

Modeling The Africa Diaspora Pension Fund: Likely Financing Instrument for Africa's Development Infrastructure

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Patras Mazibuko

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Supervised by:

Main Supervisor: Prof Nicholas Biekpe

Co-Supervisor: Dr Sephooko Motelle

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ABSTRACT

The case study research sought to investigate and establish the attitude of the Africa diaspora community, mainly associated with the University of Cape Town, towards the modeling of a diaspora pension fund as a likely instrument for the financing of the continent's development infrastructure. The case study further sought to test, using chi-square and logistic regression, whether the independent variables of age, gender and education have an effect on the willingness/support of the members of the diaspora in the establishment of the diaspora pension fund for the financing of the continent's infrastructure. The results show that members of the sampled diaspora community support the modeling and also showed their willingness to be part of the diaspora pension fund and to have part of their pension contributions invested for the financing of the development infrastructure.

The resulting model shows that males, who are middle-aged and well-educated, are more likely to be in support of the modeling of the diaspora pension fund as a likely instrument for financing the continent's development infrastructure. The results show that when modeling the diaspora pension fund factors such as age, education, gender, remaining years towards retirement, governance, corruption, regulatory issues, and the rule of law and the infrastructure of investment portfolio diversification have to be taken into account as they affect the likelihood of support amongst the diaspora community. The research will help policy makers, global pension funds, governments in Africa, and the bigger community of the Africa diaspora in assessing the feasibility of commercialising the diaspora pension fund as an innovative financing instrument.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Africa, as a whole over the years, has to a limited extent, used various traditional development infrastructure financing models and instruments for financing its development infrastructure, and its current funding gap stands at over USD 100 billion per annum in the case of Sub-Saharan Africa alone (MacLean & Olderman, 2015). The continued lack of adequate development infrastructure financing models and instruments has threatened economic growth across the continent (MacLean, et al., 2015). According to MacLean, et al. (2015), Chong and Poole (2013), Croce and Yermo (2011), Plaza and Ratha (2011) and The Economist (2013), development infrastructure contributes directly to the economic growth of any economy and Perkins, Fedderke and Luiz (2005) have used F-tests to identify and ascertain directions of association between economic infrastructure and the economic growth of South Africa.

Empirically, the traditional models and instruments (public sector financing) cited above have failed to close the development infrastructure funding gap (Croce, 2011), thereby necessitating this case study research on an Africa diaspora pension fund as a likely innovative model and instrument for the financing of development infrastructure. The case study focuses on the modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure. Modeling of the Africa diaspora pension fund is concerned with investigating whether members of the diaspora community, who originate or whose ancestors originated from Africa and currently work outside their country of origin, support the establishment of such a pension fund as a likely financing instrument for financing the continent's infrastructure, and tests the effect of the level of education, age and gender of the participants in their support for the fund. Empirical evidence abounds in support of the argument and theory that inadequate investment in infrastructure could create bottlenecks (Perkins, et al., 2005; Ishmail & Mahyideen, 2015; Canning & Pedroni, 2004), resulting in opportunities for promoting economic growth being missed, and hence the importance of this case study research.

This study recognises that the Africa diaspora community worldwide presents an unexploited investment potential, and to help in widening the scope of models and instruments for financing development infrastructure, investigates through a case study, the attitude of members of the Africa diaspora community, mainly associated with the University of Cape Town, towards the modeling and establishment of an Africa diaspora pension fund, whose contributions will be partly used in the financing of Africa's development infrastructure.

The attitude or standing of the members of this community is important in establishing whether there is scope for modeling an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure. The support for such a model will help in adding yet another innovative model and instrument for the narrowing of the continent's development infrastructure funding gap. Infrastructure investment, in general, and pension funds as alternative models or instruments for financing infrastructure in particular, have received intense research over the past two decades (Flyvbjerg, Ansar, Budzier & Lunn, 2016; Perkins, et al., 2005; McGroarty and Maylie, 2015; The Economist, 2013; Plaza & Ratha, 2011; Croce, 2011; Chong & Poole, 2013; McLean, 2015; Croce, Paula & Laboul, 2015; Sahoo, Dash & Nataraj, 2015; Chen, Zhang & Wang, 2012; Inderst, 2013). This exploration widens the scope of the research to include investigating whether the Africa diaspora associated with the University of Cape Town support the establishment of a diaspora pension fund as a likely financing instrument for Africa development infrastructure.

Contrary to findings by Perkins, et al. (2005), studies by Ansar, Flyvbjerg, Budzier & Lunn (2014) and Flyvbjerg et al. (2016) show that the macro-level school of thought that has dominated the mainstream discourse in economics shows that increased public-sector investment (traditional models) in infrastructure, particularly transport, increases the efficiency and profitability of the business sector, which in turn stimulates business investment in private capital (Aschauer, 1989a in Banister & Berechman, 2000). Perkins, et al. (2015), however, found that the discovery of diamonds in 1867, which led to the establishment of the town of Kimberley, played an important role in the early development of South Africa's railway infrastructure, but that according to De Kock (1936), "the population and wealth of the town were nevertheless constrained by poor transport and communication services". The difference in results showing levels of effectiveness and the importance of infrastructure in improving economic growth (Perkins, et al., 2005) can be attributed to the different (Munnell 1990a, 1990b; Easterly & Rebelo, 1993) econometric techniques that were

used in the studies, with the result that there is no doubt that there is a positive relationship in the long-run between economic infrastructure development and real GDP (Chen, et al., 2012; Perkins, et al., 2005; Inderst, 2013). In addition, development infrastructure as a public benefit brings with it, positive externalities that benefit the community as a whole (Croce, 2011). This case study research aims to find out whether the above findings are shared by members of the Africa diaspora community associated with the University of Cape Town.

Focus has shifted from public sector (traditional) financing models of development infrastructure because governments alone have no capacity to fund the yawning gaps and, in particular, African governments are severely constrained financially. Institutional investors, that is pension funds, insurance companies (Chen, et al., 2012) and mutual funds, with assets worth over USD 65 trillion (2009), have started playing a critical role in bridging the yawning infrastructure financing gap by using the decentralised model that has seen pension funds in Canada and Australia investing directly in development infrastructure (Chen, et al., 2012; Croce, 2011; Inderst, 2013). This case study further reviews how the above models have been used in financing development infrastructure and whether the targeted diaspora community is in support of having part of their pension contributions channelled towards financing development infrastructure for Africa.

Africa is characterised by poor infrastructure and high unemployment and an ever-thinning income tax base, which on average, is 17.08 percent (unweighted) of GDP, compared to that of the USA, UK and Germany standing at 26, 34 and 40.6 percent respectively. Contributing to the lower tax base of the continent is the high unemployment rate and the exodus of the African skilled and professional labour base to developed countries, where their taxes and pensions are used for financing development infrastructure in the developed world, without a chance of finding their way back into Africa. The case study research focus on the diaspora community presents an opportunity for the modeling of a diaspora pension fund as a likely instrument for financing the continent's development infrastructure.

The unresolved issue is whether members of the Africa diaspora community, mainly associated with the University of Cape Town, are likely to support the modeling of a diaspora pension fund as a likely instrument for bridging the funding gap and if so, the structure of the model they would like to see and whether such support will be influenced by the age, gender or educational level of the member in question.

There is a gap in the current body of knowledge about the attitude of the Africa diaspora community regarding the modeling of the diaspora pension fund as a likely instrument for financing the development infrastructure in Africa, and it is this gap which necessitates the current research. It is a fact that the Africa diaspora community exceeds 40 million people in number and that their wealth exceeds USD 50 billion, but no study has been carried out to establish their support for the establishing of their own pension fund, with a specific mandate for financing the continent's development infrastructure. This case study investigates if there is support for the establishment of the Africa diaspora pension fund, and further investigates whether that support is affected by the gender, educational level or age of the members of the diaspora community.

1.2 Statement of the problem

The current development infrastructure financing gap in Africa (The World Bank, 2017) stands at over USD 100 billion per annum, despite the fact that the sixth region (Ghanem, 2017) of Africans living abroad (the members of the Africa diaspora) is made up of over 170 million people whose pension contributions have been used to fund the development infrastructure of their host countries. Only a fraction of the diaspora income finds its way back into Africa, with Nigerians abroad remitting USD 35 billion (8% of their GDP) in 2016, the highest amount by an African country and an amount equivalent to exactly the GDPs of Zimbabwe and Zambia (Ghanem, 2017; The World Bank, 2017), while Kenyans remitted USD 1.7 billion in 2016, an amount equivalent to 50% of the GDPs of Lesotho and the Seychelles put together (Ghanem, 2017). The number of doctors from Sub-Saharan Africa working in the United States of America are more than the total number of doctors in 34 of the 54 African countries combined (Ghanem, 2017), and their taxes and pensions are also used for the financing of their host country's development infrastructure. There are two problems that this research seeks to address, namely, given that the sixth region/diaspora community is a potential source of pension funds that can be mobilised for the financing of the continent's development infrastructure (Ghanem, 2017), what is the attitude of the Africa diaspora community towards the modeling of a diaspora pension fund whose contributions can be used in financing Africa's development infrastructure? What pension model is this community in favour of that can be used to generate a pool of funds that can be channelled

towards infrastructural development in Africa and to what extent can the diaspora be willing to participate in such a special purpose vehicle?

The insufficiency of traditional models and instruments for financing the development infrastructure gap in Africa and the gap in the knowledge about the attitude of the continent's diaspora community regarding the modeling of the diaspora pension fund as a likely instrument for financing infrastructure presents a problem. The general need of the research is to understand how pension funds have been modeled as infrastructure financing instruments in other economies, while the particular need for the research meant to address the identified problems, is to investigate the attitude of the Africa diaspora community, mainly associated with the University of Cape Town, towards the modeling (framework) of a diaspora pension fund as a likely instrument for the financing of the continent's development infrastructure. The positive reception of the model by the diaspora community will help widen the nature, choice and scope of development infrastructure innovative funding models and unlock the wealth of Africa's diaspora for use in bridging the infrastructure funding gap.

The case study is intended to evince the attitude of the members of the diaspora community towards the modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure and, where the attitude is favourable, to use the findings to model the pension fund support preferred by the diaspora community. The outcome of the model will be part of the answer to addressing the two problems raised above. The research findings will establish whether the community prefers a traditional/centralised model that is controlled and supervised by government or a decentralised model that has reduced government interference but with increased private sector participation (institutional investors and financial institutions), or a pension fund model that is self-regulated, self-managed and carries out direct investment in infrastructure. The case study also aims at establishing the attitude towards risk that the community has regarding Africa as an investment destination and the potential de-risking instruments, if any, that the community believes will help in harnessing more infrastructure investment funds for the continent.

Africa's annual growth rate must reach 7%, and it must invest 15% of its GDP (USD93 billion) in infrastructure in order that it meets the Millennium Development Goals (MDGs) by 2015 (Brixiova, Mutambatsere, Ambert, & Etienne, 2011). To date, however, traditional financing instruments have failed to meet the continent's development infrastructure needs,

thereby necessitating research to establish whether the Africa diaspora community is willing to support the establishment of an Africa diaspora pension fund (Brixiova, et.al., 2011) for the financing of the continent's development infrastructure.

The problems that must be addressed include identifying the pension fund model that can be used to generate a pool of funds that can be channelled towards infrastructure development in Africa, and determining the extent to which the diaspora is willing to participate in such a special purpose vehicle.

The research questions for this case study are as follows:

1. Are Africa diaspora members, associated with the University of Cape Town, in support of the establishment and modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure?
2. What type of development infrastructure financing model do they prefer as a likely instrument for financing Africa's development infrastructure?
3. Is there any association or relationship between the support shown, if any, for the establishment of the pension fund for financing a development infrastructure and the gender, age and educational level of the community members?

In order to address the influence of gender, age and educational level that may be present in the answers given by the members of the diaspora community, the thesis uses relationship statistical tools to measure any would-be association between these variables and evaluate their impact, if any, on the proposed pension fund model for financing the development infrastructure.

1.3 The objectives of the study

The research objectives of the study are:

- To investigate whether Africa diaspora members, associated with the University of Cape Town, are in support of the establishment and modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure;

- To identify whether there is any association or relationship between the support shown, if any, for the establishment of the pension fund for financing development infrastructure and the gender, age and educational level of the community members; and
- To investigate the type, if any, of the development infrastructure financing model that the community members prefer as a likely financing instrument for Africa's development infrastructure.

1.4 Hypotheses of the study

Relevant research hypotheses in this case study are as follows:

Hypothesis 1

Members of the Africa diaspora community, mainly associated with the University of Cape Town, are more likely to support the establishment and modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure.

Hypothesis 2

Gender, age and educational level have no effect on the investment decision-making by members of the Africa diaspora community when it comes to financing of the continent's development infrastructure.

1.5 Justification of the study

The continent has great economic growth potential, but its realisation is hampered by the lack of financing instruments for its development infrastructure. The need for the investigation and identification of a pension fund model, which can be used to generate a pool of funds that can be channelled towards infrastructure development in Africa, justifies and has motivated the carrying out of this case study. The establishment of a pension fund model covering the diaspora members that can be used to generate a pool of funds will go a long way in alleviating the shortage of infrastructural development financing for the continent and help in realising the required economic growth.

1.6 Structure of the study

The structure of the case study is as follows: Chapter 2 will investigate and review the knowledge base and models, proving that development infrastructure as an asset class leads to economic growth, support by investors of this view and presents a literature review around the funding models of development infrastructure in general and in pension fund models employed in financing development infrastructure in some chosen countries. Chapter 3 outlines the research methodology to be used in investigating the research questions, and in Chapter 4, the presentation and analysis of the research findings is given. Chapter 5 builds on the work carried out in previous chapters and provides a summary of the analysis evaluation of the findings and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This second chapter reviews the knowledge base pertaining to models that have been employed in financing development infrastructure in general, and in particular, the pension fund models that have been used in financing development infrastructure in a selected number of economies. The literature reviews the theoretical base, adequacy and inadequacy of the models that have been used, the global infrastructure funding gap, the African development infrastructure funding gap, proposals on innovative development infrastructure financing models, and models justifying that development infrastructure leads to economic growth. The literature review culminates in the formulation of the research questions of this case study.

The research questions focus on whether members of the Africa diaspora community, mainly associated with the University of Cape Town, are in support of the modeling of an Africa diaspora pension fund as a likely financing instrument for Africa's development infrastructure. The chapter reviews the role played by the Africa diaspora community in financing some form of development in Africa, a brief historical overview of development infrastructure financing models in South Africa, China and Nigeria, and the pension fund models employed in financing development infrastructure in Canada, Australia and Nigeria. The chapter ends with the identification of the gap in innovative financing models that leads to the development of the research questions and hypotheses.

2.1.1 Theoretical Framework

The concepts of infrastructure, development infrastructure, economic growth models, diaspora, risk aversion, modern portfolio theory and pension fund play a major role in the case study, some of which will later be measured. They are critical concepts that must be defined within the theoretical framework.

2.1.1.1 Infrastructure and Economic Growth Link

According to Mansour and Patel (2008) infrastructure is made up of economic infrastructure (toll roads, ports, airports or power generation) and social infrastructure (schools, hospitals buildings, municipal services, public transport and street lighting), and in this research, development infrastructure mainly refers to physical infrastructure such as toll roads, paved roads, rail lines, airports, dams and power generation plants, as well as infrastructure which has been found through research to have a positive impact on economic growth. According to Canning (1998), dataset on development infrastructure stocks such as roads, paved roads, rail lines, electricity generating capacity, and telephones and telephone lines for 152 economies for the period 1950-1995 had a significant impact on growth. This proves that there is a case for Africa to invest in development infrastructure in order to increase its economic growth, but that the challenge is with the finding of adequate innovative development infrastructure financing models. A similar study of the relevance of infrastructure to growth in East Asia (Palei, 2015), by applying the standard growth regressions on 16 economies showed a significant positive relationship between infrastructure and economic growth in all infrastructure indicators. Calderon and Chong's (2004) comprehensive assessment of the impact of infrastructure development on economic growth in Africa (1960-2005) showed that growth was positively affected by infrastructure development, and that Africa is likely to gain greater benefits from larger stocks of infrastructure than from improving the quality of the existing infrastructure. It is in this case study research that the above theory is tested to establish whether members of the Africa diaspora community also believe that development infrastructure has a positive impact on economic growth, and if so, whether their support is affected by the gender, age and educational level of the members in question, and lastly, whether they would contribute part of their pension fund towards the financing of a development infrastructure in Africa.

2.1.1.2 Modern Portfolio Theory and Risk Aversion

According to Markowitz (1952), modern portfolio theory assumes that investors are risk averse; that in being given two portfolios that offer the same expected return, investors will prefer the less risky one. The implication of this theory is that a rational investor will not invest in a portfolio if a second portfolio exists with a more favourable risk expected return profile. In the case of the research being carried out, this means that members of the Africa diaspora community are risk averse, and they will avoid investing their pension contributions

for the financing of an Africa development infrastructure given the perception of high risk that Africa has, in favour of similar or higher returns from countries abroad with lower risk profiles.

Critics of the above theory have questioned whether it is an ideal investment tool given that its model of financial markets does not match the real world owing to the fact that risk, return and correlation measures used by the theory are based on expected values, which means that they are mathematical statements about the future, but in practice investors must substitute predictions based on historical measurements of asset return and volatility for these values in the equations (Mahdavi, 2013). In the case of Africa, situations continue to change, and such expected values fail to take account of new circumstances that did not exist when the historical data were generated, and in any event, more fundamentally, investors are stuck with estimating key parameters from past market data because the theory attempts to model risk in terms of the likelihood of losses, but says nothing about why those losses might occur. Investments from outside Africa may suffer losses because of asymmetric information which is not built into the model or taken into account, resulting in the theory being largely irrelevant.

It is also arguable whether mathematical risk measurements reflect the investors' true concerns in that there is no point in minimising a variable that nobody cares about in practice. Where members of the Africa diaspora perception of risk about Africa differs from that of general investors assumed in the theory, their support for the establishment of the pension fund will not be wholly dependent on the assumed risk aversion. A recent research shows that 82% of the respondents put growth as the primary driver of investor interest in African markets, and the need to diversify away from low return markets was agreed to by 75% of the respondents, and 50% of the respondents expected the infrastructure funding in Africa to be done with a mix of private and public sector (Venables, 2015). It is clear that in some cases and with some investors, Africa is seen as an important investment destination regardless of the risk perception that it carries. These beliefs make it possible and likely that members of the Africa diaspora will also show support for the financing of development infrastructure using part of their pension fund contributions.

The success or otherwise of the modeling of the diaspora pension fund as a likely instrument for financing the continent's development infrastructure is largely influenced by the

perception of risk associated with investing in Africa that the community in question may hold. The support for the fund would be negligible if the members of the community are rational investors who view Africa as a risky investment destination (Qureshi, Hunjra & Rehman, 2012; Markowitz, 1945; Bodie, Kane & Marcus, 2010; Raji, 2017; The Economist, 2013).

The case study investigates the level of risk aversion that the diaspora community has when it comes to investing in Africa, and aims at confirming or disconfirming Markowitz's (1952) theory surrounding rational investors. This theory gives a perspective upon what will be expected of the findings, in that where it is of universal application, regardless of the origin, age, educational level and gender of the investor, and the theory of behavioural finance, members of this community will not support the modeling and establishment of the Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure given that the continent is viewed as a risk investment destination. Current research, however, shows that the above theory concerning risk aversion cannot be generalised across gender, and irrespective of age and educational level of an investor (Hira, 2006). According to Hira (2006), American women prefer taking average or below-average risks, whereas about half of the men preferred taking above-average or substantial investment risks. The case study research will determine whether the findings by Hira (2006) apply in the case of members of the Africa diaspora, and therefore confirming the theory that gender is influential in investment decision making. The perception of risk is tested by looking at the asset classes to which the diaspora members allocate their income, and the finding is compared with the majority of American investors. Hira (2006) contends that they invested in stocks and stock mutual funds, with 50% of them investing in money market mutual funds, bonds, or bond mutual funds. Ordinarily, infrastructure as an asset class is viewed by some as risky given its bulkiness, while other researchers have found it less risky because of its fixed income potential and its cash flows that are inflation hedged over time.

On the other hand, models of behavioural finance emphasise potential (Bodie, et al., 2010) implications of psychological factors affecting investor behaviour and state that while conventional theories presume that investors are rational, behavioural finance starts with the assumption that they might not be. The premise of behavioural finance theory (Bodie, et al., 2010) is that conventional financial theory ignores how real people make decisions and that people make a difference. In this research, it is sought to establish whether people of African

origin, found in other countries in Africa other than their own country, exhibit attitudes similar to traditional investors or exhibit attitudes as espoused by behavioural finance researchers. Theory on contribution of development infrastructure towards economic growth show that the former has a positive influence towards economic growth, and that investors, in general, believe that infrastructure while a risk asset class, contributes positively to economic growth. Pension funds are appropriate for the financing of development infrastructure because their obligations are long term which aligns with the revenues of infrastructure that are realised over a long time into the future.

The research focuses on the members of the Africa diaspora associated with the University of Cape Town. This group qualifies as a diaspora because it is constituted by people from different African countries, or made up of a scattered population whose origin lies within a smaller geographic locale (Merriam-Webster, 2018), or the culmination of the movement of the population from its original homeland depending on causes such as imperialism, trade or labour migration.

2.2 Infrastructure development and economic growth

Development (Sojoodi, Zonuzi & AsLani, 2012) infrastructure is critical to Africa's economic growth given that the Barro (1990, cited in Kularatne, 2006) growth model states that there is an optimal level infrastructure which maximises the growth rate, and research spanning 1950-1992 on long run consequences of infrastructure provision on per capita income in a panel of countries provides clear evidence that in the vast majority of cases infrastructure does induce long run growth effects.

According to the Barro model, "there is a growth maximum level of infrastructure (Barro, 1990, cited in Kularatne, 2006), above which the diversion of resources from other productive uses outweighs the gain from having more infrastructure and that below this level, increases in infrastructure provision increase long run income, while above this level an increase in infrastructure reduces long run income". The theory is that investment in infrastructure increases economic growth. According to the World Economic Forum (2014), "well developed infrastructure not only reduces the distance between regions but also integrates national markets and connects them at low costs to other economies".

The theoretical analysis of the positive effect of infrastructure on economic growth motivates the objective and reason for a case study focusing on modeling a diaspora pension fund as a likely financing instrument for the continent's development infrastructure.

2.3 Diaspora development infrastructure financing models

The Africa diaspora saves in excess of (Plaza & Ratha, 2015) USD 50 billion annually, most of which is currently invested outside Africa, and which could potentially be mobilised for development infrastructure in Africa via innovative financing models such as bonds. According to Plaza and Ratha (2015), members of the diaspora can invest directly into Africa given that they possess important information that can help identify investment opportunities and facilitate compliance with regulatory requirements, language, skills obtained abroad and cultural backgrounds which greatly contribute to the profitability of investment in unfamiliar countries. They are also in a better position to take more risk than other investors (Lucas, 2001) in their country of origin because they are better placed to evaluate investment opportunities, possess direct contacts, emotion, sense of duty (Nielsen & Riddle, 2007) and social networks which aid in making such investments successful.

Development infrastructure funding models by diaspora members are likely to succeed because studies found a significant correlation/relationship (Dyadic Cross-Sectional Data) between skilled migrants and investment inflows to countries of origin (Kluger & Rapaport, 2005; Docquier & Lodigiani, 2007; Javorcick, Ozden, Spatareanu & Neagu, 2006; Murat, Pistorresi & Rinaldi, 2008) particularly in areas where there is credibility of policymakers commitment and there are no issues about asymmetries of information between the investor and borrower. The theoretical base militating against easy flow and adequacy of development infrastructure funding in Africa is the perception that Africa is a risk investment destination, and in conformity with the Modern Portfolio Theory, investors are risk averse in general, and because of the perceived poor governance issues, political instability, regulatory uncertainty and lack of the rule of law, foreign direct investment towards this asset class, whose returns are long term, is bound to be low and the funding gap will continue to widen.

According to Plaza and Ratha (2015), members of the diaspora finance development infrastructure, use the catalyst model which involves diversifying the investor base through reducing government dominance in capital markets and large companies by introducing new

innovative financial products and providing reliable sources of funding. In addition, diaspora bonds (Plaza & Ratha, 2011) have been modeled for use in financing development infrastructure amidst concerns about the transparency of the legal system for contract enforcement, civil strife, and clarity of host country regulations and tradability of the bonds in the secondary market. Private equity capital has also been modeled for use in development infrastructure funding but these have found their way (Ratha, Mohapatra & Plaza, 2009b) mainly to South Africa, as foreign investors have been averse to investing in Africa because of lack of information, severe risk perception and the small size of the market making stocks illiquid assets. Plaza and Ratha (2011) recommend the use of regional funds, mutual funds and private equity as models of financing infrastructure through investing these in pension funds and companies by members of the Africa diaspora, and for the success of these models the authors recommend the strengthening of investor protections through (Ketkar & Ratha, 2010) the management of the funds by private companies in place of governments, and management of the funds by the combination of a private company with the participation of members of the diaspora. These studies have not examined modeling a diaspora pension fund as a likely instrument for financing infrastructure, a model that is the focus of this case study.

Collective remittances models of financing infrastructure have also been used through voluntary associations that have raised funds in excess of the municipal budgets for public works in small populated towns (Orozco, 2003), and these have been motivated by the diaspora's sense of identity and feeling of solidarity with their home countries and socio-cultural and political bonds (Guarnizo, 2003). However, this model has also targeted small projects such as the building of schools (social development infrastructure), wells, hospitals and the provision of micro-credit loans. The challenges faced by these initiatives have included a poor investment climate in Africa, inadequate ports and customs facilities, excessive red tape and lack of trust in governments.

The savings and social security scheme model has been used in the Philippines, and recommended for Africa, wherein the diaspora members are encouraged to join their home country social security, housing and micro-finance programmes. Efforts in harnessing the Africa diaspora resources for funding development infrastructure have not focused on encouraging the modeling of the diaspora pension fund as a likely instrument for financing development infrastructure in Africa.

According to Plaza and Ratha (2011), investment by diaspora members is likely to be successful because of cultural familiarity, familial ties, and there is “evidence of a significant relationship between migrants and investment inflows to countries of origin and that migration has facilitated foreign direct investment (Kluger & Rappaport, 2005) owing to the theory that (Leblang, 2005) asymmetries of information between lender and borrower are decreased where there are migrant networks between migrants residing in investing countries and their home country”. On the other hand, theories explaining the lack of financing models for development infrastructure in Africa state that investors worry about accountability (Elebute, 2015) of funding, adequate traffic demand, bankable projects and low private returns (Collier, 2010) with the example of the Ghana electricity project with a 20% return that failed to attract investors that preferred investing in OECD countries with zero return.

2.4 Case studies of development infrastructure financing models

2.4.1 Africa

According to MacLean and Olderman (2015), the continued growth across the continent is threatened by major development challenges, the most significant of which is infrastructure (roads, water and power) with Sub Saharan Africa (SSA) having a funding gap of \$100 billion, which deficit deters foreign direct investment and reduces a region’s overall competitiveness. The traditional sources/models of funding, such as government allocations (MacLean & Olderman, 2015), private investment by equity firms and corporate investors have not been sufficient, and barriers to investment such as political instability, lack of institutional capacity for project preparation and planning, weak regulatory regimes, uncertain creditworthiness of state-owned utilities, and shallow capital markets with restricted liquidity have not helped the situation. In the case of energy investment, International Finance Corporation (IFC), World Bank (WB), Standard Bank (Stanbic), Government, Bank of America, Standard Chartered Bank (SCB), Rand Merchant Bank (RMB) and General Electric (GE) have been the main investors/facilitators in the sector with GE having funded the grid rehabilitation in Nigeria, Algeria and Angola to the tune of \$3 billion.

MacLean and Olderman (2015) recommend the adoption of funding models that incorporate sovereign guarantees to protect investors, put/call option financing where there is a guaranteed sale of power plant to government at a certain price if the off-taker does not pay as

scheduled, and sponsor rating model funding where, for example, the World Bank could issue a USD 200 million bond offering, with funding going direct to infrastructure projects in South Africa, and the South African government repaying the World Bank to cover the bond, These models are aimed at widening the scope of financing instruments that are deployed toward the funding of the continent's development infrastructure.

2.4.2 South Africa

The development infrastructure financing models involving government and private sector started as early as 1867 in South Africa when the discovery of diamonds led to the establishment of the town of Kimberley, which in turn played a key role in the early development of South Africa's rail infrastructure (Perkins, et al., 2005). The poor development infrastructure that hindered the wealth and population of Kimberley (1860-1867) was alleviated by the partnership funding model carried out by the colonial governments of the Cape and Natal on the one hand and private enterprise on the other hand. This partnership funding model resulted in 110km of rail line being built and this was then extended by 900km to Wellington (Perkins, et al., 2005) which was financed mainly by public tax revenues collected by the government from the diamond mines and the newly discovered gold mines on the Witwatersrand in 1886. These funding models helped connect Johannesburg by rail to Cape Town, Port Elizabeth and East London by 1892 and Durban and Lourenco Marques (now Maputo) by 1896.

The above developments in development infrastructure saw an annual growth rate in railway line infrastructure and traffic of between 2.2 and 2.8 percent between 1911 and 1930, while during the same period the real GDP was 2.0 percent. The period between 1930 and 1980 saw the real GDP rising up to 4.6 percent, while the rail line infrastructure and traffic rate stood at 2.8 percent during the same period. The period 1980-2002 showed a dip in infrastructure funding and averaged 7.9 percent, while the real GDP was resilient at 1.7 percent. The results of the PSS F tests carried out by Perkins, et al. (2005) show that growth in GDP in South Africa tends to drive growth in individual physical measures of infrastructure, such as related goods and services rather than vice versa, while roads are an exception, since there is evidence that they have a strong effect on GDP growth with a correlation coefficient between paved roads and real GDP at 0.996 for the period 1938-2001 which tests indicate a long-run forcing a relationship from roads to GDP. According to Perkins, et al. (2005), an analysis of "accounting figures suggest that infrastructure investment seems to drive GDP growth and

that where policymakers fail to provide additional infrastructure in response to the greater demand for it generated by GDP growth, further GDP growth could be hampered (Perkins, et al., 2005) by bottlenecks, for example, congestion at some of South Africa's ports." The researcher also established that underinvestment in certain types of infrastructure, for example, roads, may leave potential areas of economic growth unexploited and that at the same time (Perkins, et al., 2005; Fourie, 2006), the need for investment in infrastructure never goes away, because as existing infrastructure becomes obsolete it needs (Fourie, 2006) to be maintained, and those that reach maturity need new ones to be implemented.

The findings above show that development infrastructure helps increase GDP, and that since 1867 there has been a marked decline in the annual growth rates in infrastructure as the government of South Africa finds it difficult to fund development infrastructure from public funds. Innovative models of financing the gap are, therefore, called for as the need for development infrastructure in the country continues to rise and as government's public finances in general are very tight and without any appetite to bear the whole burden (The Economist, 2013). According to The Economist (2013), governments now want the pension funds and the private sector to come up with funding models and open their wallets to construct development infrastructures which approach gives an opportunity to diaspora members to establish pension fund models for financing the development infrastructure in Africa. The Economist (2013) and Andrew (2015) state that risk has been preventing pension funds from investing in this sector as they prefer reliable cash flows in order to pay their retirees. There is new thinking that advocates for pension fund financing models as long as their project returns are not positively correlated with other assets, such as equities, and that such models can take the form of the government borrowing, building and then handing/selling over to pension funds to operate.

The infrastructure financing models employed in South Africa have been made up of public sector and private sector funding but there is yet to be inroads into the financing of these projects using diaspora pension funds. The case study tests the potential for this innovative financing model, and the opinion about the risk of the diaspora community for use as an alternative instrument for financing the continent's development infrastructure.

2.4.3 Nigeria

Potholes compete with each other for depth on Nigerian roads (Raji, 2017). Power supply comes in fits and starts, public water supply in most Nigerian cities is a rarity and the health infrastructure is so abysmal that the country's elite, which includes government officials, go abroad for medical treatment, and this is because the public finance sector has failed to fund development infrastructure due to lack of funds. In response, the authorities seek a total of USD 30 billion in loans and bonds to fund the gap, and this time the focus is not on foreign capital or government coffers but the local pension funds. The pension funds in Nigeria have assets under management of about USD 19 billion, with a working population of 69.5 million making them a potential funding model for use in development infrastructure. According to Raji (2017), the problem with this model has been the risk, especially the political one given that pension funds may only invest in investment-grade securities which are not present in this sector. A pension fund model for financing development infrastructure is now possible given the partnership between the Nigerian Sovereign Authority and the London based infrastructure credit guarantee provider, GuarantCo, to establish the Infrastructure Credit Guarantee Company (InfraCredit) in Lagos in 2017.

The new guarantee company provides the sort of guarantees that pension funds need in order to invest in projects sponsored by issuers with low credit ratings, provided the projects offer a decent return and are viable (Raji, 2017). Risk appears to be the main driver behind the lack of funding of development infrastructure projects by pension funds in Nigeria, and this is in conformity with the modern portfolio theory (Markowitz, 1954) which states that, "in general, investors are risk averse and will avoid investment destinations that are perceived to be risky", and from this theoretical base and contrary to behavioural finance theory, it is assumed that members of the Africa diaspora associated with the University of Cape Town are risk averse and will not support the modeling of a diaspora pension fund for use as an instrument for financing development infrastructure in Africa. This assumption stands to be confirmed in this case study.

2.4.4 Rest of Africa

Many a traditional development infrastructure financing model (Brixiova, et al., 2011) "... and instrument have been used for financing numerous projects across the world". According to Kingombe (2011),

“the lack of infrastructure in many developing countries represents one of the most significant limitations to economic growth and achievement of the Millennium Development Goals (MDGs) and for Africa to reach the seven percent annual growth calculated to be required to meet the MDGs by 2015, it will have to invest fifteen percent of its GDP or around USD 93 billion a year.”

Infrastructure bonds, direct investment and direct equity finance have been modeled to fund development infrastructure in both developed and emerging markets of the world. Of major concern is the fact that despite the importance of development infrastructure to economic growth, very little investment inflows have been finding their way to this area. For example, trends in asset and asset allocation by 104 Large Pension Funds and Public Pension Reserve Funds, managing in total of USD 10.4 trillion in assets, show that investment in infrastructure at one percent remains very scarce. The investor decision plays an important role in considering and accepting infrastructure as an asset class to be prioritised and given big funding. The lack of interest by large pension funds to invest in development infrastructure poses a serious challenge to Africa’s future growth that is pinned and dependent on the speedy financing of its development infrastructure.

Africa’s infrastructure is the poorest in the world, with power and water supply being the two main challenges (Viros & Jones, 2012) amidst plenty of traditional and innovative funding models to realise the development infrastructure requirements. Colonial financing models were made mainly of public funds. The Kariba Dam, in the then Federation of Rhodesia and Nyasaland, was constructed and financed by the International Bank of Reconstruction and Development through a USD 224 million (1954) loan to the Power Board, whose loan was guaranteed by the Federation Government (FedGovt) (Hungwe, 2000), plus an additional USD 90.7 million advanced by the FedGovt. The latter amount was loaned to the FedGovt for onward lending to the Power Corporation by the Copper Mines (USD 56 million), Banks (Barclays Bank and Standard Bank of South Africa USD 11.2 million), British South Africa Company USD 11.2 million, and Budgetary Advances USD 12.32 million. The governments today have found it difficult to continue financing such huge projects from the tax revenues given additional fiscal demands.

The 50% urbanisation of Africa by 2050 “brings (Gutman, 2015) new requirements for public and private infrastructure ranging from new and better transport networks to larger water supply and treatment plants, new schools, hospitals, upgraded telecommunications and power”. In 2050, “Africa’s urban population will reach 1.2 billion compared to less than 500 million in 2010 and the (Gutman, 2015) population of Lagos and Kinshasa in 2025 will be 18.9 million and 14.5 million, respectively.”

According to the African Development Bank, “the low quality of infrastructure in Africa constrains and inhibits economic growth by around two percent every year and reduces business productivity by as much as 40%”. Africa, according to Collier (2013), has grown without a surge in infrastructure investment despite the post financial crisis huge pool of private capital at risk free rate of return, and this is despite the fact that it was private capital that built the UK infrastructure, and despite the fact that Africa attracts the highest returns at over 20%. The reason for this, inter alia, is that Africa has high social returns (Collier, 2013) but low private returns. It is regarded as an unsafe investment frontier compared to OECD countries (Collier, 2013) (no bankable African infrastructure), high risk and regulatory frameworks prohibitive. Generally, it means investors are risk averse and use rational decision making in avoiding Africa as an infrastructure investment destination in favour of a zero return investment destination in OECD countries where it is considered safe and awash with bankable investment projects.

The continent also faces the challenges of the unstable political terrain, the regulatory authorities retain a lot of discretion that allows corruption to flourish, the project output is politically sensitive (Collier, 2013) as the government must affect the price or quality of the product or service. The government is many times the only or main customer. Interference by government is long lasting and can be ruinous to rates of return and projected profits and cash flows. Contracts are rarely completed on time and the dispute resolution systems are not mature and respected. These challenges are keeping the investors at bay and delaying the economic growth of the continent thereby necessitating the search for a new breed of investor whose perception of Africa as a risk investment destination is different.

The other challenge that the continent faces is that rating agencies have rated all African countries below the sovereign debt rating prime high grade band of Aaa, Aa1, Aa2 to Aa3 which rating according to Collier (2013) is erroneously used by investors to measure the

likelihood of borrowers repaying their loans, regardless of the fact that some of these borrowers are not necessarily governments. This approach is wrong because project risk must not be equated with sovereign debt. For example, Cote d'Ivoire defaulted on its debt but infrastructure projects (Collier, 2013) kept on paying because the tax cash streams of government are different from cash streams of a toll road that has been privatised.

This high perception of risk leaves very little choice when it comes to development infrastructure financing models, resulting in governments assuming a disproportionately high burden of financing the development infrastructure. Hence, innovative financing models drawn from investors with low-level perceptions of risk about Africa, if any, are required.

Collier (2013) hypothesises that the solution to the continent's investment needs is for investors to combine African rated projects with goods to produce investment grade investments (portfolio return), that is, put African infrastructure projects with Emerging Markets projects and OECD market projects and create a fund with low risk and cheap money. It is not clear how the investors will not pick the challenges created by the financing portfolio arrangement proffered and, in any event, these investors have been creating investments for developed market projects but shunning Africa in order to avoid project contamination. This is because investors in special purpose vehicles use the same investment ratings given by the rating agencies.

Paula (2016) argues that the challenge faced by Africa is that state agencies are monopolies and have weak finances. Investors are forced to work with state utilities but state agencies prefer private investors sell the output but not build the power stations. In addition to this, the state agencies are not credit worthy and the money is raised by sovereigns and, on the other hand, private investors only constitute 20% of the market and will not bring about the transformational impact that is needed. Paula (2016) recommends a model that sees public money used to finance the construction phase and, at operational stage, the assets must be sold to pension funds in order to raise money again for front-end finance. Pension funds will then run these projects and generate money to pay back the money that was used in buying these projects from the government. Plausible though the idea is, the challenge faced by the continent is the financing model of the initial stages of these projects, and this research investigates whether financing or investments in development infrastructure is all about rational decision-making or can be explained by other behavioural finance theories.

African pension funds have largely been hesitant over the years to invest in infrastructure such as roads, railroads and ports, because they view this financing model as tying up cash in decade long projects that were risky while strong growth was driving up stock markets (Andrew, 2015). Whereas the perception of the continent as a risky destination continues, some regulators and fund managers in Africa are starting to recognise that keeping all their assets at home can be risky and are now spreading out across the continent, seeking similarly strong returns in the stocks and infrastructure projects of other African countries (Andrew, 2015).

The world infrastructure funding gap requires (Palter, 2013) USD 57 trillion outlays to 2030, while Africa's infrastructure funding gap stands at USD 93 billion per annum (Brixiova, et al., 2011) over the coming decade, which is about 15% of the region's GDP. This spend is double the current spend, resulting in a funding gap and shortfall exceeding USD 30 billion per annum (Viros & Jones, 2012). Africa's economies are small, making it economically unviable to finance billion dollar projects using public finance models at country level. For example, the 48 countries of sub-Saharan Africa, with a population of 936 million, generate less electricity than France with a population of 65 million (Viros & Jones., 2012). The economy of Africa is very small in GDP terms compared to other continents, with its GDP of USD 2.39 trillion (2013) and USD 2.264 trillion (2016) smaller than China's total expenditure on infrastructure in 2014 (USD 4.6 trillion) whose expenditure is more than double the whole of Africa's GDP, and more than double the GDP of India and constitutes 24.8% of worldwide total investments (Flyvbjerg, et al., 2016). The challenge with Africa becomes that of financing the infrastructure gap given a low base of funding and low per capita income.

Africa has a high external debt as a percentage of GDP, and a quarter of its people are living on less than a dollar per day (World Bank Group, 2016), resulting in governments finding it hard to finance billion-dollar development infrastructure projects out of meagre public funds. Poland in 2000 had a per capita income of USD 7 270.00 compared to that of some EU countries like Hungary, the Czech Republic, Greece, Spain and Germany that stood at (Esty, 2004) USD 9 020.00, USD 11 300.00, USD 16 800.00, USD 19 300.00 and USD 24 800.00 respectively. Africa had a per capita income of USD 2 320.00 in 2013, thereby painting a gloomy picture.

Amidst the above challenges, the Mozal Project (Esty, 2004) represents a leap of faith in the economy of a poor African country that is still recovering from a devastating 17-year civil war. The project cost USD 1.4 billion versus the country’s GDP of USD 11.2 billion (The World Bank, 2017) amidst poor economic performance by Mozambique given its lower per capita income at USD 480.00, and higher country risk. Table 1 below shows that although Mozambique was unbankable and had a very high political risk, non-recourse projects can still be built and launched profitably:

Table 1: Some Sub-Saharan African Socio- and Macro-Economic Data (2017)

	<i>Population [Millions]</i>	<i>Life Expectancy</i>	<i>Nominal GDP[\$bn]</i>	<i>GDP Per capita \$</i>	<i>Total Debt [% GDP]</i>	<i>Political risk</i>
Mozambique	28.8	55	11.02	480	n/a	50
Angola	28	53	90	3440	37	50
Botswana	2.3	65	15.3	6620	15	80.5
Lesotho	2.2	49.6	2.2	1210	n/a	n/a
South Africa	55.9	57	294.8	5480	n/a	76
Zimbabwe	16.1	59.16	16.289	940	42	61

(Source: *The World Bank, 2017*)

Issues of governance and transparency resulting in would-be large project sponsors ranking Africa as too risky for long-term project funding is compounded by Africa’s own citizens and its diaspora that does not trust or have confidence in its governments (Kilo, 2010) when it comes to financial discipline. The quality of monitoring contract or project implementation is poor, financing development infrastructure faces high risk of corruption, and there are persistent issues around downstream contract management and implementation (Gutman, 2015). The current debate (Brookings Institute, 2015) is on attracting more private sector financing models as private participation in infrastructure in SSA accounts for more than 50% of total external financing.

In Africa, the South African Government Employees Pension Fund has modeled the Isibaya Fund and Pan African Infrastructure Development Fund as instruments for financing RSA projects directed at economic and social infrastructure, economic growth and transformation and environmental sustainability (27Four Investment Managers, 2013) and on meeting the capital requirements of large infrastructure projects in Africa respectively. African infrastructure projects offer pension funds the unique opportunity to diversify their portfolios, as there are currently 593 projects in 10 African countries worth USD 500.9 billion.

Outside South Africa, there is “a dearth of both aggregate and disaggregate data on the pension fund market (27Four Investment Managers, 2013) in Africa, including total value of funds, number of contributors, number of public and private funds, defined contribution and defined benefit, and one in four Africans in the low income countries are employed in the formal economy, while the informal sector with the biggest number of self-employed people is not covered by any formal social security”. The “average coverage of pension funds is 10% with middle income African countries having 40% to 70% coverage” (27Four Investment Managers, 2013). Pension funds and insurance companies in SSA represent a third of domestic debt and are the biggest lenders after retail banks although the domestic debt markets are, in the main, short-term average maturity of 3 months (Oosthuisen, 2013). A study by the World Bank also shows that the higher the level of education, the more likely the people will contribute towards a pension fund, although South Africa has been able to bring the informal sector employees under social security (Funds Society, 2016). The World Commission on Africa (2013) shows that Africa has lost a great deal of its highly skilled and highly educated labour to developed countries, while the formal employment sector with highly educated Africans in the continent continues to decline because of political instability, poor governance and forced migration. There is a need for a development infrastructure financing model that harnesses the resources of the Africa migrant workers.

The government of Venezuela’s “inability to curtail spending during (Esty, 2004) periods of depressed oil prices led to inflation, currency devaluation and macro-economic instability, leading to a 20% decline in oil prices, which, in turn, precipitated a debt crisis that was punctuated by the impeachment of President Perez, and the collapsing of the country’s second largest bank in 1993”. As if this was not enough, the “Caldera administration (Esty, 2004) suspended a number of constitutional rights, imposed price controls on basic goods and services, took control of banking systems, closed the foreign exchange markets, rationed the foreign currency to the private sector, following which the government and private companies defaulted on their foreign currency debt and its local currency bonds”. Amidst all the “uncertainty and riskiness engulfing the country, the planning team of the USD 2.4 billion Petrolera project pursued a project securitised strategy outside sovereign risk, by meeting with S&P (Standard and Poor), Moody’s and Duff and Phelps to discuss the possibility of rating the project separately and also how the capital markets might view the project, and whether project bonds might receive an investment rating grade”. This shows that there is life for infrastructure projects outside government control and region risk perception.

Some countries in Africa (Redifer, 2010) have come up with financing models that allow for less concessional financing from multilateral development banks and export credit agencies, with more use of public-private partnerships and potentially sovereign bond issues. However, these avenues have also failed to satisfy the continent's development infrastructure needs. To close the gap, the study by the Economic Commission on Africa (ECA) and NEPAD Agency identifies potential sources of financing models which include more than USD 520 billion (Sy, 2016) raised annually from domestic taxes in Africa, USD168 billion from mineral earnings, USD 40 billion from diaspora remittances, rapidly growing pension assets and USD 30 billion from private equity markets.

Pension fund companies in Africa seeking to mobilise savings for onward financing of development infrastructure grapple with the fact that the population is young, the formal employment sector is small, formal social security systems are highly dependent on the State, low incomes create affordability challenges, formal institutions (public and private pension funds) have lost credibility due to poor services to their beneficiaries and mismanagement of funds, limited pension portability, limited investment opportunities, limited fiscal resources, but that there is a culture of solidarity (27Four Investment Managers, 2013). There is a need for research on whether the Africa diaspora community will support the modeling of a diaspora pension fund for use as a financing instrument for the continent's development infrastructure.

Africa's development infrastructure needs cannot be satisfied by development financial institutions and private equity financing models that require above the market returns alone, but innovative financing models and instruments (Brixiova, et al., 2011) that take into account environmental, social and governance issues must be identified and developed by Africans for Africa, and that the diaspora African community must be given a voice in establishing whether it is keen and willing to participate in financing the development infrastructure of the continent, and whether over and above the traditional pension funds, a diaspora pension fund could be the appropriate model. The research uses the univariate, bivariate and multivariate tests, including logistic regression to measure whether the findings are just by chance at a five percent level of significance.

2.4.5 China

According to Sahoo, Dash and Nataraj (2010), one of the defining features of China's growth, has been investment-led growth which has been intensified in the area of physical infrastructure during the period 1975-2007. Research results show that development infrastructure has had a significant positive contribution to growth (Aschauer, 1989; Munnell, 1990; Garcia & McGuire, 1992; Uchimura & Gao, 1993; Hulten, 1997) and there has been unidirectional causality from infrastructure development to output growth justifying China's high spending on infrastructure development since the early nineties (Sahoo, et al., 2010). Ding, Liu and Haynes (2004) found a positive and statistically significant impact of telecoms infrastructure on regional economic growth in China for the period 1986-2002. The research by Chatterjee (2005) and Stephanie, Vellutin and Warlters (2011) show that China's sustained high growth and increased competitiveness has been underpinned by a massive development of physical infrastructure whose model has been made possible by an unlimited supply of cheap labour, public investment, functional and fiscal decentralisation associated with the 1994 tax administration reform, simplification of government review and approval procedures (Liu & Li, 2005) and introduction of performance criteria. The country has been able to attract foreign direct investment because of the availability (Sahoo, 2006) of enabling infrastructure.

The development infrastructure financing model has been made up of the direct budget investment from fiscal resources, borrowing and market based financing. Fiscal resources have been used to finance urban infrastructure at central, provincial and local levels, while direct public financing through off-budget fees levied on such items as construction permits and various authorities for domestic and international business operations provide unrestricted local income that is channelled into infrastructure investments (Sahoo, Dash & Nataraj, 2010). According to Sahoo, et al. (2010), the financing gap created by the decline in direct budgetary spending on infrastructure was filled by borrowing and market-based financing through state owned banks that were encouraged, as national policy, to lend for infrastructure projects and urban infrastructure development.

In measuring the long run relationship among the relevant variables (infrastructure development and economic growth), the researchers (Sahoo, et al., 2010), employed the ARDL (Autoregressive-Distributed Lag model developed by Pesaran & Shin, 1999) and the

Generalised Methods of Moments (GMM) developed by Hansen (1982) and the error correction version of the ARDL model. The results reveal that F-statistic ($F=9.43$) exceeds the upper bound critical value (4.35) at the 5% levels, establishing a long-run relationship between GDP (dependent variable) and other relevant variables (independent variable), the null of no co-integration is rejected ($F=5.87$) when the infrastructure index is selected as the dependent variable with the result that the null of non-existence of stable long-run relationship is rejected. The results further found the coefficient of private investment, public investment, expenditure on health and education being positive and significant, indicating statistically significant positive impact on GDP and similarly, the estimated long-run coefficient of variables by GMM methodology indicates a significant positive contribution of infrastructure development to growth.

Overall (Sahoo, et al., 2010), the results reveal that infrastructure development in China has a significant positive contribution to growth and human capital, such as expenditure on health and education, contributes substantially to economic growth. Citing the case of China, Nti Osei (2017) shows that throughout history, diasporas have brought capital and skills back to their home economies with China owing its stellar economic take-off in the 1990s to the legions of Hong Kong investors, who married their sense of home to their newly minted millions, by pouring money over the border into the tiny backwater fishing villages of Shenzhen, seeding what was to become the huge factory cities on which China forged its reputation as the workbench of the world.

2.4.6 Australia

Australia as a “federal country has its states as the most important (Inderst, 2013) entities in infrastructure planning and spending but the federal government has an important role in regulation and in fostering and co-ordinating capital investment”. The country’s infrastructure financing gap is estimated at between USD 300 billion and USD 700 billion over a decade. The PPP was adopted as a key form of procurement for the delivery of major infrastructure projects, but the original model of the private sector taking demand risk for Greenfield projects led to massive losses in some transport projects. The Cross City Tunnel toll road took several losses as the winning consortium’s bidding for the projects overestimated traffic forecasts and what drivers would ultimately pay. The new model (Inderst, 2013) has the

public sector taking on demand risk as many investors are willing to take brownfield risks after development.

Project pipeline, suitable structured projects, political and regulatory risks, and Greenfield projects, the legacy of listed infrastructure funds, liquidity and valuation issues, scale, resources and investment expertise have been identified as barriers to (Inderst, 2013) pension funds investment in infrastructure. Players in this asset class have a common call for the greater supply of infrastructure projects and an integrated and co-ordinated pipeline across (Inderst, 2013) the State and Federal governments. The current projects are not suitably structured, in that the PPP framework encourages a transactional approach to infrastructure investment that is focused on short-term interests with deals structured through consortiums made up of constructors and banks that parcel up investments that are offloaded to the final investors.

The political and regulatory risks of concern include changes in State and Federal governments, in infrastructure and tax policies and uncertainties about (Inderst, 2013) carbon pricing and renewable energy initiatives. Challenges identified as worrying under the Greenfield projects include construction and patronage risks, while those under (Inderst, 2013) the liquidity and valuation issues relate to the fact that infrastructure by its very nature is illiquid, and pension funds must maintain sufficient liquidity to finance short-term redemptions. Given the complexity of infrastructure (Inderst, 2013) with high capital requirements, there is a need for sufficient governance, management and operational resources, regardless of outsourcing efforts put in place. Australia holds 6.7% of the total OECD pension assets of USD 20.1 trillion and its ratio of pension assets (Inderst, 2013) to GDP of 93%, is the fourth highest behind the Netherlands, Iceland and Switzerland, and the total pension assets already exceed the stock market capitalisation of USD 1.24 trillion.

In 1992, the Australian pension system (superannuation) had 11 million members with a coverage rate of 71% of workers and total assets that have grown to A\$ 1.4 trillion and are estimated to surpass A\$ 7 trillion by 2028 (Deloitte, 2013). The World Bank shows that whereas the 1999 world population was relatively young, with a steep decline in the number of people by age, by 2050, the projected pyramid is much less steep, with fewer children and youth and many elderly. These projections mean that there will be a growing pension deficit,

which in turn means higher contributions or lower benefits, which in the case of the intended Africa diaspora pension fund, means there will be fewer potential contributors.

The majority of Australian pension funds are of a defined contribution model (Inderst, 2013), and the system is expected to be cash flow positive for some decades, given the favourable demographic and economic growth projections. In the old model, investment activities were outsourced to external fund managers, and favoured investment vehicles were listed companies and funds. The new model is centred on unlisted, open-ended funds and direct investing by bigger funds with infrastructure investing (Inderst, 2013) concentrated almost exclusively on the equity side, although the interest in debt is growing.

Researchers (Inderst, 2013) established that the experience with direct investing in infrastructure is mixed and fairly positive, producing relatively high risk-adjusted returns, low correlations to other asset classes and steady yield of around 5%.

The lessons coming out of Australia and Canada (Inderst, 2013) are as follows:

- “pension funds have successfully invested directly into infrastructure;
- the public sector is in a better position to assume demand risk;
- investing in infrastructure is a fairly new development and its future success is subject to unknown future developments;
- long-term investment horizons suit pension fund liabilities;
- infrastructure returns are generally stable, inflation-linked and not correlated with other asset classes;
- there is a marked shift from private equity, equities, real estate, and fixed income investment towards direct infrastructure investing by pension funds owing to the need to diversify their portfolios away from the traditional investment avenues;
- there is increasing need for infrastructure finance given that the OECD countries will require over USD 3 trillion between now and 2030; and
- a clear and growing shift from the defined benefit model of pension funds to defined contribution models that give more space for decision making in investments to the members of the fund and hence reducing agency issues attributable to trustees and fund managers (Inderst, 2013)”.

Inderst (2013) and Chen, et al. (2012) have found that direct investing in infrastructure has been successful because it has come with direct control of the assets by the pension funds, strong governance, lower administration costs than external infrastructure funds and reduced agency costs. The challenges still dogging direct investing in infrastructure by pension funds include sovereign risk (hard to diversify away), currency volatility risks, overestimation of traffic forecasts in toll road projects, demand risk assumed by private sector investors, regulatory risk, demographic risk, tax policy changes, and sometimes short-term obligations of pension funds (mismatch in fund investments and obligations).

2.5 Implications for direct investing in Africa

Africa's economy is not as highly developed as the two countries studied above, and models that work in these two countries are not likely to be easily replicated in Africa. The pension funds of the two countries are very mature compared to those in Africa that are still in their infancy or in some instances are non-existent amidst poverty and low employment rates. The currencies in Africa are numerous and volatile (Kamau & Lewis, 2011) and susceptible to inflationary pressures that erode the future annuity incomes of many employees. However, these currencies' volatility is not correlated with developed world currencies or inflationary pressures found in developed markets.

The political or sovereign risk is still high in Africa and civil wars (BMI Research, 2016) still persist in some parts of the continent, making it difficult to forecast with confidence future performance of would-be infrastructure investments by pension funds. There is opportunity for innovative financing models, like pension funds, provided low cost insurance/credit swaps are used and that the public sector assumes demand risk. The population density in Africa is low and it becomes difficult for the people to carry (Koutonin, 2015) the cost of development infrastructure. It is worthwhile to establish the attitudes of the Africa diaspora towards the financing of development infrastructure using a diaspora pension fund model. Africa also faces the challenge of low levels of revenue collection with countries such as Rwanda, Uganda at around 12.5 percent of GDP, while Mozambique and Tanzania are around 16-17 percent of GDP which by international standards is very low (Redifer, 2010).

According to Brixiova, Mutambatsere, Ambert and Etienne (2011) going forward, a mix of sources of finance, in particular private and innovative ones, will be needed to close the infrastructure gap in Africa, and that there is no ‘one size fits all’ with the right size depending on factors such as financial development, indebtedness, the business environment and preferences in each country. The innovative financing instruments come with their own risk and Brixiova, et al. (2011) states that the risk associated with Africa can be mitigated as shown:

Table 2: Mitigating Africa Associated Risks

<i>Type of risk</i>	<i>Risk mitigation strategy</i>	<i>Examples</i>
Commercial and political risk premium	Cover with both debt and equity insurance and guarantee instruments	Partial risk guarantees offered by IDA and ADF and political risk insurance offered by MIGA
Country risk premium	First Loss Investment Portfolio Guarantee	
Risk of foreign exchange volatility	Currency hedging, government exchange rate guarantees and devaluation liquidity schemes	
Financial Risk	Viability gap financing through public subsidies e.g. partial capital cost financing for up-front investment needs	

Source: Brixiova, et al., 2011

2.5.1 United Kingdom

In search of a new infrastructure investment model involving pension funds (Blanc-Brude & Makovsek, 2013), the United Kingdom has turned to pension funds to finance social infrastructure. The underpinning reason is that it is in the best interest of pension funds to invest in long-term assets like infrastructure because for pension funds the long duration, inflation hedging and steady cash flow nature of infrastructure investment holds considerable appeal (Mansour & Patel, 2008).

The financing model sees social infrastructure (schools, hospital buildings, municipal services, waste services, public transport and street lighting) projects deliver public infrastructure assets and services in exchange for a revenue stream paid (Blanc-Brude & Makovsek, 2012) directly by the public sector, as opposed to economic infrastructure (toll road, ports, airports or power generation), which collects revenues from end users. The basis

for employing this model is that it has been successful in Europe, the UK and USA. The research by Brown and Matysiak (2000), however, shows that infrastructure investment typically suffers from a problem of minimum investment size, which makes diversification difficult to achieve. This is because with normally distributed returns and equal weights, listed equities can achieve 95% diversification of specific risk with 44 stocks, while infrastructure return distributions, in case of real estate assets, and if such returns are skewed and leptokurtic, a portfolio of at least 1700 properties is needed to reduce the risk ten-fold.

2.5.2 Canada

According to Chen, et al. (2012), “pension funds are new in infrastructure investment, having set their footprint in this asset class in the last decade, and having been driven intentionally by the desire to diversify portfolios away from cyclical investments in stocks and bonds into long-term, non-cyclical investments that match the long-term tenors of pension liabilities”. Research by Chen, et al. (2012) reveal that long-term investment horizons inherent in infrastructure assets are well suited to pension funds, given that, in general, infrastructure assets generate stable, inflation-linked revenues with a high degree of predictability, allowing pension funds access to a relatively low-volatility investment with moderate returns.

Chen, et al. (2012) reveal that

traditionally, pension funds have invested indirectly in infrastructure through private equity-style infrastructure funds, but that fees charged by these funds have eroded the modest returns associated with the infrastructure asset class, leading to most sophisticated pension funds making direct investments and circumventing infrastructure funds altogether.

After the end of the 1990s bull run that was witnessed by large allocations in stocks, large pension funds were forced to explore alternative (Chen, et al., 2012) asset classes with better risk profiles and lower correlation to broader economy. An example, according to Chen et al. (2012) is that of the “Ontario Teachers’ Pension Plan that started investing in infrastructure in 2001 and had over C\$ 7.1 billion, or 6% of its total assets allocated to infrastructure in 2010 while the Canadian Pension Fund investment in infrastructure rose from C\$ 21.0 billion in 2006 to over C\$ 42.1 billion in 2010” (see Table 3 below).

Table 3: Canadian Pension Fund Infrastructure Investments

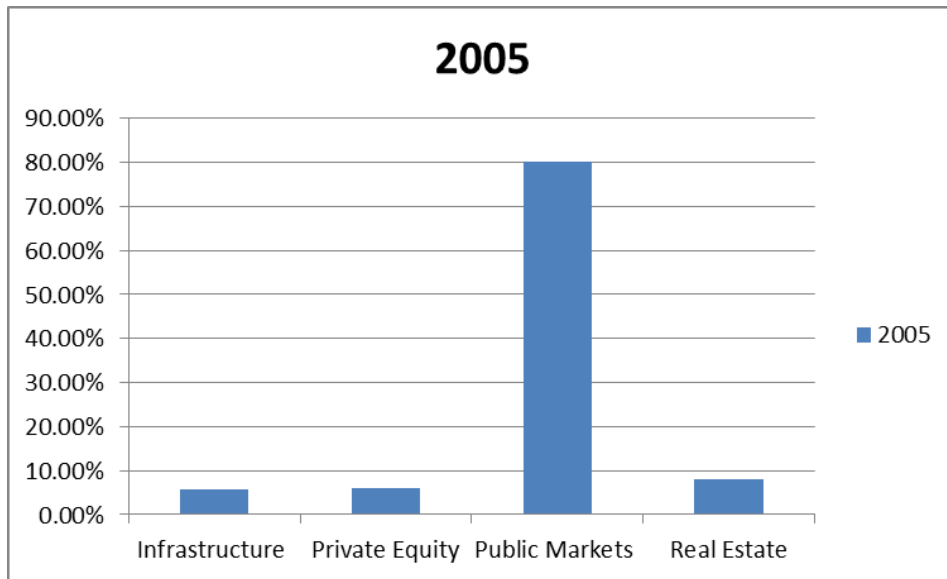
YEAR	2006	2007	2008	2009	2010
C\$ BN	21.0	15.9	29.3	35.0	42.1

Source: Chen, et al. (2012)

Private equity had been the main avenue for pension funds to invest in infrastructure, given that the higher risk inherent (Chen, et al., 2012) in the more speculative investments typical of hedge funds and private equity requires dedicated teams of experienced managers to evaluate each investment properly. It can be argued that higher risks theoretically result in higher returns and adequately compensate for the management fees charged by private equity and hedge funds. According to Chen, et al. (2012), direct investments in infrastructure projects have high-risk profiles that typically reflect thorough mitigation strategies that result in lower risk to both equity and debt investors hence yielding more modest returns. The California Public Employees Retirement System (CALPERS) for the first time invested directly in infrastructure, acquiring a 12.7%, or £106 million stake at Gatwick Airport in 2010, while OMERS established Borealis Infrastructure, a group with the sole mandate of investing in infrastructure and it is (Chen, et al., 2012) managed separately from OMERS, partly to avoid bureaucracy that is often associated with pension funds.

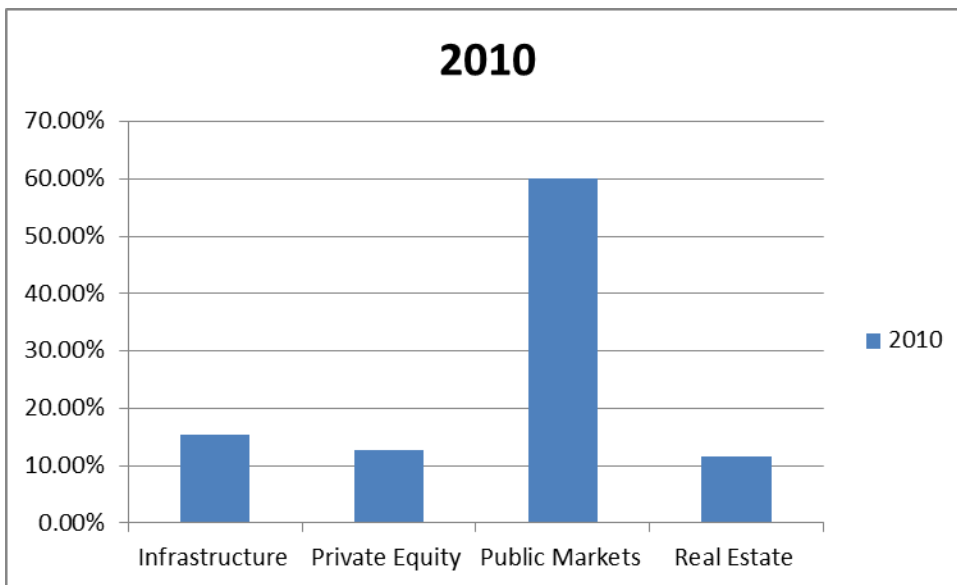
In 2005, OMERS allocated only 5.7% of its investments funds to infrastructure, while Real Estate, Private Equity and Public Markets received 8.1%, 6.0% and 80.2% respectively. This scenario was to change drastically as shown in Figure 2, where, in 2010, OMERS allocated 15.5% in infrastructure.

Figure 1: Ontario Municipal Employees Retirement System



Source: (Chen, et al., 2012)

Figure 2: Ontario Municipal Employees Retirement



Source: (Chen, et al., 2012)

OECD “estimates the annual investment requirement for telecommunications, road, rail, and water and energy infrastructure through 2030 is 2.5% of world GDP or approximately USD 3 trillion per year”. Inderst (2013) shows that Canada and Australia’s pension funds have been pioneers in infrastructure investing since the early 1990s and have the highest asset allocation to infrastructure around the globe today. The new models from these countries pose a challenge to the private equity model dominant in Europe and the USA. Many governments

have decided to encourage private investment in infrastructure to bridge the infrastructure financing gap, and at the same time institutional investors, such as insurance companies and pension funds, are trying to diversify their portfolios better and enhancing their long-term asset liability management with infrastructure assets. According to Inderst (2013), Canadian pension funds (the maple revolutionaries) are often held up as some of the world’s leading infrastructure investors, especially for their Canadian model of direct investing. The infrastructure has been financed traditionally by public money with the federal government focusing on projects of national significance, such as major ports and borders, while giving financial support to provinces and territories. The infrastructure financing gap (Bulter & Lubin, 2008) is estimated at between C\$ 50 billion to C\$ 125 billion per year and an estimated requirement of C\$ 400 billion in infrastructure upgrades over the next decade.

Canadian banks and foreign banks continue to be active in financing its infrastructure but take short-term lending, that is, short-term loans, in addition to having a robust (Inderst, 2013) finance bond market. The financing package of PPP projects is typically highly leveraged to around 90% (A-rated) with funding provided by the long-term (30 year) bond market, plus (Inderst, 2013) bank financing to cover the construction period, resulting in small equity requirements.

Table 4: Largest Canadian Pension Funds

	<i>FUND</i>	<i>TYPE OF FUND</i>	<i>ASSETS [USD BN]</i>	<i>TOP 300 RANKING</i>
1	CPP	Public	159	9
2	OTTP	Public	115	19
3	OMERS	Public	54	47
4	PSP	Public	41	71
5	QGP	Sovereign	41	72
6	Healthcare of Ontario	Industry	40	74
7	Quebec Pension	Public	35	86

Source: *Towers Watson (2012)*

The “asset allocation in 2011 was 41.7% equities, 32.5% in fixed income, and 9.4% in real estate, 7.2% in private equity, 4.6 % in infrastructure and 4.6% in other assets”. The Canadian Model of direct investing in infrastructure has seen 80% being put in unlisted funds while 15% have been put in listed funds and 51% of pension funds make direct investing in infrastructure.

Key reasons attributable to direct investing model (Inderst, 2013) have been given as:

- lower cost than external infrastructure funds
- direct control over assets, including control over the time horizon and exit decision
- agency issues with fund managers (for example, conflicts of interest, less-than-preferential treatment, and asymmetric information and skill set)
- longer term focus of direct investing allows for optimisation of long-term value and better matches the fund's liability profile
- having in-house resources to produce their own research and risk assessment of infrastructure projects without dependence on external consultations

Common characteristics attributable to the success of the model range (Inderst, 2013) from having defined benefit plans with long-term liabilities that in turn promote long-term investing; large funds; strong governance models, based on industry and professional boards that are able to understand sophisticated, complex and direct investment programmes; internal capabilities built over years; and market-based compensation allowing to attract top investment talent.

Issues with direct investing raised by investors included lack of scale and internal capacity, reputational and legal issues when things go wrong, and portfolio concentration risk with small numbers of direct holdings. According to Dyck and Virani (2012), fund fees tend to be around 2% but expenses for direct investing are at a much lower level with a mean of 0.44%. The main driver for infrastructure investing appears to be the wish to diversify pension funds' assets beyond the traditional asset classes and brownfield infrastructure assets that are very suitable for matching defined benefit fund liabilities and the support given by the pension fund members towards the financing of infrastructure using their contributions. Inderst (2013) argues that lack of resources of smaller and medium-sized pension funds, especially for direct investments, and also the higher liquidity needs of maturing defined benefit funds.

The above literature, while of importance, may not be relevant to the African continent given that the two economies are different. The Canadian economy is highly developed with a sophisticated financial market in contrast to that of Africa that is still trying to build a development infrastructure that is non-existent in some instances. Lessons to be exported from Canada relate to the fact that direct investing in infrastructure by pension funds is a real,

albeit new phenomenon, and provides examples of innovative infrastructure financing models and instruments which are the focus and part of this research area.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology used, the geographical area under which it was conducted, the research design, population and sample. Secondly, the data collection instrument, the methods implemented to ensure validity and reliability of the instrument are discussed in detail.

3.2 Research approach and strategy

This is “a mixed methods strategy as both the quantitative and qualitative (Nkomo, 2014) data would be studied”. Citing Tashakkori and Teddlie (2010), Nkomo (2014) explains that a mixed methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collectively, concurrently or sequentially given a priority, and involve the integration of the data at one or more stages in the process of research. A quantitative research (Burns & Grove, 1993) is a formal, objective, systematic process to describe and test relationships and examine cause and effect interactions among variables. Survey case studies may be used for exploratory, explanatory research and descriptive research, with the latter used to collect original data for describing a population too large to observe directly (Mouton 1996). According to Polit and Hungler (1993), a survey obtains information from a sample by means of a self-report wherein the people respond to a series of questions posed by the researcher. In this research, the aim was to elicit an accurate portrayal or account of the characteristics, for example, opinions, abilities, beliefs, and knowledge of the selected group, and the descriptive survey was selected for this purpose. This design was chosen to meet the objectives of the study, that is, to determine the views of the members of the Africa diaspora community, mainly associated with the University of Cape Town, with regard to the establishment and modeling of an Africa diaspora pension fund as a likely financing instrument for the continent’s development infrastructure.

3.3 Research design

The case study embraced the mixed methods strategy as both the quantitative and qualitative data was collected and studied. The case study was carried out at the University of Cape Town, one of South Africa's oldest and premier higher learning institutions that was established in 1829 and currently boasts over 22 000 students. A significant number of the students come from other African countries. The university has in excess of 5 000 employees, of which 400 plus come from other countries in Africa, and therefore form the Africa diaspora community that is the subject of this research.

TheSurveyMonkey online questionnaire was used for collecting data and it was approved by the Ethics Committee and the University of Cape Town Human Resources Department. The Human Resources Department compiled the list of all the employees that met the definitional criteria of the Africa diaspora and sent it to the researcher for confirmation, following which the same department then sent it out to the targeted community at the university. The questionnaire was chosen because it was easy to use and administer, as it is online and takes seven minutes to complete. The questionnaire also gave the community members a chance of expressing their views regarding the support they have for modeling the diaspora pension fund as a likely instrument for financing the continent's infrastructure amidst the negative perception of high risk attributed to the continent. It was an opportunity to test the traditional theories of finance, holding that rational investors use all the available information in making rational investment decisions that are not influenced by things like the origins of the investor, positive externalities associated with public goods and sustainable investment principles.

3.4 Research setting

The research was conducted mainly at the University of Cape Town, an institution of higher learning in South Africa with an employee population of over 5000 and an employee Africa diaspora community of 400. The university is situated in the Western Cape Province and boasts a significant number of employees with roots in other African countries. The university was established in 1829 and has over 22 000 students registered in its various faculties.

3.5 The study population and sample

A population is composed of all elements (individuals, objects and events) that meet the sample criteria (Burns & Grove, 1993) for inclusion in a study.

The research targets members of the Africa diaspora community mainly associated with the University of Cape Town, either as African students working outside their country of origin or as employees of the university, but originating from an African country other than South Africa or from a country outside Africa but with their origins in Africa.

The university has over 5000 employees of which 400 are members of the Africa diaspora and a population of over 22 000 students. The university granted permission for the research to be conducted, and an online questionnaire was sent out directly from the university's Human Resources Department to the targeted participants and only 46 of the potential population of 400 participants completed the form. From the 46 returned questionnaires, 10 of them were rejected because they were either incomplete or blank. Support for the modeling of the diaspora pension fund as a likely instrument for financing development infrastructure has implications for infrastructure financiers like governments, institutional investors, pension funds and members of the diaspora community at large, who may be interested in harnessing development infrastructure funds from the continent's diaspora community's pension fund contributions.

The fielding of questionnaires was done online through the Human Resources Department of the University of Cape Town. The department was able to isolate and identify the subjects meeting the criteria of being members of the Africa diaspora community, and after the researcher authenticated the accuracy of the data that showed the country of origin, employment status, qualifications, age and gender but without names or faculties, the Department then sent out the online questionnaire to identified would-be participants.

The research was conducted on the eve of the closure of the university and this had a serious impact on the number of subjects that were able and willing to participate. This resulted in 46 participants out of a sample of 100 members willing to take part in the research. Mouton (1996) defines a sample as elements selected with the intention of finding out something

about the total population from which they are taken. The sample was convenient in that the subjects were available at the right places and time.

The researcher considered “cost effectiveness, convenience given the tight time schedule and the need to avoid interfering with the respondents in their answers to avoid bias”. The Africa diaspora have over 40 million people in the United States of America alone and due to time and cost constraints, it was not practical for the researcher to have a bigger size sample that would be statistically representative of the total number of the diaspora population worldwide.

3.6 The sampling criteria

The subjects forming the sample were intended to meet the following criteria:

- were employees of the University of Cape Town or elsewhere, and originating from an African country outside their current place of work
- were members of a Pension Fund or Retirement Annuity or any social security scheme
- would be willing to participate in the research
- would be of either sex or any race, as long as they were part of the Africa diaspora community

3.7 Data collection instrument

An online survey monkey questionnaire was chosen for use in the research as a data collection instrument because it is easy to administer and it automatically carries out calculations of basic descriptive statistics such as graphs, pie charts and sums up subjects' numbers and means.

A questionnaire (Burns & Grove, 1993) is a self-report form that enables the elicitation of information that can be obtained through the written responses of the participants and is similar to that obtained by interview although the questions may tend to have less depth. The questionnaires helped to gather data about the views and opinions of the members of the diaspora community regarding the establishment and modeling of the Africa diaspora pension fund as a likely financing instrument for the continent's development infrastructure.

Questions were decided upon based on the following, among other considerations:

- The questionnaire required seven minutes to administer and the questions were short and open-ended.
- Anonymity was ensured, as the names of respondents were not required.
- They were consistent throughout and helped avoid bias.
- Questions pertaining to key choices about the modeling of the pension fund were closed to make it easier to compare the responses to each item and to conduct logistics regression and calculate other measures of association.
- The language was simple to ensure subjects had little difficulty, if any, in answering the questions.
- The questionnaire provided an opportunity for participants to indicate their gender, age and educational level for purposes of carrying out relationship analysis between the stated variables and support for the establishment and modeling of the pension fund.

The challenges that cannot be ruled out are that it is near impossible to know whether the participants were really reflecting their true views and opinions on the issues raised and not out to please the researcher (information asymmetry/adverse selection).

The first part of the questionnaire elicited data about the age, gender, educational level and the retirement fund that the participant was a member of. The questionnaire had five age categories and this was meant to establish whether different age groups differed in their support for the establishment of the diaspora pension fund, and whether gender influenced investment decision-making when it came to supporting the establishment or modeling of the diaspora pension fund. The education levels of the members were also put in different groups to ascertain whether there is any correlation between the level of education with support for the establishment of the pension fund. This structure of the questionnaire will help elicit useful information for the would-be pension fund institutions interested in commercialising the diaspora pension fund as they will know the likely market segment that will form their customer base. The questions also inquired whether the subjects were interested in knowing about where their contributions were invested and if they wanted to be involved in investment decision-making. Some of the questions were open-ended to give participants the opportunity to air their views outside a restricted area about the possibility and feasibility of establishing the diaspora pension fund and the way the fund could be modeled.

The second part of the questionnaire introduced more complex questions and solicited answers about the participants' likely support for the establishment of the fund, whether they would rather invest outside Africa given its risk profile, what proportion of their pension fund contributions they would put into the would-be fund, whom they would want to supervise and manage the fund, including the reasons for their choices. Participants were further asked to state whether it was safe to invest in Africa, whether the fund was a likely instrument for the financing of the continent's development infrastructure, and if so, under whose control such a fund should be placed. Participants had a chance to give their opinion about the factors that contributed to lack of funding for the continent's development infrastructure and how these factors could be mitigated. The questionnaire was designed in such a way that it encompassed questions aimed at eliciting views and opinions about the would-be establishment and model of the diaspora pension fund as a likely financing instrument for the continent's development infrastructure.

3.8 Data collection procedure

The researcher designed the questionnaire and had it approved by the university's Ethics Committee and authority to carry out the research was sought through the university's Human Resources Department. The department then had to approve the questionnaire and prepare the data base for use by the student. The list of employees that met the criteria was extracted for the researcher to assess and confirm that it met the criteria as specified. The questionnaire was then sent to the 400 employees of the university who were members of the Africa diaspora community.

The online questionnaire carried a letter of introduction about the research, its objectives and requested participants to complete it.

3.9 Reliability and validity

According to Polit and Hungler (1993), reliability refers to the degree of consistency with which an instrument measures the attitude it is designed to measure, and in this research, the questions revealed consistency in responses, and to ensure privacy and confidentiality, the distribution of the questionnaire was done anonymously. The distinguishing characteristic in "terms of reliability" is that Roberts, Wallace and Moles (2003) suggested similar results

should be obtained by researchers on different occasions (replicability). In this study, it is assumed that the questionnaire used will enable any other researcher to obtain similar results on any other occasion with similar characteristics. In other words, where it is found that 50% of male respondents from the diaspora community support the establishment of the diaspora pension fund, it is likely that another researcher will obtain similar results in another research. This does not entail full replication of the study, but that similar observation could be recorded, subject to considerations of subject error, subject bias and observer error.

There was no test-retest reliability conducted to measure correlation in order to evaluate the test for stability over time. Ordinarily, an obtained correlation coefficient would indicate the stability of the scores. However, the questionnaire was field, tested with a group of students at the Graduate School of Business at UCT, and from their feedback the questions were easy to follow and chances of having issues misunderstood were unlikely.

Validity, being the degree to which (Polit & Hungler, 1993) an instrument measures what it is intended to measure, with content validity being the extent to which an instrument represents the factors under study, the questionnaire contained a variety of questions relating to the establishment and modeling of the diaspora pension fund as a likely financing instrument for the continent's development infrastructure. To achieve clarity, simple language was used in formulating the questions and simple instructions were given. External validity, that is, the extent to which the study findings can be generalised beyond the sample used, was ensured by drawing the sample from the population in question, and a sizable sample of 46 participants chosen which constitutes approximately 10 percent of the population forming the bases of the study. Generalising of the findings to the population would follow after carrying out logistic regression and other measures of association to determine whether the findings can be generalised to the population.

3.10 Pre-testing the questionnaire

To identify the instrument's flaws before administering it, the researcher carried out a trial administration of the questionnaire on eight fellow students to ascertain the clarity of the questions and instructions/directions given so as to measure understanding of what was required of them. These students met the criteria in relation to the research, and without challenges, all of them completed the questionnaire.

3.11 Ethical considerations

The researcher observed the participants' rights to privacy, anonymity and confidentiality in order to render the study ethical. The Research Committee at the University was informed about the research and its objectives, and written permission to carry it out was granted, and throughout the study, confidentiality was observed, as respondents cannot be linked with their responses. To ensure scientific honesty, the researcher avoided the manipulation of design methods and data and answers to questions were recorded without any amendments, and an independent Statistician entered the data from the questionnaire (SPSS-Select Research) in the case of logistic regression only. Conversely, the questionnaire was internet-based and carried out the analysis automatically (SurveyMonkey).

3.12 Data Analysis

The study analyses the responses of 46 members of the Africa diaspora associated with the University of Cape Town to questions designed to elicit their views and opinions about the establishment of the diaspora pension fund as a likely financing instrument for the financing of the continent's infrastructure. It further elicits whether the support for such a likelihood is influenced by the age, gender and level of education of the participants and models the probability of finding such views, opinions or support amongst the Africa diaspora population. The study analyses the data to model the Africa diaspora pension fund which according to participants is a likely instrument for financing the continent's infrastructure.

In arriving at the findings and modeling of the fund, the case study uses logistic regression, chi-square, regression analysis and frequency distributions. In order for the diaspora community members' attitude toward the modeling of the diaspora pension fund as a likely instrument for financing development infrastructure to be ascertained, research questions have been employed. Research questions form the critical framework from which the questionnaire questions are formulated in preparation for data collection from the participants. The research questions arose from the purpose of the study and the contribution to knowledge will be the answer to these questions.

The data was analysed in two stages. The first stage involved automatic analysis using the SurveyMonkey that produced descriptive statistics, with frequency tables and data presented in pie diagrams and bar graphs. The open-ended questions were analysed through content analysis by the researcher, in order to quantify emerging characteristics and concepts about the research. The SurveyMonkey analysis will show the support that each age group, educational level and gender has for the diaspora pension fund, using pie charts converted to percentages. The second stage involved the employment of measures of association (Chi-square and Logistics Regression, among others) to elicit the emerging trends and characteristics between variables and to fashion a model, including testing the significance of the results. In the chi-square analysis, statistical tables will be used to calculate any statistical independence between variables, for example, age and willingness to contribute part of one's pension contributions. This is complemented by the p-value results that will show any association between the variables and the significance of such association, if any. The research uses the difference between the expected frequencies (EF) and the observed frequencies (OF) to assess the degree of statistical independence between the two variables. According to Kendrik (1997), there is a need to know the size of the difference because, the smaller the difference, the greater the statistical independence (the more one variable changes, irrespective of the other). Where the frequencies obtained through observation (Kendrik, 1997) of a sample are substantially the same as those expected, then there is no association between the two variables, but where the EF and the OF are different, there is more statistical independence, that is, more effect of one variable on the other. It is the extent of these differences that are measured using the (Kendrik, 1997) chi-square formula:

$$X^2 = \frac{\sum 2|f_0 - f_e|}{f_e}$$

From the above, degrees of freedom are obtained using the formula (r-1) (c-1) providing (5-1) (2-1) =4 and the critical value obtained at .05 level of significance is 9.488, which is greater than X^2 of 4.3391 and the null hypothesis that there is no association between the age range of members of the diaspora community and their willingness to contribute some of their pension contributions towards financing the continent's development infrastructure is not rejected.

To test the robustness of the above analyses, the logistic regression is then employed to determine whether the independent variable is predictive of the dependent variable, for

example, whether age, level of education and gender influence support for the diaspora pension fund or whether all the factor variables are predictive of compliance. Logistic regression was used because it determines whether other measurements are related to the presence of some characteristic, that is, whether the independent variable is predictive of the dependent variable. In this case, the logistic regression determines whether age, level of education and gender influence support for the diaspora pension fund, in other words, whether all the factor variables are predictive of compliance. If analysis of covariance can be said to be a test adjusted for other variables, then logistic regression (Dallal, 2001) can be thought of as a chi-square test for homogeneity of proportions adjusted for other variables. Logistic regression predicts the probability that an indicator variable is equal to 1. To be precise, the logistic regression equation does not directly predict the probability that the indicator is equal to 1. It predicts the log odds that an observation will have an indicator equal to 1, and the odds of an event is defined as the ratio of the probability that an event occurs to the probability that it fails to occur.

$$\text{Odds}(\text{indicator} = 1) = \frac{\text{Pr}(\text{indicator} = 1)}{1 - \text{Pr}(\text{indicator} = 1)}$$

Or

$$\text{Odds}(\text{indicator} = 1) = \frac{\text{Pr}(\text{indicator} = 1)}{\text{Pr}(\text{indicator} = 0)}$$

In this research, a logistic regression was performed to ascertain the effects of independent variables on the likelihood of being part of the Africa diaspora pension fund or the likelihood of supporting the establishment of the diaspora pension fund.

The research also tests whether the choice of investment asset or destination by an investor is associated with the origin or nationality of the investor, regardless of perceived risks associated with asset class return or investment destination. Is the investor's origin influential when it comes to making investment decisions? The study tests whether there is a relationship between the respondents' gender and their support for the setting-up of the diaspora pension fund for the financing of the continent's development infrastructure. The null hypothesis, in this case, would be that there is no relationship between the respondent's gender/educational level and his choice of an investment asset or destination (statistical independence).

The research tests for statistical independence (Kendrick, 1997) to show whether changes in one variable (origin of investor) have nothing to do with changes in a second variable (support for Africa diaspora pension fund).

3.13 Limitations

Respondents may not want to be named in the research or their employer institutions identified, and to that extent, the researcher sought permission from both the respondents and the named institution before fielding any questionnaires or conducting interviews. Given the size of the diaspora community, the researcher will not attribute the outcome of the research to the views of the Africa diaspora in general.

The size of the sample will not be representative of the population, and there is a risk of attributing certain issues to the bigger population and the researcher will avoid this.

The diaspora community is diverse in language, culture and closeness to Africa, and as a result some of its members may not even want to identify with the objectives of the research and its goals. The researcher recognises “the diversity in cultures and religions (Hergueux, 2011/14) that may have profound influence in investments of a certain type and explains that the research is qualified to the extent that not all religious beliefs would have been taken into account”.

3.14 Research Assumptions

The case study assumes that the participants will answer the questionnaire truthfully and honestly, and that their responses will be based on their personal experiences. However, the researcher has no control over unforeseen motives of the participants.

The knowledge base about development infrastructure financing models and the use of pension funds as models for financing infrastructure is very wide, but there has been no research on the attitudes of the Africa diaspora regarding the modeling of a diaspora pension fund as a likely instrument for financing the continent’s development infrastructure. The next chapter presents research findings on the above attitudes from the 36 members of the Africa diaspora community associated with the University of Cape Town.

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

4.1 Response rate

Data was obtained from self-administered online questionnaires, completed by 36 members of the Africa diaspora, mainly associated with the University of Cape Town, [n=36], with a 36% response rate. It was assumed that from the population of 400 members only a quarter of the members of the Africa diaspora community, mainly associated with the University of Cape Town, would be willing to participate in the survey (n=100). A total of 46 questionnaires were received, however, only 36 questionnaires were usable representing only 36% of the expected sample. Given that the response rate was very low, the results of the case study cannot be generalised to the more than 100 million members of the Africa diaspora worldwide, but can be attributable to the specific community of the Africa diaspora members associated with the University of Cape Town. The implications are that there is need for further and extensive study to be conducted before the design and later commercialisation of the diaspora pension fund product can be carried out.

The main reason for the low rate of return was that the questionnaires were administered during the time the university was closed due to ‘fees must fall’ demonstrations, and access to the target sample proved extremely difficult. Of the remaining 10 unusable questionnaires, most of them were not completed in full, in that two or more sub sections were left blank or omitted. The questionnaire comprised three main sections, and enabled data generated to be shown along the following areas:

- The first section captures demographic data such as age, gender, education level.
- The second section elicits information/data about the community’s support for the diaspora fund establishment, whether they will be happy to join the pension fund and whose contributions would be used to finance the continent’s development infrastructure, notwithstanding the fact that Africa is perceived as a risk investment destination.
- The last section elicits responses to questions about the member’s attitude to risk, and what is to be done in Africa in order to attract infrastructure investment.

The data will then be examined and the association between selected variables discussed, and the chi-square used to measure significance in the outcomes.

DATA ANALYSIS

This research sought to analyse the responses of a sample of 100 members of the Africa diaspora associated with the University of Cape Town to questions designed to assess investor's rational decision-making across age/gender (support or otherwise for the setting-up of the diaspora pension fund), given Africa as the investment destination.

The research hypotheses below guided the researcher in formulating questions for inclusion in the questionnaire:

H1: Regardless of age and gender, education level, members of the Africa diaspora community, associated with the University of Cape Town, are more likely to support the setting-up of the Africa diaspora pension fund for the financing of the continent's development infrastructure than other non-Africa diaspora community members.

H0: Regardless of age and gender, members of the Africa diaspora community associated with the University of Cape Town are no different from other rational investors and are not likely to support the setting-up of the diaspora pension fund for the financing of Africa's development infrastructure given that this destination is perceived as risky and uncertain.

The research will also test whether there is a relationship between the respondents' gender and their support for the setting-up of the diaspora pension fund for the financing of the continent's development infrastructure. The null hypothesis, in this case, would be that there is no relationship between the respondent's gender/education/age, and his/her choice of an investment asset or destination (statistical independence).

For data analysis, the chi-square that measures inference appropriate for use with contingency tables was employed.

The research used descriptive statistics that were automatically calculated online, using the SurveyMonkey Questionnaire which made it possible to produce frequencies under pie charts,

tables and percentages to answer most of the questions. The chi-square was used to measure statistical significance (0.05) of relationships among selected variables.

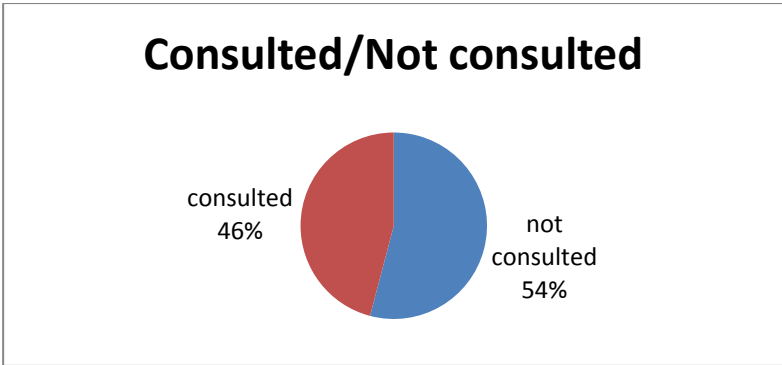
4.2 Discussion of results

The broad and general overview of the respondents' demographic characteristics, their general attitude toward the diaspora pension fund and their support for it produced interesting results. In all, there were 46 respondents out of an expected 100 respondents. The analysis and findings is based on 36 respondents because the other 10 respondents were either used for testing the research tool or disqualified for not answering all questions, and also the main group of expected respondents from the University of Cape Town appeared either to have been negligible or not interested. The university closed down due to the 'fees must fall' student protest before the questions could be sent out to staff for completing, and when they were eventually sent out, the university was closing for the year amidst a lot of activity around re-scheduled classes and examinations.

The university promised to re-send the questionnaires again to staff, and in case this happens, the results of the research may be amended. Of the 40 respondents that answered the questionnaire, 59.5% were male, while 40.5% were female, with the majority of them being aged between 30-40 years at 40.5%, followed by those aged between 40-50 years at 32.4%, and those aged between 50-60 at 13.5%, while those below 30 years of age represented 10.8%, and the rest were above 60 years of age and constituted 2.8%. The sampled members of the Africa diaspora community are highly educated, with 75.7% of them having post graduate qualifications; 16.2% undergraduate, and 8.1% having diploma/certificate qualifications. All the respondents are currently members of either a pension fund (51.4%), a provident fund (27%), a retirement annuity (13.5%), or another scheme (8.1%).

The most common model of pension fund is now the defined contribution scheme (85.7%) and defined benefit scheme (14.3%), although 40.5% of the respondents have a rough idea of how much their final retirement benefits would be, 24.3% have no idea at all, leaving only 35.1% who know what their final retirement benefits will be. In answer to Q8, 54.1% of respondents stated that they were not consulted by their retirement fund trustees about where their contributions should be invested, with only 45.9% confirming that they are being consulted. See Figure 3 below.

Figure 3: Consulted/Not consulted on investment of contributions



Secondary Analysis

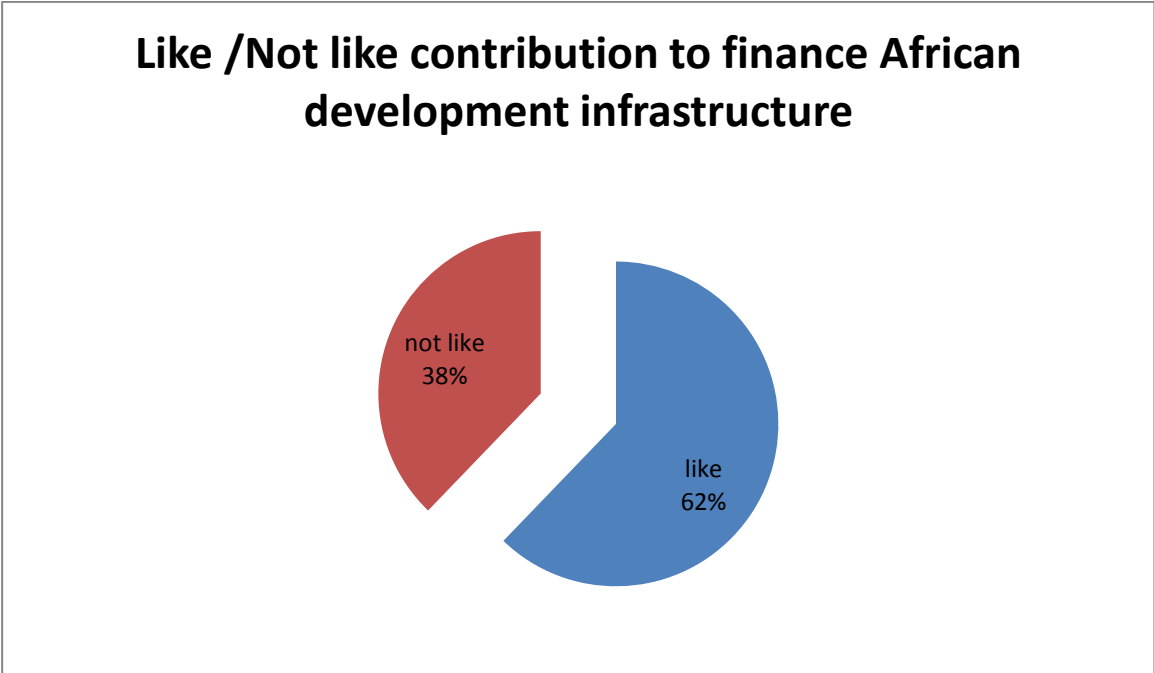
This section of the quantitative analysis is based on the SurveyMonkey descriptive statistics, chi-square and logistic regression. The SurveyMonkey was chosen because it carries out basic descriptive statistics showing bar charts and pie charts.

Chi-Square Analysis

Q9 Analysis: If you had a choice, would you like part of your retirement contributions to be put in a pension fund that finances Africa’s development infrastructure? (toll roads, airports, dams, rail lines)

Sixty-two point two percent (62.2%) of the respondents stated that they would like part of their retirement contributions to be put in a pension fund that finances Africa’s development infrastructure, while 37.8% of the respondents did not want to be part of such an investment destination. See Figure 4 below.

Figure 4: Like/Not like contribution to finance African development infrastructure



To measure statistical independence between the two variables of age and willingness to have contributions put to finance Africa’s development infrastructure, the research used the chi-square test and p-value analysis as shown below. The calculated chi-square statistic is 4.3391. The p-value is .362059 showing that the result is not significant at $p < .05$. We fail to reject the null hypothesis that there is no association between the age range of members of the diaspora community and willingness to have part of their pension contributions invested in a pension fund to finance the continent’s development infrastructure. In this case, the age variable is the independent, while the choice of instrument/willingness to have pension contributions finance the continent’s infrastructure is the dependent variable to align with the theory that independent variables must happen in time before dependent variables. The figure below shows that in the first row for respondents <30 , there were 2 observed frequencies compared to the calculated expected frequency of 2.44 shown in brackets, but that in the age range 30-40 the respondents that were willing to finance the continent’s infrastructure with part of their contributions were highest at 10, with only 3 not willing to do so. A question that arises is whether there is an association between a particular age range of members of the Africa diaspora community and the willingness to finance the continent’s development infrastructure using a diaspora pension fund.

Some of the reasons behind the willingness to finance the continent's development infrastructure from part of their pension fund contributions were as follows:

- “Fine, if investment yields positive returns to me in the larger community.”
- “Being an African, I would like to contribute to the development of Africa.”
- “I am a development economist and I would like to contribute to the development of Africa.”
- “Investing in infrastructure means there is always a need, provided the money is put to good use.”
- “I want to play a part in developing my own people.”
- “I would like to see Africa improve as a whole.”
- “Infrastructure is the foundation of any economic growth.”
- “Important for own welfare when retired.”
- “In order to make a positive social impact.”
- “Infrastructure is the best way to save money while building the continent.”
- “It would be great to help Africa.”
- “One of the key factors that holds back African countries’ economies and commerce is the lack of good and efficient infrastructure.”
- “Rather Africa development than any other.”
- “Returns from investing in this go beyond pure financial numbers. The ancillary benefits for society are attractive.”
- “That is the only way that Africa can develop and be self-reliant.”
- “There is a huge infrastructure development backlog that needs to be financed in Africa.”
- “To improve the welfare of Africans while earning a return.”
- “To play my part in Africa’s development.”
- “To repay some of my debt.”
- “I have an interest in seeing my native country develop and able to compete on the world market.”
- “There are high returns and I think risk is over-estimated because of insufficient information.”

The above reasons appear to dispel the traditional theory that investors, in general, will avoid investment destinations that are perceived to be risky in order to protect their investments in that it appears the country of origin (ascribed characteristic) has an association with willingness to finance development infrastructure in his or her continent of origin, assuming, of course, that the sample of respondents' responses can be estimated to the whole of Africa's diaspora population. However, given the size of the sample and its restricted area from which it was drawn, and the difficulties faced in accessing the participants, these results are not meant to be extrapolated to the total population in question, but are insights restricted to the sample in question.

Table 5: CHI-square Contingency Table of Association

<i>Age</i>	<i>Like</i>	<i>Not like</i>	<i>Row Totals</i>
<30	2[2.44][0.08]	2[1.56][0.13]	4
30-40	10[7.94][0.53]	3[5.06][0.84]	13
40-50	5[7.33][0.74]	7[4.67][1.17]	12
50-60	4[3.06][0.29]	1[1.94][0.46]	5
>60	1[1.22][0.04]	1[0.79][0.06]	2
Column Totals	22	14	36

On the other hand, the respondents who showed unwillingness towards the financing of the development infrastructure had the following concerns:

- “Risk, corruption, sadly the history of the spending of public funds in Africa is not a happy one, with seriously limited positive success. For example, SANRAL and the e-tolls, financed by Government Pension money without consultation, has been a complete and hugely expensive failure. Corruption is rife throughout the continent as well.”
- “Too many pressing personal priorities of my own, and taxes on our salary goes towards our infrastructure anyways.”
- “It is a very good initiative. It’s just I have no faith in the Africa people to see that the money goes to do the described tasks. If I had more faith, I would gladly allow that to happen.”

- “Return from investment for the pension fund will not be much and African governments are known for delaying payments or not paying at all.”
- “I am afraid my funds will not be safe and will not access them because of corruption in Africa.”

The concern about governance issues in Africa were topical, and this manifested in the allocation of the pension fund contributions in bonds, provident fund and pension fund that finances Africa’s development infrastructure. Forty percent of the respondents’ contributions were to be allocated to bonds, 37.3% to provident funds, and only 25% to a pension fund that finances the continent’s infrastructure. A research by Chen, et al. (2012) found that Canadian pension fund investors had 15% of their funds invested in infrastructure, compared with 36.2% in the case of members of the Africa diaspora; 60% in public markets, compared with 25% in the case of members of the Africa diaspora, and whereas 12% and 11% were invested in private equity and real estate respectively, the Africa diaspora members had 33% earmarked for the US bond market. The appetite for infrastructure investment is higher in the case of the Africa diaspora members studied, compared with their counterparts in Canada, and despite the research findings that show that investors, in general, are relatively risk averse when it comes to investing in infrastructure. The personal characteristics of the investors may be at play, with those familiar with Africa having a lesser view of risk when it comes to their environment, while in the case of Canada, the confidence with the asset class being studied is still growing.

It is also arguable that in the case of the Africa diaspora, there are no asymmetric information challenges hence the higher percentage contribution given to the asset class or emotional attachment to Africa, and its cause may be contributing to the members wanting to take significantly high risk in order to see the continent developing. The Africa diaspora members cited high risk in stock returns at the London Stock Exchange (LSE) as the main reason why they put the list pension contribution (25%) to this investment class (Question 15), and 27.3% of the members stated that while the investment was secure, the returns were low at the LSE.

A test to measure association between gender and willingness to contribute part of the pension fund to a diaspora pension fund for financing the continent’s development infrastructure produced interesting results as shown by Table 6 below:

Table 6: Gender and willingness to contribute part of pension fund to finance development infrastructure

<i>Gender</i>	<i>Pro</i>	<i>Against</i>	<i>Marginal Row Totals</i>
Male	17[14.06][0.62]	6[8.94][0.97]	23
Female	5[7.94][1.09]	8[5.06][1.71]	13
Marginal Column Totals	22	14	36

The chi-square statistic is 4.3923. The p-value is 0.036102 and the result is, therefore, significant at p-value <.05. This means that the null hypothesis is rejected and that there is no association between gender and willingness to contribute part of the diaspora community member's pension fund to a diaspora pension fund for use in financing the continent's development infrastructure. From Table 6, it is evident that a majority of male members are more willing than females to make such a contribution. The chi-square statistic is 4.39 and is greater than the critical value at 3.84, and the null hypothesis is rejected. The results are in line with research findings by Hira and Loibl (2006), who established that men are more likely to take risk in investment decision-making than women, thereby showing that, contrary to the general genderless findings of the modern portfolio theory, personal and environmental factors play a critical role when it comes to investment decision-making. These research findings are important to the would-be product design targeting the Africa diaspora community because women are found to be keen only to taking average or below average risks. The difference in investment behaviour can also be explained by the three biases plaguing investors (Stammers, 2011) namely, overconfidence, familiarity and anchoring. Given familiarity with Africa, members of the diaspora community may have concentrated on (Stammers, 2011) opportunities in their own continent as they are familiar with and confident (overconfidence) about local investment opportunities, and uncertain about US Treasury Bills and the London Stock Exchange investment opportunities (asymmetric information) which challenge faces other investors that are not familiar with Africa. The overseas investors may be fixated with past information about Africa (anchoring) and its perceived high risk, and using that information to make inappropriate investment decisions that result in them shunning the continent and concentrating their investments in low return markets (Collier, 2010).

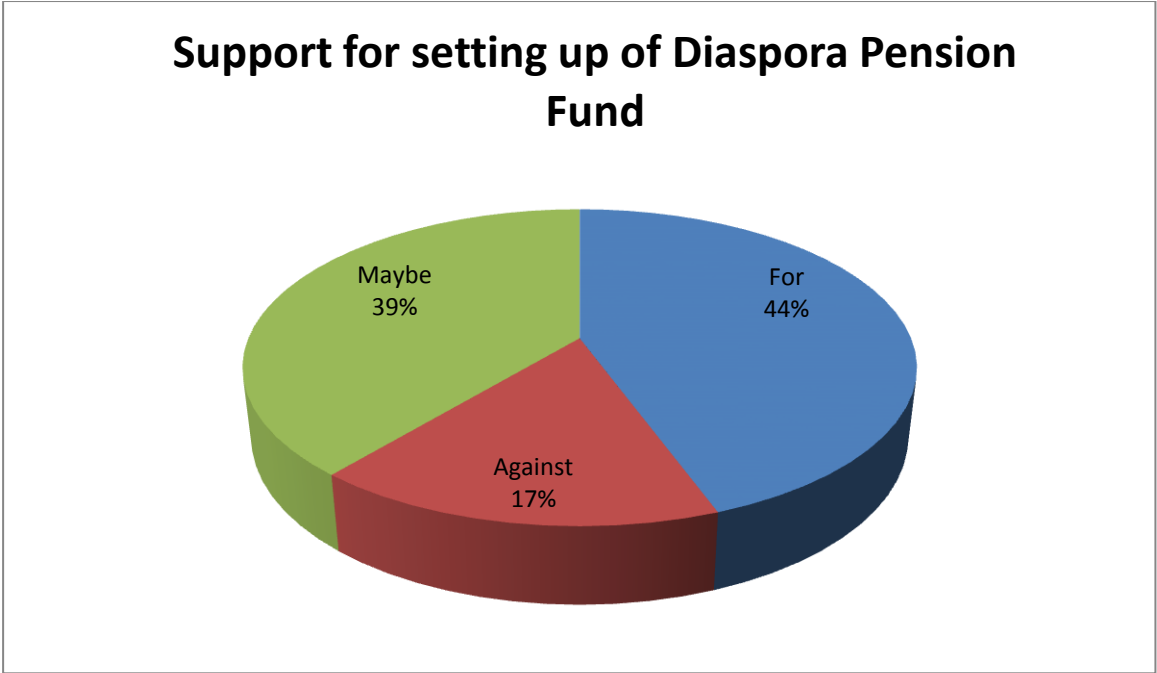
Barring governance and gender issues, it is clear that members of the Africa diaspora community in question are supportive of the initiative. One respondent indicated that he had no willingness to allocate anything to Africa's development infrastructure because of

insecurity, uncertainty and corruption (anchoring). Lagging indicators about the past appear to shape future investor decision-making about opportunities in Africa, although the continent environment is not static, and also that the perception of risk is mainly attributable to governments and, therefore, inappropriate to attribute it to the privately funded infrastructure projects.

Q13: Would you support the setting-up of the Africa diaspora pension fund whose contributions would be invested in financing the continent’s development infrastructure?

The majority of the diaspora community (44.4%) will support this, 16.7% will not, while 38.9% may support the setting up of the diaspora pension fund. See Figure.5 below.

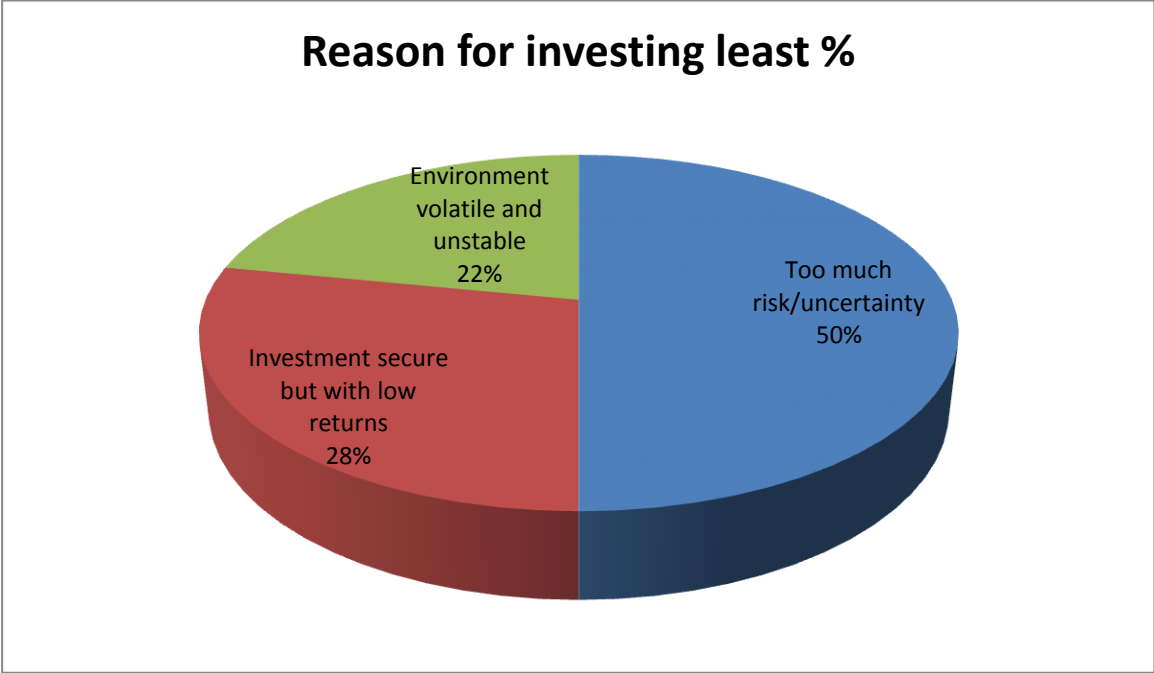
Figure 5: Support for setting up Diaspora Pension Fund



From the intended diaspora pension fund, respondents indicated that they will invest 36.2% of it in direct investment in Africa’s development infrastructure, 33% in USA government treasury bills, and the balance of 25% in the stocks at the LSE. It may be that the respondents are concerned about risk when it comes to the investment destination of Africa, but have also familial linkages that motivate them into investing in Africa. This is borne out by reasons given to Q15 below.

Q 15: What is your reason for investing the least percentage of contributions in the avenue chosen above?

Figure 6: Reason for investing least % in the avenue chosen

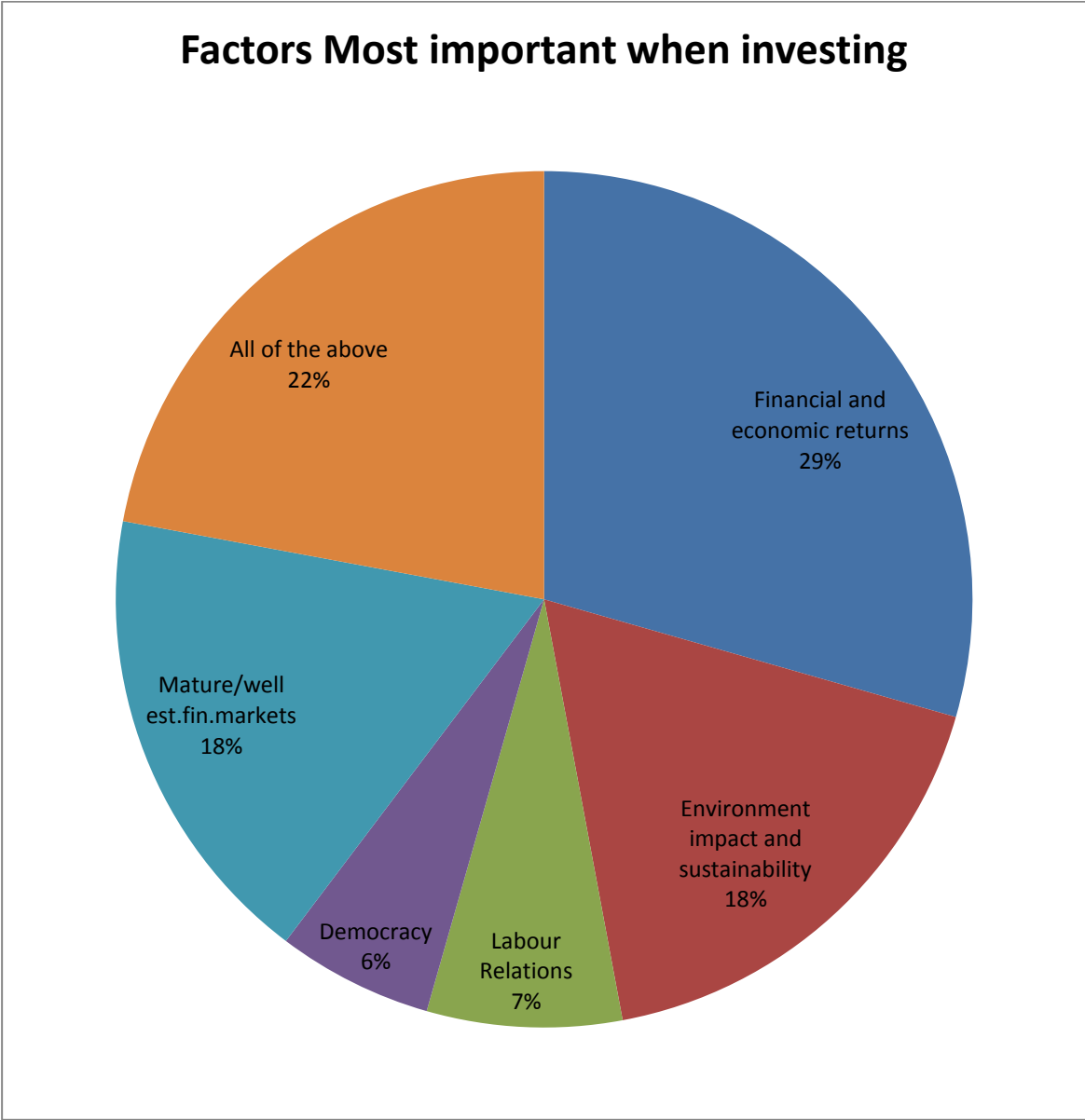


The perception of risk appears to be dependent on the origin of the respondent as the US government treasury bills received the least percentage, or it could be that the respondents were not familiar with what these treasury bills represented. The mistrust of African governments has been clearly shown by the respondents with only 5.6% being happy with an Africa diaspora pension fund falling under the control of any African government, while the majority at 38.9% are happy with such fund being controlled by fund managers, followed by 36.1% of them happy with the fund falling under the control of a body of trustees drawn from the three bodies in question. There is less trust given to fellow diaspora members, as only 19.4% are happy with the fund being controlled by a body of trustees drawn from members of the Africa diaspora community.

Q17: Factors most important to you when investing retirement contributions into businesses/assets/countries?

In this area, risk played a small role, if any, as the respondents' most important factor was financial and economic returns (55.6%), although 41.7% of the respondents considered all the listed factors important.

Figure 7: Factors most important when investing retirement contributions



In Q18, a total of 68.6% of the respondents indicated that they agreed, and strongly agreed that they cared about the industries or companies into which their retirement contributions

were invested, with only a total of 20 % disagreeing or strongly disagreeing. The respondents appear to be familiar and concerned about ESG factors and issues.

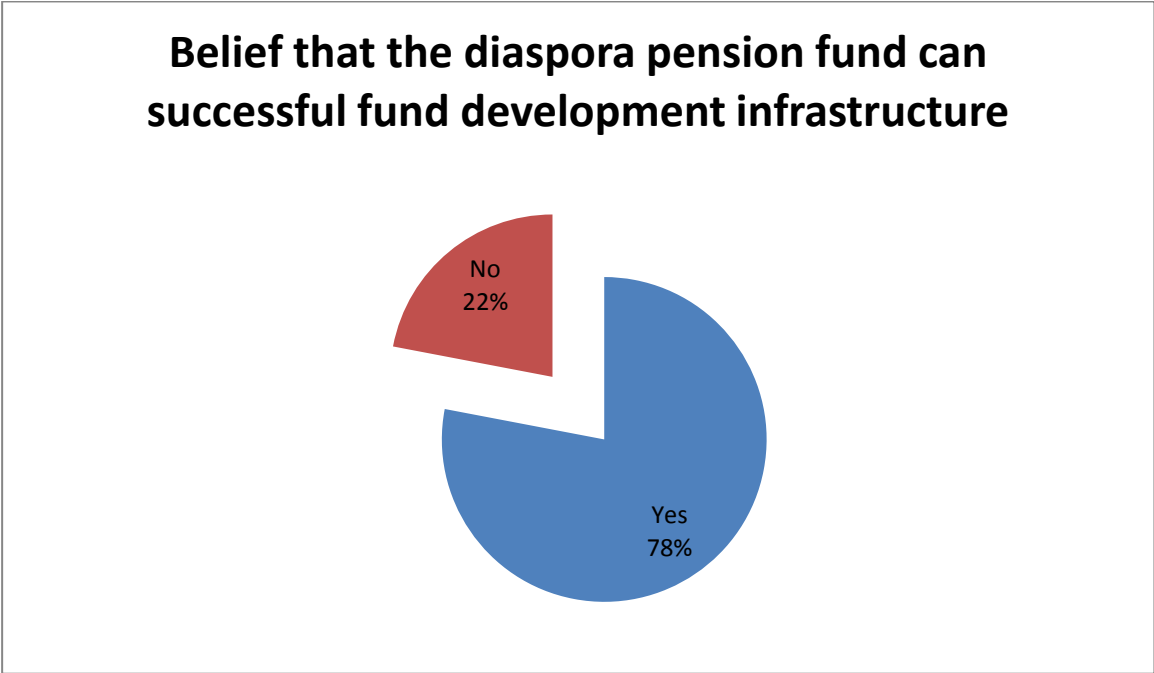
Q19: I believe that investments in the Africa diaspora pension fund can be successfully used to fund the continent's development infrastructure?

Seventy-eight percent of the respondents believe that investments in the Africa diaspora pension fund can be successfully used to fund the continent's development infrastructure. Twenty-two percent of the respondents, on the other hand, do not believe that such a pension fund can be used successfully in financing the continent's development infrastructure. Given that, of the 78% respondents, 58.3% were male, it became imperative to test whether there was no association between gender and belief in the success of the diaspora pension fund as a financing instrument for the continent's infrastructure. The calculations produced the following results:

- Chi-square test statistic = 1.87
- Level of significance = .05
- df = 1
- critical value calculated = 3.841

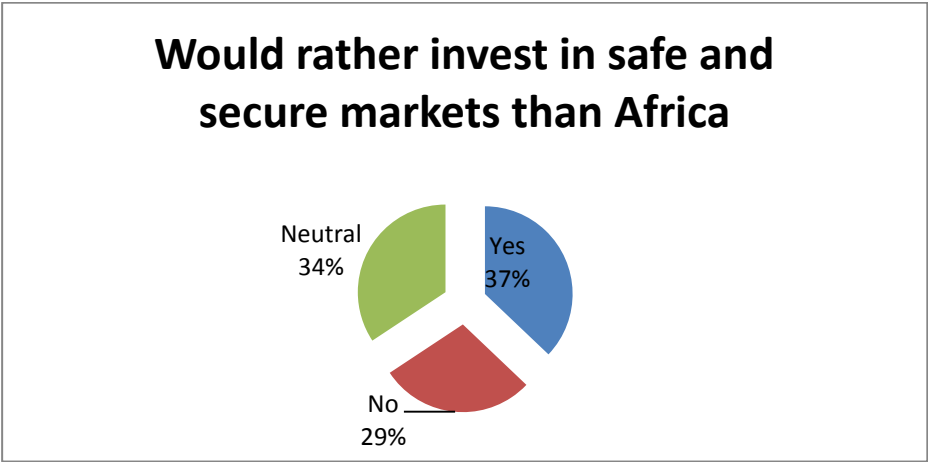
The chi-square calculated is less than the critical value and, therefore, the null hypothesis that belief in the success of investments in the Africa diaspora pension fund for financing the continent's infrastructure is not affected by the gender of the member of the diaspora community cannot be rejected. The calculated p-value is 0.171475 which shows that the result is not significant at p-value of .05. The result supports the theory that males are likely to take more risk than females (Hira & Loibl, 2006) which will guide investors wishing to set up the diaspora pension fund in focusing on males who appear to be risk takers, and who also make up the majority of the Africa diaspora members at 61.9% in the case of South Africa (Statistics South Africa, 2011). Overall, 78% of the respondents believe their investments in the diaspora pension fund can be successfully used to fund the continent's infrastructure.

Figure 8: Belief that the diaspora pension fund can fund development infrastructure with success



Q20: I would rather invest my pension fund contributions in safe and secure markets that are not volatile/risky/uncertain like those of Africa?

Figure 9: Would rather invest in safe and secure markets than Africa

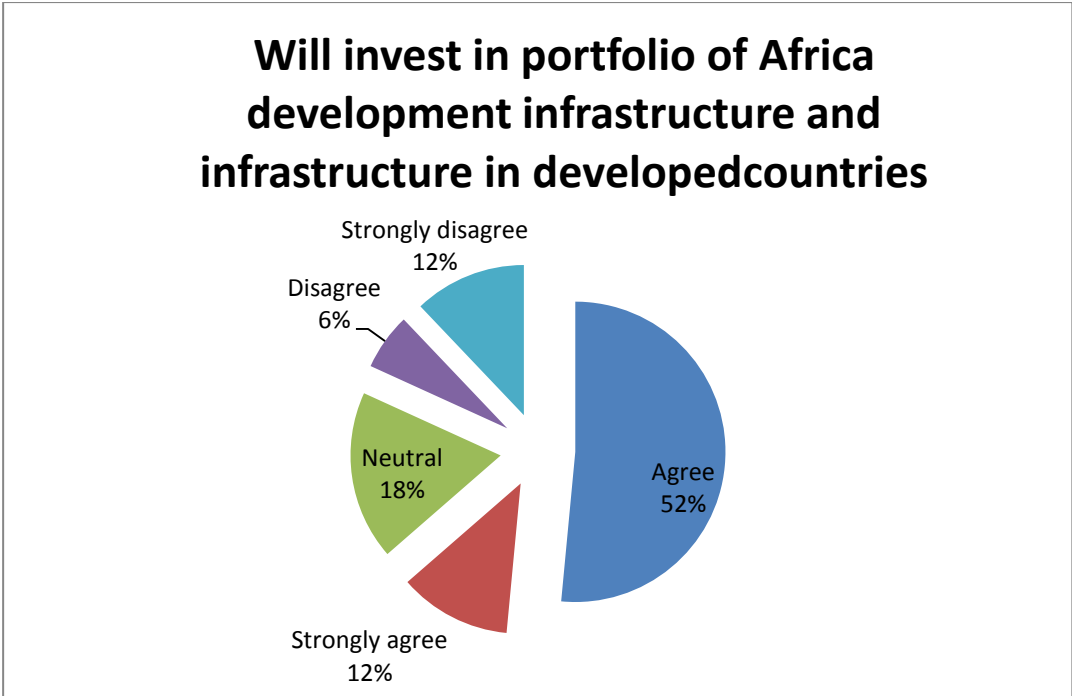


There is a small difference between respondents who would rather invest in secure and safe markets (37.1%) and those who, despite the perceived risk associated with investing in Africa, would still invest in the continent (28.6%). The rest of the respondents (34.3%) are indifferent and could invest in either which, in theory, may call for diversification of

investments in order to manage risk. It is clear that investors' perception of risk differs within the diaspora community itself and across investor communities in general. A significant number of members of the Africa diaspora community show home bias, irrationality and emotions when it comes to their investment decisions relating to the financing of the continent's development infrastructure. They strongly believed that investing in Africa's development infrastructure is the only way of ensuring the continent comes out of poverty and achieves meaningful economic growth. Were these beliefs and emotions to be shared by the Africa diaspora population, the establishment of the diaspora pension fund for financing development infrastructure would be successful.

Q21: I will invest my money in the Africa diaspora pension fund provided the money is in turn invested in a portfolio that includes direct investment in both the African development infrastructure and infrastructure in developed countries to manage risk?

Figure 10: Prefer diversified portfolio for risk management

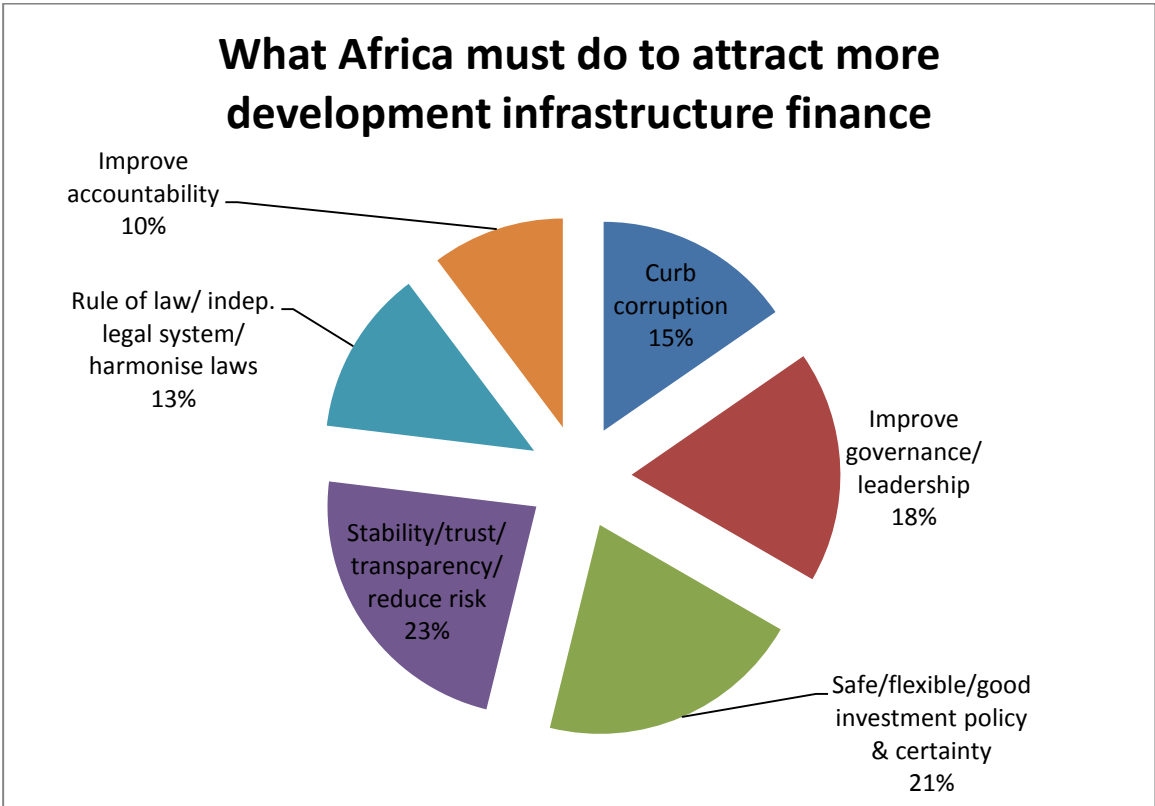


Most of the participants (63.6%) prefer investing in the diaspora pension fund provided the money is in turn invested in a portfolio that includes direct investment in both the African development infrastructure and infrastructure in developed countries to manage risk. The

implications for the model are that it must provide diversification of investment to manage the risk, and this supports the theoretical argument by Collier (2010) who believes that in order to mitigate risk part of the portfolio must be invested in stable markets outside Africa.

Q22: What in your opinion should be done by Africa in order to attract more development infrastructure finance?

Figure 11: What Africa must do to attract more development infrastructure finance



Members of the Africa diaspora community believe “that there must be reduction in corruption (15%), improvement in governance (18%), safe/flexible/good investment policies and certainty (21%), stability/trust/transparency/reduction of risk (23%), rule of law (13%) and accountability (10%) in order for Africa to attract more development finance infrastructure”. In addition to the above main factors, members stated that Africa must raise its own funding, that there must be good project management skills, the development of good financial systems, the development mandate must be a business and not a political one,

democracy and democratic institutions must be cemented and attractive taxation regimes created.

Logistic Regression Analysis

The logistic regression model was statistically significant, $X^2(11) = 7.376(a)$, $p < .0005$. The model explained 59.6% (Nagelkerke R^2) of the variance in compliance and correctly classified 81.8% of cases.

Table 7: Model Summary

Step	-2Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	29.355(a)	.447	.596

(a) Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

The Hosmer-Lemeshow test is a commonly used test for assessing the goodness of fit of a model and allows for any number of explanatory variables, which may be continuous or categorical. The test is similar to an X^2 goodness of fit test and has the advantage of partitioning the observations into groups of approximately equal size, and therefore there are less likely to be groups with very low observed and expected frequencies. The observations are grouped into deciles based on the predicted probabilities. The test statistic is calculated, as above, using the observed and expected counts for both the compliance and independent variables, and has an approximate X^2 distribution with 11 degrees of freedom. Whether the people would want to be part of the fund or support its establishment or not, results for the model from the data are shown in Table 8 below. The Hosmer-Lemeshow test ($P = 0.419$) indicates that the number of people in the diaspora who believe that the independent variables derived are accurate in determining whether any will be part of the fund are not significantly different from those predicted by the model and that the overall model fit is good.

Table 7: Hosmer-Lemeshow Test

Step	Chi-square	df	Sig.
1	7.094	7	.419

The Wald tests for the logistic results shown below shows that the test for the coefficient of the gender marker indicates that gender contributes significantly in predicting decision of being part of the Fund. In other words, of the people in the diaspora community, males are 1.188 times more likely to join the Africa diaspora pension fund when compared to females. This result appears to confirm the theory that males are keen to take more risk than females, a theory that Hira (2006) also confirms, that gender difference is one of the factors that affect investor behaviour and decision making processes. The research by Hira (2006) also established that personal and environmental factors played a pivotal role in influencing investor behaviour. The research by Hira (2006) was conducted amongst a randomly selected national sample of 911 US households with annual incomes of \$75 000 or higher, highly educated, and on average 49 years old; the majority were white and in full-time employment.

In this research, educational level had three categories: Undergraduate, Postgraduate and Diploma, and the results of the logistic regression show that with reference to those with a Diploma, Undergraduates are 1.03 times more likely to join the fund when compared with those with Diplomas. People from the diasporas with a postgraduate qualification are even twice more likely to join the fund when compared with those with Diplomas. These results show that in the case of the Africa diaspora, education plays a significant role in the decision making for one to join the fund. Zong and Batalova (2017) show that of the 3.3 million African immigrants in the USA, 39% have a first degree or higher and are 25 years old and above, while 83% of the total population are between the ages of 18 and 64, and that those from Sub-Saharan Africa participated in the labour force at a higher rate than the overall immigrant and USA born populations. The likely inference from these numbers is that the Africa diaspora members in the USA are likely to support the establishment of the Africa diaspora pension fund given the similar characteristics that they have with their counterparts that are the subject of this research.

Statistics South Africa (2011) show that in 2003, 61.9% of African immigrants were male while 38.1% were female, with an average age of 34 years, and again these characteristics

support a finding that the male population is likely to be supportive of the Africa diaspora pension fund if the research results are anything to go by.

The research model also accommodated the current type of retirement policy as a factor that can influence the decision to opt for the diaspora pension fund, and this variable was measured with five categories depending on what policy they currently have, and results show that compared with other policies, those with a pension fund or retirement annuity are three times more likely to join the diaspora pension fund. In contrast, those with a provident fund are less likely to join the same fund.

Table 8: The Wald Test

	Wald	Sig	Exp(B)	95.0% EXP(B)	C.I. for
				LOWER	UPPER
Sex					
.Male	2.354	.125	1.188	.022	1.589
Educational Level	5.878	.053			
Undergraduate	.000	.993	1.031	.001	744.022
Postgraduate	1.569	.210	2.012	.000	12.023
Type of current retirement policy	.928	.819			
Pension Fund	.485	.486	3.555	.100	126.374
Retirement Annuity	.370	.543	3.754	.053	265.905
Provident Fund	.006	.938	.862	.021	36.229
Age	.480	.787			
Below 40 years	.470	.493	3.227	.113	91.879
41-50 years	.301	.583	2.685	.079	91.313
Age when to retire from fund	.560	.454	1.043	.935	1.163

The final variable to make up the model was age. Results show that those that are middle-aged (40- 50) are more likely to join the fund compared to the older diaspora members.

The Diaspora Pension Fund Model

The resulting model in multiple regression formula and information contained in the logistic model (Keller, 2012) captures the theoretical framework that states that the regression analysis is used to predict the value of one variable on the basis of other variables. According to Keller (2012), the technique involves developing a mathematical equation or model that describes the relationship between the variable to be forecast, which is called the dependent variable, and variables that the statistics practitioner believes are related to the dependent variable. The dependent variable is denoted Y, whereas the related variables are called independent variables and are denoted X₁, X₂,X_k (where k is the number of independent variables).

This research case study assumed that (Keller, 2012) age, gender and education level are potentially related to support for the establishment of the diaspora pension fund. In other words, it is assumed that the support for the fund is influenced by the Africa diaspora member’s age, education level gender and ethnicity/origin among other factors. Deriving from the regression equation by Keller (2012):

$y = \beta_0 + \beta_{1x_1} + \beta_{2x_2} + \dots + \beta_{kx_k} + \square$ with the result that the support for the fund model becomes:

$$y = 1.188_{male} + 1.031_{undergraduate} + 2.012_{postgraduate} + 3.555_{pf} + 3.754_{ret.ann.} + 0.862_{pf} + 3.227_{below\ 40years} + 2.685_{between\ 41-50\ years} + 1.043_{age\ when\ to\ retire\ from\ fund} + \square$$

Interpreting the coefficients

The result is a deterministic model to which an error variable (Keller, 2012) has been added to make it a probabilistic model. The deterministic model without the error variable allows us to determine the value of the dependent variable (support for diaspora pension fund) from the values of the independent variables (age, gender and education). Given that these models are

not practical (Keller, 2012), as we cannot determine support for the fund solely based on the three dependent variables above, the error variable is incorporated in order to take into account some of the variables that are not measurable, resulting in the probabilistic model.

Male

The relationship between males and support for the establishment of the diaspora fund shows that males are 1.188 times more likely to support the establishment of the fund than females.

Age

The diaspora members aged below 40 years are 3.227 times more likely to support the establishment of the fund as a likely financing instrument for Africa's development infrastructure, whereas those members who are between 41-50 years of age are 2.685 times more likely to support the fund, and lastly, when age increases by one year towards retirement, a member becomes 1.043 times more likely to support the establishment of the fund.

Education

Compared to diploma holders, undergraduates are 1.031 times more likely to support the establishment of the fund, while those who are holders of postgraduate degrees are 2.012 times more likely to support the establishment of the fund. The research shows that the higher qualifications, or the more educated the member becomes, the more likely such member will support the establishment of the fund.

In line with the research by Hira (2006), these results of this model show that the decision to join or support the diaspora pension fund establishment is determined mostly by personal characteristics. Ascribed characteristics (characteristics one inherits or over which one has little or no control) are usually independent variables and are significantly influential to investment decision-making (sex, age, ethnicity) and can be taken into account when modeling the Africa diaspora pension fund for financing the continent's development infrastructure.

What should not be ignored, however, are other factors that have not been taken into account, for example (Stammers, 2011), familiarity, overconfidence and anchoring that have been found to influence investor behaviour. According to Stammers (2011), because of familiarity,

some investors become too focussed on opportunities in their own countries, as there would be no issue about asymmetric information. This results in investors being more familiar with and confident about local investment opportunities and despite the fact that nowadays it is much easier than in the past to diversify investments across geographies. The challenge with not taking anchoring into account (Stammers, 2011) is that the research will not appreciate that investors can be fixated on past information and use it to make inappropriate investment decisions. This is the problem with the Modern Portfolio Theory that bases investment decisions on past information about returns and risk, resulting in Africa being perceived as a risk investment destination in general, without taking into account that the investment environment is fluid and that decisions should not be based solely on lagging investment indicators.

In summary, the Africa diaspora community show clear support for part of their pension fund to be used in contributing to a diaspora pension fund, whose mandate would be the financing of African development infrastructure, notwithstanding the risk that is normally attributed to the continent. Taking into account the important influence of age, gender and education of the diaspora members on their willingness to join the fund or support for the modeling of a diaspora pension fund as a likely instrument for financing development infrastructure in Africa, a probabilistic model was formulated for use in showing the influence of these independent variables on the support for the fund:

$$y = 1.188_{male} + 1.031_{undergraduate} + 2.012_{postgraduate} + 3.555_{pf} + 3.754_{ret.ann.} \\ + 0.862_{pf} + 3.227_{below\ 40years} + 2.685_{between\ 41-50\ years} \\ + 1.043_{age\ when\ to\ retire\ from\ fund} + \square$$

The results show that males are 1.188 times, undergraduates 1.031 times, postgraduates 2.012 times, those currently members of a pension fund 3.555 times, those on a retirement annuity 3.754 times, those below 40 years 3.227 times, those between 41-50 years 2.685 times, and that for any additional one year towards retirement a member becomes 1.043 times more likely to join the pension fund or support its establishment.

The next part of the research case study focuses on research findings.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Key research findings

Members of the Africa diaspora, associated with the University of Cape Town, are in support of the establishment and modeling of an Africa diaspora pension fund as a likely instrument for financing the continent's development infrastructure. The community members prefer a diaspora pension fund model that is managed mainly by pension fund managers but with some of the community members being involved. The members are not keen to have any African government assuming control over the pension fund, given the perceived level of poor governance, corruption and lack of accountability amongst African governments. The findings show that there is an association between the support shown for the establishment of the pension fund and the gender, age and educational level of community members.

The null hypotheses that members of this community are no more likely to show support for the establishment of an African diaspora pension fund for financing the continent's development infrastructure than non-member investors in general is therefore rejected. Moreover, gender, age and educational level has no effect on the decision-making by members of the Africa diaspora community when it comes to financing of the continent's development infrastructure.

The results, therefore, invalidate the hypotheses. The research findings show that any pension fund product modeled for the community must take into account the age, gender and educational level of the targeted community for it to succeed.

The research set out to establish whether members of the Africa diaspora, who are mainly associated with the University of Cape Town, are not in support of the setting-up of a continent diaspora pension fund for the financing of Africa's development infrastructure, and also set out to test whether willingness to join the fund is affected by a member's level of education, age or gender. In general, the results show that 62% of the members of the Africa diaspora community, associated with the University of Cape Town, are in support of the modeling of a diaspora pension fund whose contributions will partly be used in financing the continent's development infrastructure. From the intended pension fund, members will invest 36.2% directly in development infrastructure, 33% into USA government Treasury Bills, and

25% in the London Stock Exchange (LSE). Members cited too much risk attendant and low returns to stocks as the reason for investing the least at the LSE. The members (37.8%) were alive to the issue of risk and wanted the fund to be under fund managers, while another 37.8% wanted the fund to be managed by a body of trustees drawn from governments, fund managers and members drawn from the diaspora community. The support for the fund was overwhelming, given that 77.1% of the members believed that investments in the Africa diaspora pension fund can be successfully used to fund the continent's development infrastructure. To mitigate risk, about 65% of the members wanted a portfolio that invested part of the fund contributions directly into the development infrastructure, while the rest went for infrastructure in developed countries.

The chi-square test results show that the null hypothesis cannot be rejected on the premise that the belief in the success of investing in the Africa diaspora pension fund for financing the continent's infrastructure is not affected by the gender, age and education of the member of the diaspora community. Results show that males are more likely to take more risk than females, and the null hypothesis that there is no association between gender and the willingness to contribute part of the diaspora community member's pension fund for use in financing the continent's development infrastructure is therefore rejected. Logistic regression established that males are 1.188 times more likely to join the fund than females, and that the middle-aged (40-50 years) are equally more likely to join the fund than other age groups, and finally, that the higher the level of education, the more likely that the diaspora community member will join the fund.

The resulting model is helpful to pension fund product designers, policy makers, and insurance companies who may take into account the above factors or independent variables in modeling a diaspora pension fund whose contributions will be used in financing the continent's development infrastructure.

The members of the diaspora community sampled were fully aware of the perceived risk involved with investing in Africa, and they pointed out that the continent will be able to attract more investments if it addressed issues of corruption, poor governance, and the safety of investments, stability and transparency, legal systems, accountability, democracy and taxation regimes. These issues are fundamental, as they are the same ones that China had to

address first before it embarked on its unprecedented development infrastructure financing which is the envy of the world today.

In the case of the diaspora community sampled, the modern portfolio theory can be disconfirmed, in that contrary to expectations, this community supports the investment of their money in an investment destination that is perceived as risky, unstable and uncertain. It would appear that behavioural theories play an important role in investors' decision-making as issues surrounding country of origin play a significant role in shaping an investor's investment decision and perception of risk is to some extent discounted. The respondents show emotional attachment and home bias when it comes to investing in Africa, and there is a likelihood that were issues of governance, rule of law, corruption and transparency addressed, the community members would be overwhelmingly willing to invest in Africa.

All the participants showed that they do care about ESG issues. The diaspora pension fund model advocated by the diaspora community has the following characteristics:

- Part pension fund contributions invested directly into development infrastructure projects.
- The pension fund to be managed mainly by fund managers but with individual members involved.
- It must be a diaspora pension fund for financing the continent's development infrastructure.
- Pension fund contribution investments must be diversified to manage risk, with part of them being invested in mature markets with less volatility.
- It must be a defined contribution model.
- It must target males and the highly educated middle-aged members of the diaspora.

5.2 Key research recommendations

In order to establish the diaspora pension fund, there must be extensive research carried out amongst the top worldwide sixth region members to ensure that the positive results from the case study are replicated across the world. There is a need for buy-in from the African Union, the key countries of destination of the sixth region members, the European Union, IMF, and

World Bank, as these will help in advocating and supporting the setting up of the diaspora pension fund. The diaspora members must be encouraged to form chapters in various cities around the world from which engagements to discuss the establishment of the pension fund will be carried out.

The diaspora community associated with the University of Cape Town advocated for the setting up of the pension fund under the management of fund managers and other stakeholders, and these ideas must be floated with a wide audience of diaspora members for buy-in before commercialisation of the fund. The IMF/World Bank can be approached for funding of the special purpose vehicle early administrative costs that can later on be capitalised in the form of shares in favour of the funders. The GSB UCT can champion the establishment by supporting the spreading and marketing of the concept across key stakeholders through conferences, such as the World Business Forum.

The project is feasible as it is clear that the diaspora community members are interested in financing the development infrastructure in Africa. A case in point, currently in the media, is the diaspora Zimbabwe consortium based in South Africa that has raised close to USD 1.2 billion for the rehabilitation of the National Railways of Zimbabwe whose consortium is made up of Transnet and the Diaspora Infrastructure Development Group.

5.3 Areas for future research

Future studies in this area may focus on a wider sample base of the Africa diaspora community, and also on the financial and economic viability of the intended diaspora pension fund, its structure, location and administration amidst a myriad of pension fund regulations and statutes across the continent. The other area of study may focus on de-risking the African continent as an investment destination. Lessons from China can be instructive in this area. China built its infrastructure after rather than before many years of economic growth and the accumulation of financial resources, and a massive infrastructure investment programme is not a viable development strategy in other developing countries, such as Pakistan, Nigeria or Brazil. Ahead of a would-be launch of a successful diaspora pension fund, policymakers in government should place their attention on software social impacts and orgware issues (deep institutional reforms), and exercise far greater caution in diverting scarce resources to new

hardware (physical infrastructure). The China miracle happened, not because it had glittering sky scrapers and modern highways, but because bold economic liberalisation and institutional reforms, especially agricultural reforms in the early 1980s, created competition and nurtured private entrepreneurship.

For an African miracle to happen, concerns raised by the diaspora community members must be addressed seeing that China has benefited greatly from reforms that have seen it spending USD 4.6 trillion in 2014 on infrastructure investments (more than double India's GDP). The diaspora pension fund is innovative and an alternative means of financing development compared to China, whose majority of investments have been debt funded. The research shows that the diaspora pension fund can be used as a model-financing instrument for the continent's development infrastructure, and that with further research on its viability, diaspora think tanks, global pension fund organisations and governments in Africa can commercialise it and use it in financing the required infrastructure.

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APPENDIX A: SURVEY QUESTIONNAIRE

I've invited you to fill out a form:

MCOM DEV FIN DISSERTATION GSB UCT

This questionnaire is to be completed by the Africa diaspora community associated with UCT in order to establish their stand on the setting -up of a diaspora pension fund for financing Africa's development infrastructure. The Africa diaspora associated with UCT is made up of persons who were born in a country in Africa other than South Africa or whose ancestor's origin is Africa and are currently working at UCT or are students at UCT and working anywhere in Africa. The fund is planned to be an additional innovative way of financing the continent's infrastructure and would be part of the fund's contributions and the membership of the pension fund would be open to members of the Africa diaspora. Secondly, the questionnaire is to be completed by the Africa diaspora community that is not associated with UCT but is made up of people working outside their African country of origin.

Email address *

1. What is your gender?

- Male
- Female

2. Please select your age group?

- <30 years
- 30-40 years
- 40-50 years
- 50-60 years
- >60 years

3. Please select your highest educational level?

- Grade 12
- Diploma/Certificate
- Undergraduate degree

- Postgraduate

4. What type of retirement plan are you a member of? [select all that apply]

- Provident Fund
- Pension Fund
- Retirement Annuity
- Other

5. If your retirement plan is a pension fund, what type of scheme is it?

- Defined Benefit Scheme
- Defined Contribution Scheme

6. At what age can you retire from the Fund?

- 55 years
- 60 years
- 65 years

7. Do you know approximately how much your final retirement benefits should be to provide sufficiently for your retirement?

- Not at all
- I have a rough idea
- Yes

8. Are you consulted by your retirement fund trustees about where your contributions should be invested?

- No
- Yes

9. If you had a choice, would you like part of your retirement contributions to be put in a pension fund that finances Africa's development infrastructure? [toll roads, airports, dams, rail lines]

- No
- Yes

10. If your answer to question 9 was a Yes, in your own words, what would be your reason[s] for doing so?

11. If your answer to Q9 was a No, in your own words, what would be your reason[s] for not doing so?

12. . If you had a choice what percentages of your retirement contributions would you allocate to the following investment asset classes?

1. Bonds 2. Provident Fund 3. Pension fund that finances Africa's development infrastructure

13. As a member of the Africa diaspora community would you support the setting-up of the Africa diaspora pension fund whose contributions invested in financing the continent's development infrastructure?

- Yes
- No
- Maybe

14. If you had a choice as a member of the Africa diaspora community, what percentages of the intended diaspora pension fund contributions would you invest in the following ?1. Direct investment in Africa's development infrastructure 2.USA government treasury bills 3. Stocks at the London Stock Exchange

15. What is your reason for investing the least percentage contributions in the avenue chosen above?

- There is too much risk /uncertainty about future returns
- The investment is secure but with low returns
- The environment is volatile and unstable

16. Were an Africa diaspora pension fund set-up, under whose control would you

like it to be?

- Any African government
- Fund managers
- Body of trustees chosen by members of the Africa diaspora from amongst its members
- Body of trustees drawn from the three bodies above

17. Which of the following factors are most important to you when investing retirement contributions into businesses/assets/countries?

- Financial and economic returns
- Environmental impact and sustainability
- Labour relations
- Social responsibility
- Democracy
- Mature and well established financial markets
- All of the above

18. I care about which industries or companies my retirement plan is invested into?

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

19. I believe that investments in the Africa diaspora pension fund can be successfully used to fund the continent's development infrastructure?

- Yes
- No

20. I would rather invest my pension fund contributions in safe and secure markets that are not volatile /risky /uncertain like those of Africa?

- Yes
- No
- Neutral

21. I will invest my money in the Africa diaspora pension fund provided the money is in turn invested in a portfolio that includes direct investment in both the Africa development infrastructure and infrastructure in developed countries to manage risk?

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

22. What in your opinion should be done by Africa in order to attract more development infrastructure finance?

23. Would you rather leave the investment decision making about your pension fund contributions to a fund manager?

- Yes
- No
- Option 1

Send me a copy of my responses.

APPENDIX B: LOGISTIC REGRESSION OUTPUT

	Wald	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
				Lower	Upper
Sex					
• Male	2.354	.125	1.188	.022	1.589
Educational Level	5.878	.053			
• Undergraduate	.000	.993	1.031	.001	744.022
• Postgraduate	1.569	.210	2.012	.000	12.023
Type of current retirement policy	.928	.819			
• Pension Fund	.485	.486	3.555	.100	126.374
• Retirement Annuity	.370	.543	3.754	.053	265.905
• Provident Fund	.006	.938	.862	.021	36.229
Age	.480	.787			
• Below 40 years	.470	.493	3.227	.113	91.879
• 41-50 Years	.301	.583	2.685	.079	91.313
Age when to retire from Fund	.560	.454	1.043	.935	1.163

APPENDIX C: EDITOR'S LETTER

Barbara Shaw

Editing/proofreading services

18 Balvicar Road, Blairgowrie, 2194

Tel: 011 888 4788 Cell: 072 1233 881

Email: bmshaw@telkomsa.net

Full member of The Professional Editors' Group

To whom it may concern

This letter serves to inform you that I have done language editing, reference checking and formatting on the master's thesis:

Modeling The Africa Diaspora Pension Fund: Likely Financing Instrument for Africa's Development Infrastructure

By Patras Mazibuko

Signed by candidate

signature removed

Barbara Shaw
28/01/2018