Timor-Leste	1991		0.0000
Timor-Leste	1992		0.0000
Timor-Leste	1993		0.0000
Timor-Leste	1994		0.0000
Timor-Leste	1995		0.0000
Timor-Leste	1996		0.0000
Timor-Leste	1997		0.0000
Timor-Leste	1998		0.0000
Timor-Leste	1999		0.0000
Timor-Leste	2000	0.4180	0.4142
Timor-Leste	2001	0.4125	0.4056
Timor-Leste	2002	0.4154	0.4084
Timor-Leste	2003	0.4147	0.4078
Timor-Leste	2004	0.4187	0.4117
Timor-Leste	2005	0.4287	0.4215
Timor-Leste	2006	0.4265	0.4194
Timor-Leste	2007	0.4378	0.4305
Timor-Leste	2008	0.4462	0.4387
Timor-Leste	2009	0.4534	0.4458
Timor-Leste	2010	0.4586	0.4509
Timor-Leste	2011	0.4647	0.4569
Trinidad and Tobago	1980	0.6942	0.6849
Trinidad and Tobago	1981	0.6973	0.6880
Trinidad and Tobago	1982	0.7028	0.6935
Trinidad and Tobago	1983	0.7001	0.6908
Trinidad and Tobago	1984	0.6975	0.6883
Trinidad and Tobago	1985	0.6972	0.6879
Trinidad and Tobago	1986	0.6976	0.6884
Trinidad and Tobago	1987	0.7000	0.6907
Trinidad and Tobago	1988	0.7008	0.6915
Trinidad and Tobago	1989	0.7007	0.6914
Trinidad and Tobago	1990	0.7009	0.6915
Trinidad and Tobago	1991	0.7019	0.6930
Trinidad and Tobago	1992	0.7011	0.6923
Trinidad and Tobago	1993	0.7012	0.6923
Trinidad and Tobago	1994	0.7047	0.6958
Trinidad and Tobago	1995	0.7084	0.6994
Trinidad and Tobago	1996	0.7116	0.7078
Trinidad and Tobago	1997	0.7142	0.7104
Trinidad and Tobago	1998	0.7190	0.7152
Trinidad and Tobago	1999	0.7222	0.7184

Trinidad and Tobago	2000	0.7247	0.7208
Trinidad and Tobago	2001	0.7284	0.7245
Trinidad and Tobago	2002	0.7286	0.7234
Trinidad and Tobago	2003	0.7402	0.7349
Trinidad and Tobago	2004	0.7485	0.7431
Trinidad and Tobago	2005	0.7544	0.7490
Trinidad and Tobago	2006	0.7622	0.7567
Trinidad and Tobago	2007	0.7662	0.7607
Trinidad and Tobago	2008	0.7696	0.7641
Trinidad and Tobago	2009	0.7694	0.7639
Trinidad and Tobago	2010	0.7713	0.7657
Trinidad and Tobago	2011	0.7709	0.7654
Venezuela	1980	0.6460	0.6374
Venezuela	1981	0.6467	0.6381
Venezuela	1982	0.6470	0.6384
Venezuela	1983	0.6454	0.6368
Venezuela	1984	0.6458	0.6372
Venezuela	1985	0.6462	0.6376
Venezuela	1986	0.6498	0.6412
Venezuela	1987	0.6483	0.6397
Venezuela	1988	0.6494	0.6408
Venezuela	1989	0.6437	0.6352
Venezuela	1990	0.6461	0.6375
Venezuela	1991	0.6541	0.6458
Venezuela	1992	0.6591	0.6508
Venezuela	1993	0.6607	0.6523
Venezuela	1994	0.6610	0.6526
Venezuela	1995	0.6630	0.6546
Venezuela	1996	0.6639	0.6554
Venezuela	1997	0.6677	0.6592
Venezuela	1998	0.6686	0.6601
Venezuela	1999	0.6663	0.6578
Venezuela	2000	0.6698	0.6613
Venezuela	2001	0.6795	0.6709
Venezuela	2002	0.6828	0.6739
Venezuela	2003	0.6763	0.6675
Venezuela	2004	0.6889	0.6799
Venezuela	2005	0.7009	0.6917
Venezuela	2006	0.7135	0.7084
Venezuela	2007	0.7255	0.7204
Venezuela	2008	0.7358	0.7305
Venezuela	2009	0.7372	0.7320
Venezuela	2010	0.7404	0.7351
Venezuela	2011	0.7425	0.7372
Vietnam	1980		0.0000
Vietnam	1981		0.0000

Vietnam	1982		0.0000
Vietnam	1983		0.0000
Vietnam	1984	0.4367	0.4323
Vietnam	1985	0.4387	0.4343
Vietnam	1986	0.4394	0.4350
Vietnam	1987	0.4405	0.4361
Vietnam	1988	0.4427	0.4383
Vietnam	1989	0.4463	0.4419
Vietnam	1990	0.4487	0.4442
Vietnam	1991	0.4582	0.4541
Vietnam	1992	0.4701	0.4659
Vietnam	1993	0.4814	0.4771
Vietnam	1994	0.4929	0.4885
Vietnam	1995	0.5045	0.5000
Vietnam	1996	0.5161	0.5115
Vietnam	1997	0.5268	0.5221
Vietnam	1998	0.5340	0.5272
Vietnam	1999	0.5407	0.5338
Vietnam	2000	0.5487	0.5417
Vietnam	2001	0.5574	0.5503
Vietnam	2002	0.5660	0.5586
Vietnam	2003	0.5747	0.5672
Vietnam	2004	0.5834	0.5758
Vietnam	2005	0.5923	0.5846
Vietnam	2006	0.6005	0.5927
Vietnam	2007	0.6096	0.6017
Vietnam	2008	0.6166	0.6085
Vietnam	2009	0.6229	0.6148
Vietnam	2010	0.6319	0.6237
Vietnam	2011	0.6357	0.6274

Appendix I: Human Development Index and Associated Success Factors For Regression Analysis (unedited)

Country	Year	HDI	SWF	Governance	Transparency	Accountability	Local Investment	Institutions
Algeria	1980		0					
Algeria	1981		0					
Algeria	1982		0					
Algeria	1983		0					
Algeria	1984		0					
Algeria	1985		0					
Algeria	1986		0					
Algeria	1987	0.5734	0					
Algeria	1988	0.5805	0					
Algeria	1989	0.5877	0					
Algeria	1990	0.5925	0					
Algeria	1991	0.5960	0					
Algeria	1992	0.6011	0					
Algeria	1993	0.6033	0		0.1700			
Algeria	1994	0.6068	0		0.0100			
Algeria	1995	0.6118	0		0.0100		0.3951	
Algeria	1996	0.6183	0	0.2708	0.0100	0.2469	0.3736	
Algeria	1997	0.6257	0	0.2627	0.0300	0.2359	0.3838	
Algeria	1998	0.6313	0	0.2534	0.1700	0.2249	0.3810	
Algeria	1999	0.6400	0	0.2708	0.1700	0.2415	0.3475	
Algeria	2000	0.6462	1	0.2838	0.2600	0.2581	0.3475	
Algeria	2001	0.6525	1	0.2972	0.3800	0.2671	0.3615	
Algeria	2002	0.6612	1	0.3079	0.3800	0.2761	0.3601	
Algeria	2003	0.6699	1	0.3137	0.3700	0.2725	0.3511	
Algeria	2004	0.6785	1	0.3481	0.3600	0.3370	0.3307	
Algeria	2005	0.6858	1	0.3809	0.3900	0.3474	0.3122	0.2914
Algeria	2006	0.6899	1	0.3621	0.3800	0.3122	0.3127	0.2914
Algeria	2007	0.6960	1	0.3532	0.3800	0.2979	0.3292	0.3024
Algeria	2008	0.7030	1	0.3460	0.3800	0.3005	0.3349	0.3024
Algeria	2009	0.7099	1	0.3262	0.3600	0.2899	0.3709	0.4182
Algeria	2010	0.7163	1	0.3246	0.3800	0.2951	0.3615	0.4182
Algeria	2011	0.7193	1	0.3117	0.3800	0.2947	0.3439	0.4182
Australia	1980		0					
Australia	1981		0					
Australia	1982		0					
Australia	1983		0					
Australia	1984		0					
Australia	1985		0					
Australia	1986		0					
Australia	1987		0					
Australia	1988		0					
Australia	1989		0					
Australia	1990		0					

Australia	1991		0					
Australia	1992		0					
Australia	1993	0.8929	0		0.9100			
Australia	1994	0.8946	0		0.9300			
Australia	1995	0.9086	0		0.9200		0.5073	
Australia	1996	0.9158	0	0.8098	0.9000	0.7922	0.5193	
Australia	1997	0.9254	0	0.8056	0.9000	0.7895	0.5170	
Australia	1998	0.9268	0	0.8011	0.9000	0.7868	0.5180	
Australia	1999	0.9332	0	0.8156	0.9000	0.7947	0.5180	
Australia	2000	0.9373	0	0.8299	0.9000	0.8027	0.5227	
Australia	2001	0.9374	0	0.8195	0.9000	0.7935	0.5266	
Australia	2002	0.9451	0	0.8089	0.8600	0.7843	0.5342	
Australia	2003	0.9487	0	0.8170	0.8600	0.7869	0.5329	
Australia	2004	0.9483	0	0.8400	0.8200	0.8045	0.5412	
Australia	2005	0.9404	0	0.8135	0.8100	0.8049	0.5382	0.7927
Australia	2006	0.9422	1	0.8177	0.7900	0.7815	0.5306	0.7984
Australia	2007	0.9459	1	0.8243	0.7900	0.7768	0.5269	0.7984
Australia	2008	0.9483	1	0.8290	0.7800	0.7782	0.5316	0.7984
Australia	2009	0.9525	1	0.8173	0.7800	0.7793	0.5667	0.7984
Australia	2010	0.9573	1	0.8179	0.7900	0.7865	0.5667	0.7984
Australia	2011	0.9588	1	0.8288	0.7900	0.7864	0.5667	0.7984
Bahrain	1980	0.6708	0					
Bahrain	1981	0.6746	0					
Bahrain	1982	0.6790	0					
Bahrain	1983	0.6950	0					
Bahrain	1984	0.7005	0					
Bahrain	1985	0.7105	0					
Bahrain	1986	0.7183	0					
Bahrain	1987	0.7220	0					
Bahrain	1988	0.7281	0					
Bahrain	1989	0.7334	0					
Bahrain	1990	0.7382	0					
Bahrain	1991	0.7497	0					
Bahrain	1992	0.7541	0					
Bahrain	1993	0.7656	0		0.4000			
Bahrain	1994	0.7702	0		0.4300			
Bahrain	1995	0.7766	0		0.4000			
Bahrain	1996	0.7797	0	0.5326	0.3400	0.3511		
Bahrain	1997	0.7807	0	0.5432	0.3400	0.3139		
Bahrain	1998	0.7847	0	0.5533	0.3100	0.2767		
Bahrain	1999	0.7858	0	0.5650	0.2500	0.2778		
Bahrain	2000	0.7936	0	0.5763	0.2500	0.2789		
Bahrain	2001	0.7999	0	0.5966	0.2500	0.3276		
Bahrain	2002	0.8062	0	0.6166	0.3200	0.3763		
Bahrain	2003	0.8131	0	0.6031	0.3000	0.3627		
Bahrain	2004	0.8170	0	0.6148	0.2900	0.3767		
Bahrain	2005	0.8164	0	0.5848	0.2800	0.3389		
Bahrain	2006	0.8139	1	0.5497	0.2900	0.3170	0.2898	
Bahrain	2007	0.8156	1	0.5672	0.2900	0.3260	0.2765	0.5824

Bahrain	2008	0.8165	1	0.5645	0.2900	0.3237	0.2894	0.5824
Bahrain	2009	0.8166	1	0.5767	0.2900	0.3437	0.3036	0.5824
Bahrain	2010	0.8182	1	0.5589	0.2800	0.3103	0.2959	0.5824
Bahrain	2011	0.8188	1	0.5450	0.1600	0.2657	0.2778	0.5824
Botswana	1980	0.4768	0					
Botswana	1981	0.4926	0					
Botswana	1982	0.5098	0					
Botswana	1983	0.5268	0					
Botswana	1984	0.5438	0					
Botswana	1985	0.5596	0					
Botswana	1986	0.5718	0					
Botswana	1987	0.5847	0					
Botswana	1988	0.6017	0					
Botswana	1989	0.6153	0					
Botswana	1990	0.6250	0					
Botswana	1991	0.6322	0					
Botswana	1992	0.6322	0					
Botswana	1993	0.6301	0		0.8100			
Botswana	1994	0.6265	1		0.7200		0.4585	
Botswana	1995	0.6267	1		0.7000		0.4650	
Botswana	1996	0.6227	1	0.6284	0.7000	0.6737	0.4703	
Botswana	1997	0.6197	1	0.6315	0.7000	0.6595	0.4915	
Botswana	1998	0.6163	1	0.6344	0.7000	0.6453	0.4717	
Botswana	1999	0.6109	1	0.6329	0.7200	0.6372	0.4705	
Botswana	2000	0.6068	1	0.6313	0.7300	0.6291	0.5285	
Botswana	2001	0.6033	1	0.6309	0.7000	0.6298	0.5589	
Botswana	2002	0.6050	1	0.6303	0.7000	0.6304	0.5947	
Botswana	2003	0.6086	1	0.6789	0.7000	0.6383	0.5984	
Botswana	2004	0.6147	1	0.6475	0.7000	0.6453	0.7138	
Botswana	2005	0.6212	1	0.6635	0.6500	0.6150	0.6893	0.6555
Botswana	2006	0.6274	1	0.6335	0.6500	0.5971	0.6146	0.6489
Botswana	2007	0.6368	1	0.6381	0.6400	0.5960	0.6332	0.6489
Botswana	2008	0.6429	1	0.6434	0.6300	0.5965	0.4930	0.6604
Botswana	2009	0.6421	1	0.6402	0.6100	0.5825	0.5152	0.6500
Botswana	2010	0.6467	1	0.6418	0.6000	0.5859	0.5293	0.6500
Botswana	2011	0.6491	1	0.6465	0.6000	0.5849	0.5251	0.6546
Brunei	1980	0.7798	0					
Brunei	1981	0.7731	0					
Brunei	1982	0.7766	0					
Brunei	1983	0.7788	1					
Brunei	1984	0.7821	1					
Brunei	1985	0.7815	1					
Brunei	1986	0.7804	1					
Brunei	1987	0.7855	1					
Brunei	1988	0.7901	1					
Brunei	1989	0.7937	1					
Brunei	1990	0.7982	1					
Brunei	1991	0.8026	1					
Brunei	1992	0.8076	1					

Brunei	1993	0.8118	1		0.3400			
Brunei	1994	0.8155	1		0.2700			
Brunei	1995	0.8196	1		0.2600		0.3094	
Brunei	1996	0.8227	1	0.6954	0.2600	0.3602	0.3540	
Brunei	1997	0.8239	1	0.6719	0.2600	0.3510	0.3615	
Brunei	1998	0.8255	1	0.6479	0.2600	0.3418	0.4022	
Brunei	1999	0.8317	1	0.6515	0.2600	0.3442	0.3745	
Brunei	2000	0.8342	1	0.6550	0.2600	0.3465	0.2781	
Brunei	2001	0.8363	1	0.6517	0.2200	0.3317	0.2795	
Brunei	2002	0.8403	1	0.6483	0.2400	0.3169	0.2703	
Brunei	2003	0.8457	1	0.6430	0.2600	0.3158	0.2628	
Brunei	2004	0.8506	1	0.6370	0.2500	0.3286	0.2524	
Brunei	2005	0.8538	1	0.6285	0.2300	0.3269	0.2293	
Brunei	2006	0.8589	1	0.6318	0.2400	0.2816	0.2079	0.3320
Brunei	2007	0.8592	1	0.6470	0.2500	0.2958	0.2065	0.3320
Brunei	2008	0.8586	1	0.6533	0.2500	0.3015	0.1968	0.3320
Brunei	2009	0.8599	1	0.7058	0.2500	0.3477	0.2163	0.3320
Brunei	2010	0.8612	1	0.6951	0.2500	0.3653	0.2048	0.3868
Brunei	2011	0.8630	1	0.6952	0.2500	0.3744	0.2510	0.3868
Chile	1980	0.6529	0					
Chile	1981	0.6594	0					
Chile	1982	0.6569	0					
Chile	1983	0.6619	0					
Chile	1984	0.6707	0					
Chile	1985	0.6809	0					
Chile	1986	0.6881	0					
Chile	1987	0.6948	0					
Chile	1988	0.7017	0					
Chile	1989	0.7123	0					
Chile	1990	0.7192	0					
Chile	1991	0.7275	0					
Chile	1992	0.7347	0					
Chile	1993	0.7287	0		0.7000			
Chile	1994	0.7342	0		0.7000			
Chile	1995	0.7423	0		0.7200		0.3447	
Chile	1996	0.7486	0	0.7381	0.7000	0.6307	0.3737	
Chile	1997	0.7547	0	0.7155	0.7300	0.6145	0.3868	
Chile	1998	0.7592	0	0.6916	0.7300	0.5982	0.4208	
Chile	1999	0.7645	0	0.7093	0.7300	0.6329	0.4504	
Chile	2000	0.7699	0	0.7262	0.7300	0.6677	0.4444	
Chile	2001	0.7757	0	0.7417	0.7800	0.6895	0.4505	
Chile	2002	0.7807	0	0.7564	0.7800	0.7113	0.4542	
Chile	2003	0.7873	0	0.7383	0.7700	0.6957	0.4329	
Chile	2004	0.7962	0	0.7376	0.7600	0.7333	0.4013	
Chile	2005	0.8046	0	0.7479	0.7400	0.7488	0.3821	0.6658
Chile	2006	0.8084	1	0.7295	0.7000	0.7087	0.3614	0.6658
Chile	2007	0.8168	1	0.7239	0.7000	0.7139	0.3819	0.6658
Chile	2008	0.8215	1	0.7257	0.7100	0.6979	0.4324	0.6658
Chile	2009	0.8224	1	0.7301	0.7000	0.6966	0.4745	0.6658

Chile	2010	0.8289	1	0.7403	0.7100	0.7123	0.4639	0.6755
Chile	2011	0.8342	1	0.7444	0.6900	0.7116	0.4613	0.6846
Eq Guinea	1980		0					
Eq Guinea	1981		0					
Eq Guinea	1982		0					
Eq Guinea	1983		0					
Eq Guinea	1984		0					
Eq Guinea	1985		0					
Eq Guinea	1986		0					
Eq Guinea	1987		0					
Eq Guinea	1988		0					
Eq Guinea	1989		0					
Eq Guinea	1990		0					
Eq Guinea	1991		0					
Eq Guinea	1992		0					
Eq Guinea	1993		0		0.2400			
Eq Guinea	1994		0		0.2600			
Eq Guinea	1995		0		0.2200			
Eq Guinea	1996		0	0.2758	0.2200	0.1926		
Eq Guinea	1997		0	0.2606	0.2200	0.1891		
Eq Guinea	1998		0	0.2442	0.2200	0.1855	0.2546	
Eq Guinea	1999	0.5109	0	0.2384	0.2200	0.1812	0.1402	
Eq Guinea	2000	0.5145	0	0.2314	0.2100	0.1769	0.0952	
Eq Guinea	2001	0.5305	0	0.2397	0.2000	0.1750	0.0896	
Eq Guinea	2002	0.5312	1	0.2462	0.1900	0.1731	0.1254	
Eq Guinea	2003	0.5355	1	0.2615	0.1100	0.1600	0.1007	
Eq Guinea	2004	0.5466	1	0.2331	0.1200	0.1717		
Eq Guinea	2005	0.5503	1	0.2351	0.1200	0.1667		0.3106
Eq Guinea	2006	0.5450	1	0.2499	0.1100	0.1389		0.4598
Eq Guinea	2007	0.5525	1	0.2506	0.1100	0.1224		0.4598
Eq Guinea	2008	0.5585	1	0.2531	0.1000	0.1203		0.4598
Eq Guinea	2009	0.5597	1	0.2561	0.1000	0.1372		0.4598
Eq Guinea	2010	0.5600	1	0.2507	0.1000	0.1264		0.4598
Eq Guinea	2011	0.5624	1	0.2522	0.0900	0.1293		0.4598
Gabon	1980	0.5685	0					
Gabon	1981	0.5792	0					
Gabon	1982	0.5867	0					
Gabon	1983	0.5972	0					
Gabon	1984	0.6089	0					
Gabon	1985	0.6180	0					
Gabon	1986	0.6240	0					
Gabon	1987	0.6241	0					
Gabon	1988	0.6281	0					
Gabon	1989	0.6357	0					
Gabon	1990	0.6409	0					
Gabon	1991	0.6464	0					
Gabon	1992	0.6473	0					
Gabon	1993	0.6509	0		0.4200			
Gabon	1994	0.6540	0		0.4800			

Gabon	1995	0.6564	0		0.5100		0.2542	
Gabon	1996	0.6580	0	0.4138	0.5000	0.4359	0.2566	
Gabon	1997	0.6601	0	0.4236	0.5000	0.4276	0.2411	
Gabon	1998	0.6601	1	0.4325	0.4800	0.4194	0.2889	
Gabon	1999	0.6552	1	0.4450	0.4500	0.4113	0.2530	
Gabon	2000	0.6513	1	0.4562	0.4500	0.4032	0.2575	
Gabon	2001	0.6544	1	0.4588	0.4800	0.3965		
Gabon	2002	0.6570	1	0.4610	0.4200	0.3898		
Gabon	2003	0.6615	1	0.4470	0.3800	0.3646		
Gabon	2004	0.6663	1	0.4060	0.3400	0.3389		
Gabon	2005	0.6724	1	0.4228	0.3300	0.3249		0.6395
Gabon	2006	0.6760	1	0.3817	0.3100	0.3084		0.6395
Gabon	2007	0.6818	1	0.3812	0.3100	0.3252		0.6395
Gabon	2008	0.6856	1	0.3780	0.3100	0.3313		0.6150
Gabon	2009	0.6875	1	0.3807	0.2900	0.2964		0.6150
Gabon	2010	0.6936	1	0.3944	0.3100	0.3186		0.6150
Gabon	2011	0.6978	1	0.3970	0.3000	0.3145		0.6150
Indonesia	1980	0.4405	0					
Indonesia	1981	0.4465	0					
Indonesia	1982	0.4519	0					
Indonesia	1983	0.4610	0					
Indonesia	1984	0.4687	0					
Indonesia	1985	0.4745	0					
Indonesia	1986	0.4815	0					
Indonesia	1987	0.4882	0					
Indonesia	1988	0.4933	0					
Indonesia	1989	0.4998	0					
Indonesia	1990	0.5041	0					
Indonesia	1991	0.5099	0					
Indonesia	1992	0.5147	0					
Indonesia	1993	0.5203	0		0.4200			
Indonesia	1994	0.5280	0		0.2900			
Indonesia	1995	0.5361	0		0.2600		0.1493	
Indonesia	1996	0.5443	0	0.3967	0.2300	0.3383	0.1571	
Indonesia	1997	0.5499	0	0.3511	0.2300	0.3151	0.1603	
Indonesia	1998	0.5453	0	0.3031	0.4700	0.2919	0.1721	
Indonesia	1999	0.5488	0	0.3002	0.5100	0.3515	0.1861	
Indonesia	2000	0.5544	0	0.2935	0.5300	0.4111	0.1777	
Indonesia	2001	0.5604	0	0.2983	0.4700	0.4164	0.1953	
Indonesia	2002	0.5663	0	0.2959	0.4400	0.4217	0.2027	
Indonesia	2003	0.5734	0	0.2533	0.4500	0.4235	0.2380	
Indonesia	2004	0.5798	0	0.2937	0.4200	0.4417	0.2126	
Indonesia	2005	0.5849	0	0.3248	0.4200	0.4681	0.2375	0.6285
Indonesia	2006	0.5918	1	0.3486	0.4600	0.4698	0.2712	0.6285
Indonesia	2007	0.6038	1	0.3733	0.4600	0.4827	0.2575	0.6285
Indonesia	2008	0.6098	1	0.3838	0.4600	0.4843	0.2394	0.6410
Indonesia	2009	0.6190	1	0.3880	0.4800	0.4898	0.2646	0.6523
Indonesia	2010	0.6271	1	0.3853	0.4700	0.4824	0.2436	0.6523
Indonesia	2011	0.6343	1	0.3892	0.5100	0.4835	0.2285	0.6628

Kazakhstan	1980		0					
Kazakhstan	1981		0					
Kazakhstan	1982		0					
Kazakhstan	1983		0					
Kazakhstan	1984		0					
Kazakhstan	1985		0					
Kazakhstan	1986		0					
Kazakhstan	1987		0					
Kazakhstan	1988		0					
Kazakhstan	1989		0					
Kazakhstan	1990	0.6823	0					
Kazakhstan	1991	0.6764	0					
Kazakhstan	1992	0.6751	0					
Kazakhstan	1993	0.6667	0		0.4000			
Kazakhstan	1994	0.6561	0		0.3900			
Kazakhstan	1995	0.6518	0		0.3800		0.3597	
Kazakhstan	1996	0.6519	0	0.3260	0.3600	0.2990	0.3440	
Kazakhstan	1997	0.6585	0	0.3459	0.3400	0.3260	0.3767	
Kazakhstan	1998	0.6617	0	0.3650	0.3200	0.3529	0.3724	
Kazakhstan	1999	0.6714	0	0.3599	0.3200	0.3305	0.3439	
Kazakhstan	2000	0.6816	1	0.3543	0.3000	0.3081	0.3067	
Kazakhstan	2001	0.6955	1	0.3503	0.3100	0.2955	0.2752	
Kazakhstan	2002	0.7057	1	0.3458	0.2700	0.2830	0.2758	
Kazakhstan	2003	0.7156	1	0.3744	0.2600	0.2709	0.2604	
Kazakhstan	2004	0.7251	1	0.3634	0.2500	0.2752	0.2488	
Kazakhstan	2005	0.7346	1	0.3906	0.2500	0.2996	0.2529	0.3374
Kazakhstan	2006	0.7429	1	0.3906	0.2400	0.2670	0.2681	0.3374
Kazakhstan	2007	0.7491	1	0.4030	0.2200	0.2698	0.2593	0.3374
Kazakhstan	2008	0.7534	1	0.4158	0.2200	0.2847	0.2638	0.3558
Kazakhstan	2009	0.7592	1	0.4331	0.2200	0.2804	0.3085	0.3858
Kazakhstan	2010	0.7623	1	0.4180	0.2000	0.2699	0.3015	0.4703
Kazakhstan	2011	0.7708	1	0.4007	0.1900	0.2618	0.2887	0.4703
Malaysia	1980	0.5960	0					
Malaysia	1981	0.6039	0					
Malaysia	1982	0.6113	0					
Malaysia	1983	0.6204	0					
Malaysia	1984	0.6288	0					
Malaysia	1985	0.6316	0					
Malaysia	1986	0.6343	0					
Malaysia	1987	0.6390	0					
Malaysia	1988	0.6433	0					
Malaysia	1989	0.6470	0					
Malaysia	1990	0.6506	0					
Malaysia	1991	0.6609	0					
Malaysia	1992	0.6713	0					
Malaysia	1993	0.6799	1		0.4200		0.3059	
Malaysia	1994	0.6891	1		0.3600		0.3075	
Malaysia	1995	0.6985	1		0.3900		0.2955	
Malaysia	1996	0.7123	1	0.6206	0.3900	0.4874	0.3135	

Malaysia	1997	0.7174	1	0.6013	0.3900	0.4621	0.2930	
Malaysia	1998	0.7219	1	0.5807	0.3400	0.4368	0.3258	
Malaysia	1999	0.7275	1	0.5845	0.3000	0.4346	0.3490	
Malaysia	2000	0.7367	1	0.5878	0.3000	0.4324	0.3591	
Malaysia	2001	0.7389	1	0.5969	0.2900	0.4181	0.4307	
Malaysia	2002	0.7444	1	0.6053	0.2900	0.4038	0.4394	
Malaysia	2003	0.7544	1	0.6250	0.3100	0.3955	0.4682	
Malaysia	2004	0.7613	1	0.6152	0.3100	0.4492	0.4007	
Malaysia	2005	0.7622	1	0.6226	0.3500	0.4626	0.3588	0.6769
Malaysia	2006	0.7662	1	0.6077	0.3200	0.3965	0.3491	0.6769
Malaysia	2007	0.7706	1	0.6050	0.3500	0.3967	0.3394	0.6769
Malaysia	2008	0.7745	1	0.5751	0.3500	0.3890	0.3226	0.6769
Malaysia	2009	0.7751	1	0.5628	0.3600	0.4002	0.4362	0.6769
Malaysia	2010	0.7802	1	0.5954	0.3600	0.4020	0.3957	0.6877
Malaysia	2011	0.7830	1	0.5890	0.3700	0.4112	0.3573	0.7450
Mauritania	1980		0					
Mauritania	1981		0					
Mauritania	1982		0					
Mauritania	1983		0					
Mauritania	1984		0					
Mauritania	1985		0					
Mauritania	1986	0.3678	0					
Mauritania	1987	0.3721	0					
Mauritania	1988	0.3747	0					
Mauritania	1989	0.3765	0					
Mauritania	1990	0.3733	0					
Mauritania	1991	0.3771	0					
Mauritania	1992	0.3841	0					
Mauritania	1993	0.3950	0		0.3200			
Mauritania	1994	0.4032	0		0.2300			
Mauritania	1995	0.4103	0		0.2900			
Mauritania	1996	0.4170	0	0.4636	0.2900	0.3930		
Mauritania	1997	0.4183	0	0.4592	0.2900	0.3736	0.2546	
Mauritania	1998	0.4236	0	0.4546	0.2900	0.3542	0.2842	
Mauritania	1999	0.4316	0	0.4569	0.3300	0.3420	0.3172	
Mauritania	2000	0.4319	0	0.4590	0.3300	0.3298	0.3306	
Mauritania	2001	0.4334	0	0.4853	0.3900	0.3306	0.3070	
Mauritania	2002	0.4350	0	0.5096	0.3900	0.3315	0.3558	
Mauritania	2003	0.4405	0	0.4833	0.3600	0.3264	0.3408	
Mauritania	2004	0.4485	0	0.4307	0.3500	0.2710	0.3209	
Mauritania	2005	0.4539	0	0.4204	0.4300	0.3062	0.2972	0.4757
Mauritania	2006	0.4663	1	0.4016	0.4500	0.3234	0.2477	0.4757
Mauritania	2007	0.4688	1	0.3906	0.4400	0.3583	0.3147	0.4904
Mauritania	2008	0.4689	1	0.3369	0.4200	0.3052	0.3472	0.5071
Mauritania	2009	0.4750	1	0.3413	0.4400	0.3052	0.3921	0.5122
Mauritania	2010	0.4804	1	0.3157	0.4700	0.3077	0.4242	0.5171
Mauritania	2011	0.4835	1	0.3243	0.4800	0.3092	0.3745	0.5347
Norway	1980	0.8122	0					
Norway	1981	0.8137	0					

Norway	1982	0.8173	0					
Norway	1983	0.8233	0					
Norway	1984	0.8290	0					
Norway	1985	0.8325	0					
Norway	1986	0.8376	0					
Norway	1987	0.8399	0					
Norway	1988	0.8419	0					
Norway	1989	0.8473	0					
Norway	1990	0.8555	1					
Norway	1991	0.8632	1					
Norway	1992	0.8698	1					
Norway	1993	0.8771	1		0.9000			
Norway	1994	0.8931	1		0.9200			
Norway	1995	0.8913	1		0.9500		0.7060	
Norway	1996	0.8980	1	0.8596	0.9500	0.8202	0.6635	
Norway	1997	0.9034	1	0.8595	0.9500	0.8132	0.6591	
Norway	1998	0.9146	1	0.8594	0.9500	0.8061	0.6945	
Norway	1999	0.9181	1	0.8492	0.9500	0.8102	0.6786	
Norway	2000	0.9252	1	0.8389	0.9500	0.8142	0.6203	
Norway	2001	0.9259	1	0.8423	0.9100	0.8073	0.6519	
Norway	2002	0.9304	1	0.8457	0.9100	0.8003	0.7177	
Norway	2003	0.9389	1	0.8323	0.9100	0.8014	0.7248	
Norway	2004	0.9470	1	0.8448	0.9000	0.8449	0.7034	
Norway	2005	0.9504	1	0.8375	0.9000	0.8270	0.6615	0.8389
Norway	2006	0.9533	1	0.8378	0.8900	0.8097	0.6211	0.8480
Norway	2007	0.9537	1	0.8339	0.9000	0.8111	0.6359	0.8389
Norway	2008	0.9520	1	0.8332	0.9000	0.8125	0.6165	0.8389
Norway	2009	0.9509	1	0.8297	0.9000	0.8115	0.7013	0.8389
Norway	2010	0.9531	1	0.8395	0.8900	0.8218	0.6703	0.8389
Norway	2011	0.9546	1	0.8413	0.9000	0.8261	0.6607	0.8389
Qatar	1980		0					
Qatar	1981		0					
Qatar	1982		0					
Qatar	1983		0					
Qatar	1984		0					
Qatar	1985		0					
Qatar	1986		0					
Qatar	1987		0					
Qatar	1988		0					
Qatar	1989		0					
Qatar	1990		0					
Qatar	1991		0					
Qatar	1992		0					
Qatar	1993		0		0.3600			
Qatar	1994		0		0.3600			
Qatar	1995		0		0.3800			
Qatar	1996		0	0.5223	0.4700	0.3615		
Qatar	1997		0	0.5562	0.3800	0.3550		
Qatar	1998		0	0.5882	0.3800	0.3484	0.2910	

Qatar	1999		0	0.5954	0.3800	0.3697	0.2595	
Qatar	2000	0.8045	0	0.6023	0.3800	0.3909	0.2165	
Qatar	2001	0.8030	0	0.6072	0.3800	0.3805	0.2251	
Qatar	2002	0.8144	0	0.6113	0.3900	0.3701	0.2220	
Qatar	2003	0.8276	0	0.6122	0.3900	0.3716	0.2617	
Qatar	2004	0.8325	0	0.6056	0.3800	0.4287	0.2316	
Qatar	2005	0.8305	1	0.6251	0.3900	0.4163	0.2155	
Qatar	2006	0.8298	1	0.6425	0.3700	0.3569	0.2030	
Qatar	2007	0.8283	1	0.6296	0.3600	0.3113	0.1953	0.6114
Qatar	2008	0.8271	1	0.6700	0.3500	0.3182	0.1787	0.5653
Qatar	2009	0.8265	1	0.7159	0.3400	0.3064	0.2118	0.6114
Qatar	2010	0.8311	1	0.6965	0.3400	0.3076	0.1872	0.5946
Qatar	2011	0.8427	1	0.6692	0.3300	0.3081	0.1806	0.6033
Timor-Leste	1980		0					
Timor-Leste	1981		0					
Timor-Leste	1982		0					
Timor-Leste	1983		0					
Timor-Leste	1984		0					
Timor-Leste	1985		0					
Timor-Leste	1986		0					
Timor-Leste	1987		0					
Timor-Leste	1988		0					
Timor-Leste	1989		0					
Timor-Leste	1990		0					
Timor-Leste	1991		0					
Timor-Leste	1992		0					
Timor-Leste	1993		0					
Timor-Leste	1994		0					
Timor-Leste	1995		0					
Timor-Leste	1996		0					
Timor-Leste	1997		0					
Timor-Leste	1998		0					
Timor-Leste	1999		0					
Timor-Leste	2000	0.4180	0			0.5378		
Timor-Leste	2001	0.4125	0			0.5544		
Timor-Leste	2002	0.4154	0	0.3218		0.5711		
Timor-Leste	2003	0.4147	0	0.3364		0.5408		
Timor-Leste	2004	0.4187	0	0.3614		0.4869		
Timor-Leste	2005	0.4287	1	0.3321		0.4579	0.7732	
Timor-Leste	2006	0.4265	1	0.2702		0.5086	0.8288	
Timor-Leste	2007	0.4378	1	0.2545		0.5235	0.7686	
Timor-Leste	2008	0.4462	1	0.2842		0.5389	0.7115	
Timor-Leste	2009	0.4534	1	0.2922		0.5143	0.7544	
Timor-Leste	2010	0.4586	1	0.2960		0.5062	0.6680	
Timor-Leste	2011	0.4647	1	0.3002		0.5191	0.5958	
Trinidad&Tobago	1980	0.6942	0					
Trinidad&Tobago	1981	0.6973	0					
Trinidad&Tobago	1982	0.7028	0					
Trinidad&Tobago	1983	0.7001	0					

Trinidad&Tobago	1984	0.6975	0					
Trinidad&Tobago	1985	0.6972	0					
Trinidad&Tobago	1986	0.6976	0					
Trinidad&Tobago	1987	0.7000	0					
Trinidad&Tobago	1988	0.7008	0					
Trinidad&Tobago	1989	0.7007	0					
Trinidad&Tobago	1990	0.7009	0					
Trinidad&Tobago	1991	0.7019	0					
Trinidad&Tobago	1992	0.7011	0					
Trinidad&Tobago	1993	0.7012	0		0.7100			
Trinidad&Tobago	1994	0.7047	0		0.7500			
Trinidad&Tobago	1995	0.7084	0		0.7400		0.3428	
Trinidad&Tobago	1996	0.7116	0	0.5838	0.7000	0.6290	0.3117	
Trinidad&Tobago	1997	0.7142	0	0.5875	0.7200	0.6475	0.3066	
Trinidad&Tobago	1998	0.7190	0	0.5898	0.7200	0.6660	0.2895	
Trinidad&Tobago	1999	0.7222	0	0.5760	0.7200	0.6363	0.3302	
Trinidad&Tobago	2000	0.7247	1	0.5614	0.7200	0.6065	0.3201	
Trinidad&Tobago	2001	0.7284	1	0.5502	0.7000	0.6059	0.3452	
Trinidad&Tobago	2002	0.7286	1	0.5387	0.7500	0.6054	0.3753	
Trinidad&Tobago	2003	0.7402	1	0.5375	0.7500	0.6172	0.3818	
Trinidad&Tobago	2004	0.7485	1	0.5293	0.7600	0.6142	0.3841	
Trinidad&Tobago	2005	0.7544	1	0.5172	0.7400	0.6192	0.4093	0.5621
Trinidad&Tobago	2006	0.7622	1	0.4942	0.7600	0.6158	0.3833	0.5479
Trinidad&Tobago	2007	0.7662	1	0.5045	0.7700	0.6020	0.3783	0.5479
Trinidad&Tobago	2008	0.7696	1	0.5016	0.7700	0.5984	0.3592	0.5479
Trinidad&Tobago	2009	0.7694	1	0.5074	0.7700	0.6078	0.4348	0.5479
Trinidad&Tobago	2010	0.7713	1	0.5017	0.7600	0.5991	0.4328	0.5602
Trinidad&Tobago	2011	0.7709	1	0.5121	0.7500	0.5994	0.4138	0.5559
Venezuela	1980	0.6460	0					
Venezuela	1981	0.6467	0					
Venezuela	1982	0.6470	0					
Venezuela	1983	0.6454	0					
Venezuela	1984	0.6458	0					
Venezuela	1985	0.6462	0					
Venezuela	1986	0.6498	0					
Venezuela	1987	0.6483	0					
Venezuela	1988	0.6494	0					
Venezuela	1989	0.6437	0					
Venezuela	1990	0.6461	0					
Venezuela	1991	0.6541	0					
Venezuela	1992	0.6591	0					
Venezuela	1993	0.6607	0		0.7000			
Venezuela	1994	0.6610	0		0.5100			
Venezuela	1995	0.6630	0		0.6900		0.3852	
Venezuela	1996	0.6639	0	0.3644	0.6800	0.4481	0.3456	
Venezuela	1997	0.6677	0	0.3624	0.6700	0.4691	0.3587	
Venezuela	1998	0.6686	1	0.3602	0.6700	0.4900	0.3826	
Venezuela	1999	0.6663	1	0.3605	0.6600	0.4802	0.4225	
Venezuela	2000	0.6698	1	0.3592	0.6600	0.4704	0.4180	

Venezuela	2001	0.6795	1	0.3234	0.5600	0.4316	0.4217	
Venezuela	2002	0.6828	1	0.2866	0.3200	0.3928	0.4046	
Venezuela	2003	0.6763	1	0.2738	0.3200	0.4068	0.4056	
Venezuela	2004	0.6889	1	0.2737	0.2800	0.3789	0.3895	
Venezuela	2005	0.7009	1	0.2811	0.2800	0.3616	0.3782	0.5062
Venezuela	2006	0.7135	1	0.2713	0.2600	0.3817	0.3823	0.5218
Venezuela	2007	0.7255	1	0.2519	0.2600	0.3534	0.3876	0.5338
Venezuela	2008	0.7358	1	0.2429	0.2700	0.3498	0.3769	0.5338
Venezuela	2009	0.7372	1	0.2285	0.2500	0.3264	0.3814	0.5338
Venezuela	2010	0.7404	1	0.2204	0.2400	0.3231	0.3652	0.5088
Venezuela	2011	0.7425	1	0.2269	0.2400	0.3152	0.3606	0.5088
Vietnam	1980		0					
Vietnam	1981		0					
Vietnam	1982		0					
Vietnam	1983		0					
Vietnam	1984	0.4367	0					
Vietnam	1985	0.4387	0					
Vietnam	1986	0.4394	0					
Vietnam	1987	0.4405	0					
Vietnam	1988	0.4427	0					
Vietnam	1989	0.4463	0					
Vietnam	1990	0.4487	0					
Vietnam	1991	0.4582	0					
Vietnam	1992	0.4701	0					
Vietnam	1993	0.4814	0		0.2900			
Vietnam	1994	0.4929	0		0.3200			
Vietnam	1995	0.5045	0		0.3200			
Vietnam	1996	0.5161	0	0.4384	0.3100	0.2841		
Vietnam	1997	0.5268	0	0.4364	0.2900	0.2517		
Vietnam	1998	0.5340	0	0.4342	0.2900	0.2192		
Vietnam	1999	0.5407	0	0.4286	0.2500	0.2347		
Vietnam	2000	0.5487	0	0.4228	0.2000	0.2502		
Vietnam	2001	0.5574	0	0.4184	0.1800	0.2253		
Vietnam	2002	0.5660	0	0.4138	0.1800	0.2004		
Vietnam	2003	0.5747	0	0.4200	0.1800	0.1879		
Vietnam	2004	0.5834	0	0.4130	0.1800	0.2251		
Vietnam	2005	0.5923	0	0.4401	0.2100	0.2166		0.6797
Vietnam	2006	0.6005	1	0.4318	0.2300	0.1929		0.6797
Vietnam	2007	0.6096	1	0.4377	0.1800	0.1958	0.5081	0.6797
Vietnam	2008	0.6166	1	0.4288	0.1700	0.2013	0.4955	0.6797
Vietnam	2009	0.6229	1	0.4349	0.1800	0.2096	0.5382	0.6797
Vietnam	2010	0.6319	1	0.4220	0.1700	0.2052	0.5578	0.6917
Vietnam	2011	0.6357	1	0.4253	0.1600	0.2033	0.5569	0.6917

Appendix J: Human Development Index and Associated Success Factors For Regression Analysis (edited)

HDI	Governance	Transparency	Accountability	Local Investment	Institutions
0.686	0.381	0.390	0.347	0.312	0.291
0.690	0.362	0.380	0.312	0.313	0.291
0.696	0.353	0.380	0.298	0.329	0.302
0.703	0.346	0.380	0.300	0.335	0.302
0.710	0.326	0.360	0.290	0.371	0.418
0.716	0.325	0.380	0.295	0.362	0.418
0.719	0.312	0.380	0.295	0.344	0.418
0.942	0.818	0.790	0.781	0.531	0.798
0.946	0.824	0.790	0.777	0.527	0.798
0.948	0.829	0.780	0.778	0.532	0.798
0.953	0.817	0.780	0.779	0.567	0.798
0.957	0.818	0.790	0.787	0.567	0.798
0.959	0.829	0.790	0.786	0.567	0.798
0.816	0.567	0.290	0.326	0.276	0.582
0.817	0.564	0.290	0.324	0.289	0.582
0.817	0.577	0.290	0.344	0.304	0.582
0.818	0.559	0.280	0.310	0.296	0.582
0.819	0.545	0.160	0.266	0.278	0.582
0.621	0.664	0.650	0.615	0.689	0.655
0.627	0.634	0.650	0.597	0.615	0.649
0.637	0.638	0.640	0.596	0.633	0.649
0.643	0.643	0.630	0.597	0.493	0.660
0.642	0.640	0.610	0.582	0.515	0.650
0.647	0.642	0.600	0.586	0.529	0.650
0.649	0.647	0.600	0.585	0.525	0.655
0.859	0.632	0.240	0.282	0.208	0.332
0.859	0.647	0.250	0.296	0.206	0.332
0.859	0.653	0.250	0.302	0.197	0.332
0.860	0.706	0.250	0.348	0.216	0.332
0.861	0.695	0.250	0.365	0.205	0.387
0.863	0.695	0.250	0.374	0.251	0.387
0.808	0.729	0.700	0.709	0.361	0.666
0.817	0.724	0.700	0.714	0.382	0.666
0.822	0.726	0.710	0.698	0.432	0.666
0.822	0.730	0.700	0.697	0.475	0.666
0.829	0.740	0.710	0.712	0.464	0.676
0.834	0.744	0.690	0.712	0.461	0.685
0.592	0.349	0.460	0.470	0.271	0.629
0.604	0.373	0.460	0.483	0.257	0.629
0.610	0.384	0.460	0.484	0.239	0.641
0.619	0.388	0.480	0.490	0.265	0.652
0.627	0.385	0.470	0.482	0.244	0.652
0.634	0.389	0.510	0.484	0.228	0.663
0.735	0.391	0.250	0.300	0.253	0.337

HDI	Governance	Transparency	Accountability	Local Investment	Institutions
0.743	0.391	0.240	0.267	0.268	0.337
0.749	0.403	0.220	0.270	0.259	0.337
0.753	0.416	0.220	0.285	0.264	0.356
0.759	0.433	0.220	0.280	0.308	0.386
0.762	0.418	0.200	0.270	0.301	0.470
0.771	0.401	0.190	0.262	0.289	0.470
0.762	0.623	0.350	0.463	0.359	0.677
0.766	0.608	0.320	0.396	0.349	0.677
0.771	0.605	0.350	0.397	0.339	0.677
0.774	0.575	0.350	0.389	0.323	0.677
0.775	0.563	0.360	0.400	0.436	0.677
0.780	0.595	0.360	0.402	0.396	0.688
0.783	0.589	0.370	0.411	0.357	0.745
0.466	0.402	0.450	0.323	0.248	0.476
0.469	0.391	0.440	0.358	0.315	0.490
0.469	0.337	0.420	0.305	0.347	0.507
0.475	0.341	0.440	0.305	0.392	0.512
0.480	0.316	0.470	0.308	0.424	0.517
0.484	0.324	0.480	0.309	0.374	0.535
0.950	0.838	0.900	0.827	0.661	0.839
0.953	0.838	0.890	0.810	0.621	0.848
0.954	0.834	0.900	0.811	0.636	0.839
0.952	0.833	0.900	0.812	0.617	0.839
0.951	0.830	0.900	0.811	0.701	0.839
0.953	0.840	0.890	0.822	0.670	0.839
0.955	0.841	0.900	0.826	0.661	0.839
0.828	0.630	0.360	0.311	0.195	0.611
0.827	0.670	0.350	0.318	0.179	0.565
0.827	0.716	0.340	0.306	0.212	0.611
0.831	0.696	0.340	0.308	0.187	0.595
0.843	0.669	0.330	0.308	0.181	0.603
0.754	0.517	0.740	0.619	0.409	0.562
0.762	0.494	0.760	0.616	0.383	0.548
0.766	0.504	0.770	0.602	0.378	0.548
0.770	0.502	0.770	0.598	0.359	0.548
0.769	0.507	0.770	0.608	0.435	0.548
0.771	0.502	0.760	0.599	0.433	0.560
0.771	0.512	0.750	0.599	0.414	0.556
0.701	0.281	0.280	0.362	0.378	0.506
0.714	0.271	0.260	0.382	0.382	0.522
0.726	0.252	0.260	0.353	0.388	0.534
0.736	0.243	0.270	0.350	0.377	0.534
0.737	0.229	0.250	0.326	0.381	0.534
0.740	0.220	0.240	0.323	0.365	0.509
0.743	0.227	0.240	0.315	0.361	0.509
0.610	0.438	0.180	0.196	0.508	0.680
0.617	0.429	0.170	0.201	0.496	0.680
0.623	0.435	0.180	0.210	0.538	0.680

HDI	Governance	Transparency	Accountability	Local Investment	Institutions
0.632	0.422	0.170	0.205	0.558	0.692
0.636	0.425	0.160	0.203	0.557	0.692