Knowledge Work on Securitization in the People’s Republic of China

This working paper describes key features and mechanisms of securitization and practices of securitizing revenue streams from various classes of physical asset before and after the global financial crisis, and provides context information on how this could be relevant for the People’s Republic of China. The aim is to deepen the understanding for securitization and contribute to ongoing discussions about reforming local government finances, infrastructure finance and project finance, and further diversifying financial services. Local governments in the People’s Republic of China and their subsidiaries are still struggling with rapidly increasing debt levels but also have numerous physical assets on their balance sheets.

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ABBREVIATIONS

ADB  – Asian Development Bank
CMHC  – Canada Mortgage and Housing Corporation
CDO  – collateralized debt obligation
CMBS  – commercial mortgage-backed security
CRE  – commercial real estate
GDP  – gross domestic product
GSE  – government-sponsored enterprise
LGFV  – local government financing vehicle
MBS  – mortgage-backed security
PRC  – People’s Republic of China
RLGs  – regional and local governments
SPV  – special purpose vehicle

CURRENCY EQUIVALENTS
(as of 31 March 2016)

Currency Unit – yuan (CNY)
CNY1.00 = $0.155
$1.00 = CNY6.461
Ongoing reforms of local government financing in the People’s Republic of China could involve securitization of infrastructure assets, in particular commercial property, which has already proved successful in developing and developed economies around the world. After the global financial crisis, regulation of the securitization market was improved, for example in the United States and in Europe with better regulation of rating agencies which play an important role in securitization. Regulation obliging originators to retain some risk in each transaction and investors to conduct individual due diligence has also contributed to making securitization much safer.

Securitization of commercial real estate (CRE) assets, including offices and retail premises, encompasses (i) a revenue stream sufficient to maintain interest payments and cover third-party costs and (ii) security over a physical building or buildings so that funds can be realized in the event of a default. It is also important to consider the efficiency of the transaction relative to alternative methods of financing.

Several countries have created government-supported enterprises to develop large CRE securitization markets. A potential mechanism to create a revenue stream for social CRE assets is for a local government to sell them to and lease them back from a special purpose vehicle. This sale and leaseback, however, does not address the refinancing risk at maturity nor the concentration risk deriving from the fact that the securitization income comes from local government entities rather than a mix of commercial enterprises. Some form of government support might thus be needed to overcome these two risks.

The use of securitization by local governments in the People’s Republic of China has the potential to be a major contributor to public finance reform. A government-sponsored securitization market has the potential to be very large, liquid, and sustainable across the economic cycle.
EXECUTIVE SUMMARY

Local government financing vehicles have been widely used in the People's Republic of China (PRC) to fund local infrastructure. While they have served a purpose, they have also left a legacy of potential problems. Apart from maturity mismatches and the loss of financial discipline and transparency associated with off-budget borrowing, regional and local government debt, including contingent liabilities, has increased rapidly in the last few years. The use of local government financing vehicles has thus been prohibited by the government as part of a broader initiative to put local government and infrastructure financing on a sounder footing.

Ongoing reforms of local government financing aim to “open the front door and close the back door.” This means allowing local governments to borrow directly to finance deficits and preventing their borrowing off-budget through local government financing vehicles, while bringing all legitimate fiscal activities on-budget. While the “back door” is being closed, the “front door” is carefully being opened with borrowing volumes centrally controlled and borrowing powers still limited to provincial level governments.

This paper examines whether securitization of infrastructure assets might also be part of “front door” financing, as securitization is a well-established financing technique across developed economies and also in a substantial number of developing economies around the world.

The most frequently securitized asset class in most jurisdictions is residential mortgages. The next largest asset class—and the focus of this paper—is financial receivables arising from commercial property. The paper identifies six key characteristics that are found in the majority of securitization transactions worldwide, which both define securitization and differentiate it from other forms of financing.

Prior to the global financial crisis, there was little regulation of securitization markets globally. Although the performance of many securitizations during the crisis was robust, some asset classes or structures performed much worse than rating models predicted. In addition, since even assets and structures that performed well throughout the crisis suffered large price declines, losses were incurred by many investors. Both in the United States and in Europe, regulation was quickly put in place following the collapse of Lehman Brothers in 2008 to better regulate rating agencies, which are essential for securitization. Regulation also includes an obligation for originators to retain some risk in each transaction and for investors to conduct individual due diligence. This has made securitization much safer.

Securitization of commercial real estate (CRE) assets has two main elements: (i) a revenue stream which is expected to be sufficient to maintain interest payments and covers third-party costs of the securitization in a timely manner and (ii) security over a physical building or portfolio of buildings so that the agent or trustee can enforce that security in the event of default of the securitization and realize sufficient funds to repay at least the senior investors.
Major classes of securitized CRE include offices and retail premises. Others are multifamily housing, student accommodation, hospitals, and care facilities.

In considering the securitization of CRE assets, it is important to bear in mind the efficiency of the transaction relative to alternative methods of financing. The key considerations are how much money can be raised in relation to a particular building or portfolio of buildings (both in absolute terms and relative to alternative forms of finance), the cost of the debt (again both in absolute and relative terms), and the term of available securitization funding.

Ratings are an essential element of securitization. Each agency has a global approach to rating CRE securitizations. This approach is then modified to cater for specific country issues and/or the particular structure of the transaction. Local factors may include a lack of liquidity in the CRE market, a lack of a central land registry, an inability to take on registered security over a CRE asset and/or uncertainty over legal issues, in particular the insolvency regime or consistency in court interpretation of the laws of property or contract.

Several countries have created government-supported enterprises to develop large markets for CRE securitization, including that of social CRE assets.

Potential structures of CRE asset securitization in the PRC need to be efficient, replicable, and sustainable. Some local government-owned assets are effectively leased to third parties and some of them produce sufficient commercial income to support securitization. Many other CRE assets have little or no income derived from third parties. An example would be certain social assets owned and operated by the relevant local government entity.

A potential mechanism to create a revenue stream for social assets that might enable them to be efficiently securitized is “sale and leaseback”—sale by a local government to a special purpose vehicle and leaseback from the vehicle to the local government. Two risks in a portfolio of local government social assets are not addressed by the sale and leaseback: (i) refinancing risk at maturity and (ii) the concentration risk that derives from the fact that the securitization income comes from local government entities rather than a diverse mix of commercial enterprises. Some form of government support might thus be needed to overcome these two risks and there is a range of options representing different levels of government support.

The use of securitization by local governments in the PRC has the potential to be a major contributor to public finance reform. A government-sponsored securitization market has the potential to be very large, liquid, and sustainable across the economic cycle. While most investment is likely to be by domestic investors, a subinstrument might be developed for international investors only.
With the announcement from the State Council of the People’s Republic of China (PRC) in June 2014 that the fiscal system would be reformed by 2016, the effort to put local government finance on a sounder footing has taken center stage. In the past, local governments were responsible for most government expenditures but received only half of budget revenues and were officially restricted to borrowing only small amounts through the central government. As transfers from the central government did not fill the gap, most local governments established off-budget local government financing vehicles (LGFVs) to cover their expenditures, particularly on infrastructure investment.

LGFVs are municipal state-owned enterprises under the country’s Company Law. They were widely used by subsovereign regional and local governments (RLGs) in the PRC over recent years to finance infrastructure projects. LGFVs represent “off-balance sheet” funding for RLGs. They are borrowing vehicles that are capitalized by a combination of cash reserve, land-use rights, and shares of state-owned enterprises and are funded either through bank loans or the issue of securities.

In some cases, an infrastructure project produces sufficient income to support debt repayment. In others, including many social infrastructure projects, revenue is insufficient. Social infrastructure includes affordable housing, physical infrastructure, social services, and environmental protection. Where commercial income is insufficient, the shortfall is met through land-use sales and/or direct subsidies by the relevant RLG. Even where projects generate sufficient income to cover debt repayments, LGFVs are frequently not capable of funding their maturity through amortization during the life of the financing. The repayment of a LGFV at maturity then relies on the ability to issue replacement debt or on the RLG entity having sufficient funds to repay the outstanding LGFV debt.

The investor base for LGFV debt is dominated by banks, which also dominate the PRC financial system. The balance comes from equity and debt capital markets, and nonbank financial institutions such as trust funds. Maturity periods of debt tend to be short to medium term. However, given the focus of LGFVs on infrastructure, their investment periods tend to be medium to long term. LGFVs account for the majority of all medium- and long-term loans in the PRC (long term being maturity of 5 years or more). These medium- and long-term instruments represent a substantial asset–liability mismatch for LGFVs, while medium-term loans provided by banks and other financial institutions most with an even shorter-term funding structure represent asset–liability mismatches for them.

Apart from maturity mismatches and the loss of financial discipline and transparency associated with off-budget borrowing, the fast increase in RLG debt, particularly since the global financial crisis, has raised concerns. On 29 August 2015, the National People’s Congress released the State Council’s

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update of debt statistics for RLGs. The update shows that RLG debt at the end of 2014 rose by more than a third to CNY24 trillion or 38% of gross domestic product (GDP) from CNY17.9 trillion at the end of June 2013.

The ongoing reforms of RLG financing are guided by a principle the authorities call “opening the front door and closing the back door,” or allowing RLGs to borrow directly to finance deficits and preventing their borrowing off-budget through LGFVs, while bringing legitimate off-budget fiscal activities on-budget. Measures taken since May 2014 include allowing selected RLGs to issue bonds directly, amending the Budget Law effective January 2015, and adopting regulatory guidelines on debt management. RLGs were also required to report their off-budget liabilities to the central government, to determine which outlays to bring on-budget. On this basis, the central government allocated a bond issuance quota to RLGs to refinance maturing principal debt payments in 2015 by issuing bonds. Further, the government announced the plan to replace all maturing principal debt payments by RLGs in 2016–2017 with bonds. However, in addition to refinancing maturing debt, medium- to long-term finance will be required to build new infrastructure.

In this paper, we explore the potential of securitization in helping to address infrastructure financing problems. The key finding is that securitization, if well structured, has the potential to carry high credit ratings and is therefore likely to be more attractive to banks and investors than unsecured RLG debt. Any initiative to encourage the use of securitization for RLG infrastructure projects (and potentially for the refinance of current LGFV funding at maturity) will require sound structures, rules, and regulations that ensure their sustainability including dealing with refinancing risk at maturity.

Based on a review of relevant aspects of global securitization as well as its general principles and characteristics in the following section, we first examine relevant aspects of securitization involving real property (i.e., buildings and physical infrastructure such as roads, bridges, ports, and airports). We then look at how international best practice can be incorporated in any future model of securitization with respect to infrastructure assets of RLG entities and identify particular challenges in relation to different legal systems and factors specific to RLG entities. The final section proposes several models of how securitization may be achieved by RLG entities.

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II. GLOBAL SECURITIZATION: AN OVERVIEW

A. History

Securitization is a well-established financing technique all across developed economies and also in a substantial number of developing economies.

It has its roots in the United States (US) where the first securitization occurred in the early 1970s, albeit with government guarantees. By the mid-1980s, the US government guarantee agency had become semiprivatized, with the government giving financial support to the agency but not guaranteeing its obligations. At the same time, a parallel market had developed where securitizations were structured without guarantees.

Securitization spread to the United Kingdom in 1987 using structured transactions rather than guaranteed transactions. During the 1990s, this model spread across most of Western Europe as well as to Australia and New Zealand, Japan, Singapore, and Hong Kong, China. The “London model” of securitization became the model for all jurisdictions outside the Americas.

After 2000, we have seen the development of securitization markets throughout most of the rest of Asia, Eastern Europe (including the Russian Federation), the Middle East, Southern Africa, and more recently in the PRC.

B. Asset Types

The most frequently securitized asset in most jurisdictions (as measured by amount outstanding) is residential mortgages. There are two main reasons for this. First, banks, as the principal funders of residential mortgages, run a big asset–liability mismatch in holding mortgages on their balance sheets and are therefore incentivized to securitize the mortgages. Second, investors find this asset class attractive because it generally has strong payment characteristics (low defaults), is self-liquidating (debt is repaid in full over time), and is secured over real property which, after a default, can be sold to repay outstanding debt.

The second largest asset class is financial receivables arising from commercial property in all its various forms. This mainly consists of office buildings and retail units or malls, but all types of commercial properties that generate revenue streams have been securitized including hotels, affordable rental housing, medical facilities, leisure complexes, ports, airports, etc. The cash flow arising from other infrastructure which are not buildings (e.g., highways and bridges) has also been securitized.

Corporate bank loans, loans made by nonbanks, and debt securities are also frequently securitized. They are collectively known as collateralized debt obligations (CDOs).4

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4 CDOs comprise collateralized loan obligations (CLOs), collateralized bond obligations (CBOs), and all hybrids composed of CLOs and CBOs.
The most popular asset types with investors following the global financial crisis have been short- and medium-term consumer assets, led by auto loans and/or leases, but also personal loans and credit card receivables. Auto loans and/or leases are particularly popular because they have strong payment characteristics, rapid capital repayment, and some degree of security over the vehicle or at least the sale proceeds of the vehicle following a default and repossession.

The techniques and characteristics of securitization are very similar across different asset classes and across different legal jurisdictions and are described in more detail in the following section.

C. Key Characteristics

There are six key characteristics that are found in the majority of securitization transactions:

1. Legal Separation of the Asset into a Special Purpose Company

In order to protect investors from the possible insolvency of the original asset-owning company and to create a binding security interest in the assets on behalf of investors, the rights to the securitized assets are either sold or pledged by way of security to a special purpose vehicle (SPV). In many jurisdictions, this is a newly established company whose activities are restricted to matters relating only to the securitization. In some countries, SPVs have a separate legal status from general companies. In all cases, security (or ownership) is also given to investors over the securitized cash flows. Where there are real assets such as commercial property or infrastructure, security or ownership of that physical asset is also given to an agent or trustee acting collectively on behalf of all investors in the securitization. Where a security interest is created in favor of investors, it needs to be capable of being legally enforceable following the insolvency of the grantor of that security. This usually means the investor assumes ownership or the ability to direct the sale of the asset and security over the sale proceeds of that asset or assets.

2. Creation of Tranches of Debt

Unlike most debt finance (in particular, covered bonds), securitizations feature at least two tranches of debt that pay different interest rates (sometimes in form of a “coupon”) reflecting different default risks. In the simplest example, two tranches of debt are issued: senior debt which is sold to investors and subordinate debt which is retained by the original owner of the securitized asset. In more developed jurisdictions, it is normal to see multiple tranches of debt being issued. All payments are subject to an order of priority of payments. This means that interest is paid first to senior debt holders and, subject to there being adequate resources, then the next most senior tranche and so on, and finally to the subordinate debt holders. With respect to principal receipts, all principal is used to repay senior debt holders. Only when all senior debt holders have been repaid do lower-ranking debt holders receive principal repayments. It is only an event of default under the securitization if the senior debt holders fail to receive either interest or principal payments when they fall due. Lower-ranking debt holders therefore carry a higher risk that revenue or principal collections are insufficient to repay them. If lower-ranking debt holders fail to receive interest due to a shortfall in revenue availability within the SPV, they
have to wait for future interest payment dates when there may be sufficient cash flow available to pay them both the current and overdue interest. Unpaid interest accrues to future periods and therefore is not lost unless it remains unpaid on the final maturity date of the securitization.

Securitizations are limited recourse transactions. This means that, at maturity, the liability to pay the various classes of noteholders is limited to the financial resources available to the SPV, and any amounts that remain unpaid at final maturity are then cancelled.

In developing securitization markets, it is most common to have only two tranches with only the senior being distributed to external investors. As markets develop and early deals fully perform, it becomes possible to issue three or more tranches with all but the most junior being distributed to different classes of investors.

For example, if there are senior, mezzanine, and subordinate notes created, then the mezzanine noteholders are subordinated to the senior noteholders but are senior to the subordinate noteholders. Again, it is the case that it is only an event of default if senior noteholders are not paid principal or interest when it falls due and therefore mezzanine noteholders carry more risk than the senior noteholders and are compensated for this by having a higher coupon on their notes than the senior noteholders.

In fully developed securitization markets, up to six tranches of notes may be issued. Within a particular tranche level such as senior debt, there may be two or more subclasses of notes, generally with a different entitlement to the timing of principal repayments, the shorter note of that tranche (fast pay) being repaid in full before the second sub tranche (slow pay) receives any principal repayment.

The advantage of issuing multiple tranches for an issuer is that more funding can be raised against a particular portfolio of assets than was the case in a simple two-tranche structure as different investors have different “risk appetite”.

3. Provision of Credit Enhancements

Typical portfolios of, for example, consumer assets, when rated as a stand-alone portfolio, are typically assigned a BBB− (investment grade) or BB+ (high speculative grade) rating. And yet, when such portfolios are structured into securitizations, we typically see 80%–90% of the value of the portfolio at the senior debt level (which is often rated AAA)—the difference can be explained by the provision of credit enhancements within the structure. Tranching alone would not be sufficient to create a senior tranche that accounts for more than a small percentage of the total.

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5 In the context of securitization, “mezzanine” means notes and/or securities that sit below the senior debt and above the subordinate notes, which are sometimes also called “equity.” There may be a number of tranches of mezzanine notes. For example, in a CDO, the mezzanine notes may be rated as AA, A, BBB, and BB. Any notes below BB are usually described as “equity.”
The raw portfolio may be subject to severely reduced collections for short periods of time due to adverse economic conditions, for instance, and may suffer losses through mismatch between fixed and floating interest rates, uninsured property losses, higher credit losses than expected, or through unhedged cross-currency exposures.

Such mismatches or unexpected events can be mitigated by adding a number of individual credit enhancements. Many of these are usually provided by highly rated counterparts or are cash collateralized.

In addition to subordination of lower rated or unrated notes (created through tranching), other credit enhancements may include

(i) cash reserve accounts,
(ii) spread accounts,
(iii) liquidity facilities,
(iv) guaranteed investment accounts for cash reinvestment by the SPV,
(v) hedging derivatives (amortizing swaps),
(vi) contingency insurance,
(vii) standby servicer (the day-to-day administrator of the assets), and
(viii) partial or full guarantees provided by a third party.

4. **Comprehensive Legal Documentation**

Securitizations are generally considered to be the most complex debt instrument in global capital markets. They are highly rated on the basis that the behavior of the structure, the servicer, and investors is tightly controlled by extensive legal documentation.

In addition, securitizations can only be highly rated where law (particularly that relating to property, the creation and enforcement of security interests, contract law, and the insolvency regime) are well developed and where court decisions are consistent and reliable in relation to the interpretation of those laws.

5. **Critical Role of Credit Agency Ratings**

Securitization transactions can be highly complex and many investors do not have the time or necessary skill and experience to fully analyze the structure of a transaction. In all markets, we therefore see at least one but usually two credit rating agencies rating each class of note that is intended to be distributed. The retained subordinate note is usually unrated. The credit rating of a note may also determine or influence how much capital a regulated investor needs to hold with respect to a particular securitization investment that they make.

In most countries, three international rating agencies are used to provide ratings on securitized debt. These are Moody’s Investors Service, Standard & Poor’s, and Fitch Ratings who collectively dominate the rating of securitization globally. In North America, DBRS (formerly Dominion Bond Rating Service)
also plays an increasingly important role. Where local rating agencies are used, it is important to ensure they have the necessary skills to properly analyze and assign the correct ratings to these complex instruments.

6. Arranging and Distribution

The majority of institutions that hold assets capable of being securitized lack the experience and expertise to structure their own securitizations and therefore appoint an experienced arranger to do this. Most arrangers are investment-bank-type organizations.

The arranger will normally also act as the distributor of the rated notes and may be required to underwrite that distribution. In practice, the risk of underwriting is alleviated by a presale period where discussions with lead investors establish a price at which all the notes can be distributed. At the end of this process, the pricing and allotment of notes is announced and the transaction formally launched, with completion of the transaction taking place some days later.

In many countries, a prospectus needs to be submitted to a capital markets authority for approval and timing permission to launch or announce a transaction needs to be obtained. Where this is the case, the arranger will normally deal with this requirement.

D. Regulation of Securitization Markets

Prior to the global financial crisis, there was little or no formal regulation of the major securitization markets. Although the performance of many securitizations (including prime residential mortgages and most consumer assets) was robust, some asset classes or structures performed much worse than rating models would have predicted, particularly in relation to arbitrage CDOs, commercial mortgage-backed securities (CMBS), and US subprime mortgage transactions.

In addition, assets and transaction structures that performed well throughout the global financial crisis suffered large price declines due to the imbalance of sellers over buyers, and large losses were incurred by many investors either through mark-to-market or actual losses due to the timing of selling their securitized positions. It thus became clear to financial regulators that the majority of investors had a poor understanding of the dynamics and features of the securitization transactions they had purchased and had relied almost entirely on rating agency opinions.

Rating agencies were blamed for deficiencies in their models and assumptions along with market excesses by arrangers. Some of this criticism was (and is) valid, but it is also the case that central banks and regulators ignored increased leverage in the financial system and an excess of global liquidity, which both also contributed to the crisis and the poor performance of certain types of securitization.

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6 Master trusts were particularly stable whereas CDOs were much less stable, particularly if they were synthetics with super senior credit default swaps. Pricing was at its lowest in the first few months following the collapse of Lehman Brothers in 2008. Most of the better-performing asset classes saw their pricing recover to around 90%–95% of par value within about 6 months of the low point.
Both in the US and Europe, regulation was quickly put in place following the collapse of Lehman Brothers in 2008 to control and regulate rating agencies. In both the US and Europe, originators have, since early 2011, been required to hold a minimum participation in their securitization transactions of at least 5%, in most cases as a first-loss piece although they have the option to retain 5% of each tranche. Regulated investors in the US and Europe are now required to undertake their own due diligence on each transaction in which they invest.⁷

In Europe, the European Commission has drafted a regulation that will define simple, transparent, and standardized securitizations (the STS⁸ criteria), which regulated investors will be permitted to purchase subject to carrying out due diligence. Noncompliant transactions (CDOs, subprime mortgages, and most CMBS transactions) that do not meet the STS criteria will carry higher capital requirements for regulated investors and may be more attractive to unregulated investors such as hedge funds. The regulations are expected to take effect toward the end of 2016. The objective of the securitization regulation in Europe is to revive the securitization market, where activity in 2015 was still below the 2007 peak. In contrast, the US market has fully recovered.⁹

### III. GLOBAL SECURITIZATION: COMMERCIAL REAL ESTATE

A significant asset class in global securitization is commercial real estate (CRE). CRE comprises many different asset types, although their common characteristics are that they are physical buildings or infrastructure and that they create commercial revenues. Asset classes (in order of importance to the securitization market) include

(i) retail (shopping malls, individual rental units, supermarkets, etc.),
(ii) offices (complexes, single buildings, portfolios of buildings, etc.),
(iii) multifamily rental housing,
(iv) hotels and leisure facilities,
(v) medical and care facilities,
(vi) warehousing and industrial buildings,
(vii) student accommodation,
(viii) toll roads and toll bridges,
(ix) international airports, and
(x) major port facilities.

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⁷ In Europe, regulated investors are more or less all types of institutional investors including banks, insurance companies, fund managers, and unit trusts that are domiciled in the European Union.


⁹ This could reflect higher risk appetite of US investors compared with European investors and/or better access to liquidity as a result of diverging monetary policies.
A. What Is Being Securitized?

There are two main elements in a CRE securitization: First, a revenue stream which is expected to be sufficient to maintain interest payments and covers the SPV and other third-party costs of the securitization in a timely manner. And second, security over a physical building or portfolio of buildings so that the agent or trustee can enforce that security in the event of default of the securitization and realize sufficient funds to repay at least the senior investors.

B. Revenue Stream

In most cases, secured loans (first lien mortgages) are created prior to the securitization (either in the normal course of banking business or by nonbanks specifically in contemplation of securitization), and it is these mortgages that are the assets of the securitization.

In the majority of countries, the owner of a CRE assets is not the user (or tenant) of the building. The owner generally leases (or rents) the asset to one or more tenants under short-, medium-, or long-term leases. Income from these leases supports the payments under any mortgage on the CRE asset, and mortgage payments support the payment of interest and principal of the securitization transaction.

C. Term of Commercial Mortgage-Backed Securities Securitizations

Generally, CRE assets take 25–30 years to generate enough net revenue (gross revenue less management costs and maintenance of the building) to both service the interest of the transaction and repay the principal of the debt. In practice, CRE loans are typically made for 7–10-year periods because property owners do not wish to repay all principal and also because they anticipate that the value of the property will increase during the loan term allowing them to refinance for a greater amount than the original debt thereby further leveraging their investment. This leads to the issue of CMBS securitizations of medium duration (10–12 years), and which typically only amortize by around 10% during the transaction term and therefore rely on the ability of the underlying loans to be refinanced to meet the maturity of the securitization notes.

The pool of investors who seek very long-term investments (of perhaps 25 years or more) is small, but the pool of investors interested in investments with an average life of 10 years or less is very large. The maturity term of the CMBS market has therefore accommodated the preferences of both property owners and CMBS investors.

Prior to the financial crisis, there were many CRE mortgages that exceeded the original purchase price of the building because values had risen so steeply over the preceding 5–10 years. Many of these loans were interest-only or had very low rates of principal repayment, which meant that, at maturity, the amount to be refinanced was either the same or nearly the same as at the outset of the original loan.

Global CRE values have generally fallen since the financial crisis; in some cases by as much as 40%, which resulted in the majority of maturing CMBS securitizations failing to mature on their due date. In most cases, default has been avoided by investors agreeing to extend the maturity of the transaction.
CRE values in the US and United Kingdom have recovered quite strongly since 2013, whereas improvements in continental Europe have been slower with most CRE values still below their 2007 peak. The majority of senior notes in CMBS (many of which had original ratings of AAA) have suffered rating agency downgrades since the financial crisis.

D. Types of Commercial Mortgage-Backed Securities Transactions

There are many different types of CMBS transactions. There are two ways to categorize them: (i) by the type of CRE asset or (ii) by the nature and composition of the underlying CRE portfolio of assets.

**Single building, single tenant.** These transactions typically feature the head office buildings of banks, insurance companies, or multinational corporations. The current owner sells to building to an SPV (SPV1) and then leases it back on a long-term lease (20–30 years). The lease is then assigned to another SPV (SPV2; together with a security interest over the shares of SPV1), which issues a securitization supported by various credit enhancements.

**Single building, multiple tenants.** In this category, a single building may include a cluster of buildings on a single physical site such as an office complex or shopping mall. The key difference is that there are multiple tenants with different lease terms and different credit profiles. The property owner (who frequently owns the building by holding the shares of SPV 1 rather than through direct ownership) will typically arrange a first-lien medium-term mortgage on the property which will then be sold to SPV2 which issues a securitization supported by the mortgage payments (interest and any principal repayments) and various credit enhancements.

Before the global financial crisis, the seven main portfolio types in these single building, multitenant securitizations were (i) retail portfolios; (ii) office portfolios; (iii) hybrid portfolios featuring a mix of retail and office portfolios; (iv) multifamily housing (mainly rental); (v) residential care homes and medical facilities; (vi) warehousing and industrial buildings; and (vii) a small number of airport, port, and container lease securitizations (container lease securitizations are included because they relate to CRE and thereby assist port financing, although in reality they are equipment lease securitizations).

Following the global financial crisis, nearly all CMBS activity taking place is in the US market. Multifamily housing (predominantly rental housing) accounts for nearly half of the CMBS volume followed by retail and offices. According to various rating agency reports, CMBS in total is expected to account for over a quarter of all US securitization in 2016, making it the largest asset class followed by car loans and CDOs.

**Multibuilding, multitenant.** These “portfolio” securitizations generally feature a number of properties in geographically diverse locations with each building subject to one or more leases. Typically, each building is subject to first-lien mortgages and it is this portfolio of mortgages that is sold to the securitization SPV. The securitization transaction is supported by the mortgage payments (interest and any principal repayments) and various credit enhancements. The underlying assets include retail, offices, warehousing and industrial buildings, hospitals and care homes, and multifamily housing.
**Multifamily housing.** This is defined as two or more units in a single building funded by a single loan, whether it is for rental or ownership. Large geographically diverse portfolios of multifamily housing loans are pooled to secure securitizations. Multifamily housing is a substantial asset class in Canada, Finland, Germany, Sweden, and the US. In North America, most multifamily housing is for rental, whereas in Europe it is fairly evenly split between rental and ownership. Over the last few years, property values and the level of rents have both seen strong growth relative to other CRE. This accounts for the increased popularity of multifamily CMBS with investors. In addition, multifamily CMBS performed better during the credit crisis than many other CRE asset classes. Loans are generally fully amortizing over long terms (25–40 years), but the securitizations are executed for shorter periods leaving a substantial refinancing risk at maturity.

**Student accommodation.** This is generally regarded as a subclass of multifamily housing although it does have some unique features that merit it being considered as a separate class. Student accommodation has been securitized in some volume both precrisis (2008 and before) and postcrisis (2010 onward). The largest volume of transactions is found in the US market followed by Canada and the United Kingdom.

**Hospitals and care facilities.** In the US market, a number of private hospitals and care facilities were securitized precrisis and in Europe (mainly the United Kingdom) a number of care-home securitizations took place. The transactions were based on portfolios of assets rather than single facilities. The transactions were secured over mortgages on the facilities, which in turn were supported by leases made by CRE owners to hospital or care facility operators. In common with many other CMBS transactions, there was little or no amortization of debt over the term of the securitization leaving refinancing risk at maturity.

**Toll roads and bridges.** While this is not a big sector, within the universe of CMBS, securitization of toll roads has a long history (from the mid-1980s) and still continues. An example is the financing of the Guangzhou–Shenzhen Superhighway (planning and construction period 1988–1994). Toll road securitizations are generally private rather than public and either feature limited-recourse project finance loans provided by domestic banks or through the issue of equity shares issued, in the case of the PRC, by provincial communication departments.

They are often described as quasi-securitizations because they use many of the techniques and structures of more conventional securitizations but the financing instruments are generally not in the form of rated securitization notes sold to capital market investors. Instead, they usually take the form of structured bank loans.

**Airports.** A number of mainly international airports have been securitized especially during the 10-year period before the global financial crisis. In most cases, the main revenues are lease income on shops and concessions supported by office rentals, car parking receipts, and airport landing fees. There has been very limited activity in this sector since the financial crisis due to the lack of international investor demand.
Ports and shipping container leases. In theory, the same techniques that are used in airport securitization can be applied to major ports although development of securitization of ports and associated facilities has been slow.

Following the global financial crisis, there has been a steady volume of container lease securitizations in the US market from companies including SeaCube Container Leasing, TAL International, Textainer, and Cronos, which collectively amount to around $1 billion per year.10

E. Why Did Many Commercial Mortgage-Backed Securities Transactions Perform Badly during the Crisis?

CMBS were one of a number of asset classes to perform badly during the global financial crisis; the other poor performers being subprime mortgages and some arbitrage CDOs (mainly those that were securitizations of securitized mezzanine debt or leveraged loans).

In common with other poorly performing asset classes, many of the CMBS underlying assets performed worse than rating agencies predicted. Unlike the other poor performers, CMBS carried an additional risk, namely refinancing risk.

Refinancing risk was present because there was little or no amortization of the underlying loans in CMBS portfolios during the term of the securitization. This meant that at maturity (and at least 50% of all outstanding CMBS securitizations were due to mature in 2009–2015) the underlying loans had to be refinanced, either individually or a new securitization transaction was needed.

Banks, who had originally made the underlying loans on CRE, were reluctant to make new loans because (i) postcrisis most were deleveraging; (ii) new capital adequacy rules introduced postcrisis made long-term CRE loans less attractive assets for the balance sheet; (iii) there was a heightened focus on the asset–liability mismatch on banks’ balance sheets which meant they favored shorter-term lending; and (iv) the income and performance fundamentals of most CRE postcrisis were insufficient to support the level of debt required to refinance existing debt.

Rating agencies revised their rating models after the crisis to reflect the adverse experience of CRE asset performance during the crisis and this resulted in potential refinance transactions being unable to refinance the existing debt (and in many cases being unable to refinance even the senior rated debt).

International investors (outside the US) were initially reluctant to reenter the CMBS securitization markets, having sustained losses or having been “locked in” to existing transactions that had been extended. In addition, investors were not interested in mezzanine debt. A senior-debt-only refinance was unable to raise sufficient new funds to repay the existing senior debt outstanding.

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10 The figure was arrived at through author research of a series of web-based articles and news reports.
1. Efficiency of a Securitization Transaction

In considering entering into a CRE securitization transaction, an RLG entity will want to know how much money can be raised with respect to a particular building or portfolio of buildings (both in absolute terms and relative to other alternative forms of finance) and the cost of the debt (again both in absolute and relative terms) and the term of available securitization funding.

How much can be raised? This is usually measured relative to the market value of a building (or portfolio of buildings) at the commencement of a securitization. It is expressed as a loan-to-value ratio (LTV ratio). It may be that commercial buildings in the PRC are difficult to value or that buildings owned by PLG entities are not generally permitted to be sold to third parties in which case it may be more relevant to consider the construction cost of the building and measure the efficiency of financing as a loan-to-cost ratio (LTC ratio).

How much money can be raised through securitization is a function of rating agency modeling (described in more detail in the next subsection) and the debt structure proposed. The debt structure refers to how many tranches of debt are proposed to be sold (one or more) and what rating or ratings are proposed for each debt tranche. The rating agency will then conduct financial modeling at each rating level to determine how much debt the securitization structure can support at each rating level.

Term of securitized debt. As previously discussed, the term of CRE securitized debt can be very long. The actual term chosen depends on investor appetite for duration. In most countries, investors prefer shorter terms and seldom wish to exceed an average of 10 years.

Most securitizations feature some level of amortization during the term and this amortization can be either prescheduled or a simple pass-through of principal payments collected on the underlying loans or mortgages (i.e., unscheduled). For transactions with full or partial amortization during the term of the securitization, the average life will be shorter than the legal final maturity of the securitization and investors are generally more concerned with average life than legal final maturity. If either there is no amortization or amortization is prescheduled, then debt may be issued either on a floating rate or fixed rate basis. If the transaction features unscheduled amortization, investors outside the US have had no appetite for unscheduled amortizing fixed rate debt and therefore these unscheduled amortizing securitizations have been issued in floating rate form.

Investors taking shorter-term CRE securitizations accept a higher level of refinancing risk than investors who are prepared to take long durations.

Cost of commercial real estate securitized debt. The lowest-cost debt would be short life, senior AAAsf-rated debt\(^{11}\)—if the senior debt rating is lower than AAAsf, the coupon (interest rate) demanded

\(^{11}\) “sf” stands for structured finance. Following the global financial crisis, one of the new requirements of the regulation of rating agencies is for them to differentiate structured finance ratings from other ratings. They did so by adding the “sf” to any rating where the underlying transaction is a securitization.
by investors will rise. As duration is increased, the cost will generally rise at any given rating level.

Mezzanine debt (if issued) will also be sensitive to duration but also to the actual rating of that debt and to how many tranches of debt are being issued that are senior to that particular class of mezzanine debt.

Subordinate debt (i.e., the lowest tranche of debt issued which is generally unrated and retained by the originator of the transaction) is notionally priced since it is not being sold to a third party.

2. Rating Commercial Real Estate Securitization Transactions

Each rating agency has a global approach to rating CRE securitizations. The global approach is then modified to cater to specific country issues and/or to align with a particular structure of the transaction.

Country issues might include a lack of liquidity in the CRE market, a lack of a central land registry, an inability to hold registered security over a CRE asset, and/or uncertainty over legal issues, in particular the insolvency regime or consistency in court interpretation of the laws of property or contract.

The starting point for a rating analysis is to identify the available cash flow from the asset net of administration and maintenance costs of the building. Stress tests are then applied to that cash flow. Stress tests are adverse events, such as one or more lessees failing to pay rent or terminating a lease with the assumption that there will be a void period and that the release to another party will be at a lower rent than the previous rent.

The severity of the stress test applied depends on the requested rating of the tranche of the debt being rated. An AAAsf stress test will be much more severe than, for example, an Asf stress test. A typical AAAsf stress test would include a void period of 18 months and releasing at 60% of the previous lease rental.

The amount of debt that can be supported at a particular rating level goes down as the tranche rating goes up. If two or more tranches of securitized debt can be issued at different rating levels, a higher level of debt can be raised compared to a single tranche public issue.

Stressed cash flow modeling is the starting point for the rating analysis, but additional factors will then be taken into account. First, structural features of the securitization such as reserve accounts, spread accounts, and liquidity facilities (to the extent that they are to be provided) are taken into account and can mitigate some of the adverse consequences of the modeling.

Second, the hedging of the transaction is examined—whether it is fully hedged, partially hedged, or not hedged at all. If the transaction is hedged, the credit strength of the hedge provider is studied. To support an AAAsf rating on the senior debt of a securitization, the hedge provider or providers will need to be high investment grade rated.

Third, in the event that cash flow is insufficient to maintain due payments to senior noteholders, the
types of net proceeds that could be raised by selling the mortgages that form the security for the transaction (or in some cases the buildings themselves) are examined. This valuation is made on stressed assumptions such as (i) the sale takes place at a time when commercial property values are depressed, and (ii) the sale needs to be made reasonably quickly and therefore best value may not be achieved compared with a long marketing period.

Fourth, concentration risk will be assessed. The most highly concentrated case is a single building with a single lease. Such a portfolio would be described as “lumpy.” The rating of such a securitization would be limited to the credit rating of the lessee unless the building was capable of being easily released or sold in the open market. The least concentrated example is a portfolio of multiple properties with 100 or more individual lease tenants of fairly equal size. Such a portfolio would be described as “granular.”

Granular portfolios generally perform much better than lumpy portfolios when stress-tested and therefore either achieve higher ratings and/or raise more debt (as measured by LTV) than lumpy portfolios at any given rating level. Experienced CRE investors have a preference for transactions with granular portfolios.

As already stated, the starting point for a rating analysis is the cash flow generated by the asset. A CRE portfolio probably needs to generate an annual gross rental (lease income) of 1.5%–2% over the 10-year government bond yield to raise around 60%–70% of the value of the portfolio on an interest-only basis. If the securitization is required to amortize, this yield needs to be at least 2.5% above the 10-year government bond yield. For CRE assets with yields significantly below that level (e.g., social infrastructure), artificial structures such as sale and leaseback need to be considered (see section IV).


In North America, there are three major government-sponsored enterprises (GSEs) who exist to support low-income housing (both for ownership and rental) and to support certain types of social CRE.

In the United States, the two most prominent GSEs are Fannie Mae and Freddie Mac and in Canada the Canada Mortgage and Housing Corporation (CMHC). The main difference between them is that CMHC is a government entity and its guarantees carry the full faith and credit of the Government of Canada, whereas Freddie Mac and Fannie Mae are government supported and, through preference shares, government controlled but their guarantees are not legal obligations of the Government of the United States. Both rating agencies and investors consider there to be an implicit guarantee and both US GSEs are rated AAA by the three main credit rating agencies.

**Fannie Mae and Freddie Mac.** The Federal National Mortgage Association, popularly called Fannie Mae, was founded in 1938 during the Great Depression as a government-owned entity to create liquidity in the secondary mortgage market, thereby making mortgages more widely available for lower-income families, and to support financing of certain social CRE. It was privatized in 1968 and listed on the stock exchange but its mandate was strictly limited by legislation. In 1970, a similar organization known as Freddie Mac was established with the same mandate to create market competition for Fannie
Mae, although Fannie Mae has always remained the larger GSE.

Both Fannie Mae and Freddie Mac grant guarantees on mortgages created by approved lenders that meet certain income and underwriting criteria and thus generate “conforming mortgages.” These guaranteed conforming mortgages are then mostly purchased from the lender and securitized into mortgage-backed securities (MBS). Both Fannie Mae and Freddie Mac also guarantee the MBS that they issue and each carries a rating of AAA. The MBS that each agency creates are sold to investors or retained on the respective agency’s balance sheet. When they purchase mortgage loans from commercial lenders they pay for those loans either in the form of a MBS or cash.

The two GSEs derive their income from two main sources: First, they charge a guarantee fee to the lender for each conforming mortgage that they guarantee. And second, they fund the mortgages (either on their balance sheet or through MBS issuance) at a much lower cost than the net yield of the mortgages.

The GSEs have been profitable for the vast majority of the years since establishment with the exception of the period immediately following the global financial crisis. In 1971, Freddie Mac issued its first mortgage passthrough, called a participation certificate. Then in 1981, Fannie Mae issued its first version, called a mortgage-backed security. By 2008, the two entities had over $5 trillion of outstanding debt and guarantee obligations and between them accounted for just over half of all US MBS issuance.

Although private companies and politicians continued to see these two GSEs as instruments of government policy, the political pressure applied to the GSEs from 1970 until immediately before the onset of the global financial crisis led the GSEs to take increasingly greater risk and to continuously weaken their credit standards. Progressively, the GSEs gave guarantees to subprime loans. In addition to political pressure, competition from the private-label MBS market also encouraged GSE managements to weaken credit standards further in order to maintain market share.

The buildup of subprime loans on the two GSE balance sheets and the steep decline in house prices from 2008 onward took both agencies to the brink of insolvency. Both were taken into conservatorship by the US government, which injected over $150 billion and took preferred stock in the companies. Since 2008, interest paid on the preferred stock has more than repaid the investment made by the government in 2008. The two companies were delisted from the stock exchange in 2010 and remain under government control.

With this, under US Generally Accepted Accounting Principles, the debt and guarantee obligations of the two entities would normally be consolidated with US government debt. If this had occurred, the US debt-to-GDP ratio would have been substantially increased. It was therefore agreed by the Federal Reserve Board that this consolidation not take place.

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13 Footnote 12, p. 23.
Accounting Standards Advisory Board that since the conservatorship was a temporary and necessary measure there would be no debt consolidation.

Canada Mortgage and Housing Corporation. CMHC was created in 1944 as a Crown corporation of the Government of Canada. It has a wider social housing role than the US equivalents and supports both ownership and renting of social housing including special needs housing, student accommodation, and social facilities. One of CMHC’s main functions is the management of the federal Mortgage Insurance Fund, which provides protection to banks reluctant to enter the mortgage lending market.\(^{14}\)

By 2013, the major role of CMHC was to “improve housing quality, choice and affordability for all Canadians.”\(^{15}\) With an estimated 2013–2014 budget of Can$2.1 billion, over Can$2 billion is directed at providing assistance to Canadians in need of housing, while the balance supports “housing market analysis work and policy, research, and information transfer activities” (footnote 15).

At present, it mainly sells insurance to Canadian residential mortgage lenders to protect them against mortgage defaults. Insurance is mandatory on loans with less than a 20% deposit. Besides mortgage insurance, the agency provides financing to housing projects (such as lower-income rental housing and social housing and other social facilities) and renovations, conducts housing market analysis, and funds research into housing design and technologies.

In support of social housing, CMHC invested Can$1.9 billion (2009–2014) for housing and homelessness programs for “homeless people and those at risk of homelessness—low-income Canadians, seniors, people with disabilities, recent immigrants and Aboriginal Canadians” and Can$2 billion (2009–2011) more toward the construction and renovation of existing social housing units.\(^{16}\)

Between 2009 and 2012, CMHC approved 272 loans for the full Can$2 billion available under the Municipal Infrastructure Lending Program (2009–2012) which provided low-cost loans to municipalities for housing-related infrastructure projects: “water, wastewater and solid waste services, fire halls and power generation; local transportation infrastructure within or into residential areas, such as roads, bridges and tunnels; and residential sidewalks, lighting, pathways and green space.”\(^{17}\)

Canada, unlike the US, promotes housing across various tenure types—homeownership, rental housing, supported housing, and transitional housing. The policy does not aim to merely increase the

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rate of homeownership. Low-income housing in Canada is addressed through government assistance programs, most of which are administered by CMHC.\footnote{CMHC. 2014. Comparing Canada and US Housing Finance Systems. \url{http://www.cmhc-schl.gc.ca/en/corp/nero/jufa/jufa_018.cfm} (last modified 28 November 2014).}

Like its US counterparts, CMHC provides guarantees on conforming loans and also purchases those loans for securitization. CMHC securitizations dominate the Canadian MBS market although there is a private-label market for nonguaranteed loans.

CMHC was financially stable throughout the financial crisis. This was due to strong corporate governance and, compared with Freddie Mac and Fannie Mae, CMHC had better oversight, more prudent underwriting standards, and a less overheated housing market in the run-up to the global financial crisis. This conclusion is supported by the statistical information that “the rate of 90 days mortgage arrears in Canada was 0.29 per cent in the second quarter of 2014, according to the Canadian Bankers Association, in line with the average since 2000 of 0.35 per cent. This compares to 1.13 per cent for prime fixed-rate mortgages in the U.S. (which are most comparable to the overall Canadian mortgage market) for the second quarter of 2014 (average of 0.82 per cent since 2000), according to the U.S. Mortgage Bankers Association. The arrears rate for the total US residential mortgage market was 2.31 per cent in the second quarter of 2014” (footnote 18). Additionally, Canada had no significant subprime mortgage lending (estimated to have peaked at less than 5%) whereas in the US it peaked at 23.5% of mortgage originations. The debt and guarantee obligations of CMHC are not consolidated with that of the government and are therefore not reflected in the debt-to-GDP ratio of Canada.

IV. POTENTIAL TO SECURITIZE COMMERCIAL REAL ESTATE IN THE PEOPLE’S REPUBLIC OF CHINA

It is always possible to securitize financial assets. This section looks at potential structures of CRE asset securitization in the PRC and seeks to address their efficiency, replicability, and sustainability.

A. Commercial and Noncommercial Commercial Real Estate Assets

Many CRE assets held by LGVFs or other RLG entities generate commercial income from third parties. For the purposes of this paper (and this section in particular), we define commercial CRE assets as those that derive their income from third parties and have a yield equal to or in excess of the 10-year PRC government bond rate. Semicommercial CRE assets are defined as assets that generate commercial income from third parties that is significantly lower than the PRC government bond yield. Noncommercial CRE assets then are assets that have little or no income derived from third parties. An example would be certain social assets owned and operated by the relevant RLG entity.
Securitization structures for CRE assets will need

(i) to be efficient (raise a high proportion of the value or construction cost of a building),
(ii) to generate sufficient income to pay interest due on the securitization debt and cover the SPV and other transaction costs,
(iii) to be capable of repayment either on a regular basis throughout the transaction or as a bullet repayment on or before the maturity date of the securitized debt, and
(iv) to ensure that the probability of the mechanisms employed in the securitization structure operating as intended is also sufficient in order to support a high investment grade on the senior securitization notes that are to be issued.

B. Single Commercial Commercial Real Estate Asset and Single Entity Securitization

A single asset represents a very high concentration risk and such transactions struggle to obtain high credit ratings. The only likely asset type to qualify would be a prime-location multitenant shopping mall in a major city. Single commercial CRE assets are thus more likely to be funded through bank loans than through single asset securitizations.

C. Multicommercial Commercial Real Estate Portfolio and Single Entity Securitization

A portfolio of commercial assets is less concentrated and the rating analysis yields better results in terms of the loan to value that can be achieved. The main issue is what mechanism is there to enable the debt to be repaid at maturity. While it may be possible to refinance an existing securitization by creating a new one, a rating agency would not find this an acceptable mechanism because there is no certainty in the future that a securitization market will be available or that a particular portfolio will be capable of being securitized to yield sufficient proceeds to repay an existing transaction.

One mechanism that could be employed is a repurchase agreement between the SPV and the relevant RLG entity which, if the asset is not refinanced, requires the RLG to repurchase the asset at a price that is sufficient to repay the securitized debt in full. The weakness of this mechanism is the credit rating of the relevant RLG entity since, if this mechanism is employed, the rating of the senior notes of the transaction will be limited to the rating of the RLG entity. Most RLGs have relatively low credit ratings (at least on a stand-alone basis), which are insufficient to support the development of a large liquid securitization market for RLG-owned CRE.

A mechanism to overcome the relatively low credit ratings of RLG entities would be a state-level guarantor for the repurchase agreement. For domestic transactions, this would allow a rating of up to AAAsf on the senior notes. A state-level guarantee would be given by a government entity that would both charge a premium for giving the guarantee and also obtain a counter-indemnity from the relevant RLG entity.

Such a mechanism does not necessarily mean the securitization transaction itself is state-guaranteed since this mechanism is, in this example, only available to redeem the securitized debt and does not guarantee interest payments as they fall due.
D. Multicommercial Commercial Real Estate Portfolio and Multi-Entity Securitization

This type of portfolio is diverse both in terms of obligors (sources of income) and geographic location and, subject to more than 100 individual properties and 50–100 different RLG entities (with a concentration no more than, say, 2%), would represent a granular portfolio. The problem is still refinancing risk, so individual RLG buyback obligations would still be needed. With different underlying maturities, however, there is less risk of the guarantees failing to operate on a portfolio basis than a single RLG guarantee failing to operate. The portfolio still exhibits high correlation in that all the guarantees are from RLG entities subject to similar stresses. The main stresses with respect to RLGs are (i) the level of central government funding made available in a particular period and (ii) the strength of land sales revenues around the maturity date (which are a function of land prices, buyer demand, and the availability of land for sale).

The most likely way of securitizing a multicommercial CRE portfolio would be by a bank making a series of mortgage loans on multiple RLG-owned commercial properties spanning a wide geographical area and then for the bank to perform the securitization when a suitably large portfolio has been assembled.

The rating analysis would use a collateralized loan obligation model that would be sensitive to correlation and concentration risk. A government refinancing guarantee with respect to each property (as described in the previous subsection) would enhance the rating analysis and make a rating of AAAsf relatively easy to obtain.

E. Dealing with Semicommercial and Noncommercial Assets

When a physical asset is not producing enough revenue to support debt (be it bank or securitized debt), one method to overcome this is a sale and leaseback transaction where an RLG would sell a CRE asset to an SPV and would immediately lease it back (for details about the mechanism, see next subsection). The agreed lease rental must be sufficient to cover the cost of debt (and ideally its full amortization over a 25–30-year term). The rent could escalate over time, either on a predetermined schedule or by inflation with amortization being back-ended. Alternatively, there could be no amortization during the term of the lease but a “put option” at the end of the lease requiring the RLG entity to repurchase the asset at the original sale value.

The sale and leaseback structure effectively allows semi- and noncommercial assets to be converted into commercial assets, albeit the source of income (RLG entities) is more concentrated than for commercial assets where the income is derived from third parties. Such semi- or noncommercial assets might include social-type assets, possibly student accommodation, public leisure facilities, medical facilities, and so on (i.e., where commercial revenue is insufficient to support a meaningful amount of debt).

In the PRC case, it would be an RLG entity that would be the lessee, the problem being that the individual RLG may not have a credit rating that is sufficient to support a securitization transaction. A possible solution would be to pool a number of sale and leaseback transactions (i.e., create a portfolio) where there are, for example, 100 or more individual assets each leased by a different RLG entity. In
that way, the transaction has a portfolio of credit exposures and this allows a credit rating well above the individual ratings of the participating RLG entities (the ideal number is 100 or more of fairly equally sized assets so that no one RLG accounts for more than 1%–2% of the total lease exposures). There will still be a high correlation risk which could best be overcome by using a government guarantee for the RLG buyback obligation.

Sale and leaseback is a common technique in international CMBS transactions, though we are not aware of international examples of RLG-type entities using this technique. Sale and leaseback has been used to enable universities to securitize student accommodation in various developed markets.

We would effectively be talking about a funding program open to a large number of RLG entities with the benefit of large issue size and shared cost of putting deals together (probably a government department could act as sponsor). An alternative would be for a bank to act as arranger and also to fund the initial sale and leaseback transactions until a large portfolio has been assembled ready for its subsequent securitization.

F. Mechanics of Sale and Leaseback Transactions

An RLG would sell a CRE asset to an SPV (which might be an ordinary company or a state-owned enterprise similar to an LGFV) and would immediately lease it back at a rent sufficient to support the debt being raised through the sale. If this debt is being provided by a bank, the senior debt being provided by the bank might be limited to 70%–80% of the value of that property (or construction cost) with the RLG funding the remaining amount on a subordinate basis. At the same time, the RLG would enter into a buyback agreement to operate at the end of the lease term.

The weakness of the bank-originated securitization structure is that there is still a relatively high concentration risk because of the high correlation between RLG entities. This means that it would be difficult to achieve a rating of AAAsf although the transaction rating should be investment grade and higher than any of the individual RLG ratings.

G. Use of a Government Guarantee Agency

The previous subsection noted that due to concentration risk it will be difficult to achieve high investment grade ratings even when multiproperty, multi-RLG portfolios form the collateral for a securitization. A viable alternative is to combine the sale and leaseback structure with a state-sponsored guarantee at both the single asset level and again at the portfolio level when the underlying assets are securitized.

For each CRE asset, an SPV is established. The SPV purchases the asset from the RLG entity using a GSE-guaranteed loan (see next paragraph) and immediately leases the asset back to that RLG. The lease has a fixed duration and an annual rental amount to be paid. The relevant RLG enters into a repurchase agreement with the SPV which can be exercised at the end of the lease. In practice, the repurchase is unlikely to be required as the SPV would normally grant a new lease to the RLG and take a new GSE-guaranteed loan for the term of the new lease.
Initial loans (presecuritization) can be made either directly by the GSE and warehoused on the GSE balance sheet prior to securitization or originated by GSE-authorized banks. The use of GSE-authorized banks in Canada and the US is mainly in relation to consumer assets (e.g., residential mortgages) rather than social infrastructure assets. A GSE may prefer to deal directly with RLG entities and do its own underwriting rather than rely on commercial banks to do this on its behalf.

Whichever origination method is used, the loan must conform to the underwriting criteria established by the GSE. In particular, the revenue yield must be above a predefined threshold, there will need to be a buyback agreement in place obliging the RLG entity to reacquire the asset at the end of the lease term and there may be a loan-to-value (or loan-to-cost) cap limiting the loan size to a certain percentage of value (or construction cost).

The loan guarantee issued covers both interest and principal repayments at the end of the loan term.

In issuing a guarantee on the loan, the GSE will normally take a counterguarantee from the relevant RLG. In the unlikely event that an RLG fails to make a lease payment or honor the repurchase agreement if it is called upon to do so, the GSE makes that payment and then reclams it from the relevant GSE. As the government makes funding available to RLGs, it has the option to deduct any guarantee payment from a future transfer due to the RLG. The GSE will charge a fee for its guarantee, which will either be a single up-front amount or an annual charge for so long as the guarantee is in place.

As and when required, the GSE will issue a securitization sourcing assets either from its own balance sheet or from GSE-authorized banks (depending on what origination method has been chosen for the loans). The securitization will be backed by a portfolio of GSE-guaranteed loans. The senior securitization debt will also carry a GSE guarantee in relation to principal and interest payments due under the securitization. For the GSE, the securitization guarantee represents no additional liability to its balance sheet as all the underlying loans already carry a GSE guarantee. The securitization guarantee is made available to make the transaction simple to understand for investors and to ensure the highest credit rating (which for a domestic transaction should be AAA). In the North American example, typical transactions will be in excess of $1 billion which will be frequently issued in a range of different maturities.19

If there is no amortization of the lease (as is proposed above, the lease rental is just sufficient to cover the interest payments and guarantee premium), the revenue stream is effectively a fixed rate, giving the choice of issuing either fixed rate or floating rate securitizations. In the case of a floating rate issue, it would be normal for the issuer to enter into a fixed or floating swap for the full value of the transaction. There may be only a little or no swap market available for longer maturities, in which case securitizations will be issued in fixed rate form. If sufficient swaps are available, the choice of fixed or floating rate issuance would depend on investor demand.

19 A domestic transaction is one which is denominated in local currency and where distribution is restricted to onshore investors only.
The GSE is taking a contingent risk rather than the primary credit risk of the underlying portfolio, and if it does have to make a payment under the guarantee, it can recover that amount under the counter-indemnity arrangement with the relevant RLG. The guarantee fee is therefore calculated to cover all the operating costs of the GSE, the transaction costs of the securitization transactions, and a modest additional margin to build up a capital reserve on the GSE balance sheet.

The introduction of a GSE for RLG CRE financing is potentially very efficient for the following reasons:

(i) The cost of guaranteed debt plus the guarantee fee is less than the cost of unsupported securitizations, in part because highly rated securities attract a wide investor base.
(ii) GSE issues are large and tend to have much better secondary market liquidity than structured securitizations.
(iii) Transaction costs are low because GSEs issue frequently and keep the structure of the transaction constant for long periods of time using identical documentation for the leases, the SPVs, and the securitization transactions.
(iv) The GSE controls underwriting standards. In enforcing high standards at the point of origination, it is much less likely that there will be problems in the future.
(v) Refinancing risk is reduced because a GSE should be able to issue new debt even in difficult markets so long as it continues to be available for new financing. GSE securitization is sustainable and allows issuance even when credit and capital markets are unsettled or illiquid.

V. Conclusions and Recommendations

In the PRC, there has been a large inflow from private investors in recent years into various types of securities, in part due to the country’s relatively high savings ratio. Investors have not always shown best judgment in selecting investments and some have suffered losses as a result. Investors will likely become more selective over time and seek higher-quality investments, in particular more highly rated investments than in the past.

RLG entities generally have low credit ratings or no rating. It is thus unlikely that direct RLG issuance will attract enough investors to raise sufficient funding to refinance maturing LGFVs, finance new infrastructure investment, and fund RLG revenue shortfalls.

Investor demand is generally strongest at the highest credit rating. Since RLG funding requirements are very substantial, much of the funding will therefore need to be at a high investment grade level.

International investors are likely to have an appetite for renminbi-denominated investments if they carry a government-level guarantee. A GSE guarantee eliminates local factors relating to the legal system, land registration system, and so on, regarding which international investors may lack sufficient knowledge to get comfortable with those risks.
Individual RLG entities are highly unlikely to be able to individually sponsor securitization transactions due to the high geographic and obligor concentration risk which would result in a low credit rating. However, a commercial bank with a large diverse portfolio of RLG CRE loans which are backed by properties with commercial income derived from third parties could successfully securitize a large diverse portfolio of such loans in a single securitization transaction.

In the case of semicommercial and social CRE assets, some level of state support would be required to make securitization transactions viable. At the lowest level, state support might take the form of a guarantee of an RLG buyback obligation. At the highest level, state support could be given by a GSE by way of a guarantee at the individual loan level and also at the securitization issue level. In considering a GSE, the Canadian model has shown itself to be superior to the US model. A Canadian-style GSE would ensure the lowest cost of finance for RLG CRE assets, give the government real control of the terms under which RLGs are able to finance CRE assets, and provide investors with a large, liquid, and homogeneous securitization instrument, rated AAA, in which to invest.

The use of securitization by RLGs has the potential to be a major contributor to public finance reform in the PRC where a two-instrument system may work well. The first instrument would be direct debt issuance by RLG entities to principally cover annual revenue shortfalls. These issues would have relatively short maturities consistent with the modest credit ratings available. The second instrument would be GSE guarantee securitization of infrastructure assets which would have the highest credit rating available and long maturity.

A GSE-guaranteed public finance securitization market has the potential to be very large, liquid, and sustainable across the economic cycle. Most investment is likely to be by domestic investors, but a subinstrument might be developed for foreign investors.

A GSE-guaranteed public finance securitization would be expected to obtain a rating of AAAsf if distribution is restricted to domestic investors. Any issue where some or all of the distribution is outside the PRC, irrespective of currency denomination, will be restricted to the international rating of the PRC.
Knowledge Work on Securitization in the People’s Republic of China

This working paper describes key features and mechanisms of securitization and practices of securitizing revenue streams from various classes of physical assets before and after the global financial crisis, and provides context information on how this could be relevant for the People’s Republic of China. The aim is to deepen the understanding for securitization and contribute to ongoing discussions about reforming local government finances, infrastructure finance and project finance, and further diversifying financial services. Local governments in the People’s Republic of China and their subsidiaries are still struggling with rapidly increasing debt levels but also have numerous physical assets on their balance sheets.

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KNOWLEDGE WORK ON SECURITIZATION IN THE PEOPLE’S REPUBLIC OF CHINA

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