

# Sovereign Securitization in Emerging Markets

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## Abstract

Over many years, securitization has proven to be an expedient and highly flexible refinancing tool for corporates and public sector entities that seek a more accurate capital-market based valuation of asset performance. After successful securitization by public sector entities in advanced countries, also sovereigns in emerging economies are becoming adept at securitization as an efficient means of asset-liability management. The following article critically surveys the recent developments of sovereign securitization in emerging markets and informs a more specific debate about the attendant infrastructural, legal and regulatory challenges. Amid lower risk premia in a changing interest rate cycle, the current trend of greater investor differentiation in emerging markets creates a benign environment for sovereign securitization to accommodate continued institutional investor demand for highly rated debt.

*Keywords:* securitization, ABS, MBS, structured finance, asset liability management, sovereign securitization, future flow securitization.

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## **1 Introduction**

On the heels of several prominent defaults and downgrades of U.S. corporations over the recent past, the subsequent haircut unwinding of exposed derivatives positions reverberated in mounting concern about current risk measurement standards in structured finance and their knock-on effects on other asset classes. However, subsequent warnings about financial stability were frequently substantiated by indistinct assessments of the attendant benefits and drawbacks of risk transfer in different forms of structured finance, such as asset securitization. Over many years, securitization has proven to be an expedient and highly flexible refinancing tool for corporates and public sector entities that seek a more accurate capital-market based valuation of asset performance. After successful securitization by public sector entities in advanced countries, also sovereigns in emerging economies are gaining experience in understanding the concept of securitization as an efficient means of asset-liability management. The following article critically surveys the recent developments of sovereign securitization in emerging markets and informs a more specific debate about the attendant infrastructural, legal and regulatory challenges. Amid lower risk premia in a changing interest rate cycle, the current trend of greater investor differentiation in emerging markets creates a benign environment for sovereign securitization to accommodate continued demand for highly rated debt by institutional investors.

## **2 Discussion**

### *2.1 Market-value based asset-liability management of governments and structured finance*

It is commonplace to argue that greater fiscal discipline to remedy a persistent structural budget deficit at a time of low economic growth (i.e. cyclical fiscal policy) is likely to exacerbate economic conditions. Conventional methods, such as reduced government spending and/or higher taxation, tend to discourage private investment and hinder the country's competitiveness. Moreover, greater global competition on price and innovation lowers the ability of businesses to pay taxes unless more efficient *asset-liability management* (ALM) of the public sector translates into a lower tax burden to service public debt. Against the background of these empirical ramifications of the traditional working principle of cyclical fiscal policy, it is incumbent on sovereigns to entertain a debt reduction strategy that motivates a more efficient administration of public assets through the elimination of wasteful activities, so that infrastructural improvements and essential government transfer payments can be funded without additional public debt. However, the inherently opaque management of public assets

causes governments to focus on liability management (transfer payments and government spending) and taxation as measures of greater fiscal discipline.

While public sector liabilities are managed in a transparent and market-driven fashion, the traditional approach to public assets as permanent properties (regardless of possible alternatives) supports historical cost accounting, which obscures the true market value of public assets. This method negates the opportunity cost of the use of public assets and encourages inefficient management, which entails weak government control over the type and volume of public assets. Moreover, low turnover of users and rare sales of public assets perpetuate systemic disincentives to change. A “market value” approach to public assets, however, would facilitate a more efficient management of public goods and services, whose traditional funding by tax revenues (and credit) would now be subject to an economic cost-benefit analysis as means to identify both excess capacity and new investment to meet public demands. So far, most government sources of funds are *not* referenced to a specific public assets, which impedes a transparent price discovery and fair valuation of public service obligations for efficient resource allocation. In 1997, the British government set the precedent for a “market value” approach by introducing the *National Asset Register*, which requires all government departments to annually audit their used assets on the basis of their opportunity cost. Following the U.K. example, in 2003, the Italian Ministry of Economy and Finance (MEF) initiated the “balance sheet at market values” (BS-MV)<sup>i</sup> approach as a key decision making instrument for ALM.

The implementation of a market-value based ALM strategy requires a portfolio of complementary financial instruments for both investment and divestment, which range from real estate investment funds for public asset disposal and concessions or direct outsourcing of management activities, on one hand, to low-cost project finance for public infrastructure and structured finance, on the other hand. As opposed to conventional bank lending and other forms of intermediated finance, these sources of funds monetize existing or expected receivables from public assets to fund future investments without greater asset exposure or balance sheet growth.

So far the involvement of public sector entities in structured finance<sup>ii</sup> has been mostly limited to sale-leaseback transactions by tax-exempt subnational authorities as a mechanism to privatize large strategic, state-owned enterprises. However, an increasing number of governments and public agencies have also set their sights on asset securitization as an alternative, market-based source of funds. Asset securitization is a highly flexible yet complex structured finance technique that involves

the issuance of contingent claims as liability and equity obligations on the back of identifiable cash flows from a diversified pool of asset exposures.

## 2.2 *Definition of asset securitization*

Asset securitization describes the process and the result of converting a pool of designated financial assets into tradable liability and equity obligations as contingent claims backed by identifiable cash flows from the credit and payment performance of these asset exposures (Jobst, 2006a).<sup>iii</sup> From an issuer perspective, securitization registers as an alternative, market-based source of refinancing profitable economic activity in lieu of intermediated debt finance. Securitization seeks to substitute capital market-based finance for credit finance by sponsoring financial relationships without the lending and deposit-taking capabilities of banks (*disintermediation*). Issuers raise funds via securitization in order to improve their capital management and liquidity position without increasing the capital base. The implicit risk transfer of securitization allows issuers to benefit from more cost efficient terms of high-credit quality finance without increasing their on-balance sheet liabilities or compromising the profit-generating capacity of assets. Investors in securitization have a wider choice of high-quality investments at their disposal, whose market valuation engenders greater overall efficiency and liquidity of capital markets. However, securitization involves a complex structured finance technology, which commands significant initial investment of managerial and financial resources.

Aside from being a flexible and efficient source of funding, the off-balance sheet treatment of securitization also serves (i) to reduce both economic cost of capital and regulatory minimum capital requirements as a balance sheet restructuring tool (*regulatory and economic motive*) and (ii) to diversify asset exposures (especially interest rate risk and currency risk). The generation of securitized cash flows from a diversified asset portfolio represents an effective method of redistributing asset risks to investors and broader capital markets (*transformation and fragmentation of asset exposures*).<sup>iv</sup> The tradability of asset risk also facilitates the synthetic assembly and dynamic adjustment of asset portfolios via secondary markets. As opposed to ordinary debt, a securitized contingent claim on a promised portfolio performance affords investors at low transaction costs to quickly adjust their investment holdings due to changes in personal risk sensitivity, market sentiment and/or consumption preferences.

## 2.3 *Public sector securitization in developed countries*

Sovereign-sponsored asset securitization facilitates the divestment of the government function of funding infrastructure investment and helps governments discharge their public service obligation of efficiently managing public assets. Securitization serves as vehicle of privatization, which aims to transfer public assets and service delivery to the private sector. Its use also implies a conscious choice of how much management and/or ownership control over securitized assets should be retained, and whether the potential benefits from the degree of envisaged privatization or asset management reform justify adverse socio-economic implications. Privatization ranges from a complete shift of the production of a good or the provision of a service from the government to the private sector through either the disposal of government-owned assets or the contracting out management capabilities, on one hand, to the establishment of public-private partnerships, on the other hand. Even the creation of federal corporations, quasi-government organizations and government-sponsored enterprises is often filed under the general category of privatization. Within the broader context of a market-oriented ALM strategy, securitization represents the financing platform of any action that involves exposing the operations of the government to the pressures of the commercial marketplace.

Governments have traditionally performed an indirect function in asset securitization as a provider of implicit or explicit state guarantees and other forms of government credit support to asset-backed securities issued by public agencies, such as government-sponsored securitization platforms for residential mortgages (e.g. agency RMBS in the U.S.) and public subsidies for SME loans via development banks (e.g. the SME loan program by Germany's development bank KfW, which also administers a standing securitization platform for synthetic CLOs of SME credits, called PROMISE (*Promotional Mittelstand Loan Securitization*) (Jobst, 2006a; Glüder and Böhm, 2003). Starting in the early 1990s, however, state and local municipalities in the U.S. debuted a more active role of the public sector structured finance when they began to securitize receivables associated with outstanding tax collections (e.g. tax liens).<sup>v</sup> Success in this market has encouraged government revenue securitization of other types of receivables, ranging from tobacco litigation settlement rights<sup>vi</sup> in the U.S. to unpaid social security contributions, performing public sector receivables from state-sponsored R&D loans and proceeds from the sale of real estate asset by public entities in Italy since 1999.<sup>vii</sup> Especially the Italian experience is particularly instructive of the effectiveness of government revenue securitization from existing (performing and non-performing) public assets. Since 1999 the Republic of Italy has embraced asset securitization as a means of privatizing public assets, which has led to a total public issuance of approximately €34.7bn (U.S.\$44.5bn), with half the amount still outstanding. The Italian Ministry of Economy and Finance (MEF) currently maintains the largest

European government-sponsored securitization program, which has securitized a total notional volume of €15.9bn (U.S.\$20.4bn) of unpaid social security contributions over five issues since 1999 (with €7.9bn (U.S.\$10.4bn) still outstanding).

#### *2.4 Private and public sector securitization in emerging economies*

After having evolved rapidly as a risk transfer and refinancing tool in developed economies, asset securitization has also assumed a vital role for private sector financing in EM countries. Since the end of the 1980s,<sup>viii</sup> large and highly-rated corporates and banks in developing economies have successfully sold receivables from future claims against obligors. Such “future flow securitization” involves the origination of foreign currency-denominated debt secured by future export receivables (e.g. oil and steel)<sup>ix</sup> and financial flows from either credit card merchant vouchers or other payment rights in a move to vault the low sovereign ceiling of EM country ratings and borrow at lesser cost than under conventional funding methods.<sup>x</sup> In light of the importance of financial liberalization in improving the efficiency of capital markets, several EM countries have developed the legal and financial infrastructure necessary to strengthen their local securitization markets (Meddin, 2005). This has allowed the securitization of existing assets in local currencies in domestic capital markets or even abroad via cross-border ABS transactions (CBEAs)<sup>xi</sup> (despite the currency mismatch between securities denominated in foreign currency and underlying assets generated in local currency).

Also the public sector in many EM countries has embraced securitization as an expedient means to foster favorable external debt dynamics (i.e. lower debt service relative to current account receipts), greater fiscal consolidation (i.e. lower public debt relative to GDP), and a more balanced amortization profile of public debt. With the development of a strong local institutional investor base amid regulatory, tax, and legal reforms, asset securitization has become an attractive funding solution for the public asset-liability management.<sup>xii</sup> The securitization by subnational authorities is particularly prominent. Over the recent past, federal, state and local authorities (municipalities and provinces) as well as government agencies in various emerging market countries have securitized future revenues to domestic and/or retail investors. In most cases, public sector agencies have enlisted securitization in order to monetize tax receivables (federal tax participations), deferred sales tax revenue, oil and gas royalties, future water receivables, toll road revenues, sovereign lease receivables, government loans, housing loan receivables, and performing bank assets from state deposit insurance schemes.

The international securitization and collateralized lending by Argentinean and Mexican states, provinces and municipalities on federally collected coparticipation tax revenue receivables has

become a hallmark of sovereign securitization in Latin American. In Argentina, the *Coparticipation Law* of 1988 stipulates the exclusive collection of certain taxes (income, value-added, exercise and consumption taxes) by the federal government on behalf of the providences. Several Argentinean providences disposed their borrowing authority by leveraging their on their revenues from the federal tax coparticipation (*copa*) system. In light of the overall reduction of *copa* flows and the peso devaluation during the Argentinean crisis, however, the *Province of Buenos Aires*, the largest subnational debtor outside North America by April 2002, had to suspend payments on its U.S.\$5 bn bonded debt on *copa* revenues, the largest non-U.S. subnational default in history.<sup>xiii</sup> Nonetheless, many structured debt by subnational borrowers have been unscathed by sovereign default, such as U.S.\$439 of collateralized notes issued by the *Province of Mendoza*, the *Province of Tierra del Fuego* and the *Province of Salta* on oil and gas royalties in 1996, 1997 and 2001 respectively.

The Argentina example also illustrates that structured finance and securitization of public assets at the subnational level places a special emphasis on the unfolding of sovereign crises and the extent to which a national government decrees or legal enforces the political subdivision to default along with it. The classic sovereign default scenario<sup>xiv</sup> suggests unilateral measures in the form of moratoria declared on all foreign obligations, including those issued by subnational authorities; however, at the height of its national crisis in early January 2002, the Argentinean government abstained from restricting all other public sector debtors from honoring their own debts with foreign creditors or denominated in foreign currency.

Also Mexico shares a federally organized disbursement of tax revenues, which states and municipalities have securitized.<sup>xv</sup> In light of improving credit conditions a slew of structured bank loans to Mexican states and municipalities have fueled a record growth of domestic issuance, which has made the Mexico the leading market in Latin America for the first time in 2004. In the same year, the State of Mexico (*Estado de México*), the biggest state in the Mexican Republic, has concluded the highest state debt refinancing program in Mexican history by accepting a package of eight structured loans for a total of MX\$28.7bn (U.S.\$2.6bn) backed by federal tax participation revenues as credit enhancement mechanism. Also other Mexican states and municipalities have securitized future tax revenue for a total of MX\$20.4bn (U.S.\$1.9bn) between 2001 and 2005.<sup>xvi,xvii</sup>

Resource-rich countries, such as Brazil and Venezuela, have recorded sovereign securitization mostly on future oil export receivables sponsored by government-controlled entities. In Brazil, government-controlled *Petróleo Brasileiro S/A* (Petrobras) issued future flow ABS on U.S.\$1.5bn and €200m

(U.S.\$257m) of future oil export receivables by from 2001-2003. In Venezuela, government-controlled *Petróleos de Venezuela (PDVSA)* raised U.S.\$2.5bn and €200m (U.S.\$257m) from future flow ABS on oil export receivables from 1998 to 2001.

Also governments in other emerging market countries have awakened to the distinct benefits of securitization and emulate the Italian model (see section 2.1 above) of directly securitizing government revenues. In February 2000, the *Task Force on Infrastructure* of India's Planning Commission approved a proposal to securitize a cess on petrol and diesel in order to finance infrastructure projects.<sup>xviii</sup> State government of West Bengal in eastern India securitized future petroleum, diesel and liquefied petroleum gas (LPG) cess has raised Rs. 15bn (U.S.\$322m) with the help of SBI Capital Market, the merchant banking subsidiary of State Bank of India, in a privately placed future flow transaction. Other future flow transactions have been completed by the State of Maharashtra, which has raised funding on deferred sales tax revenue. Also the *Indian Railways Finance Corporation (IFRC)* has recently completed India's first securitization of sovereign lease receivables. Other infrastructural securitization transactions have been successfully completed in Hong Kong SAR, Thailand and Korea, to name a few. In September 2001, *Hanareum International Funding Ltd.*, a special-purpose vehicle (SPV) of the *Korean Deposit Insurance Corporation (KDIC)*, issued U.S.\$278 million of guaranteed floating rate notes on well-seasoned, performing 305 leases and loans from 16 failed Korean merchant banks (supported by a letter of commitment by KDIC relating to certain asset representations and warranties). Moreover, the state-owned *Korea Highway Corporation* has recently completed its first domestic securitization transaction. The government of Hong Kong SAR raised HK\$6bn (U.S.\$771m) internationally by securitizing toll revenues from state-owned bridges and tunnels in its recent *Hong Kong Link 2004 Ltd.* transaction, while the Treasury Department of Thailand uses *Dhanarak Asset Development Company Ltd.* as SPV to fund construction of the *Chang Wattana Government Center* via asset securitization.

Many emerging market countries are very adept at indirect sovereign-sponsored securitization with the long-term aim of developing security markets as an efficient mechanism of refinancing asset origination in areas of public interest. In particular, many governments in EMs have focused on the development of mortgage securitization to ensure a stable supply of housing funds. However, compared to agency-backed mortgage securitization in advanced economies, secondary mortgage markets in emerging markets are still small relative to the total stock of outstanding stock of residential mortgages (see Table 1). After the enactment of the *Asset Backed Securitization Law* in 1998 and the first significant asset-backed transaction deal by the *Korean Export-Import Bank*

(KEXIM) of promissory notes drawn by Korean lenders for overseas operations in December 1998, the Korean government has taken significant strides to support a secondary mortgage market by sponsoring the formation of the *Korea Mortgage Corporation* (KoMoCo) in September 1999. KoMoCo has already issued several MBS collateralized by mortgage exposures, whose origination is subsidized by government funds from the *National Housing Fund* (NHF) and the *National Agricultural Cooperatives Federation* (NACF). India has taken similar efforts, when *Housing Development Finance Corporation Ltd.* (HDFC), a special-purpose vehicle (SPV) of the *National Housing Bank* (NHB), issued its first RMBS in August 2000 with notional size of Rs. 59.7 crore (U.S.\$12.9m) in a series of RMBS deals totaling Rs.512.27 crore (U.S.\$110.1m) on the back of a mortgage portfolio of 35,116 housing loans. In 2004 and 2005, NHB completed three RMBS per year, amounting to Rs.144.75 crore (U.S.\$31.1m) and Rs.99.33 crore (U.S.\$21.4m) respectively.<sup>xix</sup> Malaysia plans to securitize some RM 25bn (USD 5.5bn) worth staff housing loan receivables via *Cagamas Berhad*,<sup>xx</sup> the government-promoted housing securitization body, in a move to further develop the Malaysian bond market, in particular asset backed securities (ABS). The government of Hong Kong SAR has budgeted HK\$21bn (U.S.\$2.7bn) in revenue from the sale or securitization of state assets, such as civil service housing loans and home starter loans, in the fiscal year of 2005. In Latin America, particularly Mexico leads the pack in state-sponsored secondary mortgage markets. In April 2005, *Hipotecaria Su Casita, S.A. de C.V.* (HSC)<sup>xxi</sup>, Mexico's second largest *sofol* (specialized mortgage lending institution) and a subsidiary of the National Fund for Workers' Housing (*Instituto del Fondo Nacional de la Vivienda de los Trabajadores*, Infonavit), the government-run housing agency, closed a U.S.\$100m variable funding note program (*Hipotecaria Su Casita Construction Loan Trust*).<sup>xxii,xxiii</sup>

## 2.5 *Benefits of securitization for sovereigns*

Generally, sovereign issuers may find securitization attractive because of an improved access to funds during liquidity crises, while investors have a wider choice of high-quality investments as overall efficiency of capital markets improves. Besides the frequently hackneyed objective of reducing budget deficits, sovereign originators benefit particularly from: (i) the market-based valuation of public assets and creation of sovereign equity if assets are undervalued; (ii) better asset-liability management and debt sustainability, as the issuance of asset-backed debt allows issues to fund new assets, whose cash flows are perfectly matched to the repayment of investors until redemption, avoiding potential maturity mismatch of the sovereign balance sheet; (iii) active management of designated asset portfolio and greater control over asset status; and (iv) the isolation of certain assets

in order to make them self-financing at a fair market rate and attract international investment grade finance.<sup>xxiv</sup> Finally, perhaps one of the most overlooked incentives for governments to promote the securitization of public assets vis-à-vis ordinary unsecured debt finance also lies in the externalities (IMF, 2003) associated with it. Future flow securitization tend involve a much closer scrutiny of the legal and institutional environment than unsecured transactions. Hence, these deals can produce enormous benefits by making valuable information available to investors. Especially for emerging market issuers, the securitization of future flow receivables may be the only way to begin accessing international capital market at reasonable capital cost.

**Table 1. Gross Annual Issuance of Mortgage-Related Securitization in Mature and Emerging Market Countries** (In percent of outstanding stock of total housing and mortgage debt)

	2004	2005
<b>Emerging Markets</b>		
Malaysia <sup>1</sup>	<b>1.14</b>	<b>2.65</b>
Mexico <sup>2</sup>	<b>0.32</b>	<b>0.76</b>
India	<b>1.93</b>	<b>2.63</b>
<i>of which: public sector MBS (NHB)</i>	0.09	0.08
<b>Mature Markets</b>		
<b>United States</b>		
Agency-backed MBS	11.69	10.57
Private label MBS	5.14	10.08
Subtotal	16.83	20.65
<b>Europe</b>		
Private label RMBS <sup>3</sup>	1.88	2.34
<i>of which: U.K.</i> <sup>4</sup>	3.56	4.46
Covered Mortgage Bonds <sup>3</sup>	2.93	3.36
<i>of which: Germany (Pfandbrief)</i> <sup>5</sup>	14.05	15.01
<i>of which: Spain (cédula hipotecaria)</i> <sup>5</sup>	3.17	6.15
<i>of which: France (obligation foncière et communale)</i> <sup>5</sup>	3.27	2.92
Subtotal	4.81	5.71
<b>Total (United States and Europe)</b>	<b>11.33</b>	<b>14.48</b>

*Sources:* The Bond Market Association, European Securitization Forum, Dealogic Bondware, Thomson Financial Securities Data, Structured Finance International, Central Bank of Malaysia, Central Bank of Mexico, National Housing Bank (NHB) of India, European Mortgage Association.

<sup>1</sup> Data includes RMBS issued by Cagamas Berhad only. No private label RMBSs are considered.

<sup>2</sup> Data includes RMBS issued by the National Fund for Workers' Housing (*Instituto del Fondo Nacional de la Vivienda de los Trabajadores*, Infonavit) only. No private label RMBSs are considered.

<sup>3</sup> based on the end-2004 stock of residential mortgage loans outstanding in the EU-25 and the estimate of the end-2005 for a growth rate of 9.7 percent (2004).

<sup>4</sup> based on the end-2004 stock of residential mortgage loans outstanding in the U.K. and the estimate of the end-2005 stock for a growth rate of 11.1 percent (2004).

<sup>5</sup> based on the end-2004 and end-2005 stock of residential mortgage loans outstanding.

## 2.6 *Window of opportunity for sovereign securitization in emerging markets*

For emerging markets, the enhanced credit rating from securitization has gained particular importance as investor differentiation across developing countries increases. The recent decline of cross-country correlations suggests that liabilities of “creditor countries,” i.e. those with current account surpluses and/or no need of near-term external financing are expected to outperform “debtor countries” with significant external financing requirements, which are more subject to changes in risk aversion and higher levels of attendant asset volatility. In this context, asset securitization, possibly backed by guarantees from international development banks, would allow governments in heavily-indebted countries to achieve lower external financing cost than would be possible on the strength of their own balance sheets alone amid greater risk aversion of emerging market investors.

With the recent correction of emerging market debt indicating a potential decline of credit quality and higher idiosyncratic risk on the horizon, highly rated sovereign securitization could also provide much needed liquidity as investors move back into traditional instruments (e.g. sovereign debt and high grade corporate debt). Previously, improved credit quality in emerging markets led to a greater systemic pricing component of emerging market debt. Once the idiosyncratic nature of emerging market debt had begun to subside (and cross-correlations with developed countries increased), external bonds and local currency debt were increasingly traded in a similar fashion to mature market products - with an ever expanding set of exotic options and derivatives in use. At the same time, a greater global cash surplus and a limited supply of traded debt lowered investment returns relative to asset values. The attendant lower risk premium from tightening spreads required even lower risk aversion for the same expected returns. Consequently, poor returns on conventional products and default rates below the historical experience encouraged more risk taking for yield, with emerging market titles becoming an attractive asset class despite poor underlying market liquidity in many countries. As emerging market credit shows first signs of deterioration against the background of greater uncertainty about the future interest path associated with a more stringent monetary policy in mature markets, investors might now favor liquidity of mature market investment and/or less risky investment products in emerging markets, such as highly rated and secured government debt.

## 2.7 *Challenges for sovereign securitization in emerging market countries*

For a viable use of asset securitization certain general criteria need to be satisfied: (i) *structural market imperfection* due to fiscal constraints and high borrowing costs; (ii) an *adequate and bankable*

*legal and regulatory framework* for bankruptcy, tax, and corporate governance issues (especially reliable dispute resolution mechanism for investor protection of issuers and investors in case of credit event); and (iii) a transparent transaction structure with financial incentives and covenants to ensure *demonstrable and unimpeded control over securitized assets* subject to persistent monitoring by rating agencies, trustee and guarantors.

The development of securitization markets also depends on essential economic, infrastructural and regulatory conditions, whose consistent integration ensures systemic integrity. The *economic* rationale for securitization as a funding and risk transfer mechanism requires the efficient pricing in liquid underlying cash markets of conventional investment products (such as bonds, equity, commodities). The main *infrastructural* challenges in this area involve (i) the implementation of a modern trading system, which executes clearing and settlement through a single central counterparty (CCP), and (ii) surveillance systems to detect improvident behavior especially in areas that straddle the cash and derivative markets. Finally, the *regulation* of securitization markets implies the adoption of (i) solid accounting and regulatory standards in specific securitization laws, including the full balance sheet disclosure, the alignment of local accounting rules to international standards, and market supervision through self-regulating organizations (SROs), as well as (ii) a tax environment that creates a level playing field for conventional and structured finance transactions.

Moreover, a sustainable securitization strategy for sovereign entities would require the establishment of a sound market environment, which includes a good credit culture, information transparency, investor sophistication, relative price competitiveness against other sources of external finance, asset class diversity, sufficient domestic savings and institutional investors to manage these savings professionally, an infrastructure of arrangers, clearing agents, exchanges and market makers as well as professional credit rating agencies to establish standards for risk measurement. For instance, the standardization of securitization transactions helps facilitate informed investment and efficient price discovery. Furthermore, the pooling of government assets and the execution of a series of issues based on the same transaction structure reduces significant transaction costs. Although the absence of these conditions hinders private securitization in emerging market and less developed countries, it does so at a lesser degree for sovereign-sponsored securitization. Hence, sovereign securitization could complement financial sector evolution, which commonly starts with state-sponsored creation of bond and equity markets.

However, governments in emerging market countries are faced with several impediments to the efficient execution of structured finance transactions. From a procedural perspective, the scrutiny of securitized collateral is more complicated and less accurate in emerging markets due to the comparative paucity of historical data on defaults in emerging markets, which hinders reliable estimates for recovery rates used in pricing and rating tranching products. Also the lack of sufficiently liquid reference assets, which also are viewed as relatively more highly correlated among themselves, restricts effective underlying pool diversity and broad debt supply. Other constraints have further inhibited sovereign securitization, such as currency risk of foreign-denominated external debt and policy concerns that securitization increases a country's inflexible debt, which, if combined with debt owed to other preferred creditors, could eventually subordinate existing payment obligations. Also high execution costs, structural complexity and the potential principal-agency problems between sovereign issuers and investors as well as administration, collection and fraud risks warrant careful consideration.

Infrastructural, legal and regulatory shortcomings shape up to be the biggest test for securitization as an alternative source of public finance. While asset-backed securities in mature markets are structured under an expansive and highly developed regulatory regime and close supervisory oversight, legal codes in many developing countries are silent on securitization. Overall, the legal and regulatory framework for securitization is still at an early stage of development across emerging market countries. Although the absence of securitization laws could allow issuers to default to less stringent regulations on conventional debt securities, explicit regulatory limitations on securitizable asset classes or the degree to which securitization transactions structures achieve risk transfer, for instance, compromise fundamental precepts of securitization.<sup>xxv</sup> In many countries, financial transactions and asset transfers also attract sizable stamp or transaction taxes, whose underlying laws have generally preceded the advent of securitization. Hence, without specific exemptions, these taxes create additional transaction costs that might foil the economic viability of securitization. Some emerging market countries (e.g. Poland, Russia, the Slovak Republic, Taiwan, and Ukraine)<sup>xxvi</sup> have exempted securitization transactions from stamp duties, whereas, in India, stamp duties vary between 0.1 percent and 8 percent depending on the state and asset.<sup>xxvii</sup> Aside from frequently cumbersome regulatory approval processes, basic trust law for SPVs is under-developed in many countries. This requires securitization vehicles to be established as financial corporations, which may attract many of the provisions of the standard corporate law unsuitable/onerous to securitization.<sup>xxviii</sup>

Further advancement of securitization is also hampered by poorly developed market practice and standards in many emerging market countries, such as the pervasive lack of uniform transaction structures, common interest rate benchmarks as well as insufficient transparency and disclosure of asset quality due to weak rating agencies or complexities of initial transactions. Additionally, the institutional investor base is generally under-developed. Institutional investors in several countries face certain regulatory rigidities on investment in securitized products. In many countries (e.g. Argentina, Chile, Peru, Poland) pension fund laws contain strict provisions regarding approved investments and permit investments in structured products upon regulatory approval.<sup>xxix</sup> In some countries, sovereign securitization itself has also induced the investors' lack of familiarity with complex structured products, after the issuance of mortgage-backed securities by state-sponsored secondary mortgage facilities had encouraged excessive reliance on "with recourse" financing or preference for excessive credit enhancements (Jobst et al., 2006). Similar problems arise from concerns about poor enforcement, which make capital market participants unwilling to take enforcement risks.

Some of these teething issues, such as administration, collection and fraud risks or potential principal-agency problems, are allegedly less relevant for sovereign issuers if transactions are supported by state guarantees. Nonetheless, uncertainties remain as regards the quantification of sovereign counterparty and credit risk due to scarce historical experience on both sovereign defaults and the willingness of governments to declare general moratoria on external payment obligations in their wake. Many other constraints to securitization in emerging markets are likely to be resolved in sequenced and time-bound transition towards more information transparency and asset class diversity as investors and originators become more familiar with structured products. That said, the currency risk of foreign-denominated external debt obligations and policy concerns that securitization increases a country's inflexible debt are more lasting hindrances to the issuance of asset-backed securities abroad and require cooperative efforts with existing private and concessional creditors, such as international banks or multilateral organizations.

### **3 Conclusion**

The market-based commoditization of public assets via the transformation process of securitization enhances accountability and encourages a more efficient execution of the public service obligation. Conventional asset-liability management of governments and quasi-sovereign entities tends to be biased towards debt management, while historical cost accounting in asset management obscures the

true market value of public assets. In contrast, asset securitization implies greater control over public assets and facilitates the divestment of the government function in order to make infrastructural investments self-financing at a fair market rate and independent of the sovereign balance sheet.

After successful securitization by public sector entities in advanced countries, also sovereigns in developing and emerging economies are gaining experience in understanding the concept of securitization as an innovative structured finance technique to manage the risks and funding requirements of infrastructure investments. Many federal, state and local authorities in (mostly advanced) emerging market countries have already securitized tax revenues, loan receivables and other cash flows from a variety of existing and future assets. However, sovereign securitization in most emerging market countries is at a still modest level, mainly because of the focus of many governments on conventional debt policy instead of equitable asset-liability management. The nascent development of securitization in general also testifies to several imperfections in economic, infrastructural and regulatory conditions essential to the creation of a sustainable securitization strategy. The frequent absence of special legal frameworks for structured finance, regulatory rigidities, poor market practice and an under-developed local institutional investor base tend to limit the introduction of complex financial products. While some of these constraints on the viable execution of asset securitization in less sophisticated markets are less relevant for sovereign issuers, counterparty, enforcement and convertibility risks in emerging markets are more intricate impediments to efficient securitization by the public sector. While perpetual financial innovation in the private sector looks set to ensure organic growth of securitization in emerging markets, direct public sector involvement helps promote further essential conditions for efficient securitization, such as a bankable legal, tax and regulatory framework, sound standards in origination and trading, and adequate market practice for investor protection and full disclosure.

Sovereign securitization of existing assets in local currencies is deemed particularly plausible for low-rated countries that wish to further develop the width of local debt markets. In cases when local markets remain too small and illiquid to sustain sufficient sovereign debt issuance, governments could also originate foreign currency-denominated debt secured by future export receivables in future flow securitization or securitize infrastructure investments even abroad via cross-border transactions, inflation environment and exchange rate stability permitting. Otherwise, if governments restricted themselves to raising funds from local markets until local institutional investors and price competition amongst different asset classes were well established, they would likely fail to generate a sufficient financing to allow medium-term growth objectives to be met. Efforts to access external markets via

structured finance in the form of asset securitization also allows governments to establish liquid pricing benchmarks for sovereign debt in external or local markets, which facilitate trading and help to ensure that at times of economic or financial stress markets can remain active.

Finally, the current trend of greater investor differentiation and more idiosyncratic price movements in emerging markets creates a window of opportunity for sovereign securitization. As credit risk in emerging markets becomes more heterogeneous and general risk premia rebound in the wake of a changing interest rate cycle, international institutional investors are likely to favor liquid and more secure sovereign credit over risky, high yield cross-border issues by corporates from emerging markets.

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<sup>i</sup> The balance sheet entries are recorded at market values as a better estimate of values by asset type (liquid funds, receivables, advances, equity investments, intangible fixed assets (exploitation rights, software, etc.), saleable tangible fixed assets (infrastructure, natural resources, real estate, land, movable assets) of central government and local authorities.

<sup>ii</sup> Structured finance encompasses all advanced private and public financial arrangements beyond the scope of conventional forms of on-balance sheet securities (debt, bonds, equity), such as asset securitization. See also Jobst (2006b).

<sup>iii</sup> See also Jobst (2006c and 2003), Telpner (2003), Zweig (2002), and Kendall (1996).

<sup>iv</sup> Notwithstanding greater risk diversification within the financial system through asset securitization, in the same way, the structural complexity arising from multi-layered security designs, diverse amortization schedules

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and possible state-contingent funding of synthetic credit risk transfer, however, might also obfuscate actual riskiness of these investments and inhibit provident investment. Moreover, numerous counterparty links established in the commoditization of securitized asset risk and derivative claims also create systemic dependence susceptible to contagion.

<sup>v</sup> Over the period 1996-2001 New York City successfully completed seven securitization transactions of tax lien receivables in an effort to monetize the expected recovery value of these tax receivables with an average annual volume of approximately U.S.\$138m.

<sup>vi</sup> At the end of the 1990s many U.S. States securitized their annuity receivables from U.S. tobacco company settlements, issuing over U.S.\$4 billion in tobacco settlement payment ABS through the end of 2001.

<sup>vii</sup> The newly enacted Italian securitization law (Law No. 130 of April 30, 1999) does not place restrictions on the originator's entity. In particular, the Italian legislator has given public entities the opportunity to securitize real estate properties (which has not been granted to any other entity or individual under Italian law). Law decree No. 351 of September 25, 2001 (which was turned into law in an amended form as Law No. 410 of November 21, 2001) authorizes the Italian Ministry of Economy and Finance to incorporate thinly capitalized limited liability companies as special-purpose vehicles (SPVs) for the securitization of the proceeds arising from the sale by the government or other public entities of real assets. Law 410/2001 also expressly states that, in addition to state property, the proceeds from the sale of real estate assets of regions, provinces and municipalities can be subject to securitization. Article 84 of Law No. 289 of December 27, 2002 (2003 Budget Law) clarifies Law 410/2001 as to the centralization of authority by the Italian Ministry of Economy and Finance on the securitization of real estate assets.

<sup>viii</sup> Future flow securitization debuted in Mexico, when *Teléfonos de México S.A. de C.V.* securitized its telephone receivables in 1987.

<sup>ix</sup> Besides export receivables, other types of securitized collateral include future royalties, hotel revenues and sports receivables.

<sup>x</sup> Although event risk and foreign exchange risk can be limited in future flow securitization, every future flow securitization is subject to performance risk and sovereign risk if accumulated receivables are not enough to liquidate investor claims or government actions, such as the redirection of exports, inhibit future asset performance.

<sup>xi</sup> CBEAs, which first appeared in the mid-1990s, are cross-border ABS backed by existing assets and sold to foreign investors in foreign currency.

<sup>xii</sup> As opposed to the securitization of existing claims, the securitization of future receivables ("future flow securitization") involves the sale of a future claim against obligors who are yet to be identified.

<sup>xiii</sup> Other structured debt on *copa* revenue issued by Argentinean subnationals include U.S.\$200m of secured medium-term notes issued by the *Province of Tucuman* and U.S.\$120m of *copa* tax revenue collateralized medium-term notes issued by the *Province of Santiago del Estero*.

<sup>xiv</sup> The classic sovereign default scenario of nations with unsustainable debt involves unilateral measures in the form of moratoria declared on all foreign obligations or debtors domiciled within the country (both private and public), exchange controls, capital account restrictions, debt reschedulings, suspension of constitutional guarantees on property rights and the temporary reduction in or interruption of revenue transfers from the central government to the subnational sector.

<sup>xv</sup> Besides asset securitization, also other forms of structured finance are available to governments to conduct sound asset-liability management. As part of an on-going plan to shift the public debt stock into local currency, the Mexican government issued bond exchange warrants for foreign currency-denominated government bonds in November 2005. Mexico was the first developing nation to complete such a contingent liability management exercise in order to maintain sound debt liability management despite structural restrictions on overall public finance. These warrants allowed holders to profitably exchange sovereign eurobonds for the country's peso-denominated bonds if rising U.S. interest rates and a more accommodative Mexican monetary policy would lower the yield on dollar-denominated debt in the wake of spread compression. Note that the option of switching foreign currency holdings into local debt implies a profitable yield compression trade, which gains in value as the yield gap between the government's dollar bonds and peso bonds narrows.

<sup>xvi</sup> In 2002, these were the *Distrito Federal*, the *Estado de Chiapas*, the *Estado de Durango*, the *Estado de Hidalgo*, the *Estado de Guerrero*, the *Estado de San Luis de Potosí*, the *Estado de Sinaloa*, the *Estado de*

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*Sonora*, the *Estado de Veracruz*, the *Municipio de Aguascalientes*, the *Municipio de Guadalajara*, the *Municipio de Monterrey*, the *Municipio de Navojoa*, the *Municipio de Zapopan*. One jurisdiction, the *Municipio de Tlalnepantla*, also issued ABS on MX\$168m (U.S.\$15.5m) of future water revenues in 2003.

<sup>xvii</sup> Other prominent public sector-related securitization transactions include an ABS on MX\$1.0bn of consumer loans issued by the *Fondo de Fomento y Garantía para el Consumo de los Trabajadores* (Fonacot) and the future flow ABS on a total of USD2.8bn of future oil export receivables (1998-2000) by *Petróleos Mexicanos* (Pemex), Mexico's state-owned oil and gas company.

<sup>xviii</sup> Cess is an additional tax over and above the normal rates of direct and indirect taxes. In India, all income taxes are subject to 2% education cess (applicable on the total tax paid). The cess on petrol and diesel fuel has been used as an indirect tax surcharge for the use of the country's road networks, since levying tolls on road usage is considered more difficult.

<sup>xix</sup> In 2005, NHB also entered into an agreement with the Asian Development Bank (ADB) and HDFC for undertaking a study for development of a secondary mortgage institution in India.

<sup>xx</sup> Cagamas Berhad, the National Mortgage Corporation of Malaysia, is a secondary mortgage facility, which provides short- and medium-term finance and capital market access to mortgage lenders. Cagamas buys mortgages with recourse from originating banks at a fixed or floating rate for three to seven years and sells bonds to investors backed by these mortgages. Banks thus have to maintain their normal regulatory capital while Cagamas Berhad maintains additional capital.

<sup>xxi</sup> HSC's main function is to extend mortgage loans to low-income individuals under the auspices of the government's *Sociedad Hipotecaria Federal* (SHF) financing programs.

<sup>xxii</sup> This first-of-its-kind cross-border existing asset-backed securitization (CBEA) by a Mexican quasi-sovereign originator succeeded the issue of *Certificados Bursátiles Para La Vivienda* in the amounts of 999.5m inflation-linked pesos (UDIS) and MX\$750.5m on residential mortgages *Infonavit* issued locally through its securitization program CEDEVIS between 2004 and 2005.

<sup>xxiii</sup> Nonetheless, Mexican MBS amounted to only 1.7 percent of all outstanding household debt by the end of 2005.

<sup>xxiv</sup> Moreover, structural arrangements, such as warrants in the case of Mexico and other conversion options, can serve as a transition mechanism to facilitate the re-composition of the domestic/external debt liability mix to insulate public finance from adverse external exchange rate movements.

<sup>xxv</sup> In some emerging market countries, such as Thailand and Turkey, the legal framework does not allow for securitization of future receivables and does not fully ensure bankruptcy remoteness (i.e. the SPV and its assets are not fully protected from the risk of being attached by the creditors of the originator in the event of insolvency of the originator) (Jobst et al., 2006).

<sup>xxvi</sup> In Russia and Slovak Republic, tax implications of particular securitization depend on type of receivables, as well as whether the transaction is domestic or cross-border (Jobst et al., 2006).

<sup>xxvii</sup> Several major states resolved this problem by adopting a uniform 0.1 percent rate; however, significant regional diversity of stamp duties has persisted. As a result, there is some geographical concentration of securitization vehicles (SPVs) and the domicile of securitized assets. In Turkey, the assignment of receivables by the originator to SPV, or taking any additional steps to enforce such assignment, is subject to stamp duty at 0.75 percent and court charges at 5.4 percent of the amount in question.

<sup>xxviii</sup> As financial institutions securitization vehicles would be subject to income gains tax for funds raised from the issuance of asset-backed securities. Therefore, SPVs are almost exclusively registered in off-shore tax havens or countries that have adopted specific securitization laws that call for a distinct tax treatment of SPVs.

<sup>xxix</sup> Many institutional investors are also subject to stringent mark-to-market provisions, which, while appropriate in themselves, make it more difficult to value the more complex products.