

Cities that Work 



Asset and debt management for cities



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Abstract:

This paper argues and provides examples that municipal assets, debts, and liabilities are fundamental elements of any city management program and strategy. Consistent and comprehensive analysis is a very important task that city leaders should fulfill. Well managed cities show visible positive results, such as balanced and sustainable development, stable and affordable services, and well controlled finances and debts. Cities can extract substantial revenues from their physical assets, by strategic management of sale, lease, and acquisition of land/properties and using land-value capture instruments; many of these are applicable in the developing world. But, realizing such potential revenues requires adequate administrative framework, realistic medium-term urban planning, and asset management strategy. Debt-financing can expand urban infrastructure, facilitate development and improve inter-generation equity; but cities in developing countries face multiple challenges, including weak fiscal basis, shallow long-term financial/debt markets, low borrowing capacity, and lack of expertise and experience in issuing debt and fulfilling their debt obligations. The most critical steps for cities to be able to tap into diversified borrowing and debt markets include: good understanding of their debt capacity i.e. how much a city can borrow, concerted programs for improving debt capacity (creditworthiness), and exploring conditions and options for loans, bonds, and debt modalities. Asset and liability management is a new approach that helps address assets and liabilities in an interlinked and strategic manner and make city administration and political leaders accountable for the continued improvement of municipal wealth.

Keywords: Asset management, asset-liability management, asset sale, lease and acquisition, balance-sheet approach, bank-loan, bonds, debt management, debt capacity, creditworthiness, land-based financing, land-value capture, municipal debts, municipal financial self-assessment, structured financing, risk management.

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Introduction

Cities and other urban agglomerations¹ have for a long time owned and managed public assets that are required to provide services to their residents. Cities own land, buildings, infrastructure, housing stock, parks, historic sites and many more assets. They have been selling or buying assets frequently, and in doing so, they have often used external resources, accumulating debt or pledging various liabilities. Despite having done this for ages, city administrators and politicians tend to treat city assets, debts, and liabilities casually and often in a shortsighted manner without adequate knowledge of their size, composition, and value. Many have vague ideas about whether some assets should be kept and operated in their present form or which would be better sold off. If assets are well priced to reflect their true economic cost and if resources are needed, then what would be the best strategy to mobilize them.

Well managed cities demonstrate best practices regarding the above challenges, and these are applicable in cities, both in the developed and the developing world, e.g. Singapore, New Cairo, or Lagos. However, most of the cities in the developing world tend to see their assets as disconnected from city financing, and the results are visible in spreading informal settlements, air, water, and garbage pollution, intermittent water and sewer services, and health epidemics. This paper argues and provides examples showing that assets, debts, and liabilities are intertwined elements of a city finance strategy requiring the attention of city leaders in their commitment to improve services for their residents and taxpayers. These issues are discussed in the following three sections.

First, we address the question of *how municipal governments can make the most of their urban assets*. Assets are the material base to provide key public services, while representing the wealth of a city and thus the key resources for funding development. Selling or leasing land or buildings is an important source of revenue for many cities. While land is physically limited, the value of land can be expanded by transforming agricultural land to urban use. In addition, the increase in demand for land associated with urbanization and the investment in infrastructure results in further increase in the value of urban land. Realizing these potential gains requires adequate administrative framework, urban planning, and management strategy.

Land-based value capture (LVC) refers to a specific set of instruments that enable cities to tap into the increase in the value of privately owned land that results from public investment in urban infrastructure. This can be a substantial resource and a fair practice as it recovers a share of the increase in land value to finance infrastructure. Cities can also benefit from purchasing, readjustment, or expropriation of land. Finally, operating assets wisely and ensuring the maximum possible recovery of the costs of services, while minimizing non-targeted subsidies is a vital part of good asset management.

Second, we address the question *how municipal governments can effectively issue debt*. Buildings and service infrastructure have long decades of useful life with proper repair and maintenance. However, the investments in infrastructure are bulky and would overburden the budgets of cities or higher governments who sponsor development. Medium and long term borrowing/debt to finance infrastructure can expand development capacities substantially, while improving inter-generation equity, since the future generations not only enjoy the benefits of good road, water or transport networks, but also contribute their financing by paying taxes that are used to repay previous debts in installments.

¹ For the matter of simplicity, we use the term cities and municipalities or urban settlements interchangeably.

Bank-loans and bonds are the most common debt instruments well tested in developed countries, but cities in developing countries face multiple challenges, including weak fiscal basis, shallow long-term debt market, low debt capacity, and lack of expertise and experiences in preparing investment plans and issuing debt. Good understanding of the debt capacity i.e. how much a city can borrow is the vital first step towards debt financing. Exploring conditions and options for deciding between bank-loan and bonds and debt modalities is the very second task. Finally, learning from other cities' experiences help avoiding mistakes, such as paying too much for or defaulting of a loan or bond. The role of the central government in guiding cities that aspire to enter the capital market is important.

Third, we discuss *asset and liability management (ALM)* that is the complementarities between city level asset and debt management. City officers often compare options at project level to decide which asset and in what modality is preferred and what financing options and modalities are advisable, but rarely *address assets and liabilities systematically and in interlinked, and strategic manner*. This section explains the innovative practices of assets and liabilities management, its role in strategic decisions at city level and how it can be used by developing countries and implemented via gradual improvements towards best practices.

Strategic level ALM focuses on *issues of strategic importance and in the scope of medium to long term*. In this approach cities can calculate, report, and make administrative and political leaders accountable for continued increasing the *net worth* of a city. *Managing financial assets and liabilities* is natural part of the strategic asset management, because financial and non-financial assets are transient forms of each other. Finally, managing financial assets and liabilities also includes *management of risks* associated with debts and other financial liabilities; some even include risk-based repairs and maintenance of fixed assets.

1. Municipal Assets – how can cities make the most of their urban assets?

Depending on the size, the economic power, and legal framework, cities may own or control large volume of assets such as land, buildings, infrastructure, equipment, and financial assets. These assets are important to provide vital public services and thus absorb large part of the budget for maintenance. Land is often the most important asset, representing more than 90% of the value of total assets in cities of the developing countries (Kaganova & Kopanyi 2014). Cities can use land to help pay for investment in urban infrastructure and/or to yield property taxes. Municipal land however, is often underused and city officers have no precise idea of their holdings and the value of city's assets. However, there is an emerging trend in the strategic management of assets (Kaganova, O. & McKellar. 2006) where cities develop registers for property holdings and establish market value for important land parcels to help strategic decisions about how land can best be developed or sold in light of financial resources and infrastructure responsibilities (Peterson 2009).

Land-based financing can be an important resource in places where cities are growing rapidly. The contribution of public land to infrastructure finance happens in different ways. The most common include the (a) sale or leasing of publicly held land to the private sector via public auctions – it provides cash that can be used to finance upfront costs; (b) land-based tools, such as betterment fees, sale of property rights and impact fees that aim at recovering some of the value increase in land due to public investments (Anderson, 2011); (c) public-private collaboration for redevelopment structure whereby the public sector joins forces with the private sector to develop a certain part of the city; and (d) using land as collateral to secure and access cheaper financing, even in less-creditworthy cities.

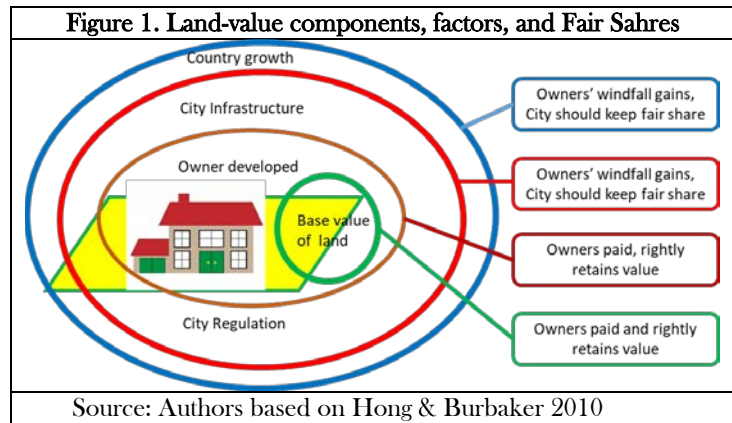
Finally, one of the characteristics of urban land is that it can be *expandable as the city grows*. Cities can create urban land by transforming rural zones at the urban fringe, and realize profits if they own some of such lands or acquire them before expansion and rezoning, even if they pay fair market value at the time of acquisition, a practice Chinese cities follow (Huang, 2016). A city asset manager can also *acquire*

additional land from current users for urban re development, or for highway and airport construction. It can then re-sell part of the land after its value has been enhanced by public investments (Suzuki, 2014).

1.1. What is the value of land made of?

Although land and buildings seem to be static assets that cannot be moved, city officers should be aware that land values are dynamic and respond to the increase in demand for land and the benefits financed by the public sector. Thus, making business decisions on land and building properties based on “book value” registered at the time of acquisition or estimated decades before is a mistake that undervalues the true value of the city assets. Figure 1 illustrates four groups of factors that contribute to increase the value of urban land. The base value of land² is the value at the day of acquisition or the amount the buyer paid that also covers historical factors. Buyers often develop the infra- and superstructure and increase the value of land.

The value of land /properties is also increased by the off-site infrastructure that the city develops nearby (road, transport, water, school), by changes in land use regulations and by population growth and economic development. Such private capital gains are windfall profits for the land/property owners, thus it is reasonable for the city to recover part of those value increases and use them to finance urban infrastructure. Henry George (1869) proposed taxing owners with a 100% levy on value increase. The world has not followed him literally, despite academic discussions and social movements. His proposals remained effective to inspire higher taxation of vacant urban land, avoid land speculation. (Haas & Kopanyi 2017) and explore all the possibilities in terms of land-based finance. In sum, “Land values reflect the capitalized value of access to road networks, water supply, schools and other services made possible by municipal investment.” (Peterson 2007 pg. 285), and thus city officers should be aware of the nature and factors of property values and should seek options to tap into the private gains for financing urban infrastructure.



1.2. Selling or leasing land

Land sales or lease are the easiest way for municipalities to obtain revenue to finance urban infrastructure, especially the up-front costs. Many cities have land holdings that are not earmarked for urban development plans and can be sold or leased to the private sector to generate revenue. Once adequately inventoried and valued, part of that land (or buildings) can be sold out. Both land leases and land sales have the capacity to provide important cash to finance urban infrastructure. However, they are limited by the size of the public holdings and subject to the cyclical nature of the residential and commercial real estate markets of cities. There are cases where cities do not own land or cannot expand

² The idea of intrinsic value of land has been popular since the time of Marx and Ricardo. Nowadays, scholars of social and ecology area argue that the intrinsic value is different from the market value because of value factors invisible or unimportant for market. Such factors do exist, but subjective judgements are used to define them. For example, oil reserves deep under a land is an intrinsic value, but was not a value for millions of years before the crude oil become a crucial energy source. We thus use a dynamic term “the basic value of land” defined as the price owners pay at a specific date of time that includes several off-site factors beyond intrinsic value.

urban land at the fringes of the cities (Singapore, Washington DC). In this case, cities should consider options to acquire land either through public domain, readjustment, or through redevelopment. The latter is the most innovative strategy involving landowners, developers and communities; but most of all city planners, finance officers and lawyers.

Public auctions are the preferred way for the sale or lease of urban land and property because they are faster and more transparent than negotiated sales and auctioneers tend to bid much higher than the value that cities estimate. Auctions are also easy to organize and do not need precise valuation to get started. They are a good way to provide information on the market value of public held land. Auctions can take place “live” with bidders competing at the same time or through sealed bids or tenders that are opened at a later date. To avoid speculators, cities set an initial or reserve price below which no sale will take place. Lozano-Gracia et al (2013) suggests that it should be a bit less than the true market value. Kaganova (2010) offers the rule of thumb that the reserve price should be 80% of the market value. Singapore sets the reserve price at 85% of the assessed market value (Ooi et al 2005). Public land sales have been used in Egypt, Turkey, the Philippines, India (Peterson, 2014) taking advantage of the high demand for new land during rapid urban expansion. Land auctions were used in Istanbul in 2007 where an auction of an old bus stations produced \$1.5 billion, or 150% the city municipal capital budget; on in Cairo- Egypt in 2007 the auction of 3,100 ha of desert land for new towns generated 3.1 billion or 10% of the national government revenues and Over 100% of the city’s annual property tax proceeds (Peterson 2009).

Land Sales Vs Land Leasing. The choice between land sales and land leasing is often a function of the legal system in the country. When countries ban sales of public land (e.g. China, Ethiopia, Tanzania), land leasing is the only option to change unused public land for cash. Sale or lease becomes strategic business decision if both options are legally possible, e.g. in case of Sweden or the Netherlands. Land sales involve one-time transaction whereby the city sells the right to the land and its benefits against an agreed price, ideally determined in the market through public auctions. Land leases are negotiated between the city and a developer for eventual development or construction that will generate a stream of rent over time. The city receives an initial premium that can be the total value of the lease or only a percentage and the rest in *annual ground fees*. Land sales have the advantage of generating an immediate cash inflow to the city, therefore freeing up cash from excess to core assets; and reduce the costs of administering land assets portfolio, including receiving payments and ensuring the tenant is paying ground rates for 20-50 or 99 years. Land leases’ advantages include (Anderson, 2011):

- a) Cities retain ownership of the land and their use, and at the end of the lease they get back the land value and its improvements.
- b) Land leases may protect the city against speculators using a termination clause in case the lessee does not develop the land for the authorized purpose.
- c) Cities also retain control on the use of land, even if this implies lower lease fees. Some Swedish towns use land leasing for housing development to secure available residences for low income households
- d) Cities can encourage development of land without requiring developers to incur the cost of site purchase up front. This is important when developers are liquidity constrained and financial markets are underdeveloped. In the Amsterdam case, the city develops the land infrastructure (OECD, 2017).

Land long-term leases typically have terms of 50 to 99-year others 25 years with multiple renewal options (e.g. Amsterdam, Hong-Kong, China, and Singapore). Chinese cities have financed half or more of urban infrastructure investment levels directly from land leasing, while borrowing against the value of land on their balance sheets to finance much of the remainder. In Hong Kong, the premium received through the leases represent more than one fourth of the overall city revenues. The city government captured 39% of the land value increments realized over the period 1970–1991 on parcels that were leased in the 1970s. Experience, however, indicates that land use control results from a combination of

land use regulations and lease restrictions, which may be in conflict over time, as land use rules may change more frequently than lease terms in a dynamic land market (Hong 1996, Huang, 2016). The value

Box 1 - Land leasing in China

Land leasing in China includes the upfront sale of long-term occupancy and development rights. The practice was introduced in 1987 in Shenzhen as part of the de fiscal decentralization in China, and to provide stable land occupancy rights to investors. From the start, land leasing was tied to infrastructure investment. It provided a large source of revenues that were invested primarily in infrastructure systems further enhancing cities' competitiveness. In 1988, China's constitution was amended to permit land leasing while retaining public ownership of land. In 1990, the State Council formally adopted land leasing as public policy. By 1992, Shanghai and Beijing had adopted land leasing as local practice, and it began to spread. China's leasing system follows the framework developed in Hong Kong.

Hong Kong government owns all the land in the city. Under the leasehold system, the leases are sold for 50 years using sealed tender. Surveyors assess the value of the site and set a minimum acceptable price based on market developments, land use restrictions and lease conditions. The highest bidder will get the site, but if no offer tops the minimum, the government will cancel the sale and take the site back for future sales. Developers are required to pay for 97 percent of the value of the site upfront with 3 percent paid in the form of ground rent, throughout the lease term. Source: Huang 2016 and Hong 1996

of the lease is the present value of the sum of the initial premium, the annual ground rents and the residual land value at the end of the leasing period.

Cities often prefer to receive an initial high premium and a relatively low ground fee as it brings more cash to the city. Hong-Kong requires 97% of the lease upfront and 3% in ground fees during the lease period. Some criticize that this leads to high housing prices and concentration of wealth. There are also concerns that land leasing may not be efficient as investors will not invest as much knowing that at the end of the lease they would lose the investment or would need to renew the lease at a higher premium. Three contract innovations can make the system more inductive to owner's investment: (a) sharing the residual value of improvements between the city and the lessee when the lease ends; (b) including a lease extension clause that is triggered by redevelopment; and (c) incorporating a lease rate escalation clause that guarantees that the ground rate is adjusted by inflation or a performance index, so that the city obtains a return proportional to the increase in the value of the leased land (Dale-Johnson 2001). The latter is used by the city of Amsterdam. Since 2016, once the lease price is set, the only change is the adjustment of the annual ground rent by an inflation index (OECD, 2017). The increasing rents also incentivize the lessee to obtain the highest return from the leased land and buildings.

1.3. Administrative requirements for successful land asset management strategies

Adequate asset management systems require that administrative framework, strategy and policy are linked with city planning through a long-term plan that indicates the direction and nature of development, expansion of the city, how agricultural land is transformed into urban, where new public facilities will be needed and estimating the economic and financial impact of new public investment. A medium term capital improvement plan (CIP) that reflects the priorities of the tax payers over the next five to ten years would be essential Kaganova (2011). This allows the city to look at its assets and judge what can be sold to finance priorities or change in use in order to fulfill the city development vision. Kaganova and Kopanyi (2014) propose clear guidelines on initial asset management models that have been used transition economies such as Croatia, Kyrgyzstan and Serbia, as well as in several cities in Croatia. Asset management administration further requires the following:

Inventory and diagnosis. Well managed cities use a reliable assets register with values attached to the city properties. Cities in developing and emerging countries often lack such asset registers and

inventories. Regardless the situation, before selling or leasing land, cities need to carry out an inventory that identifies and describes all public held land in an urban area, followed by valuation or establishment of the market value of significant parcels. That inventory needs also to include the purpose and justification for the asset to be in the public realm. Based on that inventory the city can make strategic decisions about which parcels should be maintained in current use by the city, sold to the private sector, developed jointly through private and public partnerships and/or converted to other public use. Peterson (2007) suggests Egypt and South Africa as good examples of strategic decision making.

Classification of city assets (including use and cost) should follow inventorying. The objectives are to identify underused assets, assess whether some can be sold off, or whether more land needs to be purchased to accommodate the city expansion. Kaganova-Kopanyi (2014) propose a transparent way to classify city public land: (a) land that the city owns for mandatory functions (such as clinics, education, water stations), (b) discretionary uses (public parks) and (c) surplus land (potential for sale or land leasing). This diagnosis helps the city know in detail how much surplus or underused land it can dispose of, through sale or lease. Understanding how the city is growing and the demands for urban land is an essential step in land and debt management. Best managed cities, including Seoul, Singapore, Tokyo have a set of nested urban plans (5-10 and 25 years) that change in line with the needs of the cities and inform where and when urban land is needed. This information is crucial to assure useful medium and longer-term land holding strategies.

How much land is needed for public purposes? In general, the average is 25% to 35% of the land for residential development and somehow less for industrial purposes. If the city does not have enough land to support the projected expansion, additional urban land must be purchased. A spatial development plan is necessary to signal where future streets, roads and public facilities will be located. This will enable the city to identify which land is really needed and any surplus that can be sold or leased. Kaganova and Kopanyi (2014) suggest that surplus municipal land should be classified as (a) *golden reserve* -- land that should be kept under sale moratorium for 10 and 15 years, to help finance infrastructure or support urban expansion in the future; (b) *large construction sites for divestiture*, suitable for capital construction that will be released to investors via public auctions and other forms of competitive procurement³; (c) *small plots and other sites* that are not suitable for large real-estate developers but can be offered to owners of neighboring sites or leased.

Valuation of public land and properties is a major issue for developing countries. The most common valuation methods include income potential, replacement cost, depreciation and potential income generation. While developed countries have land transaction data and valuation techniques are well tested, developing countries lack both data and the systems to manage this information. For example, land transaction data may not reflect the real sale price due to the tendency to use black market transactions to avoid paying taxes (including capital gains) or heavy public subsidies. Land registries are often non-existent, archaic, or cannot be easily updated. This lack of information hinders the analysis that is critical for land value appraisal, while hiring private consultants is very costly for maintaining and updating land price data. However, Peterson and Kaganova (2010) report on encouraging examples in Kuwait and South Africa⁴ where the public sector is trying to adopt the procedures to value public land as those used in private land.

Valuation methods. Many property assets have book value in balance sheets or analytic accounting system that reflects the initial acquisition/construction value net of depreciation. Public land, however, does not have neither construction value nor depreciation or, more often, has no value records at all. Developing value-based asset registers is a new challenge in the developing world; however, valuation of properties is essential before cities make strategic transactions. Conceptually, there are four valuation

³ The release should be planned and pre-approved by the local elected body and timed to the real estate markets.

⁴ South Africa mandates that public land be taxed the same way as private land which means that public land undergoes the same valuation processes as private properties (Peterson and Kaganova 2010).

methods (a) market value, (b) sales comparison approach used for small properties and vacant land (Haas & Kopanyi 2018), (c) estimated income and (d) cost approach. Market value is the most often used in developed countries, but in many cases the methods are combined to estimate property values. The income approach is used to value offices and commercial properties, taking an estimated income and hurdle rate to calculate the capital value. Finally, the cost approach is used for new construction and renovations, but also for special properties such as stadiums, museums (Lafuente 2009). Some countries like the United States and Germany have valuation boards that are in charge of collecting and maintaining land prices and disseminating price information (Kertscher 2004 and Seidel 2006).

Table 1 Land Sale and Valuation Scenarios 10 hectare of greenfield site	
Scenario 1: according to present development plan: permitted use “Industrial zone” production warehouse with auxiliary offices, built in 14% of total place	Scenario 2: according to market study: permitted use production warehouse offices, retail warehouse with showroom, home improvement center with retails shops; built in 14% of total place
Production warehouse 60,000m ² + Office 10,000m ² = Total 70,00 m ² Price: Euro 14.5/m ² or total Euro1.44 Million	Production Warehouse 40,000m ² + Office 10,000m ² + Retail warehouse 20,00m ² = Total 70,000m ² . Price: Euro15/m ² for production and office, Euro37/m ² for retail warehouse = Total Euro 2.164million
Source: Kaganova and Kopanyi (2014)	

Ways to enhance the Value of Municipal Land. Land has no one single “absolute” market value, although we can identify the factors that explain its market value at a given time. Selling prepared sites with basic off-site infrastructure is preferred to selling raw land, and developers pay for such infrastructure. When cities decide to lease or sell their land assets, the value that they will get also depend on the legal rights and permits for use. Land is more valuable when zoning codes, land use permits and regulation are favorable to the investors. Table 1 illustrates how two scenarios of regulating permits affects land sale values. The benefits are substantial and justify a market study. These considerations need to be included in a comprehensive city development plan to avoid that pure profit motivation will lead to regulations that enhance the sale price in a given moment but may hinder the connectivity and inclusion of the city in the medium and long-term.

1.4. Development Based Land Value Capture

Land value capture instruments. Land value capture (LVC) has become a standard argument for implementing taxes based on land. The rationale is that the value of privately held land increases as a result of public investments or from a change in regulations. LVC proponents argue that governments should use taxes and fees to collect at least some of the increments in value accruing to private landowners for infrastructure finance. LVC instruments work well in rapidly growing cities where there is significant land value to capture, especially as agricultural land is converted in urban land and population density increases (Walters, 2012). The most common forms of LVC taxes are betterment levies, tax increment financing, and sale of building rights (Table 2).

Betterment levies are direct charges on property owners to pay for infrastructure improvements that benefit their properties within a designated area of improvement. The charge could be a portion (often between 30 and 60 percent) of the increment in land value arising from the investment (Petersen, 2009, Smolka 2103). Many countries have experimented with betterment levies but they have faced several issues. On the one hand, it is difficult to identify with precision the impacted properties and the land-value gains resulting from public projects. Sometimes betterment taxes were so high that that both the public and the courts have rejected them (Peterson, 2009). On the other hand, taxpayers refuse to pay taxes without knowing exactly how the proceeds will be used. Colombia has been using betterment levies since 1921 but has adjusted the imposition of the tax. Rather than looking at parcel valorization, it tied the street

improvements into a large city program all financed in part through a citywide valorization fee differentiated by benefit zones. Despite these problems, betterment levies generated one-fourth of local revenues in Bogota, Medellin, and Cali and financed more than half of Bogota arterial road network (Uribe 2010). In India, during 1998 and 2002 several cities used betterment levies, beginning with Bangalore, Karnataka, Surat and Gujarat (Mohanty, et al. 2007) following more recently by Mumbai, Delhi.

Table 2 Selected Land Value Capture Tools

Instrument		Description
Tax or fee based	Property and Land Tax	Tax levied on estimated value of land or land and buildings combined, with revenues going into the budget for general purposes
	Betterment charges and assessment fees	Surtaxes imposed by the government on estimated benefits created by public investment, requiring property owners who benefit directly from the investment to pay for their costs
	Tax Incremental Finance (TIF)	A surtax on properties within an area that will be redeveloped by public investment financed by municipal bonds against the expected increase in property taxes. Mainly used in the United States
Development - based	Land sales or lease	Municipalities sell or lease land or development rights of land whose value increased due to public investment or regulatory change in return for an up-front payment, leasehold charge or rent till the end of the lease
	Joint development	Cities, developers and entrepreneurs engage in a joint project so that facilities and adjacent areas contribute to the investment and benefit from the increase in economic activity. Used in transit projects in Japan and the US
	Air right Sales	Cities sell development rights beyond the limits specified in land use regulations such as FAR or created by regulation to raise funds to finance infrastructure or services. Sao Paulo Solo criado.
	Land Readjustment	Land owners pull their land and contribute a portion of their land for sale to raise funds and partially defray public investment costs.
	Urban Redevelopment Schemes	Landowners and a developer for a cooperative to consolidate piece meal land parcels into a single site that they then develop (e.g. mix used high rise building) with open space and access roads. The local government changes the zoning codes and increase maximum FARs in the target areas and finances infrastructure. Japan.

Source: Suzuki et al (2015)

Tax increment financing (TIF): Under TIF, cities earmark future growth in property taxes to pay for the public investments in infrastructure. The volume of tax increments estimated for 15 and 35 years is used as collateral to secure investment borrowing and then during that period the agreed portion of the incremental tax is channeled to a TIF fund to be used for the repayment of the loan or bonds issued to finance the project. This option is mainly used in the USA (Merk et al. 2012). The success of TIF depends on the existence of a strong property tax system, good data, and high collection rate.

Sale of Building rights⁵. A variant on the betterment tax has been implemented in Sao Paulo since 1995. In this system, the city identifies the additional development that will be permitted in a given area —by a change in regulation such as the FAR— and issues Certificates of Building Potential (CEPAC) for areas which are then sold through electronic auctions on the Sao Paulo Stock Exchange.

⁵ “Development rights refer to the maximum amount of floor area permissible on a zoning lot. When the actual built floor area is less than the maximum permitted floor area, the difference is referred to as “unused development rights,” or “air rights,” These excess density rights represent the publicly controlled share of privately owned land. These rights have economic value that can be sold by public authorities, which happened in São Paulo and New York City” (World Bank, <https://urban-regeneration.worldbank.org/node/22>)

A license to build over the current FAR requires payment in CEPACs based on the number of additional square meters that are applied for. São Paulo has obtained considerable revenue from this process. In 2012 the auction of CEPACs yielded \$420 million to local revenues on top of the \$ 2.5 billion from previous auctions (Smolka, 2013). Other cities like New York, Lima, Stuttgart, Bethesda, have used similar instruments. In India, the Chennai Metropolitan Development Authority's second Master Plan provides for charging a premium on additional FSI. Chennai allows additional FSI subject to the width of the road. The premium is charged at the registration rates. The collections from this instrument are maintained in a separate account for infrastructure and social development in that area (Peterson-Annez 2007).

Selling building rights based on low base FAR regulation can be controversial, as it seems that the city is making money by selling the right to violate its own density restrictions—an apparent regulatory ambiguity. However, the result has been an overall increase in density, which is a welcome outcome endorsed by economists as it lowers real estate prices, reduce GHG emissions and improves efficiency (Bertaud 2013). Bruckner (2009) argues that low-FAR with marketed exemptions eventually raise property prizes as it is the case in growing cities like Mumbai or Bangalore India. However, the same Mumbai shows positive effects by selling higher FAR rights based on developers' commitment to build agreed amount of affordable housing units set by competitive bids (Clark & Moonen 2014, 16).

Developer Land sales. Many countries have passed the responsibility of providing infrastructure to developers who will recover the costs through land sales. New towns represent an extreme case of internalization both land development and infrastructure financing. This is the case of Orestad in Copenhagen whose infrastructure and freeway were financed by land sales, as well as the New Cairo in Egypt who are supposed to house 6.5 million people. The strategy has been using PPP that recognizes the market value of the land. NUCA the authority for new cities used to provide infrastructure for those cities. In 2007 the authority auctioned off substantial parcels of desert land equipped with basic infrastructure services for \$3.1 billion that was enough to cover the cost of internal investment. Proceeds were used also to build a major highway connecting the new cities to Cairo's ring road (Peterson 2009).

Development charges/impact fees and exactions are one-time levy imposed on developers to finance the capital costs associated with development of off-site infrastructure (water, road, energy connections). It is essentially a cost recovery mechanism. The charge is levied for works constructed by the city and the funds are used to pay for the infrastructure. Fees paid by the developers can be in-kind (e.g. provision of public services) or monetary. They need a strong regulatory authority to ensure that the fees are collected and used for the defined purpose. Chile is the only country in Latin America that tried this method in the 1990s to finance 62 Km of roads. Development charges are mostly used in developed countries, but also popular in South-East Europe (UPP 2017), cities in Jordan and in Turkey can levy "contribution" to recover cover up to 50% of the infrastructure development from land owners by charging up to 2% of taxable value of properties in Turkey (No. 5216 Law on Metropolitan Municipalities, 2004).

1.5. Beyond revenue maximization—the use of well-located land and for urban development.

Expropriation, eminent domain or compulsory purchase are the primary methods cities use to acquire land to accommodate urban expansion or redevelopment. Economists and legal scholars have justified forced purchases when the transaction costs of stitching together many small properties are too high for a deal to be reached by consensus; especially it can be used to overcome the power of so-called holdouts. Thomas Miceli and Kathleen Segerson (2011) show that when a buyer has to negotiate in sequence with sellers of contiguous plots of land, the price at each successive sale will rise. Landholders know the project cannot proceed unless the buyer acquires all the plots he needs. The more he acquires, the greater

the cost of abandoning the project. The ransom those yet to sell can demand increases accordingly. Because of the holdout problem, investments that have big public benefits such as urban redevelopment will not be possible unless a sale is forced. Laws in many countries, therefore, allow for the compulsory purchase of property (known as “eminent domain” in America), as long as those affected are justly compensated. But in developing countries, where markets for land in particular less liquid and more corrupt than in the rich world, determining a fair price is often problematic.

This area of public policy is full of controversy as people are concerned with corruption and private negotiations. There are also tradeoffs between public interest and displacement of population. The balance between urban expansion and equity is not an easy task to fulfill; the World Bank has strict social safeguard policies to protect incumbent people and ensure fair compensation in all Bank-sponsored projects (World Bank 2017). Cities may be forced to pay high costs when forcibly purchasing land from landowners. In China for example, the compensation is 4-6 times the average production value of the land in the last 3 years plus a settlement subsidy equal to 4-6 times the average production value. A study on Chinese cities in late 1980 concluded that the break-even price is 84% greater than the construction cost and profit, implying that the final user pays well above the cost of the project (Huang 2016). Many countries laws allow expropriation of up to 5% of land without compensation (e.g. for widening a road or installing amenities such as drainage or street lighting).

There are three groups of countries based on expropriation practices: a) rapidly growing and strong economies, together with weak rule of law leads to extensive use of the power of eminent domain; b) weak states and economies show less use of expropriation as the demand for land is also smaller; and c) highly industrialized countries expropriation is still used on a regular basis despite debates on or movements against such urban policies. Expropriation of large farmlands for urbanization at undervalued prices is common in developing countries (China, India), while purchasing contiguous plots is part of land consolidation. In developed countries such as the United States, a survey found only 3 percent of successful appeals against expropriation (Azuela and Herrera 2007). Expropriation of farmland for other than urbanization purposes is also common. in South-Africa (Kilian 2018); but that is beyond the scope of this paper.

Land readjustment. The difficulty to establish a fair compensation policy is generalized as there is no accepted methodology. In this context *land readjustment* (LR) aka *land pooling* is an alternative for urban expansion. Land readjustment is mostly used to expand boundaries on the urban periphery where land is in private holding. LR is preferable to expropriation or public domain, it is participative and is arguably more equitable and efficient (Hong 2007). LR involves efforts from public authorities to consolidate land, redraw boundaries and adjust property rights. During the process, the affected landowners are invited to integrate the project and receive a similar value land in exchange for their own plot. Meanwhile, the city commits to build road and infrastructure against a 40-50% gift of land for free, With the increase in value associated with the infrastructure, landowners will see their land increase in value and have received cash for the part they sold to the city. The infrastructure is financed by selling the excess land and sharing proceeds between the city and private land owners (Ahmedabad, India offers a good example in the developing world (Kopanyi 2014).

1.6. Infrastructure as a Source for Current Revenues

To promote inclusive growth, cities need to deliver public services and invest in infrastructure. Cities fund these expenditures out of their own-source revenues (taxes and user charges), intergovernmental transfers, and external resources. Own-source revenues are critical because they not only allow cities to deliver the services that people want but they also ensure that cities are accountable to their constituents for the services they deliver and the revenues they collect (Slack 2014). The basic challenges cities face includes price/tariff setting, justified costs, affordability, subsidization, collection, and enforcement.

Pricing for Services. Assets, as said, are the material bases for services; and sustainability of assets and services require collection of user fees for provision of goods and services such as water, energy, solid waste, or public transport for cities at all levels of development. Proper *pricing* aka *tariff setting* helps consumers decide how much to consume, decreases excess demand and therefore reduces the pressure to invest in additional capacity (Slack, 2014). Good tariffs should ensure cost recovery and financial feasibility, and reduces cross subsidies (Morell and Kopanyi, 2014). These principles are often not followed in developing countries, as capital investment is mostly financed by central governments, user charges are subject to local politics and often are set below what is desirable, which provides strong incentives for over consumption. User charges are conceptually composed of two elements: a fixed element that relates to fixed costs to recover investment and finance infrastructure expansion, and a variable element that covers operational costs and reflects the individual consumption. When services are provided by concessionaires, user charges are agreed in the concession contract and monitored regularly by the parties. When the service generates positive externalities (e.g. potable water), the above user charge will not produce the optimal social consumption of the good. Subsidies (financed at central level or through cross subsidization) are often used.

What is a good tariff? A good tariff or an adequate set and combination of tariffs should enable the service provider to recover the current costs and finance replacement and expansion of services as needed. Tariff design requires discussion on elements that enter into the calculation of the tariff, notably a) What costs need to be covered? Operational costs or full costs, including investment and financing? b) Is the cost of service realistic, or inflated because of high technical losses (unaccounted water), lack of metering, illegal connections etc. c) Why are the collected fees insufficient to cover cost of operation? Because of lack of metering, unreliable databases, poor billing and collection, and no enforcement. d) Can costs be recovered without consumer subsidies? e) How to take into account the consumers who are unable to pay the final user charge? f) Is the municipality willing to increase the tariff in order to assure the financial sustainability of the service? Good tariffs depend on the answer of the above questions. On the one hand, tariff increases per se may not be the solution if the service is affected by poor management and low efficiency; on the other hand, one must bear in mind that assets are not managed sustainably if costs are not recovered!

Affordability and subsidies. A single tariff may be a negligible expenditure for affluent families, normal for the middle class, but too high for poor families. On equity grounds, low-income groups or low-income zones of a city, where people cannot afford cost-recovery tariffs should not be closed out from services. Studies show that when closed out, poor families often pay several times higher unit-prices for water to the private vendors (tanker monopolists) than do wealthy families who get water by house connections (Klein 2012). A combination of capital and operating subsidies are quite common even in middle-income countries; price discrimination and volumetric tariff and offering different combinations of price and quality of services (using a public tap instead of in-house water-connection) can improve equity by charging rich and poor differently. Cities can also provide income-based subsidies decided by means-testing (Chile's water subsidies), or targeting the areas where the poor live. But the ultimate condition is to run services at the lowest possible cost, as a result of good knowledge and management capacity, proper repair and maintenance of assets, loss-control, and affordable tariffs (Komives et al, 2005, Morell and Kopanyi, 2014; Freire et al, 2016).

Billing and collection. Effective billing and collection systems are critical for ensuring financial sustainability and cost recovery with a billing cycle that bills customers on a monthly by volume to ensure they pay for service they consumed. Volumetric charges could (a) a uniform volumetric charge; (b) a rising block tariff where the unit charge is specified in bands with increasing unit-charge as water usage increases; and (c) an increasing linear tariff where the unit charge increases linearly as water usage increases. Metering is the best practice, but often unavailable in developing countries. Without metering a proxy for volume can be used such as the diameter of the connection pipe that correlates with the size of the house or the wealth of the owners. Reliable computerized databases, cross-referencing various

services to identify customers, and joint billing of water, electricity, and solid waste (even property tax) can improve revenue databases and increase collection.

In Burkina Faso, a program to improve collection included performance indicators to measure improvement in metered consumption, billing, complains and arrears. As a result, water losses declined by 17%, metering reached 100%, and cost recovery improved to 98% In Johannesburg, the water utility decided to use prepaid meters to reduce water losses. In Manila, the private concessionaire extended metered connections to 100%, improved billing and collection by easy payment system through banks or payment centers at shopping malls. Fee revenues doubled and the average collection day fell by half to 50 days. Similar improvements occurred in Bangkok and Singapore. (WSP, 2008). In contrast, in India state governments often bail out local bodies, or intercept debts even without the local body knowing that. The New Delhi water provider receives over 50% subsidy in bulk payments without performance conditions (Morell-Kopanyi 2014).

2. How can municipal governments effectively issue debt?

Traditionally, most cities (especially in developing and emerging countries) rely on central government transfers, and subsidized borrowing to finance their investment needs. But these resources are considered to be insufficient to meet the funding needed for long-term city investments. Since many projects at city level are profitable, the question is how can cities draw from the private capital market, what obstacles are on the way, and how can cities be assisted to improve their creditworthiness and get experience in accessing credit for infrastructure finance.

Table 3 Comparison of Bonds and Bank Lending

Factors	Bonds	Bank lending
Cost	High transaction costs with expensive preparation	Simple and fast transactions without costs, except for syndicated loans
Maturity	Relatively longer term	Short/Medium term, long w. development banks
Interest rates	Fixed rates	Fixed or floating rates
Repayment	Redemption of principal at maturity	In installments
Merits and Demerits	Fund raised from extensive number of investors, High credit rating in required	Credit rating is not required, may be beneficiary, Banks may offer “relationship lending” based on previous interactions, without specific risk-indicators

Source: Freire, 2014.

Bank Loans or Bonds? When borrowing makes sense based on financial analysis and backed by an approved multi-year capital improvement plan, cities need consider the most appropriate credit instrument, notably whether to borrow from a local or national bank or to issue debt/bond in the capital markets. Other options would include grants or/and public private partnerships. While the bank or bond models have different strengths, they do not have to be mutually exclusive (Table 3). Many countries (e.g. Colombia, Mexico, Czech Republic) have developed segmented markets in which the smallest cities borrow mainly from government subsidized institutions, while midsized cities borrow from commercial banks, and larger cities have entered the bond market. Specialized municipal banks traditionally offer long-term loans often supported by the national government. The Municipal Development Funds are specialized financial intermediaries that not only provide finances but help cities with capital planning, financial structuring, and project evaluation. However, against ambitious plans, only a few of them managed to channel long term resources to the public sector using capital markets (Freire, 2014; Freire and Petersen, 2004).

Municipal bonds are debt obligations issued by a local authority with the promise to pay the bond interest (coupon) on a specified payment schedule and the principal at maturity. The bond works like a loan. The

issuer is the borrower (debtor) the holder of the bond is the lender (creditor) and the coupon is the interest. There are different types of municipal bonds: general obligation (GO), revenue bonds, and structured bonds. GO bonds are issued against the general budget revenues of a city and in developed countries considered the most secure form of debt because they are backed by an issuer's "full faith and credit," including its power to tax⁶. Bonds may also be secured by future revenue streams, such as tolls or other user charges and are called revenue bonds. Cities may issue bonds to refinance or "refund" existing debt. Structured bonds are secured by revenue sources that are not related to a project; for example, Chinese cities use land holdings to secure their bonds, Argentina province Mendoza secured a bond using its oil royalties. In developing countries, investors concerned with the creditworthiness of the local governments, thus prefer structured bonds to ensure bond repayment regardless of the cities' conditions; this often means a provision for intercepting of intergovernmental transfers (World Bank, 1999, 2012)

Municipal bond markets are robust in a number of developed countries. The US muni-bond market reached \$3.4 trillion or about 20% of the GDP in 2016. In Canada, municipal bonds are attractive choices for household investment. The stock of municipal debt reached US\$40 billion in 2014 (O'Hara 2018). Half of the Canadian bonds are non-rated, reflecting the trust that the public puts on Canadian municipalities; since 1983, there was no single default at municipal level. China has shown extraordinary growth of municipal bond issuance, using municipal special financing vehicles (SFV) and land as collateral (Hong 2010). China is now the second largest municipal bond market with US\$1.3 trillion worth of outstanding municipal bonds.⁷ In Europe some countries government agencies issue municipal bonds (Sweden, Germany and UK). Municipal bond markets are nonexistent or sporadic in Asia and Africa. Only South Africa commands enough thrust to attract investors to the bonds issued by its largest cities.

The market for municipal bonds expanded substantially in the 1990s in response to the rapid urbanization in Latin America and other emerging regions. With the support of international agencies, many municipalities issued bonds, some in international markets, to finance investment and refinance expensive domestic debt. Unfortunately, many of these issues (in particular in Brazil, Argentina, Russia) did not go well and ended in municipal and regional defaults⁸. The national governments had to absorb the municipal debts leading to a dramatic increase in national debt, and prompting a set of legal restrictions to local borrowing in terms of borrowing caps and use of external finance (Freire and Petersen, 2004). This fear of moral hazard continues to be felt around the world after the negative impact that the financial crisis of 2008 had in many municipalities including in the United States (Freire, 2013; Freire 2014). As a result, national governments have legislated and imposed limits to borrowing and sub-national debt in most countries. These limits aim at imposing hard budget constraints and avoid that municipalities overborrow, while helping cities move towards greater creditworthiness by improving fiscal management and debt strategies. Table 4 summarizes some of the restrictions to borrowing used in selected countries (Ebel 2014).

⁶ The local government of Madurai India issued a revenue bond to finance a 27 kilometers of the Madurai inner-ring road. The bond generated \$23 million, with a 10-year maturity and 12% interest rate. The issue was rated AA++ due to a scheme of guarantee and enhancement.

⁷ This was the result of national government ban on cities borrowing from commercial banks. To circumvent the limitation of revenues, Chinese cities established special financing vehicles that could borrow and issue bonds on behalf of the municipalities using the results of leasehold sales as guarantee. In 2014 the Chinese authorities decided to recognize and privatize the financing of the municipalities (Hong 2010).

⁸ Brazil: experienced three subnational debt crises in the 1980s and 1990s; Argentina default of Mendoza and Buenos Aires was a major factor that explains Argentina's sovereign debt default in 2001; India: many states experienced fiscal stress in the late 1990s to the early 2000s, with a rapid increase in fiscal deficits, debt and contingent liabilities; In Russia at least 57 out of 89 regional governments defaulted over 1998 – 2001; In Hungary 40 municipalities declared bankruptcy (Ebel, 2014; Lui and Wabel, 2008).

Table 4 Central Government Rules to Enforce Subnational Borrowing and Debt

<i>Country</i>	<i>Fiscal framework</i>	<i>Enforcement mechanisms</i>
Austria	Borrowing: For municipalities, borrowing is only allowed to cover extraordinary expenditures.	Financial sanctions: Governments that fail to reach the target would have to pay a fine totaling 8 per cent of the stability contribution and 15 per cent of the shortfall, respectively, up to a ceiling.
Brazil	Fiscal rule. The Fiscal Responsibility Law (2000) establishes annual targets for revenues, expenditures, the primary balance and changes in the stock of debt. Compliance with fiscal targets is to be made public every fourth month.	Sanctions: Sub-national governments failing to comply with ceilings on debt, personnel ceilings or transparency requirements will face financial sanctions. Governors and mayors may also risk impeachment and imprisonment.
Colombia	Fiscal rule: Authorization to borrow depends on a rating system for territorial governments based on a liquidity indicator as well as a solvency indicator.). Borrowing: As long as debt interests/operational savings (liquidity indicator) is less than 40% and the debt balance/current revenue is less than 80% (solvency indicator).	Market Discipline: The central government does not bail out SNGs and financial support to SNGs is banned if not in accordance with solvency laws. Insolvency Recourses: Embargos of fiscal transfers and bank accounts obligate SNGs to pay outstanding fees along with penalties and interest.
Czech Republic	Borrowing: No explicit restrictions	Market discipline: Sub-national debt is not guaranteed by the state aside from exceptional cases
Denmark	Borrowing: Municipalities have no access to borrowing but there are exceptions. Municipalities can borrow for investments in specified sectors that are financed by user charges.	Financial sanctions: In case of violation of the tax freeze all net extra tax revenues will be confiscated through a reduction in individual and general block grants.
Finland	Borrowing: All borrowing is coordinated by the municipalities' organization and is not guaranteed by the state.	No sanctions: Municipalities are obliged to make a plan of how to cover any deficit in the balance sheet.
France	Local governments cannot have an operating deficit. Borrowing: French local authorities are allowed to borrow in order to finance capital investments. Borrowing: Banks cannot sell structured products to SNGs that risk loss of capital or products indexed to volatile variables	Administrative procedures: The local central controls local budgets. If the budget breaks legal requirements, it is sent to the Chambre Régionale des Comptes (CRC).
Germany	Borrowing: Borrowing is only allowed for investment expenditure. Municipalities can only use borrowing to finance capital investments if other financing is not feasible and it is subject to regional approval.	Coping Mechanisms: To cope with cyclical economic downturns, German State SNGs can cut mandated expenditures (Sutherland et al 28).
Hungary	Borrowing: Municipalities are authorized to borrow only to finance capital outlays, up to a ceiling of 70 per cent of their yearly net (after interest payments) own revenues. ⁹ Borrowing since 2012: The amount of debt service must be below half of annual own revenues (excluding all transfers and shared taxes as well as capital revenues).	Sanctions: As of 2010, central government intercepts of VAT funds, overpaid grants, and other revenues upon imposed fines can instead be replaced by an installment plan for municipalities to pay what is required without “adversely” affecting the performance of mandatory tasks” (
Ireland	Sub-national governments have to run balanced budgets. These are monitored and controlled by the Department of the Environment and Local Government. Borrowing is	Administrative procedures: Defaulting authorities could be removed from office and replaced by a commissioner appointed by the central

<i>Country</i>	<i>Fiscal framework</i>	<i>Enforcement mechanisms</i>
	governed by the Local Government Act	government.
Robert Ebel. 2014. How can municipalities borrow and issue debt. Mimeo. World Bank.		

2.1. Borrowing and Debt capacity. How Much a Local Government Can Borrow?

Borrowing capacity is the maximum amount of new debt that a local government can issue without hurting its capacity to deliver services and serve existing and new debt. It depends on how much money it has to repay and service the new debt today, reduced by its commitments payable in the future, but increased by its likely future revenues (Freire 2014). Often, legal constraints and debt caps impose additional limits, but the most important is whether the local government will have the capacity to pay the outstanding and new debt on time. Having a good sense of how much a city can borrow or how much debt it can issue is fundamental to ensuring the long-term fiscal stability of a city. Local government borrowing capacity depends on four factors:

- The municipality’s economic and financial prospects.
- The characteristics of the new loans or bonds, forms, interest rates, and maturities.
- The structure and size of debt stock. If a city has an outstanding debt with lots of payments at the same time, it needs large portion of its current revenues and may unable to serve debt at one point.
- The institutional framework and the limits imposed by the national or higher-level government or by the local constituency itself.

How to estimate borrowing capacity? It is easy to define the factors and principles of borrowing capacity, but there is no one simple formula to help city estimate it when debt strategy is formed. A proposed sequence of activities includes (a) assessment of overall fiscal health of the municipality, by establishing and projecting fiscal balances that can be used for investments or debt service; (b) preparing a multi-year capital improvement plan with priority capital investment projects with identified financing options; (c) identification of the required overall financing level, while obeying rules for prudent level of indebtedness (d) simulation of possible financing packages to test if financing packages reassure or jeopardize the debt capacity in the future (Freire, 2014). Answering the above questions require thorough financial analysis and cities may use analytical and computerized tools that enable establishing key financial ratios, projecting future scenarios, and testing alternative solutions (Farvacque-Vitkovic & Kopanyi 2018).

Financial ratios and benchmarks are extremely useful instruments to signal the trajectory of city financial indicators and to communicate creditworthiness with investors, lenders or rating agencies. For instance, a ratio of debt service to operating surplus tells how many years would be required to repay all debts from annual operating surpluses (less than 10 years is good), net operating surplus after debt service in current revenues indicates if there is room for further borrowing, investors may like to see also the share of expenditures on routine maintenance in operating expenditures to make sure the city follows good practices to maintain the assets. Box 2 shows the main components of a self-assessment tool (MFSA) developed to guide city governments through self-diagnosis and improvement in fiscal performance.

Borrowing is a risky action. In developing countries, creditors’ risks are greater as most cities have lack of experience in project evaluation and access to credit. Credit worthiness is also less present as most cities have low own source revenues, they are more dependent on central government transfers, and have less capacity to secure steady debt repayment. Without the fundamental pieces in place—such as investors interested in buying city paper and good projects to be finance, and cities with good fiscal performance and prospects—encouraging debt issuance among low-income cities may not be the most sensible way. Green funds and green stocks are now available to channel funds to developing cities. But these are issued

by IFIs or bilateral aid and channeled to cities as grants or as highly subsidized loans. Only Mexico City and South African have been successful in issue green bonds. This reflects their exemplary fiscal performance. The elements of their successful story could be a worthwhile case study to discuss.

Box 2 Municipal Self-assessment (MFSA) Toolkit – and Internet-based Platform

Several IT tools exist in the market to help cities and subnational governments to analyze their fiscal and financial situation and to be able to make decision concerning long terms investment and debt financing. The latest platform developed by the World Bank is the *Municipal Financial Self-Assessment Toolkit* (“*MFSA Toolkit*”) an internet-based platform instrument. The *MFSA Toolkit* aims to help municipal officers analyze the financial situation/health of their municipalities in a systematic manner, using methods that produce data that is useful for the city administration as well as for their financial partners. The platform uses as inputs the data assembled by municipalities and produce trend and ratio analysis to assess the financial health of the cities at a specific year and in a future setting. It enables the city to understand the sources of fiscal affluence or problems, how decisions taken in the past affect their shortcomings at the moment, and most important how the structure (level and composition) of new debt affects the fiscal balance of the city. In the medium and long-term fiscal health is the main factor to attract resources to finance the city infrastructure needs.

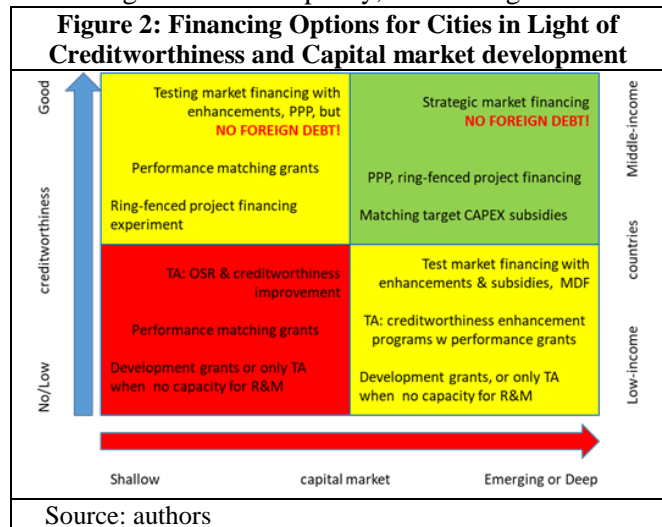
Tables that users advised to fill out include the following: Financial data base, expenditures by sector, capital investments, debt data base, Tax performance database; Liabilities and arrears; Cash Balance; Asset Maintenance database; Plan/Actual variations financial database. Populating the initial *Financial Database* from the *raw municipal data* is the most critical task the users need to do.

The main outputs of the MFSA analysis include: the *historical analysis*, *ratio analysis*, *financial projections*, *financial management assessment*, and a *self-assessed shadow credit rating*. Finance Departments can use MFSA analysis as a basis for their initial five-year Action Plan to be discussed with respective municipal departments, committees, the city council, and mayor. (Farvacque-Vitkovic & Kopanyi 2018)

Enhancing municipalities’ borrowing capacity. Without good credit capacity, borrowing is neither possible nor advisable, so the first step is to improve creditworthiness. This is the situation in most developing countries; Figure 2 provide a schematic view of the factors and advisable investment finding instruments (using the traffic lights’ coloring). Donors have been supporting cities in developing and emerging countries to strengthen their management skills and fiscal performance and to borrow at commercial terms in domestic markets. However, the progress has been slow and many problems hindering the cities’ capacities still persist today.

Donors support credit enhancements with both grants and technical assistance to help cities assess creditworthiness and improvement options, finance shadow credit rating, or formal credit rating, which is advisable only after substantial improvement of internal systems, revenues, and creditworthiness. International rating agencies (Moody’s, Standards and Poor and Fitch Ratings) or their local affiliates may rate the municipality as an entity, or rate a project or a bond. In rating for a municipal bond, the agency assesses factors such as the local and national economy, debt structure, financial conditions, demographic factors, and financial management framework and practices of a local government (Glasser, 2014).

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IFIs eager to promote city-bonds by performance grants or self-assessment and enhancement programs help poor cities to access larger pools of resources and issue bonds; what cities need to do to is to improve fiscal performance and fiscal surplus as a base to leverage debt issuance. Cities in developing countries, however, have no habits or experiences of self-diagnosis much less of debt capacity analysis, that leads to substantial policy risks and overpricing by creditors; so they need guidance on how to improve fiscal performance in a sustainable basis, need money to complete identified reform steps, and need time to reach higher creditworthiness. Isolated attempts to help a city to issue a bond, like the case of Dakar, even if it is successful does not mean that the local capital market is developed and that the city will be able to pay the debt and issue more debt in the future. Most of the cases in the 1990s have demonstrated that some of these bonds issues were made possible by central government guarantees and external assistance but that the conditions for further issues are not present (Canuto and Liu, 2013).

The experience of Dakar. Senegal constitution authorizes subnational governments to borrow without government intervention, provided the proceeds are to finance infrastructure. In 2011, Dakar went to the market and issued \$40 million in general obligations to finance a new market hall to which more than 4000 street vendors would be relocated. This would improve the image of the city and would produce a new stream of income. Dakar had a good financial position, was experienced with loans, and enjoyed solid leadership. Domestic demand for bonds was strong, as the central government had issued sovereign bonds on the local capital market. Dakar had invested in preparing for the bond issue. The Bill and Melinda Gates foundation contributed \$5.5 million to pay for project preparation, structuring and rating. In addition, USAID provided a 50% guarantee to reduce perceived risk among investors. By 2015, the city had fulfilled the conditions necessary to issue a bond in the Abidjan-based capital market. But at the last minute, the Senegal central government did not authorize the issue. It was concerned about the impact of the issue in the country's overall level of indebtedness (see more details in Appendix 1). Dakar sued the national government for misleading the city government and opposing the issue when everything was prepared. The experience was highly disappointing for those who followed the experiment and heightened the blame that the central government is the main obstacle in city bond issue. We believe that the situation needs to be clarified or studied in more detail, but it is clear that a transparent regulatory framework should be well defined at priory to avoid the waste of resources and the failed expectations that occurred in the case of Dakar. One can believe that Dakar experience improved the knowledge of the officials and investors and that next time Dakar tries to issue bonds it will more successful.

The experiences in Johannesburg (South Africa) and Douala (Cameroon) are diametrically opposed. Johannesburg city has issued bonds since 2004, within a strategy to diversify financing sources and lower the cost of the city debt. The city had traditionally borrowed from banks, but banking liquidity was running short and Johannesburg was not able to borrow from banks. The city had no payment arrears, showed relatively low debt/revenue ratio (about 25%) and a steady stream of revenues coming from taxes and transfers.

The bond issue in 2004 was local currency denominated, 6-year maturity and 1 billion rand offered at 230 base-points over the government benchmark, or nominal interest rate of 11.95%. This high rate, generated great demand. The bond was oversubscribed threefold (Gorelink, 2018). Two months later, the City issued a second bond for another 1 billion rand, this time with a longer maturity – 12 years. It had a guarantee of 40% jointly from the IFC and the Bank of Southern Africa. The credit enhancement helped the interest rate to come down. Forty percent of the proceeds were used to finance the city's capital expenditure program. The rest was used to refinance existing more expensive debt dating from 1990s. That refinancing saved the city about US\$ 3.25 million. Municipal bonds issued by cities in South Africa remain very attractive. South Africa cities continue to show prudent fiscal management and increased level of sophistication. In 2014, the City of Johannesburg's issued its first green municipal bond transaction; Cape Town followed suite in July 2017. The success of the municipal bond market in South Africa reveals the importance of the cities' general financial health, the depth of the financial market and a continued demand for diversified portfolio.

Douala, Cameroon - Cameroon is a centralized government, with cities administered by political appointees and all subnational borrowing approved by the national government. In 2003, Douala central government-appointed delegate decided to issue a 5-year bond for CGA 16 billion (about \$22 million) through a special purpose vehicle -- Communauté Urbane de Douala Finance -- to finance road infrastructure, wastewater management, storm drains, solid waste management, and mass transit. The city only debt was with the World Bank and the French Development Agency but it was unclear how the city would even pass any criteria of creditworthiness. Just looking at the declared revenues – US\$17.7 million – it seems that the debt stock was 7 times the revenues of the city which is unacceptable in any kind of situation.

The bond was issued in three tranches with three interest rates – fixed, variable and at the end of the maturity (Gorelick, 2018). Douala' bond was issued and paid to investors. But the process was plagued with financial irregularities that led to the imprisonment of the government's delegate. There were allegations of fraudulent exchanges between tranches and improper licensing of the financial arranger. Although investors received their principal and interest in full and on time, it is clear that it will take a long time until the market will be receptive to another issue of municipal bonds. The lack of legal and financial framework was evident (Gorelick, 2018).

2.2. Conditions for effective municipal bond issuance

Not all local governments can issue bonds. Only municipalities with considerable investment programs, good ratings, and long term financial needs will be able to do so. Borrowing from commercial banks or bond banks may be a best alternative for small municipalities. The advantages of municipal bonds are that local governments receive all the money up-front, rather than gradually with typical disbursement from banks, and the funds are usually cheaper than those obtained from banks. The main disadvantage of bonds is the complex process during preparation, the requirements and disclosure of economic and financial indicators and the required knowledge of the local market. In addition, bond issuance is expensive. Municipalities need to pay the fees of legal advisors, the rating agency, fees of the underwriter – the bank that sells the bonds – fees for the stock market and for marketing and publicity. For instance, Fitch Ratings' fee for rating municipal bonds can reach up to \$750,000 per issue. The cost depends on the availability of data and the effort to do the analysis.

Internal conditions for bond issuance. Issuing bonds has clear advantages, including: longer term (as compared to 2-5 years commercial banking to 20 -50-year maturity of bonds), stability of revenues, and cheaper resources. But cities need to consider the broader context, which includes the economic situation and perspective of the country; the depth of the financial markets that enables to buy and sell the long-term papers; the cost of preparation and rating; the need of creating trust among investors, which stems from clear disclosure of the city's fiscal and economic facts consistently and repeatedly. Furthermore, GO bonds typically require approval by council (even citizens' approval in the US) and are subject to limits on total outstanding debt. Revenue bonds and bonds secured by anticipated legislative appropriations are not subject to these requirements or limits, albeit councils should discuss and approve them.

Enabling environment. The national government can greatly support municipal bonds by improving the enabling legal, regulatory framework and the policies. For instance, municipal bonds are free of federal and state income tax in most US states, that greatly motivates individual investors. The governments can introduce credit enhancement schemes (bond-banks, guarantees, etc.). Turkey is a middle income country; however, the domestic capital market is still very shallow, especially in long-term resources and lacks enabling legal/regulatory framework. As a result, only private entities issue domestic bonds and mostly short 3-5-year maturity, while even large cities fail to issue domestic bonds and especially not long (10-20 years) maturity. However, a recent study for the Treasury indicates ample room for improving the capital market and the municipalities' capacity to issue domestic bonds (Kopanyi and Oguz 2016).

Ways to enhance creditworthiness. The most important factor to support cities' creditworthiness is to help them *adopt and implement sound fiscal and debt management policies*. A sound debt management policy aims to consider how each new debt adds to the existing debt stock and debt service, but also to longer range strategic development goals. In deciding whether to issue bonds or borrow, the city must consider not only the best way to fund a particular project but also how this financing fits in with its overall budgetary position and borrowing capacity, i.e., how the new project is compatible with the capacity of the city to honor financial commitments. Risk analysis is also important as changes in interest rate or foreign exchange risks will impact the overall position of the budget. A well-designed debt policy provides comfort to investors and credit rating agencies and will also receive the support of investors who may be more willing to accept issuances at lower cost and longer terms which contributes to reduction of both risk and cost of debt.

Cities with no or low debt capacity should not be let alone. In countries where cities are unable to access the capital market, national or multi city programs may help national governments or donors to decide whether (a) to focus on supporting cities with realistic prospects to access private sector capital transactions in medium to long term (rather than issue a bond on political grounds) ; (b) it is useful to use the program as a tool for improving engagement and diagnosis, (c) whether or not there are prospects of private sector capital transactions; and (d) to engage strategically and for the long term to support institutional and legal reform where this is necessary and has a reasonable chance of success. Donors have followed these principles in extending technical support to cities to improve creditworthiness and access to finance. For instance, World Bank, PPIAF, Gates Foundation, Rockefeller Foundation, USAID have financed programs to help cities improve fiscal management, strengthen their revenue base, and moving towards capital markets gradually and strategically, e.g. provided partial guarantees, and advertised the merits of going to the market.

The outlook for municipal bonds in developing and emerging nations needs to be discussed in the context of the overall financial and fiscal performance of the cities, and the role of subnational debt into the country's fiscal balance. To date, the only African cities that have achieved success in the municipal bond market are in countries whose constitutions provide full autonomy for sub-national governments (as in South Africa) but also cities that have a proven record of stable financial and fiscal accounts. In South Africa, the cities of Johannesburg (2014, for 1 billion rand) and Cape Town (2017, for 1.5 billion rand) have brought green municipal bonds to market. However, elsewhere in sub-Saharan Africa, municipal bonds are still a work in progress (Gorelick, 2018).

It is true that municipal bonds can have a role to play to meet the long-term capital requirements of many cities in developing countries. However, the potential investors, households, pension funds and the like, should have sufficient long term debt capacity and consider municipal investments only if there is evidence that they will be able to service their debt in domestic currency and on time. That is, local governments need to be creditworthy. This implies good fiscal behavior, and a predictable decentralization framework so that projections of revenues and debt service can be used for decision making on debt strategy – new borrowing, refinancing, canceling debt.

Issuing Bonds Abroad is not advisable! Some creditworthy cities have issued bond abroad (e.g. Istanbul and Izmir in Turkey) because of shallow domestic capital market, however, they are exposed to foreign exchange risk cities hard to handle due to lack of hedging instruments and capacities. For example, the Turkish Lira currency has strongly devaluated in the last 6 years that made the Eurobond issued by Istanbul awfully expensive, because the bond principle amount doubled in local currency term (Kopanyi-Oguz 2016). In short, attempts to encourage well-managed cities issuing bonds long and market term can fail in two ways: either because poor domestic capital market and low demand or because foreign exchange risk. Issuing city bonds with central government guarantee is a temporary learning solution that does not expand the funding beyond fiscal capacity at national level. The macroeconomic situation that affects the capacity of the national government is often less stable in developing countries, which increases the perceived risk of the subnational debt.

3. Asset Liability Management–Complementarities between City’s Assets and Debts and other Liabilities

Cities around the world, both in developed and developing countries, are familiar with and keep testing or applying several good asset and debt management practices mentioned in the sections above. The major difference is that innovative local governments in developed countries (Australia Capital Territory - ACT¹⁰) apply both balance-sheet approach (BSA) and asset and liability management (ALM) systematically and in a strategic manner. In contrast, cities in developing world tend to manage assets and liabilities in isolation, for example approaching issues as they appear e.g. assess debts when planning a major investment or for the request of a lender or donor, but do not maintain a clear portfolio of debts and liabilities by maturity and interest rate. Cities in developing world often lack reliable databases and face shortage in human skills and capacities that are vital for strategic ALM¹¹. This section explains with examples the practices in joint management of assets and liabilities, which is a feasible way also for developing countries and can be implemented via gradual improvements towards best practices. For instance, Nairobi has appointed a team in Finance department to deal with current assets and liabilities on daily basis and it is effective (Kopanyi & Omolo 2018).

Asset liability management (ALM) was originally an analytic tool used by financial institutions to manage the risks associated with the mismatch between assets and liabilities. The principle behind ALM is to ensure that the liabilities are managed in proportion to the assets. ALM also described as balance sheet management approach (BSA) and it is a commonly-used risk management tool for companies. Lead by the IMF initiatives (IMF 2004) BSA/ALM approach has been discussed, tailored and tested even in a number of developing countries (Ethiopia, Bolivia) for improving fiscal and risk management at sovereign level. (Proite, 2013). BSA and ALM has been tested also as innovative tools at subnational, municipal level, and interestingly BSA and ALM seems to be more easy to apply at municipal/subnational, city level than at sovereign level. In part, because more and more cities prepare balance-sheets with not only financial but also fixed assets included. This note tries to explain and promote the BAS and ALM approach as a useful tool for cities or urban municipalities.

The joint BSA/AML is a new and emerging phenomenon, especially as compared to centuries old book-keeping or revenue recording experiences of local governments. Since the 1980s, some local governments in the developed world have been moving towards approaching assets and liabilities in manners similar to the private or public corporations (CIPFA 1982, Mellor 1996, Grubišić at al 2009). This means that they communicate in terms of balance sheet¹², income statement, and cash-flow, especially in the context of financial management reforms aiming at efficient control over public resources and expenses and to strengthening the level of accountability. Experts argued, however, even in the late 1990s, that contemporary practices of accounting and public spending provided inaccurate results, because allowed public institutions to use public assets (land, buildings) without imputing the real cost for their use (Tanzi and Prakash (2000)).

The BSA/AML approach is getting integrated also into the fiscal policies in a number of countries such as Australia, New Zealand, United Kingdom and many European countries, but also some emerging countries (Proite 2013). A good example of this movement is a statement of the UK Treasurer: “For many

¹⁰ The Australian Capital Territory (ACT) is a self-governing territory in the South-East of Australia that includes Canberra city and the surrounding territories.

¹¹ For the sake of clear discussion of issues, we use the term asset and liability management here, where liabilities include debts (formal and explicit liabilities) and informal or contingent liabilities that cities in developing world often unnoticed, overlook, or purposely leave unaccounted.

¹² Some academics and institutions (European Commission, IFAC, IPSAS board, or Grubišić at al 2009) argue that local government should move from cash to accrual based accounting. Others point that the change of accounting basis provides a framework, but not solutions without reliable asset databases, good classification of expenditures, efficient collection of receivables, and valuation of contingent liabilities. (Venkateswaran 2014)

years, fiscal policy in the UK focused on questions of sustainability, with the primary indicators being public sector borrowing and debt. Even when looking only at sustainability, balance sheets can provide a richer indicator than the more usual borrowing and debt figures, because they take account of changes in government assets as well as liabilities. Over time, we can look at not only the balance between assets and liabilities, but which particular assets and liabilities are changing.” (Holder 1998 pg. 35). “BSA approach has been used to sparkle ALM analysis and concepts in Ethiopia, Argentina, Bolivia, and in Brazil” (Proiter 2013 pg.19).

Balance sheet Approach (BSA). Balance-sheets are composed of two sets of assets and corresponding liabilities: fixed assets (land, building, infrastructure aka properties) and financial or current assets (cash, investments, shareholdings, and receivables) and short/current and long-term liabilities. These two groups behave somewhat differently, need different approaches, but at the mean time closely intertwined e.g. current assets can be changed to fixed assets and vice versa. A standard corporate balance sheet has three parts: assets at one side and liabilities and ownership equity at the other. Equity is not predefined, because the difference between the assets and the liabilities is called as owners’ equity or the net assets (that is ideally positive, but could be negative in troubled companies. Municipal balance-sheets¹³ look quite similar, but the difference between assets and liabilities is called as the *net worth* of a city (or *Fund Balance* in fund accounting terms like the case of Ahmadabad municipal Corporation see box 4). However, many municipalities (e.g. Turkey) prepare limited scope balance-sheet that includes only the financial assets and liabilities (Kopanyi 2015). These miss the opportunities for BSA/ALM analyses, but cannot be improved unless a reliable asset/property register is developed.

3.1. Strategic Level Asset-Liability Management–Fixed Assets and Related Liabilities

Strategic level ALM focuses on medium and long term issues of strategic importance. In this approach cities can calculate, report, and make administrative and political leaders accountable for perpetually increasing the net worth of a city (see ACT 2018 report, Holder 1998). The net worth is the difference between the value of all financial and non-financial assets and all liabilities, including both direct and some contingent liabilities. According to the so-called golden rule borrowing and debt, especially long-term debt should be used to finance fixed assets; likewise proceeds from selling assets (land or building) should be used for investing into assets, rather than financing operating expenditures and reducing the net worth of the municipality

Developing infrastructure increases the value of fixed assets and, if financed from loan, increases the value of liabilities correspondingly, thus leaving the city net worth unchanged. In contrast, selling land to pay salaries or the electricity bill might be needed in a crisis situation, but this should be an exception, with clearly taking into account that it reduces the net worth of a city. The city net worth, however, can change also due to events beyond the control of the city, for example, if market changes reduce the value of financial assets such as shares in companies or financial investments (bonds, bills, bank deposits). Later can be and should be mitigated via management of financial assets, liabilities, and risks.

Planning Assets and Liabilities in medium term. ALM is a particular instrument in planning public investments. The medium term Capital Improvement Plan (CIP) is an important tool for ALM. The CIP, as said includes a list of priority projects (ideally approved by the residents of the city), with identification of the best financing options, including cash or current surplus, loan proceeds, grants from higher levels of government, land sales, ring-fenced revenue based financing (e.g. revenue bonds), or public-private partnership. A CIP without a comprehensive analysis of the financing options is not a medium term

¹³ The BSA approach is an analytic tool thus key elements of balance-sheets can be structured in BSA tables for analysis purposes regardless of the accounting method a country or city follows. As more and more cities develop asset register and attach values to lands and buildings a balance sheet can be structured, since data should be available on financial assets and short and long term financial liabilities.

development plan; it is just a wish-list. When selecting the financing options, the city needs to take into account the present level of indebtedness, the profile of the debt portfolio (list of debt by maturity, interest rate, currency) and some contingent liabilities (e.g. future cost of operation and maintenance, guarantee issued to support a municipal entity, subsidies pledged in contracts) require close scrutiny. Cities in Croatia, Macedonia, Albania have had good experiences with this strategic approach as part of completing their Urban Audits (Farvacque-Vitkovic & Kopanyi 2018, UPP 2017).

Contingent Liabilities: Contingent liabilities in ALM include potential liabilities that may turn to direct liability or due payments, depending on outcomes of uncertain future events. They should be accounted if the contingencies are probable and the amount can be reasonably estimated. A good example of this the pension liabilities ACT accounts, reports, and on the way to extinguish by 2030 (ACT 2018). A city government pledges a contingent liability if offers in contract the private provider to give 23Shillings to each sold bus ticket to subsidize public transport. Cities may face other contingent liabilities including financial, environmental or social that cannot be predicted, well monetized, and show low probability to happen. A road may cause flooding or landslide in extreme situation, a solid waste landfill creates noise, dust, and smell unfavorable to nearby population, an amusement park might be too noisy to the neighbors. These are all issues cities need to handle and mitigate risks, but not considered as financial liability in ALM context since the liabilities are not probable to trigger future payments and hard to monetize.

Political selection of projects. Cities in developing world often select projects based on political rather than financial and economic criteria and often ignore taking into account all the aspects related with the chosen projects, for fear of finding large contingent liabilities, and accumulation of future budget deficits. The biggest mistake cities often make is to look at long-term investment and long-term debt from a narrow point of view and look only at the short term impact the project has on the budget, ignoring the impact of the same project in the medium and long-term debt service and other associated (contingent) liabilities such as repair and maintenance, energy costs, or/and labor cost in solid waste management projects.

False balanced budget. Cities may show a balanced budget plan for the upcoming fiscal year, and hide the issue that the city budget may turn to deficit as soon as the new water plant starts providing water

Box 4 Balance sheet of Ahmedabad Municipal Corporation, India 2014/15 (Rupees).

Particulars	General Fund	Projects & Development Funds	Special Revenue Fund	Trust & Agency Funds	Grand Total
	AMC	AMC	AMC	AMC	
Liabilities And Fund Balances					
Fund Balance					
Fund	81,298,416,275	39,852,384,491	1,332,459,468	6,903,077,921	129,386,338,155
Accounts Payable					
Members Contribution	-	2,034,860,714	-	-	2,034,860,714
Advance For Sales of Land to Metro Rail Project	349,871,205	-	-	-	349,871,205
Tax Payable	508,101,989	-	-	-	508,101,989
Deposit Other / Security	5,271,043,364	-	-	116,456	5,271,159,820
Accrued Liabilities					
Employees Benefit Payable	-	-	-	-	-
Expenses Payable	176,229,497	-	-	-	176,229,497
Salary & Wages Payable & Other Statutory Liabilities	3,509,882,601	-	-	-	3,509,882,601
Loan Liability					
Secured Loan	2,344,814,146	1,248,827,000	-	-	3,593,641,146
Unsecured Loan	801,000,000	-	-	-	801,000,000
Interest payable on Unsecured Loan	1,890,640,204	-	-	-	1,890,640,204
Due To General Fund	-	2,516,375,948	(1,269,461,299)	1,624,356,818	-
TOTAL LIABILITIES	96,149,999,282	45,652,448,153	62,998,169	8,527,551,195	147,521,725,333
ASSETS					
Current Assets					
Cash & Bank Balances & Cheques On Hand	2,361,175,940	627,215	-	81,842,240	2,443,645,395
Investments , including accrued interest	6,178,835,881	-	-	-	6,178,835,881
Inventories	330,308,470	-	-	-	330,308,470
Account Receivable (Net Of Provision)	6,507,651,355	-	-	-	6,507,651,355
Deposits With Other	7,773,130	-	-	-	7,773,130
Advance	3,525,861,035	-	-	-	3,525,861,035
Loan To AMTS & Others	37,487,761,198	-	-	-	37,487,761,198
Grant Receivable	1,684,251,971	80,825,785	62,998,169	996,675	1,829,072,600
Due From Other Funds	(12,546,565,985)	13,892,119,395	-	1,525,718,057	-
Fixed Assets					
Property , Plant & Equipments	50,612,946,286	31,678,875,757	-	6,918,994,222	89,210,816,265
Capital Work in Progress					
TOTAL ASSETS	96,149,999,282	45,652,448,153	62,998,169	8,527,551,195	147,521,725,333

Source: https://ahmedabadcity.gov.in/portal/jsp/Static_pages/amc_balance_sheet.jsp

unless the tariffs have been adjusted or users will pay for the operating costs and the debt service. The challenge is that often cities have difficulty in refusing a water or energy project to be financed by a donor or by the central government, “just” because the budget analysis clearly shows that the city will have no revenue sources to cover the cost of operation, repair and maintenance. Strategic ALM and careful selecting of financing options could be instrumental for ensuring financial sustainability in medium to long term.

Life-cycle costing (LCC) is a financial tool that compares investment alternatives. It is useful for Capital improvement planning as well as for strategic ALM. The concept is simple to explain, but the analysis is challenging. The life-cycle cost analysis aims to determine the most cost-effective option among investment alternatives, including purchase with or without debt, direct ownership or in collaboration with the private sector (PPP), operate, maintain, and dispose of an infrastructure, when each is equally appropriate on technical basis. To compare various alternatives, LCC calculates the net present value of each technically feasible alternative by adding the annual flow of expenditures for the useful life of the project, which can vary from 10 years for a truck to 50 years for a building. The future cost of major

maintenance or refurbishment can be bulky but relatively easy to project on technical grounds, these future costs can be projected and accounted for as part of the ALM analysis and forecasting.

For example, we can compare two trucks only with LCC approach, since one may cost 50% more at purchase, but it needs less maintenance, uses much less fuel per kilometer, and has higher residual value after ten years of service. In such case, selecting the more expensive truck may increase the net worth of the city as compared to the cheap truck. LCC requires good technical and financial analysis, but also it is sensitive to the assumptions about inflation, interest rates, financing options, and use of technical capacity, just to name a few. However, LCC provides for particularly important information in both CIP planning, in direct budgeting, and in project structuring phases, and thus form a pillar of good ALM.

Asset management Strategy and Policy. Cities may adopt asset management strategy and policy even in the developing world like Nairobi, Kenya to guide strategic asset decisions. They often assign asset management strategic decision to high level municipal committee (Canada, UK, Australia) or move out strategic assets to development corporations (India, Pakistan e.g. Lahore Development Corporation). Asset sale and acquisition or development are the most challenging events in implementing asset management strategies and policies. The experiences are mixed. Often, cities tend to be less strategic in such critical decisions and tend to make mistakes by going into asset-sales without sufficient knowledge of real-estate markets and structuring of divestiture in both developed and developing countries (Kaganova & Utter 2006, Andersson 2014, Kaganova & McKellar 2006, Kopanyi and Omolo 2018).

Privatization of assets. In 1998 report, the UK treasurer claimed that the net worth of public entities (national government, cities, and public enterprises) had declined due to privatization of assets and services (Holder 1998). While this situation could be empirically verified, privatization of assets should, in principle, leave the net worth unchanged or could even increase it if a fair or favorable market value is obtained. In the balance sheet one would have less fixed assets but more cash or less debt, in case the sale of the assets was used to pay off part of the outstanding debt. The city would face a decline in net value, only if the sale of the privatized assets were below the market value, which may reflect bad timing of sale, shortcomings of strategic asset management or/and poor ALM practices that lead to assets burdened with contingent liabilities or unaccounted losses, which by definition absorbs part of the sale proceedings.

Amateurism in Strategic asset decisions. Cities in developing countries are particularly vulnerable to poor analysis of asset values as well as terms and conditions for public-private partnerships. A particular mistake cities tend to make is to see PPP as a solution for accumulated problems of a public service entity (e.g., water company) including large contingent liabilities (Dar es Salaam Water PPP). Often during contract negotiation for the PPP (such as concessions) the private partners are likely to require high volume of subsidies and blanket guarantees that the city eventually must pay out from general budget. This reflects the very common situation of asymmetric information, whereby large multinational companies with years of experience at sector level, negotiate with rather unexperienced municipalities and understaffed municipal services. This explains the high rate of renegotiation of PPP in Latin America (Gouache, 2018). Of course there are good PPPs e.g. SABESPA, the water company of Sao Paulo, a municipal entity whose skills are at the same level of any private international water company.

Tariff setting and subsidies is a fertile land of risks and challenges from the ALM perspective. Cost recovery itself depends on many technical, social, and administrative challenges; but at the end of the day the city must cover the reported costs regardless if those are realistic or well inflated. Likewise, the city is to pay for all administrative inefficiency such as in billing, collection, and enforcement and results insufficient level of fee revenues. In short, fee-based services are likely to trigger contingent liabilities especially in developing world. Good ALM should take into account the substantial contingent liabilities and persistent subsidies.

Asset-related contingent liabilities. Cities face various contingent liabilities, many may trigger payments with strong probability. In local government ALM context, well calculated future repair and maintenance, guarantees a city issued to support debt of its entities, commitments in PPP contracts, or subsidies

pledged in contracts are typical forms of contingent liabilities. For instance, in PPP arrangements, the private partners often require contractual commitment such as off-take guarantee or predefined blanket subsidy for an agreed time period (solid waste landfill, water treatment, or public transport) to make the investment feasible until the consumption takes off. The Global Partnership for Output Based Aid, a multi-donor initiative of the World Bank, has been supporting cities in developing countries (e.g. Nepal, Sri Lanka, Bangladesh) in structuring such performance based schemes that particularly help the poor with affordable tariffs (GPOBA 2017). Such contractual based subsidies are well calculated and thus should be included in ALM and accounted as contingent liabilities.

Bad practices or situations are plentiful. For example, a Turkish city is running well in general, but the persistent financial injections it needs to make to its water company has undermined its creditworthiness. To make the case worse the city accounts these bulky annual cash injections as loans (albeit with undetermined conditions and without loan agreement) while the company accounts them as owner's equity. The money is provided without conditions "to eliminate the deficit", and is not accounted ahead as contingent liability despite the fact that it has been going on for over a decade and keep worsening. In short, in good ALM analysis cities may carefully take into account such persistent financial burdens regardless that those are legally accounted, or not as contingent liabilities. Worth noting that a city as sole owner of a water company is even legally accountable for its losses, but also politically and socially accountable for uninterrupted provision of water and sanitation. This makes the situation even more complicated.

3.2. Managing Financial Assets and Liabilities

Managing financial assets and liabilities is natural part of the strategic asset management as discussed above. Worth mentioning that financial and non-financial assets are transient forms of each other, thus both are vital for healthy management of cities. However, there are specific characteristics and challenges in financial ALM. At strategic level cities should establish two critical balances on financial assets and liabilities: a) net debt that is the difference between the sum of all financial assets and the sum of debt and other direct financial liabilities, and b) net liabilities that is the difference between the sum of all financial assets and debt and other direct and contingent liabilities. Net liabilities often appear much greater than net debt (ACT 2018) because they include contingent liabilities in reference to uncertain outcomes.

Liquidity management. Financial ALM also includes and plays a pivotal role in the liquidity management, because the financial assets and liabilities are more liquid than the fixed assets and thus can be and should be used in liquidity management. Finance departments often include a team assigned for liquidity management that also includes risk management as part of the ALM. These are very common teams in cities in developed world, but even Nairobi has appointed such team few years ago. Cities may deposit access cash on a daily basis, not only because they cannot legally keep large sums in vaults, but mainly to maximize overnight interest revenues in competitive bidding across banks. Likewise, financial assets are used to bridge the gaps between revenue inflows and outflows to ensure timely payments of due liabilities. Latter is not a well obeyed principle in developing countries where ALM and liquidity management is poor and liquid financial assets (cash and financial investments) are miniscule, thus invoices often land in drawers of mayors or chief financial officers to wait till cash inflow enables the city to pay the due liabilities.

Financial Assets. Financial assets broadly include: investment in public entities, cash deposits, advances paid, financial investments and loans, and receivables (e.g. uncollected fees and taxes). These values are found in cities' financial reports in both the developing and developed world, albeit the cities in developing world may keep and publish poor or no reports on financial assets. Books show great differences across these two groups of cities in terms of the composition and real present value of the financial assets, which impacts the quality of the ALM. The case of Australia Capital Territory (ACT) and

Nairobi City County (NCC) (both are local governments) provides for an interesting instance (see figure 2) to draw lessons on financial assets and liabilities.

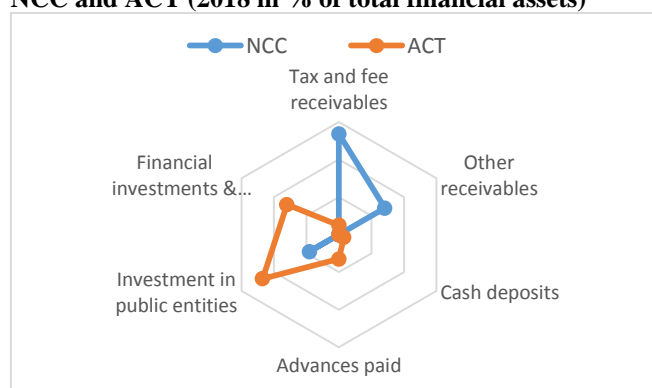
Large differences. Figure 2 shows important differences in the composition of financial assets of Nairobi and Australia Capital Territory (ACT). First, the most general difference is that ACT financial assets are well recorded in books and well performing (not visible in figure). In contrast, NCC has inherited its financial assets from the defunct local government as part of a devolution program; and the value of those assets have not been updated, which means that they can be greater or lower than the historical book value. For instance, a substantial volume of uncollected taxes and fees has accumulated since devolution, but this value has not been included in this chart. Other receivables are zero in ACT but represent 20% of NCC revenues, include disputed revenues from various transactions between NCC and national government entities. This is common in developing countries, where national government entities are reluctant to pay fair compensation for cities’ assets taken over. Finally, experiences suggest that the NCC composition of financial assets is common in the developing world.

Tax and Fee Receivables. Figure 2 shows ACT has a healthy 5% receivables in taxes and fees while 60% of NCC’s financial assets are uncollected taxes and fees that are legally accounted as receivables. They were enormous for NCC in 2016/17 fiscal year, twice as much as the total budget. Such situation common in the developing world, since cities are facing a large amount of uncollected taxes and fees, supported with vague records or databases. This is comparable to a huge snow-ball that is rolling and growing beyond control. NCC needs to assess the real value of these payables and develop a work-out strategy, because a substantial part of these collectibles are so old that cannot be realistically collected, so it would be best to write them off the city balance sheet. Kampala city had similar high volume of uncollected fees and taxes in early 2000s but managed to collect or work-out the bulk of them in a 5-year concerted recovery program (Kopanyi & Franzsen 2018).

Investments in public entities. Investments in public entities are comparably realistic and active in both ACT and NCC. NCC has only one major investment into a legally independent Nairobi Water and Sewer Company that works well, albeit below cost recovery. In contrast, ACT owns a number of public utilities, a common way to manage public services effectively some in PPPs with contingent liabilities (ACT 2018).

Financial investments. NCC has no inherited financial investments as opposed to the healthy 30% financial investments in ACT financial assets portfolio. Latter underscores the vital role financial investments play in ALM in well managed cities. For instance, ACT regularly issues bonds and the proceeds are immediately invested in secure financial investments (e.g. treasury bills) to save the money received in bulk, while the use of the proceeds is gradual in line with the progress on respective infrastructure development. Likewise, ACT is building up a substantial reserve fund, to be able to face the large inherited unfunded contingent liability on pension and termination benefits. Thus ACT deposits money in a special fund to gradually extinguish the unfunded liability by 2030 (ACT 2018). This is a great example for a strategic way of thinking and strategic ALM. Besides, ACT accounts shareholdings in non-public entities, or PPPs as financial investments, some with corresponding contingent liabilities.

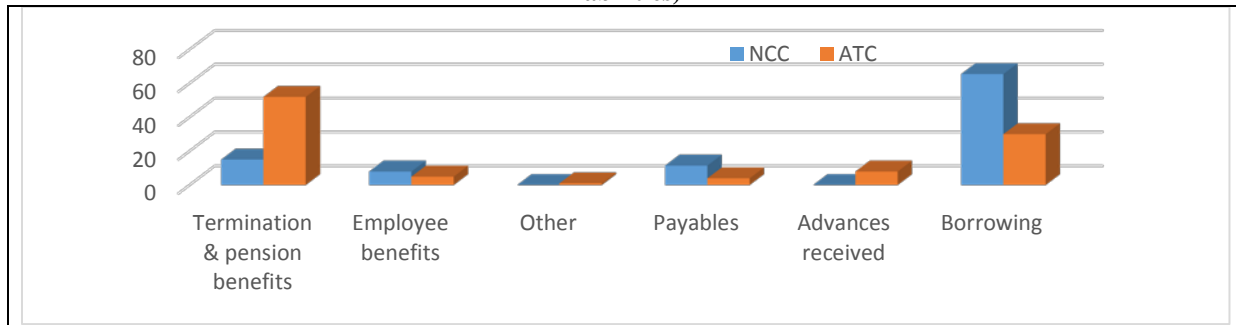
Figure 3 Composition of Financial Assets in Nairobi NCC and ACT (2018 in % of total financial assets)



Source: ACT 2018 and Kopanyi & Omolo 2018

Financial Liabilities. Financial liabilities in broad sense are composed of debts such as loans, bonds, due payables, advances received and contingent liabilities such as guarantees, subsidy commitments (e.g. city pays to providers 20\$ per each new water connection, adds \$1.5 to each sold metro ticket, \$3.75 to each cubic meter of water billed and collected), and very often labor and pension related contingent liabilities. Financial liabilities are moving targets since tend to change day by day by payments of due amounts or enclosure of new liabilities. Experiences suggest that cities in developing and emerging economies *should not issue bonds in or borrow from international markets* especially in long 15-20-years term, because they do not have revenues in foreign currencies, neither have capacities to hedge against huge contingent liabilities of foreign exchange risks. This is a vital issue in managing financial liabilities. In short, managing the financial liabilities is part the prudent financial management, ALM, and liquidity management. Best ALM practices include provisioning of some specific contingent liabilities like guarantees provided or pension liabilities. Comparing the financial liabilities portfolios of ACT and NCC again help drawing important lessons on financial liabilities in developed and developing countries (see Figure 3).

Figure 4 Composition of Financial Liabilities in Nairobi NCC and ACT (2018 in % of total financial liabilities)



Source: ACT 2018 and Kopanyi & Omolo 2018

Debts include loans, bonds or short term instruments such as overdrafts. Debts are substantial in both NCC and ACT and they are natural parts of the local government business. There are differences in structure. Inherited NCC debt is quite large (65% of the total inherited liabilities) and sizable (about 150% of total budget of 2016/17 fiscal year). Furthermore, about three quarters of the loans were borrowed with national government guarantee from international donors, and are non-performing. This means that the National Treasury is paying the due debt service of the city debt, committed before and after devolution. However, the Treasury (not NCC) accounts these guarantee payments as liabilities against NCC that are not reflected in the figure. This means that the present value of debt liabilities is much greater than the reported nominal value. In contrast, ACT loans are well accounted and well managed, and timely served. According to the 2018 budget report, the ACT has obtained and keeps maintaining a AAA long term credit rating (ACT 2018).

Box 3: Some problems with Municipal bonds in the US.

Many local communities in the United States have come under immense fiscal strain in the wake of the subprime mortgage crisis and Great Recession. Diminished revenues, tightened credit markets, and a rash of speculative municipal debt that “went bad” in the aftermath of the financial meltdown fueled widespread fiscal crisis on the local scale, ultimately pushing numerous cities and counties into bankruptcy. When Detroit filed for bankruptcy in the spring of 2013 it became the twenty-eighth urban municipality to do so since the onset of the financial crisis. Numerous public and quasi-public municipal agencies had followed suit, and many more cities, towns, counties, and agencies struggled with deep budgetary imbalances.

In some respects, the wave of fiscal distress after 2008 appeared similar to earlier waves that crested in U.S. cities in the 1970s, 1980s, and 1990s. Financial markets played a pivotal role in the current crisis, notably the financialization of municipal budgets. In the mid-twentieth century, the municipal securities market was made up of low-risk, long-term debt instruments. In the 1970s and 1980s, the world of municipal finance began changing as derivatives and

other high-risk products and practices began to gain popularity. The proliferation of highly speculative municipal debt instruments accelerated through the turn of the century, reached a crescendo in the years leading up to the Great Recession. This issue was found in the US as well as in Europe amidst traditional banks such as Dexia.
Source: Kirkpatrick.2016

Termination and pension benefits are often regulated by national legislations and often lead cities into difficult situation both in developed and developing countries (Grubišić et al 2009, Holder 1998, Kopanyi & Omolo 2018, Perkins 2001). The reason behind is that cities tend to address these labor liabilities as secondary dues to more urgent payments such as wages, electricity, or fuel. Another reason is that these liabilities are less visible and do not cause immediate harm if transferring the due amounts are delayed sometimes for years. This is particularly compelling when the cities manage the respective pension funds themselves (called superannuation fund in Australia). Another mistreatment of these funds, that are also off-budget, that cities may transfer money back to the budget to save liquidity crises or even for fraudulent purposes, and fail to return the money later. Such case happened in Kampala in the early 2000s. This was also the case in several cities in the US (see Box 3)

Deferred payments to national Pension Funds. In other countries, cities must pay these labor and pension related contributions into national or sectoral pension funds, but still do suspend such due payments if money fall short and despite high-interest penalties and perpetual warnings. This was the case of the predecessor local government (City Council) of NCC. There are often tacit agreements between the funds and the cities, in part because the fund managements are aware of how difficult it is to enforce these payments; but also they may expect that the national government will eventually bail out the cities instead of letting them bankrupt.

NCC Pension liabilities: NCC, as said, has inherited a sizable volume (about 15% of total inherited liabilities) overdue liabilities on pension funds since predecessors failed to transfer statutory deductions to national pension funds. The amount is not only sizable but is growing daily with 10-25% annual rate of penalties since devolution in 2013. The NCC's liability is overdue and thus no longer contingent, but direct debt. In contrast, the ACT has inherited a gigantic volume of contingent liabilities due to the regulatory changes that moved pension benefit system from a pay-as-you-go to a defined benefit scheme in 2005. But employees that were in the system before, should be paid out from the old scheme.

The good aspect of this is that ACT has clearly calculated this contingent liability based on number of employees and employment profile and adopted a long-term plan to gradually extinguish this contingent liability by paying timely and fairly the due benefits at the day of retirement, but also gradually replenishing (provisioning) a special fund that would back the contingent liability fully by 2030. A lesson also worth noting that such big liabilities require both strategic decisions and time to work out. Thus, the Figure 2 reflects two very different situation regarding the termination and pension benefits. Finally, the ACT liabilities are gigantic but under control, while the NCC liabilities are now direct payables with no clear work-out plan.

Risk Management and Pension Liabilities: Pension liabilities require specific attention to risk management, because the money set aside should provide liquidity in very long term (long decades and decades ahead). Peskin argues that there has been a shift towards a good direction, namely management of pension assets and liabilities has been moving from asset-only focus, to a full asset/liability approach. He also states that in this move hopefully “*politicians, sponsors, participants, and trustees will realize that asset/liability ‘management within a finance framework is not just a theoretical nicety’*”. (Peskin 2001 pg. 195). The most challenging aspect of pension liabilities, especially for cities that accumulate and manage directly pension fund assets, is that asset managers should dynamically structure or change the structure of respective assets (i.e. investments in secure and riskier but higher yield instruments) to match the moving value of pension liabilities in line with the value of assets set aside. The 2008 international financial crises, hit many pension funds hard and with unmanageable decline of present value of the accumulated and invested assets. It took long years to recover for many. We should bear in mind that

unfunded pensions could potentially impose a large burden on future generations, particularly in some developed and in many developing countries. This is the case in the US as shown in Box 3.

4. Conclusion

This policy note has discussed the issues and challenges that cities face in dealing with assets and debt policies, and how to maximize their potential resources in order to finance infrastructure, provide services to the residents and maintain a financial and fiscal health. The note covered the opportunities that cities have to use their physical assets to generate revenues, the challenges faced in accessing markets and the benefits of looking at assets and liabilities in an integrated way.

The main conclusion is that regardless of the income level or development level of each city, there are unused opportunities that can be positively developed.

Land is the main asset of municipalities and can be used to generate revenues directly through sales or leasing or indirectly through property taxes and land-based capture vehicles. The latter allow the city to appropriate a fair share of the increase in value accruing to privately held land due to public investments in local infrastructure. Cities can also use land as contributions to public-private partnerships and as guarantees for borrowing and debt. However, before any of these approaches can be applied, cities in developing countries need to have in place the essential pillars of good management and valuation.

The report presented examples of inventory, valuation, disposition of assets, and the challenges faced when data is not existent or unreliable. In ensuring that cities can adequately implement cost recovery, cities need to be vigilant in the incentives to bill and collect, maintain communication with the users, and design and implement adequate equalization processes that ensure that low income citizens have access to basic services.

On borrowing and access to the market, it is clear that debt-financing of infrastructure can expand development capacities and improves inter-generation equity, since the future generations not only enjoy the benefits of infrastructure but will contribute their financing by paying taxes or user fees. On the choice between bonds and loans, the main lesson is that bond issue is not a simple alternative to borrowing from the banks. Successful bond issuing requires the confidence from the market that the city has the capacity to pay the debt (in addition to a positive macroeconomic situation and deep financial markets). This trust in cities is hardly gained, as cities have often small guarantees, are dependent on transfers from the national government, and are often optimistic in their plans for the future.

The principal way to improve the capacity for cities to borrow from the market is to help their capacity to diagnose their fiscal and financial strengths and weaknesses, and demonstrate to the potential investors that the city generates a sustainable current surplus, and that its outlook for the medium-term is grounded in good analysis and steady streams of revenues. Governments and donors can help cities to be more independent financially, but the cities cannot jump essential steps in their fiscal maturity and capacity to assume responsibilities that often go across mayor mandates. The most critical steps include: good understanding of the debt capacity i.e. how much a city can borrow, concerted programs for improving debt capacity (creditworthiness), and exploring conditions and options for loans, bonds, and debt modalities. Finally, it is important to stress that cities in developing countries should not borrow or sell bond abroad, because they have no revenues in foreign currencies and cannot handle foreign exchange risks.

On asset and liabilities, it is clear that cities have much to gain to engage in inter-related analysis and management of assets and liabilities (ALM) and balance sheet approaches. Well managed cities provide visible positive results, such as balanced and sustainable development, stable and affordable services, and well controlled finances and debts. Cities in developing world manage assets and liabilities in department silos and intermittently approaching issues. But there are good examples that the advanced management

of assets, debts, and other liabilities is replicable in the developing and emerging economies (Ahmadabad, India, New-Cairo, Egypt, or Cape-Town in South Africa).

Cities are increasingly developing asset inventories and value-based asset registers that help implement these new approaches where fixed and current/financial assets, short and long-term liabilities and associated risks are jointly analyzed to inform strategic decisions on city development, expansion and maintenance of assets.

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6. Annex: Municipalities that tried to issued bonds

United Kingdom: In 2013, the UK municipal bond market was about \$105 billion. The market structure shows limited access, expensive, and restricted to large municipalities. Three fourths of all municipal bonds are issued through the Public Works Loan Board, an agency of the UK Government that provides loans to local authorities. Currently, all projects are funded from the central government. The rate to be paid by the local government is set by the Public Works Loans Board. A new institution UK Municipal Bond Agency (UKMBA) was created in 2015 to improve access, lower cost and provide local control to municipal bonds. It is owned by local councils and local government associations. It works as a bond bank. It pools issuers together and provides economies of scale in financing the issues. Pool Issue sizes are anticipated to be 250 to 300 million pounds and made up of 30 to 40 borrowers. Proceeds of the bonds will help localities fund their infrastructure needs. UKMBA has received a Aa3 rating from Moody's. It appears the UK muni market is still trying to get itself up and running. A lot of planning and time has gone into it, but it has yet to take its first big step.

Sweden: The municipal bond market in Sweden is about \$30 billion US dollar. The current structure is dominated by Kommuninvest, a Swedish local government funding agency set up in 1986 has issued and backed over half of the muni bonds in Sweden. It helps local governments Issue bonds and has enough capital to back the deals to allow them to have a AAA rating. The market appears to be limited to larger issuers, but at least they have control over their projects and funding needs. There is a concern that Kommuninvest monopoly will limit the expansion of the muni market.

China It is unclear how much “shadow debt” exists in China and how much of this debt can be converted into publically owned debt. If the Central Government is successful in developing the municipal bond market, China would be the second largest municipal bond market in the world, after the US, with an outstanding stock of USD1.5 trillion (<http://www.mainlinewest.net/around-world-munis/>).

China started in 2015 the process of privatizing its municipal bonds sector and making it a market driven one. This involves auditing the local governments, taking loans off the “shadow” banking system and providing liquidity to sell bonds in the market. The large local governments (example Beijing) have been the first ones to go through this process. Moving this large municipal debt to the market will alleviate the pressure on the banking system, reduce borrowing costs, and lead to better financial disclosure. As the sector becomes more market driven, issuers hope to get more autonomy in terms of what to do with the borrowed money. They will also be able to issue bonds with maturities of 5, 7 and 10 years rather than the former 7 years. (Anderson, R. and Lu Luan, 2018). China muni markets are expected to grow, responding the interest of investors. The Central Government appears to be strongly in support as municipal access to capital market can ease debt burdens for the “shadow” banking system, attract more into the country to keep funding growth, provide capital for the large urban infrastructure needs of the country.

Municipal bonds in Africa: The potential size of the African muni market is not known. There are very little data. Several bond issues have been scheduled, but few ever made it to market. Zambia tried in 2013/2014, but was unable to borrow the funds needed. In early 2015, Dakar, the capital of Senegal, was ready to issue \$40 million in USD at a 6.60% but the issue collapsed at the last minute due to lack of agreement by the central government. African cities are facing a shortfall in urban financing, and municipal bonds are being viewed as a way to plug the finance gap, especially if the commercial banks are over stretched and the central governments cannot help. A big challenge is the inability for municipalities to issue debt directly which stems from their fiscal essentials. There are concerns on the investor's side to trust revenue streams needed to pay the debt off, and disclosure on financial matters. The outlook is not favorable. And that there will be a struggle for a municipal bond market to develop in Africa anytime soon. African nations are most in need of local spending, but lack of revenue sources, and good governance impair the development of a market. The best solution would be for cities to improve their financial behavior, creditworthy analysis, and engage in projects and finance that are priority and make sense. PPP in selected sectors such as energy and water, and support from the central government

to finance essential basic services will be the most prudent way to go. The use of private resources is the best way to fund infrastructure projects enhanced with some form of credit enhancement, or concessions to get the funds needed.

Johannesburg, South Africa (Gorelick, 2018) South Africa municipal finance management act authorizes municipalities to borrow long-term for infrastructure and for debt refinancing. In 2004 the city issued a bond of 1 billion Rand to diversify financing sources and lower the cost of the city debt. The city had traditionally borrowed from banks, but banking liquidity was running short and Johannesburg was not able to borrow from bank 14 The city had no payment arrears, showed relatively low debt/revenue ratio (about 25%) and a steady stream of revenues coming from taxes and transfers.

This bond issue in 2004 marked the beginning of the post-apartheid municipal bond era in South Africa. The local currency denominated, 6-year transaction of 1 billion rand (approximately US\$ 159 million) was offered 230 bases over the government benchmark bond, or at a nominal interest rate of 11.95%. This high rate, coupled with a sense of national pride at being the first African country to issue bonds, generated great demand. The bond was oversubscribed threefold at primary issuance (Gorelink, 2018). Two months later, the City issued a second bond for another 1 billion rand, this time with a longer maturity – 12 years. It had a guarantee of 40% jointly from the IFC and the Bank of Southern Africa. The credit enhancement helped the nominal the benchmark was reduced to 164 basis points. Only 40% of the proceeds of the two bonds were used to finance the city’s capital expenditure program. The rest was used to refinance existing, more expensive, debt that Johannesburg had accrued in the late 1990s. That refinancing saved the city about US\$ 3.25 million. The overall stock including the new issue in relation to revenues remained at a sensible 50%.

Municipal bonds issued by cities in South Africa remain very attractive for investors. South Africa municipalities not only continue to show prudent fiscal management but have increased the level of sophistication of the financial instruments that they use to access capital for projects that are compatible with their visions for long-term growth. In 2014, the City of Johannesburg’s issued its first green municipal bond transaction; Cape Town followed suite in July 2017. The success of the municipal bond market in South Africa reveals the general financial health of the municipalities that go to the market, the depth of the financial market and a continued demand for diversified portfolio.

Douala, Cameroon - Cameroon is a very centralized government, with cities still administered by political appointees and all subnational borrowing approved by the national government. In 2003, Douala central government-appointed delegate decided to raise finance in the newly formed stock exchange. They decided to issue a 5-year bond for CGA 16 billion (about \$22 million) through a special purpose vehicle - - Communauté Urbaine de Douala Finance -- to finance road infrastructure, wastewater management, storm drains, solid waste management, and mass transit. The city had no commercial loans but total debt stock reached \$128 million of loans with the World Bank and the French Development Agency. It is unclear whether the city would pass any criteria of creditworthiness. Just looking at the declared revenues – US\$17.7 million – it seems that the debt stock was 7 times the revenues of the city which is unacceptable in any kind of situation. The bond was issued in three tranches with three interest rates – fixed, variable and at the end of the maturity. The idea was to offer the city an opportunity to delay some of the costs of borrowing and make the bond more attractive to a wider pool of investors (Gorelick, Jeremy. 2018).

¹¹ During the apartheid era (pre-1990), the City had successfully issued a number of municipal bonds taking advantage of the insurance companies asset requirements, whereby insurance companies and other institutional investors were required to hold 54% of their assets in municipal and other domestic government bonds. At Ngobeni, J (2008), “Asking the Right Questions”, Gridlines, World Bank, Note 33, available at https://openknowledge.worldbank.org/bitstream/handle/10986/10609/443980BRI0_Grid1Box0327398B01PUBLIC1.pdf?sequence=1.

Douala' bond was issued and paid to investors. But the process left no lasting lessons as the bond issuance in itself was plagued with financial and regulatory irregularities that lead to the imprisonment of the government's delegate. There were allegations of fraudulent exchanges between tranches and improper licensing of the financial arranger. Although this did not hamper the city's ability to honor its debts, and investors received their principal and interest in full and on time, it is clear that it will take a long time until the market will be receptive to another issue of municipal bonds. The lack of legal and financial framework was evident (Gorelick, 2018).

Dakar, Senegal. The Senegalese constitution authorizes the sub-national governments to borrow from financial institutions without government intervention, provided the borrowing is for capital investments. In 2011 Dakar went to the market and issued \$40 million in general obligations to finance a new market hall to which more than 4000 street vendors would be relocated. This would improve the image of the city and would produce a new stream of income. The city was committed to be seen as a well performing entity and received important help from donors in the process. Bill and Melinda Gates foundation contributed \$5.5 million to pay for technical assistance, feasibility studies and other expenses such as staff study missions to Marseille and Brussels-based Cities-Alliance managed the initiative for Gates.

Dakar debt profile included three loans from the French Development Agency (ADF) – 10 million euros, the West Africa Bank (\$18 million) and the Islamic Bank of Senegal (\$3.6 million) to finance a main street light program. The first loan was concessionary – 20 years at 2.2%; the second at 3 years and 8.5%. The city wanted to issue a municipal bond to fill the gap between the two loans. The credit analysis was positive. Dakar had a visionary leadership, good urban planning, and had been able to pay external borrowers on time. Senegal was political stable, interest rates were around 3.5% and inflation was a low 2.6%. The financial market was also favorable. Domestic demand for bonds was strong, as the central government had issued sovereign bonds on the local market. Throughout the period, the city worked to improve the city's financial management systems, to alter its approach to comprehensive planning, and to influence investors' perception of the city's creditworthiness.

To help the placement of the issue, Dakar used a 50% principal guarantee from the USAID. By 2015, the city had completed the regulatory steps required to issue a bond in the Abidjan-based capital market. It had built sufficient demand from institutional investors through roadshows. The 2015 credit rating, conducted by Bloomfield Credit Ratings, showed increases in revenue, decreases in operating costs, steady repayments of loans, and a net surplus relative to the prior year. The plan was to place the bonds with institutional investors (pension funds, insurance companies, regional banks) and 15% with individual investors abroad. (Gorelick, 2018)

Eventually, Dakar did not issue this bond. The central government was concerned about the impact of the issue in the country's overall level of indebtedness and did not authorize the issue. Dakar sued the central government and there are hopes that the next attempts to introduce municipal bonds in Senegal would be more successful.

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