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SOVEREIGN WEALTH FUNDS AND INFRASTRUCTURE DEVELOPMENT IN AFRICA

Abstract:

Sovereign wealth funds (SWFs) are increasingly becoming major sources of finance in many African countries. This paper analyses the potential role that SWFs could play in financing infrastructure development in Africa. The paper documents the state of infrastructure and its financing needs in Africa, dissects the anatomy of sovereign wealth funds on the continent, and assesses the extent to which sovereign wealth funds can bridge the infrastructure financing gap. The analysis shows that Africa's infrastructure needs new sources of finance to cover the existing financing requirements. Although African SWFs are still small compared to those in other countries of the world, they have the potential to contribute meaningfully towards financing infrastructure development and fostering economic development in Africa. Putting in place favorable conditions for business and ensuring stable political and governance conditions can also attract global sovereign wealth funds to invest their massive resources in Africa. The paper also highlights some risks and opportunities for infrastructure investments on the continent.

Keywords:

Sovereign wealth funds, Infrastructure development, asset allocation

JEL Classification: E69, G15

1. Introduction

Sovereign Wealth Funds (SWFs) are increasingly becoming major players in international financial markets. Globally, assets under management by SWFs have grown rapidly in recent years, topping US$7.2 trillion in 2015, more than double the asset base in 2008 (Sovereign Wealth Fund Institute, 2015). About 57 percent of assets under management of SWFs are derived from oil and gas. African countries have also joined the bandwagon in establishing sovereign wealth funds in recent years and these now command an asset base of over US$159 billion (6.4 percent of Africa's GDP). The rapid growth of SWFs has been driven by high commodity prices since the early 2000s. The recent discoveries of oil, gas and solid minerals in many African countries (e.g. Kenya, Uganda, Tanzania, Mozambique and Guinea), coupled with strong economic growth in most countries, has also added impetus to the establishment of SWFs. Despite the plunge in oil and commodity prices since 2014, SWFs continue to increase in number and in assets under management.

The rapid growth of SWFs is coming at a time when the continent is experiencing infrastructure bottlenecks, which are constraining growth. The World Bank (2010) estimates that about US$93 billion is required annually to meet the continent's infrastructure needs, but only half of that amount is currently being met. Booming population growth and increasing life expectancy across the continent is pushing up demand for utilities such as water, power and roads, which few countries are providing in sufficient quantities. About 19 percent of roads in Sub-Saharan Africa are paved, compared with 27 percent in Latin America and 43 percent in South Asia. About 600 million people in Africa lack access to electricity, while the quality of port infrastructure remains a hindrance to trade integration. The poor state of infrastructure reduces growth by two percentage points every year and cut business productivity by as much as 40 percent (World Bank, 2010).

Accelerating Africa's growth hinges on closing the infrastructure gap, yet mobilizing finance for infrastructure development remains a daunting challenge. The scope for financing infrastructure from traditional sources is limited. Since the global financial crisis of 2008, governments have remained fiscally constrained, while the banking sector remains structurally weak, and capital markets are volatile. The investment potential of SWFs for financing Sub-Saharan Africa's infrastructure development has remained largely untapped, but could play an important role in closing the infrastructure gap.

This paper analyses the potential role of SWFs in financing infrastructure development in Africa. The literature on sovereign wealth funds in Africa is still scant and fragmented. This paper contributes to literature by bringing a unified structure to the analysis of the nexus between SWFs and infrastructure development in Africa. It also sheds light on the mechanisms through which SWFs can finance infrastructure development in Africa. The analysis shows that Africa's infrastructure needs new sources of finance to cover the existing financing requirements and African SWFs are well placed to bridge the financing gap.

The paper is structured as follows: Section 2 describes the current state of Africa's infrastructure, the projected needs, and the associated funding requirements. Section 3 highlights the mechanics of SWFs in Africa. Section 4 and 5 explores the dynamics of SWF asset allocation and possible infrastructure financing mechanisms from SWFs, while section 6 analyses the potential risks and opportunities for investing in Africa's infrastructure. Section 7 concludes and provides policy recommendations.

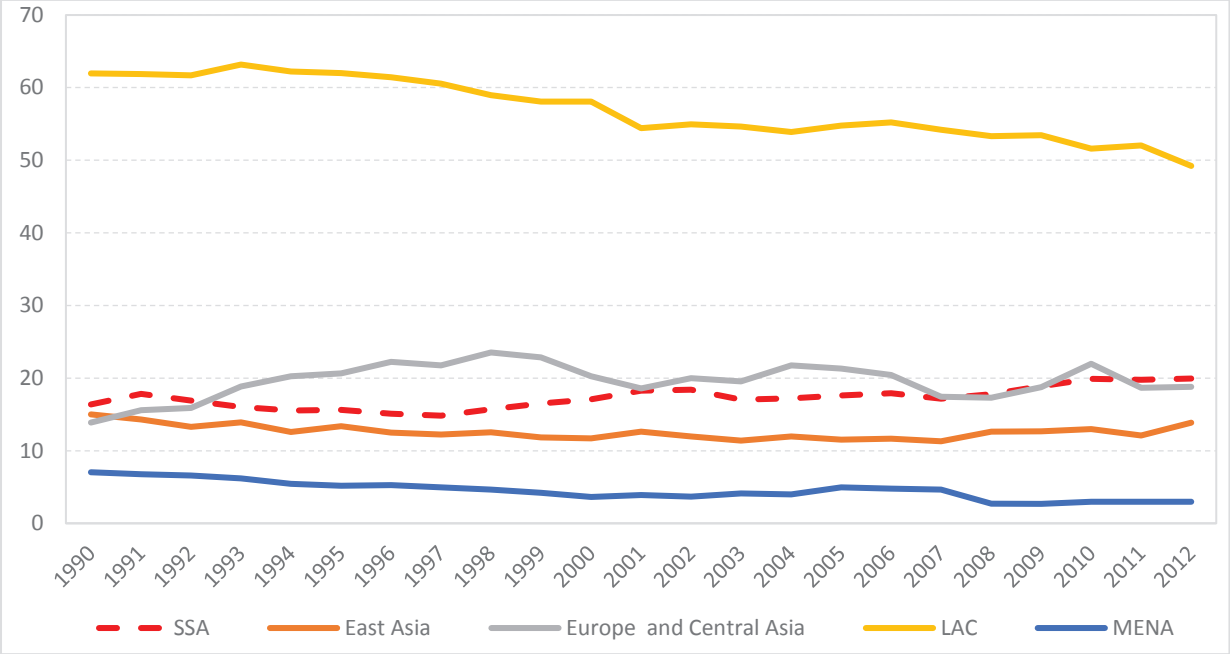
2. Infrastructure development in Africa

Africa's infrastructure stocks have lagged behind those of other developing countries for a long time, being characterized by missing regional links and low household access (Yepes et al., 2008). The difficult economic geography presents a particular challenge for the region's infrastructure development: low overall population density (36 people per square kilometer), rapid rates of urban growth (3.6 percent a year) and a relatively large number of landlocked countries, making intraregional connectivity very difficult (Foster and Briceno- Garmendia, 2010). Low population densities in many African cities makes the provision of infrastructure services more costly (estimated to be twice as much as in other developing cities), especially for power, water, road freight, mobile telephones, or Internet services (Dorosh et al. 2008).

Power is Africa's largest infrastructure challenge, with 30 countries facing regular power shortages and many paying high premiums for emergency power. According to the International Energy Agency Africa Energy Outlook 2014, about 57 percent of the population in Africa lack access to electricity in 2012. Hydropower production is roughly 20 percent of total electricity production, compared to Latin America with 49 percent (Figure 1). Electric power consumption, (which can proxy power generation capacity) is also remarkably low at 512 kWh per capita in SSA, while that of Latin America and East Asia is four and seven times more, respectively (Figure 2). Africa's firms lose five percent of their sales due to power outages - this figure rises to 20 percent for firms in the informal sector (Foster and Briceno-

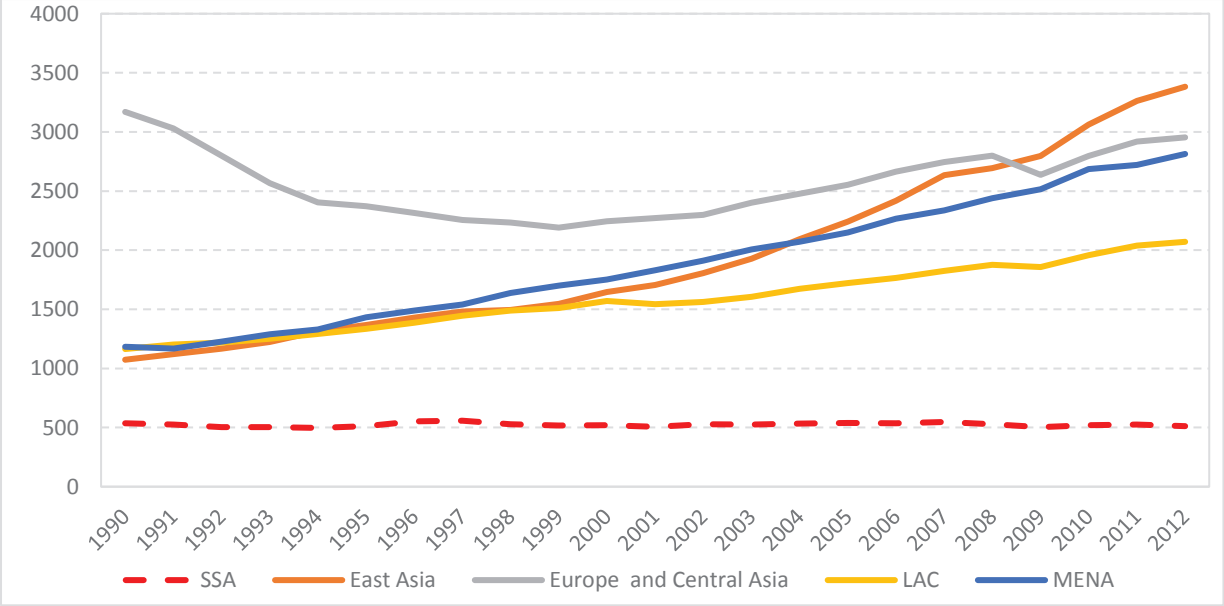
Garmendia, 2010). The overall economic costs of power outages can be as much as one to two percent of GDP. Yet Africa has very large untapped hydro-electric potential as well as gas, solar and wind resources.

Figure 1: Hydroelectric power production (percent of total)



Source: World Bank

Figure 2: Electric power consumption (kWh per capita).

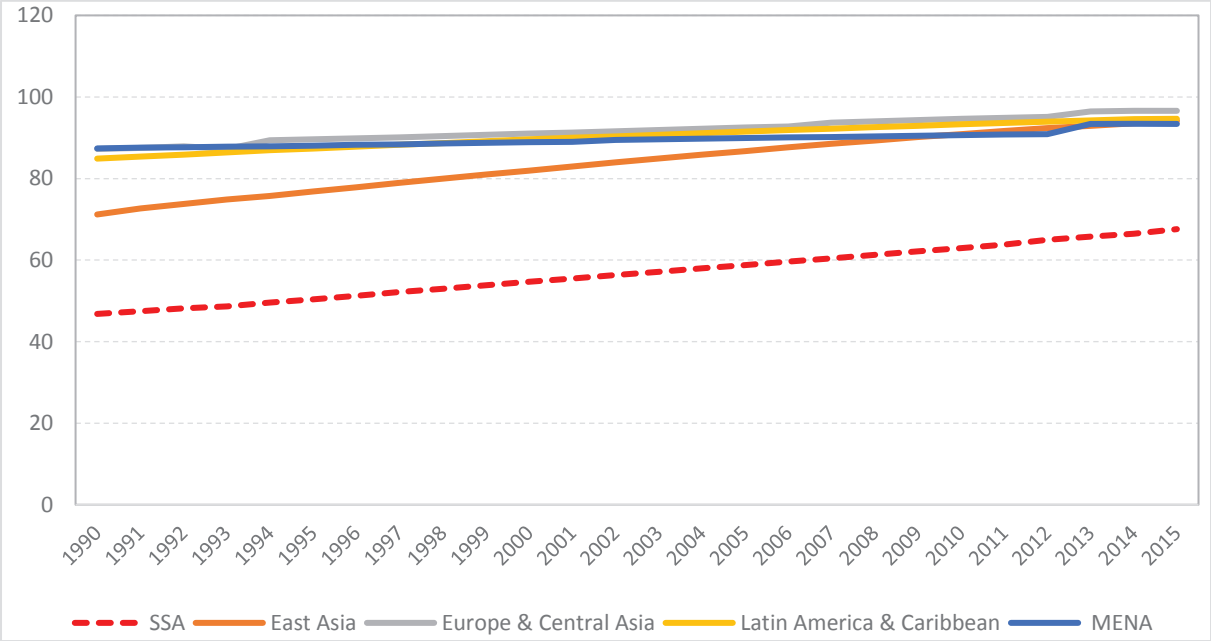


Source: World Bank

Water supply and sanitation and transport also constitute other infrastructure challenges. The proportion of people with improved water access is 68 percent in SSA compared with 94

percent in East Asia and 95 percent in Latin America. About 51.5 percent of the population has access to improved drinking water in Ethiopia, 49.6 percent in Madagascar and 49 percent in Mozambique, compared with 93.8 percent in Sri Lanka, 85 percent in Myanmar and 88 percent in Nepal. SSA also lags behind other developing countries on sanitation: 29 percent of the population have improved sanitation, while the average for developing countries is 61 percent (World Bank, 2014). The sanitation infrastructure is actually deteriorating in some regions as investment fails to keep up with population growth and maintenance requirements.

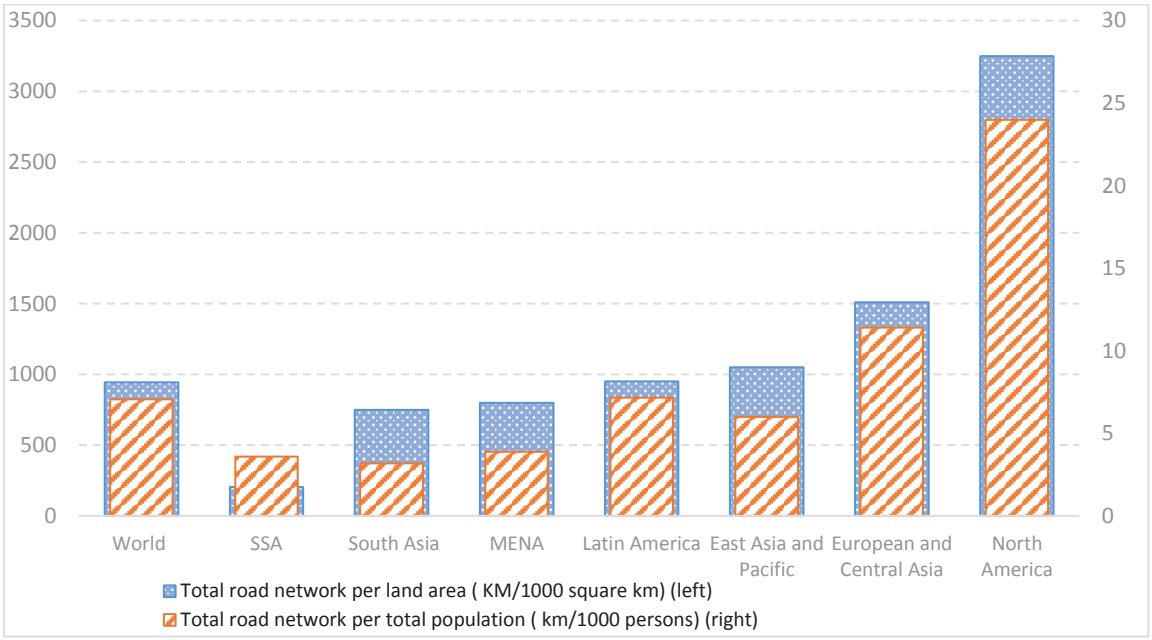
Figure 3: Improved water access (% of population)



Source: World Bank

19 percent of roads are paved in SSA compared with 27 percent in Latin America and 43 percent in South Asia (EIU, 2014). Only 30 percent of the rural population in Sub-Saharan Africa have access to all-season roads. Africa's national road density is also lower than that in other developing regions, with 204 kilometers per 1,000 square kilometers of land area with only one-quarter paved, and compared with a world average of 944 kilometers per 1,000 square kilometers, with more than half paved. The total road network for SSA is 3.6 kilometers per thousand persons, compared with a world average of 7.07 kilometers and Latin America with 7.15 kilometers (Figure 4). Spending on roads averages just below 2 percent of GDP (Gwilliam et al., 2008). The cost of transport is among the highest in the world: it takes about 30 days to export goods from SSA, and reducing delays by one day could raise exports by 7 percent.

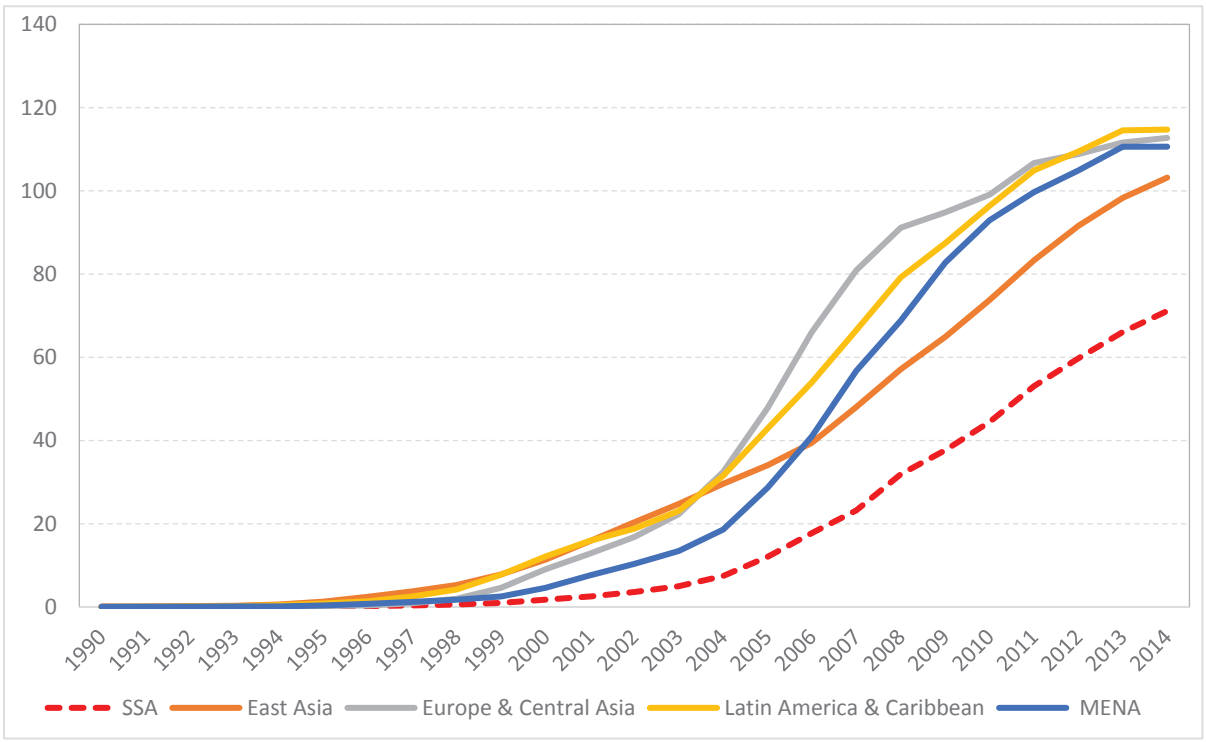
Figure 4: Road Network in world regions (per land area and per total population)



Source: Gwilliam et al, 2008

Figure 5 shows that Africa's rate of mobile phone subscriptions per 100 population increased significantly in the last few years. About 12 percent of the population held a subscription in 2005, while over 71 percent held a mobile subscription in 2014. However, it is still below other regions, as it failed to keep up with the rapid technological improvements elsewhere.

Figure 5: Mobile cellular subscriptions (per 100 people)



Source: World Bank

Infrastructure is central to Africa's development: It enhances productivity by connecting economic agents, reduces transaction costs, facilitating the flow of information, and integration of markets into global value chains and improving access to basic services. Several studies have confirmed the strong and significant connection between infrastructure development and economic growth (e.g. Calderon and Serven, 2010). Estimates show that the solid growth (averaging 4.7 percent) per over 2005- 2015 experienced by African countries, infrastructure was the second largest contributor to African GDP growth, after natural resources since 2002 (Africa Competitiveness Report, 2013). However, the contribution has been attributable to advances in a few sectors such as telecommunication services, compared to the quantity and quality of power infrastructure. Closing Africa's infrastructure financing gap is critical to the region's sustainable growth prospects.

The cost of addressing Africa's infrastructure needs has been estimated at $93 billion (15 percent of the region's GDP) a year, while about half of the amount required is currently being met. About two-thirds of funding is needed for capital expenditure, while one-third is needed for operations and maintenance. Close to 40 percent of the total spending is needed for power and half the power investment costs are for development of new generating capacity, while 15 percent (of the 40 percent) is for rehabilitation of existing generation and transmission assets. Installed capacity will need to grow by more than 10 percent annually (more than 7,000 megawatts a year) to meet Africa's demand. Since 1995, power has expanded by about 1 percent annually (less than 1,000 megawatts a year).

Foster and Briceno- Garmendia (2010) show that existing spending on infrastructure in Africa amounts to about $45 billion a year from various sources (fiscal, external financiers, private sector, and financial sector), implying an annual funding gap of US$48 billion. If major potential efficiency gains are considered, the infrastructure funding gap could be $31 billion (one-third of the infrastructure needs) a year and mainly in the power sector. Inefficiencies of various kinds costs the continent about $17 billion a year (Table 1). These relate to inappropriate allocations, low budget executions, revenue under-collection, distribution losses and poor maintenance.

Table 1: Infrastructure funding needs and funding gaps

Item	Power	ICT	Irrigation	Transport	Water and sanitation	Cross Sector Gain	Total
Infrastructure spending needs	(40.8)	(9.0)	(3.4)	(18.2)	(21.9)	n.a	(93.3)
Existing spending	11.6	9.0	0.9	16.2	7.6	n.a	45.3
Efficiency gap	6.0	1.3	0.1	3.8	2.9	3.3	17.4
Gain from raising capital execution	0.2	0.0	0.1	1.3	0.2	n.a	1.9
Gain from eliminating operational inefficiencies	3.4	1.2	-	1.9	1.0	n.a	7.5
Gain from tariff cost recovery	2.3	-	-	0.6	1.8	n.a	4.7
Potential for reallocation	n.a	n.a	n.a	n.a	n.a	3.3	3.3
Funding Gap	(23.2)	1.3	(2.4)	1.9	(11.4)	3.3	(30.6)

Source: Foster and Briceno-Garmendia (2010)

A large share of Africa's infrastructure is domestically financed, especially by the public sector (about two thirds), which is largely raised through taxes and user charges. The remaining $15 billion is financed by external and other sources, which includes overseas development assistance (ODA) from the Organization for Economic Co-operation and Development (OECD) countries, official finance from other bilateral partners (such as China, India, and the Arab states), and the private sector participation in infrastructure (PPI). ODA largely focuses on public goods with high social returns (e.g. roads and water supply) and to some extent energy, while other non-OECD bilateral partners have concentrated on energy (power generation and transmission) and transport infrastructure. PPI largely concentrates on the information and communication technology (ICT) sector, which arguably has high investment returns.

The traditional sources of infrastructure financing have been facing challenges since the global financial crisis, reducing scope for further infrastructure financing. Although domestic public finance is the largest source of infrastructure funding in SSA, for many countries (with the exception of resource-rich countries), there is not much scope for further increases in revenue to finance infrastructure. Public finances in Sub-Saharan Africa are characterized by weak tax revenue collection, while fiscal space is largely absorbed by recurrent expenditures (Foster and Briceno-Garmendia, 2010). Recent experiences indicate that infrastructure spending is particularly vulnerable to budget cuts during crisis periods.

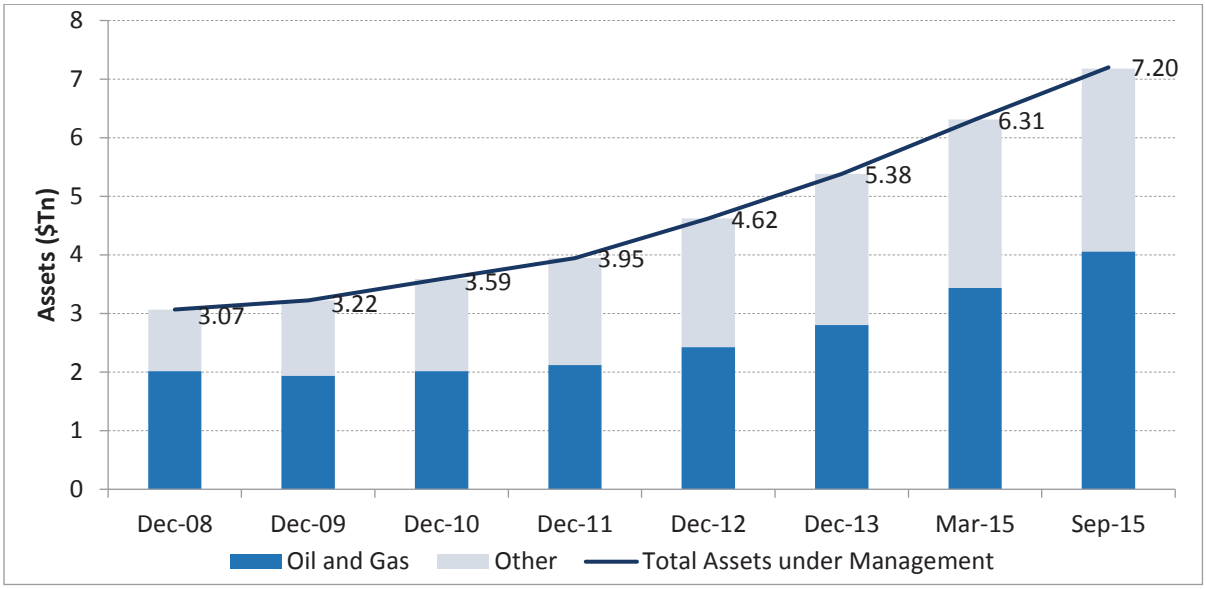
ODA to Africa depends on the economic performance of donor countries. With fiscal pressures in donor countries, ODA is likely to slow as recovery of the global economy remain tepid. Although infrastructure finance from non-OECD countries has been rising in recent years, it has largely focused on resource sectors. Private capital flows are susceptible to economic swings and global financial crises. The capacity of local banking systems remains too small and largely constrained by weak capitalization, liquidity challenges, asset-liability maturity mismatches, changing regulatory frameworks and other structural impediments to finance infrastructure. The World Bank estimates that only 10 percent of outstanding bank loans are for financing infrastructure investments in SSA. Capital markets have also remained limited in financing infrastructure as long-term maturity loans commensurate with infrastructure projects has remained scarce, while sovereign bonds largely depend on global financial architecture.

With over US$ 7.2 trillion in assets globally, sovereign wealth funds could be alternative sources of funding for infrastructure in Africa. Given the low interest rate environment in the global financial markets and the volatile stock markets, SWF are increasingly looking for new sources of long-term, inflation-protected investment returns and infrastructure investments in Africa can meet such objectives.

3. The anatomy of SWFs in Africa

SWF are commonly established from balance of payments surpluses, official foreign currency reserves, privatization and fiscal surpluses. Despite sustained global economic uncertainty, and recent declines in commodity prices, global sovereign wealth fund assets have increased from USD5.38 trillion in 2013 to US$7.2 trillion assets in 2015. While the biggest sovereign wealth funds are in Europe, Asia and the Middle East, African sovereign wealth funds have continued to grow in recent years. In 2009, assets under African SWF management were about US$114.27 billion but have increased to about US$159 billion in 2014. They are expected to grow further as more countries prepare to set up their own SWFs (African Capital Markets, 2015).

Figure 6: Total Assets under SWF Management in the world (US$ Trillion) 2008-2015



Source: Preqin, 2015

Africa is the most dynamic region of the world in terms of sovereign wealth fund creation. It had 19 sovereign wealth funds as of 2014 (Table 2). Before 2010, there were 10 sovereign wealth funds in Africa. Nine more SWFs were established in the last five years, including Ghana, Angola, Nigeria, Senegal, Rwanda, Tanzania, South Sudan, Kenya and Zimbabwe. Algeria`s Fonds de Regulation des Recettes, which was established in 2000 tops the list of SWFs in Africa with about US$77.2 billion in assets under management, followed by the Libyan Investment Authority (LIA) (set up in 2006), with an estimated US$67 billion of assets under management. The funds of these institutions is drawn from oil and gas. Algeria and Libya sovereign wealth funds, all from North Africa account for about 89 percent of SWF in Africa.

The Botswana Pula, established in 1994, is the oldest and third-largest SWF in Africa, with US$6.9 billion in assets, followed in the fourth place by the Fundo Soberano de Angola (2012) with an asset base of US$5 billion. Congo Republic and Senegal's SWFs have US$ 1.64 billion and US$1 billion, respectively. The sovereign wealth funds of Ghana and Nigeria (both based on oil) are among the smallest and relatively newest on the continent. Other countries with smaller SWFs include: Chad, Equatorial Guinea, Gabon, Kenya, Mauritania, Sao Tome and Prince Sudan and Tanzania, which all depend on commodities, especially oil and gas. Rwanda and Senegal SWFs do not depend on mineral commodities. A number of countries, including South Africa, Egypt, Namibia, Sierra Leone, Uganda, Zambia, Liberia, Mozambique and Mauritius, are candidates likely to establish SWFs soon.

Table 2: Sovereign Wealth Funds in Africa

Country	Name of SWF	Date of Establishment	Assets Under Management (US$ Billion)	Source of Funding
Algeria	Fonds de Regulation des Recettes	2000	77.2	Oil
Libya	Libyan Investment Authority	2006	67	Oil
Botswana	Pula Fund	1994	6.9	Diamonds
Angola	Fundo Soberano de Angola	2012	5	Oil
Congo Republic	Fonds de Stabilisation de Recettes Budgetaries	2005	1.64	Oil
Nigeria	Nigeria Sovereign Investment Authority	2012	1.4	Oil
Senegal	Senegal Fonsis	2012	1	Non Commodity
Gabon	Gabon Sovereign Wealth Fund	1998	0.4	Oil
Ghana	Ghana petroleum Funds	2011	0.54	Oil
Mauritania	National Funds for Hydrocarbon Reserves	2006	0.3	Oil and Gas
Equatorial Guinea	Future Funds for Generations	2002	0.08	Oil
Chad	Fonds de Stabilisation de Recettes Budgetaries	2006	0.03	Oil
Sao Tome and Prince	National Oil Account	2004	0.01	Oil
Sudan	Oil Revenue Stabilsation Fund	2008	0.2	Oil
Rwanda	Agaciro Development Fund	2013	0.041	Non-Commodities
Tanzania	Natural Gas Reserve	2013	-	Gas
Kenya	Kenya Sovereign Wealth Fund	2014	0.12	Minerals
South Sudan	Oil Revenue Stabilization and Future Generations Fund	2013	-	Oil
Zimbabwe	Zimbabwe Sovereign Wealth Fund	2014	-	Minerals

Sources: SWFI, 2015, ESADE geo (2015), Investment Frontier (2015), Sovereign Wealth Funds websites.

African SWFs are largely commodity based, with 14 being sourced from oil and gas, three from other minerals, and two from non-commodity sources. About 83 percent of African sovereign wealth fund assets are drawn from oil and 17 percent from minerals and other sources. Partly given their role in smoothing out economic and fiscal cycles, most African SWFs have at least a stabilization purpose. According to SWFI, African SWFs have low levels of transparency, as measured by the Linaburg-Maduell Transparency Index, compared to other SWFs of the world.

The motives of SWFs in Africa are very diverse, ranging from economic stabilization, intergenerational savings accumulation, buffers against economic shocks, and wealth diversification and domestic investment (e.g. in infrastructure). Economic stabilization

advances the goal of smoothing of revenues and expenditures which are associated with fluctuations in commodity prices. The stabilization mandate helps to manage and mitigate the effects of high volatility of government revenues and expenditures emanating from volatile natural resources revenues. For example, Algeria has used its sovereign wealth fund to fund fiscal deficits and repay public debt, while Mauritania withdrew about USD 45 million from its sovereign wealth fund to stimulate the economy during the financial crisis in 2009. Macroeconomic stabilization is the most common mandate of SWFs in Africa. The investment horizon of this mandate is usually short to medium term. Triki and Faye (2011) note that most African SWFs have prudent investment strategies with an emphasis on liquidity, reflecting mainly their stabilization mandates. However, most African SWF do not have clear fiscal rules to allow them to cover some fiscal deficits during economic downturns (Asafah, 2007).

The intergenerational savings motive focuses on building a reserve to provide for future generations when the resource has been depleted. Wealth diversification reflects the desire to minimize economic risks from volatile natural resource rents and prudent management of the country's assets. It aims to limit the adverse effects of a high degree of dependence on natural resources. The buffer objective represents self-insurance, capital preservation and liquidity concerns and is associated with short to medium term investment horizon (Griffith-Jones and Ocampo, 2010).

The continent's SWFs acknowledge infrastructure development as a critical tool for sustainable economic development and supporting the structural transformation of domestic economies, and limiting reliance on the resources sector in the long term[i]. Most African SWFs have mandates to promote domestic investment, especially infrastructure and industrial development (e.g Nigeria, Angola and Ghana). Some selected SWF in Africa are elaborated below.

The Libyan sovereign wealth fund, called the Libyan Investment Authority (LIA), has an asset base of US$67 billion, sourced from oil revenues. The fund is composed of the Future Generation Fund, Local Development Fund and Budget Stabilization Fund. Its purpose is to create a diverse wealth portfolio for Libya's future generation, provide stability against volatile oil prices, and stimulate the economy through major transformational private sector projects and infrastructure development. While the future generations fund and the local development funds are long–term in nature, the budget stabilization fund invests in short-term instruments. The LIA invests in infrastructure projects both in Libya and elsewhere in Africa (LIA, 2015)

Botswana's Pula Fund was created in 1994 and now boasts with assets amounting to $6.9 billion. It aims to preserve part of the income from diamonds for future generations. Excess reserves are transferred to the Pula Fund and are largely invested in foreign currency denominated assets of developed countries (Bank of Botswana, 2015) The fund has also been used to mitigate the effects of the recent global financial crisis.

Angola's SWF (Fundo Soberano de Angola) was established in 2012 with an asset base of US$5 billion. It aims to achieve capital preservation, maximize investment returns, develop infrastructure and provide support to certain strategic sectors such as agriculture, mining, hospitality, health care and timber in Angola and the SSA region. It also allocates 7.5 percent of its endowment to social development projects (FSDEA, 2015). About US$1.1 billion so far has been dedicated to infrastructure development, which covers energy, transport and industrial development. The fund has about 50% of its resources in low risk assets (sovereign or institutional bonds rated investment grade), while 50% of its funds are invested in emerging markets and priority investment sectors in Africa. Its investment policy seeks to build a diversified portfolio by both geographical spread and asset classes.

The Nigeria Sovereign Investment Authority (NSIA), established in 2012, has an asset base of US$1 billion and is based on oil. It has three priorities reflected by its asset allocations: Infrastructure Fund (40 percent), Future Generations Fund (40 percent), and Stabilization Fund (20 percent). The stabilization fund aims to provide support and a buffer against external shocks. This fund has a short investment horizon. The Future Generations Fund was established to safeguard oil revenues for future generations. The Infrastructure Fund focuses on domestic infrastructure development, including power, transport, agriculture and health care and water resources etc. It also partners with other financiers and investors such as the International Finance Corporation (IFC), General Electric (energy) and Julias Berger (bridge construction).

Ghana's sovereign wealth fund, the Ghana Petroleum Fund, was formed in 2011, initially with two sub-funds: the Ghana Heritage Fund and the Ghana Stabilization Fund. The Infrastructure Investment Fund was later established in 2014. Total assets under management are about US$540 million. Ghana's SWF aims to create a savings fund for future generations and smooth expenditures in periods of revenue shortfalls. The infrastructure fund focuses on developing strategic infrastructure, to be developed through partnerships with the private sector and other financiers.

Kenya's SWF was established in 2014 with an asset base of USD112 million. It is based on natural resource revenues (especially the recently discovered oil and gas) and other minerals and is still to be operationalized. It is made up of three designated sub-funds focusing on fiscal stabilization, a fund for future generations, and a fund for Infrastructure and Economic Development.

Senegal's Fonds Souverain d'Investissements Stratégiques (FONSIS) was established in 2012 and has an asset base of US$1 billion. It focuses on managing and growing state assets, and setting aside financial reserves for future generations, while distributing regular dividends to the state (FONSIS, 2015). It also aims to boost the use of the country's assets in productive investments for jobs and wealth creation for present and future generations. FONSIS will initially invest in Senegal only, and later invest abroad, as assets grow.

Rwanda's Agaciro Development Fund (AGDF) was launched in 2012 and is not based on minerals. It is built from contributions from Rwandans at home and abroad and other partners and friends. Assets under management are currently estimated at US$41 million. The AGDF focuses on building a sustainable fund for the current and future generations, maintaining self-reliance and stability in times of adverse shocks to the economy and accelerating the socio-economic development of Rwanda (AGACIRO, 2015). Currently, it invests largely in short term deposits and treasury bonds in the local market, but plans to diversify its portfolio in other sectors of the economy in the future.

4. Asset allocations and infrastructure investments

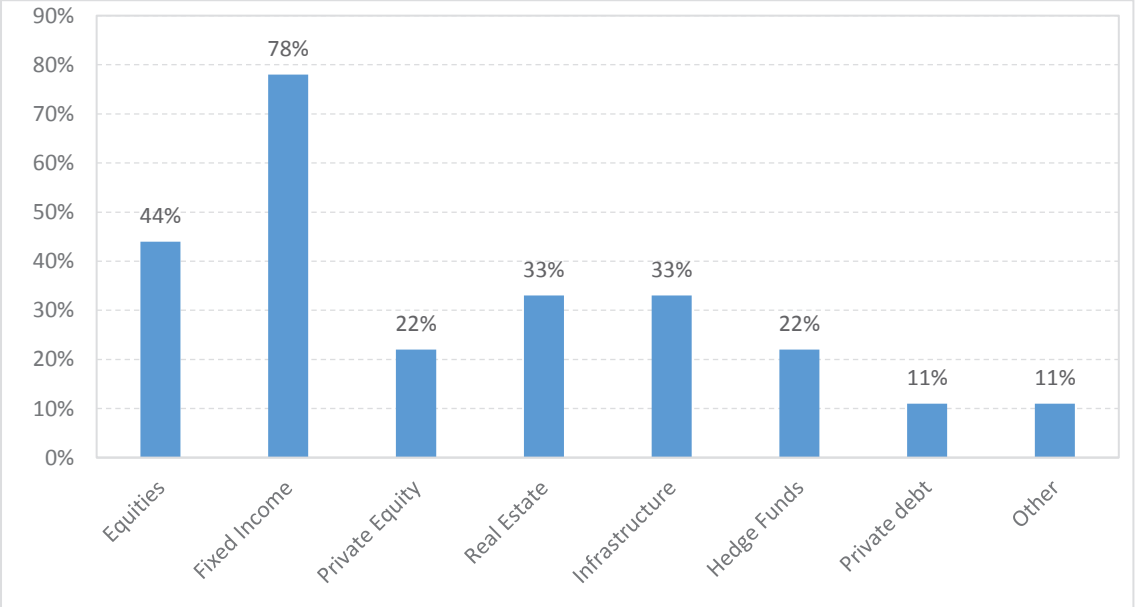
The asset allocation of SWFs varies widely depending on their specific objectives and mandates. For example, SWFs that focuses more on fiscal stabilization have a higher weight on fixed income, liquid assets, and hedge funds. SWFs that focus more on intergenerational savings invest in relatively diversified and low-risk portfolios such as infrastructure, private equity, public equity and real estate. Economic development funds are characterized by long term investment especially in infrastructure, where investments are made through joint ventures with external partners. Asset allocation of SWFs is also influenced by other factors, such as economic outlook, fiscal situation, market trends, investment beliefs, regulation, risk appetite and liability considerations (Croce, and Yermo, 2013).

In the past decade, SWFs have been largely investing in external financial assets, especially securities traded in major markets. But now the trend is changing, as they seek to diversify their

portfolios in terms of both asset class and geographic focus (Banque de France, 2012). SWF are shifting from traditional asset classes (bonds and equities) to alternative assets such as infrastructure and real estate, and spreading geographically to developing and emerging countries. To some extent, this is driven by the low interest rate environment affecting other assets in recent years. Alternative assets help to increase diversification and balance portfolios, while offering potentially higher returns and meeting institutional investors' long term investment objectives. As of 2012, at least 56 percent of global SWFs participated in the infrastructure asset class; of these, approximately 36 percent included investments in social infrastructure such as hospitals and schools. In 2015, the proportion of all SWFs that held investments in the infrastructure asset class was 60 percent (Preqin, 2015).

About 33 percent of African sovereign wealth funds invested in infrastructure assets, similar to real estate (Figure 7). Many SWFs (78 percent) invested in fixed income assets, reflecting the dominance of the stabilization role in African sovereign wealth funds. Public equities are still favorable, with a proportion of 44 percent of sovereign wealth funds investing in these assets. Private equity (22 percent) has also been growing in recent years, reflecting a shift of sovereign wealth funds towards alternative assets. The proportion of SWFs with investments in hedge funds is low (22 percent), suggesting less suitability for some SWFs that seek investments with higher returns over a longer cycle.

Figure 7: Proportion of African SWFs investing in each asset class

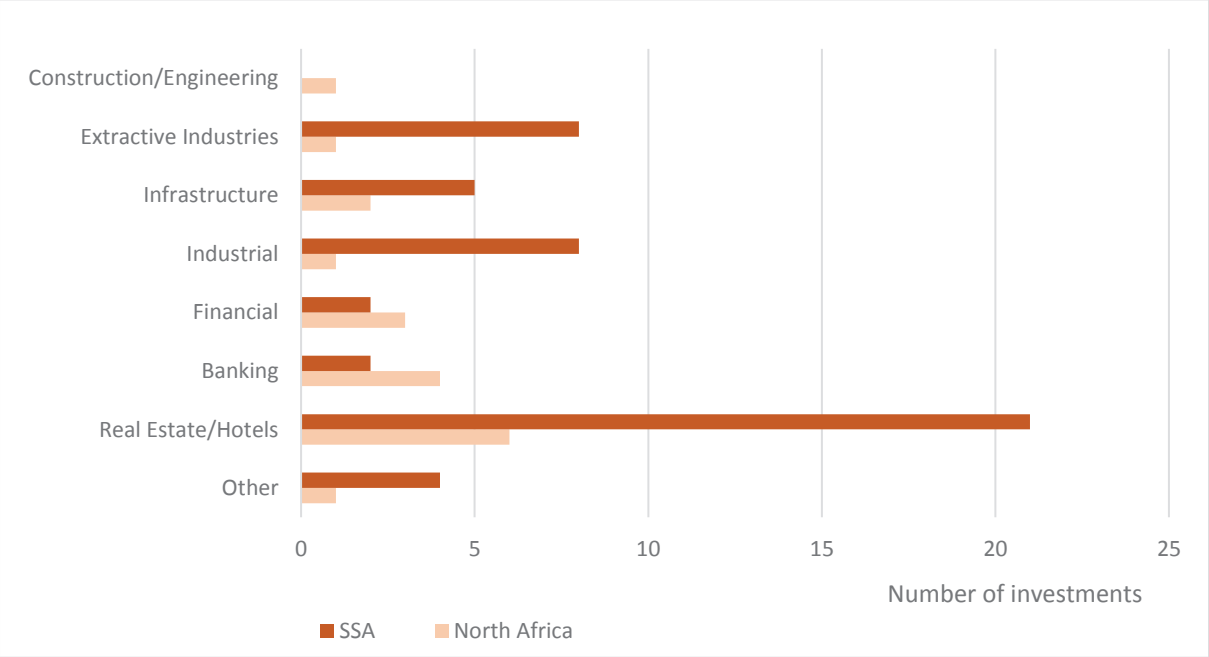


Source: Preqin, 2015.

According to ESADE geo (2014), the allocations of world sovereign wealth funds in Africa's infrastructure is still small compared to other world regions. A significant part of SWF investments in Sub-Saharan Africa are in the commodity and agriculture sectors and these are largely from Asian and Persian Gulf countries. Investments in infrastructure have focused more on bankable projects, especially high-return existing infrastructure, rather than greenfield investments. This suggests that there is still room to allocate more funds into the infrastructure sector. Gelb et al. (2014) notes that asset allocation of sovereign wealth funds in Africa reveals a home bias. For example, in SWFs in Nigeria, Angola and Ghana place more emphasis on promoting domestic investment in strategic sectors such as agriculture and service sectors.

Of a selected set of global sovereign wealth funds by Triki and Faye (2011), about 27 investments are in real estate and hotels, while 7 were in infrastructure (Figure 8). Most investments are in Sub-Saharan Africa (21 for real estate and hotels and five for infrastructure), compared with North Africa (six for real estate and hotels and two for infrastructure). Investments in extractive industries and industrial development is higher than infrastructure in SSA, reflecting skewed appetite for resource sectors. According to Turkisch, (2011), SWF's investments in Africa have recently focused on natural resources (hydrocarbons and minerals) and infrastructure linked with their extraction (ports and roads) in order to secure energy supplies. The allocation towards banking and financial sectors is lower in SSA than in North Africa, possibly because of risk concerns.

Figure 8: Selected global SWF investments in Africa by sector and region

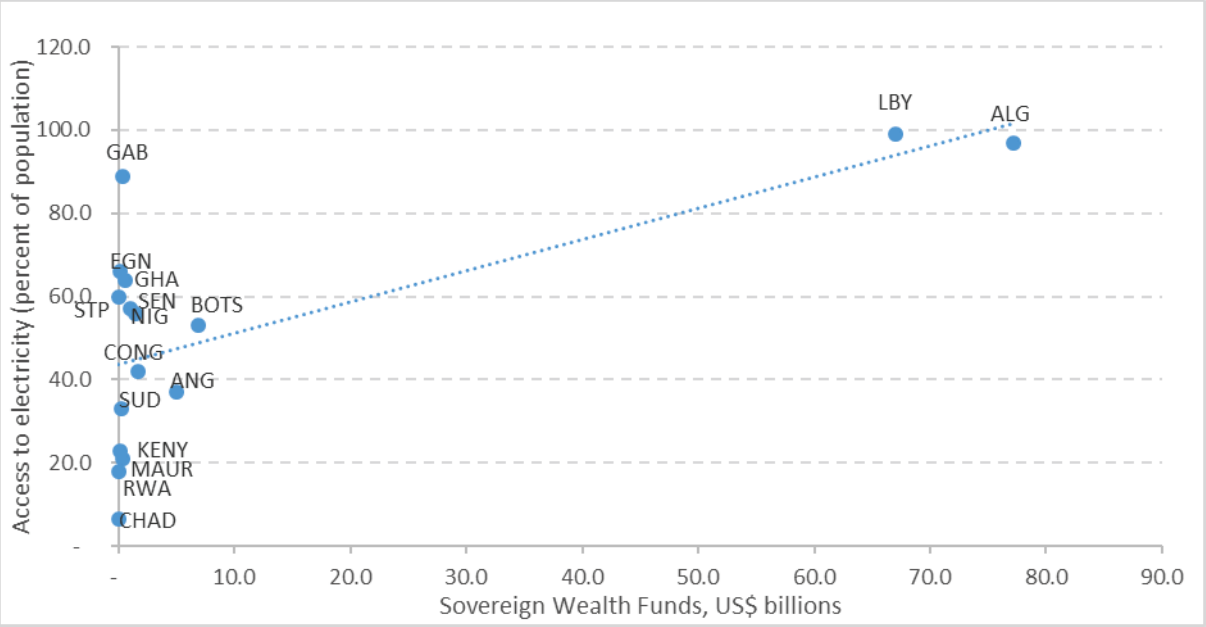


Source: Triki and Faye, 2011

Considering Africa's infrastructure needs, allocating about 20 percent of the current African sovereign wealth funds could atleast cover the annual infrastructure financing gap, assuming no inefficiencies. However, taking into account efficiency losses, about 30 percent of African SWF assets would be needed to close the financing gap. With spending needs for energy is estimated at US$ 41 billion, while existing spending is estimated at only US$11.6 billion, allocating about 15 percent of African SWFs could close the energy financing gap. The water and sanitation infrastructure financing gap could be covered by an allocation of 8.4 percent of Africa sovereign wealth funds, while 1.3 percent of African SWF could easily cover transport infrastructure gap. Figure 9 suggest that there is a positive correlation between the amount of assets under sovereign wealth management and access to electricity. Libya and Algeria seem to have higher percentage of populations with greater access to electricity than other countries. The two countries account for 88 percent of sovereign wealth funds in Africa, having been established more than 10 years ago (Table 2).

Other SWFs in the world are also investing in Africa's infrastructure. For example, the Abu Dhabi Investment Authority has holdings in Egypt's EFG Hermes and the Dubai Investment Corporation have stakes in North African companies like Tunisia Telecom. Istithmar World (subsidiary of Dubai World) has invested in Rwanda, Mozambique, Comoros and Senegal. If SWFs in the world were allocate about 1.3 per cent of their total assets into Sub-Saharan Africa, they could cover Africa's annual infrastructure's financing needs.

Figure 9: Sovereign Wealth Fund and Access to Electricity



Sources: World Bank, SWFI, Investment Frontier and SWF websites.

5. Sovereign wealth funds and infrastructure financing

SWFs are important for many resource-rich developing countries that do not yet have access to global capital markets. SWFs are ideal for financing infrastructure in Africa for a number of reasons. First, SWF have a long time investment horizon and have limited or sometimes no explicit liabilities (since they are usually drawn from the fiscus), compared with other institutional investors such as pension funds. Infrastructure provides reasonably higher and inflation protected yields coupled with lower correlation to other financial assets, which implies lower risk which could be ideal for SWF investments (Croce, and Yermo, 2013). Infrastructure projects such as roads, harbors, and airports also provide relatively predictable and stable streams of long-term cash flow which aligns appropriately with the investment time horizon and risk profile of SWFs.

Second, unlike reserves of central banks which are limited to a few fixed income assets, SWFs can be designed to maximize investments' risk-adjusted returns and accumulate resources for future generations when they invest in infrastructure. Once constructed, infrastructure is less vulnerable to economic downturns and can hedge against inflation compared with other assets which are more cyclical, making it more attractive to SWFs. Given Africa's demographics and infrastructure financing gaps, channeling SWF resources towards infrastructure is a positive step of building above ground assets for future generations.

Third, SWFs are better positioned to channel resources for economic diversification and development, given their size and ownership structures. Their investments in different asset classes and economic sectors. With their long term investment view, SWFs can provide long term capital for long term projects in different sectors and support economic diversification, as did China, Malaysia and United Arab Emirates.

Fourth, SWFs can increase the confidence of foreign investors by improving the government's ability to meet its investment obligations. In fact, the involvement of SWFs could provide some assurance of solvency, in the financial execution of projects. This could be the support needed by the private sectors (especially external) for them to participate in infrastructure projects. SWF can also provide liquidity in times of crisis and ensure continuity of projects.

Fifth, the scarcity of long term finance on the continent and the low liquidity of African financial markets, coupled with huge demand for infrastructure financing, provides an opportunity for sovereign wealth funds to finance infrastructure projects. SWFs are likely to face less

competition in infrastructure financing and with their financial strengths, they can negotiate attractive terms on long term projects.

Sixth, the cost of capital from sovereign wealth funds is likely to be low because of the source of funds. Costs of capital can also be lowered when SWF boost credit ratings of countries. For example, Angola and Nigeria had their credit ratings upgraded after establishing sovereign wealth funds. Low cost of capital is good for all infrastructure projects, and could even be more helpful in allowing the provision of social infrastructure which may not be possible to develop from finance obtained from the financial markets.

The funding mechanisms for infrastructure projects by SWFs can vary from direct investments, co-financing, joint ventures or public private partnerships (PPPs), listed funds and indirect financing. Direct investments in unlisted infrastructure assets bypass the technical services offered by fund managers and rely on in-house expertise for guidance on investments. SWFs can invest in unlimited infrastructure assets as limited partners. For example, the Kuwait Investment Authority and Abu Dhabi Investment Authority have developed strong in-house expertise in infrastructure investments in recent years.

Joint ventures or PPPs involve medium- to long-term infrastructure investments jointly undertaken by the public and private sectors, through the creation of special purpose vehicles to deliver the desired services. Such partnerships help to bring credible standards for project quality and governance, implementation capacity and efficiency. Co-financing brings investors together and pools their resources into co-investment vehicles. This helps them to share risks, align their investment interests, exploit economies of scale and improve governance of the investment. For example, Tanzania has recently signed a US$11 billion deal with China Merchants Holdings International and the State General Reserve Fund (SGRF) of Oman to build Africa's biggest port in Bagamoyo, which will facilitate in trade of oil, gas and food from East Africa. Listed infrastructure funds rely on external fund managers to undertake investments in various infrastructure assets (Croce and Gatti, 2014).

SWFs can indirectly finance infrastructure through providing extra liquidity to local and regional debt and equity markets. They can buy infrastructure bonds, allocate funds to infrastructure debt funds and underwrite loans. SWFs can also help stabilize the financial systems of a county, given their long term investment horizon. In this way, they can ensure continuous financing of infrastructure investment projects, which usually suffer a heavy blow when revenues shrink during a crisis. For example, some sovereign wealth funds such as the

Libya Investment Authority intervened to stabilize the economy in the face of the global financial crisis in 2008.

African SWFs can also place some of their resources in banks in the country and in the continent to shore up their long term deposits and capital. In the long run, this could improve the bank's capacity to lend for long term infrastructure projects. SWFs can therefore enhance financial systems' breadth by supporting non-bank financial institutions such as insurance and leasing companies and private equity funds and enhance their capacity to support infrastructure investments. This could help address the scarcity of long term resources needed for infrastructure development.

6. Risks and opportunities of infrastructure investments in Africa

6.1. Risks in infrastructure investments

While infrastructure investments in Africa could be suitable for sovereign wealth funds, there are some risks involved in such investments. Political risks are typical examples of risks to consider in infrastructure investments in Africa. Such risks could arise from project cancellation, change of government, change of the terms of the contract, price controls and expropriation or nationalization of project assets by a government. For instance, in Djibouti, a deal with Dubai Ports World was cancelled in 2014, as it was signed by the previous regime. Sometimes political instability could lead to disruption of access to infrastructure, affecting revenue generation, while enforcement of contractual terms could also be a challenge.

Infrastructure projects in Africa are also prone to currency fluctuations. A lot of African currencies are not stable, especially in resource-rich countries. For example, the South African rand has depreciated by more than 30 percent, while the Zambian Kwacha lost more than 70 percent of its value, between January and December 2015, significantly affecting infrastructure financing. Currency fluctuations affect project financing especially on projects financed by external loans, as revenues are generated in local currency. The mobile operator Etisalat Misr faced currency risks in volatile Egypt in 2010-11, due to devaluations of the Egyptian pound (EIU, 2014). Where the exchange rate between the currency of revenue and the currency of debt diverge, the cost of debt often increases dramatically.

Commodity price volatility can also affect infrastructure investments especially during construction phase. Long term investments are difficult to adjust to economic shocks in the short term. Commodity price fluctuations generate revenue volatility, which affects the

financing of infrastructure projects. In most cases, infrastructure projects are the ones which bear the brunt of expenditure cuts in the face of commodity prices and revenue declines. For example, Angola and Nigeria have cut their budgets (largely capital expenditure) following declines in commodity prices. According to UNCTAD (2010), global foreign investment revenues are much more variable in Africa than in any other parts of the world, which accentuates risks. The recent commodity price shocks since 2014 have affected the allocations of funds towards infrastructure, as some SWFs have been forced to withdraw some of their resources to cover fiscal deficits.

Sometimes intervention of a SWF in the economy without proper coordination with fiscal and monetary policies can lead to potentially disruptive effects on markets. The instability can emanate from several sources. For instance, large investments in some assets (such as real estate) may trigger speculative bubbles, leading to higher market volatility, affecting capital and financial accounts, relative prices, and external stability. In fact, investing foreign exchange proceeds in the domestic economy could trigger sterilization costs and volatility. Small African countries are often vulnerable to such volatilities. Also, the involvement of SWFs in the banking sector may distort the credit allocation process while large reverses in SWF flows resulting from profit repatriation or asset reallocations involving currency transactions may induce currency volatility. Thus, it is important to coordinate closely the interventions with the monetary and fiscal authorities.

The lack of long-term loans in African financial markets contradicts the point of view of sovereign wealth funds which prefer to invest in long term projects. The size and liquidity of African financial markets limit the full participation of external financiers from participation in infrastructure projects (Fattah, 2015). This is compounded by the low sovereign ratings, lack of appropriate financing vehicles and debt instruments for infrastructure such as infrastructure bonds and structured infrastructure products.

Another challenge of infrastructure financing relates to lack of objective, high quality data on infrastructure and clear benchmarks. This makes it difficult to assess correlations with other assets, measure and understand risk and return profile of these investments (Croce, and Yermo, 2013). Without such information, it will be difficult to make allocations. The challenge of quality of data to measure risk is a risk itself. In the presence of data gaps, risk management is a challenge- because whats get measured can be managed.

In addition to the above, there are also common infrastructure project risks, to consider in some African countries. These include: completion risks (failure to complete the project on time and on budget); performance risks (the risk that the project fails to perform as expected on completion, maybe due to poor design or adoption of inadequate technology); operation and maintenance risks (relates costs, management and technical components and obligation to provide a specific level of service); financing risk (which may arise from an increase in inflation, interest rate changes etc.); and revenue risks (which relates to the possibility of the project not earning sufficient revenues to service its operating costs and debt and leave adequate return for investors).

6.2. Investment opportunities in Africa's infrastructure sector

Despite the risks highlighted above, there are many investment opportunities for sovereign wealth funds in infrastructure investments in Africa. Sub-Saharan Africa has become one of the world's fastest growing regions. With average growth rate of about 5 percent in the last decade, and the size of the African economy has more than tripled since 2000. As such, the continent presents favorable investment prospects which fit well with the long-term, high-return perspective of SWFs.

The continent is also undergoing rapid urbanization and its relatively young labour force and growing middle class makes it a new emerging market and destination for investment. The number of middle-class households in the region has tripled in the last 30 years (African Development Bank, 2011). Considering current trends, Africa's population will more than double to about 2.4 billion by 2050. This represents a growing level of future demand for infrastructure and other consumer goods. McKinsey (2010) projects that by 2030, the overall purchasing power of the populations of 18 largest cities in Africa could amount to USD 1.3 trillion. This is an opportunity for investment in real estate, telecommunications, energy, water and sanitation.

According to UNCTAD (2013) report, foreign direct investment (FDI) flows into African nations increased by five percent during 2013, surpassing US$50 billion per annum. This growth, which was driven by growth in resource sectors, took place at a time when global FDI fell by approximately 18 percent over the same period. The abundance of natural resources (10 percent of world reserves of oil, 40 percent of gold, 80 – 90 percent of chromium and the platinum group of minerals, 60 percent of uncultivated arable land) provides abundant opportunities for infrastructure investments in resource sectors and in support of industrial

development. Almost 30 percent of global oil and gas discoveries made over the last five years have been in sub-Saharan Africa (IEA, 2014). Foreign direct investment is also expanding beyond resources

Africa also presents potentially competitive returns relative to other regions of the world. McKinsey (2010) notes that returns on foreign investments in Africa are higher than in any other developing region of the world. The macroeconomic indicators are stabilizing, while political and governance systems in Africa are improving, reflected by several peaceful electoral transitions in recent years. Booming economies, such as Botswana, Ethiopia, Mozambique, Kenya, and Tanzania, offer SWFs greater opportunities for asset diversification.

Infrastructure sector still has a lot of funding gaps, especially in energy, transport and water and sanitation. This presents ample investment opportunities for sovereign wealth funds. Some external SWFs especially from the Gulf, such as Mubadala fund of Abu Dhabi and Qatar Investment Authority), ACWA Power (Saudi Arabia), TAQA (Abu Dhabi) and QEWC (Qatar) are already tapping these opportunities and investing in Africa. The Gulf entities together have invested more than US$30 billion in African infrastructure in the last decade (Dubai Chamber of Commerce, 2014). The Seychelles huge wind power project and Algeria's power plant were financed by Abu Dhabi's US$60.9 billion fund. China has also increased its investments in Africa in recent years, having created a development fund for Africa: The China–Africa Development Fund (CADFUND). By 2012, CADFUND had co-financed and supported 60 projects across 30 African countries (Fattah, 2015).

African financial markets are still underdeveloped. With shallow equity markets, less liquid capital markets and underdeveloped debt markets, sovereign wealth fund investments would be a strong boost to Africa's development aspirations, while yielding competitive returns especially in financial and capital markets.

7. Conclusions and policy implications.

This paper analyses the potential role that sovereign wealth funds could play in infrastructure development in Africa. It evaluates the state of Africa's infrastructure and their funding needs, the patterns of sovereign wealth funds in Africa, and evaluate possible funding mechanisms for infrastructure development as well as risks and opportunities in Africa. The analysis shows that Africa's infrastructure funding needs are large. As traditional ways of financing infrastructure, such as public finances, the banking sector and overseas development finances experience

challenges, SWFs can potentially fill the gap to finance infrastructure in Africa. Allocating about 20 percent of Africa´s sovereign wealth funds could close the existing annual infrastructure financing gap, assuming no inefficiencies.

The analysis highlights the need for coordination between SWFs and government policy (both fiscal and monetary) to ensure that the role of SWFs in infrastructure financing does not lead to instabilities and volatilities. The domestic investment of the SWF needs to be considered within the overall macro-economic framework and ensure their investments promotes macroeconomic stability and development and do not displace private investments.

Since SWF are often created by governments from some reserve funds, governments can make deliberate efforts to finance infrastructure. Governments can ensure that SWFs' mandates include infrastructure as an investment category as exemplified by Ghana, Nigeria and Angola.

SWFs also need to have clear objectives and ensure that their investment strategies are consistent with those underlying objectives or mandates. This can help them to support infrastructure development well. Implementing strong corporate governance structures could ensure that resources are well managed and that SWFs' investment strategies are supporting the country's development plans.

African governments can also promote infrastructure investment by demonstrating commitment to investor protection. One way of doing this is to showcase successful infrastructure projects which can be considered as reference points by external or private investors. This is especially important in countering the blanket perceptions of Africa as a risky investment environment by foreign investors. Political stability, stable rules, good governance, zero tolerance on corruption and transparent procurement processes are some of the good signals.

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