DBSA

Infrastructure as An Asset Class

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Acronyms

AIIF : Africa Infrastructure Investment Fund

CRISA : Code for Responsible Investing in South Africa

DB   : Defined Benefit

DBSA : Development Bank of Southern Africa

DC   : Defined Contribution

FSCA : Financial Sector Conduct Authority

G20   : Group of Twenty

GDP : Gross Domestic Product

GEPF : Government Employees Pension Funds

ICT   : Information and Communications Technology

IDA   : International Development Association

IDC   : Industrial Development Corporation of South Africa

JSE   : Johannesburg Stock Exchange

KeNHA : Kenya National Highway Authority

MTBPS : Medium Term Budget Policy Statement

NDP : National Development Plan

OECD : Organisation for Economic Co-operation and Development

PIC   : Public Investment Corporation

SDGs : Sustainable Development Goals

SPV   : Special Purpose Vehicle

SWFs : Sovereign Wealth Funds

Abstract

The objectives of this paper are to reflect and assess what it would mean to define infrastructure as an asset class and to analyse the regulatory changes that are under way to allow institutional investors to play a larger role in infrastructure investment. Research has shown that positioning infrastructure as an asset class is key to unlocking institutional investment into infrastructure and fostering economic growth. Investment features of infrastructure include attractive returns and long-term predictable cash flows which are inflation hedged. Returns exhibit low sensitivity to volatility and have low default rates. These features are aligned to the investment needs of institutional investors such as pension funds and sovereign wealth funds, and as such offer a great investment opportunity for them.

Infrastructure also has economic characteristics such as a high barrier to entry, economies of scale and inelastic demand for services which all contribute to making infrastructure a unique investment prospect for public and private investors. The research has also analysed regulatory changes to Regulation 28 under the South African Pension Funds Act 24 of 1956 that are intended to foster more investment into infrastructure by proposing an increase in the overall limit to investing in private equity. Positioning infrastructure as an asset does have positive implications for the DBSA as it crowds in investment into infrastructure projects and ultimately support economic growth and improve the standard of lives for all.

1. Introduction

Infrastructure is a key driver of economic growth and prosperity. It is important for the development, functioning and prosperity of a country and provides the underlying foundation for countries to thrive. Adequate infrastructure for proper water and sanitation, reliable and sufficient power supply, efficient transport networks and cutting-edge information and communication technology contributes to the sustainable and economic growth of countries (Arimah, 2016). It also promotes the competitiveness of local businesses, improve the productivity of workers, enhance investment and mobility within the country. Basic economic growth theory identifies different channels through which infrastructure can positively impact economic growth. These channels include infrastructure as a factor of production as well as a complement to other factors of production. Infrastructure is a stimulus to aggregate demand as well as a stimulus to factor accumulation and infrastructure as a tool of industrial policy.

While the G20 has highlighted the importance of infrastructure for growth and development, the world however still faces a massive gap in financing for investment in new and existing infrastructure. This is generating a major bottleneck to economic growth and development or provisions of secure and reliable public services. As such the G20 has stressed the need to scale up infrastructure investment through exploring innovative mechanisms to crowd-in private capital (OECD, 2018).

One such innovation is the classification of infrastructure as an asset class, to attract investment from institutional investors. Institutional investors are constantly searching for stable opportunities that can match their long-term liabilities. Positioning infrastructure as such an opportunity will go a long way in attracting more investment. As such, the objective of this paper is to reflect on this area and assess what it would mean to define infrastructure as an asset class. The focus of the study will primarily be in South Africa and the regulatory changes that are under way to allow institutional investors to play a larger role in infrastructure investment.

2. Background

Although infrastructure investment has garnered attention in recent years, there is no generally agreed definition of infrastructure. Infrastructure is mainly regarded as longer-lived capital-intensive structures, systems and facilities that contribute to the function of a country (Stupak, 2018). In an investment context, infrastructure can refer to either economic or social infrastructure. Economic infrastructure refers to infrastructure that promotes economic activity such as roads, airports, telecommunications, electricity, water supply and sanitation. Social infrastructure refers to facilities supporting education, health care and social welfare (Inderst, 2010). However, the definition of infrastructure can also imply platforms such as the legal system and the financial system. This introduces some ambiguity in the definition which might affect the risk-returns profile and diversification potential of infrastructure investment.

The Global Infrastructure Outlook (2021) has shown that the global forecasts for infrastructure investment trends is $79 trillion, while the investment needed is $94 trillion, which amounts to an investment gap of $15 trillion. Gross fixed capital formation as a percentage of GDP in South Africa was 13 percent in 2021, which is significantly lower than the average of 21,8 percent in low- and middle-income countries and 22,2 percent in high income countries (World Bank Development Indicators, 2022).

Figure 1: Infrastructure investment at current trends and needs
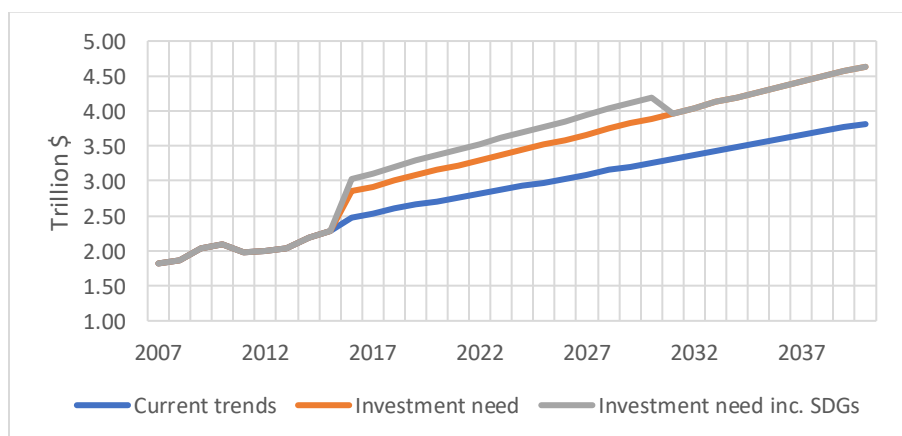
Source: Global Infrastructure Outlook (2021)

In South Africa, investment in public infrastructure has been consistently lower than the National Development Plan (NDP) targets of 10 percent of GDP from 2010. Since the advent of the COVID-19 pandemic the levels of investment dropped to 7,1 percent in the 4th quarter of 2020 (Industry Insight, 2021). The NDP has stated that gross fixed capital formation needs to reach about 30 percent of GDP by 2030, with public sector investment reaching 10 percent of GDP to realise a sustained impact on growth and household services. However, gross fixed capital formation in South Africa decreased sharply by 14,6 percent in 2020 (see Figure 2) and all sectors of the economy recorded lower fixed investment spending with construction decreasing by 14,2 percent (IDC, 2021). Although gross fixed-capital formation has improved marginally in 2021, it remains well below pre-pandemic levels. In the second quarter of 2021, investment amounted to about 14 percent of GDP following a 13-year decline since 2008. Private investment, the largest component of fixed capital formation, has been slow to recover from the lows of 2020 (MTBPS, 2021).

Figure 2: Gross fixed capital formation constant 2015 prices for South Africa
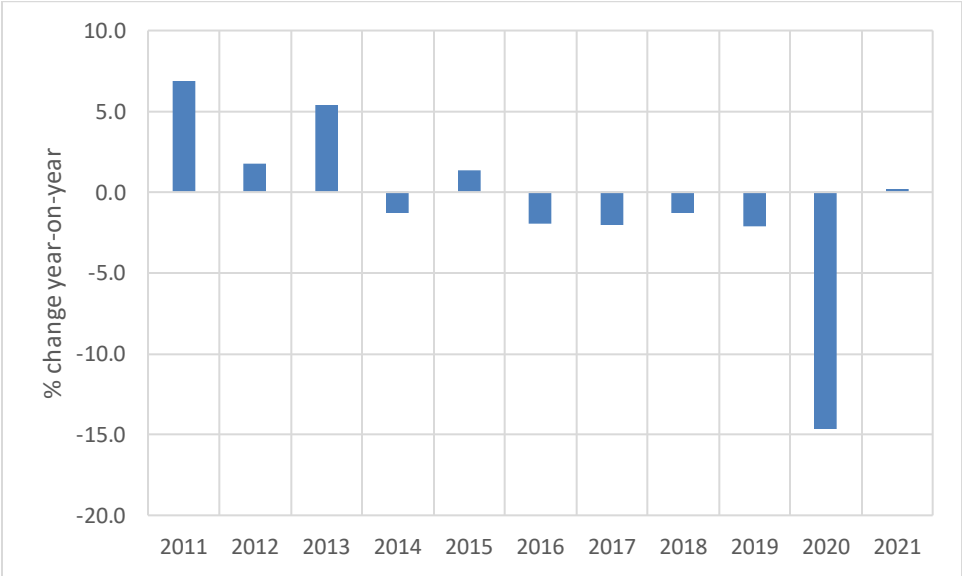
Source: StatsSA, 2022

Institutional investors such as pension funds, insurance companies and sovereign wealth funds alongside the government are becoming increasingly invested in the provision of capital to infrastructure funds and projects. The finance industry positions infrastructure

as a new alternative asset class which is different from standard assets such as equities and bonds. Unlike equities and bonds, it would deliver new sources of stable returns and better diversification of risk (Andonov, et al., 2018). Investors are interested in purchasing infrastructure assets to diversify their portfolios due to the low correlation of infrastructure with traditional asset classes. The Australian investment banks in the mid 1990 were the first to establish specialist infrastructure funds in which local pension plans were investors. The same trend was also observed in Canadian pension plans and the interest has been growing since (Inderst, 2010). The remainder of the paper will be divided into the following sections. Firstly, the methodology followed in this research will be outlined, secondly, a discussion of the findings, thirdly, a case study analysis and lastly the conclusions and limitations of the study will be tabled.

3. Methodology

The methodology followed in addressing the objectives of the study embodies the following two approaches. Firstly, a systematic review of existing literature regarding infrastructure as an asset class was conducted. Secondly, case studies were conducted which focused on pension funds, sovereign wealth funds and other institutional investors who have invested in infrastructure and analyse key factors that could have prompted these investments. The case studies include South Africa's Public Investment Corporation's (PIC), Nigeria's Viathan Funding Plc and the Kenya's Nairobi-Nakuru-Mau Summit Road. The PIC is chosen as a case study as it is Africa's largest asset manager with over R2.3 trillion assets under management. The Viathan Funding Plc and the Nairobi-Nakuru-Mau Summit Road have also been selected because they have the second and third largest pension fund assets under management in Africa (Bright Africa, 2018). The choice of these specific case studies in each of the three countries for this research was also based on the availability of data.

4. Discussion of findings

4.1 The emergence of infrastructure as a financial product

The infrastructure investment gap cannot be fully financed by traditional sources of public finances alone. The impact of the COVID-19 pandemic has exacerbated the situation by reducing the scope for public investment in infrastructure within government budgets which has resulted in seeking more private sector participation. Economic infrastructure is more likely to generate commercial returns on investment and attract private finance, whereas the obligation for social infrastructure is primarily to meet social needs. Returns for social infrastructure often do not cover the costs and as such investment is typically financed by the public sector. However, both economic and social infrastructure are important foundations for long-term sustainable development.

The investment characteristics of infrastructure are generally associated with predictable and stable cash flows which are inflation hedged over a long-term period. Infrastructure as an asset also exhibits low sensitivity to volatility as well as low default rates. Infrastructure also has economic characteristics such as a high barrier to entry, economies of scale and inelastic demand for services. Infrastructure also has low operating costs, high target operating margins and a long duration, which all contribute to making infrastructure a unique investment prospect for public and private investors. Infrastructure investments provide liability matching for investors like pension funds which invest more in long-term results and defined outcomes as opposed to speculative short-term results which are prone to high volatility (Croce, 2011).

4.2 Infrastructure risk and rewards

Due to the heterogeneous nature of infrastructure, investors are provided with a range of risk and return profiles within the asset class (Sharma, 2013). Figure 3 is an illustration of the expected risk and rewards associated with various assets. As can be seen, investment in infrastructure development such as greenfield developments is expected to

have the highest returns but also the highest risk. These can include new toll roads, power plants, airports, desalination, and rail infrastructure.

Investment in brownfield assets is associated with lower risk and returns as compared to greenfield assets. These can include seasoned toll roads, social infrastructure, electricity generation, gas processing and ports. Since institutional investors prefer investments with low risk, brownfield assets are more popular amongst them. Generally, returns to infrastructure assets, especially in the network sectors, have low return volatility due to their monopolistic nature, relatively inelastic consumer demand for services and high barriers to entry. There are other risks associated with investing in infrastructure such as government regulations, political factors, construction process, liquidity, and currency risk.

The OECD (2015) classified the three main infrastructure investment risks as political and regulatory, macroceconomic, business and technical. Political and regulatory risk arises from government actions such as changes in policies and regulations which can adversely impact infrastructure investments. In general, political risk is difficult to price into infrastructure finance as it is highly subjective and difficult to quantify. Macroeconomic and business risks arise from the volatility of industries and the economic environment. It is manifested in variables such as inflation, real interest rates and exchange rate fluctuations. A principal business risk of an asset can be the asset's exposure to the business cycle (shifts in demand) and financial risks such as debt maturity. Technical risks are associated with construction, skills of the operators and managers, and project complexities.

Figure 3: Infrastructure Risk/Reward Profile
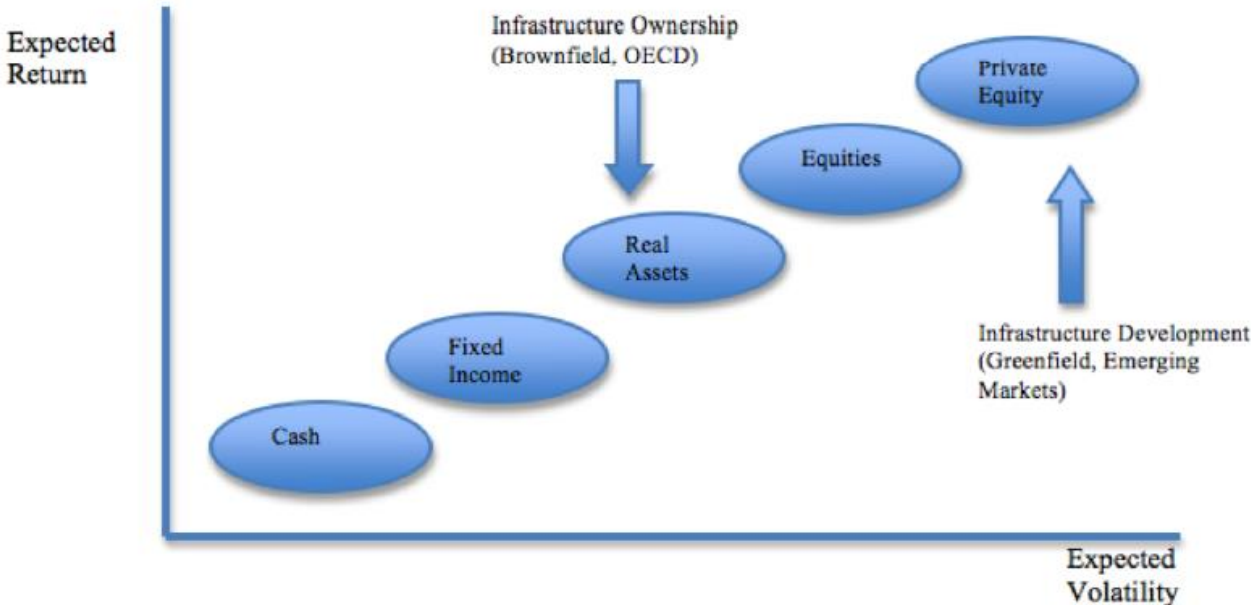
In order to mitigate risk, governments should create a more conducive institutional environment by providing compensations that increase returns to investors and make the investment more attractive (OECD, 2015). Governments can also minimize the magnitudes of political and regulatory risk by honouring the terms of the agreements and developing reliable guidance on construction costs and tariffs. To mitigate business risk in infrastructure investment, the transparency and availability of information to forecast revenue and cost and to effectively manage operations is paramount for investors to make informed investment decisions. Technical risks can be mitigated through the know-how of specialized operators and could be co-managed with the private sector in order to generate an incentive for effective project delivery.

4.3 Infrastructure investment vehicles

Investments in infrastructure can be channeled through multiple investment vehicles. The main investment vehicles are equities and bonds. With these approaches there are several direct, indirect, listed, and unlisted channels through which an investment can be

made (Figure 4 and 5). The vehicle selected for investment will therefore depend on several factors linked to a particular investor's mandate, risk appetite and investment horizon (Rajiv, 2013).

4.3.1 Equity

Figure 4: Investment channels through equities

Sources: Adapted from Rajiv (2013) and Inderst and Stewart (2014)

Investment through listed equities has traditionally been popular for energy and transport companies. Infrastructure projects have historically been run and operated mainly by publicy-listed companies including construction and engineering groups. The structure of listed infrastructure funds is such that an external manager invests on behalf of investors in various infrastructure assests. The assets invested in by the fund may or may not be listed even though the fund is publicly listed. The listed infrastructure index funds have also given retail and institutional investors an opportunity to invest in well-established stock market indices which contain listed infrastructure companies. In South Africa, the Satrix global infrastructure exchange traded fund which is trading on the Johannesburg Stock Exchange has offered investors an investment vehicle that gives them exposure to

a diversified portfolio of the largest and most liquid infrastructure companies in developed and emerging markets (JSE, 2021).

However, in recent years, new investment vehicles such as unlisted equities and mutual funds were created for those not able or willing to make their own investments (Croce, 2011). Unlisted equities refer to equity investment in a company that is not listed on a stock exchange and the value of the company is therefore not directly affected by stock market sentiment. Direct investments in infrastructure typically exhibit lower correlation with traditional asset classes and can provide a useful hedge against volatility in other asset classes. Infrastructure funds have gained popularity amongst investors as they enable them to invest in a range of diversified projects to spread their risk (Pautz, et al., 2018). Investors in these funds invest as limited partners as the fund is managed by the general partner which is often an investment bank or management firm. The general partner then invests contributions to the fund in various infrastructure assets on behalf of the limited partners.

4.3.2 Debt

Infrastructure debt investing provides investors with two approaches, through the capital markets or private debt. In the post-financial crisis era infrastructre debt funds have increased in prominence as a contraction in credit markets has made sourcing long-term funding for both new developments and asset refinancing difficult (Rajiv, 2013). Such funds offer investment in assets that are relatively safe but offer a yield higher than government bonds and are inflation-adjusted. Investing in the capital markets offers either direct or indirect investments in instruments such as corporate bonds in infrastructure companies, government backed securities, municipal bonds and infrastructure bonds earmarked to specific infrastructure projects. There is also an investment opportunity in investing in Public Private Partnerships bonds and also in investing in Private debt which involves institutional investors extending loans to infrastructure companies and projects.

Figure 5: Investment channels through debt
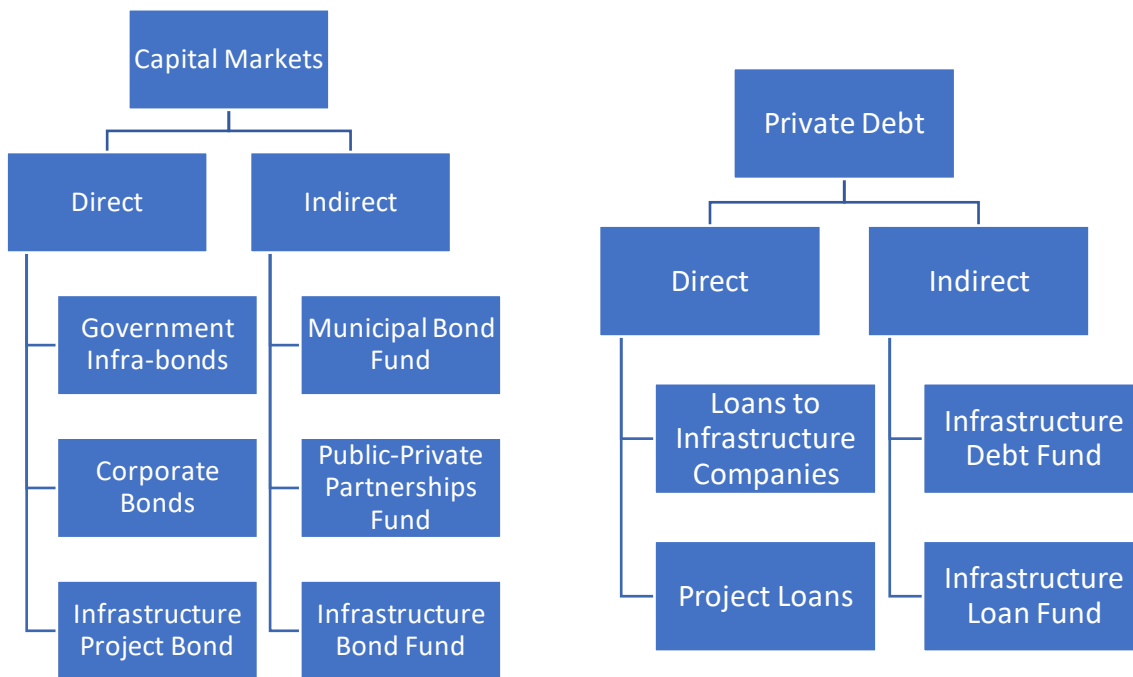
Sources: Adapted from Rajiv (2013) and Inderst and Stewart (2014)

4.4 Methods of Investment

The methods of investment into infrastructure can take many forms as can be seen in Figure 6. The choice between direct and indirect investing depends largely on the institutional investors' internal resource capabilities and their reliance on investment consultants or fund managers. For indirect investing in unlisted equity, institutional investors such as pension funds invest in infrastructure assets through infrastructure fund managers and/or investment consultants. When investing through a fund manager, all the responsibilities of the investment fall onto the fund manager. The fund manager has a role to source appropriate assets to invest in on behalf of institutional investors, while the investment consultant usually provides advice to the institutional investor about infrastructure investing and which fund managers to choose.

Figure 6: Structural forms of the Infrastructure Investment Process
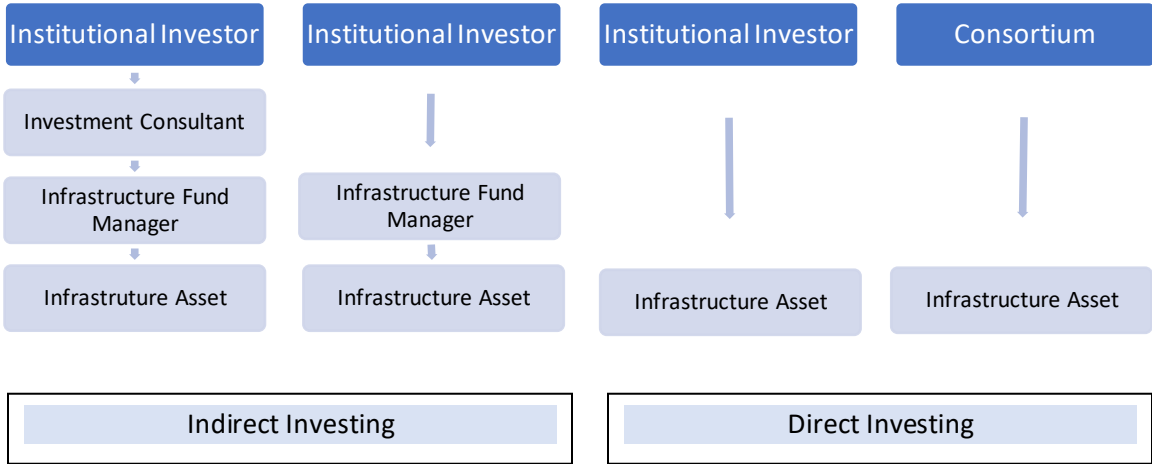
Sources: Adopted from Andonov, et al. (2018)

Regarding direct investing, institutional investors have in-house investment experts who source infrastructure assets to invest in and maintain. In this case, consultants and fund managers are usually not required as the institutional investor has the requisite capability and capacity. Direct investment can also be made alongside co-investment partners in a consortium consisting of other institutional investors and infrastructure fund managers (Rajiv, 2013). In a consortium, the largest institutional investor leads the transaction, and the equity arrangement of the investors varies from asset to asset.

4.5 Categorizing infrastructure as a societally beneficial asset class

Investing in infrastructure is inherently beneficial for society as it supports service delivery and the well-being of society. Infrastructure such as roads, railways, airports, and harbours facilitate the safe movement of people and goods between communities and provides a link between underdeveloped parts of a country into the global economy. In South Africa, cable theft and spare parts shortages have paralysed the railway networks. Approximately 200 of Transnet's new locomotives are lying dormant because of the inability to get spares and overhead cable theft (Illidge, 2021). This highlights the importance of not only investing in transport infrastructure but also maintaining and

protecting it. Investing in infrastructure allows the movement of goods and services quickly and at a lower cost, which will result in both lower prices for consumers and increased profitability for firms.

South Africa is currently experiencing its worst energy crisis with the power producer, Eskom, implementing multiple stages of loadshedding to cope with the increased energy demand in the country (Writer, 2021). This has had an adverse impact on the economy as the power industry, including generation, transmission, and distribution, form an integral part of the economy. Without adequate investment and a reliable power supply, the economy is unable to thrive.

South Africa is also facing a water crisis, which includes challenges such as the amount available, the unequal distribution, the access to clean water, the quality and state of water infrastructure, droughts and corruption that have affected municipal treatment plants resulting in sewage flows into streets, rivers, and groundwater (Adam, 2021). Water infrastructure relates to the delivery, treatment, supply, and distribution of water to its users as well as for the collection, removal, treatment and disposal of sewage and wastewater (Sharma, 2013). Investment into water infrastructure is therefore essential in any community, to maintain human dignity and ensure protection of the aquatic ecosystem. In a recent research paper commissioned by the DBSA it was found that the average annual capital and operating cost required to achieve the SDG water and sanitation infrastructure is between R121 billion and R131 billion (DBSA, 2022).

4.6 The role of institutional investors in infrastructure financing

An institutional investor is a company or organization that pools money and invests it on behalf of clients or members (Chen, 2021). Institutional investors encompass large organisations such as finance companies, pension funds, insurance companies, mutual funds, and unit trusts. However, this study focuses mainly on the role of pension funds and sovereign wealth funds. The pension funds industry has become the largest source of savings in the global economy and plays an important role in supporting investments

through their ability to pool stable, long-term savings and direct these into appropriate investments to generate a return. As can be seen in Figure 7, assets in retirement savings topped USD 56 trillion worldwide at the end of 2020.

Factors that have contributed to the upward trend of pension fund assets include the evolution of people having a pension plan, their contributions, the benefits that these plans pay to retirees and the financial performance of pension assets. There are two kinds of pension plans, funded and unfunded pension plans. Unfunded pension plans are social security systems whereby the pensions of the retirees are paid from the contributions of the current working population (Kagan, 2021). As no money is set aside, there needs to be enough people working to make contributions to pay for those who have retired. This might be problematic because current working population can retire early and as such there may be a current working population that is smaller than the retired population. On the other hand, funded pension plans require the employee and the employer to set aside money each month so that the contributions can be invested, and a return earned to fund employee retirement (Kagan, 2021).

The structure of pension funds affects the attractiveness of infrastructure investment. Most pension funds are either defined benefit (DB) or defined contribution (DC). In a define benefit (DB) plan the employee's pension benefit entitlement is determined by a formula which considers years of service for the employer and, in most cases, salaries and wages. Under a defined contribution (DC) plan, each employee has an account into which the employer and, if it is a contributory plan, the employee makes regular contributions. The benefit levels depend on the total contributions and investment earnings of the accumulation in the account (Bodie, et al., 1988).

Figure 7: Retirement assets in the OECD area and in other jurisdictions in USD trillion
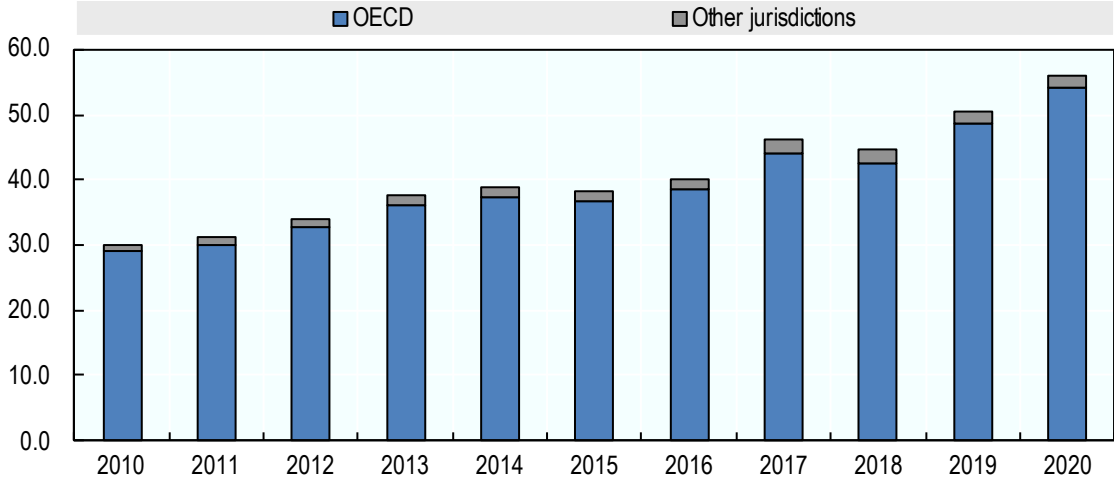
Source: OECD Global Pension Statistics (2020)

The extended life of infrastructure and long-term nature of the concession rights for associated investments make them a suitable match for long-term liabilities of a pension fund. Due to the monopolistic nature of infrastructure, which has a high barrier to market entry and inelastic demand for use of the asset, cash flows of infrastructure investments are normally stable and predictable. Cash flows such as user tolls, airline charges or rail tickets are often inflation linked which provides pension funds protection against volatility and inflation.

Pension funds can also invest in infrastructure to diversify risk, as the returns have a low correlation with returns of other asset classes (Rajiv, 2013). There are differences between DC and DB plans that affect their suitability to investing in infrastructure. The DC plan focuses on the value of the assets currently endowing a retirement account, while the DB plan focuses on the flow of benefits which the individual will receive upon retirement (Bodie, et al., 1988). During an employee's working life, the DB retirement benefits are implicitly indexed to inflation, which leads to greater benefits accruing towards the end of the employee's working life. On the other hand, DC plans are independent of inflation as employers can achieve any backloading pattern by choosing an appropriate pattern of contribution rates over the course of the employee's working life (Bodie, et al., 1988).

Therefore, DB plan administrators looking to match liabilities will be attracted to investing in greenfield infrastructure, as it is an asset with a long-term horizon, inflation linked and has volatility-protected cash flows. In contrast, the DC plan administrators prefer to invest in more liquid investments to be able to trade out their assets quickly and reduce the risk of losses. This raises a concern for DC plans as infrastructure assets might not be as liquid. As such, DB plan providers have invested more in infrastructure assets than DC plan providers (Rajiv, 2013).

Sovereign wealth funds (SWFs) are special-purpose investment funds or arrangements owned by a government whose purpose is either to ensure that a country's resources are preserved for future generations or to stabilize government fiscal and/or foreign exchange revenues and macroeconomic aggregates (OECD, 2015). Several African countries, especially those with oil and gas endowments, have established SWFs. These SWFs were established for the following reasons: accrual of savings, wealth diversification, economic stabilization, safeguards against economic shocks and domestic investments in line with their investment mandates (Pautz, et al., 2018). SWFs establish sub-funds that make direct investments in infrastructure to comply with their investment mandates. SWFs do not require high levels of liquidity and are more likely to invest in greenfield infrastructure, much like DB plans. They also generally take on more risk as they are not directly linked to individual employee pensions.

4.7 Key challenges for pension funds and SWFs investing in infrastructure

From an investment point of view, there are certain challenges and barriers that affect the willingness for institutional investors to invest in infrastructure. Institutional investors are subject to strict regulatory funding and solvency regimes and accounting rules (Inderst and Stewart, 2014). One of the key challenges for pension funds and SWFs is a limited number of financial instruments and funds regarding infrastructure. Many countries in Africa suffer from the lack of publicly listed infrastructure securities, which is a major constraint inhibiting investments. This can be attributed to the lack of developed capital markets with less liquidity which do not satisfy the preferences of institutional investors in

the continent (Pautz, et al., 2018). However, private equity infrastructure funds have become a more feasible option for investors to invest in as they have a proven track record.

Another challenge is the lack of expertise within the infrastructure sector. Since investing in infrastructure is a relatively new concept, institutional investors prefer to invest in traditional assets (government bonds, equities, and treasury bills) which they are more familiar with. Better understanding of infrastructure as an asset class is required by asset managers to overcome this hurdle. There is also the lack of political commitment over the long term as well as the lack of bankable infrastructure projects that are still prevalent. Project bankability is determined at an early stage and comes down to project preparation. Other government issues such as regulatory thresholds for infrastructure investments and high bidding costs do place barriers on institutional investors (Inderst and Stewart, 2014).

4.8 Role of regulatory frameworks in attracting investment in infrastructure

The Code for Responsible Investing in South Africa (CRISA) provides guidance on how institutional investors should execute investment analysis and investment activities and promote sound governance (National Treasury, 2021). Regulation 28 under the South African Pension Funds Act 24 of 1956 came into effect in July 2011 and included a new requirement for retirement funds to consider environmental and social issues in assessing factors that materially affect the sustainable long-term performance of retirement fund assets (National Treasury, 2021). Regulation 28 has been reviewed and amended in 2022 to encourage increased investment in infrastructure given the current low economic growth rate in South Africa.

Investing in infrastructure has been permitted under Regulation 28 though the regulation did not define infrastructure as a specific category. The amendment has introduced a definition of infrastructure to be able to measure the exposure of retirement funds to infrastructure assets (National Treasury, 2021).

The definition for infrastructure is any asset class that entails physical assets constructed for the provision of social and economic utilities or benefit for the public (National Treasury, 2021). The amendment also states that overall investment in infrastructure across all asset classes may not exceed 45 percent of the aggregate fair value of the total assets of the fund which also includes a limit of 10 percent in respect of infrastructure in the rest of Africa, while a 25 percent limit was also introduced per single issuer or project (National Treasuary, 2021).

To further increase infrastructure investment, the asset category relating to "hedge funds, private equity funds and other assets not referred to in the schedule" has been split into "hedge funds", "private equity" and "any other assets not listed in this schedule" as stand-alone asset classes. After this split, the overall limit for private equity funds has been proposed to increase from 10 percent to 15 percent (National Treasury, 2021). The increase in private equity limits is due to several studies which concluded that private equity investments in infrastructure have a positive impact on the economy and help in diversifying project risk between project sponsors (Amardien and Gillmer, 2021).

5. Case Studies

5.1 Viathan Funding SPV (Infrastructure Bond)

Viathan Engineering Limited, which is owned by the private equity firm Synergy Private Equity, issued Nigeria's debut 10-year corporate infrastructure bond in local currency to raise 10 billion naira at a yield of 16 percent to fund power assets in January 2018 (Reuters, 2018). The Viathan group specializes in captive and embedded power generation, providing modular, last-mile, scalable power-as-a-service to the end user quicker, cheaper, and more efficiently to governmental, industrial, commercial, and other service markets (Viathan, 2021). The Viathan bonds were raised through Viathan Funding Plc, which is a special purpose vehicle established to raise the debt capital.

Figure 8 is the transaction structure diagram, which shows that Viathan Funding Plc issued bonds to investors and the repayment obligations on the bonds under the programme was the joint and several obligations of the co-obligors ("borrowers") contracting as primary obligors to the bonds alongside the SPV under the programme trust geed. The net proceeds under the programme are passed through and/or advanced to the co-obligors under the terms of the trust deed and/or a Master Intercompany Loan Agreement as specified in the applicable final terms. The co-obligors, directly on a joint and several bases, make full payment to the interests and principal due on the bonds to bondholders pursuant to the trust deed via the payment account held by the bond trustee.

The Viathan bonds were backed by an irrevocable and unconditional guarantee of InfraCredit. This is 'AAA' long term national scale rated infrastructure credit enhancement facility established as a commercial entity by the Nigeria Sovereign Investment Authority and GuarantCo to provide guarantees to enhance the credit quality of local currency debt instruments issued to finance eligible infrastructure assets in Nigeria (Viathan, 2018).

InfraCredit acted as a catalyst to attract institutional investors such as pensions and insurance firms and as such the Viathan bonds were subscribed by twelve pension funds and two insurance firms (Reuters, 2018). A total of NGN 10,5 billion was raised resulting in a 105 percent subscription and the nominal yield of the bonds was 16 percent (Viathan, 2018). The proceeds from the bonds were intended to be used to expand the power generation capacity by 7,5 MW and build a compressed natural gas plant. This is seen as a good opportunity for a long-term investment with a good return (16 percent nominal yield) (Pautz, et al., 2018).

Figure 8: Transaction Structure Diagram
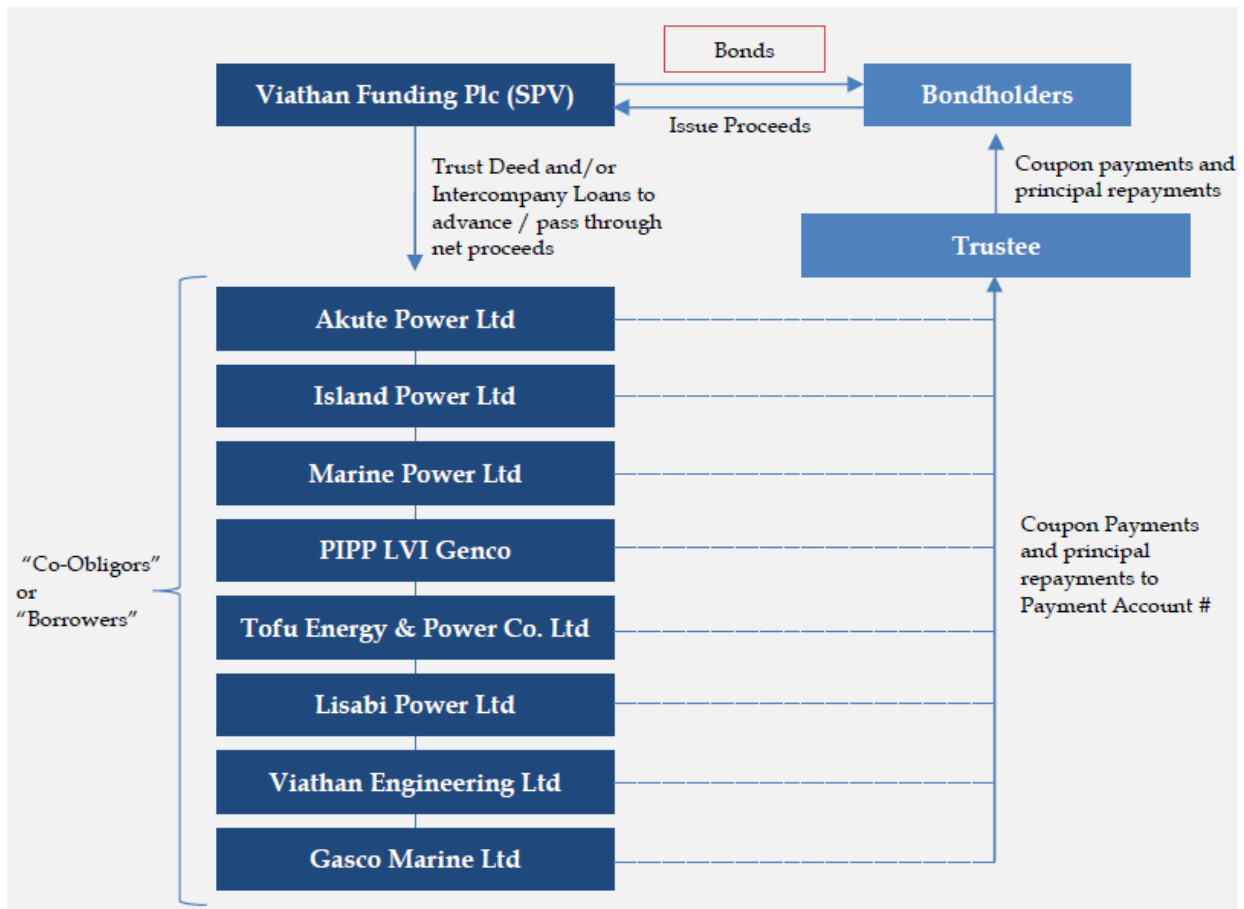
Source: Viathan Funding PLC (2018)

This case study shows that positioning infrastructure as an asset class by issuance of infrastructure bonds can increase investment into infrastructure. This is evidenced by the over subscription of the Nigeria's debut 10-year corporate infrastructure bond. The investment characteristics include stable and guaranteed returns which is also a good diversification strategy for investors.

5.2 Nairobi-Nakuru-Mau Summit Road

The Nairobi-Nakuru-Mau Summit Road project is an expansion of and improvement to an existing highway in Kenya. The highway connects the Port of Mombasa via Nairobi to Malaba, near the Uganda border (Kenya Treasury, 2016). Because of the worsening conditions of the road due to the increased traffic on the road, the government of Kenya, through the contracting authority, Kenya National Highway Authority (KeNHA), aims to improve the road through a public private partnership scheme.

KeNHA has designed the project as a 30-year design-build-finance-operate-maintain and transfer arrangement. The concessionaire will use a special purpose vehicle (SPV) to improve and widen the road. KeNHA intends to make regular performance related service payments to the SPV which will be stated in the project agreement and a National Toll Fund will be responsible for collecting tolling revenues (KeNHA, 2018).

Nine Kenyan pension plans formed a coalition to invest in local infrastructure and the first project which the consortium has considered to invest in is the Nairobi-Nakuru-Mau Summit Road. The consortium intends to invest a combined equivalent of USD 70 million in local currency to the project once the contract is awarded (Jacobius, 2018). The project is a very attractive investment opportunity for institutional investors as it is an International Development Association (IDA) guaranteed product. The IDA guarantee aims to mitigate the risk of payment default either by the National Toll Fund or by the Government of Kenya to the SPV. Another key aspect that has made this investment attractive to institutional investors was that there is a high demand for the road due to its location and the project is led by partners with extensive experience in infrastrcuture projects (Pautz, et al., 2018).

The project is to be led by French Infrastructure firm Vinci and was expected to begin in September 2021, however, construction on the project has been delayed due to delays in finalizing funding and concluding contracts (Ngugi, 2022). This case study shows that positioning infrastructure as an asset class by positioning the Nairobi-Nakuru-Mau

Summit Road infrastructure project as an investment product with stable returns, increases investment within the infrastructure project.

5.3 Public Investment Corporation (PIC) and Government Employees Pension Fund (GEPF)

The Public Investment Corporation (PIC) is responsible for investing on behalf of its largest institutional investor, the South African Government Employees Pension Fund (GEPF) (PIC, 2022). The PIC has invested R160 million in the Africa Infrastructure Investment Fund (AIIF) which was established in 1999 and mandated to develop and manage private equity infrastructure funds designed to invest in long-term institutional unlisted equity projects (GEPF, 2020).

The PIC has also invested $21 million in the Convergence Partners Communication Infrastructure Fund which was established in 2012 and is one of the largest funds dedicated solely to ICT infrastructure in Africa (GEPF, 2020). The PIC also manages the Isibaya Fund, which was established in 1999 to invest in projects that will have a positive social impact on ordinary people. It is targeted at providing finance for projects that support the long-term economic, social and environmental growth of South Africa and the rest of the African continent (PIC, 1999).

This case study shows that positioning infrastructure as an asset class by the establishment of infrastructure equity funds provides institutional investors with an opportunity to increase their exposure into infrastructure. The PIC, on behalf of the GEPF has invested in multiple infrastructure funds across Africa.

5.4 Comparative analysis of the case studies

The three case studies show three different investment channels through which institutional investors can invest in infrastructure. The first is investment into an infrastructure bond. This is a direct investment approach through capital markets (debt

investing). To mitigate the risk associated with investing in capital markets, the bonds were guaranteed.

The second investment channel is direct investment into a specific infrastructure project. This can be regarded as an unlisted equity investment. The project is an IDA guaranteed product which aims to mitigate the risk of payment default.

The third investment channel is investing into an infrastructure fund. This can be regarded as an unlisted equity investment into infrastructure. This investment is different from the other two as the fund invests in multiple long-term institutional unlisted equity projects. The other two case studies focused on specific infrastructure projects. Investing into an infrastruture fund does have its advatanges as it allows for investment into a wider range of infrastructure projects across the continent. This allows for improved infrastructure development across the continent. However, investing directly into a specific infrastructure projects allows for better risk mitigation and better monitoring of the projects' success. Ultimately, all investment channels into infrastructure lead towards infrastructure development and should be explored.

6. Implications for the DBSA

The legislative amendments introduced a definition of infrastructure and set a limit of 45 percent for exposure to infrastructure investment. The limit for investing in infrastructure through private equity has also been increased from 10 to 15 percent. The total assets of non-bank financial institutions is estimated to be around R14,6 trillion, of which only 22% is in interest bearing instruments compared with 53% in equities (SARB, 2022). Institutional investors such as pension funds and insurers have a combined total assets of around R10,2 trillion, and as such, the new amendments have the potential to unlock over R4,5 trillion in infrastructure investment exposure. They also have the potential to unlock around R1,5 trillion into infrastructure investment through private equity (see Table 1).

Table 1: Selected Non-bank Financial Institutions

R Million	Total Assets	15% limit for Private Equity	45% limit to exposure to Infrastructure Assets
Public Investment Corporation	2,321,995.00	348,299.25	1,044,897.75
Life insurers	3,878,253.00	581,737.95	1,745,213.85
Non-life insurer	337,752.00	50,662.80	151,988.40
Official retirement funds (minus PIC)	96,439.00	14,465.85	43,397.55
Private retirement funds	3,583,061.00	537,459.15	1,612,377.45
Total	10,217,500.00	1,532,625.00	4,597,875.00

Source: Author calculation using SARB Quarterly Bulletin (2022)

It was estimated that before the amendment of Regulation 28, some retirement funds invested between 30 and 50 percent of their total assets in infrastructure. ASISA has reported that at the end of 2021, its membership had invested into unlisted infrastructure to the value of R97,6 billion, which was made up of 1/3 equity and 2/3 debt. Their members have further exposures to listed state owned enterprises and local authority bonds to the value of R181 billion (ASISA, 2021). With the new regulations, the FSCA believs that potential investment into infrastructure could be be up to R2.2 trillion. Currently, the DBSA JSE bonds are held by a number of different bond holders including pension funds. In line with the new amendments to Regulation 28, it can be expected that more institutional investors will play a larger role in investing in infrastructure as an asset class.

7. Limitations

The main limitation of this study was the non-responsivenes of potential respondents during the data gathering process as none of the requested interviews were conducted. However, given that this study is pivoted on the systematic review methodology, much of the data was sourced from existing literature.

8. Conclusion

This research has shown that positioning infrastructure as an asset class is key to unlocking institutional investment into infrastructure and fostering economic growth. The main objective of the paper was to reflect and assess what it would mean to define infrastructure as an asset class and to analyse the regulatory changes in South Africa to allow institutional investors to play a larger role in infrastructure investment. The paper analysed the features of infrastructure as an asset and aligned them with the investment needs of institutional investors such as pension funds and SWFs. These features include attractive returns, long-term and predictable cash flows which are inflation hedged over a long-term period.

Infrastructure as an asset exhibits low sensitivity to volatility in the economy as well as low default rates. Infrastructure has economic characteristics such as a high barrier to entry, economies of scale and inelastic demand for services which all contribute to making infrastructure a unique investment prospect for public and private investors. Pursuing this aggressively will have positive implications for the Bank as it will crowd in investment into infrastructure projects and ultimately support economic growth and improve the standard of lives of people.

9. References

Adam, F., 2021. *Government must urgently deal with South Africa's deepening water crisis.* [Online]
Available at: https://www.dailymaverick.co.za/article/2021-04-29-government-must-urgently-deal-with-south-africas-deepening-water-crisis/
[Accessed January 17 2022].

Africa, B., 2018. *Africa's pension fund assets.* [Online]
Available at: https://brightafrica.riscura.com/sources-of-capital-on-the-continent/pension-funds/africas-pension-fund-assets/
[Accessed 21 March 2022].

Amardien, N. & Gillmer, J., 2021. *Cliffe Dekker Hofmeyr.* [Online]
Available at: https://www.cliffedekkerhofmeyr.com/en/news/publications/2021/Private/private-equity-11-november-regulation-28-of-the-pension-funds-act-second-draft-amendments-published-by-the-national-treasury-for-public-comment-.html#:~:text=While%20investment%20in%20i
[Accessed 31 January 2021].

Andonov, A., Kräussl, R. & Rauh, J., 2018. The Subsidy to Infrastructure as an Asset Class. *Center for financial studies Working paper series,* Volume 599.

Andonov, A., Kräussl, R. & Rauh, J., 2018. The Subsidy to Infrastructure as an Asset Class. *Center for Financial Studies,* Issue 599.

Arimah, B., 2016. Infrastructure as a Catalyst for the Prosperity of African Cities. *Procedia Engineering,* Volume 198, p. 245 – 266.

ASISA, 2021. *ASISA: The Association for Savings and Investment South Africa.* [Online]
Available at: https://www.asisa.org.za/statistics/industry/
[Accessed 4 August 2022].

Asisa, 2022. *Atleha-edu.* [Online]
Available at: https://www.asisa.org.za/media/hjhplilc/atleha-edu_6-infrastructure-short-articles_final.pdf
[Accessed 4 July 2022].

Bank, W., 2019. *Beyond the Gap – How Countries Can Afford the Infrastructure They Need while Protecting the Planet.* [Online]
Available at: https://www.worldbank.org/en/topic/publicprivatepartnerships/publication/beyond-the-gap---how-countries-can-afford-the-infrastructure-they-need-while-protecting-the-planet
[Accessed 23 November 2021].

Bank, W., 2022. *world-development-indicators.* [Online]
Available at: https://databank.worldbank.org/source/world-development-indicators#
[Accessed 7 July 2022].

Bodie, Z., Marcus, A. J. & Merton, R. C., 1988. Defined Benefit versus Defined Contribution Pension Plans: What are the Real Trade-offs?. *National Bureau of Economic Research,* pp. 139 - 162.

CHEN, J., 2021. *Institutional Investor Investopedia.* [Online]
Available at:
https://www.investopedia.com/terms/i/institutionalinvestor.asp#:~:text=Key%20Takeaways-,An%20institutional%20investor%20is%20a%20company%20or%20organization%20that%20invests,subject%20to%20less%20regulatory%20oversight.
[Accessed 18 January 2022].

Croce, R. D., 2011. "Pension Funds Investment in Infrastructure: Policy Actions. *OECD Working Papers on Finance, Insurance and Private Pensions,* Volume 13.

DBSA, 2021. *DBSA Launches Green Bond.* [Online]
Available at: https://www.dbsa.org/press-releases/dbsa-launches-green-bond
[Accessed 29 June 2022].

DBSA, 2022. *Going beyond the Infrastructure Funding Gap: A South African Perspective Final Water and Sanitation Sector Report,* Midrand: Development Bank of Southern Africa and World Bank.

GEPF, 2020. *Government Employees Pension Fund.* [Online]
Available at: https://www.gepf.gov.za/wp-content/uploads/2020/07/Investment-Leaflet_Equity-Projects.pdf
[Accessed 4 February 2022].

GEPF, 2020. *INVESTING IN ICT AFRICA'S FOUNDATIONS OF KNOWLEDGE ECONOMY Why GEPF invests in ICT Infrastructure?.* [Online]
Available at: https://www.gepf.gov.za/wp-content/uploads/2020/07/Investment-Leaflet_ICT.pdf
[Accessed 4 February 2022].

GIO, 2021. *Global Infrastructure Outlook.* [Online]
Available at:
https://outlook.gihub.org/?utm_source=GIHub+Homepage&utm_medium=Project+tile&utm_campaign=Outlook+GIHub+Tile
[Accessed 23 November 2021].

Illidge, M., 2021. *Cable theft and spare parts shortage paralyse South African railways mybroadband.* [Online]
Available at: https://mybroadband.co.za/news/motoring/428006-cable-theft-and-spare-parts-shortage-paralyse-south-african-railways.html
[Accessed 17 January 2022].

Inderst, G., 2010. Infrastructure as an asset class. *EIB Papers, ISSN 0257-7755, European Investment Bank,* 15(1), pp. 70-104.

Inderst, G. & Stewart, F., 2014. Institutional Investment in Infrastructure in Emerging Markets and Developing Economies. *Public–Private Infrastructure Advisory Facility World bank Group.*

JACOBIUS, A., 2018. *Kenyan pension funds band together for infrastructure investment.* [Online]

Available at: https://www.pionline.com/article/20180917/PRINT/180919869/kenyan-pension-funds-band-together-for-infrastructure-investment
[Accessed 3 February 2022].

JSE, 2021. *Exposing investors to a diversified portfolio of the largest and most liquid companies in emerging markets.* [Online]
Available at: https://www.jse.co.za/news/market-news/satrix-lists-global-infrastructure-etf-jse
[Accessed 11 January 2022].

KAGAN, J., 2021. *Unfunded Pension Plan.* [Online]
Available at: https://www.investopedia.com/terms/u/unfunded-pension-plan.asp#:~:text=An%20unfunded%20pension%20plan%20is,payments%20as%20they%20become%20necessary.
[Accessed 18 January 2022].

KeNHA, 2018. *PROPOSED DEVELOPMENT, OPERATIONS AND MAINTENANCE OF THE NAIROBI - NAKURU – MAU SUMMIT (A8) HIGHWAY (PPP) PROJECT.* [Online]
Available at:
https://www.jica.go.jp/english/our_work/social_environmental/id/africa/kenya/c8h0vm0000fhihet-att/c8h0vm0000fhihiu.pdf
[Accessed 3 February 2022].

MTBPS, 2021. *MEDIUM TERM BUDGET POLICY STATEMENT.* [Online]
Available at: http://www.treasury.gov.za/documents/mtbps/2021/mtbps/FullMTBPS.pdf
[Accessed 23 November 2021].

NationalTreasury, 2021. *Financing a Sustainable Economy Technical Paper ,* Pretoria: s.n.

NGUGI, B., 2022. *AfDB to lend Sh17.5bn for Nakuru-Nairobi road as 10 financiers line up.* [Online]
Available at: https://www.businessdailyafrica.com/bd/economy/afdb-to-lend-sh17-5bn-for-nakuru-nairobi-road-as-10-line-up-3839464
[Accessed 30 June 2022].

OECD, 2015. *RISK AND RETURN CHARACTERISTICS OF INFRASTRUCTURE INVESTMENT IN LOW INCOME COUNTRIES.* [Online]
Available at: https://www.oecd.org/g20/topics/development/Report-on-Risk-and-Return-Characteristics-of-Infrastructure-Investment-in-Low-Income-Countries.pdf
[Accessed 13 December 2021].

OECD, 2018. *ROADMAP TO INFRASTRUCTURE AS AN ASSET CLASS.* [Online]
Available at:
https://www.oecd.org/g20/roadmap_to_infrastructure_as_an_asset_class_argentina_presidency_1_0.pdf
[Accessed 11 November 2021].

Pautz, M. et al., 2018. INFRASTRUCTURE AS AN ASSET CLASS IN AFRICA. *SOUTH AFRICAN INSTITUTE OF INTERNATIONAL AFFAIRS GEG Africa.*

PIC, 1999. *ABOUT ISIBAYA.* [Online]
Available at: https://isibayafund.pic.gov.za/Pages/About-Us.aspx
[Accessed 9 February 2022].

PIC, 2022. *Public Investment Corporation.* [Online]
Available at: https://www.pic.gov.za/
[Accessed 4 February 2022].

PLC, V. F., 2018. *Viathan Funding PLC N50,000,000,000 MEDIUM TERM NOTE PROGRAMME.* [Online]
Available at: https://www.fmdqgroup.com/wp-content/uploads/2018/01/Viathan-Funding-Plc_Final-Shelf-Prospectus_vFinal.pdf
[Accessed 1 February 2022].

Rajiv, S., 2013. The potential of private institutional investors for the financing of transport infrastructure. *International Transport Forum Discussion Paper, No. 2013-14.*

Reuters, 2018. *Private equity-backed Viathan issues Nigeria's debut 10-year guaranteed naira bond.* [Online]
Available at: https://www.reuters.com/article/nigeria-corpbonds-idUSL8N1OY3DM
[Accessed 1 February 2022].

SARB, 2022. *South African Reserve Bank Quarterly Bulletin.* [Online]
Available at: https://www.resbank.co.za/content/dam/sarb/publications/quarterly-bulletins/quarterly-bulletin-publications/2022/june/07Statistical%20tables%20Capital%20Market.pdf
[Accessed 7 July 2022].

Sharma, R., 2013. *Infrastructure: an emerging asset class for institutional investors,* s.l.: Global Projects Center Stanford University.

Stupak, J. M., 2018. *Economic Impact of Infrastructure Investment,* s.l.: Congressional Research Service.

Treasuary, N., 2021. *Regulation 28 Amendment Government Gazette 29 October 2021.* [Online]
Available at:
http://www.treasury.gov.za/publications/other/Reg28/Regulation%2028%20second%20draft%20for%20comment.pdf
[Accessed 31 January 2021].

Treasury, K., 2016. *Nairobi–Nakuru–Mau Summit Highway Projects: Information.* [Online]
Available at:
http://www.treasury.go.ke/tenders/Project%20Information%20Memorandum%20Nairobi%20Nakuru.pdf
[Accessed 3 February 2022].

Viathan, 2021. *Viathan Engineering.* [Online]
Available at: https://www.viathan-ng.com/about/
[Accessed 1 February 2022].

Writer, S., 2021. *Load shedding in South Africa is inevitable: Ramaphosa.* [Online]
Available at: https://businesstech.co.za/news/energy/541566/load-shedding-in-south-africa-is-

inevitable-ramaphosa/
[Accessed 17 January 2022].

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