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The Development Role Played by Targeted Development Investments in South Africa and Their Risk-Adjusted Performance Over a 10-Year Period

A Dissertation

Presented to

The Development Finance Centre (DEFIC)
Graduate School of Business
University of Cape Town

In Partial Fulfilment
of the Requirements for Degree of
Master of Commerce in Development Finance

by

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February 2020

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Acknowledgements

I would like to thank my supervisor Dr. Abdul Latif Alhassan for the academic guidance and support, which contributed to the successful completion of my dissertation. I would also like to acknowledge the entire UCT GSB MCOM Development Finance team for their support throughout the academic programme. Lastly, I would like to convey my gratitude and appreciation to my parents, siblings, and friends for their encouragement, prayers, and support.

Abstract

The study evaluated the development role of targeted development investments in South Africa and their risk adjusted performance over a 10-Year period, that is from 2008 to 2017. Targeted development investments as a subset of socially responsible investments have transformed the way capital is allocated towards development funding needs. In the South African context this study is relevant given it offers a contrast between investments made in the public sector where development impact is a key objective, versus private sector targeted investments that aim to achieve financial returns whilst also driving development impact objectives aligned to sustainable development goals. The role and impact of these investments in the post democratic era is put in the spotlight given the country is dealing with economic, social, and environmental challenges that have necessitated the need to assess the nature and role of the investment industry in solving these complex development challenges (Giampocaro & Pretorius, 2012). The study on the role of the public sector focused on the investments and development impact indicators tracked by the Top 3 public sector investment institutions or corporations. The analysis on the performance of the private sector TDI funds examined their risk adjusted performance using Treynor, Sharpe, Sortino, and Information ratios. The risk adjusted performance was used to test whether the TDI fund returns under or outperformed against five benchmark categories. The research findings showed mixed results where TDI funds either underperformed or outperformed against the benchmark categories. The findings highlighted the need for a hybrid development model where both the public and private sector actively play a role in the development landscape as guided by their respective investment mandates. The findings advocate for corporate and institutional investors to increase capital allocations and investments towards financing development needs given the scope to maximise investor returns, whilst considering socially responsible investing and issues relating to the development and empowerment of previously disadvantaged communities.

Keywords: Cause-based investing or targeted investments; risk adjusted performance; Treynor ratio; Sharpe ratio; Sortino ratio; Information ratio.

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Glossary of Terms

ALSI: All Share Index

AUM: Assets Under Management

B-BBEE: Broad-Based Black Economic Empowerment

CAPM: Capital Asset Pricing Model

COMESA: Common Market for Eastern and Southern Africa

CPI: Consumer Price Index

DBSA: Development Bank of Southern Africa

DFI: Development Finance Institution

DFID: Department for International Development

DS 400: Domini 400 Social Index

EAC: East African Community

EI: Ethical investment

ESG: Environmental, Social, and Corporate Governance

FTSE: Financial Times Stock Exchange

GDP: Gross Domestic Product

GEPF: Government Employees Pension Fund

HPY: Holding Period Yield

ICT: Information, Communication, and Technology

IDC: Industrial Development Corporation

IDP: Integrated Development Plan

JSE: Johannesburg Stock Exchange

LED: Local Economic Development

MSCI: Morgan Stanley Capital International

NALEDI: National Labour and Economic Development Institute

NAV: Net Asset Value

NDP: National Development Plan

OECD: Organisation for Economic Cooperation and Development

PIC: Public Investment Corporation

RI: Responsible Investment

SARB: South African Reserve Bank

SSA: Sub-Saharan Africa

SMME's: Small Medium and Micro Enterprises

Stats SA: Statistics South Africa

SDGs: Sustainable Development Goals

SRI: Socially Responsible Investment

S&P 500: Standard and Poor's 500

TDI: Targeted Development Investments (cause-based SRI)

UK: United Kingdom

UN: United Nations

UNCTAD: United Nations Commission on Trade and Development

UNDP: United Nations Development Programme

UNPRI: United Nations Principles for Responsible Investment

US SIF: United States Forum for Sustainable and Responsible Investment

Chapter One

Introduction

1.1 Background of the Study

Socially responsible investment (SRI) has continued to be an area of interest locally and internationally as investors are driving the demand for investments that integrate environmental; social and corporate governance considerations in their investment decision making processes. The importance of responsible investing has further been necessitated by the global economic, developmental and environmental challenges that have led each country to assess the nature and role of the investment industry (Giamporcaro & Pretorius, 2012).

There is no consensus; however, on the exact definition of such investments as they can be termed ethical investments, responsible investments (RI), socially responsible investments (SRI's), sustainable investments; green investments, and targeted investments, just to name a few (Herringer et al., 2009). For the purpose of the study the definition as outlined by the United Nations Principles for Responsible Investment (UNPRI), which defines responsible investment as an approach that incorporates environmental, social and governance factors (ESG) into investment decisions with the aim of managing risks and generating sustainable long term returns will be adopted to define SRI in a broader context (Ioannou & Serafeim, 2011).

In the South African context similar definitions were adopted by (Herringer et al., 2009) and (Giamporcaro & Pretorius, 2012). Targeted development investments (TDI) are defined, as per the Alexander Forbes TDI Manager Watch Survey report that classifies these investments, as those that aim to maximise investor returns whilst considering socially responsible investing and issues relating to the development and empowerment of previously disadvantaged communities (Alexander Forbes Research and Product Development, 2017).

In the global context, the developed economies are the major drivers of SRI's with the United States reporting a total figure of \$8.72 trillion of assets under management (AUM) in 2016 where one or more socially responsible investment strategies were considered (US SIF: Forum for Sustainable and Responsible Investment, 2020). According to the Forum for Sustainable and Responsible Investment, the size of the investments in the United States equate to more than one in every five dollars being invested in SRI strategies. In Europe, according to the 2016 Global Sustainable Investment Review report, total assets under management increased to \$12.04 trillion (Global Sustainable Investment Alliance, 2016). The growth in AUM when

compared to 2012 was 56% (ALFI & KPMG, 2015). Asia, according to the report had \$53 billion assets under management (ALFI & KPMG, 2015). The investments at face value as measured by the total AUM depict a substantial growth in responsible investing; however, these funds still represent a fraction of total funds under management in these developed countries. In the African continent, whilst there is a general increase in development investments aimed at addressing socio economic challenges, there is currently no data on the total value of SRI assets under management.

According to the Global Sustainable Investment Review report, South Africa has \$678 billion of assets under management and it is estimated that 47% of all funds implemented one or more of the sustainable investing strategies (Global Sustainable Investment Alliance, 2016).

The history of social or ethical investing can be traced back to early centuries where religious groups imposed ethical restrictions on investments based on social norms and criteria (Renneboog et al., 2008a). The market for responsible investment funds in South Africa was launched with two funds in 1992; the post democratic period was dominated by BBBEE investments (Viviers et al., 2009).

Extensive research as published by academia and industry practitioners, categorises SRI investments under seven investment strategies, that is; negative screening, positive or best in class screening, norms-based screening, ESG integration, sustainability themed investing, impact or community investing, and corporate engagement and shareholder action (ALFI & KPMG, 2015; Global Sustainable Investment Alliance, 2016). Negative and positive screening strategies represent a mature investment class followed by shareholder activism, norms-based screening, and ESG integration (refer to Table 1.1).

Table 1.1: SRI Investment Strategy Definitions

Negative / exclusionary screening: the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria;
Positive / best-in class screening: investment in sectors, companies, or projects selected for positive ESG performance relative to industry peers;
Norms-based screening: screening of investments against minimum standards of business practice based on international norms;
ESG integration: the systematic and explicit inclusion by investment managers of environmental, social, and governance factors into financial analysis;

Sustainability themed investing: investment in themes or assets specifically related to sustainability (for example clean energy, green technology, or sustainable agriculture);

Impact/community investing: targeted investments, typically made in private markets, aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose;

Corporate engagement and shareholder action: the use of shareholder power to influence corporate behaviour, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

The market for sustainability themed investments and impact or community investments is new, and this is a rapidly growing industry as per the Global Sustainable Investment review report.

The research project focuses on a study of targeted investments that have been made by the listed targeted fund managers and by the Top 3 public sector investment corporations (as measured by the size of their assets) in South Africa over a 10-Year period (2008 to 2017). The research also includes a review of the risk-adjusted performance of the listed targeted investment funds against their benchmarks and market indices over a 10-Year period.

1.2 Problem Definition

With the recent adoption of sustainable development goals (SDG's) by the global community, which are aimed at alleviating poverty, protecting the environment by adopting green standards, and ensuring a sustainable development environment, the focus in each member country will be on raising sufficient development capital to fund these development goals over the 15-Year period (United Nations Development Programme, 2020).

The UN Commission on Trade and Development (UNCTAD) estimates that developing countries will require between \$3.3 trillion and \$4.5 trillion per year to fund development needs in basic infrastructure, food security, climate change mitigation and adaptation, health, and education (United Nations Conference on Trade and Development, 2015).

The study on the current levels of investment has revealed that public sector funds are going to be insufficient to fund these development needs and the funding gap that is estimated at \$2.5 trillion per year will need to be raised from private sector investments (UN Commission on Trade and Development, 2015).

Based on academic and industry research the SRI industry in developed countries has been growing at rates that far exceed the growth of the broader universe of AUM (Herringer et al., 2009). Tables 1 and 2 in Appendix 1 illustrate the growth trends in SRI assets in developed and emerging economies between 2014 and 2016.

According to Table 3, Appendix 1, the major drivers of this growth are impact or social investing strategies and sustainability themed investing at annual growth rates of 56.8% and 55.1%, respectively. This incremental trend might be indicating a scenario where the private sector is positioning itself to invest more capital in some of the listed development needs.

Studies on the SRI market in South Africa have predominantly focused on tracking the risk-adjusted performance of SRI funds since fund inception and the challenges and reasons for the slow uptake of SRI funds in the market. Existing published literature refers to cause-based (targeted) investments, but no further research has been performed to explore the developmental role that is played by these investments in addressing economic and socio-economic challenges. The study, therefore, seeks to investigate the problem statement under the following two broad questions:

- What role have targeted development investments made by the public-sector investment corporations and private sector targeted development funds (unit trust and pooled funds) played in developing infrastructure, industrialisation, housing, access to basic services, and electricity in South Africa?
- How do the annual risk-adjusted returns of the private sector targeted development funds compare with their benchmarks, the FTSE/JSE All Share Index, MSCI Emerging Market Index, FTSE Emerging Index, MSCI KLD 400 Social Index, and the FTSE Environmental Opportunities Index?

1.3 Statement of Research Objectives and Hypotheses

The primary objective of the study is to investigate the development role played by targeted development investments over a 10-Year period and to measure the risk-adjusted performance of the private sector targeted development investment funds. The specific research objectives are:

- To track the growth in targeted development investments made by public sector investment corporations by examining the size and value of investments.
- To examine the evolution of private sector targeted development investments and their risk-adjusted performance.

The six null hypotheses tested by this investigation are as follows:

- H_0 : There is no difference between the risk-adjusted returns of TDI funds and their respective benchmarks,
- H_0 : There is no difference between the risk-adjusted returns of TDI funds and the FTSE/JSE All Share Index,
- H_0 : There is no difference between the risk-adjusted returns of TDI funds and the MSCI Emerging Market Index,
- H_0 : There is no difference between the risk-adjusted returns of TDI funds and the FTSE Emerging Index,
- H_0 : There is no difference between the risk-adjusted returns of TDI funds and the MSCI KLD 400 Social Index, and
- H_0 : There is no difference between the risk-adjusted returns of TDI funds and the FTSE Environmental Opportunities Index.

1.4 Justification of the Study

Studies on the SRI market in South Africa have predominantly focused on tracking the risk-adjusted performance of SRI funds since fund inception and the challenges and reasons for the slow uptake of SRI funds in the market. Existing published literature refers to cause-based (targeted) investments, but no further research has been performed to explore the developmental role that is played by these investments in addressing economic and socio-economic challenges.

In relation to published statistics in the Global Sustainable Review report, tables 1 and 2 (Appendix 1), illustrate the substantial growth in SRI assets globally, and the fact that the major drivers of these investments are developed countries. Table 3 (Appendix 1), further emphasises that impact and sustainable investing strategies are the fastest growing strategies in the global context therefore, the research seeks to identify whether this incremental trend could have been observed in the TDI market in South Africa for the past 10 years.

A secondary motivation for the study in question relates to the recently adopted SDG's, which place more scrutiny on the investments made and each country's effort in attaining each goal over the 15-Year period, the study can highlight the efforts made by the different parties in targeted investments in South Africa and the envisaged role that they can play in an established targeted investment eco system in the future.

1.5 Organisation of the Study

The study is organised as follows:

- Chapter 1: Introduction, statement of the research problem and research objectives.
- Chapter 2: Literature review on SRI investments and the history, investment strategies, and the targeted development investment market in South Africa.
- Chapter 3: Research design, data, and methodology.
- Chapter 4: Empirical results and findings.
- Chapter 5: Summary, conclusions, and recommendations.

Chapter Two

Literature Review

2.1 Introduction

This chapter focuses on theoretical aspects of the research objectives where it reviews the literature pertaining to socially responsible investments, the strategies used in the SRI market, and the South African TDI market. The study on the SA TDI market encompasses a review of the primary objective and the role of public sector investment corporations in this market. The study reviews literature on the development landscape relating to infrastructure, industrialisation, housing, access to basic services, and electricity in South Africa. The chapter consists of four sections, that is; the definition of concepts, an overview of the SRI industry in South Africa, a theoretical framework, and an empirical review of studies.

2.2 Definition of Concepts

2.2.1 Definition of SRI's

Sandberg et al., (2009), showed that SRI is predominantly defined in literature as the integration of social, ethical, environmental, and or corporate governance (ESG) concerns in the investment process. Renneboog et al., (2008a), further expanded on this definition by stating that SRI investments utilise a set of investment screens to select investments based on environmental, social, and governance criteria whilst being involved in local communities and shareholder activism to drive corporate strategies towards achieving these ESG objectives.

Giamporcaro & Pretorius, (2012), stated that SRI can be broadly defined as sustainable and responsible investment, which refers to an investment process that combines the financial objectives of an investor with their concerns about ESG issues. Herringer et al., (2009), adopted the definition that states that SRI incorporates a set of moral and ESG considerations including traditional financial criteria in decisions related to selection, retention and the realisation of investments.

Viviers et al., (2009), showed that the act of combining ESG considerations into investment analysis and decision-making processes has been widely defined in literature as ethical investing, green investing, sustainability investing, directed investing and socially responsible investing. They, however, adopted the definition for responsible investment as outlined by the UNPRI, which emphasises the adoption of ESG factors to generate long term sustainable returns and the effective management of risk.

Industry bodies such as the US SIF defined SRI as an investment discipline that considers ESG criteria to generate long term returns and a positive impact (US SIF: Forum for Sustainable and Responsible Investment, 2020). Eurosif (2020), expanded the definition by stating that these investments combine fundamental analysis whilst evaluating ESG factors to realise long term returns for investors and benefits for the society by influencing the behaviour of companies (Eurosif, 2020).

2.3 Definition of SRI Investment Strategies

According to Viviers et al., (2009), SRI investment strategies can be categorised into three broad categories; screening, shareholder activism, and cause-based investing. Screening has three sub-investment strategies; negative or exclusionary screening, positive or inclusionary screening, and best of both screening, which combines negative and positive screening strategies (refer to Figure 2.1).

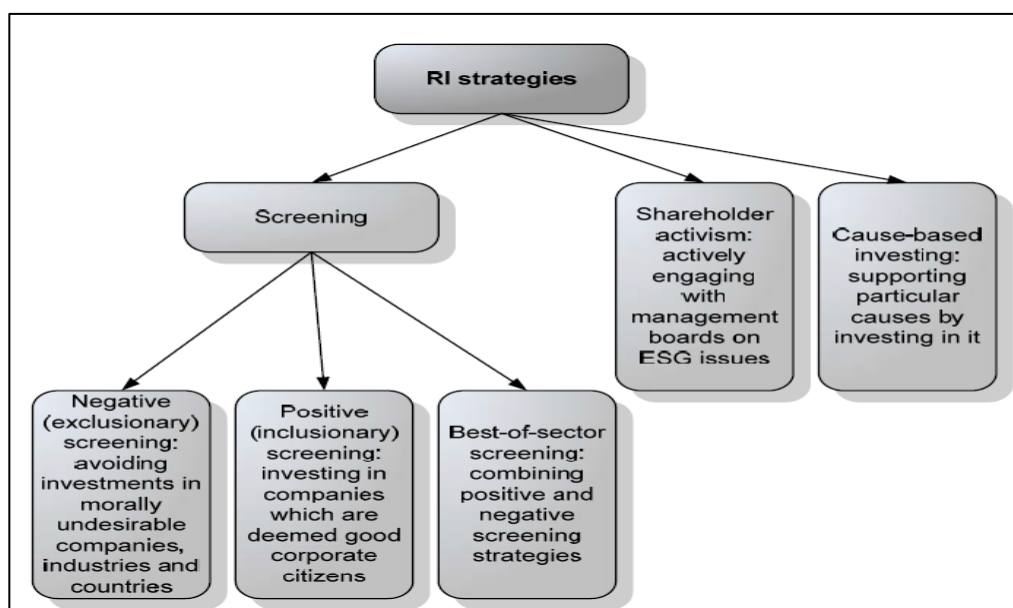


Figure 2.1: Responsible Investment Strategies.

Source: Viviers (2007).

Herringer et al., (2009), expanded the list of investment strategies by classifying these under two main categories: core and broad strategies. The core SRI strategies include ethical exclusions where there is consideration for more than two negative criteria when selecting investments. Positive screening is the selection of best performing stocks or companies against a defined ESG criteria, best in class is a combination of positive and negative screenings, and

SRI themed funds tend to focus on investments in specific sectors or those investments that are aligned to ESG objectives and sustainability.

The most widely researched screening strategies are the negative and positive screening strategies. The earliest history of negative screening dates to the 17th century where the Quakers refused to profit from weapons and slave trade. In the 1920's certain religious groups and a fund, the Pioneer Fund, refused to invest in companies that produced alcohol, tobacco, weapons, and were involved in gambling, to name a few. In the South African context, the first form of negative screening was in the 1980's where the US and Europe had started putting pressure on companies to divest from South Africa due to the apartheid regime that was adopted by the government (Renneboog et al., 2008a).

Broad SRI strategies include simple screening where certain sectors or companies are excluded if they engage in activities that do not meet certain specified criteria. Norms-based screening is the negative screening of companies in relation to their compliance with international standards and norms, engagement entails activism that is aimed at influencing company behaviour in relation to their ESG practices, and integration involves the inclusion of ESG risks into financial analysis models.

Industry investment bodies such as the Global Sustainable Investment Alliance (GSIA) and Eurosif (ALFI & KPMG, 2015), added impact or community investing as an investment strategy. Impact or community investing was defined in the Global Sustainable Review report as published by the GSIA (Global Sustainable Investment Alliance, 2016), as targeted investments that are predominantly made in the private markets with the main objective of solving social or environmental problems. This strategy includes community investing where capital is directed to previously disadvantaged communities and businesses with a social and environmental mission.

Schueth, (2003), defined community investing as an approach where investors deploy capital to work in local communities with the aim of creating jobs, delivering affordable housing, and access to environmentally friendly products.

Leeman's classification, as cited by Viviers et al., (2009), explained cause-based or targeted investments as primary investments that have a substantial and observable impact on the economy in relation to infrastructural development and job creation. Viviers et al. (2009)

further stated that cause-based investors generally seek returns that are on par with market rates, whilst some investors can settle for lower returns if they advance a specific cause.

The Alexander Forbes TDI Manager Watch survey report defined TDI as those investments that seek to maximise investor returns whilst considering socially responsible investing and issues relating to the development and empowerment of previously disadvantaged communities (Alexander Forbes Research and Product Development, 2017).

The research on cause-based investments by Viviers et al., (2009), revealed that, despite the need for these investments, institutional investors are reluctant to invest more capital in this SRI sub-sector. The reasons cited for the low appetite included the lack of viable investment opportunities, illiquidity, and the long-term tenure of these investments. A secondary reason for the low uptake of these targeted investments was linked to the high risk of default and low or marginal returns realised by private equity investments (Viviers et al., 2009).

2.4 Overview of SRI Industry in South Africa

2.4.1 South African SRI Funds and the Private Sector TDI Market

A study by Viviers et al., (2009), revealed that the first SRI funds were launched in South Africa in 1992. The two funds were the Community Growth Equity Fund and Future Growth Albaraka Equity Fund. By 2006, 41 funds had been established in the South African RI market. The study revealed that between 1998 and 2002 there was a decline in the number of new RI funds in the market. The authors attributed the decline to the collapse of special purpose vehicles following the 1998 market collapse. The study also revealed that the SRI activity recovered from 2002 to 2006 with 18 new funds that had been launched in that period.

Viviers et al., (2009), further stated that the exact size of the RI sector could not be determined due to diverse SRI definitions and classifications in the industry, but estimated the size at R18 billion, which at the time amounted to 0.7% of the total investment capacity.

A study by Giamporcaro & Pretorius, (2012), in 2009 estimated that there were approximately 38 SRI funds with a market value of R23.28 billion. The authors mentioned that these values excluded private equity funds. These funds were classified as equity, fixed interest, balanced, alternative, and property funds. The research revealed that 45% of the funds adopted the positive screening strategy, 24% adopted negative screening, 18% adopted engagement and

proxy voting, and 13% adopted a combination of positive screening and targeted investment strategies.

A recent survey performed by Alexander Forbes as at March 2017 (Alexander Forbes Research and Product Development, 2017), estimated the local TDI market at R47.5 billion (refer to Table 2.1).

Table 2.1: Targeted Development Investments in South Africa

TDI Funds	Classification	Fund Size (R'm)
Momentum MoM Supernation Fund	Pooled	22.3
Stanlib Wealth Development Fund	Pooled	42.4
Mergence SRI Fund	Pooled	173.3
Element Earth Equity	Unit Trust	55.3
Futuregrowth Development Equity Composite	Pooled	1 855.4
Oasis Crescent Equity Fund	Unit Trust	6 452.8
Oasis Crescent International Feeder Fund	Unit Trust	1 297.3
Mergence ESG Equity Fund	Segregated	361.5
OMIG Alternative Investments Ideas Fund	Pooled	8 564.6
Community Growth Gilt Fund	Unit Trust	175.6
Futuregrowth Infrastructure and Development Bond Fund	Pooled	12 535.6
Mergence High Impact Debt Fund	Pooled	148.9
Prescient Clean Energy Fund	Pooled	497.8
Futuregrowth Community Property Fund	Pooled	2 500.1

Source: Alexander Forbes TDI Manager Survey Report, March 2017.

The report showed that there has been a major consolidation in the SRI market with only 14 funds reported as being directly involved in the SRI industry as compared to the 38 that was cited by Giampocarò and Pretorius in 2009. The report also showed that; 21% of the funds are classified as balanced funds, 36% as equity funds, 29% as fixed interest funds, 7% as alternative funds, and 7% as property funds. Targeted or cause-based investing is the predominant investment strategy that is adopted by these TDI funds.

2.4.2 Public Sector Investment Corporations and TDI

The study on public investment corporations looks at the Top 3 largest investment corporations as measured by the total size of their assets under management or assets in their balance sheet.

2.4.2.1 Public Investment Corporation

The Public Investment Corporation (PIC) is the largest investment corporation in South Africa with an estimated value of R1.857 trillion AUM as at March 2016 (Public Investment Corporation, 2016a). The PIC provides asset management services to pension funds, provident

funds, social security, and guardian funds. As per the 2017 annual report, the Government Employees' Pension Fund (GEPF) accounted for 87.72% of the total assets under management, followed by the Unemployment Insurance Fund (UIF) at 7.03%, the Compensation Commissioner Fund (CC) at 1.93%, the Compensation Commissioner Pension Fund (CP) at 0.96%, the Associated Institutions Pension Fund (AIPF) at 0.77%, and the rest is allocated to various clients with smaller portfolios. The PIC as part of its vision 2030 has adopted a thematic approach for economic growth, which entails supporting South Africa's key development objectives aimed at achieving economic growth and socio-economic transformation. It aims to be a key player in regional and continental integration, which will be achieved through direct investments, robust risk management, and strategic partnerships.

¹The sector focus for impact investments comprises economic infrastructure¹; social infrastructure², priority sector investments³, entrepreneurship⁴, and environmental sustainability⁵.

When looking at fund classification, 86.01% of the funds are invested in domestic listed investments, 7.26% in unlisted domestic investments that can be viewed as targeted investments, and 6.73% in off-shore investments (Public Investment Corporation, 2016a). The

Isibaya Fund at PIC is predominantly focused on unlisted investments with the aim of generating financial and social returns. The fund, according to a media release by the PIC, is valued at R44.6 billion and spans across several sectors including manufacturing, renewable energy, housing, agriculture, property, and other sectors (Public Investment Corporation, 2016b).

2.4.2.2 Industrial Development Corporation

The Industrial Development Corporation (IDC) is the second largest development funding institution in South Africa. IDC's key mandate is to maximise the development impact through industrialisation that supports job creation, the delivery of steady sustainable economic growth in Africa, and the economic empowerment of the South African population. As at March 2016, IDC had total assets worth R121.3 billion, development loans accounted for 19.7% of the total

¹ 1. Economic infrastructure – focus on transport, water, mining, ICT, and logistics

² 2. Social infrastructure – focus on affordable housing, health, and education

³ 3. Priority sectors – agribusiness, manufacturing, beneficiation, and other labour-intensive sectors

⁴ 4. Entrepreneurship – focus on SMMEs

⁵ 5. Environment and sustainability – focus on renewable energy, clean technology, and green buildings

asset value whilst associate and partnership investments accounted for 15% of the total asset value. Equity investments accounted for 44% of the total asset value (Industrial Development Corporation, 2016).

The IDC, as a 79 year old institution, has over the years repositioned itself to align to the development policies and objectives of government when it comes to industrialisation, economic empowerment, transformation, and rebalancing the resources to develop new industries whilst establishing development nodes in rural or peri-urban/township areas that were neglected for many years.

In the early and mid-2000s, the IDC was focused on promoting job creation, developing rural areas and other previously disadvantaged regions, development of downstream industries, entrepreneurial development, and sector strategies. In the late 2000s and 2010s IDC shifted its focus to respond to government's objectives of navigating the recessionary period that started in 2008, crafting of the New Growth Path (NGP), National Development Plan (NDP), and the Industrial Policy Action Plan (IPAP 2). Other objectives included growing the financial sector liquidity, climate change, and mandate overlap of DFIs (Industrial Development Corporation, 2014).

The vision of the IDC as per the 2017 annual report (Industrial Development Corporation, 2017), was to be a primary driver of commercially sustainable industrial development and innovation in South Africa and the rest of Africa. The investment outcomes included, but were not limited to; sustainable employment, growing sectoral diversity, regional equity and industrialisation in the rest of Africa, growing the SME sector, B-BBEE, environmentally sustainable growth, and new entrepreneurs. The IDC invests in the agriculture, electricity generation, manufacturing, mining, and services sectors.

2.4.2.3 Development Bank of Southern Africa

The Development Bank of Southern Africa (DBSA) is the third largest development funding institution in South Africa. DBSA's key mandate is to advance the development impact in the region and implement sustainable development solutions to improve the quality of life through the development of social infrastructure, support economic growth by investing in economic infrastructure, support regional integration and promote sustainable use of scarce resources (Development Bank of Southern Africa, 2015). As at March 2016, DBSA had total assets worth R82.3 billion, development loans accounted for 84% of the total asset value, whilst

development bonds accounted for 1.6% of the total asset value. Equity investments accounted for 7.6% of the total asset value (Development Bank of Southern Africa, 2015).

The DBSA, as a 33-Year-Old institution, has a strategy that has evolved from an institution that was demarcated to perform a development function within homelands pre-democracy or 1994, to one that is aligned to the national development policies and objectives of government. Underpinning the NDP goals of eliminating poverty and inequality by 2030 is the investment in economic (energy, water, and transport) and social infrastructure (i.e. health, housing, and education) to stimulate economic growth and job creation.

In line with its mandate of assisting municipalities where capacity is constrained due to rising urbanisation and growth in businesses, the DBSA has continued to increase its technical assistance services such as infrastructure planning, project preparation, implementation support to under resourced municipalities to improve the level and quality in the delivery of infrastructure.

As one of the key DFIs in Africa that are playing a pivotal role in financing infrastructure to achieve the objectives of the NDP and SDGs, DBSA sees itself playing a catalytic role where it crowds in, funding from other traditional DFIs and private sector investors to maximise impact. As part of its growth ambitions the bank aims to unlock R100 billion worth of infrastructure per annum in the 2019/2020 financial year.

The vision of DBSA, as per the 2017 annual report (Development Bank of Southern Africa, 2017), was to contribute towards an integrated resource efficient region that is free of poverty and dependency. Investment outcomes included, but were not limited to; large scale infrastructure investment, support integrated urban infrastructure development, provision of implementation support to municipalities, support large state-owned companies, serve both domestic and regional requirements, crowding in the private sector, remaining financially sustainable and striving for continuous improvement and innovation. DBSA's broad sector focus is on communications, energy, transport, water and support to various social sectors such as health, education, and housing.

2.4.3 Development Landscape in South Africa

According to the 20-Year review report as compiled by the National Planning Commission (Presidency of the Government of South Africa, 2014); the democratic government inherited a disjointed, unaccountable, and racially segregated governance system, which was characterised

by large underinvestment in homelands and poor delivery of basic services whilst urban municipalities were well capacitated despite serving a small proportion of the population.

The report highlighted the key mandate of the national development plan, which is that of building a capable and developmental state that can drive the development of the country in addition to delivering public services to citizens. According to the National Treasury Infrastructure update report, public sector expenditure on infrastructure between the 1998/99 and 2015/16 financial years amounted to R2.5 trillion. The amount increased from R48 billion in the 1998/99 financial year to R261 billion in the 2015/16 financial year, as highlighted in Figure 2.2.

Municipalities and provincial governments have also increased their expenditure on the construction of schools, hospitals, clinics, and other community related infrastructure (National Treasury, 2006). Significant progress has been made by the South African government to address some of the socio-economic challenges; however, the country is still lagging in other development goals (refer to Figure 3, Appendix 2).

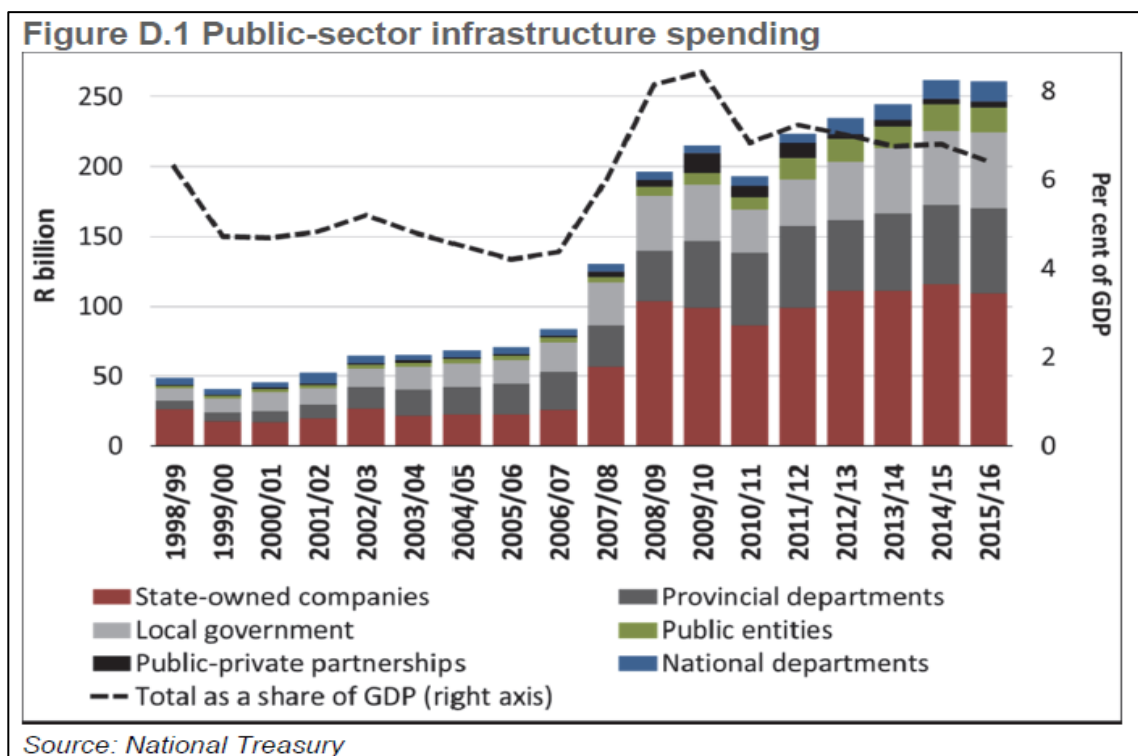


Figure 2.2: Public Sector Infrastructure Expenditure.

2.5 Theoretical Framework

Cause-based or targeted investments are key contributors towards direct investments in the real economy (Viviers et al., 2009). These investments are often driven by a desire to improve

economic growth and development by directing financial and economic resources to certain sectors, industries, and countries.

Viviers et al., (2009) cited Leeman's interpretation, which inferred that targeted investments are primary investments that have a tangible impact on the economy in terms of infrastructural development and job creation. Research on the topic of sustainable and responsible investing evolved from the Quakers model of using social screens when selecting investments, ethical screening, active engagement, and corporate social responsibility to a more modern balanced investment approach of combining the desire to achieve financial returns whilst incorporating environmental, social, and governance issues in investment decision making (Giamporcaro & Pretorius, 2012; Sparkes & Cowton, 2004; Viviers et al., 2009).

Bridges Ventures (2015) classified sustainable and responsible investing as an overarching concept that has many themes starting firstly with traditional investments that are finance driven and aim to achieve competitive returns, and secondly by responsible investments, which focuses on screening and ESG risk management. A third theme identified was sustainable investments that combine ESG risk opportunities with the creation of additional value through investment selection and portfolio management, and the last theme being impact investments that focus on finding solutions to societal and environmental challenges to deliver high impact solutions that can or cannot be measured (Bridges Fund Management, 2015). Based on the Bridges Ventures analysis of the spectrum of capital, targeted investments can be classified as hybrid impact investments that, on the one hand focus on societal and environmental solutions that generate market-linked returns or market-outperforming returns, whilst on the other hand can be highly impact driven foregoing high market returns for below-market financial returns. The latter in the study is covered through the review of investments made by public sector investment corporations whose mandate is to deliver impact where the private sector is not able to participate, the former is addressed through the review of targeted development investments in the private sector (Bridges Fund Management, 2015).

Literature on responsible investment has historically focused on the impact of using screening on the performance of portfolios and mutual funds as well as portfolio diversification. Kempf & Osthoff, (2007), study examined the effect on the investor's performance over a 14-Year period when adopting a simple trading strategy for screened stocks on the S&P 500 and DS 400 indexes. The strategy entailed buying stocks with high SRI ratings and selling stocks with low SRI ratings. Hamilton et al., (1993), study on the performance of socially responsible

mutual funds revealed that socially responsible factors have no impact on expected stock returns, or the companies cost of capital. Concerning portfolio diversification, a study by Bello, (2005), used a sample of socially responsible stock mutual funds and randomly selected conventional funds of similar size to investigate differences in the asset composition, portfolio diversification, and the effect of diversification on investment performance.

Other studies on the topic of sustainable and responsible investments explored the consideration of environmental aspects in investment decision making. A study by (Pretorius et al., 2010), analysed whether investment products and strategies in South Africa took environmental sustainability into account when making investment decisions on SRI funds. The paper asserted that products related to SRI investment products and strategies had a key focus on infrastructure, development, and black economic empowerment.

In the South African context early studies focused on covering the challenges facing the SRI sector in South Africa and a view of the state of responsible investment in the country at a point in time. A study by Viviers et al., (2009), provided an overview of the RI sector in South Africa, the size and nature, as well as factors that impeded the growth of the local RI sector. In a study by Herringer et al., (2009), the factors that affected the growth and development of the SRI sector in South Africa and the role that SRI must perform to ensure sustainable economic growth and development was explored. The study summarised the role for ensuring economic growth using a macro strategy that starts with developing a working model using investments and legislation to drive change, followed by social and infrastructure upliftment that focuses on investments in local communities and economies to impact growth and livelihoods Herringer et al., (2009). The study further mentioned public private partnership as an ideal mechanism to ensure an effective and transparent allocation of capital and the last recommendation called for responsible companies and citizens to support the growth of SRI.

Heese, (2005), provided a different perspective by attributing the low growth in South Africa's SRI sector to the failure of TDI fund managers to achieve a consensus on key aspects that define SRI. Contributing factors included the failure to define the asset class, how it relates to black economic empowerment (BEE) and vice versa, verification of the funds' social and non-financial impact and how overall fund performance is to be reported to trustees and positioning of the funds and how they relate to global SRI trends.

Horsley, (2004), study engaged the topic of socially targeted investments by attempting to find responses to two questions, that is, what type of investments will lead to an expansion of economic opportunity for poor people, and how should the investment process be administered and monitored? The study highlighted the lack of socially targeted investments in South Africa, which are evident from the large infrastructure backlog, little progress made by government in providing basic services such as water and electricity, and the dominance of the private sector by a short-term focus on investments that realise quick profits. The short-termism is cited as the main cause for continuing poverty, inequality, and high unemployment.

Among the recommendations made in Horsley's (2004) paper was a call to direct 5% of the institutional investments (called the 5% initiative) towards socially targeted investments such as infrastructure investment and productive investment. Infrastructure investment has an encompassing definition in the paper, classified as investments in housing, utilities, roads, transport, health clinics, and school buildings. Productive investments; however, are classified as funding processes that make the economy more productive, such as investments in small medium and micro enterprises, education, and skills training. The vision then was to use the 5% initiative as a mechanism to boost infrastructure and productive investment, reverse poverty and high unemployment trends by targeting a combination of infrastructure, housing and labour-intensive sectors that have a high job creating capacity. The study also recommended a combination where a portfolio, or a co-funding model, is created with government to mitigate the risk and return.

The topic of targeted investments was further explored in the National Development Plan (National Planning Commission, 2010) where the South African government outlined key enabling milestones for the 2030 vision, which included:

- Establishing a competitive base of infrastructure, human resources, and regulatory frameworks,
- Producing enough energy to support the industry at competitive prices, reducing carbon emissions, and increasing access to energy for poor households,
- Ensuring all South Africans have access to clean running water in their homes,
- Increasing employment from 13 million in 2010 to 24 million by 2030 and raising the per capita income from R50,000 in 2010 to R120,000 by 2030, and
- Establishing effective, safe, and affordable public transport.

Recent studies on the topic of sustainable and responsible investments have introduced the term *impact investments*. A 2013 study published by UNDP (United Nations Development Programme, 2013), highlighted that South Africa remains the largest impact investment market in SSA with a pool of private sector institutional players such as commercial banks and insurance companies that have deployed capital to impact investment funds. Government has equally played a role by investing in economic infrastructure, provision of basic services, promotion of SMME's, and economic empowerment of previously disadvantaged groups. The PIC is quoted as a major investor of pension fund capital (AUM of \$3.5 million) into development investments, which include economic infrastructure, environmental sustainability, labour intensive sectors, and SMME's. Publications on impact investing have also focused on the quantum of investments made, the type of players that are active in the market and the constraints and opportunities that this market brings (Global Impact Investing Network, 2016).

Various studies have touched on the topic of sustainable and responsible investments including its subset targeted investments, but none have explored the development role played by these investments in addressing economic and socio-economic challenges.

Published statistics in the market show a substantial growth in SRI assets, the fastest growing strategies on a global context being impact and sustainable investing strategies as highlighted in tables 1, 2, and 3 (Appendix 1). The objective of the research was to identify whether this incremental trend could have been observed in the TDI market in South Africa for the past 10 years.

A secondary motivation for the study in question relates to the recently adopted SDG's, which place more scrutiny on the investments made and each countries' efforts in attaining each goal over the 15-Year period, the study can therefore, highlight the efforts played by the different parties in targeted investments in South Africa and the envisaged role that they can play in an established targeted investment eco system in the future.

2.6 Empirical: Development Role of Targeted Investments

This section provides an overview of the literature on the development role of public sector and private sector investments in infrastructure, energy, and water resources. Perkins et al., (2005), tested the long-term growth relationship between the development of economic infrastructure as measured by investments in rail, road, electricity, air travel, and

telecommunications against economic growth as depicted by the GDP from 1875 to 2001. The study revealed a strong correlation coefficient of 0.996 between paved roads and real GDP growth, whilst results on the other infrastructure types revealed that the growth in GDP tended to drive these investments and not vice versa. An alternative test using national accounting figures depicted a picture where infrastructure investment drives economic growth. The authors argued that three conclusions can be drawn from the analysis, including that economic growth is both a driver and an indicator for the need to allocate resources to fund infrastructure, and believing that the provision of appropriate infrastructure at the right time in South Africa will contribute to continued economic development. Finally, they concluded that the demand for investment in economic infrastructure becomes perpetual due to the need for ongoing maintenance of existing infrastructure and the introduction of new programmes in response to changing economic dynamics (Perkins et al., 2005).

Triegaardt, (2007), introduced IDP, defined as an approach that assists municipalities to achieve their development mandates through an integration of economic, sectoral, spatial, social, institutional, environmental, and fiscal strategies to support the optimal allocation of resources between sectors and geographies to contribute towards sustainable growth, equity, and the empowerment of poor communities. LED is viewed as a subset of IDP where its role in the delivery of infrastructural services to the poor, and provision of basic municipal services is linked to poverty alleviation, an improvement in the asset base, and standard of living of marginalised communities.

A report published by the World Bank on the state of the power sector in Sub-Saharan Africa (World Bank, 2008), revealed the low generation capacity of the 48 countries, which was estimated at 68 gigawatts, with South Africa accounting for more than fifty percent of this generation capacity. The lack of access to reliable energy sources and consistent electrification has economic and social costs where it hampers manufacturing activity, increases electricity costs, and in the long run impacts the region's economic growth and competitiveness.

Kanagawa & Nakata, (2008), study on the socio-economic impacts of rural electrification in India revealed positive spinoffs on education, health, level of income, and the environment. In the education pillar increasing access to electricity is a key enabler for access to technology, information, and provides a conducive environment for studies. In the health pillar it increases access to medication and vaccines, whilst also improving health standards through modern energy sources for heating and cooking. In the income pillar, access to reliable electricity

boosts manufacturing activity, creates jobs, and establishes local industries in rural areas through small scale energy systems. The environment is further protected from a reduction in the use of firewood, use of efficient energy sources and renewable energy.

Bond, (1999), highlighted three economic multipliers that stem from the provision of basic infrastructure that is; the provision of construction related jobs, education multiplier through literacy and improved productivity, and the promotion of entrepreneurship through support of small medium and micro enterprises. The study posited that more jobs are likely to be created in the informal sector per million rand spent in construction related activities, which would improve service delivery to low income households. The role of education is amplified by access to infrastructure such as electrification, which transforms households through access to information, technology, new operating methods that improve efficiencies, improved health and standards of living, including gender parity by enabling females to have access to education. The SMME sector is supported by infrastructure services such as water and electricity, which enables businesses to operate appliances, machinery, and agriculture entrepreneurs are also supported through access to irrigation services.

Bhattacharya et al., (2015), stated that infrastructure development is a catalyst for growth, sustainable development, poverty eradication and environmental sustainability. The authors argued that commitment and increased investments by multilateral development banks from low levels of \$30 billion to over \$200 billion a year can lead to an improvement in global outcomes for climate and development.

To guarantee sustainable development they identify six critical areas of action, which involve an articulation of development strategies on sustainable infrastructure. These areas included emphasis on the G-20 to address the infrastructure gap, augmentation of the capacity of development banks to invest in infrastructure and agricultural productivity, re-deployment of private sector capital towards low carbon infrastructure, collaborative efforts between the international community and institutional investors in outlining policies and regulatory frameworks to enable an increase in infrastructure asset holdings, and an agreement amongst the international investors on the amount that would be required to meet SDGs (Bhattacharya et al., 2015).

Estache, (2006), cited Lumbila's 2005 paper on the study of infrastructure stocks as measured by telephone connections, where he found that countries with larger infrastructure stocks tend

to attract more foreign direct and domestic investments than countries with low stocks. He mentioned that countries with underdeveloped infrastructure are thus not able to see a meaningful and measurable impact of infrastructure on the investment for growth.

A paper published by the Forum on Debt and Development and cited in a conference paper on MDGs (Forum on Debt and Development, 2005), analysed the infrastructure investment impacts at aggregate and firm level, on trade, and service delivery. Aggregate impacts relate to the impact of infrastructure services on growth as measured by GDP. Authors quoted several studies that found a positive correlation between growth and the stock of infrastructure assets including the reduction of inequality with increased investments in this sector. Firm level impacts study the impact on private investments, where firms with inconsistent access to electricity, power outages, and frequent use of generators have less inclination to invest, leading to a reduction in productive investments. The impact on trade focuses on poor infrastructure as the main cause for fragmentation and high transport costs that lower the competitiveness of exports, resulting in low levels of trade in African countries. Service delivery covers the impact of infrastructure in reducing poverty through increasing access to basic social services. The paper cites authors from several studies performed in SSA, where these investments have improved education, health, school attendance, and reduced child labour and inequality.

Cook, 2011; Kaygusuz, (2011), placed emphasis on the provision of energy services that lead to poverty reduction and an improvement in rural livelihoods. Kaygusuz, (2011), recommended a holistic approach where energy needs are to be considered in the context of community life, whilst energy policies and projects must be integrated with other social improvement efforts relating to health, education, agriculture, and job creation to cover the diverse energy needs of rural communities.

Bogetic & Fedderke, (2005), benchmarking of South Africa's infrastructure and its impact on productivity revealed the need for continued investments in infrastructure that will not only contribute to accelerated growth but to poverty reduction, increase in competitiveness, and social and economic integration of society. They called for increased investments in electricity to improve access and quality, especially for the rural population.

Fedderke et al., (2006), study on the long-run relationship between economic infrastructure and real GDP in South Africa found a forcing relationship from infrastructure fixed capital

stock to GDP, which implied that infrastructure leads to growth. A simultaneous relationship was found between infrastructure and output, which implied economic growth can be both the driver and provider of resources to finance infrastructure needs. The authors attributed this dual relationship to responses to changes in the structure of the economy whilst impacting the performance of the economy.

2.6.1 Development Finance Institutions, Institutional Investors Targeted Development Investments

This section provides an overview of the literature on the finance role played by development finance institutions and institutional investors in financing targeted development investments. Dailami & Leipziger, (1998), attributed the reasons for increases in foreign capital flows to developing countries for infrastructure to private participating and supply of long-term debt capital. They stated that private participation in developing countries is in the form of partnership agreements between private investors and governments through equity contributions, guarantees, tax incentives, and subsidies. According to the study, long term debt capital was supplied through syndicated commercial bank loans, bridge loans and backup facilities, multilateral and export credit agency loans, and guarantees. The authors estimated that in 1995, cross-border infrastructure projects were funded 60% through bank loans, 20% from bonds, and the balance through equity.

te Velde & Warner, (2007), stated that development finance institutions through supporting the development of the private sector can contribute towards growth and poverty alleviation. The role of DFIs can be observed in de-risking of infrastructure projects where there might be substantial initiation costs. The authors argued that subsidies, either in the form of concessional loans priced at below market rate levels, or through forfeiture of dividend payments can be explored, given the infrastructure backlog in the African continent is estimated at USD 20 billion a year.

They also outlined the role of DFIs in financing infrastructure, which is to be driven by their mandate of providing finance to the private sector towards projects that bring about development, investing in low frontier markets where markets have failed to fill the gap, acting as catalysts and risk mitigators that enable the private sector to allocate funds to projects that would have otherwise been non-viable in the absence of subsidies and technical assistance programmes. By 2005 annual commitments of DFIs to private sector infrastructure were

estimated at USD 7.3 billion, which accounted for 18% of the total investments (te Velde & Warner, 2007).

Chowdhury et al., (2009), investigated the investment role played by multilateral development finance institutions (MDFIs) in private infrastructure funds in emerging markets using a sample of 14 institutions. The authors highlighted the changing role of these institutions from financing public entities to actively participating in the private sector by providing debt, guarantees, and equity to private sector companies in key priority sectors such as infrastructure, SMMEs, and financial institutions. The study revealed that eight out of the largest MDFIs invested between 5% and 30% of their private sector investments to private equity funds.

Reasons cited for the shift to infrastructure funds include, but are not limited to, positive multiplier effects, which de-risk the project making it attractive to other private investors, efficient deployment of capital through wholesale facilities to commercial players that are more experienced in project delivery, provision of political risk cover through existing relationships with the sovereigns to promote private sector development, and the promotion of greener methods of production, especially in the energy sector where MDFIs have created clean energy funds (Chowdhury et al., 2009).

Chin, (2014), cited various authors in crafting the purpose of member states in establishing the Brics Development Bank (BDB), which included a combination of sustainable growth and development needs that relate to infrastructure investment. Research has shown that most developing countries and Northeast Asia have achieved sustained growth and became modernised through significant investments in infrastructure. Developing countries are however, faced with an infrastructure gap, with the AfDB estimating that only a third of the continent's population has access to roads, less than 40% has access to electricity, 5% of agricultural production is under irrigation, only 34% has access to improved sanitation, and 65% to clean water. AfDB further estimates that \$93 billion would be needed per year to bring infrastructure on par with other low to middle income countries.

Kauffmann, (2008), outlined the costs of low investments in infrastructure, financing needs, challenges that deter private sector participation, and the recommendations set out by OECD for African governments and their partners. The report states that the cost of modernising infrastructure in Africa, as estimated by the World Bank, is at \$40 billion a year, which would account for 9% of the GDP, followed by new investments that would range between \$22 - \$25

billion including annual maintenance, which is estimated at \$17 billion. The study recommended that partnerships with the private sector would alleviate pressure on public sector budgets, which are inadequate to meet the required capital for infrastructure investment. Recommendation put forward from OECD principles to attract private investment flows for infrastructure include; decision making on modalities of private sector participation, agreement on risk sharing or risk transfer mechanisms, ensuring financial sustainability of projects through tariffs and appropriate funding schemes, governments to work on stability through policies and enabling regulatory frameworks, and outlining of roles and responsibilities between public and private sector players whilst being transparent to the consumers.

Gatti & Della Croce, (2014), study on financing trends for infrastructure in the global market, reported a shift from traditional finance that was provided by commercial banks to institutional investors. Institutional investor financing is organised through various funding structures, the most common falling under the “originate to distribute” model where banks enter partnerships with institutional investors to attract debt funds into infrastructure. The study revealed three common structures, the first one being the co-investment model where institutional investors invest in funds originated by banks, the securitisation model where special purpose vehicles are used to purchase pools of infrastructure investments from banks and a debt fund model where institutional investors provide financing to a resource pool that is managed by an asset manager. The authors stated that this shift has been largely driven by the desire by institutional investors to achieve long term inflation protected returns, a change in asset allocation trends from gradual globalisation of portfolios, which increases the demand for emerging markets and new asset classes and governments’ realisation of the need to consider new sources of capital to support infrastructure development.

Ruiters, (2013), study examined private sector markets as one of the sources of funding that can be used to eliminate the estimated R600 billion water infrastructure deficit gap. He stated that given the limits on the use of commercial paper and bonds to finance infrastructure, South Africa’s largest pension GEPF through the PIC could shift its investment policy from equities and include infrastructure as an asset class. Institutional investors are deemed to be the most appropriate funders for long term water infrastructure projects because liabilities would be matched with the longer terms on the projects. To increase investments in the sector, local institutional investors are called to take a more diversified approach to asset allocation.

Della Croce, (2012), analysed results obtained for infrastructure from an OECD Large Pension Funds survey that was conducted in 2011. The results revealed that most of the funds had an active allocation to infrastructure accounting for up to 20% of their total portfolios. To get more comparable results based on the asset allocation approaches used, the survey was split into two groups, that is, the first group being pension funds that have a dedicated allocation to infrastructure as an asset class and assess the investment through unlisted instruments such as infrastructure funds or direct investment, whilst the second group consider infrastructure as part of their fund's equity and fixed income allocation. According to the survey on infrastructure for 28 funds, direct exposure to infrastructure at the end of 2010, was \$41.8 billion, which represents 2.9% of total assets surveyed (\$1.4 trillion), and 0.5% of total assets under management (for all 52 funds in the pension survey). The results for 14 funds under the second group reveal that \$18.7 billion was invested in infrastructure, with listed equity accounting for \$16.5 billion of this total.

te Velde, (2011), analysed investments by DFIs that has contributed to private sector support and development. Private sector support by DFIs as measured by annual commitments increased from \$15.4 billion in 2003, to \$21.4 billion in 2005, and \$33 billion in 2009. DFI support accounted for a quarter of the total outside development assistance (ODA). In 26 developing countries, average investments by the three large DFIs, IFC, CDC, and EIB accounted for between 2% and 12% of domestic investment. The study expanded on the role of DFIs from a macro level by incorporating the ability of DFIs to invest during financial crises, post-conflict eras, and in the improvement of energy efficiency in the measurement of impact. Results revealed that DFIs have contributed to the growth in investments, energy efficiency, and their geographical presence enables the promotion of investments and growth in less developed countries.

Gumede et al., (2011), stated that DFIs in successful development states are characterised by their role in financing development projects effectively and their multifaceted facilitation and funding role in the broader industrialisation and economic development strategies of their countries. Through innovation and going beyond their role as DFIs they have accelerated industrialisation, economic growth and human development. In defining the role that South Africa's DFIs can play, the report analysed case studies from other developing country DFIs.

The authors argued that DFIs must play a catalytic role by providing the following; counter-cyclical lending where they direct funds during financial crises towards infrastructure and long-

term investment (regional development and SMME support), an enabling environment for enterprise and industry, promoting industrialisation by investing in new sectors and strategic industries, expanding infrastructure development for integration into broader economic development, promoting the country's foreign policy objectives by supporting local businesses access export opportunities, contributing to institutional capacity building to support clients and public institutions that manage development, providing leadership to enable public private partnerships, and serving as models for corporate citizens through their inclusive development objectives (Gumede et al., 2011).

2.6.2 Risk Adjusted Performance of Sustainable and Responsible Investments

This section reviews existing literature on the risk adjusted performance of sustainable and responsible investments. In a study by Goldreyer et al., (1999), three measures were used, that is, investment objectives, size and systemic risk, combined with social screening to test the effect on portfolio performance on a sample of 49 socially responsible mutual funds. The test was performed on two groups of data, old SRI funds from 1981 to 1997 and new funds from 1994 to 1997. The sample was first partitioned using the investment strategy as a criterion where the funds were split into equity, bond, and balanced funds. The sample was further partitioned to consider size categories ranging from low, medium, and large-beta funds. The results revealed that there was no significant difference in the performance of socially responsible funds and conventional funds, whilst funds that employed inclusion screens outperformed those funds that did not employ these screens.

Statman, (2000), compared the returns of the Domini Social Index (DSI), an index of stocks of socially responsible companies to the returns of the S&P 500 and an index of all stocks (CRSP 1-10) from 1990-1998. The results showed that the DSI outperformed the S&P 500 by a small margin when performance was measured using raw returns but underperformed the S&P 500 by a slight margin when risk adjusted returns were used to measure performance. The risk adjusted returns for the DSI outperformed the CRSP index by a slight margin.

Abramson & Chung, (2000), analysed the performance of value stocks as measured by relative dividend yield and relative market capitalisation to revenues within the Domini 400 Index from 1990 to 2000. The Domini 400 was used as an SRI benchmark and value benchmarks were the Russell 1000 Value, the S&P Barra Value, and the Wilshire Large Cap Value. The study was based on two strategies, that is, the rebalance strategy and the buy-and-hold strategy. Results showed that for the rebalance strategy the average annualised return was 17.45%, which

exceeded the average return of 15.10% across the three value benchmarks. Larger returns were realised on a risk-adjusted basis. The average annual return for the buy-and-hold strategy was higher at 16.15% compared to 15.10% realised for the value benchmark. Volatility in the buy-and-hold strategy was higher than the other strategies but the performance on a risk adjusted was lower with a Sharpe ratio of 0.76 against a ratio of 0.80 for indices.

Schröder, (2004), analysed the performance of SRI funds and indices in the United States, Germany, and Switzerland. The study used a sample of 30 funds from the United States and 16 funds each from Germany and Switzerland and the Sharpe ratio was used to measure the risk adjusted performance of these funds against the MSCI World Index. Results showed that the majority of the German and Swiss Funds had lower mean returns and Sharpe ratios than the MSCI World Index. In the United States, nine out of the 30 funds had returns that were equal to the MSCI World Index and eight funds that outperformed the MSCI Index. The findings implied that investment funds were not able to earn excess returns.

Bello, (2005), used a sample of 126 active socially responsible stock mutual funds and compared it to conventional funds of similar net assets from 1994 to 2001. The DSI 400 Index was used as a benchmark for socially responsible funds whilst the S&P 500 was used as a benchmark for conventional funds. The portfolio performance tests revealed that there was no statistically significant difference in the performance and portfolio diversification between socially responsible mutual funds and conventional funds of similar net assets.

Schröder, (2005), study analysed the performance on a broader scale using SRI equity indexes as opposed to previous studies that focused on SRI investment funds. The test was performed on 29 SRI stock indices from 1992 to 2003 using single to multi-factor models. The indices were selected to cover a global spectrum, that is, Dow Jones Sustainability Indices (DJSI), Ethical, FTSE4Good, Humanix, and KLD, as well as tradable indices. The objective was to test the relative performance and risk of these indices against their benchmarks. The results for equity indices neither showed an under, nor an outperformance against their benchmarks. The assessment of SRI index returns revealed that most of the indices were riskier than their benchmarks.

Kempf & Osthoff, (2007), analysed the effect of a trading strategy in stocks based on past SRI ratings, that is negative, positive, and best in class screens. The assessment was done on two portfolios, that is, one portfolio of stocks with high SRI ratings and another of stocks with low

SRI ratings from 1992 to 2004. Results revealed that portfolios with high SRI ratings perform better than portfolios with low SRI ratings. In addition, a long short strategy (long in high rated stocks and short in low rated stocks) yielded high abnormal returns, which were more evident for the best-in-class screening approach.

Viviers, (2007), evaluated the risk adjusted performance of SRI funds using the Sharpe, Sortino, and Upside potential ratios to test performance against their respective benchmarks, conventional (non-SRI) funds and against the general equity market in South Africa. Results revealed that there were no significant difference between SRI funds and their respective benchmarks in sub-period one (June 1992 – August 1998) and two (September 1998 – March 2002), whilst they outperformed their benchmarks in sub-period 3 (April 2002 – March 2006). The results for the second benchmark category showed that the risk adjusted performance of SRI funds was no different to conventional funds. The third benchmark category showed that local SRI funds significantly underperformed the general equity market during sub-period two, but yielded results that were not significantly different in sub-period one and two.

Renneboog et al., (2008b), examined whether investors pay high costs for investing in SRI funds or earn superior returns. The study was based on a database of socially responsible and conventional equity mutual funds from 17 countries (Europe, North America, and Asia Pacific) from 1991 to 2003. The study used asset pricing models to measure risk and return, that is; CAPM, Fama French Carhart (FFC) model, expanded FFC models, and the conditional Ferson Schadt pricing model to account for time varying risk-loadings. Results showed that SRI funds in the US, UK, and most continental Europe and Asia Pacific countries underperformed their domestic benchmarks by -2.2% to -6.5%. In countries such as Sweden, France, and Japan there was no significant difference in risk adjusted returns of SRI funds and conventional equity mutual funds. The underperformance of SRI funds was not attributed to the ethics style factor whilst corporate governance and social screens were found to yield lower risk adjusted returns.

Viviers et al., (2008), evaluated the risk adjusted performance of RI funds in South Africa from 1992 to 2006. The objective was to assess whether the risk adjusted performance of these funds was on par with its benchmark indices and the general equity market as measured by the FTSE/JSE All Share Index. The Sharpe, Sortino, and Upside Potential ratios were used as performance measures. Results showed that local RI funds underperformed relative to their respective benchmark indices from 1992 to 2002, whilst it outperformed its benchmark indices from 2002 to 2006. Local RI funds underperformed significantly relative to the general equity

market from 1998 to 2002, whilst it performed on par with the FTSE/JSE All Share Index from 1992 to 1998 and 2002 to 2006.

Derwall & Koedijk, (2009), assessed the performance of socially responsible bond and balanced funds (hold both debt and equity) in the United States relative to matched samples of conventional fixed income funds from 1987 to 2003. The bonds and balanced funds were extracted from data labelled by the US SIF as socially responsible. Using multi-factor models, the results showed that the average socially responsible (SR) bond fund performed similarly to conventional funds with an 0.20% differential when all funds were included, and -0.13% when the analysis was restricted to high yield funds. The average SR balanced fund outperformed its benchmark by more than 1.3% per annum, which implied that these funds produced competitive risk adjusted returns.

Weber et al., (2010), performed a study to assess the financial performance of SRI funds compared to a conventional index between 2002 and 2009. The study also analysed the relationship between financial and sustainability ratings that were based on the past performance of funds and the return of the SRI fund portfolio. Out of a total of 229 mutual funds, 151 funds were utilised and the MSCI World Index was used as a benchmark. Results showed that SRI funds had a significantly higher return than the MSCI World Index. Portfolio level results showed that selected SRI funds had significantly higher returns between 2002 and 2009 and in the bull and bear phase, respectively.

Cortez et al., (2012), analysed the style and performance of US and European global socially responsible funds from 1996 to 2008. The study examined fund performance relative to conventional (Morgan Stanley Capital International (MSCI) All Country World Index) and socially responsible (FTSE4Good Global Index) benchmarks. The results showed comparable performance of global socially responsible funds in most European markets against conventional and socially responsible benchmarks. US and Austrian funds showed underperformance.

du Plessis, (2015), examined the risk adjusted performance of SRI funds using the Treynor, Sharpe, Jensen's Alpha, Sortino, and Omega ratios. The study found that the risk adjusted performance of SRI when measured against three benchmark categories, that is, FTSE/JSE SRI Index, matched sample of non-SRI funds, and the FTSE/JSE All Share Index yielded results

that were not statistically significant implying that the performance of SRI funds was on par with each benchmark category.

2.7 Summary of the Chapter

The chapter provided a theoretical review of the development role played by targeted development investments with a specific focus on infrastructure and energy as key drivers of empowerment and transformation of emerging market economies. As evident from previous research targeted investments in economic infrastructure and energy have a substantial growth effect on GDP, improvement in human development indicators and social impacts through access to education, better healthcare, and job opportunities to name a few.

The second section analysed the financial and non-financial support role played by DFIs and institutional investors in financing targeted development investments. Based on existing literature it is evident that there is a shift from traditional financing methods offered by commercial banks to institutional investors that are looking for long term inflation beating returns. The role of DFIs is envisaged to be broader than financing as they are seen to be catalysts for industrialisation, economic growth, and development.

The last section reviewed existing literature on performance and benchmarking of SRI funds, which employ various screening methodologies. Literature on the performance of targeted development investments is not available, but TDI is a subset of SRI, which would be covered at portfolio selection stages of these SRI funds. Past results varied, with most literature showing that there is no significant difference in the performance of SRI funds compared to conventional funds, whilst other studies revealed an outperformance by SRI funds. The few studies in the SA market also revealed mixed results that show outperformance in certain subperiods whilst underperforming in other sub-periods.

Chapter Three

Methodology

3.1 Introduction

The chapter outlines the research design, which highlights the type of quantitative research approach to be followed for TDI funds, and the analytical framework, which details the performance measurement approaches utilised in the study.

3.2 Research Design

In deciding on the type of quantitative approach to adopt, it is important to distinguish between the different types of quantitative approaches, that is, descriptive, correlational, quasi-experimental, and experimental. A descriptive approach entails observational data that describes the current status of a variable or phenomenon. It is relevant comparative to studies, involving cross-sectional and longitudinal designs. Correlational approaches study the relationship between non-controlled variables. Data collection is also observational given that it does not examine cause and effect relationships. Quasi-experimental studies examine cause and effect relationships between two or more variables. Groups in this study are not assigned and there is no manipulation of the independent variable. Experimental designs contrarily, use a scientific method to establish a cause effect relationship among a group of variables. All variables are controlled except the independent variable (Center for Innovation in Research and Teaching, 2020). The current study followed a quantitative research approach that combined a descriptive study on the development role played by targeted development investments, and an experimental study on the risk-adjusted performance of private sector targeted development investment funds in South Africa over a 10-Year period.

3.2.1 Descriptive Study

The study focused on tracking the targeted development investments in infrastructure, industrialisation, housing, access to basic services, and electricity that have been made by the Top 3 public investment corporations in South Africa from 2008 to 2017. The sectors have been pre-specified based on the existence of statistics on the value of investments that are made in infrastructure development including expenditure on the provision of basic services. The mission alignment methodology was used to track the execution of the investment strategy of each investment corporation against their mission and end goals. The development role was articulated using each corporations' scorecard to measure impact at portfolio level.

The three public investment corporations have been selected as they account for the largest portion of expenditure on economic and social infrastructure. The information on targeted investments made would also be more readily available than in the private sector where most of the capital is invested using equity or private equity. The data on private equity investments on targeted investments is not publicly available.

Secondary data for the descriptive study is sourced by performing desktop research on existing published information from government clusters, industry and annual reports including information contained on the websites of these investment corporations to track the size, total value of investments, and the development impact of these investments over the 10-Year period. The study summarise the development impact indicators as tracked by each investment corporation throughout the lifecycle of its investments.

The data from annual reports is verified against available published research by academia, industry practitioners, and research organisations. Interviews with public sector research departments maybe carried out where applicable to supplement available research information.

3.2.2 Unit of Analysis, Sample Size, and Data Period

The study focused on measuring the risk-adjusted performance of targeted development investment funds in the private sector. The panel data study was performed over a 10-Year period from 1 January 2008 to 31 December 2017 and the measurements focused on annual risk-adjusted returns of the TDI funds that have been in existence from 2008 to 2017. The data was obtained from the Alexander Forbes Manager Watch Annual Survey Report (Alexander Forbes Financial Services, 2017), as published in the Alexander Forbes TDI Manager Watch survey report as at March 2017 (refer to Table 2.1, Section 2.4.1).

The study entails a comparison of the annual risk-adjusted performance of the funds against their selected benchmarks or targeted returns, against the FTSE/JSE All Share Index (ALSI), MSCI Emerging Market Index, FTSE Emerging Index, MSCI KLD 400 Social Index, and the FTSE Environmental Opportunities Index. Comparison of the annual risk adjusted performance of the funds to other indices was performed for the following reasons:

- To test the performance of TDI funds against the general equity market, which is a proxy of the equity performance of all listed companies in the local market and is used as a benchmark by conventional equity funds,

- To test the performance of TDI funds against emerging market stocks, which is a proxy of the performance of liquid companies in emerging markets. This is relevant given the nature of TDI funds and the geographical concentration of fund investments in emerging markets, and
- To test the performance of TDI funds against indices whose stock selection is based on companies that focus on responsible investments and the incorporation of environmental, social, and governance factors in investment decision making. This is relevant given that TDI funds have also adopted similar investment themes and screening processes that incorporate ESG factors.

Hypothesis testing was performed to identify whether there is a difference between the returns with their benchmark indices or targeted returns, with the FTSE/JSE All Share Index, MSCI Emerging Market Index, FTSE Emerging Index, MSCI KLD 400 Social Index, and the FTSE Environmental Opportunities Index. The analysis examined whether these TDI funds have consistently outperformed or underperformed in the market.

3.3 Analytical Framework

To perform the study, the data observations for the 10-Year period was obtained from the following sources:

- Annual fund return information – The annual returns for TDI funds and their respective benchmark returns was extracted from the Alexander Forbes Manager Watch Annual Survey Report (Alexander Forbes Financial Services, 2017), which tabulates annual performance returns of funds, portfolio volatility, performance against their benchmarks or targeted returns, as well as the risk adjusted performance over three-year period intervals.
- Data for indices, that is, the FTSE/JSE ALSI, MSCI Emerging Market Index, FTSE Emerging Index, MSCI KLD 400 Social Index, and the FTSE Environmental Opportunities Index was obtained from the Bloomberg Terminal (Bloomberg Finance L.P., 2020).
- CPI data was sourced from the Inflation.eu website (Inflation.eu, 2020) and supplemented and verified against data from the Statistics South Africa (Stats SA) (Statistics South Africa, 2020), and the South African Reserve Bank (SARB). Refer to Table 1, Appendix 4 for the detailed rates.
- Data for the risk-free rate was sourced from the South African Reserve Bank and the proxy for this rate was the 3-month treasury bill rate (South African Reserve Bank, 2020). Refer to Table 1, Appendix 4 for the detailed rates.

3.3.1 Performance Measurement Approaches

Return and Volatility Calculation

Index returns

Monthly total returns for benchmark indices were calculated using the below formula (Viviers, 2007, p. 263):

$$r_{bt} = \frac{\text{Index value}_{bt} - \text{Index value}_{bt-1}}{\text{Index value}_{bt-1}}$$

where $t = 1, 2, 3 \dots T$ and:

r_{bt} = The monthly rate of return of benchmark b in period t ;

Index value_{bt} = Index value of benchmark b in period t ; and

$\text{Index value}_{bt-1}$ = Index value of benchmark b in period $t-1$

Annual average benchmark returns from 2008 to 2017 were calculated by using the average monthly returns over the period.

Fund returns

Monthly returns were calculated using the below formula (Viviers, 2007, p. 263):

$$r_{it} = \frac{\text{NAVprice}_{it} - \text{NAVprice}_{it-1}}{\text{NAVprice}_{it-1}}$$

where $t = 1, 2, 3 \dots T$ and:

r_{it} = The monthly rate of return of fund i in period t ;

NAVprice_{it} = The Net Asset Value (NAV) price of fund i in period t ; and

NAVprice_{it-1} = The NAV price of fund i in period $t-1$

Annual average returns from 2008 to 2017 were calculated by using the average monthly returns over the period. The unadjusted annual returns for TDI funds were extracted from the Alexander Forbes Manager Watch Annual Survey Report (Alexander Forbes Financial Services, 2017). The study focused on funds whose performance data was available for the full 10-Year period. The mandate of each fund is tabulated in Table 1, Appendix 3.

Volatility

For purposes of the study, volatility for the TDI funds was defined as the annualised standard deviation of monthly returns.

Standard deviation was calculated using the below formula (Viviers, 2007, p. 194):

$$\sigma_i = \sigma_i^2 = \frac{1}{n} \sum_{t=1}^n [\text{HPY}_t - \bar{\text{HPY}}]^2$$

where σ_i is fund i's historic standard deviation;

σ_i^2 is fund i's historic variance;

HPY_t is fund i's HPY during period t;

$\bar{\text{HPY}}$ fund i's arithmetic mean; and

n is the number of periods over which the investment is held.

The standard deviation of a fund is annualised by multiplying its standard deviation (σ_i) with $\sqrt{12}$.

Volatility for the purposes of the analysis was calculated as per the Alexander Forbes Manager Watch Annual Survey Report, using three year's annual returns, analysis on the risk adjusted returns therefore, using the following year's volatility figures as proxies, that is, the 2011 volatility figures for each fund were used as a proxy of the annual volatility for the years 2008 to 2011, the 2014 volatility figures were used as a proxy for the years 2012 to 2014, and the 2017 volatility figures were used as a proxy for the years 2015 to 2017. Refer to Table 2, Appendix 4 for the detailed statistics.

Performance measures are important when ranking and comparing the performance of funds or portfolios against their identified benchmarks. According to (Anson et al., 2012), performance measures fall under two major categories, that is, ratios of return to risk and the measurement of risk-adjusted returns, which are compared to a standard. The study used the second performance approach to test whether risk adjusted returns of TDI funds outperform their respective benchmarks and indices. The study examined the results using four performance measures, that is, Sharpe, Treynor, Sortino, and the Information ratios.

3.3.2 Risk Adjusted Performance Measures

Sharpe Ratio

The Sharpe ratio is the most used risk adjusted performance measure and it facilitates the comparison of investment alternatives and the selection of the investment opportunity that generates the highest excess return per unit of total risk. The ratio was calculated using the below equation (Anson et al., 2012, p. 139):

$$SR = [E(R_p) - R_f] / \sigma_p$$

where SR = Sharpe ratio for portfolio p,
 $E(R_p)$ = expected return for portfolio p,
 R_f = risk-free rate, and
 σ_p = standard deviation of the returns of portfolio p.

When using annual rates of return, the Sharpe ratio can be interpreted as the annual risk premium earned per percentage point in annual standard deviation. The Sharpe ratio does have its own limitations, that is, it requires asset returns to be normally distributed, measures performance based on stand-alone risks as opposed to systematic risk and is sensitive to changes in the units of time.

Treynor Ratio

Treynor is an extension of the risk adjusted performance measures, but it uses beta as a measure of risk as opposed to standard deviation. Treynor ratio is the excess return earned by bearing systematic risk and thus should not be used on a stand-alone basis as it only considers systematic risk and does not measure total risk. The ratio was calculated using the below equation (Anson et al., 2012, p. 142):

$$TR = [E(R_p) - R_f] / \beta_p$$

where TR = Treynor ratio for portfolio p,
 $E(R_p)$ = expected return for portfolio p,
 R_f = risk-free rate, and
 β_p = beta of the returns of portfolio p.

Sortino Ratio

The Sortino ratio offers an enhancement to the Sharpe and Treynor risk adjusted performance ratios that consider total risk or systematic risk. It does this by segmenting total volatility and using only the downside volatility or standard deviation. The ratio was calculated using the below equation (Anson et al., 2012, p. 143):

$$\text{Sortino Ratio} = [E(R_p) - R_{\text{Target}}] / TSSD$$

where $E(R_p)$ = expected return for portfolio p,
* R_{Target} = user's target rate of return, and
TSSD = target semistandard deviation or downside deviation.

* R_{Target} is to be interpreted as the minimum return threshold as measured by the annualised risk-free rate over the 10-Year period.

The Sortino ratio is useful when the return distribution is non-symmetrical and when the investor is focused on downside risk.

Information Ratio

Information ratio measures portfolio returns above the returns of a benchmark to the volatility of those returns. It is a measure of outperformance against the benchmark and identifies the consistency of the investor. The ratio was calculated using the below equation (Anson et al., 2012, p. 143):

$$\text{Information Ratio} = [E(R_p) - R_{\text{Benchmark}}] / TE$$

where $E(R_p)$ = expected return for portfolio p,

$R_{\text{Benchmark}}$ = expected return of the benchmark, and

TE = tracking error of the portfolio relative to its benchmark return.

The above risk adjusted performance measure is used to assess the performance of the private sector TDI funds against their respective benchmarks and selected indices.

3.3.3 Statistical Analysis – Hypotheses Testing

To identify a suitable statistical test to perform the hypothesis testing the TDI Fund return distribution was tested for normality using skewness and kurtosis. The distribution as per Table 3, Appendix 3 is negatively skewed and has a kurtosis that is less than 3, which implies that the distribution is not normal. This warrants the use of non-parametric techniques and the Wilcoxon Signed Rank Sum Test was used to test the hypotheses as it enables the comparison of two populations, allows for interval data that is not normally distributed, and samples that are matched pairs (Keller, 2009, p. 748).

The following steps were used to calculate the test statistic and the p-value at an $\alpha = 0.05$ (Keller, 2009, p. 748):

- Computation of the paired differences between the returns of the TDI funds and the respective benchmark and index return data,
- Ranking of the differences and noting the sign of the differences, that is, positive or negative,

- Calculate the sum of the ranks of negative differences (T^-) and the sum of the ranks of positive differences (T^+),
- The test statistic is the sum of the ranks of the positive differences (T^+),
- Calculate the mean using the formula: $E(T) = n(n+1)/4$,
- Calculate standard deviation using the formula: $\sigma T = \sqrt{(n(n+1) (2n+1))/24}$,
- Calculate standardised test statistic: $z = T-E(T)/\sigma T$, and
- Calculate p-value using a two tailed test at a 5% significance level.

Chapter Four

Empirical Results and Discussions

4.1 Introduction

The chapter examines the development role played by public sector TDI funds by tracking the size, total value of investments, and the development impact of these investments over the 10-Year period. The development impact of the investments was measured based on the development indicators that the institution has been tracking through the lifecycle of their investments.

The second section of the study tracks the performance of private sector targeted development funds against their identified benchmarks using annual return data over the 10-Year period.

4.2 Descriptive Results on the Development Role Played by Public Sector TDI Funds

4.2.1 Public Investment Corporation

The descriptive statistics of the development impact tracker for investments by the PIC is presented in Table 4.1. The statistics indicate that there has been on average a growth in assets under management at 11% and in Isibaya Fund investments where the return was 31%. There was, however, a negative growth of 41% in the realised returns of the Isibaya Fund.

The PIC has consistently tracked its performance over a 10-Year period using the assets under management, the growth of the development impact investments (as measured through Isibaya Fund) and returns achieved as its main indicators. The Isibaya Fund was established in 1999 to facilitate empowerment related transactions. The strategy was further diversified in 2007/08 resulting in the establishment of Dinamane whose focus was on SMMEs. Isibaya Fund has grown steadily over the years with years of significant growth and years where there was a decline in the growth levels of the fund. The total AUM grew from a minimum of R786 billion to a maximum R1,9 trillion. From the standard deviation results the researchers observed that the data points from the various indicators were spread out over a large range of values.

Table 4.1 and Figure 4.1 show that total AUM have been predominantly growing over the 10-Year period with varying degrees of growth. Significant growth in AUM at levels $\geq 20\%$ was observed in 2010 and 2013. Double digit growth in AUM was observed from 2010 to 2015, whilst the period between 2016 and 2017 was characterised by marginal growth levels between 2% and 4%. The growth was in line with the expanded mandate of the PIC where it not only

fulfils the role of being a state owned asset management vehicle for the public sector but is also mandated by its clients and the government to invest in a manner that stimulates sustainable economic growth that increases productive employment and reduces poverty and inequality whilst generating requisite returns.

Table 4.1: PIC Development Impact Tracker

Investment Profile Amounts in R'm	Mean	Standard Deviation	Min	Max
Total AUM	1 324 487	434 141	738 281	1 928 000
% Growth in AUM	11%	8%	-6%	23%
Isibaya Fund Investments*	23 242	15 854	5 800	60 732
% Growth in Isibaya Fund Investments	31%	46%	-80%	105%
Realised return on Isibaya Fund Investments	7%	17%	-39%	23%
% Growth in Isibaya Fund Returns	-41%	118%	-272%	217%

*Isibaya Fund - invests in broad-based black economic empowerment initiatives in the targeted sectors for impact investments, infrastructure and third-party managed private equity funds. *Source: Candidates estimations from research data, 2019.*

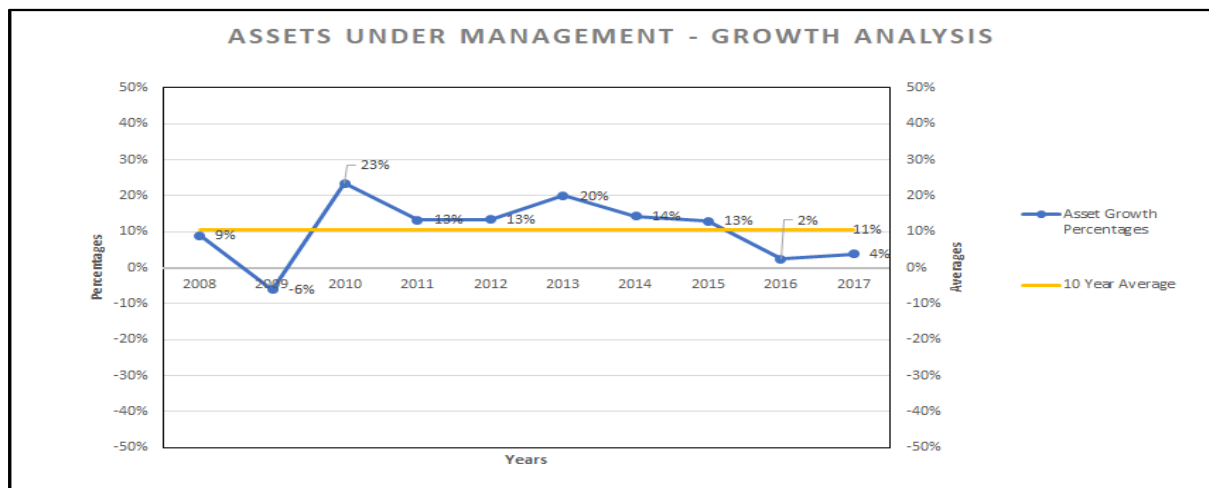


Figure 4.1: Assets under Management.

Source: Candidates estimations from research data, 2019.

Figure 4.2 shows that the Isibaya Fund has grown steadily over the years with years of significant growth and years where there was a decline in the growth levels of the fund. The Isibaya Fund was established in 1999 to facilitate empowerment related transactions. The strategy was further diversified in 2007/08 resulting in the establishment of Dinamane whose focus was on SMMEs. Substantial growth is observed between 2008 and 2009 followed by the years 2012 to 2017. Growth levels in investments ranged from a low of 25% to a maximum of 105%. These growth levels can be attributable to the strategic focus of increasing development impact investments and expanding of sectors to cover key priority sectors as identified in the government objectives/NDP. Negative growth was observed between 2010 and 2011. The

decline in growth over this period was due to a transfer of listed stocks in the telecommunications sector and a re-alignment of the mandate of Isibaya towards a more developmental investment strategy. Key priority sectors and areas for development were social and economic infrastructure, economic growth, microfinance, and the SMME sector. Despite the fluctuating growth levels in the Isibaya Fund, the average growth rate over the 10-Year period is 31%, which illustrates that on average there was growth in investments.

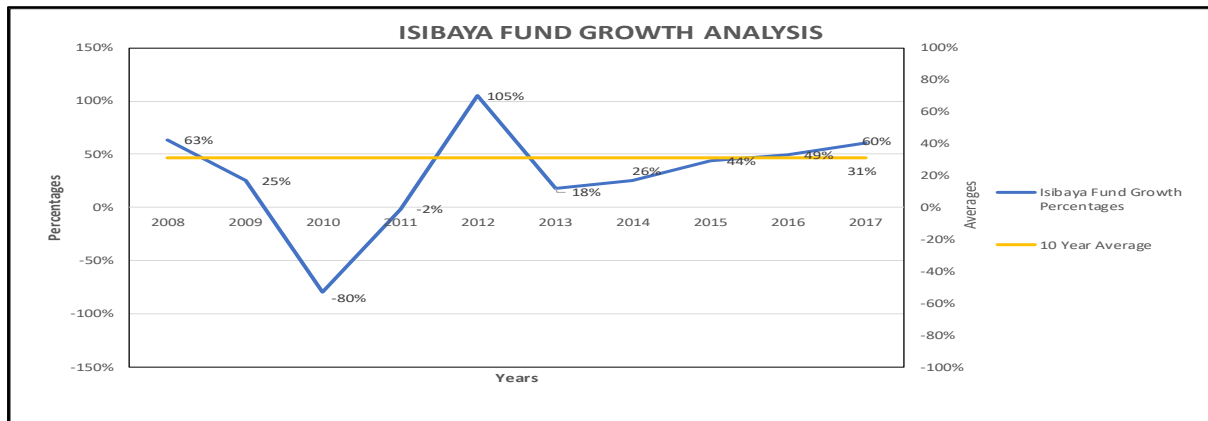


Figure 4.2: Isibaya Fund – Investment Growth.

Source: Candidates design from research data, 2019.

Figure 4.3 shows that Isibaya Fund returns have largely been positive despite the volatility, substantial growth is observed between 2008 and 2009 and between 2011 and 2012. Returns were consistently positive from 2011 to 2017 with return levels ranging from a low of 3% to a maximum of 17%. A substantial decline in the fund returns was observed between 2009 and 2010, which was attributed to the concentration to the information and communication technologies sector (ICT), which did not perform well as per the 2010 PIC annual report. The average return over the 10-Year period was at 7%. Growth in fund returns however, exhibited a negative growth trend with only three years of growth over the 10-Year period. The period was characterised by negative growth in returns ranging from a low level of 10% to 272% over the review period. Average growth over the 10-Year period was negative at 41%.

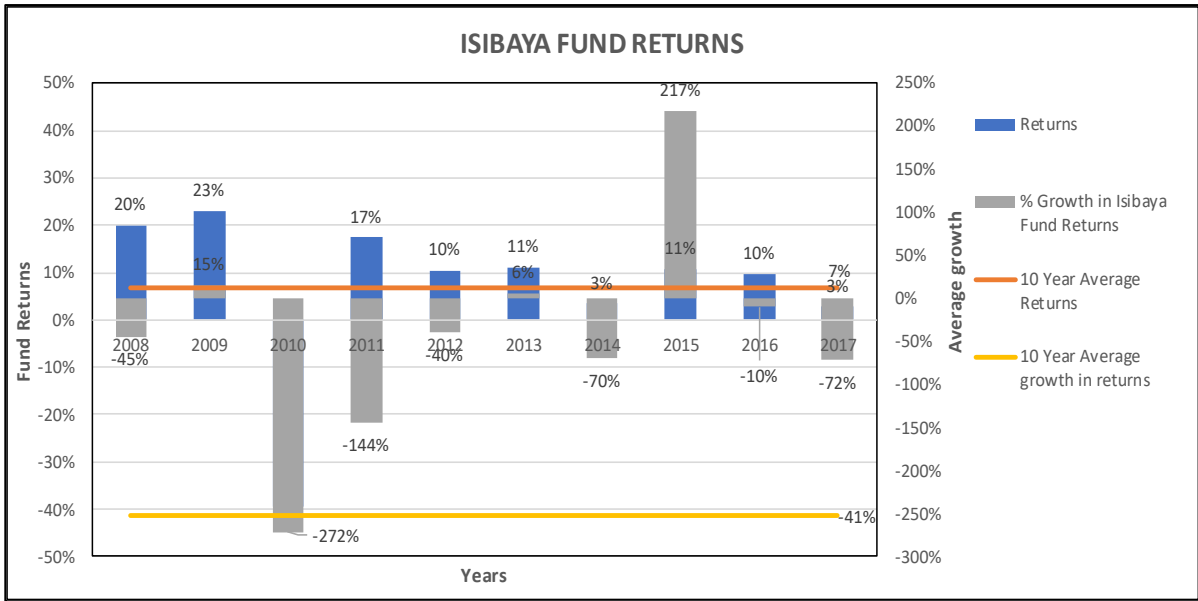


Figure 4.3: Isibaya Fund – Returns Analysis.

Source: Candidates design from research data, 2019.

4.2.2 Industrial Development Corporation

The descriptive statistics of the development impact tracker for investments by the IDC is presented in Table 4.2. The statistics indicate that there has been on average a growth in total assets, loans, advances and investments, funding approvals, approvals to SMEs by value, approvals to black empowered companies by value, and to companies operating in rural areas. Negative growth rates were observed for the number of approvals to SMEs, number of approvals to black empowered companies, approvals to the Rest of Africa, and job creation. From the standard deviation results the researchers observed that the data points from the various indicators were spread out over a large range of values. Growth in assets increased from a minimum of R73 billion to a maximum of R139 billion, whilst the growth in the loan book increased from a minimum of R62 billion to a maximum of R113 billion.

SME approvals (by value) increased from a minimum of R900 million to a maximum of R2,4 billion. Approvals to black empowered companies (by value) increased from a minimum of R2,6 billion to a maximum of R11,1 billion, while approvals to companies operating in rural areas increased from a minimum of R41 million to a maximum of R8,4 billion. Investments towards regional development initiatives increased from a minimum of R85 million to a maximum of R2,3 billion.

Table 4.2: IDC Development Impact Tracker

Investment Profile (Amounts in R'm)	Mean	Standard Deviation	Min	Max
Total Assets	111 043	20 979	73 377	138 593
% Growth in Total Assets	9%	17%	-19%	42%
Total Loans, Advances, and Investments	92 195	14 947	61 879	113 155
% Growth in Loans, Advances, and Investments	8%	19%	-22%	44%
Total funding approvals	11 892	2 469	8 457	15 300
% Growth in funding approvals	12%	24%	-17%	55%
SME Approvals (by value)	1 885	545	900	2 427
% Growth in SME Approvals (by value)	20%	58%	-58%	133%
SME Approvals (by number)	128	27	96	176
% Growth in SME Approvals (by number)	-0,5%	31%	-43%	67%
Black empowered and black owned company approvals (by value)	6 049	2 370	2 634	11 100
% Growth in black empowered and black owned company approvals (by value)	26%	71%	-61%	178%
Black empowered and black owned company approvals (by number)	100	17	76	127
% Growth in black empowered and black owned company approvals (by number)	-0,8%	24%	-28%	57%
Approvals to companies in rural areas (by value)	3 627	2 901	41	8 461
% Growth in approvals to companies in rural areas (by value)	18%	123%	-95%	323%
Rest of Africa approvals (by value)	1 540	782	85	2 300
% Growth in Rest of Africa approvals (by value)	-7%	42%	-86%	44%
Jobs maintained and created in South Africa	27 071	9 457	18 000	45 956
% Growth in jobs maintained and created in South Africa	-1%	28%	-50%	57%

Source: Candidates estimations from research data, 2019.

Figure 4.4 illustrates that the total asset growth has been fluctuating over the years, substantial growth in assets occurred between 2007 and 2008, where growth levels of between 42% and 32% are observed. The years 2009 to 2010 are characterised by a significant decrease in assets, which can be attributed to the aftereffects of the global financial crisis, which impacted the level of business activity, competitiveness of the manufacturing and industrial sectors in South Africa and emerging markets. Growth in the economy was hampered, this resulted in decreased investments in new capacity or expansions, the major focus of the IDC being the turnaround and support of distressed industries during this period.

A growth trend is observed between 2011 and 2014, with an average asset growth rate of 12% over this period. The highest growth levels being observed between 2010 and 2011, that is, a 21% growth in the asset base of the IDC. The lowest growth rate observed were 5% between 2011 and 2012. The years of growth were followed by a slowdown in asset growth with a

significant decrease in assets by 12% between 2014 and 2015. In 2016 a marginal decrease of 1% was recorded and growth rebounded again in the 2017 financial year with a 7% growth rate between 2016 and 2017. Despite the volatility in asset growth, the average growth trend over a 10-Year period was at 9% from 2008 to 2017, which illustrates that there has been on average a growth in IDC's asset base over the period under review.

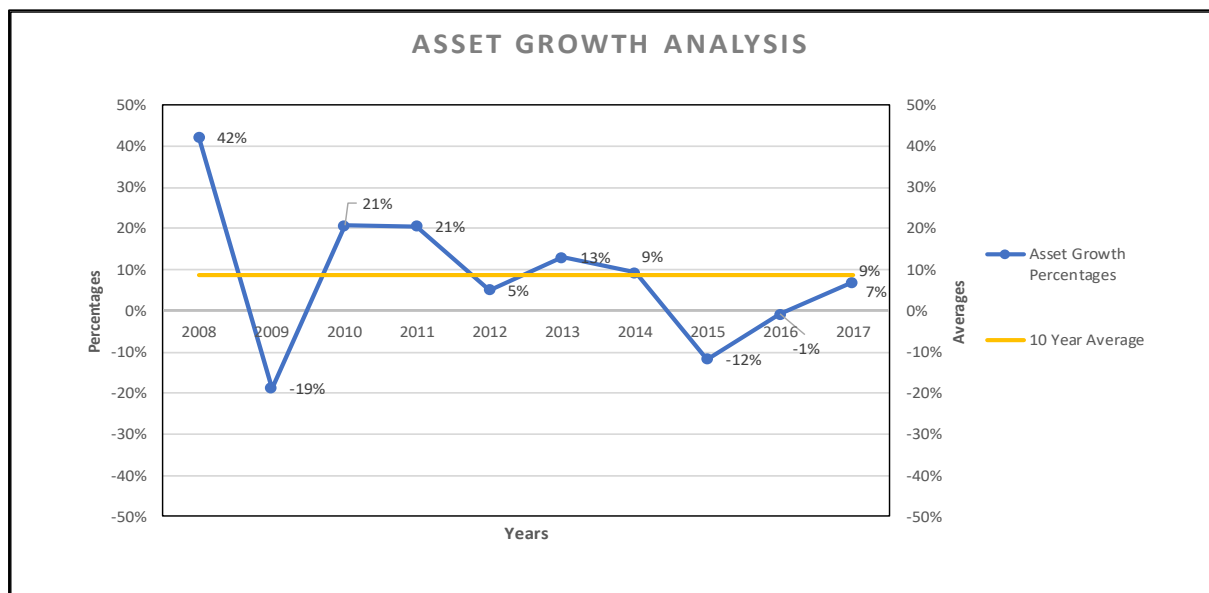


Figure 4.4: Total Assets.

Source: Candidates design from research data, 2019.

Figure 4.5 illustrates that the growth of the loan book has been fluctuating over the years, significant growth in the book occurred between 2007 and 2008, where a 44% growth was observed. The year 2009 was characterised by a substantial decrease in the loan book by 22%, which can be attributed to the shift to support existing distressed businesses that had been affected by the effects of a slowdown in economic activity following the global financial crisis.

A growth trend is observed between 2010 and 2014, with an average loan book growth rate of 13% for this period. The highest growth levels were observed between 2009 and 2010, that is, a 28% growth in the loan book. The lowest growth rate was at 2% between 2011 and 2012. The years of growth were followed by a slowdown in the loan book growth trend with a significant decrease in loans and advances by 16% between 2014 and 2015. The year 2016 recorded a zero percent growth rate and growth rebounded again in the 2017 financial year with a 10% growth rate between 2016 and 2017.

Despite the volatility in loan book growth, the average growth trend over the 10-Year period was at 8% from 2008 to 2017, illustrating that there has been on average a growth in IDC's loan book during the period under review.

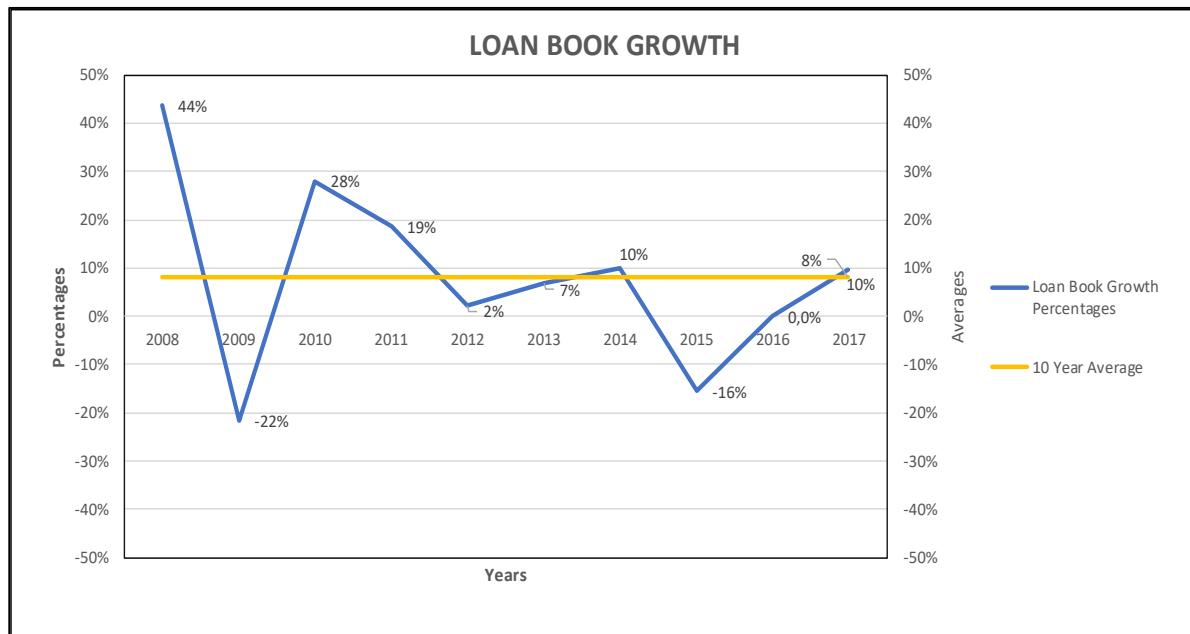


Figure 4.5: Loan Book Growth.

Source: Candidates design from research data, 2019.

Figure 4.6 illustrates that funding approvals have been fluctuating over the years, substantial growth in the approvals occurred between 2007 and 2008, where a 44% growth in funding approvals was observed. The years 2010 and 2011 were characterised by a substantial decrease in funding approvals by 12% and 7%, respectively. There was a substantial growth by 55% in funding approvals between 2011 and 2012, this as per the IDC annual report was largely driven by strategic investments in priority sectors (agribusiness, mining, and energy), which had a significant impact on job creation in rural areas (48% of the employment impact was concentrated in rural areas).

From the 2013 to 2015 financial years, growth was erratic and inconsistent. There was a substantial improvement between 2015 and 2016, with growth levels observed at 25% followed by a 6% growth rate in 2017. The years of growth were followed by a slowdown in the loan book growth trend with a substantial decrease in funding approvals by 16% between 2014 and 2015. In 2016 a zero percent growth rate was recorded, and growth rebounded again in the 2017 financial year with a 10% growth rate between 2016 and 2017.

Despite the volatility in the growth of funding approvals, the average growth trend over the 10-Year period was at 12% from 2008 to 2017, which illustrates that on average there has been a growth in funding approvals over the period under review.

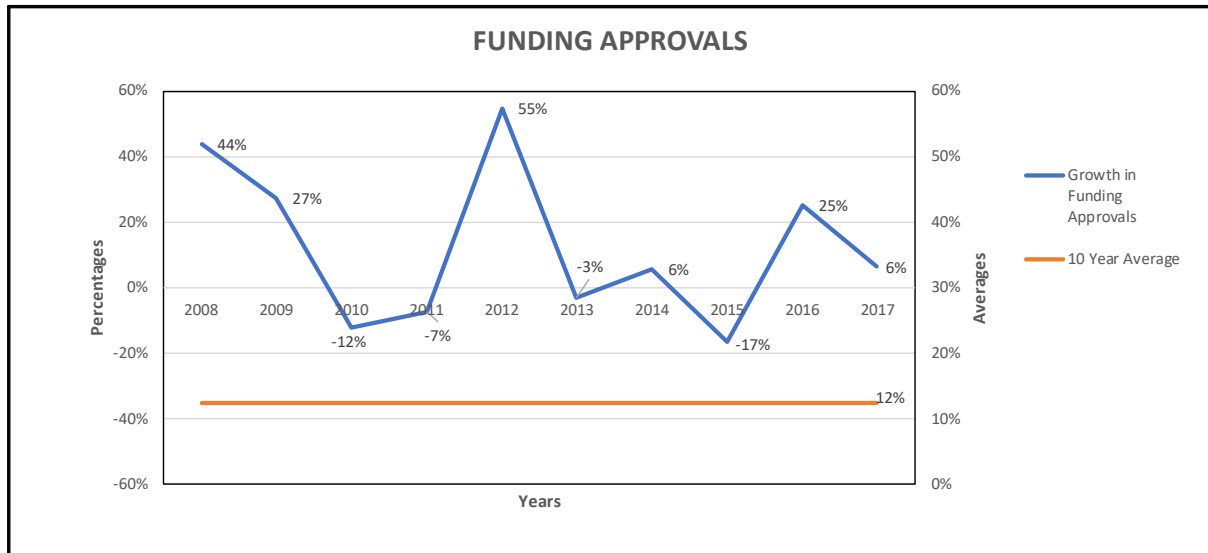


Figure 4.6: Funding Approvals.

Source: Candidates design from research data, 2019.

Figure 4.7 shows that the growth in the value of approvals of loans to SMEs has been fluctuating over the years, substantial growth in loan approvals occurred in 2009, where a 133% growth in approvals was observed.

The years 2010 and 2011 were characterised by marginal growth followed by a substantial decrease by 25%. The slow growth was followed by a substantial increase in approvals in 2012, this growth as per the 2011 annual report can be attributed to the sourcing of long tenure loans from international development finance institutions to facilitate lending to SMEs.

A negative growth trend was observed between 2013 and 2014, with a decrease of 3% and 58% in loan approvals to SMEs. The years 2015 to 2017 were characterised by a substantial increase in approvals to SMEs, the highest growth levels of 100% were observed between 2014 and 2015, followed by a 10% growth rate between 2015 and 2016.

Despite the significant volatility in the value of loan approvals to SMEs, the average growth trend over the 10-Year period was at 20% from 2008 to 2017, which illustrates that on average there has been a growth in funding approvals to SMEs over the period under review.

Whilst the value of approvals to SMEs has been largely growing, the number of approvals has predominantly exhibited a downward trend over the years. This negative growth trend may be as a result of a number of factors, that is, challenges in the economy, which affected the growth of this sub-sector, lack of sustainability of small businesses, concentration of approvals to a few established SMEs, and the creation of the Small Enterprise Finance Agency (Sefa) as a subsidiary of IDC in 2012 where a large portion of the SME segment would now be serviced by this development finance institution.

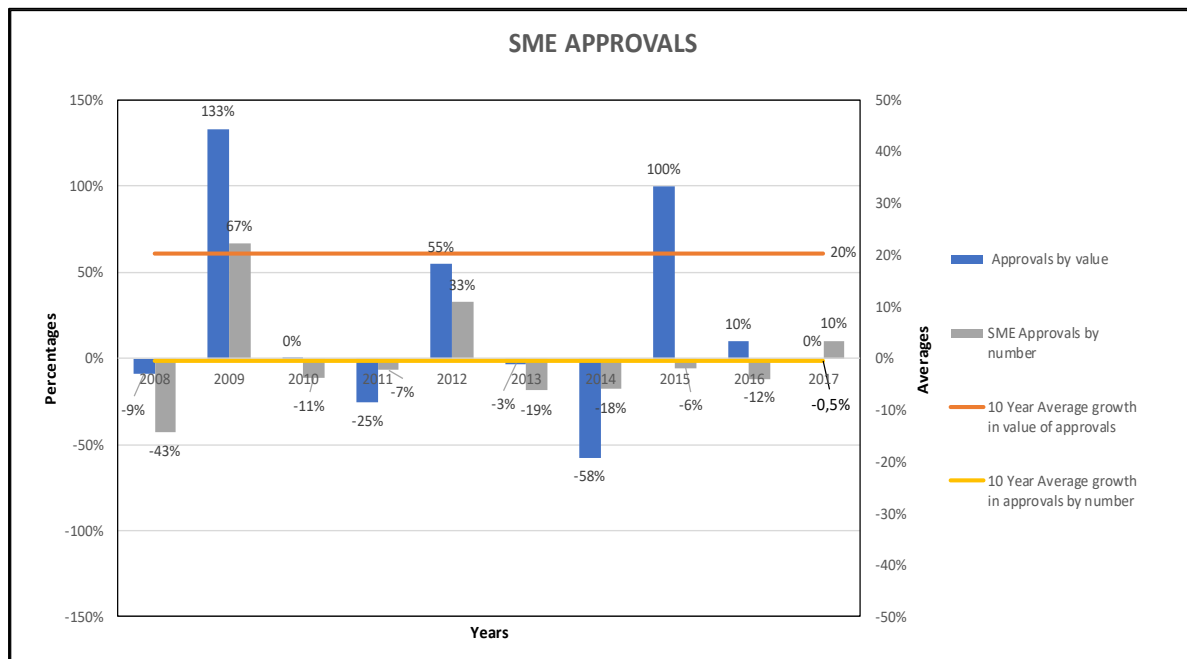


Figure 4.7: SME Approvals.

Source: Candidates design from research data, 2019.

Figure 4.8 shows that funding approvals to black empowered and black owned companies have been fluctuating over the years, substantial growth in the approvals occurred between 2008 and 2010, with growth levels ranging between 16% and 41%. The year 2011 was characterised by a large decrease in approvals by 61%, this could be attributed to the phasing out of the 2010 construction business unit, which was mandated to fund construction projects related to the World Cup. The decrease was followed by substantial growth in 2012 at 112%, followed by a marginal 1% increase in 2013.

The years 2014 and 2015 saw a decrease in approvals to this group by 1% and 29%, respectively, which was in line with the subdued growth in the economy where manufacturing activity would have been at depressed levels. In 2016 there was a recovery with a substantial

growth in approvals by 178%, followed by a slight decline of 1% in 2017. Despite the volatility in the growth of funding approvals to black empowered and black owned companies, the average growth trend over the 10-Year period was at 26% from 2008 to 2017, which illustrates that on average there has been a growth in funding approvals over the period under review.

The number of approvals to this business category follows a conflicting trend, recording a decline in the number of approvals for most financial years. Growth is only observed for five years out of the 10-Year period, that is 2009, 2011 to 2012, 2015, and 2017. The negative growth in the number of approvals was also observable in the average growth rate that was at negative 1% over the 10-Year review period.

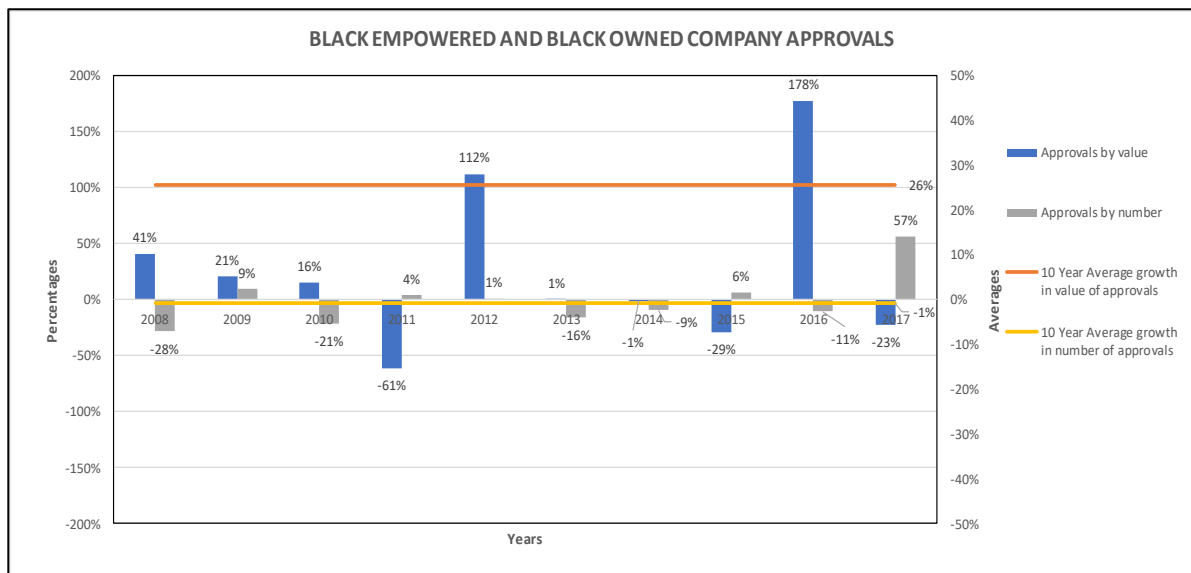


Figure 4.8: Approvals – Black empowered and black owned companies.

Source: Candidates design from research data, 2019.

Figure 4.9 shows that growth in approvals to companies in rural areas has been erratic, with years of significant growth and some years where there were large declines. The years 2010 and 2012 recorded substantial growth with growth levels of 323% and 134% respectively. The growth levels were driven by investments in agribusiness and mining activities that were in rural or peri-urban areas.

There was a substantial decrease in approvals to companies operating in rural areas in the years 2016 and 2017. This can be attributed to the depressed growth in mining activity with most mines downscaling their activities and not engaging in new investments. The mining industry was an important contributor to job creation and economic opportunities in rural areas. IDC

noted the challenges relating to creating rural based projects as they were hindered by complex processes, lack of permits, and bureaucratic hurdles to name a few.

Despite the volatility in approvals to rural area companies, average growth over the 10-Year period was at 18%, which illustrates that there were on average a growth in funding approvals to rural area companies over the period under review.

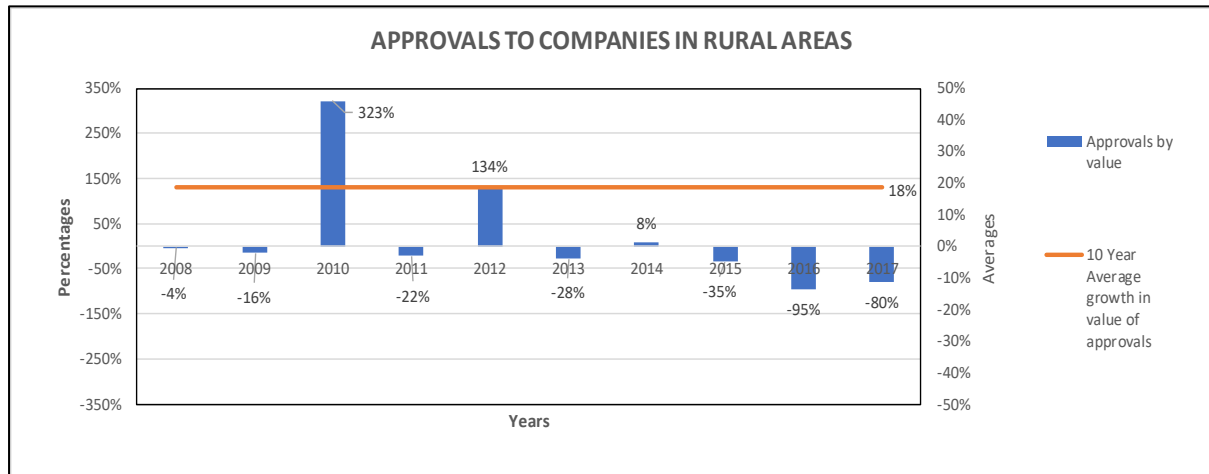


Figure 4.9: Approvals to companies in rural areas.

Source: Candidates design from research data, 2019.

Figure 4.10 shows that growth in approvals to companies operating in other African countries has been erratic, with years of substantial growth and some years where there were large declines. The years 2008, 2009, and 2011 recorded substantial growth with growth levels of 44%, 27%, and 39%, respectively. The investments were largely driven by investments in agribusiness, manufacturing, and the telecommunications sectors.

There was a significant decrease in approvals to companies operating in other African countries from 2015 to 2017, a decrease of 22%, 86%, and 67% was recorded, respectively. This can be attributed to a change in strategy at IDC in 2012 where a decision was made to invest in projects of mutual benefit to South Africa and the host country. This would have most probably resulted in more stringent selection of projects. As per their 2017 annual report, IDC stated that they support projects where there is a benefit to the South African industry through procurement from local businesses, local ownership or forming part of a regional value chain.

Over the 10-Year period investment in projects outside South Africa have been growing on average at a negative rate of 1% over the period under review.

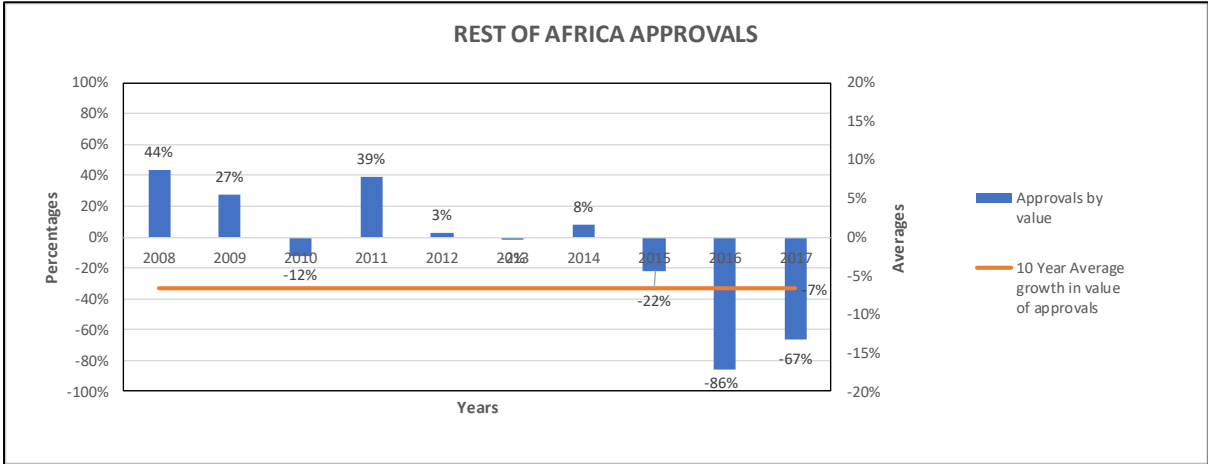


Figure 4.10: Impact on regional development – Rest of Africa Approvals.

Source: Candidates design from research data, 2019.

Figure 4.11 shows that the impact on job creation has not yielded positive results. Job creation numbers have largely been falling over the years, with only a few years where growth in job numbers was observed, that is 2011, 2012, and 2017, respectively. These years yielded growth rate levels of 57%, 17%, and 12%, respectively.

Major declines in job creation numbers were experienced in 2009, 2013, and 2014. The substantial decreases are aligned to the post financial crisis period and the years where South Africa experienced negative growth where companies were under pressure, downscaling, and shedding jobs. The level of job creation in IDC investments largely mirrors the negative growth trend in the economy. Over the 10-Year period the average growth rate in job creation was negative at 1% over the period under review.

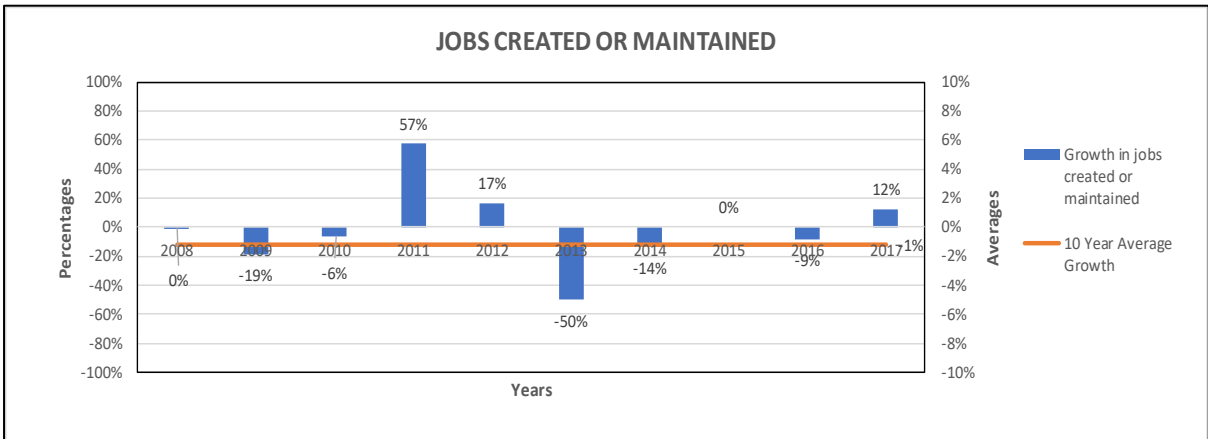


Figure 4.11: Job Creation.

Source: Candidates design from research data, 2019.

4.2.3 Development Bank of Southern Africa

The descriptive statistics of the development impact tracker for investments by the DBSA is presented in Table 4.3. The statistics indicate that there has been on average a growth in total assets, investments in development activities, funding approvals, disbursement in technical assistance grants, total funding disbursements, and approvals of development loans to the Rest of Africa. Negative growth rates were observed for the levels of employment. From the standard deviation results it was observed that the data points from the various indicators were spread out over a large range of values. Growth in assets increased from a minimum of R33 billion to a maximum of R84 billion, whilst the growth in the development activities increased from a minimum of R25 billion to a maximum of R79 billion.

Table 4.3: DBSA Development Impact Tracker

Investment Profile (Amounts in R'm)	Averages	Standard Deviation	Min	Max
Total Assets	57 315	17 318	33 246	83 653
% Growth in Total Assets	12%	7%	2%	21%
Total investment in development activities*	50 070	18 263	25 330	78 768
% Growth in investments in development activities	14%	8%	2%	26%
Total funding approvals (excl. technical assistance)	20 732	7 554	10 767	34 101
% Growth in funding approvals	20%	66%	-38%	127%
Disbursements – technical assistance grants	46,4	22	17	83
% Growth in disbursements – technical assistance grants	16%	63%	-51%	123%
Total funding disbursements	10 451	3 272	6 160	17 100
% Growth in funding disbursements	16%	30%	-27%	66%
Impact on employment (based on SA disbursements)	21 312	8 852	8 917	32 800
% Growth in employment	-0,4%	35%	-58%	73%
Development loans – Rest of Africa	9 230	3 446	3 700	14 284
% Growth in development loans – Rest of Africa	56%	180%	-62%	561%

*Development Activities: include development loans, bonds and equity investments.

Source: Candidates estimations from research data, 2019.

Figure 4.12 shows that total asset growth has been positive over the 10-Year period with varying degrees of growth. Substantial growth in assets was observed from 2008 and 2010, which can be attributed to the upgrade of infrastructure in preparation for the World Cup and the increased activity from the Siyenza Manje programme, a government funded initiative to increase the delivery of infrastructure at local government level.

A growth trend was observed between 2014 and 2016, with an average asset growth rate of 15% over this period. The highest growth levels were observed between 2013 and 2014, that is, an 18% growth in the asset base of the DBSA. This can be attributed to substantial investments in four sectors, that is, energy, water, transport, and communications. In the year 2017 the lowest growth over the review period was recorded at 2%, which can be attributed to a challenging macro-economic environment that would have seen a decrease in infrastructure investments. Asset growth was positive for all years under review, the average growth trend over the 10-Year period was at 12% from 2008 to 2017.

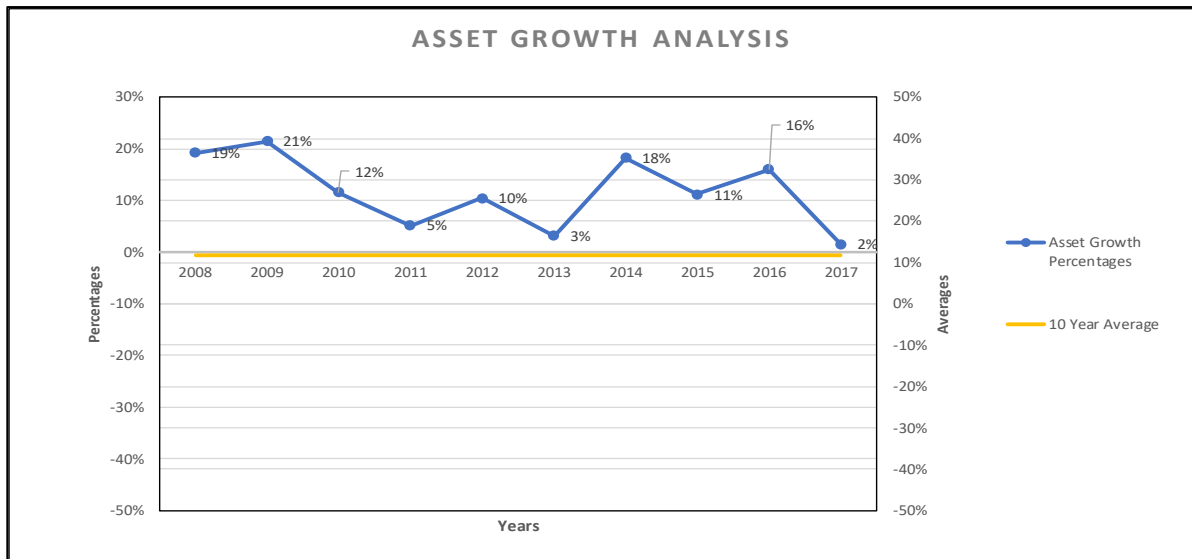


Figure 4.12: Total Assets.

Source: Candidates design from research data, 2019.

Figure 4.13 shows that growth in the development activities loan book has been positive for all years under review. Substantial growth levels were achieved between 2008 and 2011. The bulk of the development investment activities were allocated to entrepreneurial initiatives (SMMEs) at 20%, transportation (13%), mining (10%), communications (10%), and social infrastructure (10%).

The years 2012 and 2013 were characterised by single digit growth rates albeit still positive. Substantial growth rates were observed from 2014 to 2016. The highest growth rate of 22% was recorded between 2015 and 2016. This period is in line with the appointment of DBSA as a managing agent for the €100 million Infrastructure Investment Programme of South Africa (IIPSA) and the SADC Project Preparation Development Facility (PPDF).

In 2017 the lowest growth over the period was recorded at 2%, which is evident in the slowdown of the economic activity, constrained macroeconomic environment, and a volatile period that saw South Africa being downgraded by rating agencies, which would have impacted DBSA's debt raising capacity. Investment in development activities experienced growth over the 10-Year period with an average growth rate of 14%.

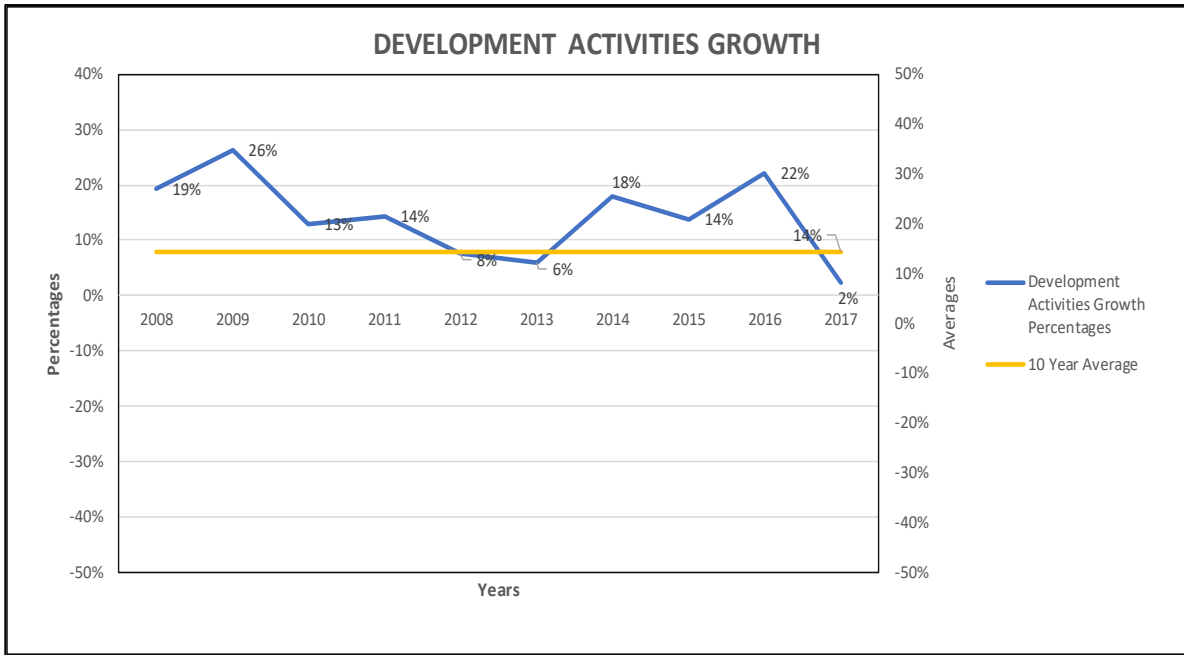


Figure 4.13: Development Activities.

Source: Candidates design from research data, 2019.

Figure 4.14 shows that funding approvals have been fluctuating over the years, substantial growth in the approvals occurred between 2010 and 2011, where a 127% growth in funding approvals was observed. The increase can be attributed to increased investment in key infrastructure projects in the energy and transport sectors.

Substantial growth was also observed between the 2008 and 2009 financial years (90%) and between 2014 and 2015 (116% increase). The increase in the 2014/15 financial year can be attributed to increased funding allocated to metros (33%), transport projects (18.1%), energy project investments, and funding to secondary and under resourced municipalities (17.2% respectively), and investment in social infrastructure (9.5%).

Significant declines in funding approvals occurred between 2016 and 2017 (38%), and 2012 and 2013 financial years (27% respectively), followed by 2014 (23%) and the 2015/16 financial year (18% decline). The large decrease in the 2016/17 financial year is attributed to limited balance sheet financing opportunities in various sectors, which included transport, ICT, education, and bulk water.

Additional pressure on funding approvals was affected by institutional weaknesses at municipal level that affected their ability to absorb financial resources to support the implementation of infrastructure programmes. In the 2014 financial year, factors such as the

organisational restructuring, uncertainty in the economic environment, and competition in some of DBSA's key markets were the key drivers that contributed to the decrease in funding approvals. Despite the volatility in the growth of funding approvals, the average growth trend over the 10-Year period was positive at 20% from 2008 to 2017.

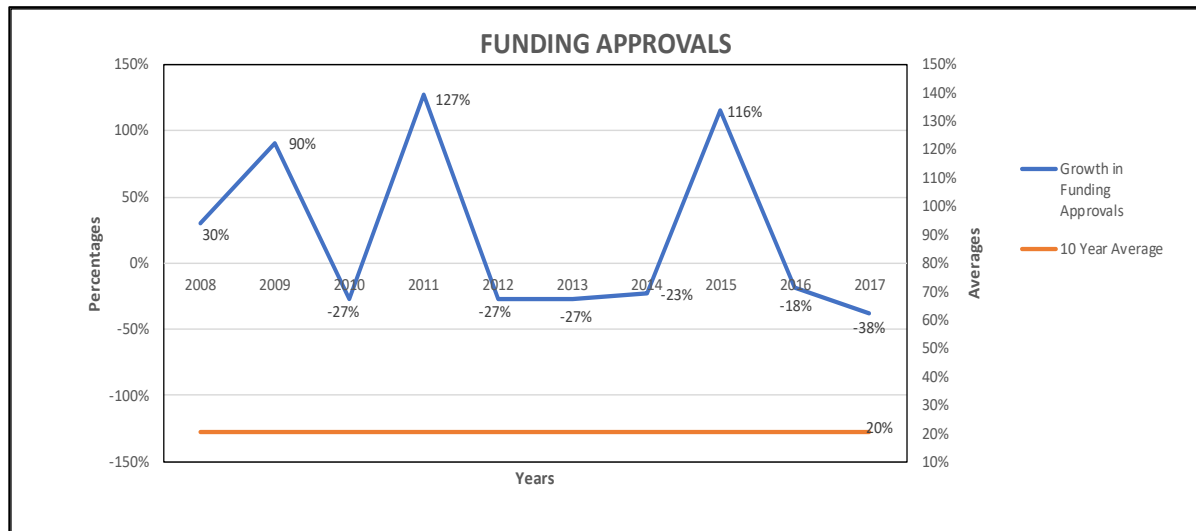


Figure 4.14: Funding Approvals.

Source: Candidates design from research data, 2019.

Figure 4.15 shows that over and above the financing activities of DBSA, it offers a wide range of technical assistance programmes, which includes non-financial support services such as training and development to facilitate project execution and implementation.

Growth in technical assistance offered for infrastructure finance projects has been fluctuating over the years, substantial growth in technical assistance occurred between 2008 and 2009, where a 133% growth was observed. The years 2010 to 2011 were characterised by minimal or negative growth in grant approvals. There was an improvement in the 2012 financial year with a 55% growth.

The years 2013 and 2014 were characterised by negative growth at 3% and 58%, respectively. The decrease is attributable to a suspension in training following the organisational review of the DBSA. Growth levels in grant approvals were observed between 2015 and 2017, albeit 2017 had the lowest growth rate below 1%. Post the organisational review, approval of technical assistance grants never rebounded to levels observed in the growth period. Despite the significant volatility in the value of technical assistance grants, the average growth trend

over the 10-Year period was at 20% from 2008 to 2017, illustrating that on average there has been a growth in technical assistance grants over the period under review.

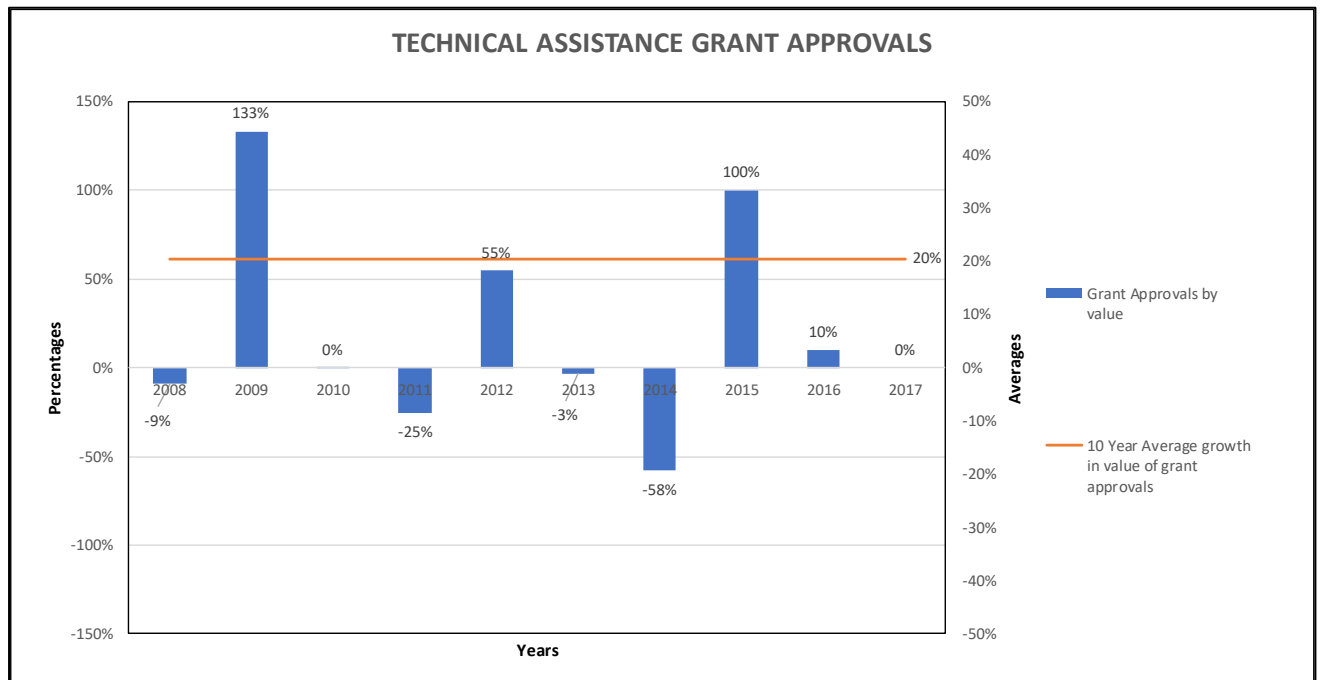


Figure 4.15: Technical Assistance Grants.

Source: Candidates design from research data, 2019.

Figure 4.16 shows that funding disbursements have been fluctuating over the years, substantial growth in disbursements occurred between 2008 and 2009, with growth levels ranging between 51% and 66%. The years 2010 to 2012 were characterised by minimal or negative growth. The decrease can be attributed to several factors including, but not limited to, the sluggish economic recovery, structural weak position of most of the municipalities, and capacity constraints, which affected the pace of implementation of infrastructure projects at local government level. This in turn delayed the disbursement on the DBSA approved projects.

The years 2013 to 2016 saw an improvement in disbursements ranging from a 2% growth rate to as high as 39%. Significant growth was observed between 2013 and 2014 (39%), and between 2015 and 2016 (31%). The growth was driven by disbursements for projects funded through municipalities, state owned entities, and the independent power producers programme. In the 2015/16 financial year disbursements were dominated by the energy sector (54.4%), transport sector (15.8%), and the water sector (8.8%), respectively.

Negative growth in funding disbursements occurred between 2016 and 2017, the decrease is attributed to greater competition from DFIs and commercial banks in the IPP programme, secondary municipalities, slowdown of growth in the SADC region, and due to various projects not materialising.

Despite the volatility in the growth of funding disbursements, the average growth trend over the 10-Year period was positive at 16% from 2008 to 2017.

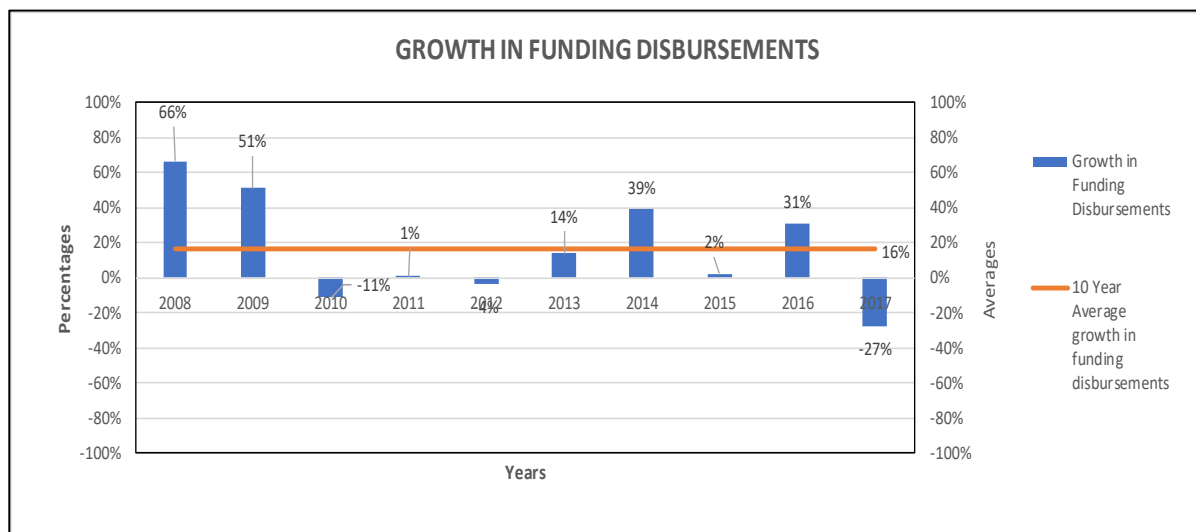


Figure 4.16: Funding Disbursements.

Source: Candidates design from research data, 2019.

Figure 4.17 shows that growth in approvals to companies operating in other African countries has been erratic, with years of substantial growth and some years where there were large declines. The years 2008, 2009, and 2011 to 2014 recorded substantial growth with growth levels ranging from a low of 13% to a maximum of 29%, respectively. The investments in the SADC region were largely driven by investments in the power sectors of Zambia and Mozambique.

The second driver of the loan approvals were cross border investments that were channelled through the Tripartite Alliance, which was a partnership between DBSA and the Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), and SADC. The bank was also mandated to manage a capital grant fund from UK's DFID to catalyse infrastructure development of the North-South Corridor (a major proposal to upgrade and extend land transport links (road and rail) in Southern Africa).

Disbursements were dominated in most years by investments in the energy sector, communication, water, and roads infrastructure. There was a large decrease in approvals to companies operating in other African countries from 2010, a decrease of 20%, followed by large decreases from 2015 to 2017, which ranged from a low of 1% to 62%, respectively. The decrease between 2009 and 2010 can be attributed to a slowdown in the global economic environment, which saw a decline in exports, decline in migrant remittances, scarcity in international finance, and a decrease in aid. There was also majority stagnation in growth in eight out of the fifteen SADC countries.

The decrease between 2015 and 2017 was further exacerbated by the depressed commodity and oil prices, which had an impact on the revenue base and ability to finance infrastructure in most African countries. Despite the negative growth trend, the following countries accounted for a significant portion of the disbursements in the 2016/17 financial years, Zambia (48%), Ghana (42%), and Kenya (6%). Over the 10-Year period investment in projects outside South Africa had an average growth rate of 56%.

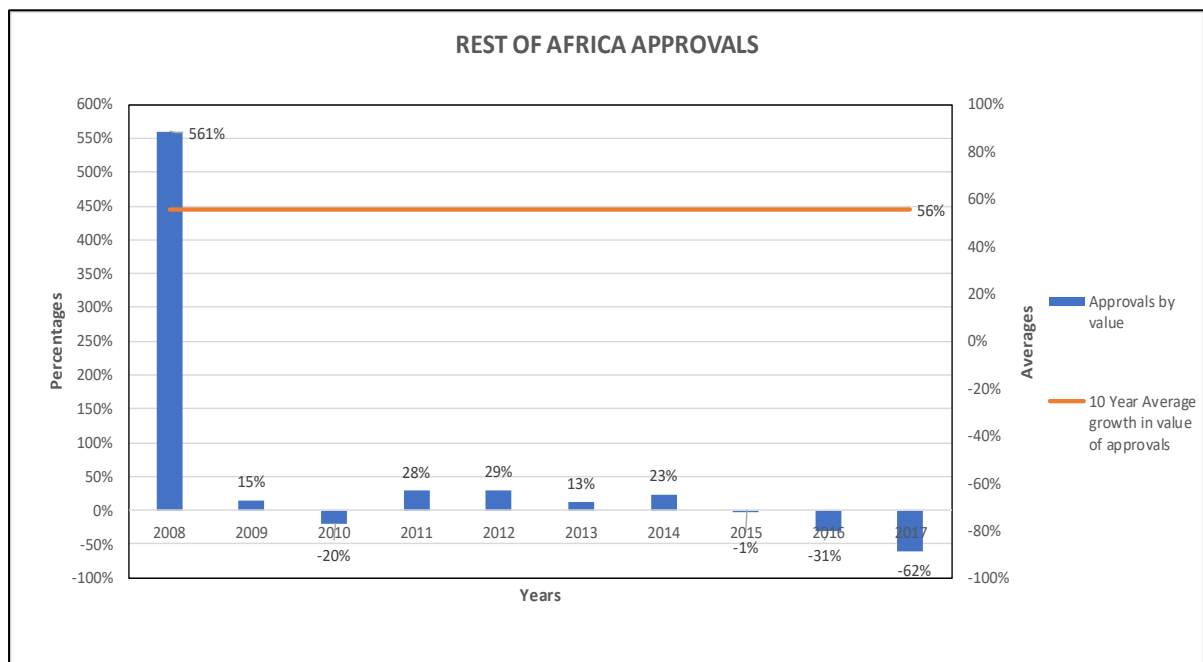


Figure 4.17: Impact on regional development – Rest of Africa approvals.

Source: Candidates design from research data, 2019.

Figure 4.18 shows that the impact on job creation has not yielded positive results. Job creation numbers have largely been falling over the years, with only a few years where growth in job

numbers was observed, that is 2008, 2010, 2013, and 2016. These years yielded growth rate levels from a minimum of 1% to a maximum of 73%.

Major declines in job creation numbers were experienced in 2009, 2011 to 2012, 2014 to 2015, and 2017. The significant decreases are aligned to the post financial crisis period and the years when South Africa experienced negative growth where municipalities, state owned entities, and private sector companies were under pressure and downscaling investments in large infrastructure projects. The level of job creation in DBSA investments largely mirrors the negative growth trend in the economy. Over the 10-Year period the average growth rate in job creation was negative at 0.4% over the period under review.

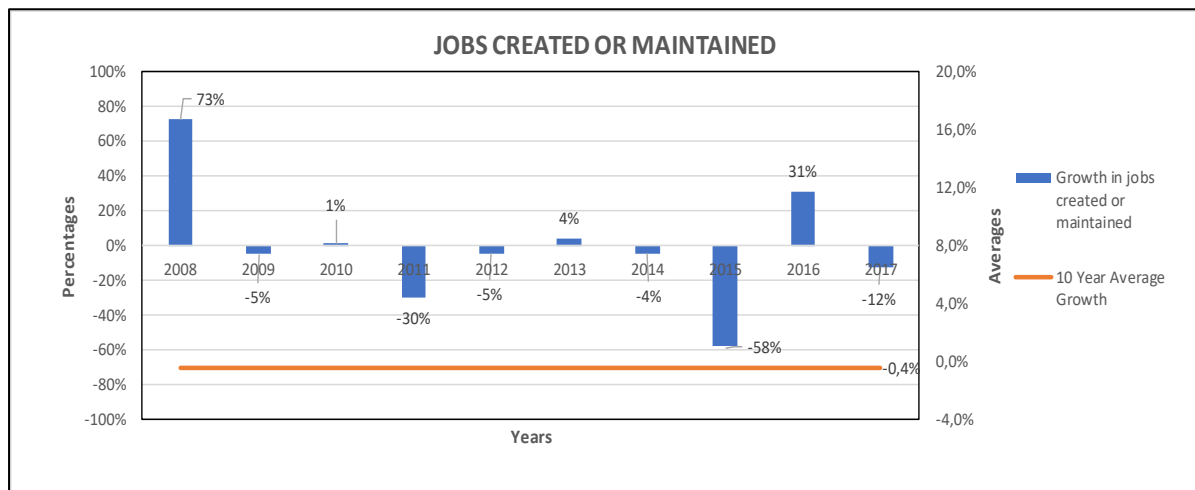


Figure 4.18: Job Creation.

Source: Candidates design from research data, 2019.

4.3 Private Sector Target Development Investments Analysis

4.3.1 Returns of SRI Funds, Benchmark Returns, Index Data

The descriptive statistics of the fund data presented in Tables 4.4 illustrates that the average returns of balanced funds were within a range of 10% to 12%, equities had an average return ranging from 6% to 13%, alternatives at 14%, fixed interest within a range of 9% to 11%, and property at 12%. The minimum returns across the various fund categories were predominantly negative, the lowest return realised in equities. The highest growth rates were observed in equities ranging from 23% to 54%, followed by balanced funds at a range of 21% to 43%, and property at 24%.

Table 4.5 below, shows the benchmark returns, the average returns show that balanced funds and equities performed on par or below their benchmarks, whilst alternatives, fixed interest, and property exceeded their benchmarks. From the standard deviation results the researchers observe that the data points from the various indicators are spread out over a large range of values for both the fund returns and their benchmarks.

Table 4.4: TDI Fund Returns

TDI Fund Name	Fund Category	Mean	Standard Deviation	Min	Max
Momentum MoM Supernation Fund	Balanced	10%	9%	-10%	21%
Stanlib Wealth Development Fund	Balanced	12%	16%	-1%	43%
Element Earth Equity Fund	Equity	6%	15%	-16%	26%
Futuregrowth* Development Equity Composite	Equity	13%	5%	5%	23%
Oasis Crescent Equity Fund	Equity	8%	14%	-23%	24%
Oasis Crescent International Feeder Fund	Equity	10%	21%	-15%	54%
OMIG Alternative Investments Ideas Fund	Alternatives	14%	4%	7%	19%
Futuregrowth Infrastructure and Development Bond Fund	Fixed Interest	11%	7%	-1%	20%
OMIG Community Growth Gilt Fund	Fixed Interest	9%	8%	-4%	18%
Futuregrowth Community Property Fund	Property	12%	5%	5%	24%

- *Formerly known as the Futuregrowth Infrastructure and Development Equity Fund. *Source: Candidates estimations from research data, 2019.*

Table 4.5: TDI Fund Benchmark Returns

TDI Fund Name	Fund Category	Mean	Standard Deviation	Min	Max
Momentum MoM Supernation Fund	Balanced	10%	10%	-11%	23%
Stanlib Wealth Development Fund	Balanced	7%	2%	3%	10%
Element Earth Equity Fund	Equity	13%	16%	-22%	32%
Futuregrowth* Development Equity Composite	Equity	16%	2%	14%	21%
Oasis Crescent Equity Fund	Equity	7%	13%	-23%	21%
Oasis Crescent International Feeder Fund	Equity	10%	16%	-13%	39%
OMIG Alternative Investments Ideas Fund	Alternatives	12%	1%	10%	14%
Futuregrowth Infrastructure and Development Bond Fund	Fixed Interest	9%	8%	-4%	17%
OMIG Community Growth Gilt Fund	Fixed Interest	8%	8%	-4%	16%
Futuregrowth Community Property Fund	Property	10%	2%	7%	15%

- *Formerly known as the Futuregrowth Infrastructure and Development Equity Fund. *Source: Candidates estimations from research data, 2019.*

4.3.2 Index Data

The index returns were extracted from the Bloomberg Portal (Bloomberg Finance L.P., 2020) and the definition of each index is tabulated in Table 2, Appendix 3. Table 4.6 presents the descriptive statistics of the indices; the average returns range from 0,2% to 0,7%, the highest returns being that of the JSE All Share Index. Standard deviation ranges from 4,1% to 6,2%, the index returns have data points that have similar patterns of dispersion from the mean. The minimum returns are all negative, whilst maximum returns range from 7% to 10%.

Table 4.6: Index Return Data

Index Data Tracker				
Index Name	Mean	Standard Deviation	Min	Max
JSE All Share Index	0,7%	4,1%	-6,5%	7,0%
MSCI Emerging Market Index	0,2%	6,1%	-10,1%	9,8%
FTSE Emerging Index	0,2%	6,2%	-10,1%	10,0%
MSCI KLD 400 Social Index	0,6%	4,1%	-6,6%	6,7%
FTSE Environmental Opportunities	0,5%	5,2%	-8,9%	7,9%

Source: Candidates estimations from research data, 2019.

4.4 Risk-adjusted returns

The section summarises results from the computation of risk adjusted returns using the four outlined risk adjusted performance measures in earlier sections of the dissertation. The results were ranked from the highest to the lowest performing fund.

4.4.1 Sharpe ratio

The results of the estimate Sharpe ratios in Table 4.7 illustrates that nine out of the ten TDI funds generated positive Sharpe ratios, which indicates that the portfolios generated returns in excess of the risk-free rate as measured by the 90-Day treasury bill rates. Thus, the risk premiums were on average positive over the 10-Year period. In terms of categorisation three portfolios generated ratios equal to or above 1, an indicator of performance that is acceptable to investors for the level of risk undertaken. The top performing portfolio was the Future Growth Community Property Fund, a development fund that invests in shopping centres located in townships and rural areas nationally. The fund has a R4,4 billion portfolio and a footprint in eight of the nine provinces in South Africa. The worst performer was the Element Earth Equity Fund, a general fund that invests in listed and unlisted instruments. The negative performance can be attributed to its high concentration on the domestic equity market that has experienced poor performance since the global financial crisis coupled with slow economic

growth. Six portfolios generated ratios below 1, an indicator of sub-optimal performance for the level of risk taken and one portfolio generated a negative ratio, which indicates that the portfolio was not able to generate excess returns above the risk-free rate.

In terms of the body of literature, du Plessis, (2015) and Viviers, (2007) evaluated the ratios in different sub-periods, which are not comparable to the current study, and they observed that there was on average an increase in the Sharpe ratios over time, which implied that there was an improvement in the risk adjusted performance of the funds, which is aligned to the positive risk premiums that were on average generated by the TDI funds over the 10-Year period.

4.4.2 Treynor ratio

The results of the estimate Treynor ratios in Table 4.7 illustrates that six out of the ten TDI portfolios generated positive but sub-optimal Treynor ratios, this indicates that the portfolios generated minimal excess returns above the risk-free rate for every level of systematic risk undertaken. Despite the sub-optimal performance of the portfolios, the average risk premium was positive over the review period. The top performer was the Futuregrowth Development Equity Composite, a fund with R2,8 billion of AUM whose main mandate is to invest in equity and related investments in socially responsible projects, businesses or development assets. The worst performer, which is aligned to the Sharpe ratio performance was the Element Earth Equity Fund. Four portfolios generated negative Treynor ratios, an indicator that the funds generated returns that were below the risk-free rate for every level of systematic risk undertaken. The Treynor ratio performance differs vastly from the Sharpe ratio results where most funds' performance outperformed the risk-free rate. The results above are not supported by a study performed in two sub-periods by du Plessis, (2015), who observed that the average Treynor ratios were negative for both sub-periods, this is largely driven by the different periods at which the studies were performed.

4.4.3 Sortino ratio

The results of the estimate Sortino ratios in Table 4.7 below illustrates that nine out of the 10 TDI funds generated positive Sortino ratios, which indicates that the portfolios generated returns in excess of the risk-free rate for every level of downside risk undertaken. The average risk premiums were thus positive over the review period. The top performer was the Futuregrowth Community Property Fund, the performance was aligned to the results obtained with the Sharpe ratio calculations. The worst performer was the Element Earth Equity Fund. Five funds obtained Sortino ratios that exceed 1, an indicator that these portfolios generated

returns that exceed investor expectations, four funds generated ratios below 1, which indicates that the outperformance was sub-optimal, and one portfolio generated a negative Treynor ratio which implies that the portfolio was not able to generate returns that exceed the risk free rate. du Plessis, (2015) and Viviers, (2007), observed that the average Sortino ratios improved over the research period, which was attributable to a decrease in downside risk, and is aligned to the above results where TDI funds generated excess returns.

4.4.4 Information Ratio

The results of the estimate Information ratios in Table 4.7 illustrates that six out of the ten TDI funds generated positive Information ratios, which indicates that the portfolios generated returns in excess of their benchmarks. The top performer was the Futuregrowth Infrastructure and Development Bond Fund, a fund with R15.2 billion AUM whose mandate is to provide investors a platform to invest in projects that contribute towards infrastructural, social, environmental, and economic development in Southern Africa whilst delivering on social impact objectives. The worst performer was the Futuregrowth Development Equity Composite, the poor performance can be attributed to the nature of investments that are principally held by the fund, that is, private equity investments that can either generate high returns or low returns in times of high volatility and slow economic growth. The period under review incorporates negative impacts from the global financial crisis, persistent and low economic growth in South Africa, coupled with high volatility. Four portfolios generated negative Information ratios, which implies that these portfolios were not able to generate returns in excess of their benchmarks.

Table 4.7: Risk Adjusted Performance Ratios of TDI Funds

TDI Fund Name	Sharpe ratio	Rank	Treynor ratio	Rank	Sortino ratios	Rank	Information ratios	Rank
Momentum MoM Supernation Fund	0,33	5	0,03	3	0,33	7	-0,4	8
Stanlib Wealth Development Fund	0,30	7	-0,01	8	1,05	5	0,3	5
Element Earth Equity Fund	-0,11	10	-0,02	9	-0,14	10	-0,5	9
Futuregrowth Development Equity Composite	1,00	3	1,18	1	1,83	4	-0,6	10
Oasis Crescent Equity Fund	0,02	9	0,00	6	0,02	9	0,2	6
Oasis Crescent International Feeder Fund	0,15	8	0,02	5	0,28	8	-0,1	7
OMIG Alternative Investments IDEAS Fund	1,08	2	-0,05	10	2,51	1	0,5	3
Futuregrowth Infrastructure and Development Bond Fund	0,69	4	0,05	2	2,03	3	2,8	1
OMIG Community Growth Gilt Fund	0,33	6	0,02	4	0,80	6	1,5	2
Futuregrowth Community Property Fund	1,27	1	-0,18	7	2,39	2	0,3	4

Source: Candidates estimates from research data, 2019.

4.5 Hypothesis Testing

The TDI fund risk adjusted performance was compared against five benchmark categories, that is, the portfolios respective benchmarks, FTSE JSE All Share Index, MSCI Emerging Market Index, FTSE Emerging Index, MSCI KLD 400 Social Index, and the FTSE Environmental Opportunities Index. For purposes of performing the hypothesis testing, three risk adjusted performance measures were used, that is, Sharpe ratio, Treynor ratio, and the Sortino ratio. The Wilcoxon Signed Rank Sum Test was used to test the hypotheses and the results are discussed in the below sections.

4.5.1 TDI funds benchmark

The risk adjusted returns of TDI Funds were tested against their respective benchmarks as outlined in Table 3, Appendix 2 over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (-0,78; -0,84; and -1,74) in Table 4.8, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds underperformed their respective benchmarks over the 10-Year period. In terms of the Wilcoxon signed rank sum test all p-values were greater than 0,05 for the Sharpe, Treynor, and Sortino ratios, which indicates that the results are not statistically significant, the researchers therefore, fail to reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and their respective benchmarks. This implies that there is no difference between the risk adjusted returns of TDI funds and their respective benchmarks over the 10-Year period. The results imply that for every level of risk undertaken by investors, the TDI funds did not earn returns that were lower than the returns of their respective benchmarks. From the results it can also be inferred that investors did not earn lower returns by investing in funds that adopt a dual mandate of balancing financial and social returns.

The results above are supported by Viviers, (2007), who found that there was no difference in the risk-adjusted performance of SRI funds and their respective benchmark indices in sub-period one and two. Similar findings on the study of SRI funds in Sweden, France, and Japan were found by Renneboog et al., (2008b). The results above are however, in contrast with the sub-period 3 results where SRI funds significantly outperformed their benchmark indices. Viviers et al., (2008), found that the RI funds underperformed their benchmark in sub-period 1 (1992 to 2002) and outperformed their benchmarks in sub-period 2 (2002 to 2006). Similar findings were observed from studies in the US, UK, and most continental Europe and Asia

Pacific countries by Renneboog et al., (2008b), where SRI funds underperformed their benchmarks.

Table 4.8: Risk Adjusted Performance of TDI Funds Versus Their Respective Benchmarks

TDI Fund Name A	Sharpe Ratio			Treyner Ratio			Sortino Ratio		
	TDI Fund B	TDI Fund Benchmark C	Difference D = B-C	TDI Fund E	TDI Fund Benchmark F	Difference G=E-F	TDI Fund H	TDI Fund Benchmark I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	0,32	0,01	0,03	0,03	0,00	0,33	0,38	-0,05
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	0,16	0,14	-0,01	-0,06	0,05	1,05	0,17	0,88
Element Earth Equity Fund	-0,11	0,31	-0,42	-0,02	0,07	-0,09	-0,14	0,38	-0,52
Futuregrowth Development Equity Composite (Formerly known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	4,09	-3,09	1,18	10,49	-9,31	1,83	14,41	-12,59
Oasis Crescent Equity Fund	0,02	-0,06	0,08	0,00	-0,01	0,01	0,02	-0,06	0,07
Oasis Crescent International Feeder Fund	0,15	0,16	-0,01	0,02	0,03	-0,02	0,28	0,37	-0,09
OMIG Alternative Investments IDEAS Fund	1,08	6,04	-4,97	-0,05	-0,54	0,49	2,51	7,95	-5,43
Futuregrowth Infrastructure and Development Bond Fund	0,69	0,24	0,45	0,05	0,02	0,03	2,03	0,80	1,23
OMIG Community Growth Gilt Fund	0,33	0,16	0,17	0,02	0,01	0,01	0,80	0,52	0,27
Futuregrowth Community Property Fund	1,27	1,41	-0,14	-0,18	-0,65	0,47	2,39	3,56	-1,17
Average of the difference of scores		-0,78			-0,84			-1,74	
Standard deviation of the difference of scores		1,78			2,98			4,24	
Wilcoxon Signed Rank Test (z-value)		-0,36			0,56			-0,36	
Probability (p-value)		0,72			0,58			0,72	

Source: Candidates estimates from research data, 2019.

4.5.2 FTSE/JSE All Share Index

The risk adjusted returns of TDI Funds were tested against the FTSE/JSE All Share index returns as outlined in Table 4.6 above over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (5,24; 0,16; and 6,57) in Table 4.9, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds outperformed the FTSE/JSE All Share Index over the 10-Year period. The outperformance as measured by the Treynor ratio was; however, marginal at 0,16, which means that there was a small difference between the Treynor ratios of the TDI funds and that of the FTSE/JSE All Share Index. The low outperformance by TDI funds can be attributed to high betas of the TDI funds, which caused the risk adjusted returns to be lower. The high betas can be explained by the post financial crisis period, which was characterised by a decrease in investment appetite, heightened levels of risk, decrease in investments due to a depressed economy, which increased the volatility of the funds as measured by betas.

In terms of the Wilcoxon signed rank sum test the p-values of the Sharpe and Sortino ratios were less than 0,05, which indicates that the results are statistically significant, the researchers therefore, reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and the FTSE/JSE All Share Index. This implies that there is a significant difference between the risk adjusted returns of TDI funds and the FTSE/JSE All Share Index over the 10-Year period for both ratios. The p-value of the Treynor ratio was; however, greater than 0,05, which indicates that the results are not statistically significant, the researchers therefore, fail to reject the null hypothesis. This implies that for the Treynor ratio there is no difference between the risk adjusted returns of TDI funds and the FTSE/JSE All Share Index over the 10-Year period. The results imply that for every level of risk undertaken by investors, the TDI funds did not earn returns that were lower than the returns of the equity index. From the results it can also be inferred that investors did not earn lower returns by investing in funds that adopt a dual mandate of balancing financial and social returns.

The above results for the Treynor ratio are similar to findings by Viviers et al., (2008) who found that there was no significant difference in the risk adjusted performance of SRI funds with the FTSE/JSE All Share Index. The results for the Sharpe and Sortino ratios are in contrast with findings by Viviers et al., (2008) where local RI funds significantly underperformed the general equity market from 1998 to 2002.

Table 4.9: Risk Adjusted Performance of TDI Funds Versus the FTSE/JSE All Share Index

TDI Fund Name A	Sharpe Ratio			Treydor Ratio			Sortino Ratio		
	TDI Fund B	FTSE/JSE ALSI C	Difference D = B-C	TDI Fund E	FTSE/JSE ALSI F	Difference G=E-F	TDI Fund H	FTSE JSE ALSI I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	-4,74	5,07	0,03	-0,06	0,09	0,33	-5,46	5,79
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	-4,74	5,03	-0,01	-0,06	0,05	1,05	-5,46	6,51
Element Earth Equity Fund	-0,11	-4,74	4,63	-0,02	-0,06	0,04	-0,14	-5,46	5,32
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	-4,74	5,74	1,18	-0,06	1,24	1,83	-5,46	7,29
Oasis Crescent Equity Fund	0,02	-4,74	4,76	0,00	-0,06	0,06	0,02	-5,46	5,47
Oasis Crescent International Feeder Fund	0,15	-4,74	4,89	0,02	-0,06	0,08	0,28	-5,46	5,73
OMIG Alternative Investments IDEAS Fund	1,08	-4,74	5,82	-0,05	-0,06	0,01	2,51	-5,46	7,97
Futuregrowth Infrastructure and Development Bond Fund	0,69	-4,74	5,43	0,05	-0,06	0,11	2,03	-5,46	7,49
OMIG Community Growth Gilt Fund	0,33	-4,74	5,07	0,02	-0,06	0,08	0,80	-5,46	6,25
Futuregrowth Community Property Fund	1,27	-4,74	6,00	-0,18	-0,06	-0,12	2,39	-5,46	7,85
Average of the difference of scores		5,24			0,16			6,57	
Standard deviation of the difference of scores		0,47			0,38			1,01	
Wilcoxon Signed Rank Test (z-value)		-2,80			-1,89			-2,80	
Probability (p-value)		0,01			0,06			0,01	

Source: Candidates estimates from research data, 2019.

4.5.3 MSCI Emerging Market Index

The risk adjusted returns of TDI Funds were tested against the MSCI Emerging Market Index returns as outlined in Table 4.9 above, over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (2,81; 0,17; and 4,07) in Table 4.10, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds outperformed the MSCI Emerging Market Index over the 10-Year period. The outperformance as measured by the Treynor ratio was; however, marginal at 0,17. In terms of the Wilcoxon signed rank sum test, the p-values of the Sharpe, Treynor, and Sortino ratios were less than 0,05, which indicates that the results are statistically significant, the researchers therefore, reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and the MSCI Emerging Market Index. This implies that there is a significant difference between the risk adjusted returns of TDI funds and the MSCI Emerging Market Index over the 10-Year period. The results imply that for every level of risk undertaken by investors, the TDI funds earned returns that are superior to the returns of the MSCI Emerging Market Index. From the results it can also be inferred that investors are able to earn excess returns on funds that adopt a dual mandate of balancing financial and social returns.

The only documented literature on SRI funds is on the MSCI World Index, where Schröder, (2004) found that the majority of German and Swiss Funds had lower mean returns and Sharpe ratios than the MSCI World Index. In the United States, nine out of the 30 funds had returns that were equal to the MSCI World Index and eight funds outperformed the MSCI Index. The findings imply that investment funds were not able to earn excess returns. The findings on the MSCI Emerging Market Index seem to be the first documented evidence of the relationship in the literature.

Table 4.10: Risk Adjusted Performance of TDI Funds Versus the MSCI Emerging Market Index

TDI Fund Name A	Sharpe Ratio			Treyner Ratio			Sortino Ratio		
	TDI Fund B	MSCI Emerging Market Index C	Difference D = B-C	TDI Fund E	MSCI Emerging Market Index F	Difference G=E-F	TDI Fund H	MSCI Emerging Market Index I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	-2,31	2,64	0,03	-0,07	0,09	0,33	-2,96	3,29
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	-2,31	2,60	-0,01	-0,07	0,06	1,05	-2,96	4,01
Element Earth Equity Fund	-0,11	-2,31	2,20	-0,02	-0,07	0,04	-0,14	-2,96	2,82
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	-2,31	3,30	1,18	-0,07	1,25	1,83	-2,96	4,78
Oasis Crescent Equity Fund	0,02	-2,31	2,33	0,00	-0,07	0,07	0,02	-2,96	2,97
Oasis Crescent International Feeder Fund	0,15	-2,31	2,46	0,02	-0,07	0,08	0,28	-2,96	3,23
OMIG Alternative Investments IDEAS Fund	1,08	-2,31	3,38	-0,05	-0,07	0,02	2,51	-2,96	5,47
Futuregrowth Infrastructure and Development Bond Fund	0,69	-2,31	3,00	0,05	-0,07	0,11	2,03	-2,96	4,98
OMIG Community Growth Gilt Fund	0,33	-2,31	2,64	0,02	-0,07	0,09	0,80	-2,96	3,75
Futuregrowth Community Property Fund	1,27	-2,31	3,57	-0,18	-0,07	-0,11	2,39	-2,96	5,35
Average of the difference of scores		2,81			0,17			4,07	
Standard deviation of the difference of scores		0,47			0,38			1,01	
Wilcoxon Signed Rank Test (z-value)		-2,80			-1,99			-2,80	
Probability (p-value)		0,01			0,047			0,01	

Source: Candidates estimates from research data, 2019.

4.5.4 FTSE Emerging Index

The risk adjusted returns of TDI Funds were tested against the FTSE Emerging Index returns as outlined in Table 4.10 above over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (2,81; 0,17; and 4,06) in Table 4.11, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds outperformed the FTSE Emerging Index over the 10-Year period. The outperformance as measured by the Treynor ratio was; however, marginal at 0,17. In terms of the Wilcoxon signed rank sum test the p-values of the Sharpe, Treynor, and Sortino ratios were less than 0,05, which indicates that the results are statistically significant, the researchers therefore, reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and the FTSE Emerging Index. This implies that there is a significant difference between the risk adjusted returns of TDI funds and the FTSE Emerging Index over the 10-Year period.

The results imply that for every level of risk undertaken by investors, the TDI funds earned returns that were superior to the returns of the FTSE Emerging Index. From the results it can also be inferred that investors are able to earn excess returns on funds that adopt a dual mandate of balancing financial and social returns. The findings on the FTSE Emerging Index seem to be the first documented evidence of the relationship in the literature.

Table 4.11: Risk Adjusted Performance of TDI Funds Versus the FTSE Emerging Index

TDI Fund Name A	Sharpe Ratio			Treynor Ratio			Sortino Ratio		
	TDI Fund B	FTSE Emerging Index C	Difference D = B-C	TDI Fund E	FTSE Emerging Index F	Difference G=E-F	TDI Fund H	FTSE Emerging Index I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	-2,30	2,63	0,03	-0,07	0,09	0,33	-2,95	3,28
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	-2,30	2,60	-0,01	-0,07	0,06	1,05	-2,95	4,01
Element Earth Equity Fund	-0,11	-2,30	2,19	-0,02	-0,07	0,04	-0,14	-2,95	2,82
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	-2,30	3,30	1,18	-0,07	1,25	1,83	-2,95	4,78
Oasis Crescent Equity Fund	0,02	-2,30	2,32	0,00	-0,07	0,07	0,02	-2,95	2,97
Oasis Crescent International Feeder Fund	0,15	-2,30	2,45	0,02	-0,07	0,08	0,28	-2,95	3,23
OMIG Alternative Investments IDEAS Fund	1,08	-2,30	3,38	-0,05	-0,07	0,02	2,51	-2,95	5,47
Futuregrowth Infrastructure and Development Bond Fund	0,69	-2,30	2,99	0,05	-0,07	0,11	2,03	-2,95	4,98
OMIG Community Growth Gilt Fund	0,33	-2,30	2,63	0,02	-0,07	0,09	0,80	-2,95	3,75
Futuregrowth Community Property Fund	1,27	-2,30	3,57	-0,18	-0,07	-0,11	2,39	-2,95	5,35
Average of the difference of scores		2,80			0,17			4,06	
Standard deviation of the difference of scores		0,47			0,38			1,01	
Wilcoxon Signed Rank Test (z-value)		-2,80			-1,99			-2,80	
Probability (p-value)		0,01			0,047			0,01	

Source: Candidates estimates from research data, 2019.

4.5.5 MSCI KLD 400 Social Index

The risk adjusted returns of TDI Funds were tested against the MSCI KLD 400 Social Index returns as outlined in Table 4.11 above over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (4,17; 0,16; and 4,11) in Table 4.12, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds outperformed the MSCI KLD 400 Social Index over the 10-Year period. The outperformance as measured by the Treynor ratio was; however, marginal at 0,16, which is explained by the low Treynor ratios of TDI funds emanating from high betas in the portfolio. In terms of the Wilcoxon signed rank sum test the p-values of the Sharpe and Sortino ratios were less than 0,05, which indicates that the results are statistically significant, the researchers therefore, reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and the MSCI KLD 400 Social Index. This implies that there is a significant difference between the risk adjusted returns of TDI funds and the MSCI KLD 400 Social Index over the 10-Year period for both ratios. The p-value for the Treynor ratio was greater than 0,05, which implies that there is no statistical significance, the researchers therefore, fail to reject the null hypothesis, which implies that there is no difference between the risk adjusted returns of TDI funds and the MSCI KLD 400 Social Index.

The results imply that for every level of risk undertaken by investors, the TDI funds did not earn returns that were lower than the returns of the MSCI KLD 400 Social Index. From the results it can also be inferred that investors are able to earn excess returns on funds that adopt a dual mandate of balancing financial and social returns. The findings on the MSCI KLD 400 Social Index seem to be the first documented evidence of the relationship in the literature.

Table 4.12: Risk Adjusted Performance of TDI Funds Versus the MSCI KLD 400 Social Index

TDI Fund Name A	Sharpe Ratio			Treydor Ratio			Sortino Ratio		
	TDI Fund B	MSCI KLD 400 Social Index C	Difference D = B-C	TDI Fund E	MSCI KLD 400 Social Index F	Difference G=E-F	TDI Fund H	MSCI KLD 400 Social Index I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	-3,66	3,99	0,03	-0,06	0,09	0,33	-3,00	3,33
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	-3,66	3,96	-0,01	-0,06	0,05	1,05	-3,00	4,05
Element Earth Equity Fund	-0,11	-3,66	3,55	-0,02	-0,06	0,04	-0,14	-3,00	2,86
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	-3,66	4,66	1,18	-0,06	1,24	1,83	-3,00	4,83
Oasis Crescent Equity Fund	0,02	-3,66	3,68	0,00	-0,06	0,06	0,02	-3,00	3,02
Oasis Crescent International Feeder Fund	0,15	-3,66	3,81	0,02	-0,06	0,08	0,28	-3,00	3,28
OMIG Alternative Investments IDEAS Fund	1,08	-3,66	4,74	-0,05	-0,06	0,01	2,51	-3,00	5,51
Futuregrowth Infrastructure and Development Bond Fund	0,69	-3,66	4,35	0,05	-0,06	0,11	2,03	-3,00	5,03
OMIG Community Growth Gilt Fund	0,33	-3,66	3,99	0,02	-0,06	0,08	0,80	-3,00	3,80
Futuregrowth Community Property Fund	1,27	-3,66	4,93	-0,18	-0,06	-0,12	2,39	-3,00	5,39
Average of the difference of scores		4,17			0,16			4,11	
Standard deviation of the difference of scores		0,47			0,38			1,01	
Wilcoxon Signed Rank Test (z-value)		2,80			1,89			2,80	
Probability (p-value)		0,01			0,06			0,01	

Source: Candidates estimates from research data, 2019.

4.5.6 FTSE Environmental Opportunities Index

The risk adjusted returns of TDI Funds were tested against the FTSE Environmental Opportunities Index returns as outlined in Table 4.12 above over a 10-Year period from 2008 to 2017. Based on the results of the average of differences (3,55; 0,17; and 4,35) in Table 4.13, the Sharpe, Treynor, and Sortino ratios confirm that the TDI funds outperformed the FTSE Environmental Opportunities Index over the 10-Year period. The outperformance as measured by the Treynor ratio was; however, marginal at 0,17. The difference could be as a result of the fact that the Treynor ratio uses systematic risk (i.e. beta) as a measure of risk as opposed to the Sharpe ratio that uses standard deviation. In terms of the Wilcoxon signed rank sum test the p-values of the Sharpe and Sortino ratios were less than 0,05, which indicates that the results are statistically significant, the researchers therefore, reject the null hypothesis of no difference between the risk-adjusted returns of TDI funds and the FTSE Environmental Opportunities Index. This implies that there was a significant difference between the risk adjusted returns of TDI funds and the FTSE Environmental Opportunities Index over the 10-Year period. The p-value for the Treynor ratio was greater than 0,05, which implies that there is no statistical significance, the researchers therefore, fail to reject the null hypothesis, which implies that there is no difference between the risk adjusted returns of TDI funds and the FTSE Environmental Opportunities Index.

The results imply that for every level of risk undertaken by investors, the TDI funds did not earn returns that were lower than the returns of the FTSE Environmental Opportunities Index. From the results it can also be inferred that investors are able to earn excess returns on funds that adopt a dual mandate of balancing financial and social returns. The findings on the FTSE Environmental Opportunities index seem to be the first documented evidence of the relationship in the literature.

Table 4.13: Risk Adjusted Performance of TDI Funds Versus the FTSE Environmental Opportunities Index

TDI Fund Name A	Sharpe Ratio			Treydor Ratio			Sortino Ratio		
	TDI Fund B	FTSE Environmental Opportunities Index C	Difference D = B-C	TDI Fund E	FTSE Environmental Opportunities Index F	Difference G=E-F	TDI Fund H	FTSE Environmental Opportunities Index I	Difference J=H-I
Momentum MoM Supernation Fund	0,33	-3,05	3,38	0,03	-0,06	0,09	0,33	-3,24	3,57
Stanlib Wealth Development Fund/Liberty Corporate Wealth Development Fund	0,30	-3,05	3,34	-0,01	-0,06	0,05	1,05	-3,24	4,30
Element Earth Equity Fund	-0,11	-3,05	2,94	-0,02	-0,06	0,04	-0,14	-3,24	3,11
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	1,00	-3,05	4,04	1,18	-0,06	1,24	1,83	-3,24	5,07
Oasis Crescent Equity Fund	0,02	-3,05	3,07	0,00	-0,06	0,07	0,02	-3,24	3,26
Oasis Crescent International Feeder Fund	0,15	-3,05	3,20	0,02	-0,06	0,08	0,28	-3,24	3,52
OMIG Alternative Investments IDEAS Fund	1,08	-3,05	4,13	-0,05	-0,06	0,01	2,51	-3,24	5,75
Futuregrowth Infrastructure and Development Bond Fund	0,69	-3,05	3,74	0,05	-0,06	0,11	2,03	-3,24	5,27
OMIG Community Growth Gilt Fund	0,33	-3,05	3,38	0,02	-0,06	0,09	0,80	-3,24	4,04
Futuregrowth Community Property Fund	1,27	-3,05	4,31	-0,18	-0,06	-0,11	2,39	-3,24	5,64
Average of the difference of scores		3,55			0,17			4,35	
Standard deviation of the difference of scores		0,47			0,38			1,01	
Wilcoxon Signed Rank Test (z-value)		-2,80			-1,89			-2,80	
Probability (p-value)		0,01			0,06			0,01	

Source: Candidates estimates from research data, 2019.

Chapter Five

Summary, Conclusions, and Recommendations

5.1 Introduction

The chapter concludes the final research objectives of the study as articulated in earlier sections of the dissertation. It summarises the research findings and contributions of the assessment of the development role played by TDI funds in South Africa. It also provides policy recommendations and avenues for future research.

5.2 Summary of Findings

The study revealed several development impact findings in the TDI fund market from investments made in the public sector over the 10-Year period. The first finding pertaining to public sector targeted development investments is that there was an increase in funding approvals and investments in priority sectors (economic and social infrastructure, and enterprise finance), which were aligned to the government's national development and industrialisation policies. The second finding is that investment mandates and technical assistance programmes of these public sector corporations were expanded to ensure that investments are channelled towards economic and social infrastructure programmes in under resourced municipalities, small businesses in rural and peri-urban areas, industrialisation, transformation, and regional integration.

The third finding was the declining contribution of the investments made towards reducing unemployment, that is, growth in jobs created declined after the financial crisis; there were more jobs lost than created. Employment levels largely mirrored the marginal, or negative, growth in most sectors of the economy.

The fourth finding is in relation to the lack of a standardised reporting and monitoring framework amongst the public sector investment corporations. As a result, the development impact indicators were not tracked at project level. The fifth finding is the localised nature of reporting and no benchmarking is performed against similar development institutions in developing and emerging markets.

In terms of the study in the private sector, the focus was on comparing the risk adjusted performance of the TDI funds and to examine if these funds, whose objective was to achieve both social and financial returns, out or underperformed various benchmark categories.

The risk adjusted performance of the TDI funds was examined and tested for statistical significance using five benchmark categories. The findings revealed that there was no difference in the performance of TDI funds against their respective benchmarks. The second benchmark category was the FTSE/JSE All Share Index where the Sharpe and Sortino ratios yielded results that were statistically significant, whilst the Treynor ratio results were statistically insignificant; these results were consistent across the MSCI KLD 400 Social Index and the FTSE Environmental Opportunities Index. The MSCI Emerging Market Index and the FTSE Emerging Index also yielded results that were statistically significant, which implies that there was a difference between the returns of the TDI funds and these two indices.

Another finding is in relation to the observation that the TDI fund market has been consolidating where the number of funds has decreased whilst the size of the market in terms of the value of investments has been growing. The last finding is in relation to the lack of reporting on the impact that these funds have delivered over the years under review, the focus has been predominantly on tracking the fund returns.

5.3 Conclusion

The SRI market continues to grow on a global scale and the focus is now moving towards impact and sustainable investments. These two investment segments have recorded the largest growth levels as depicted by the compound annual growth rates in Table 3, Appendix 1 that tracks the growth in investment strategies. Investments in developed countries are largely private sector driven whilst in emerging countries such as South Africa, the public sector is a key driver of high development impact investments. The study sought to examine the role played by both the public and private sector in targeted development investments.

The study had two research objectives; the first objective was to track the growth in targeted development investments made by public sector investment corporations in South Africa by examining the size and value of investments. The first objective was achieved by selecting the Top 3 public sector investment corporations as measured by their asset sizes and value of investments or AUM. Development impact indicators as tracked by each corporation were examined over the research period.

The study revealed the vital role of capital investments made by the public sector investment corporations in industrialisation, infrastructure development, and enterprise finance through supporting small and medium enterprises in urban and peri-urban areas including job creation.

These investment corporations are essentially bridging the funding gap that is needed to finance the development objectives of the NDP and the SDGs. Over the past decade government has been a key driver of investments in social and economic infrastructure that is aimed at stimulating growth in the economy and has also played a catalytic role in mobilising funding from multilateral institutions, which is evident in the funding lines utilised by IDC and DBSA for lending purposes.

The second objective was to study the private sector targeted developments and their risk adjusted performance over a 10-Year period. This was achieved by examining private sector TDI funds that existed for the full 10-Year period. The study revealed that the market for targeted development investments, which is a subset of the SRI market, has grown in terms of the value of investments despite the consolidation of funds, which has seen the number of funds decreasing over the 10-Year period. The total size of the industry was at R51,1 billion as per the 2017 Alexander Forbes TDI Manager Survey Report. A comparison of the risk adjusted performance of the TDI funds against five benchmark categories was performed using the Sharpe, Treynor, and Sortino ratios. The Wilcoxon Signed Rank Sum Test was used in examining whether the returns of TDI funds out or underperformed their benchmarks over the review period. The research findings showed mixed results where TDI funds either underperformed or outperformed against the benchmark categories.

The study revealed that private sector TDI funds have largely played a complimentary role where their investments are more streamlined and targeted towards specific development projects or areas where investors are still able to generate positive excess returns for investors.

The results illustrate the different roles fulfilled by these public and private sector institutions in funding high impact projects and motivates for the need for these sectors to co-exist in an eco-system, which would increase leveraging and co-funding opportunities for projects in key priority sectors.

5.4 Policy Recommendation

The findings add impetus to the pro-longed debate in the investment markets on the benefits of combining financial and social returns in investment decision making. The study shows that targeted investments whilst driving development impact objectives are still able to generate excess returns for investors. The research also highlights the need for public private partnerships where the public sector plays a catalytic role in mobilising investors to invest in

economic and social infrastructure needs. The private sector needs to play a more direct role in channelling investments towards the attainment of sustainable development goals and a broader scope beyond ensuring that investments meet ESG requirements.

5.5 Limitations of the Study

The study was constrained by the following:

- Information on TDI funds is not publicly available, with most indicators being tracked by fund managers and institutions,
- The size of the TDI fund market where there has been a consolidation of funds. As a result, only a total sample of 10 funds were identified for statistical analysis, given some of the funds were either discontinued or consolidated into other funds over the 10-Year period. There was also a potential for survivorship bias as only those funds that have been in the market for the full 10-Year period was likely to be included in the sample,
- TDI funds are predominantly managed as unlisted investments whilst others are debt instruments, which limits the availability of information to perform research on these funds, and
- There is no consistent approach on reporting of development impact indicators amongst the public sector investment corporations. Some of the indicators were eliminated in the study due to these not being reported over the full 10-Year period. Due to strategic changes and a review of the mandates of these organisations, which had to align to governments' national development policies, some of the development programmes were discontinued over the period, which resulted in those respective indicators not being tracked.

5.6 Recommendations for Future Research

Given that the study focused on investments made by public sector investment corporations and outlined impact indicators based on their respective mandates, future studies can look at benchmarking the investment themes of these public sector entities with similar development institutions in developed and emerging markets.

Considering that there was no consistent approach in reporting on development indicators across the public sector investment corporations, a second area of research can look at developing baseline studies to track the development impact on funded projects with a comparison between the pre and post funding scenarios. In the advent of technology, the second opportunity would be to assist the public sector investment corporations with establishing

reporting tools to track and monitor projects during the term of the project, which would assist in enhancing and standardising the indicators.

A third angle for future research would be the expansion of the research to incorporate the development work that is fulfilled by impact investment funds, which are also driving investments in least developed regions and high impact projects on a global scale. These funds are still developing in most emerging markets and can add to the study of the role played by targeted development investments in South Africa and the continent. The research can unpack the development role played by these impact funds in addressing the social and economic challenges facing the African continent and how mobilisation of these investments can assist in financing initiatives linked to the attainment of SDGs and national government development policies.

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Appendices

Appendix 1

Table 1: Growth of SRI assets by region

Table 1: Growth of SRI Assets by Region 2014–2016				
Region	2014	2016	Growth over period	Compound Annual Growth Rate
Europe	\$ 10,775	\$ 12,040	11.7%	5.7%
United States	\$ 6,572	\$ 8,723	32.7%	15.2%
Canada	\$ 729	\$ 1,086	49.0%	22.0%
Australia/New Zealand	\$ 148	\$ 516	247.5%	86.4%
Asia ex Japan	\$ 45	\$ 52	15.7%	7.6%
Japan	\$ 7	\$ 474	6689.6%	724.0%
Total	\$ 18,276	\$ 22,890	25.2%	11.9%

Table 2: Proportion of SRI relative to total managed assets

Table 2: Proportion of SRI Relative to Total Managed Assets		
Region	2014	2016
Europe	58.8%	52.6%
United States	17.9%	21.6%
Canada	31.3%	37.8%
Australia/New Zealand	16.6%	50.6%
Asia	0.8%	0.8%
Japan		3.4%
Global	30.2%	26.3%

Table 3: Growth of Strategies

Strategy	2014	2016	Growth	CAGR
Impact/community investing	\$101	\$248	146%	56.8%
Sustainability themed investing	\$137	\$331	140%	55.1%
Positive/best-in-class-screening	\$890	\$1,030	16%	7.6%
Norms-based screening	\$4,385	\$6,210	42%	19.0%
Corporate engagement and shareholder action	\$5,919	\$8,365	41%	18.9%
ESG integration	\$7,527	\$10,369	38%	17.4%
Negative/exclusionary screening	\$12,046	\$15,023	25%	11.7%

Note: CAGR=compound annual growth rate. Asset values are expressed in billions.

Source: GSIR Review Report (2016).

Table 4: SRI Investment Strategy Definitions

Negative/exclusionary screening: the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria.
Positive/best-in class screening: investment in sectors, companies or projects selected for positive ESG performance relative to industry peers.
Norms-based screening: screening of investments against minimum standards of business practice based on international norms.
ESG integration: the systematic and explicit inclusion by investment managers of environmental, social and governance factors into financial analysis.
Sustainability themed investing: investment in themes or assets specifically related to sustainability (for example clean energy, green technology or sustainable agriculture).
Impact/community investing: targeted investments, typically made in private markets, aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose.
Corporate engagement and shareholder action: the use of shareholder power to influence corporate behaviour, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

Source: GSIR Review Report (2016).

Table 5: Targeted Development Investments in South Africa

TDI Funds	Classification	Fund Size (R'm)
Momentum MoM Supernation Fund	Pooled	22.3
Stanlib Wealth Development Fund	Pooled	42.4
Mergence SRI Fund	Pooled	173.3
Element Earth Equity	Unit Trust	55.3
Futuregrowth Development Equity Composite	Pooled	1 855.4
Oasis Crescent Equity Fund	Unit Trust	6 452.8
Oasis Crescent International Feeder Fund	Unit Trust	1 297.3
Mergence ESG Equity Fund	Segregated	361.5

OMIG Alternative Investments Ideas Fund	Pooled	8 564.6
Community Growth Gilt Fund	Unit Trust	175.6
Futuregrowth Infrastructure and Development Bond Fund	Pooled	12 535.6
Mergence High Impact Debt Fund	Pooled	148.9
Prescient Clean Energy Fund	Pooled	497.8
Futuregrowth Community Property Fund	Pooled	2 500.1

Source: Alexander Forbes TDI Manager Survey Report, March 2017.

Appendix 2

TABLE 9.1: MILLENNIUM DEVELOPMENT GOALS (SELECTED INDICATORS)

■ Unlikely to be achieved ■ Likely to be achieved ■ Achieved

INDICATORS	1994 baseline (or nearest year)	Current status (2013 or nearest year)	2015 target	Rating
Proportion of population living below \$2.50 per day	42.4 (2000)	29.2 (2011)	21.1	
Share of the poorest quintile in national consumption	2.9 (2000)	2.7 (2011)	5.8	
Employment-to-population ratio	44.1 (2001)	40.8 (2011)	50-70	
% of employed people living below \$1 per day	5.2 (2000)	3.9 (2009)	0	
Prevalence of underweight children under five years of age (%)	13.2 (1993)	8.3 (2008)	4.7	
Adjusted net enrolment ratio in primary education:				
Male	96.5 (2002)	98.9 (2011)	100	
Female	96.8 (2002)	99.2 (2011)	100	
Proportion of learners starting grade 1 who reach last grade of primary:				
Male	89.2 (2002)	93.4 (2012)	100	
Female	90.1 (2002)	96.1 (2012)	100	
Literacy rate of 15–24 year-olds:				
Male	83.3 (2002)	90.7 (2011)	100	
Female	88.4 (2002)	94.6 (2011)	100	
Female share of non-agricultural wage employment	43 (1996)	45 (2012)	50	
Proportion of seats held by women in national parliament (%)	25 (1996)	44 (2009)	50	
Under 5 mortality rate (per 1 000 live births)	59 (1998)	53 (2010) ^y	20	
Infant mortality rate (per 1 000 live births)	54 (1998)	38 (2010) ^y	18	
Immunisation coverage under one year old (%)	66.4 (2001)	92.8 (2011)	100	
Life expectancy at birth:				
Male	50.0 (2002)	56.8 (2012)	70	
Female	55.2 (2002)	60.5 (2012)	70	
Maternal mortality ratio per 100 000 live births	150 (1998)	269 (2010) ^y	38	
Antenatal care coverage (at least one visit and at least four visits) (%)	76.6 (2001)	100.6 (2011)	100	
HIV prevalence among population aged 15–24 years (%)	9.3 (2002)	7.3 (2012)	4.2	
Proportion of population with advanced HIV infection with access to antiretroviral drugs (%)	13.9 (2005)	75.2 (2011)	80	
Death rates associated with tuberculosis per 100 000 population	147 (2002)	49 (2011)	<147	
Death rates associated with malaria per 100 000 population	459 (2000)	72 (2012)	229	
Proportion of terrestrial areas protected (% of total)	5.18 (1994)	6.71 (2012)	17 (2020)	
Proportion of marine areas protected (% of total)	No data	7.34 (2012)	10 (2020)	
Proportion of population using an improved drinking water source (%)	76.6 (1996)	90.8 (2011)	88.3 (2015)	
Proportion of population using an improved sanitation facility (%)	49.3 (1996)	66.5 (2011)	74.65	

^y Estimates based on mortality data from the Civil and Registration and Vital Statistics Systems (CRVS) data.

Figure 1: Millennium Development Goals
Source: *The Presidency Report (2014)*.

Appendix 3

Table 1: Targeted Development Investments – Fund Definitions and Investment Mandate

Fund Category	Portfolio Name	Fund Mandate	Fund Classification	Fund Size (R'm) - As at Dec 2017	Benchmark
Balanced	Momentum MoM Supernation Fund	The portfolio consists of two active cash mandates - Prescient SRI Credit Quant Plus Fund (60%) and Atlantic Impact Fund (40%). Prescient takes advantage of SRI Investment Opportunities in the money and bond markets. SRI being defined as projects that support economic development in underdeveloped areas and contribute towards equitable access to economic resources. Atlantic Impact Fund provides investors the benefits of liquidity with a positive societal effect. The portfolio has maximum 15% of unlisted exposure.	Pooled	24,6	CPI+5%
Balanced	Stanlib Wealth Development Fund	This portfolio is equity-specific, with the majority of the portfolio invested in unlisted and unquoted equity structures, geared towards socially-responsible investment projects. These include infrastructure creation and broad-based black economic empowerment projects.	Pooled	12,9	CPI+2%
Equity	Element Earth Equity Fund	An actively managed equity general fund that invests in listed and unlisted financial instruments.	Unit Trust	257,7	FTSE/JSE All Share Index
Equity	Futuregrowth Development Equity Composite (Formerly known as the Futuregrowth Infrastructure and Development Equity Fund)	A portfolio that specialises in equity and related investments in socially responsible projects, businesses or development assets. The composite aims to provide investors with a vehicle that facilitates infrastructural, social, environmental and economic development in Southern Africa whilst maintaining a high degree of exposure to development assets and delivers on a variety of social impact requirements such as job creation, affordable housing, access to services and healthcare.	Pooled	1817,6	CPI+10%
Equity	Oasis Crescent Equity Fund	The Oasis Crescent Equity Fund provides investors with the opportunity to invest in Shari'ah compliant equities that are listed on the stock exchange in South Africa. It seeks to provide long-term growth, while providing a level of volatility that is lower than its peers. The portfolio is actively managed and relies on the detailed independent analysis of the Oasis research team that seek to identify a well-diversified selection of undervalued equity instruments that will provide consistent earnings growth in the near future.	Unit Trust	5833,8	Average Shariah General Equity
Equity	Oasis Crescent International Feeder Fund	The Oasis Crescent International Feeder Fund is a Shari'ah compliant rand denominated global general equity fund that invests in the Oasis Crescent Global Equity Fund. Hence, the assets of the portfolio are largely held by the offshore fund, which invests in various global equity instruments that are listed on international stock exchanges. The primary objective of this investment product is to achieve medium to long-term growth in US dollars.	Unit Trust	1314,0	Average Shariah Foreign Equity
Alternatives	OMIG Alternative Investments IDEAS Fund	Is a fund that invests in economic infrastructure (roads, bridges, power and gas and rail), social infrastructure (affordable housing, office accommodation and prisons) and renewable energy (wind farms and solar plants).	Pooled	9632,9	CPI+7%
Fixed Interest	Futuregrowth Infrastructure and Development Bond Fund	The composite invests in a wide range of debt instruments including those issued by government, parastatals, corporates as well as securitised assets. The composite aims to provide investors with a vehicle that facilitates infrastructural, social, environmental and economic development in Southern Africa whilst maintaining a high degree of exposure to development assets and delivers on a variety of social impact requirements such as job creation, affordable housing, access to services and healthcare.	Pooled	14103,5	All Bond Index
Fixed Interest	OMIG Community Growth Gilt Fund	To invest funds into longer term, fixed interest instruments with an emphasis on institutions and projects that contribute to the development of South Africa through meaningful social impact, commitment to development, community participation and support.	Segregated	183,3	BEASSA adjusted with the management fee for OMIG Community Growth Gilt Fund
Property	Futuregrowth Community Property Fund	A portfolio specialising in the acquisition of new and existing shopping centres which cater to the needs of the underserved communities throughout South Africa and forms part of Futuregrowth suite of development investments.	Pooled	3140,2	CPI+4%

Source: Compiled by researcher from the fund fact sheets.

Table 2: Index Definitions

FTSE/ JSE All-Share Index (JALSH)	FTSE/JSE Africa All Shares Index is a market capitalization-weighted index. Companies included in this index make up the top 99% of the total pre free-float market capitalization of all listed companies on the Johannesburg Stock Exchange.
MSCI Emerging Markets Index (Mxef)	The MSCI Emerging Markets Index captures large and mid cap representation across 26 Emerging Markets (EM) countries*. With 1,202 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.
FTSE Emerging Index (FTAG01)	FTSE Emerging Markets indices are part of the FTSE Global Equity Index Series (GEIS). The series includes large and mid cap securities from advanced and secondary emerging markets,classified in accordance with FTSE's transparent Country Classification Review Process. The FTSE Emerging Index provides investors with a comprehensive means of measuring the performance of the most liquid companies in the emerging markets.
MSCI KLD 400 Social Index (KLD400 Index)	The MSCI KLD 400 Social Index is a capitalization weighted index of 400 US securities that provides exposure to companies with outstanding Environmental, Social and Governance (ESG) ratings and excludes companies whose products have negative social or environmental impacts. The parent index is MSCI USA IMI, an equity index of large, mid and small cap companies. The Index is designed for investors seeking a diversified benchmark comprised of companies with strong sustainability profiles while avoiding companies incompatible with values screens. Launched in May 1990 as the Domini 400 Social Index, it is one of the first SRI indexes.
FTSE Environmental Opportunities Index (EOAS)	Indexes within this series measure the performance of global companies that have significant involvement in environmental business activities, including renewable and alternative energy, energy efficiency, water technology and waste and pollution control. Companies are required to have at least 20% of their business derived from environmental markets and technologies in order to be eligible for the FTSE Environmental Opportunities Index Series.

Source: Compiled by researcher from information from the index websites.

Table 3: Skewness and Kurtosis

Fund Name	Mean	Standard Deviation	Skewness	Kurtosis
Momentum MoM Supernation Fund	0,10	0,09	-1,137006536	1,795064623
Stanlib Wealth Development Fund / Liberty Corporate Wealth Development Fund	0,12	0,16	1,480057859	0,587086129
Element Earth Equity Fund	0,06	0,15	-0,23676066	0,924562777
Futuregrowth Development Equity Composite (Formely known as the Futuregrowth Infrastructure and Development Equity Fund)	0,13	0,05	0,418197712	5,130287332
Oasis Crescent Equity Fund	0,08	0,14	-1,313766402	1,594069734
Oasis Crescent International Feeder Fund	0,10	0,21	0,959821228	2,998707647
OMIG Alternative Investments IDEAS Fund	0,14	0,04	-1,051826468	0,428845119
Futuregrowth Infrastructure and Development Bond Fund	0,11	0,07	-0,569100514	-1,078241346
OMIG Community Growth Gilt Fund	0,09	0,08	-0,557208011	0,395205716
Futuregrowth Community Property Fund	0,12	0,05	1,36136489	2,112602784
Averages for TDI Funds	0,11	0,10	-0,06	1,49

Source: Compiled by the researcher.

Appendix 4: Inflation, Risk Free Rates, and Volatility Tables

Table 1: T-Bill Rates and Inflation Rates

Year	T-Bill Rates	Inflation Rates
2008	10,84%	10,04%
2009	7,14%	7,30%
2010	5,60%	4,08%
2011	5,47%	5,01%
2012	5,07%	5,73%
2013	5,24%	5,78%
2014	6,12%	6,14%
2015	6,89%	4,15%
2016	7,64%	6,59%
2017	7,49%	5,19%

Source: Compiled by the researcher.

Table 2: Portfolio Volatility Rates

TDI Fund Name	Fund Category	Proxy Volatility Rates		
		2011*	2014**	2017***
Momentum MoM Supernation Fund	Balanced	9,93%	6,55%	7,10%
Stanlib Wealth Development Fund	Balanced	13,47%	12,53%	17,72%
Element Earth Equity Fund	Equity	11,10%	10,60%	13,06%
Futuregrowth* Development Equity Composite	Equity	5,42%	6,35%	6,05%
Oasis Crescent Equity Fund	Equity	11,70%	8,92%	9,59%
Oasis Crescent International Feeder Fund	Equity	14,83%	11,62%	15,08%
OMIG Alternative Investments Ideas Fund	Alternatives	5,70%	7,53%	8,11%
Futuregrowth Infrastructure and Development Bond Fund	Fixed Interest	4,90%	6,31%	8,00%
OMIG Community Growth Gilt Fund	Fixed Interest	5,51%	6,67%	8,33%
Futuregrowth Community Property Fund	Property	2,45%	1,38%	8,24%

Source: Compiled by the researcher.