

African Development Bank Group

Working paper series

N° 153 –October 2012

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Working Paper Series

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Correct citation: Mbeng Mezui, Cédric Achille (2012), Accessing Local Markets for Infrastructure: Lessons for Africa, Working Paper Series N° **153** African Development Bank, Tunis, Tunisia.



AFRICAN DEVELOPMENT BANK GROUP

Accessing Local Markets for Infrastructure: Lessons for Africa

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Working Paper No. 153
October 2012

Office of the Chief Economist

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Abstract

This paper focuses on international experiences gained in financing infrastructure through local currency revenue bonds and the applicability of such methods to Africa. The review shows that many countries have been able to successfully mobilize resources from domestic markets to finance infrastructure projects. However, if we consider the definition of a revenue bond per se, a number of the transactions done in South Africa and other countries on the continent are not structured as such but more akin to the structure of conventional government bonds albeit with a promise to spend the money on infrastructure investment. What is derived from our analysis is

that African countries planning to utilize revenue bonds to finance their infrastructure needs should strongly: (i) improve their basic requirements; (ii) transform their markets, from factor driven to efficiency driven economies; and (iii) catch up with international best practices and market liberalization and opening. This will require well-functioning public and private institutions, well-developed infrastructure, a stable macro-economic environment, and a healthy workforce that has received at least a basic education. The reforms should be undertaken at two levels: (i) bond market development; and (ii) infrastructure financing mechanisms.

Keywords: Revenue Bonds, Infrastructure, Institutions, Bond Markets, Africa

I. INTRODUCTION

According to African Development Bank (AfDB) estimates, the Programme for Infrastructure Development in Africa (African Union Commission *et al.*, 2012) Priority Action Plan (PAP) will cost \$68 billion through 2020 covering regional infrastructure projects in energy, transport, ICT and transboundary water (see Annex 2). The funding expected from domestic sources² is estimated to account for over 50% of the Programme for Infrastructure Development in Africa (PIDA) cost by 2020. It expects that capital from internal sources could increase to around two-thirds in 2030 and 75% in 2040. Overall, Africa's infrastructure upgrading and modernization needs are expected to cost on the region of USD360 billion up to the year 2040 for projects identified under PIDA.

The development of African domestic markets is fundamental to bridging the financing gap of approximately \$38 billion in the PIDA PAP (Priority Action Plan). The supply of long term finance is critical for the infrastructure sector and the absence of alternative sources of long-term local-currency financing and the continent's lack of efficient bond markets continue to be a source of potential financial vulnerability. Countries need to build efficient domestic markets and financial systems, providing transparent pricing, liquidity and governance mechanism. Also, with the prolonged worldwide credit crisis some traditional project finance lenders have either exited or greatly curtailed their exposure to African project financing due to the high regulatory capital charges assigned to lending to the continent. The reduced resources available are increasingly prioritized and largely directed the extractive industry sectors³ with fewer funds available for the other sectors. In order to realize the PAP and meet the critical infrastructure needs of the continent, additional resources need to be identified.

Financing the development of infrastructure in an appropriate manner has always been leading topic in the continent development agenda. Infrastructure finance refers to the means of financing the establishment, maintenance, operation and improvement of a country's physical infrastructure systems related to transport, water, communications networks and power. There are various sources of financing available to finance infrastructure projects, among them: Equity Finance; Debt Finance; Bonds; Corporate bank loans; grants; Governments budgets; Development Financial Institutions; etc. (Brixiova *et al.*, 2011). Given the nature of physical infrastructure projects that normally require large scale and long-term financing in a mix of local and foreign currencies, attention has been recently paid to the infrastructure project bond (also known as revenue bonds or specific purposed bonds, etc.) that securitizes future cash flows from infrastructure projects as a promising product in local currency bond markets as well as a means of private infrastructure financing.

According to Kim (2000), utilizing bond markets for financing is important for several reasons: (i) it helps to diversify the sources of infrastructure financing; (ii) it alleviates the uncertainties caused by the global bank disintermediation; (iii) it contributes to transforming short-term bank deposit into long-term development resources; and (iv) it contributes to enhancing corporate governance standards in countries. Lucrative infrastructure projects funded with bonds can be attractive to financiers, particularly if they are supported by strong and consistent revenue streams such as with certain toll roads. This will facilitate migration away from the current

² Domestic capital markets, public spending, private sector, etc.

³ Oil, Gas and minerals

generalized infrastructure bonds to having project specific bonds through dedicated special purpose vehicles (SPVs). They may be a lower cost funding alternative for projects compared to other funding sources such as bank loans and can be structured in many different ways e.g. using guarantees to lower the cost of funding further. As an instrument to increase the finance pool accessible for infrastructure projects, infrastructure bonds could potentially be useful if they were issued by the private sector.

This paper focuses on the international experiences in financing infrastructure projects, especially through infrastructure bonds, and the applicability of such experiences to Africa. Section 2 outlines the literature evidence on the complex link between public infrastructure investment and economic growth. Section 3 analyses the infrastructure bond mechanism as well as its challenges. Section 4 reviews experiences from both developed and emerging countries, in terms of financing infrastructure through domestic markets in all continents, and draw lessons for the institutional arrangements and macroeconomic policies for Africa. Section 5 outlines the African experiences in using infrastructure bonds. Section 6 reveals Africa's bond markets challenges, and sets out concrete proposals on next steps to enhancing efficiency for domestic bonds to finance infrastructure projects in Africa. Section 7 draws conclusions which can inform the implementation of infrastructure bonds in Africa.

II. LITERATURE AND INFRASTRUCTURE BOND MECHANISM

II.1. LITERATURE

There was strong academic debate during the 80s and 90s, mainly in the US, in the relation between public investment in infrastructure and economic growth. Given the density of the subject matter, empirical debates are to be expected. As pointed out by Gramlich (1994), *“it will always be difficult to relate infrastructure investment to its goals, or changes in them”*. Several of the benefits of public investment are tough to quantify, and are not always incorporated in the determination of Gross Value Added (e.g. improved health and a cleaner environment). We outline an overview of the public infrastructure discussion, drawing on the seminal academic studies.

Table 1: Literature on the relation between infrastructure investment and GDP

Relation between infrastructure and GDP	Authors	Relevant Key findings
<p>1. Public investment in infrastructure influences economic growth</p>	<p>Aschauer (1989)</p> <p>Munnell (1992)</p> <p>Gramlich (1994)</p> <p>Lau and Sin (1997)</p>	<p>Public investment in infrastructure is a very important source of economic growth;</p> <p>in addition to providing a direct demand-side economic stimulus, public infrastructure investment has a major positive influence on output and growth;</p> <p>only two-thirds of the capital stock studied by Aschauer contributed significantly to raising national output;</p> <p>infrastructure investment has a significant impact on output.</p>
<p>2. The improvement in infrastructure development has a positive effect on economic growth, productivity and trade</p>	<p>Roller and Waverman (2001)</p> <p>Calderón and Servén (2003)</p> <p>Donaldson (2010)</p> <p>Mohammad (2010)</p> <p>Canning and Pedroni (2008)</p>	<p>A positive link between telecommunication infrastructure and economic growth;</p> <p>positive and substantial productivity contributions of telecommunications, transport and power;</p> <p>railroad growth reduced trade cost, boosted trade, and increased revenue;</p> <p>physical infrastructure developments make possible faster total factor productivity TFP growth in manufacturing;</p> <p>infrastructure impacts positively to long run economic growth even with substantial disparities across countries</p>

Source: Author using the key findings from seminal papers

Possibly the key lesson to draw from all of the academic literature covered here can be found in Gramlich's paper which says that "the issue is not just about increasing the level of public investment, but investing in the right projects and managing this investment better". This is

particularly critical for Africa where there are competing demands across infrastructure projects between national and regional, across regions and across sectors⁴.

Walsh *et al.* (2011) analyzed whether phases of fast infrastructure investment are considerably different from episodes of slower investment. They look at four key factors: (i) association between infrastructure booms and rapid GDP growth; (ii) link with increases in savings and their origin, foreign or domestic; (iii) link with fiscal deterioration; and (iv) link with deepening financial markets. Using annual data for macroeconomic performance and infrastructure construction with observations from 1980 to 2009 for 105 advanced and emerging economies, they find that rapid economic growth has a tendency to go hand in hand with growth in infrastructure investment. Specifically, it appears that increases in energy capacity tend to be funded domestically, while investment in roads is less likely to be undertaken without the contribution of foreign capital. They find evidence that private capital markets tend to expand during periods of infrastructure investment, showing that environments conducive to the participation of private finance in the financing of infrastructure do tend to improve together with the need for supplementary financing.

Also, many studies have been conducted regarding Governments' incapacity to raise significant resources for large-scale infrastructure projects and mitigations that can come from private involvement (Cheung *et al.*, 2009). This is particularly the case if countries lack funds to provide significant public services such as healthcare, transportation, energy and etc (Regan *et al.*, 2009). However like other business models Public-Private Partnerships (PPPs) also have different kinds of risks which may derive from the disparity in the skills and expertise of the different stakeholders involved in infrastructure projects. This can lead to the undermining of one party's interest and ultimately result in unrealized targets (Miraftab, 2004). As such a sound regulatory framework can ensure that partnerships are more effective and can optimize resources according to broader policy objectives (Pongsiri, 2002). Capacity to effectively design and manage PPPs is a key challenge across Africa. Only a handful of countries, among them, Nigeria, South Africa, Zambia, Tanzania and Kenya have put in place PPP frameworks but even then, challenges remain in terms of resources, expertise and tested models. Clearly, for PPPs to work effectively across Africa, requisite capacities need to be created.

PPPs can be an effective impetus for innovative financing instruments involving the public and private sector such as project specific infrastructure bonds. In the following paragraphs, we will define the "infrastructure bond" technique and pinpoint the challenges of such an instrument.

II.2. INFRASTRUCTURE BOND

1. The structure:

An Infrastructure bond is a debt instrument issued by governments or private companies to raise funds from the capital markets for infrastructure projects. Infrastructure bonds have been used around the world as an alternative financing mechanism for projects from such instruments as a

⁴ For example, given that Africa has a large infrastructure deficit across all sectors, what should inform investment balance between say, energy and transport projects?

bank loan for instance. The interest payments, associated with infrastructure bonds (and repayment of the principal) are typically funded with a direct linkage to the cash flow revenue directly generated from the specific underlying infrastructure project – such as a toll road. Infrastructure bonds can be issued by private companies without a need for government assistance. Such bonds may also benefit from credit enhancements (e.g. viability gap funding, or partial guarantees) designed to make projects more bankable. If a particular infrastructure project is judged to be profitable by investors, they will know the value proposition and invest. Infrastructure bonds can be especially useful where there is a project with strong revenue potential and good management structure but where the issuing entity may not be able to issue on its own because of institutional or credit weaknesses. The underlying project itself can therefore be structured to assume its own standalone risk profile which is distinct from that of its sponsors. Infrastructure bonds in their broadest sense can mean any structured debt raised through local or international capital markets secured by or serviced from the cash-flows of a specific project or a portfolio of projects, without recourse to the sponsors. Local currency infrastructure bonds usually have the following characteristics:

- ✓ Financing raised to fund a specific infrastructure project(s). The issuer can be a special purpose vehicle (SPV) established for the project, or a project company; shareholders will include private investors often in a PPP arrangement;
- ✓ Financing is non- (or limited) recourse. Investors debt is serviced by project level cash flows and security limited to project assets;
- ✓ Issuance is in local currency to match the cash-flows generated by the project and meet the appetite of local capital markets.

An infrastructure project bond issuance is summarized in the diagram 1 below:

Step 1: Form SPV

The sponsor forms a SPV which will construct, own and operate the project. The goal is to structure the project company as a stand-alone entity which generates sufficient cash flow to repay its debt and also provide a suitable return to its equity investors, with the sponsors having no liability for the debt financing raised. The project company should conduct no other business and have no liabilities, other than those relating to the project being developed and financed.

Step 2: Arrange Site Control, and Off-take and Supply Contracts

The SPV enters into (1) a lease or similar arrangement to obtain “site control”, (2) an off-take agreement to sell its X (for example electricity, in power project) to a creditworthy third party, usually a utility or commercial customer, and (3) a feedstock supply agreement to provide the necessary fuel (in power project), unless fuel for the project does not need to be purchased.

Step 3: Arrange Construction, Management and Operations

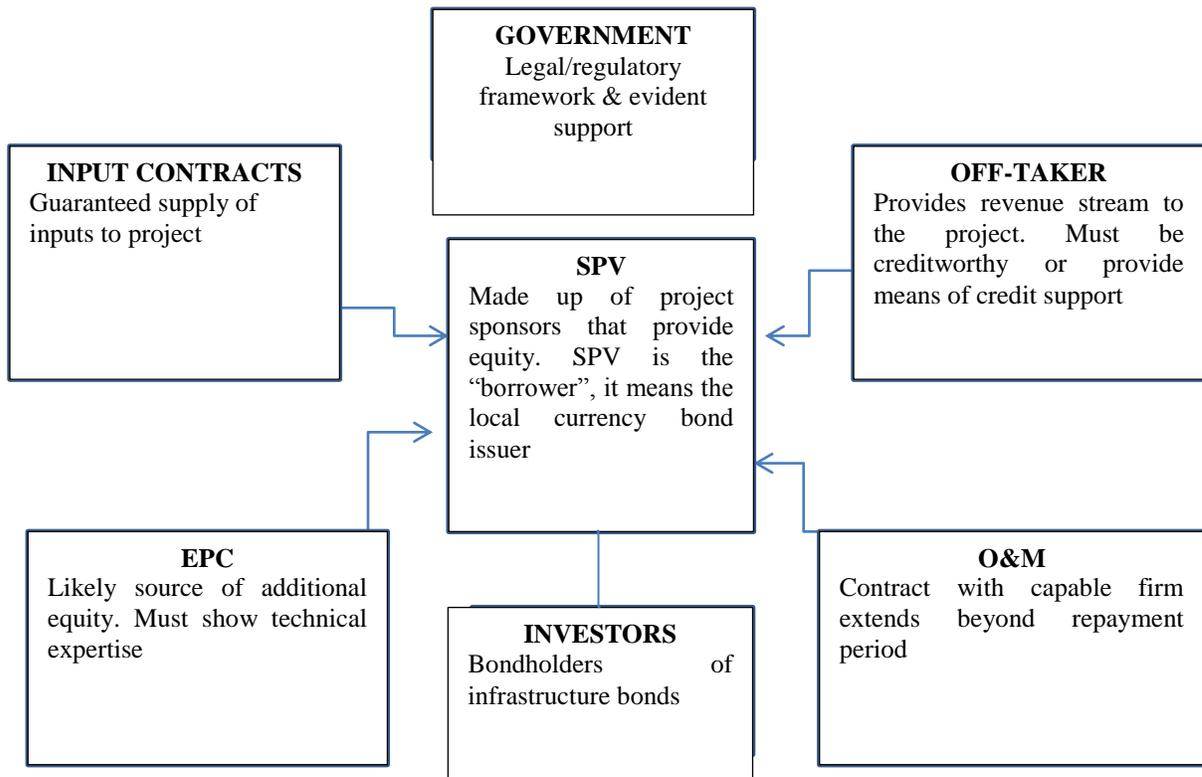
The SPV enters into (1) one or more engineering, procurement and/or construction (“EPC”) contracts to design and construct the project, and acquire key equipment, and (2) an operation and maintenance (O&M) agreement, and often a management agreement, to provide for

necessary services to be performed for the project company. The O&M and management agreements are often with affiliates of the equity owners.

Step 4: Arrange Financing

The SPV issues infrastructure bonds. One or more additional equity investors may be admitted to the SPV to provide cash equity, and/or tax equity, funding. Debt and equity are paid from the project cash flows. Financing are secured by project assets and revenue-producing contracts, not sponsors balance sheet.

Diagram 1⁵.



Source: Author with basic Project Finance structure

A distinct feature of an infrastructure financing scheme is the “cash flow ring fencing arrangement” whereby there is a clear allocation of funds to meet specific requirements of a project including project expenses and financing repayments. The other feature that the Infrastructure bond has is the amount of time within which the revenue generating source will not be generating any cash flows. This is in general the construction phase of the project.

⁵ Governments have from time to time decided to dynamically boost the use of infrastructure bonds by the private sector, this has frequently been in the usage of some kind of support such as a tax concession or direct subsidy either in the hands of the issuer or the bond holder

However, fully non-recourse project bonds for infrastructure are much less common. Infrastructure projects involve a capital-intensive construction phase that must be financed. Loan structures are more common in infrastructure project finance because they are more flexible for this purpose. Loans can be drawn down gradually during construction (avoiding so-called “negative carry”). For syndicated loans, borrowers are generally given a call option for free, whereas bonds are difficult to refinance. Loans are more efficient for smaller financings, since bond issuance involves greater overheads associated with getting a credit rating, documentation and governance. The fundamental reasons for using bonds instead of loans is cheaper, the availability of incremental funding, and the availability of longer maturities or in some cases access to different currencies. Sophisticated project sponsors are regular bond issuers⁶.

2. Challenges for implementation of Infrastructure bonds

The following legal, regulatory and economic factors must be addressed for the implementation of an infrastructure bond:

- **Changes in Agreements with Concessionaires:** Instability in government regulation or management of their contracts with concessionaires can constitute considerable challenge for the development of infrastructure projects;
- **Macroeconomic Instability:** Unpredictable fiscal and monetary policies that lead to continual fine tuning to key economic variables such as interest rates, exchange rates, and taxes will cause volatility in the market and discourage investment. This issue is particularly important if there is an inadequate institutional framework to safeguard the interests of investors in the market;
- **Project Economics and Sustainability:** While infrastructure projects are considered to be relatively stable and robust investments, there still remain inherent risks in ensuring successful project achievement and operation and generation of returns to financiers;
- **Insufficient Information Disclosure:** The main investors in infrastructure bond financing are the institutional investors such as insurance firms. However, a common challenge to these investors can be the information asymmetries that may not encourage optimal investment decisions. Projected cash flows are the core source of information in which investment basis is lead; however providing transparent synopsis of the project itself can catalyze investment activity. It would also encourage different types of investors into the market;
- **Under-developed Capital Markets:** The lack of intrinsic market information and factors can also form a challenge. These include (i) Limited demand and supply of bond; (ii) Lack of benchmark yield curves; and (iii) Inadequate market infrastructure

For infrastructure developers and sponsors, key considerations include: identifying sufficient liquidity at the requisite tenor, structuring a cash profile to best match investments, and achieving a strong rating from a recognized agency. There is likely to be a key role for credit enhancement from a Multilateral Development Bank (MDB). Unless these factors can be structured to the issuer’s advantage, credit markets are likely to be a more appealing option.

⁶ See annex 3

III. INTERNATIONAL EXPERIENCES IN FINANCING INFRASTRUCTURE

Many countries have been able to successfully mobilize domestic markets to finance infrastructure projects. Some mature markets have a long history of local infrastructure finance through capital market mechanisms, an increasing number of emerging markets are also developing the institutions and the instruments required to benefit from domestic capital markets financing for infrastructure. Two distinct models of development financing have been followed globally at different periods: (i) the Anglo-American model, which is only market based, financial markets playing a key role in allocating resources for competing uses, including the industry and long term projects; and (ii) the Western Europe model with its home-grown development banks. Emerging markets are pursuing one or a hybrid of the two.

The use of bonds to finance infrastructure in countries such as Australia, Canada and the United States dates back to the mid-19th century. Infrastructure bonds or specific-purpose bonds in the United States are known as revenue bonds and together with general obligation (GO) bonds structure is identified as municipal bonds. The key distinction between revenue bonds and GO is that revenue bonds are payable from specific project-related revenues, while GO bonds are primarily paid from budgetary appropriations.

Most of the material reported in this paper is drawn from literature, government reports, and public records such as budget papers (Chan, 2009):

Table 2: International Experiences

International experiences	Market based model	Development Financial Institutions	Hybrid model
USA	X		
Canada	X		
Western Europe		x	
Australia			X
China		x	
Korea	X		
India		x	
Malaysia	X		
Japan		x	
Brazil	X		
Chile	X		
Peru and Mexico			X

Source: Author based on government reports, and public records such as budget papers

We divide the countries into three groups to draw lessons from the method used to finance their infrastructure needs:

III.1. Market based model:

Sound macroeconomic policies, an appropriate legal and regulatory framework, as well as an efficient private sector are crucial for this model.

In **The United States**, revenue bonds have been extensively used for economic infrastructure projects, while their use for social infrastructure⁷ investments has increased considerably over the past decades. The extent to which revenue bonds are used to fund infrastructure projects across the United States is not easily accessible from reliable data sources. But, based on data on the total amount of municipal bonds issued, revenue bonds accounted for about 65 to 70 per cent of the annual municipal bonds issued over the past decades. The municipal bond market is the third largest debt market in US, behind those of Treasury securities and corporate bonds. According to Cutler and Miller (2005), the municipal bond market in the US has contributed to a change in the ownership structure of waterworks from private to public providers. The source of funding for the reimbursement of revenue bonds is mostly determined by the type of the investment (Brittain, 2002). For economic infrastructure, funds usually come from income made by the project. Funds for the settlement of social infrastructure bonds principally come from sources such as government grants, local tax revenues and lease payments. Further, when default occurs, the US municipal bankruptcy code does not provide for the insolvency of assets and the distribution of the earnings to creditors. So, credit study of revenue bonds is focused on the type of the revenue sources that back the bonds.

In **Canada**, local governments remain the prevalent issuer of municipal debt after their US equivalents. Canadian provinces such as Quebec and Ontario have sold their bonds in international bond markets for more than eighty years. While municipal bonds in Canada are not tax exempt (like in the USA), they are standard financing instruments for sub-sovereign governments. Furthermore, Canadian municipalities offer safety nets to investors. The senior Canadian government, with the exception of British Columbia, directly guarantees municipal bonds through Municipal Finance Corporations (MFCs). This enables less creditworthy municipalities to put their securities on the markets.

In **Korea**, during the 60s, infrastructure investment represented around one third of gross fixed capital formation. At the time, Korea's financial system was fairly poorly developed, thus infrastructure finance was deeply reliant on public and foreign sources. Korea has quite detailed data on infrastructure investment. Some measures included partial VAT discounts when facilities were completed, capped public guarantees, early completion bonuses and permission for excess profit resulting from lower than expected construction costs, and compensation for certain losses such as those due to exchange rate movements. The ratio of private to public investment in infrastructure increased to 18.4 percent in 2008. The government later also permitted the creation of private equity infrastructure funds. These funds were planned to support more private investment in infrastructure, but also to develop the pool of management and operational expertise by boosting more active project management. These funds let investors offer equity to green field infrastructure projects as well as through re-utilizing equity presently tied up in near-complete or operating infrastructure projects. The funds invested largely in toll road construction, with some participation in port facilities and other sectors as well. By end-2009, a

⁷ *Economic infrastructure* incorporates the physical structures from which goods and associated services are produced that enter as common inputs to many industries; *Social infrastructure* includes the facilities and equipment directed at satisfying society's needs in terms of education, health and community services

total of \$76 billion in privately executed projects was underway in Korea. Over the last decade, 79 percent of funding came from domestic bond issuance, with an additional 14.5 percent from foreign bonds.

Malaysia⁸ has accomplished significant progress in developing its physical infrastructure to face the increasing demands arising from rapid industrialization, population growth, urbanization and a progressively affluent society. Particularly, the Government has been very involved in this improvement with total spending on infrastructure development over the twenty-year period from 1986-2005, accounted at RM98.8 billion, equivalent to 2.0% of GDP. Infrastructure bonds valued for around 36% of the total bond issuance between 1993 and 2006. It is evident that the bond market is the key source of funds for infrastructure funding in the private sector. The total value of bonds issued by the infrastructure sector is a sizeable 72% of the RM150.3 billion invested in infrastructure by the private sector. The power sector had the most number of issues with total value issued representing 41.5% of the total of RM108.4 billion issued between 1993 and 2005. The transport sector was the second in this ranking, with 36.0% of the total issue value. The other two sectors, water and telecommunications, represent 12.6% and 9.9% respectively. It is obvious that the bond market is the key provider of resources for infrastructure funding in the private sector. The bond issues have catered for refinancing of existing borrowings, resources raised for working capital purposes and acquisitions of firms.

Brazil's financial sector is quite sophisticated, with a sizeable banking sector including some banks with broad foreign operations. Derivatives markets, mainly for foreign currency, are also well developed. The stock market, with total capitalization around 75% of GDP, has grown intensely in recent years. Pension funds, still, are fairly small, with assets of around 15 percent of GDP, and mostly within the corporate sector. Other institutional investors, such as insurance companies, are developing but the sector is not yet well developed. The market funded three key project bonds in 2010, Odebrecht's Rotas das Bandeiras raised 1.1 billion reais (US\$623 million) for 12 years from the Brazilian market for its operating Dom Pedro highway; a transaction that is recognized as an important opening of the project bond market to Brazilian infrastructure projects; Schahin Group's Lancer issued a US\$270 million bond with a term of six years to the Brazilian and international markets to refinance its offshore drill ship chartered to Petrobras; and, Odebrecht sold a US\$1.5 billion, 10-year project bond to the international capital markets to refinance two nearly completed drilling vessels.

Chile represents one of the best environments in the world for private investment in infrastructure. Succeeding privatization of the public system in 1981, workers were given 'recognition bonds' related to their contributions to the public system, and opened accounts in the new investment companies, called AFPs, into which a part of their incomes was deposited each month. Contributions to pension funds were done automatically. AFPs charge management charges in exchange for investing clients' resources and offer systematic reports on performance. All the big Chilean energy firms issue bonds in both the domestic and foreign markets, though the structure of financing varies: Gener issues almost entirely in pesos and the inflation indexed units of account called UFs, while Colbún and Enersis have issued large *Yankee* bonds. Domestic bonds are issued at investment grade without insurance. The key local market buyers are the AFPs and insurance firms, with bond funds and other financiers remaining a small portion of the

⁸ Japan Bank for International Cooperation Institute (2007)

purchasers' market. Maturities are long, often in the 10–20 year range, with some companies issuing at 24- and 30-year tenors. Chilean energy companies are also dynamic in the *Yankee* Bond market, with issuances in the US\$300–US\$500 million range. Maturities here are also range up to 20 years, with individual issuances rated by Moodys and S&P in the A to AA range. By contrast with the electrical sector, where share issuances and foreign equity infusions have been important, Chilean private road projects have been mostly debt-financed. Bonds have been an important tool for deepening the corporate bond market in Chile. At end-September 2008, the corporate bond market represented 11.4 percent of GDP. Infrastructure bonds for PPP projects constituted 20 percent of this total, or 2¼ percent of GDP. Pension funds and insurance companies hold more than 90 percent of the stock of infrastructure bonds in Chile. Beyond roads, PPPs have also been used in Chile to upgrade public transit and improve airports. The country centralized a vast informal network of public, private and semi informal bus services in Santiago into a large public scheme called Transantiago in early 2007. PPPs were used to build the infrastructure of boarding and transfer stations and to expand bus connectivity in the city. Chile also rebuilt ten airports, including the country's largest airport in Santiago, during the 90s and 2000s.

Lessons learnt:

- ✓ The instruments used to finance infrastructure in North America have been stimulated by the historical progress of institutional and legal frameworks. In the United States, local entities such as cities and counties have constitutionally guaranteed rights to levy tax. Canadian provinces have greater tax raising and policy making powers in comparison to some European local governments, where these powers are typically curtailed by the central governments. This makes Canadian issues easier to advertise and commercially more attractive to financiers.
- ✓ In Korea, instituting the legal and regulatory frame for private equity funds was not direct and the Korean authorities met problems in a variety of areas, inter alia, the funds' legal structure (e.g., permission to make unlisted investments, dividend tax regulations, issues related to minority equity stakes), concern about financiers' knowledge of infrastructure investment, fee structures, and appraisal issues. However, since these concerns have been addressed, infrastructure funds have become more dynamic.
- ✓ In Malaysia, the fairly low public spending on infrastructure development is due mainly to the considerable shift to the private sector and much of the achievement in the country's private financing of infrastructure projects is due to the capacity of the project sponsors and developers to raise resources in the debt capital market.
- ✓ In Brazil, according to the 2010-2011 World Economic Forum report, the country's recent dynamism in the rankings (58th) has reflected the remarkable strides made in the past 20 years toward macroeconomic stability, liberalizing and opening the economy, and reducing income inequality, among other dimensions. Brazil displays one of the most developed and sophisticated financial sectors in Latin America. Its global ranking is 50th, coupled with fairly efficient infrastructure by regional standards ranked 62nd (up to 12 places from 2009) and a relatively well functioning education system ranked 58th.

- ✓ In Chile, A 2010-2011 World Economic Forum report on private infrastructure financing in Latin America gave it the top ranking, far above any other country in the region, due to its macroeconomic and political stability, but also due to its “extremely well-developed e-government services, clear information on policy changes, transparency and openness of statistics publications, and dialogue and decision-making process”. Chile ranked 49th in the world in the World Bank’s 2010 Doing Business Report (World Bank, 2009), and rates about average for starting a foreign business in the Investing Across Borders Report. The financial sector is relatively well developed, with a stock market capitalization of around 144 percent of GDP, a soundly well-established corporate bond market, and a liquid market in interest rate derivatives. The country has one of the most sophisticated financial markets (41st), and the largest pension industry in the region. The liberalization process took place in the context of sound macroeconomic policies (27th for macroeconomic stability) and transparent institutions (28th in the institutions pillars). The financial sector has developed in tandem with Chile’s privatized pension system.

These countries experiences show clearly that sound macroeconomic policies, appropriate legal and regulatory frameworks, requisite capacities within key institutions (such as local authorities), well-developed and functioning financial markets as well as dynamic private sector, are important to evolving strong and sustainable infrastructure bond markets and as such, constitute a lesson for other developing countries that want to follow this path.

III.2. Development Financial Institution Model:

The main **European** issuers in the last decade include Germany, Spain, Italy, Finland, United Kingdom, France, and Sweden. Germany issued the large majority of sub-sovereign debt. With more than 770 issues over the last decade, German sub-sovereign governments were accountable for 82% of the total municipal debt issued in Europe from 2000-2007. Established backgrounds of debt funding for several local and industrial development purposes as well as well-developed capital markets stimulate municipal bond issuances in these countries. We rely on information from Peterson (2000) and Venkatachalam (2005):

In the **United Kingdom**, borrowing for public infrastructure projects by local governments has been through the Public Works Loan Board (PWL B 2007). From the mid-1990s until 2007, the UK undertook significant physical and social infrastructure investment through project finance PPP (known as the “Private Finance Initiative” – PFI). Projects were generally designed with a Design, Build, Finance and Operate (DBFO) structure, such that government entities paid private SPVs an agreed “availability” payment to cover capital expenditure, ancillary operations and financial returns. This market was largely bank financed, without pre-completion guarantees (contractors are often shareholders in the SPV). Projects that were bond financed were either post-completion re-financings or involved pre-construction credit enhancement such as monoline insurance.

In **Germany**, public and private municipal banks play an active role in enabling debts to local governments in most jurisdictions (bunds). In **Sweden**, the public agency called Kommuninvest I Sverigge Aktiebolang is the dominant lender with a 42 per cent share of the municipal loan

market. In **France, Spain** and other European countries, borrowing is undertaken primarily through private financial institutions such as Dexia, following the privatization of municipal banks.

Several Eastern European countries such as the Russian Federation, the Slovak Republic, Slovenia, and Romania have also entered the municipal bond market to fund huge infrastructure projects.

China's infrastructure construction picked up in late 80s, and speeded up intensely after 2000 as the authorities aimed to increase domestic demand and reduce blockages to the growing economy. The pattern of funding for infrastructure projects has developed in the past few years:

- Banking loans have been the major source of financing for infrastructure projects. State-owned commercial banks and policy banks hold around 80 percent of total infrastructure loan portfolios, and bank financing represents more than half of total infrastructure financing. The China Development Bank is one of the most important investors, a policy bank set up in 1994 to provide long-term funding for key projects held by the state.
- Direct fiscal support is decreasing. Usually, government financing more often took the form of direct fiscal support and what is raised to in China as “land premium”. In recent years, central and local governments have tended to allocate a more role to debt instruments.
- Corporate bonds have become more significant, but stay a small share in total financing as the bond market remains underdeveloped. To this point, these bonds have mainly been guaranteed by public banks or other related firms, which have boosted credit ratings to levels that allow commercial banks and insurance companies to invest.

Uniquely, many infrastructure SPVs are listed in the stock market. They channeled resources from the capital market to infrastructure projects.

In **India**, the Infrastructure finance market is characterized by the lack of an active long term corporate debt market, asymmetric information on infrastructure projects, and inherent risks in financing infrastructure projects. Adding to the problem of poor long-term funds is the conversion of development finance institutions (DFIs), which had been the major source of long-term finance previously, into commercial banks which face asset liability mismatch issues and are rapidly reaching their limits for sectorial and group exposure in infrastructure. The breakdown of domestic financing sources for Infrastructure projects are as follows⁹:

- Equity: domestic investors (independently or in collaboration with international investors; public utilities; dedicated Government Funds; and other institutional investors;
- Debt: domestic commercial bank (3-5 year tenor); domestic term lending institutions (7-10 year tenor); domestic bond markets (7-10 year tenor); and specialized infrastructure financing institutions such as Infrastructure Debt Funds.

In **Japan**, development banks have well contributed to the reconstruction and industrialization after the World War II. Their first assignment could be said to have over by the 80s and their attention and role have been then redefined. Most severe changes have been seen in Japan in the area of Development Banking, where the Government owned Japan Development Bank (JDB)

⁹ Asian development Bank, 2007: financing sources for Infrastructure Projects

and three private long term lending banks had fruitfully facilitated the industrialization in the 50s and 60s. JDB, which existed for practically fifty years and played a key role in providing long term finance for investment was dissolved in 1999 and in its place, a new institution named Development Bank of Japan (DBJ) was established with a new mission, concentrating on regional development, enhancement of living standards (such as environment protection and disaster prevention) and strategically main industries. The other three term lending institutions, called, Industrial Bank of Japan (IBJ), the Long Term Credit Bank of Japan (LTCB) and Nippon Credit Bank Ltd. (NCB) went bankrupt under the offensive of competition from other banks and development of capital market since 80s and were reorganized in 1998-99 by putting LTCB and NCB under Government control and merging IBJ with two private sector banks (Fuji Bank and Daichi Kangyo Bank).

Lessons learnt:

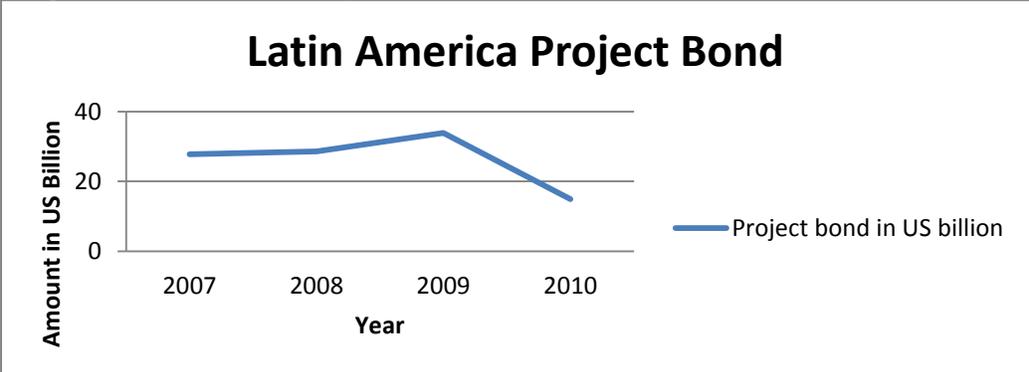
- ✓ Many of the European countries and Japan have traditionally borrowed through financial institutions. However, there are signs of convergence with increased use of bonds in some of the European countries (Jackson 2007; Peterson 2000).
- ✓ In China, local governments have been one of the major drivers behind China's infrastructure boom since attaining economic autonomy in the reform process begun more than thirty years ago. To attain these goals, local governments are vigorously involved in mobilizing financing for infrastructure projects. For example, they provide guarantees—implicit and explicit—for bank loans to infrastructure projects and in some cases offer aids directly for infrastructure Special Purpose Vehicles (SPVs) to boost these bodies' proceeds and credit ratings. These factors can partly clarify the rising share of infrastructure loans in the total loan portfolios of the state-owned commercial banks. The bond market remains underdeveloped.
- ✓ India is characterized by the lack of an active long term corporate debt market, asymmetric information on infrastructure projects, and inherent risks in financing infrastructure projects.

III.3. Hybrid Model:

In **Australia**, quasi-government entities such as electricity commissions and water boards used project bonds to finance capital works from the mid-1800s. For example, Victoria passed legislation in 1855 — the Water Works Debenture Act 1855 — letting the Metropolitan Board (which later became Metropolitan Water and Works Board) to issue securities to fund water-related infrastructure projects. The securities were also used in other jurisdictions to varying degrees throughout the 1900s. By the mid-1970s, there were a huge number of entities, each with their own capital-market instruments competing in a soundly small domestic financial market. This resulted in a relatively high cost of financing. In response, policy makers took up other financing instruments such as the provision of loans at favorable terms from state government-owned banks (Economic Planning Advisory Commission Task Force on Private Sector involvement in Public Infrastructure, 1995).

There is an increasing appetite for infrastructure project in Latin America during the recent years. For example, the **Peruvian** local bond market held two Greenfield project bond financings in 2010, in the Huascacocha water derivation PPP, Brazil's OAS issued a 321 million nuevos soles (US\$116 million) bond through its Peruvian subsidiary for an 18-year term, and in Taboada, ACS issued 942 million nuevos soles (US\$340 million) bonds through subsidiaries for 18 and 22-year terms to finance the construction of a waste water treatment plant. Also, **Mexican** market did see 4.3 billion pesos (US\$320 million), 20-year bonds issued in the Mexican market to support the modernization of the state of Mexico's public registry of properties (IFREM) and other high-priority infrastructure. Main were guarantees from Overseas Private Investment Corporation (OPIC), which translates into a US government guarantee of principal and interest payments on 2.765 billion pesos (US\$217 million), and Corporación Andina de Fomento (CAF), which provided a partial credit guarantee for another series of bonds. Though this bond offering did not support the financing of a project, it reinforces what some market observers believe is key to opening up the Latin American project bond market – such credit guarantees from multilateral development banks and government agencies are needed to ease bondholders' aversion to construction risk in project bond financings. Mexican sponsors have expressed interest in project bonds, and bankers active in Mexico predict a couple of project bond issuances in the near term. The graph 1 below summarizes the total amount spent in project bonds since 2007:

Graph 1: Latin America Project Bond



Source: Author base on Latin Lawyer data

Lessons learnt: Small domestic and poor financial markets imply relatively high cost of financing. Countries that have successfully used infrastructure bonds are those that accomplished significant progress in developing their financial sector. Also, the experiences show that government should be behind the infrastructure boom for countries using the development bank model and the hybrid model.

From the international experiences discussed so far it is the case that countries have followed different paths to finance their infrastructure needs. They are especially three methods: (i) the Anglo-American model, which is only market based, financial markets playing a key role in allocating resources for competing uses, including the industry and long term projects; (ii) the Western Europe model with its home-grown development banks; and (iii) hybrid model more used by Emerging markets. It appears that countries that have successfully implemented

infrastructure bonds per se are those that have: (i) initiated institutional and financial sector reforms; (ii) accomplished significant progress in defining sound macroeconomic policy and political stability; and (iii) implemented clear information on policy changes, transparency and openness of statistics publications, and dialogue and decision-making process. Their rankings in the World Economic Forum Report reflect their effort to build their markets.

In the following section, we will also use the World Economic Forum report to identify the prerequisites for the use of the infrastructure bonds in African countries.

IV. THE EXPERIENCES IN AFRICA

The interest in financing African infrastructure projects with “infrastructure bonds” has recently increased. Certain unique features of the bonds, as compared to bank lending, have prompted this growing interest. As investors’ appetite for construction risk remains extremely low, the market will need to develop with this in mind in the short-term and should gradually follow the expansionary trends seen recently in the emerging countries infrastructure project bond markets (see section V).

Some countries such as South Africa, Kenya, Cameroon and Chad have issued “infrastructure bonds” while others, such as Nigeria and Uganda have also signaled their plans to do so or started discussions with financiers. In the East African region, Kenya has become the first country to issue “infrastructure bonds” to meet the funding required so as to set up the necessary infrastructure for economic development. As of September 2011, Kenya had already issued “infrastructure bonds” totalling \$1 billion. In Nigeria, the Ogun State Government points out its intention to access capital markets through the launch of a two-tranched sub-national debt instrument as an infrastructure bond. A feasibility study conducted by Deloitte Consulting in 2011 on behalf of Uganda Securities Exchange has shown that Uganda would need to raise over \$15 billion from infrastructure bonds to finance various infrastructure projects critical for the country’s economic development. The study also revealed that with a legal and regulatory framework that facilitates private investment in infrastructure (through a PPP Framework), the Uganda Infrastructure Fund (Bond) has the potential to create significant private sector development opportunities.

However, if we consider the definition of an infrastructure bond per se (see section 2), i.e. Where the money raised goes into a project, and future cash flows from the project finance the repayment of the bond, the experiences in Kenya, Cameroon, Chad and large part of the transactions in South Africa do not do this (Copley *et al.*, 2007). They are general government bonds with some promise to spend the money in infrastructure investment, but there is no income stream associated with the underlying asset and cash flows for the bonds are paid directly out of government tax revenues. There is also no guarantee (according to author knowledge) that the money raised goes into the project as promised and neither is there a dedicated Fund Manager, raising concerns about the ability of central government to channel the funds to actual development of infrastructure projects. In such situations, government credibility becomes critical to ensuring investor confidence particularly in the issuance of future bonds and in creating a viable infrastructure bond market.

Given the lack of data, by considering the experiences in emerging countries above (Asia and Latin America), we compare the selected African countries above; using the global competitiveness indicators related to the basic requirements and efficiency enhancers. Our objective is to assess the institutions development and the economic policy in African countries.

Table 3: Competitiveness¹⁰

Countries	Method of financing ¹¹	Basic requirements	Efficiency Enhancers	Stage of development
China	FI	5.27	4.63	2
Korea	M	5.42	4.81	3
India	FI	4.3	4.42	1
Malaysia	M	5.19	4.72	2
Japan	FI	5.35	5.17	3
Brazil	M	4.26	4.35	2
Peru	H	4.22	4.18	2
Chile	M	5.15	4.51	2 to 3
Mexico	H	4.51	4.09	2
South Africa	H	4.35	4.37	2
Kenya	Other	3.5	3.9	1
Nigeria	Other	3.11	3.83	1
Uganda	Other	3.53	3.56	1
Cameroon	Other	3.78	4.31	1
Chad	Other	2.68	2.81	1

Source: Author using Schwab (2010-2011) Report

Countries (H and M) that have already implemented infrastructure bonds:

- (i) Are all in the stage 2 or 3 of development, according to the Global Competitiveness Report 2010-2011. It implies that their economies are driven by efficiency and/or innovation;
- (ii) Countries with solid basic requirements which include institutions, infrastructure, macroeconomic environment, health and primary education, are all scored above 4;
- (iii) Catch up with international best practices and market liberalization and opening

We also compare the emerging countries above and other advanced bonds markets in Africa¹² which are: South Africa, Nigeria, Egypt, Morocco, Kenya, Mauritius, Namibia, Botswana, Tunisia, and Ghana. We use the global competitiveness indicators (GCI) 2010-2011 related to the basic requirements and efficiency enhancers. We obtain the following table:

Table 4: Basic Requirements, Efficiency and Development Stage

	Basic requirements	Efficiency Enhancers	Stage of development
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¹⁰ A higher score is better

¹¹ Countries mix different methods, we specify only the predominant: Market base (M); Financial Institution (FI); Hybrid Model (H) for countries that used infrastructure bond at least once (not general bond); "Others" for countries using other mechanism including general infrastructure bond

¹² According to AfDB (2010) and AfDB (2011)

Korea	5.42	4.81	3
Malaysia	5.19	4.72	2
Chile	5.15	4.51	2 to 3
Brazil	4.26	4.35	2
Peru	4.22	4.18	2
Mexico	4.51	4.09	2
South Africa	4.35	4.37	2
Nigeria	3.11	3.83	1
Egypt	4.19	3.85	1 to 2
Morocco	4.57	3.78	1 to 2
Kenya	3.5	3.9	1
Mauritius	4.82	4.05	2
Namibia	4.70	3.76	2
Botswana	4.37	3.8	1 to 2
Ghana	3.54	3.65	1
Tunisia	5.25	4.28	2

Source: author using Schwab (2010) data

The African countries that are on stage 2 of development are: South Africa, Mauritius, Namibia and Tunisia. In general, African countries need to improve their basic requirements (except Tunisia) and their efficiency enhancers (except South Africa and Tunisia). Three groups of countries seem to emerge from this comparison in terms of competitiveness, governance, business environment and polity stability¹³. Group 1 comprises countries with the best performance on the mentioned criteria: Chile, Korea, Malaysia, and Mauritius. The Group 2 comprises countries that need some improvement on 1 of the conditions: Brazil, Namibia (need improvement on business environment) and South Africa (needs improvement on polity stability). The third group comprises countries that need improvements in 2 conditions: Botswana (need improvements on competitiveness and business environment) and Tunisia (improvements need on business environment and polity stability). The absence of the most advanced African markets (except South Africa) such as Egypt, Nigeria, Kenya and Morocco shows that many reforms need to be implemented in terms of institutional arrangement and economic policies to be able to use revenue bond as experienced Chile, Korea, Malaysia and Brazil.

What we derive from our analysis is that African countries that are planning to utilize infrastructure bonds to finance their infrastructure needs should strongly: (i) improve their basic requirements; (ii) transform their markets, from factor driven to efficiency driven economies; and (iii) catch up with international best practices and market liberalization. Currently, this implies that these countries are driven by their factor endowments: primarily unskilled labor and natural resources. As a result, companies in these countries compete on the basis of price and sell basic products or commodities (Schwab, 2010). For these countries to progress to the next stage requires primarily well-functioning public and private institutions, well-developed infrastructure, a stable macroeconomic environment, and a healthy workforce that has received at least a basic

¹³ We have used the indicators such as World Governance Indicators, Doing Business and Polity IV. These sub-indicators are used to build the GCI rankings.

education. A constructive regulatory environment, governance mechanism and legal framework are paramount to the creation of a vibrant and sizeable local currency project bond market. Thus, MDBs active in Africa such as the AfDB, World Bank and others, as well as development partners, could do well to focus their efforts and support to helping African countries address these challenges.

V. CHALLENGES AND WAY FORWARD

V.1. Challenges in Africa Markets¹⁴

As of December 2011, The African Development Bond Fund Feasibility study (AfDB) identified 708 local currency (LC) denominated sovereign bonds in Africa, outstanding with a total nominal amount of 206 USD billion, and a weighted average time to maturity of 7.55 years. Twenty eight (28) countries have issued LC sovereign bonds, however only 10-15 countries regularly issue bonds. The remaining countries have issued bonds in the recent past, but without any identifiable issuing strategy. 23 countries have long term debt ratings: A = 2, BBB = 4, BB = 5, B = 12.

Domestic bond markets in Africa have been recognised as opportunities to access alternative sources of capital, particularly during periods of financial distress, as they may protect a country's financial system against external shocks and reduce the dependence on external funding. Still, it is recognised that African countries are at different levels of market development and few African governments are able to tap their domestic markets for long-term development funding. A greater majority still rely on external funding in foreign currency, increasing the risk associated with foreign currency mismatches. For those that have achieved some development of their local markets, these markets however remain fairly small and illiquid.

Many challenges remain to efficiently develop bond markets in Africa, the significant progress made notwithstanding. The primary bond markets are small and are led by public and financial institutions¹⁵. Short-term debts dominate most African bond markets as well. According to The World Bank and Sida (2009), even in South Africa, over-the-counter (OTC) trading is still prevalent on the debt market. There are no countries with highly active secondary bond markets, except Nigeria and South Africa. Additionally, there are a number of constraints and issues impeding bond market development in Africa. In this respect, the identification of such problems best assessed from the perspective of both domestic market and regional markets. Given these limitations, deepening regional integration efforts in Africa and the move towards cross-border infrastructure projects, could provide an opportunity for further innovation through multi-country infrastructure bonds and in the process, help to harmonize and rationalize regulatory practices across regions and across Africa. Such an eventuality could be a major “game-changer” in terms of infrastructure finance and the bond market in Africa.

¹⁴We rely on AfDB (2010); AfDB (2011, unpublished Report), and Thorsten (2011)

¹⁵ <http://www.mfw4a.org> database

Infrastructure projects financed with bonds that are backed by revenue streams can fail. Such failures, usually produced by over optimistic investment forecasts and/or cost overruns, may contribute to financiers not only losing their investment, but reputational risks in terms of raising capital for other projects. In terms of bonds backed by government subsidies such as tax concessions, most of the tax linked benefits may be captured by investors and tax planners rather than the infrastructure borrowers. Furthermore, such concessions have the potential to generate tax arbitrage opportunities, which may necessitate complex preventive integrity provisions in the law. This would be mainly the case if the cost of funding the purchase of the bond were tax deductible. From a revenue perspective, an infrastructure bond tax concession is a tax expense that also has a cost to funds in terms of revenue foregone which is expanded to the extent that insolvent projects are financed or the project has a low or negative net public benefit.

The table 5 below summarizes commercial and financial issues by key sectors in the use of infrastructure bonds:

Table 5: Commercial and Financial Issues

Infrastructure	Commercial issues	Financial issues
Power pools, generation, transmission & interconnectors	<ul style="list-style-type: none"> ✓ Off-take/usage agreement ✓ Location/competition ✓ Currency 	<ul style="list-style-type: none"> ✓ Off-taker credit risk
Oil and gas refineries, pipelines and terminals	<ul style="list-style-type: none"> ✓ Domestic or foreign sales ✓ Exposure to commodity price risk ✓ Reserve risk 	<ul style="list-style-type: none"> ✓ Hedging arrangements
Telecoms and broadband cables	<ul style="list-style-type: none"> ✓ Competition ✓ New technologies ✓ Regulation 	<ul style="list-style-type: none"> ✓ Competitiveness vis a vis alternative technologies (off-take contract renegotiation risk)
Water conveyance	<ul style="list-style-type: none"> ✓ Exposure to retail consumer ✓ Provider of last resort 	<ul style="list-style-type: none"> ✓ Currency risk
Trans-boundary water management e.g. dams	<ul style="list-style-type: none"> ✓ Water pricing models ✓ Cross border water issues ✓ Extreme weather events 	<ul style="list-style-type: none"> ✓ Currency
Renewable resources (hydro, geothermal, wind)	<ul style="list-style-type: none"> ✓ Technology risk ✓ Scale 	<ul style="list-style-type: none"> ✓ Transfer pricing
Ports and airport including interlinked corridors	<ul style="list-style-type: none"> ✓ International markets ✓ Freight rates ✓ CO2 markets 	<ul style="list-style-type: none"> ✓ Bad debt collections
Intercity and cross-border road and rail	<ul style="list-style-type: none"> ✓ Toll pricing models ✓ Traffic projections 	<ul style="list-style-type: none"> ✓ Price wars

	✓ Cross border management	
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Source: Author from different project reports (Malaysia, Korea, Chile, US and Australia) and PWC notes

V.2. Way Forward:

The international experiences offer lessons for African countries in terms of institutional, financial and regulatory prerequisites that can stimulate the successful issuance of infrastructure bonds. The reforms should be undertaken at two levels: (i) bond market development; and (ii) infrastructure financing mechanisms.

V.2.1 Bond Markets Development

1. Efforts to Develop Local Currency Bond Markets

- To manage the narrow demand and supply of the bonds on the continent, the role of existing regional initiatives should be expanded to playing a stronger role in facilitating financial cooperation for promoting development of bond markets;
- In view of the lack of consistent benchmark yield curves in most of the markets, the development of liquid government bond markets should be promoted in the first instance. Efficient and liquid government bond markets are vital especially for the correct pricing of all other bond issuances e.g. municipal, infrastructure, corporate bonds etc. because the yields on the government bonds provide the underlying benchmark yield curves to price these other types of bonds;
- Efficient institutional and legal infrastructure reforms and structures should be introduced, considering the under-developed market infrastructure and market mechanisms that are not yet well-functioning;
- The experiences of some emerging countries in Latin America and Asia with advanced bond markets (such as Chile, Brazil, Singapore and Republic of Korea) are valuable in promoting the development process. Sharing such experiences would not only improve the understanding on effective bond market development but also increase the financial stability in Africa;

The reforms mentioned above should be made considering the stage of development of bond market as well as the size of the economy and financial markets development according to the development phase in each country, proper and efficient processes for developing bond markets should be taken. Active efforts to maintain a stable macroeconomic environment as a prerequisite for efficient bond market development should be strengthened.

2. Efforts to develop cross-border/regional bond market

These cross-border/regional bond markets should be established in line with the local bond markets for efficient regional resource mobilization. But, in view of the nascent stage of bond markets in Africa, it is suggested that the cross-border bond markets are to be promoted at the second phase of bond market development. For those countries with relatively developed domestic currency bond markets, it could be better to support the development of the local and cross-border/regional bond markets at the same time. Still, there are a number of legal and regulatory barriers to the development of regional/cross-border bond markets in Africa. In order to construct regional common bond markets that function, diverse regulations and market systems across countries need to be standardized or harmonized. In particular, governance and enforcement laws can be conflicting between countries. Multiple currencies between countries limit the ability to issue domestic currency denominated project/infrastructure bonds without introducing currency risk into the project.

V.2.2. Regional Infrastructure Bond Funds

Building on the experience of the ASEAN Infrastructure Fund (AIF), Regional Infrastructure Bond Funds (RIBFs) should be established as corporate entities wholly owned by governments, Multilateral Development Banks (like the African Development Bank and World Bank), and Private sector bodies. RIBFs would issue bonds for regional infrastructure funding such as for projects contained in the PIDA (see Annex 1).

The RIBF establishment should be based on the developmental objective of each region¹⁶. MDBs participation would provide international investors and sponsors comfort and credit enhancement on bonds issues in the different regions. Private sector could contribute to: (i) Design and execution of the projects, through contracting arrangements; (ii) Direct participation in project financing and operation; (iii) Direct investment (by pension funds and other financial institutions); and (iv) Provision of technical and advisory services to countries institutions. The different RIBF's effect could be better access to fundamental infrastructure services in Africa. The outcome could be a better connectivity within Africa. Specially, the RIBFs could encourage sustainable and inclusive economic development by financing the construction of high-quality physical infrastructure in Africa. The RIBFs could also have two main development outputs: (i) additional resources to bridge the critical infrastructure financing gap in Africa; and (ii) enhanced private sector participation in regional infrastructure development through PPPs. These outputs will lead to accelerate financing for the PIDA projects, and maximize development effect by combining the funding of RMCs, AfDB and the private sector.

Given the fact that outside the CEMAC and WAEMU countries, different currencies would be involved, strong coordination and approvals by Central Banks would be required, as well as the support of strong international partners such as AfDB, World Bank and International Monetary Fund (IMF). An alternative is the establishment of multi-lateral and multi-country SPVs to identify, prepare, and manage regional infrastructure projects and to issue project infrastructure bonds.

¹⁶ CEMAC, ECOWAS, SADC, EAC, UMA, etc.

This paper recommends among others, the following measures:

- Strongly improve basic requirements: Institutions and sound macroeconomic policies;
- Transform their markets, from factor driven to efficiency driven economies;
- Implement international best practices and improve market liberalization and opening;
- Build a conducive regulatory environment, governance mechanism and legal framework
- Build dynamic domestic bond markets;
- Put in place Infrastructure Bond Funds for each region wholly owned by governments, the MDBs and Private sector bodies.

VI. CONCLUSION

The main objective of this paper was to look at international experiences in financing infrastructure developments and what financing possibilities are accessible to African countries that are planning to increase infrastructure investment substantially, particularly the prerequisites for financing projects through infrastructure bonds.

The literature debate suggests that infrastructure investment has a significant impact on output. Probably the key lesson drawn from all of the academic literature is that the issue is not just about increasing the level of public investment, but investing in the right projects and managing this investment better.

The international experiences in general are relatively varied. However, they offer lessons for African countries in terms of institutional, financial and regulatory prerequisites that can stimulate the successful issuance of infrastructure bonds. Extensive attention has been paid to private participation in infrastructure (PPI) as an alternative approach for infrastructure development to reduce the government's fiscal burden and to maximize efficiency improvements through the use of private sector finance and know-how. In Africa, the huge infrastructure deficiencies cannot be financed with government debt alone, and therefore, mechanisms that would allow projects to be financed without increasing government debt need to be considered. In some circumstances, the use of project bonds, if properly structured, could provide the necessary comfort to investors while avoiding the increase on government debt that would occur through financing with general obligation bonds.

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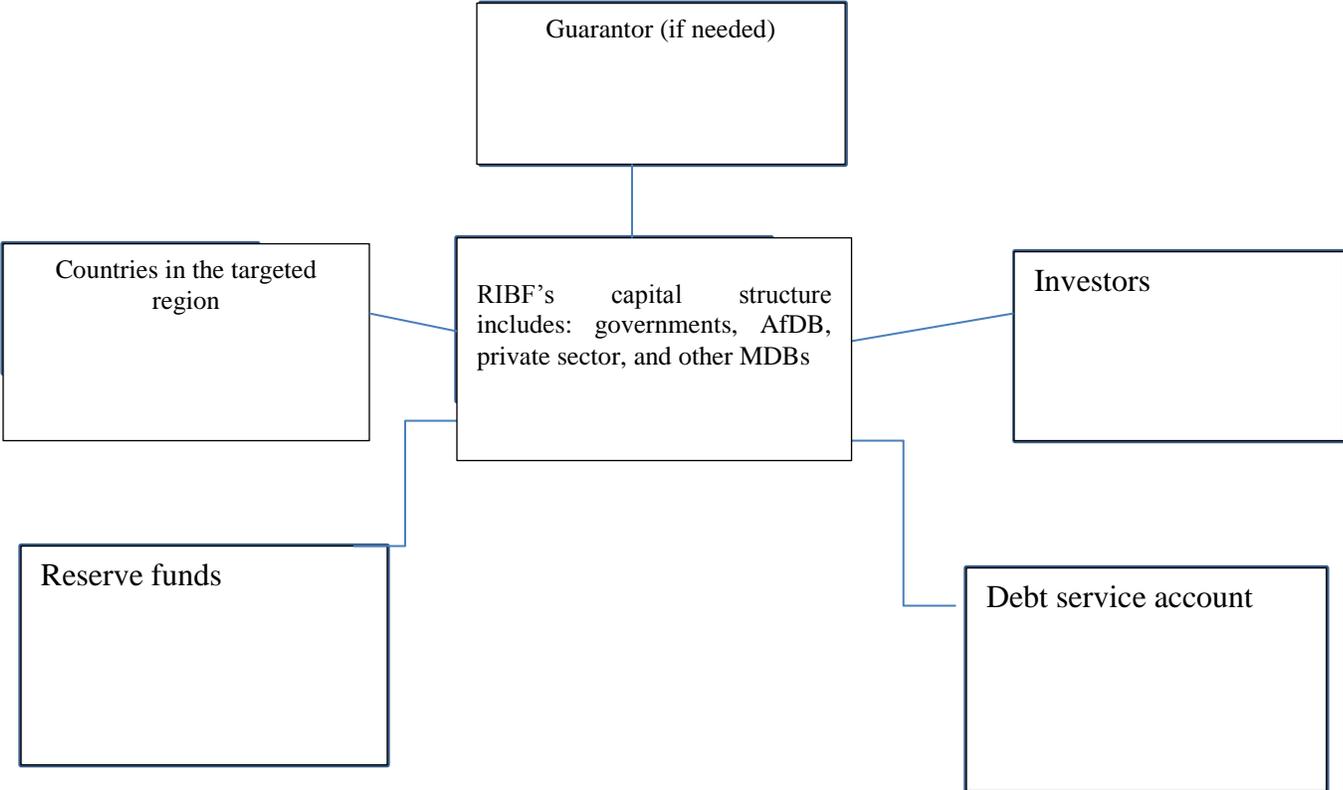
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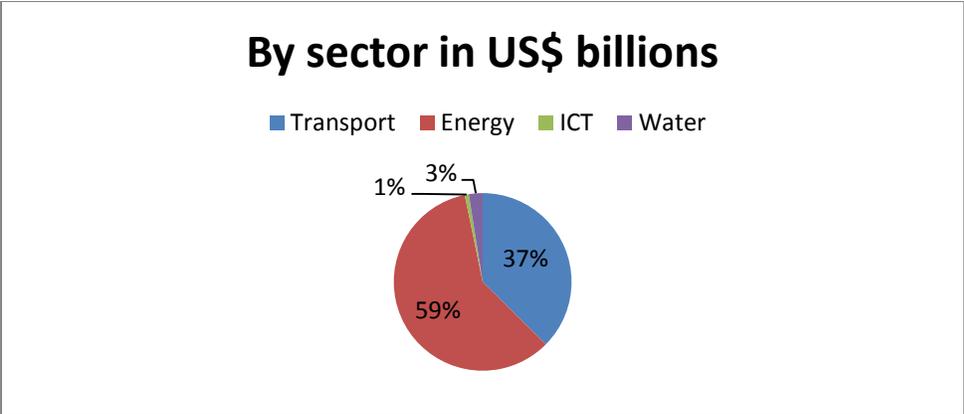
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ANNEXES

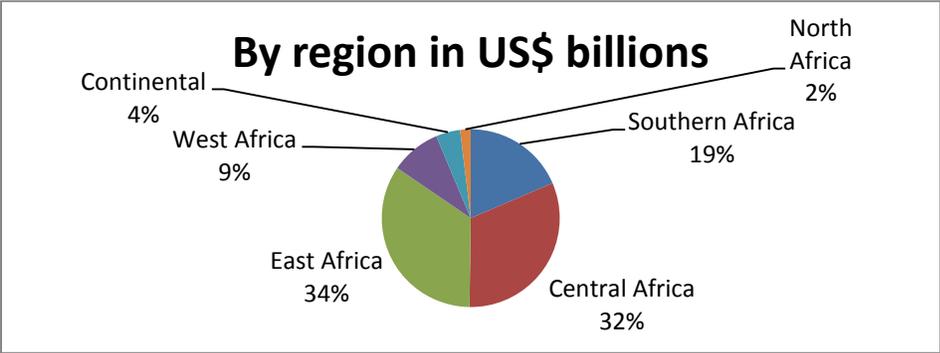
Annex 1: Possible structure of targeted Regional Infrastructure Bond Fund



Annex 2: Total capital cost of PIDA’s PAP by sector and region: \$67.9 billion through 2020



Source: Author with PIDA data



Source: Author with PIDA data

Annex 3: Bank vs. Bond Markets

Credit\source	Bond markets	Bank
Off-balance sheet	<ul style="list-style-type: none"> • Revenue bonds and other structures secured to specific project cash-flows • Few precedents in Africa and often have limited recourse to sponsors 	<ul style="list-style-type: none"> • Project loans for power generation and other non-recourse financings • DFIs and junior participation from local banks is common for African projects
On balance sheet	<ul style="list-style-type: none"> • Corporate bonds issued by infrastructure investors such as utilities, developers • Examples: Kenya, South Africa, Namibia; strong appetite in local markets 	<ul style="list-style-type: none"> • Corporate loans to parastatals and privatized utilities • Strong appetite among local banks in Africa to lend to large corporates

Source: Author with LHGP, Clifford Chance and CPCS Transcom notes

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