China green securitisation report

State of the market

2020

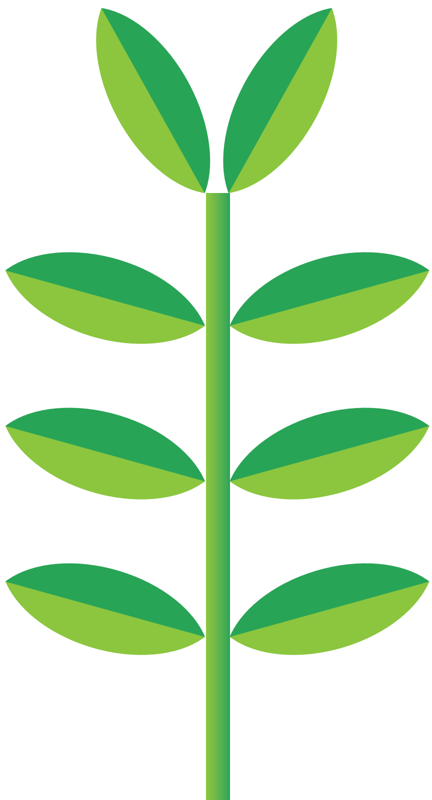
Prepared by Climate Bonds Initiative

Supported by UK PACT

Contents

Preface

China's overall asset-backed securities (ABS) market has seen a rapid growth in recent years. China has become the largest ABS market in Asia and second largest globally since the first transaction in 2005. The Green ABS market in China has also seen a big surge in the past three years with the green bond market further deepening. This report gives an overview of China's green ABS market growth for both international and domestic investors, it reviews the policy initiatives that are guiding the market development and analyses the market data and best practices. This is the first iteration of China Green ABS research, and we plan to conduct further analysis and provide more detailed recommendations and road maps for the development of China's green ABS market.



1. Introduction

1.1 Overview of China's green economy and green finance policy

Transforming from a resource and pollution-intensive economy to a green economy has been a strategic priority for China in the last two decades. This requires a systematic upgrade of many traditional industries and the rapid development of a variety of green industries such as renewable energy, clean transport, green buildings, waste and wastewater management, etc. The capital required for such green transition in China had been estimated approximately RMB 2 to 4 trillion (roughly USD310–USD620 billion) per year from 2015 to 2020.[1] According to a latest speech given by the governor of People's Bank of China, the investment of hundreds of trillion RMB is needed to achieve China's Carbon Neutrality target by 2060[2]. Public investment alone is not sufficient to meet this investment requirement – it is estimated that 85% to 90% of the capital will need to come from the private sector, and thus it is especially important to leverage private finance and develop the green financial system.

China has made great strides in the development of green finance in recent years. Just like other elements of Chinese policymaking, the development has been top-down, with high-level directives and political buy-in guiding the market development. This is most notably demonstrated by the State Council's commitment to construct an "Ecological Civilization", namely, to protect the environment while also improvinging economic development, a concept first introduced in 2007 and increasingly emphasized in China's Five-Year Plans and overarching guidelines.[3] Under this "Ecological Civilization" policy framework, various 'greening' strategies and principles have been adopted by Ministries and other governmental bodies, and green finance is one of them.

The banking sector was the first mover towards greening in China, and accordingly "green credit"[4] had been the key (and only) policy on green finance for a long time. In 2012, the China Banking Regulatory Commission (CBRC) issued the Green Credit Guidelines and in 2013, with the launch of the CBRC green credit system, it was required that the 21 'main banks' in China needed to report their green credit statistics. The green credit policy was taken further with the release of "Key Performance Indicators of Green Credit Implementation" in 2014, which accelerated the growth of the green credit business.

In 2015, China's Central Party Committee (CPC) and the State Council (SC) issued the *Overall Plan for the Structural Reform for Ecological Civilization*,[5] which articulated that "[China will] build a green financial system", promoting green credit, green indices, green bonds, securitization of green credit assets, etc. Following up on that, in September 2016 seven regulators with People's Bank of China (PBoC) taking the lead promulgated the Guidelines for Establishing the Green Financial System[6] — it was the first time any nation's central bank had issued such guidelines. They call for policies and actions in seven areas: 1) green bonds, 2) green credit, 3) green development funds, 4) green insurance, 5) markets for pollution control rights, 6) local government initiatives, and 7) international cooperation.

Since then, China has been increasingly active in green finance, developing local practices and leading international initiatives. Many Chinese provincial and local governments have issued green finance guidance documents. At least five pilot green finance zones have been set up, where financial institutions receive a variety of incentives to fund clean and low-carbon industries. In the international arena, the Chinese government, as host of the G20 in 2016, launched a Green Finance Study Group and included the topic of green finance in G20 communique for the first time. At the Second Belt and Road Forum in April 2019, Green Investment Principles for the Belt and Road Initiative were endorsed by 28 financial institutions, including China Development Bank, China International Capital Corporation, China Construction Bank and the Agricultural Development Bank of China. President Xi Jinping's pledge to go carbon neutral by 2060 has given the green finance a further boost.

1.2 Overview of China's ABS market

China's overall asset-backed securities (ABS) market has seen rapid growth in recent years, it has become the largest ABS market in Asia and second largest globally since the first transaction in 2005. By the end of 2020, the cumulative issuance volume of China's ABS market approached RMB4.3 trillion (USD0.66 trillion). The securitised asset types have also diversified, ranging from residential and commercial mortgages, corporate loans, auto loans, and consumer loans, to trade receivables, and leasing receivables. According to MSCI's research, Residential Mortgage Backed Securities (RMBS) accounts the largest asset type (27%) and consumer credit ranks the second (12%).

The Chinese government sees securitisation as an important source of alternate funding, as well as balance-sheet-management that can help China has four segregated ABS markets, supervised by different regulators, which are comprised of different types of originators and provide different issuance platforms and structures. Under these segmented legal and regulatory regimes, securitisation products demonstrate different characteristics and performances in these markets.

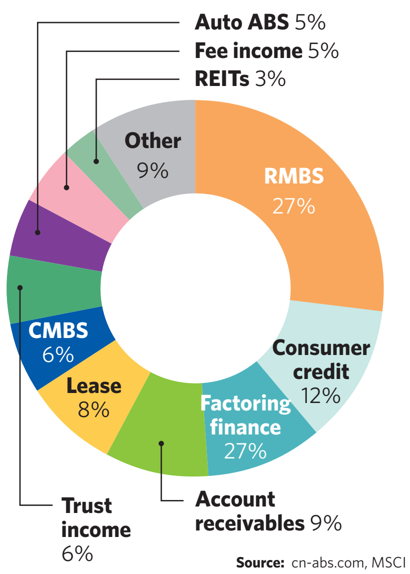
Most domestic securitisations are listed on the China Interbank Bond Market (CIBM), where the majority of investors are local financial institutions. International investors are beginning to play a bigger part in the market, too, enabled by the Bond Connect scheme that allows Hong Kong-based investors direct access to the CIBM. For example a, BNP Paribas research indicates that "Foreign investors now account for around 20% of a typical auto loan deal and sometimes as much as 40% or 50%."[7]

Risk profile of China's ABS market

Annualized default rate of ABS is normally lower than other debt instruments. For example, as of the end of 2019, the default rates of RMBS and auto loan ABS were 0.09% and 0.13% respectively, compared to as high as 4.9% for bonds issued by non-financial corporates during the same period.[8]

China's ABS transactions have not experienced any liquidity shocks, due to the geographic- and industry-diversification of underlying assets, limited usage of payment holidays, and the interchange mechanism on interest and principal waterfall.

Chinese ABS by asset type



Source: cn-abs.com, MSCI

1.3 China's green bond policy and the rapid growth of the green bond market

Following green credit lending, China's green bond market has seen the greatest amount of policy and activities since "green finance" took off in China in 2015. Supported by various directives, China's green bond market grew from almost zero to the second largest in the world in just a few years. Supportive policy is a key driver of this growth. In December 2015, the Green Bond Endorsed Project Catalogue was issued by PBoC,[9] which clarified the eligibility criteria for green projects, management of proceeds, and reporting requirements. Green bonds issued by financial entities are subject to this catalogue, and the green projects were classified into six themes: energy saving; pollution prevention and control; resource conservation and recycling; clean transportation; clean energy; and ecological protection and climate change adaption.

In June 2020, arguably the most important development in the China green bond market was when , PBoC, CSRC, and NDRC jointly released a draft of the updated version of Green Bond Endorsed Project Catalogue.

The harmonised guidelines will become the future market standard. It also excludes controversial categories such as "Clean Utilisation of Coal" and "Clean Fuel", narrowing the gap between China onshore green bonds-related guidelines and the expectations of international investors.

Timeline of China's key green bond policies

2015

NDRC

Guidelines on Issuing Green Bonds

Kickstarted green bond market in China

PBoC

Notice of the People's Bank of China on Green Financial Bonds (PBoC Document No.39 [2015])

Kickstarted green bond market in China

2016

Seven Ministries including the Central Bank

Guidelines for Establishing the Green Financial System

Indicated the direction of further development of the green bond market

Shanghai Stock Exchange

Notice on Launching the Pilot Program of Green Corporate Bonds

Accelerated the development of the corporate bonds[13]

Shenzhen Stock Exchange

Notice on Launching the Pilot Program of Green Corporate Bonds

Accelerated the development of the corporate bonds[14]

2017

CSRC

Guiding Opinions of the China Securities Regulatory Commission on Supporting the Development of Green Bonds

Encouraged the issuance of corporate bonds

National Association of Financial Market Institutional Investors

Guidelines on Green Note of Non-Financial Enterprises

Green bond policy guidelines are available for all bond markets in China

PBoC and CSRC

Guidelines on the Evaluation and Certification of Green Bonds (Interim)[15]

Regulated evaluation and Certification of green bonds

2020

PBoC, NDRC, CSRC

Green Bond Endorsed Project Catalogue (2020 Edition) (Consultation Version)

Harmonized different standards of green bonds, and promoted the integration of the domestic green bond market

1.4 Policy developments on green securitisation

China's maturing green economy and green finance policy framework are increasing the potential for green securitisation. In fact, green ABS, as a crucial component of green finance (especially green debts), has already been mentioned by several policy initiatives. For example:

- The **Overall Plan for the Structural Reform for Ecological Civilization** issued by CPC and SC in 2015 encourages the Securitisation of green credit assets.[10]
- In the **Guidelines for Establishing the Green Financial System** issued by seven regulators in 2016, Article 7 has promoted the securitization of green credit assets and stated: "[… we will] normalize the securitization of green credit asset by further expanding the scope of participating institutions, standardising the selection of underlying green credit assets, exploring efficient and low-cost ways to register changes in pledge rights, enhancing market liquidity for green credit asset securitization, and strengthening the management of relevant information disclosure."
- In CSRC's **Guidelines for Supporting Green Bond Development (2017)**, Article 14 stated that "the relevant requirements of green corporate bonds also apply to the issuance of green ABS".
- In NAFMII's **Guidelines for Green Note of Non-Financial Corporates (2017)**, Article 17 stated that "Issuers are encouraged to introduce structural innovations to green note, and to issue innovative products aligned with national green sector policies, including […] as well as green asset-backed notes (ABN) supported by income streams generated from green projects".

Recent years have also seen the overall maturing of China's financial market and the development of asset securitisation. Following this trend, several policies and regulations on asset securitisation have been issued, under which green securitisation has also been mentioned. For example:

- In May 2016, the CSRC issued the **Q&A on the Supervision of Asset Securitization**,[11] stating that "CSRC will actively support and encourage those green projects to be financed through asset securitization in accordance with the relevant policy on green corporate bonds. Subsidies provided to these green projects, e.g., to renewable energy power generation, low-carbon renovation, clean energy utilization, new energy vehicles (including supporting facility), and green building projects, can be counted as the cash flow of the underlying assets for securitization."
- In August 2018, the Shanghai Stock Exchange issued the **Q&A on the Shanghai Stock Exchange's Asset-backed Securitization (ABS) Business - Green ABS**,[12] which sets the definition, eligibility criteria, verification, and disclosure requirements for green ABS for the first time, where it states:
  - **Definition:** An ABS can be defined as 'green' when a) the cash flows come from green assets (70% of all pooled assets), or b) proceeds are explicitly allocated to green projects or assets (70% of the total funds raised), or c) the original asset owner's main business activity is green (> 50% of total revenue derived from green business, or > 30% of total revenue and profits derived from green business and it's higher than any other business lines of the asset owner).
  - **Reporting:** In the annual asset management report, the issuer shall disclose the identification of green ABS, the relevant green projects and its specific category, and the positive environmental impact, etc.
  - **External review:** For those green projects aligned with the Catalogue, a verification report from third-party is not necessary at issuance and during allocation. Otherwise, a verification report is needed for green projects which are not easily identifiable to investors or considered require evaluation.

To summarize, in the past few years China has seen an increasingly comprehensive policy framework for green finance, under which green ABS policy has also gradually developed. Considering the scale and impact of the environmental and climate crisis, the financing need for green industry will keep growing. Green ABS as a debt financing tool has many advantages, and is thus expected to play a bigger role in China's green finance market.

2. The rationale of green securitisation

2.1 What is the green securitisation?

Securitisation refers to the process of transforming a pool of illiquid financial assets (for example mortgages or lease receivables for a rooftop solar PV system) into tradable financial instruments: known as asset backed securities (ABS).

Securitisation enables lenders, like banks, and leaseholders, such as car financing companies, to sell pools of loans or leases, or other receivables, to institutional investors to generate new lending capacity. This allows lenders and leaseholders to overcome funding constraints and continue to provide loans/leases to customers. ABS transactions are often structured in tranches of different credit quality to appeal to investors with different risk tolerance. By aggregating the funding into a common structure, securitisations enable institutional investors to finance small-scale assets and small- and medium-size businesses.

It is a common practice for the originator to establish a special purpose vehicle (SPV) and to transfer the underlying assets to the SPV to achieve risk isolation and move these assets off the balance sheet. In other words, the assets become bankruptcy remote, and investors only bear the risks of the underlying assets themselves, without having to worry if the originator experiences poor financial performance or even bankruptcy. On the other hand, if the credit quality of the underlying assets deteriorates and ABS product defaults, the originator does not need to take any responsibility given the risks and benefits of the underlying assets have been transferred to the investor. This is a distinguishing feature of asset securitization that differs from other financing models, and is the core link for investors to control investment risks.

A securitisation can be defined as green when the underlying cash flows relate to low-carbon assets or where the proceeds from the deal are earmarked to invest in low-carbon assets. The originating financial institution can take advantage of the growing international demand for climate change related investments. The underlying collateral pool would typically comprise financial assets such as:

- mortgages on certified buildings, e.g. under LEED, BREEAM, Energy Star or other building standards
- loans/leases on electric vehicles and hybrids
- loans/leases on solar and wind leasing assets
- loans/leases on equipment, e.g. electric vehicle (EV) charging stations
- loans for energy efficiency improvements
- loans to green (pure-play) small and medium enterprises (SMEs)

2.2 The benefits of green securitisation

Access to capital: Loans to small-scale projects can be aggregated and then securitised to reach an adequate deal size for bond markets. Capital raised through the sale of asset-backed securities by the loan originators can be used to create a fresh portfolio of loans. Tagging the securitisation as 'green' enables issuers to tap into the increasing demand for securities with environmental benefits.

Lower cost of capital: In high interest environments, asset-backed securities issued in bond markets can offer lower cost of capital compared to bank financing. This is important for low carbon projects that typically have high capital expenditure. By aggregating loans, which can be refinanced through a bond, the underlying investment can access a broad range of fixed income investors. This may result in lower funding costs for Non-banking financial companies (NBFCs) than balance sheet funding from banks. Securitisation and similar instruments like commercial investment vehicles that provide investors direct access to low-carbon infrastructure including renewable energy can reduce the cost of renewable energy substantially according to a study published in 2018 by Global Commission on the Economy and Climate.[16]

Helping match investors' liabilities with asset tenors: Investors of ABS can include pension and insurance companies with long-dated liabilities. For a life insurer, prepayment of loans is a significant risk, so they need to maintain assets with long tenors. As a result, these companies have been significant investors in long dated paper historically and can become major supporters of long dated ABS. An ABS program can vary maturities according to the existing demand in the market and replenish the collateral pool with new assets during the life of the ABS program. One risk, however, is that lending to SMEs is typically of short-tenor, while the investor base is looking for long-dated securitised deals. Securitisation may be well-suited for green financing by allowing banks to offer longer-dated loans.

Providing higher yielding investments: The creation of equity and mezzanine tranches play an important part in the success of securitisations. They provide investors with a higher yield than vanilla bonds with an equivalent credit rating. This is particularly interesting for tranches with a rating (AAA or AA), as they offer an attractive yield pick-up over government securities, while carrying an equivalent rating.

Limiting sector exposure: As well as constraints in the overall capital account, a prudent bank will limit exposures to any given sector. The rapid growth in credit lent to a single sector, such as renewable power, could cause banks to reach exposure limits. For the investor, a selection process targeting a diversified pool of underlying loans (by geography, by types of borrowers, by types of assets) can limit the concentration risk of the collateral pool.

Free up balance sheet and increasing lending capacity: If a lender has exhausted its lending capacity, ABS allows the bank to offload loans so it can originate new loans. Although the scale of green financing in China has been growing steadily in recent years, more than 90% of it is composed of green credit assets.[17] Green credit is debt financing provided by a bank or bank syndicate to firms or projects that offer environmental benefits. Securitisation on green credit assets can therefore help the lenders (such as commercial banks and policy banks) to free up their balance sheet.

Potential to scale up the green bond market by addressing issues such as small project size and low credit ratings: Asset securitization can restructure the underlying assets by combining individual project assets that are too small or have low credit ratings, to reduce the risk of individual assets and stabilize cash flow. If the underlying assets do not reach the credit threshold required to issue asset-backed securities, credit enhancement measures must be taken. This could include internal credit enhancement where the repayment structure is divided to reflect a more risky tranche (where investors receive higher returns but are the last to be repaid in the event of a default) or less risk tranche. Alternatively, external credit enhancement mechanisms may be used – these include guarantees or insurance provided by insurance or guarantee companies. Therefore, asset securitization can meet the needs of investors to avoid risks through credit enhancement, and can also increase the liquidity and security of underlying assets, reduce financing costs, and thereby expand the scale of the market.

Well-structured financial instruments and incentives could bring a wider range of issuers and projects to the green bond market. This facilitates improved diversification and liquidity in the market, which can attract additional investors and lower investment risk and volatility. Having a wide range of instruments and hence investable options with differing pricing, risk and tenor - such as municipal bonds, corporate bonds, project bonds, asset-backed securities and covered bonds - allows more issuers and projects to come to market. It also creates more options for institutional investors, each of whom may have differing criteria in regard to asset allocation, risk tolerance and diversification. Diversity and scale of investment opportunities are all important aspects that can be major factors in the investment decisions made by institutional investors.

China's ABS regulation schemes

	Credit ABS	Corporate ABS	Asset-Backed Note	Asset-Backed Plan
Regulators	PBOC and CBIRC	CSRC	NAFMI	CBIRC
Originators	Financial Institutions	All types of institutions	Non-financial institutions	All types of institutions
Issuance Market	Interbank Bond Market	Securities Exchange Markets	Interbank Bond Market	Insurance asset-trading platforms
SPV	SPT	Security companies/ their fund subsidiary	SPT/Originators	Insurance asset-management companies

Source: CBI, Pengyuan

2.3 China's ABS regulation schemes and market participants

China's bond market includes multiple regulatory authorities that cover different types of issuers. China also has segregated ABS markets, which are comprised of different types of originators, supervised by different regulators, and traded on different platforms. The table above summaries the different characteristics of each type of ABS regulatory scheme.

Credit Asset Securitisation Scheme

The credit asset securitisation scheme is regulated by China Banking and Insurance Regulatory Commission (CBIRC)and the People's Bank of China (PBoC). Under this scheme, banks and non-bank financial institutions licensed by the CBIRC may entrust loan receivables comprising "credit assets" to a CBIRC-licensed trust and investment company as trustee. Under this scheme, the receivables typically securitized are credit assets of the originator, including consumer auto loans, infrastructure project loans, loans to financial vehicles of local governments, residential mortgage loans and loans related to affordable housing projects.[18]

The trustee then issues asset-backed securities (ABS) in the form of trust beneficiary certificates for offering and trading on the China interbank bond market. Each such transaction requires specific approvals of the CBIRC and the PBoC.

Asset types: residential/commercial mortgages, auto loans, corporate SME loans, credit card receivables and consumer loans.

Corporate ABS Scheme

The China Securities Regulatory Commission (CSRC) supervises Corporate ABS under the Asset-Backed Specific Plan (ABSP). The ABSP Scheme uses the selective asset management plan (SAMP) structure, which is set up by a securities company as an asset management scheme (not a trust) to acquire the underlying assets from the originator (usually a cooperation). Deals under the ABSP scheme are issued and traded in the exchange markets. The ABSP market consists of a broad range of assets, including securitized assets issued by state-owned enterprises (SOE), corporate receivables, creditors' rights under leases, credit assets, beneficial interest in trusts, profits from infrastructure projects and commercial real estate and other assets or property rights.[19]

Asset types: consumer loans, trade receivables, factoring receivables, leasing receivables, trust beneficiaries and fee income.

Asset-backed Notes Scheme

Another form of securitized product in China is the asset-backed note (ABN), which is regulated by National Association of Financial Market Institutional Investors (NAFMII). The typical ABN structure does not involve any SPV or any transfer of the underlying assets. Instead, it is akin to a lending transaction secured by the assets of the issuer (who is a non-financial institution), or a "covered bond" structure but without any supporting legislation allowing segregation of assets earmarked to support the securities' cash flow from the issuer's other assets. Therefore, it is sometimes referred to as "quasi-securitisation".

Asset types: leasing receivables, trade receivables, factoring receivables, notes receivables, commercial mortgage and fee income.

Asset management of insurance companies can also structure securitisations under the CBIRC regulated Asset-backed Plan (ABS). However, the market size of ABP is the smallest amongst the four types of securitisations.

The above regulatory framework also applies to the green securitisation market. Specifically, NAFMII oversees the green ABN issuance, while CSRC and CBIRC regulates any green ABS issuance with banks and corporates as the primary types of originators respectively.

All the ABS regulators have developed and endorsed different green definitions

NAFMII, a self-regulatory organization joined by inter-bank market participants, intermediaries, related practitioners as well as experts and scholars on a voluntary basis that aims to conduct self-regulatory management in the inter-bank market, issued its green bond guidelines which is largely in line with the definitions endorsed by PBoC.

China Securities Regulatory Commission (CSRC) has also developed a new set of guidelines on the issuance of green bonds by stock exchange listed companies. This is a further expansion of the regulatory framework of the world's largest green bond market. It also adopted the green definitions used by PBoC.

CBIRC, released the "Guiding Opinions of the China Banking and Insurance Regulatory Commission on Promoting the High-quality Development of the Banking and Insurance Industry" In early 2020. The guiding document put an emphasis on the development of green financial products such as energy efficiency credits, green bonds and green asset securitisation.

Participants in the ABS market include:

- **Originator** (a bank or non-bank financial credit institution) - who originates receivables and entrusts the same to the trustee.
- **Trustee** (either affiliated with a bank or independent) - who holds entrusted receivables as trust property and issues the ABS.
- **Servicer** - who services the entrusted receivables (typically the sponsor).
- **Custodian** - who takes custody of trust funds.
- **Enhancers** - who provides external credit enhancement for the ABS.
- **Underwriter** (usually a securities company) - who arranges the consortium for underwriting of the ABS offering. Securities registration and depository institution - with whom the ABS are registered.
- **Investors** - who purchase and trade the ABS on the interbank bond market.

3. The state of the green ABS market

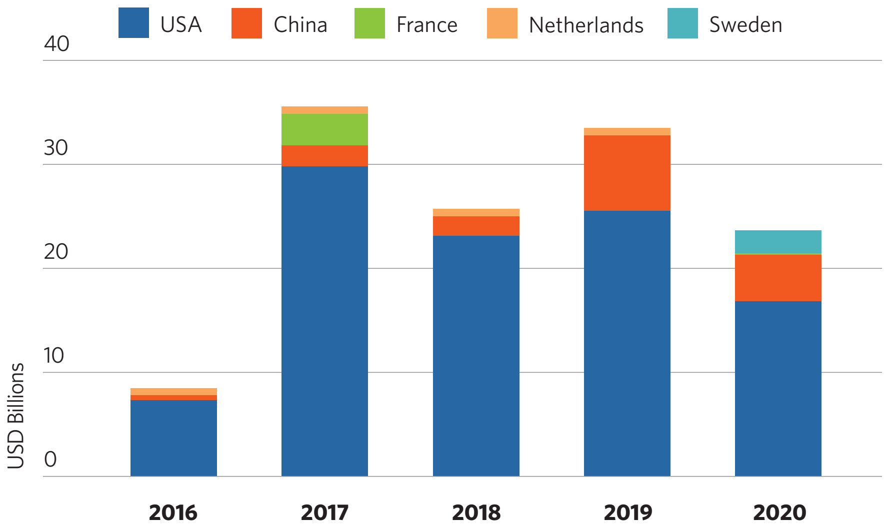
3.1 Overview of international green securitisation market

Currently, the vast majority of green ABS issuance to date has occurred in the **US market**. Leading examples from the US include solar developer SolarCity, energy efficiency lender Renovate America and sustainable infrastructure company Hannon Armstrong. Fannie Mae – the pioneer of issuing agency Green Mortgage Backed Securities (MBS) – remained the largest green bond issuerwith a total of USD85bn green ABS issued as of the end of 2020.

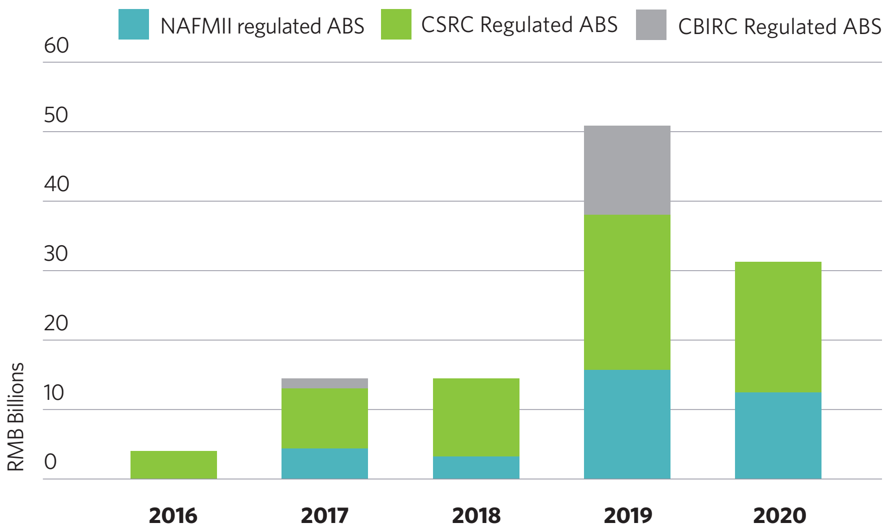
SolarCity is largest installer of residential solar panels in the US. Its ABS issuances are backed by cash flows from solar assets, in particular, backed by receivables from power-purchase agreements for the electricity generated by a bundle of residential rooftop PV installations of tens of thousands of their customers. Another example is Renovate America which is a financing provider of the California-based Property Assessed Clean Energy (PACE) financing provider and issued labelled green ABS as securitisation of PACE loans. The proceeds of these green ABS will be used to refinance home improvements projects, such as renewable energy, energy efficiency and water improvement projects through the Home Energy Renovation Opportunity (HERO) programme.

Over the last two years green securitisation in the **European market** has been dominated by issuance of RMBS, which accounts for almost 60% of its total issuance volumes. ABS and CDO (collateralised loan obligations)/CLO (collateralised loan obligations) follow, each accounting for 18% of market share. Finally, CMBS and SME represent a small fraction, with a cumulative contribution of 6%. For example, in the Netherlands, mortgage lender Obvion has originated mortgages for four Green Storm RMBS deals (USD2.6bn/EUR2.3bn), which benefit from the Certification under the Climate Bonds Standard. Obvion's debut issuance in 2016 represents Europe's first 100% green RMBS, and targets the top 15% of residential buildings in terms of energy efficiency, or a 30% energy efficiency improvement (Sustainalytics, 2019). Obvion is also a lender of "regular" mortgages which are refinanced with the Storm RMBS programme. Obvion obtained an accreditation of STS treatment,[20] which might offer opportunities for Green Storm deals to become eligible for STS treatment in the future, once more historical data and transparency can be provided to the market.

The evolvement of the global green ABS market



China's green ABS issuance



3.2 Overview of China's green securitisation market

3.2.1 Green securitisations in China's overall green bond market

China's overall securitisation market has seen an exponential increase as it scaled up from negligible volume in 2013. The first Chinese green ABS were issued in 2016. As of the end of 2020, there had been 85 ABS deals totalling RMB115bn. The proportion of green ABS increased from 1.7% of total green bond issuance in 2016 to 11% in 2020. However, green securitisations remain a small proportion of the green bond market, and the potential for growth is huge. Allocations have covered a variety of climate themes such as renewable energy, low-carbon buildings, water management and low-carbon transport. The types of security have also become more diversified and include revenues from wind turbines and other renewable energy equipment leasing, green commercial building mortgage receivables, account/bill receivables, etc.

3.2.2 State-owned enterprises are the largest originator type

While financial corporates dominated the green bond market in China, green ABS deals are primarily coming from non-financial corporates, especially state-owned enterprises (SOEs). When the market started in 2016, there were only a handful of issuances from local state-owned enterprises. But the originator types have diversified since then and include wholly foreign owned enterprises (WFOE), state-owned enterprises (SoE), private enterprises and joint ventures.

The total amount of ABS from SoEs stood at RMB86bn by December 2020. China Development Bank's 3-tranches RMB5.6bn deal in 2018 marked the largest ever green ABS in China. In 2019, the volumes of SoE-led green ABS issuance almost tripled year-on-year.

3.2.3 The majority of tranches have a tenor of one to five years

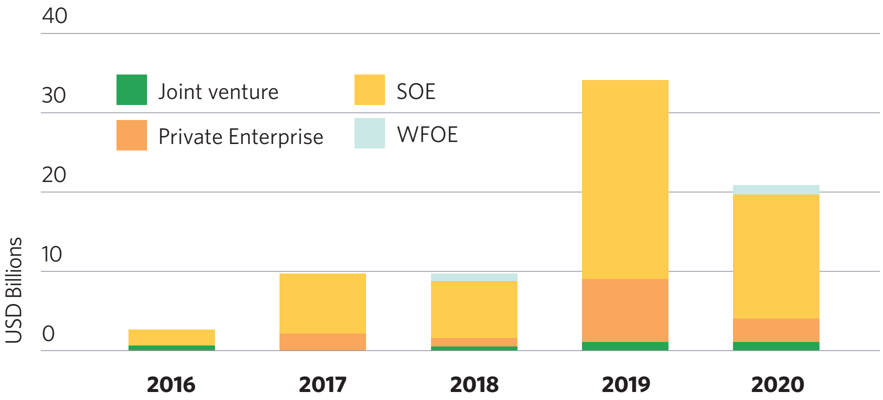
Almost half (49%) of Chinese green ABS tranches issued by the end of 2020 had a tenor between one to five years, making up the largest category. Two green ABS with the longest tenor (18Y) were issued in 2019, of which there is a RMB3.0bn deal from Beijing Rail Transit Daxing Line Investment that was collateralized by ticket revenue receivables. The other20-year deal was a CMBS. Large infrastructure projects that demand liquidation of longer-term cash flows, such as Transport, Renewable Energy or Building sectors, favour a longer tenor range.

3.2.4 AAA rated tranches represent the largest category

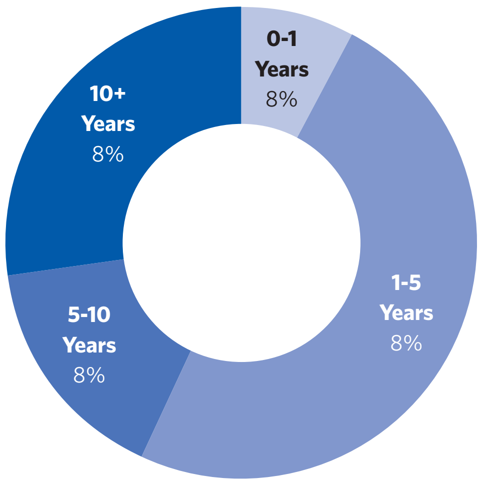
The majority of the green ABS on the Chinese market obtained a high-grade credit rating. Except for the 15% that were not rated or rating information is not available, all Chinese green ABS received credit ratings at A+ or above from domestic rating agencies. Up to 78% of the rated ABS achieved AAA. Compared to other issuer types, private enterprises and local SOEs were more commonly seen as issuers of lower-rated (A+, AA) ABS deals. Central SOEs, on the other hand, were more likely to obtain AAA ratings.

More than a third of Chinese green ABS deals are structured in two or three tranches with different credit characteristics. The senior tranche of these multi-tranche deals, generally, have a more than tenfold issuance volume than the subordinated tranches.The senior tranches appeal to those investors that favour lower risks and can accept lower interest rates; subordinated first loss absorbing tranches on the other hand, are riskier and consequently offer higher interest rates.

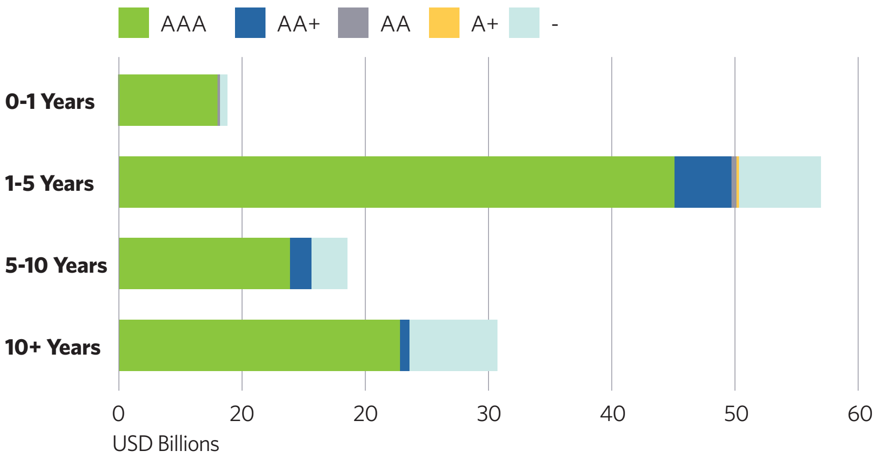
Type of originators



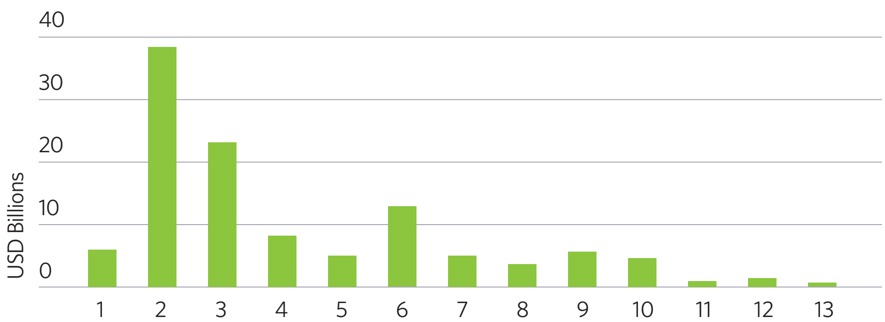
Most tranches have a tenor between 1 to 5 years



Most tranches are AAA rated



ABS issuance amount by tranche number



3.2.5 Beijing, Guangdong and Jiangsu led the market

The Green ABS volumes vary across provinces. Beijing, Guangdong, and Jiangsu are the top sources. Together, they represented almost 60% of the total Chinese green ABS volume by the end 2020. Primarily composed of deals backed by renewable energy assets, Beijing had the largest cumulative volume of RMB32.9bn. Guangdong, as the second largest issuance province, had the majority of its total RMB20.3bn issuance backed by low-carbon transport assets. Jiangsu Province followed with a total of RMB8.8bn.

China Zheshang Bank was the largest lead underwriter with RMB9.0bn underwriting deals since 2016, which represented 8% of the total volume of all time. Pingan Securities and CDBS followed with RMB8.14bn and RMB8.10bn, respectively. Except for CITIC Securities, Huatai Securities, and Everbright Securities, the remaining 38 underwriters each constituted less than 5% of the market volume.

The largest manager of Chinese green ABS deals so far is Pingan Securities. Its total management amount reached RMB10.5bn, with the largest deal of RMB3.0bn backed by State Power Investment Corporation Limited's feed-in tariff subsidies.

3.2.6 Collateral overview under Climate Bonds Taxonomy and PBOC Green Bond Catalogue

By Climate Bonds Initiative's definition, Renewable Energy is the largest theme of the collateral types, representing 42%, followed by Low-carbon Transport (36%).

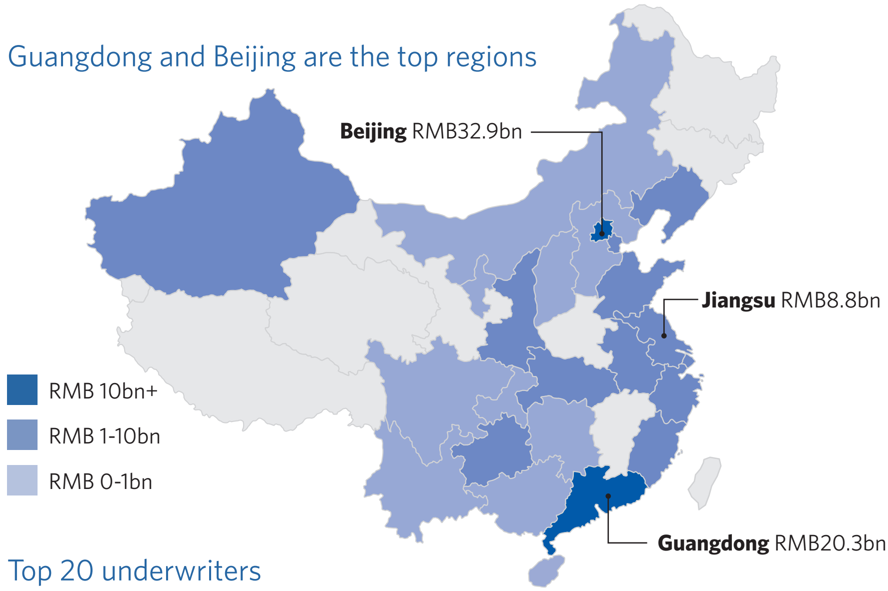
Energy

There have been RMB40.6bn worth of green ABS that are backed by Renewable Energy assets. Renewable energy leasing receivables and service charge receivables dominate the collateral type, while deals backed by feed-in tariffs are emerging.

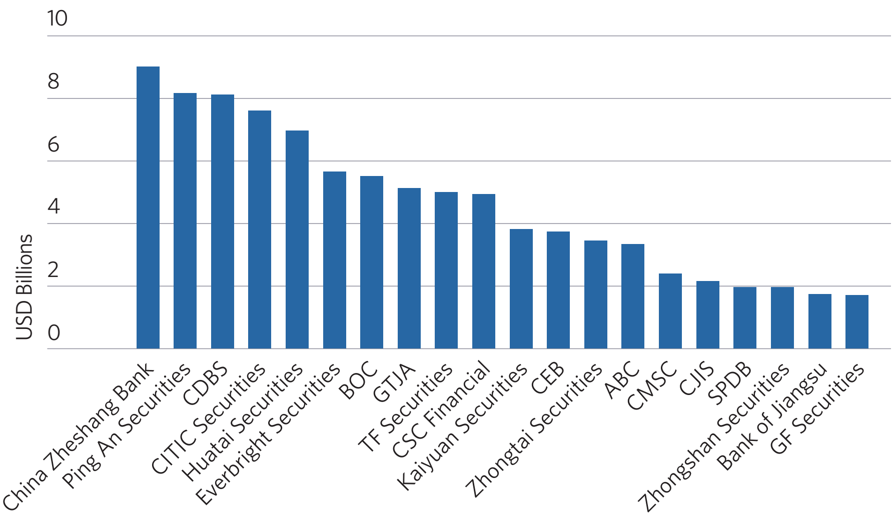
In a green ABS backed by leasing receivables, the financial leasing company is the typical type of originator. By leasing out renewable energy equipment such as wind turbines and aggregating the lease payments from the wind farm operators, it can use ABS to free up its balance sheet and raise money for further investment in green.

China continues to lead the world in additions of new wind and PV capacity. For example, in 2018, China added a combined 66 GW of wind and solar (20 GW of wind and a record 44 GW of solar PV). With the rapid development of renewable power plants, the access to the capital markets via securitization could, over time, afford renewable energy operators more abundant and lower-cost capital than it can currently access in the debt and tax equity markets. Reduced financing rates would put downward pressure on the ultimate price of solar energy, enhancing its competitiveness relative to conventional sources of energy generation.

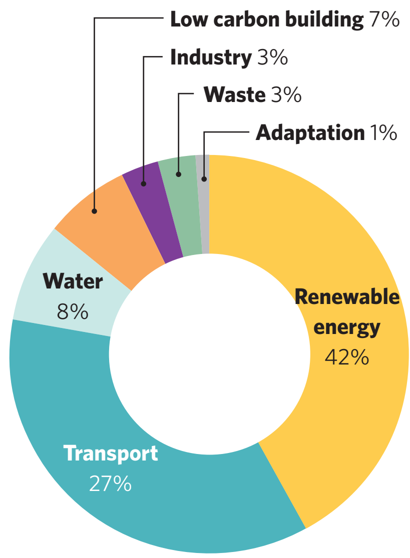
Guangdong and Beijing are the top regions



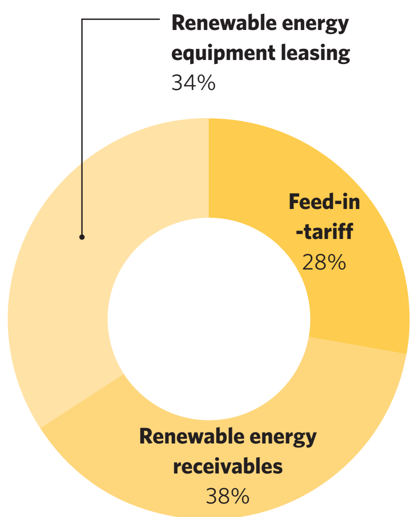
Top 20 underwriters



Underlying assets profile



Breakdown of Renewable Energy ABS asset types



Transport

A total volume of RMB35.2bn ABS was backed by cash flows of public transport revenue receivables and EV auto loans in the low carbon transport sector. In 2016 and 2017, only three deals were issued with a transport-themed collateral type. The first green ABS with a public transport revenue receivable collateral type was a 12-tranches RMB2.0bn deal originated by Wuxi Communications Industry Group Co., Ltd in 2016. Starting from 2018, in addition to ticket revenue receivables, EV auto leasing became the other type of asset serving as the primary collateral for transport sector securitizations. For example, the RMB366mn ABS deal issued by Shenzhen Byd International Financial Leasing Co., Ltd. was based on the customer payments from BYD's EV auto leases.

In 2019, the overall green ABS market more than tripled, and it was largely driven by the expanded transport assets. During this year, the total volume of ABS in the Transport sector expanded more than ten-fold from RMB1.8bn to RMB22.3bn year-on-year, representing almost half of the overall market volume. Thirteen deals backed by public transport revenue receivables contributed to three quarters of the total Transport-themed assets. RMB3.0bn and RMB2.0bn ABS issued by Beijing Rail Transit Daxing Line Investment Co., Ltd. and Guangzhou Metro Group Co., Ltd., respectively, were two of the largest of the year.

Buildings

There have been only two green MBS from China. According to Fitch, non-green Chinese RMBS has expanded quickly since 2014 to become the largest asset class, by issuance volume, in the domestic interbank bond market. A compound annual growth rate of 204% led to issuance volume of USD83 billion in 2018 and USD71 billion in 2019.[21] Given this, there remains huge opportunity for the growth of green MBS.

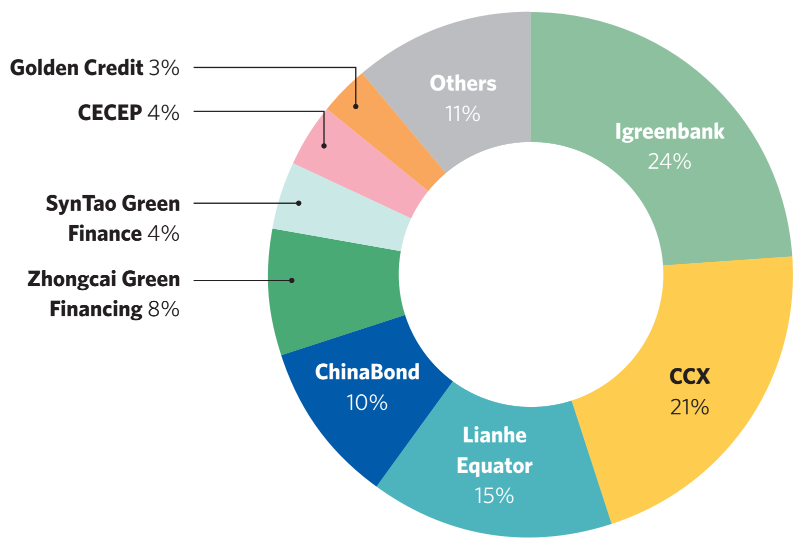
Waste and Water

ABS deals backed by waste and water management collateral types totalled RMB10.2bn since the first issue in 2017. It accounted for less than 10% of the overall issuance volume. From 2017 to 2020, revenue receivables were the one and only asset type that backed the securitization of pollution control projects and wastewater treatment projects. Among these ABS, deals financed by sewage treatment revenue receivables added up to RMB4.6bn. The ABS of RMB2.0bn originated by Beijing Enterprises Water Group (China) Investment Limited in 2019 was one example of deals backed by sewage treatment receivable assets. In 2020, only one RMB300mn deal was backed by subsidies instead of revenue receivables. The issuer, China Resources and Environment Co., ltd., securitized the subsidies on their electronics recycling service, introducing a new theme on waste treatment backed securities.

Securitising water and waste treatment receivables

This is normally used by corporates who would otherwise be reliant on bank funding to securitise their assets and access the capital markets as a funding source directly (for instance, utility companies or corporates with large portfolios of trade receivables). Sewage or waste treatment receivables can be categorised as trade receivables, and this type of securitisations involves a trade receivable owed by a buyer to a supplier being sold to a third party, such that the supplier receives a purchase price for that receivable and the third party becomes exposed to the credit risk of the buyer.[22]

Top green ABS external reviewers



3.2.7 External review

Only 27% green ABS deals have external reviews. This proportion is much lower than that of the overall green bond market in China. This is due to the lack of regulatory guidelines on definition green ABS eligibility as well as the external review requirements. Although the structure of the ABS deal is well regulated and the green label may be enough to indicate that the secured collateral is green, external reviews are still necessary to provide more transparency to investors and improve their confidence.

External review providers

As of the end of 2020, 47% of the cumulative amount of the green ABS issued carry an external review. The iGreenBank was the largest external review provider with SPOs for RMB12.9bn worth of green ABS deals. This was followed by CCX and Lianhe Equator.

4. Case studies

By Climate Bonds Initiative's definition, a securitisation can be defined as green when the underlying cash flows relate to low-carbon assets or where the proceeds from the deal are earmarked to invest in low-carbon assets. The following examples are classified by the climate theme that the underlying assets fall under.

Case study 1: Solar and wind leases

In a solar or wind lease agreement, the solar or wind leasing company entitles the operator to the benefits of the system (i.e. the energy that the solar panels or wind turbines generate) for the term of the contract. Under these arrangements, the leasing company owns and maintains the solar panel or wind turbines, or the solar or wind farms. Solar and wind ABS deals are usually backed by the lease payments and power purchase agreements related to the solar and/or wind farms, or, in some cases, by loans extended to fund the acquisition and installation. Either way receivables are used to fund the payment of interest and repayment of the debt raised with the ABS.

Originator: SPIC Ronghe Financial Leasing

Issuer: Yunnan International Trust

Instrument type: ABN

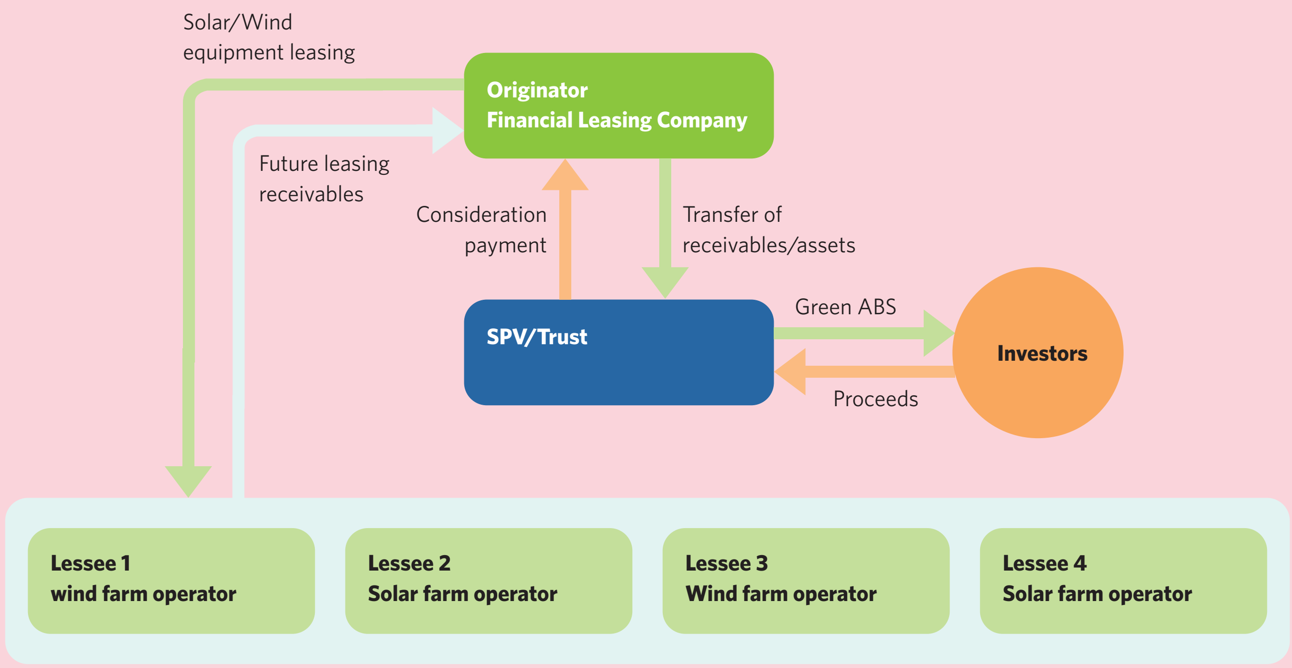
Underlying assets type: leasing receivables

Underlying assets theme: leasing receivables from wind, solar and hydro sectors.

Use of proceeds: wind and solar projects

Green ABS reviewer: CCX

SPIC Ronghe Financial Leasing, a subsidiary of the State Power Investment Corporation (SPIC), issued a green ABN deal of RMB2.48bn in November 2017. The deal comprises four senior and one subordinated tranche. It is collateralised by lease payment from 18 lessees in wind, solar and hydro sectors. The proceeds raised will also be used for renewable energy assets including 13 wind farms and four solar farms across China.



Note: the above chart is a simplified structure of the deal with a focus on illustrating how the green assets are securitised.

Case study 2:
Metro ticket receivables

In a typical structure of a securitised public transport (bus or metro) receivables, the originator is the provider of the public transport services, for example, metro companies.

There have been multiple deals coming from Guangzhou Metro, Wuhan Metro and Hangzhou Public Transport Company.

Originator: Guangzhou Metro Group

Issuer: Pingan Trust

Instrument type: ABN

Underlying assets type: Ticket receivables

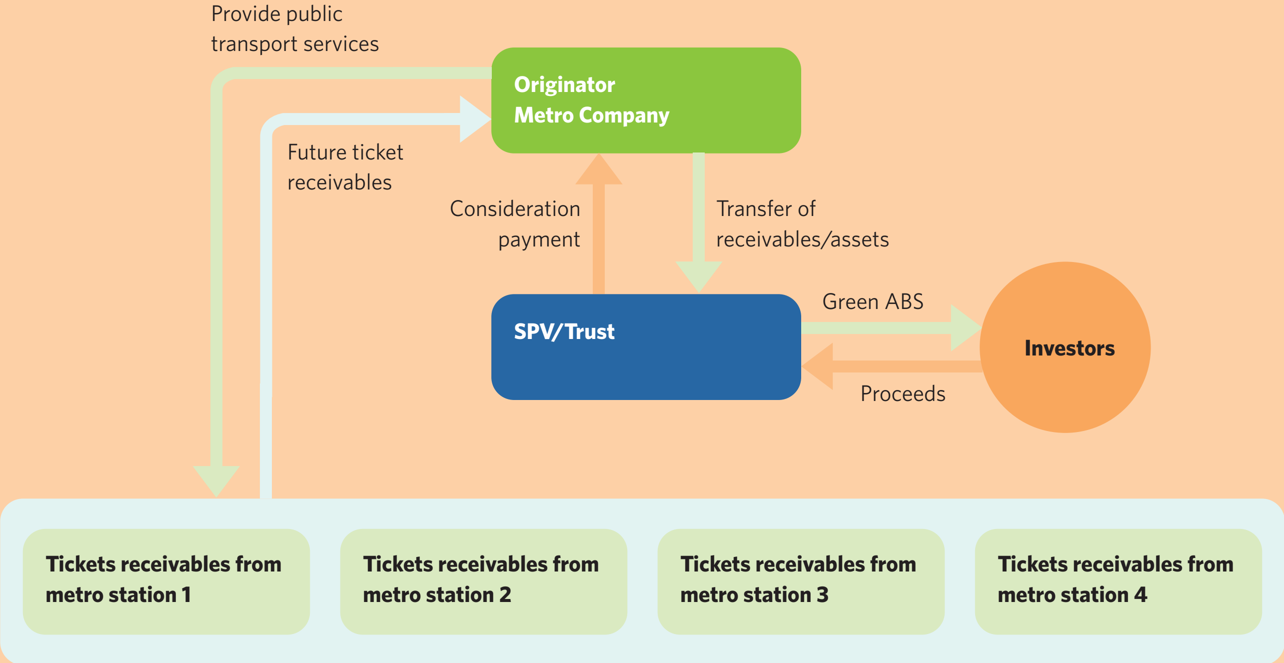
Underlying assets theme: Metro ticket receivables

Use of proceeds: repay bank loans

Green ABS reviewer: iGreenBank

Guangzhou Metro brought an ABS deal to the market that is made up of six tranches, totalling RMB3bn. This deal is secured on subway ticket revenue receivables. More specifically, it's backed by cash flows generated at 24 metro stations on metro line 2 from 2019 to 2023.

The use of proceeds of this deal are also green, of which RMB1.5bn will be spread across six rail transit projects (subway construction work). The rest RMB1.5bn will be used to repay of bank loans and to supplement general working capital.



Note: the above chart is a simplified structure of the deal with a focus on illustrating how the green assets are securitised.

Case study 3:
Feed-in tariff

There have been five ABS deals from China that are secured by Feed-in-tariffs, further diversifying the collateral types. A Feed-in tariff is a policy mechanism designed to accelerate investment in renewable energy technologies by offering long-term contracts to renewable energy producers. The goal is to offer cost-based compensation to renewable energy producers, providing price certainty and long-term contracts that help finance renewable energy investments. Typically, FITs award different prices to different sources of renewable energy in order to encourage development of one technology over another. Under a feed-in tariff, eligible renewable electricity generators, including homeowners, business owners, farmers and private investors, are paid a cost-based price for the renewable electricity they supply to the grid.

Originator: Guodian Ningxia New Energy Development

Issuer: Bank of Communications International Trust

Instrument type: ABN

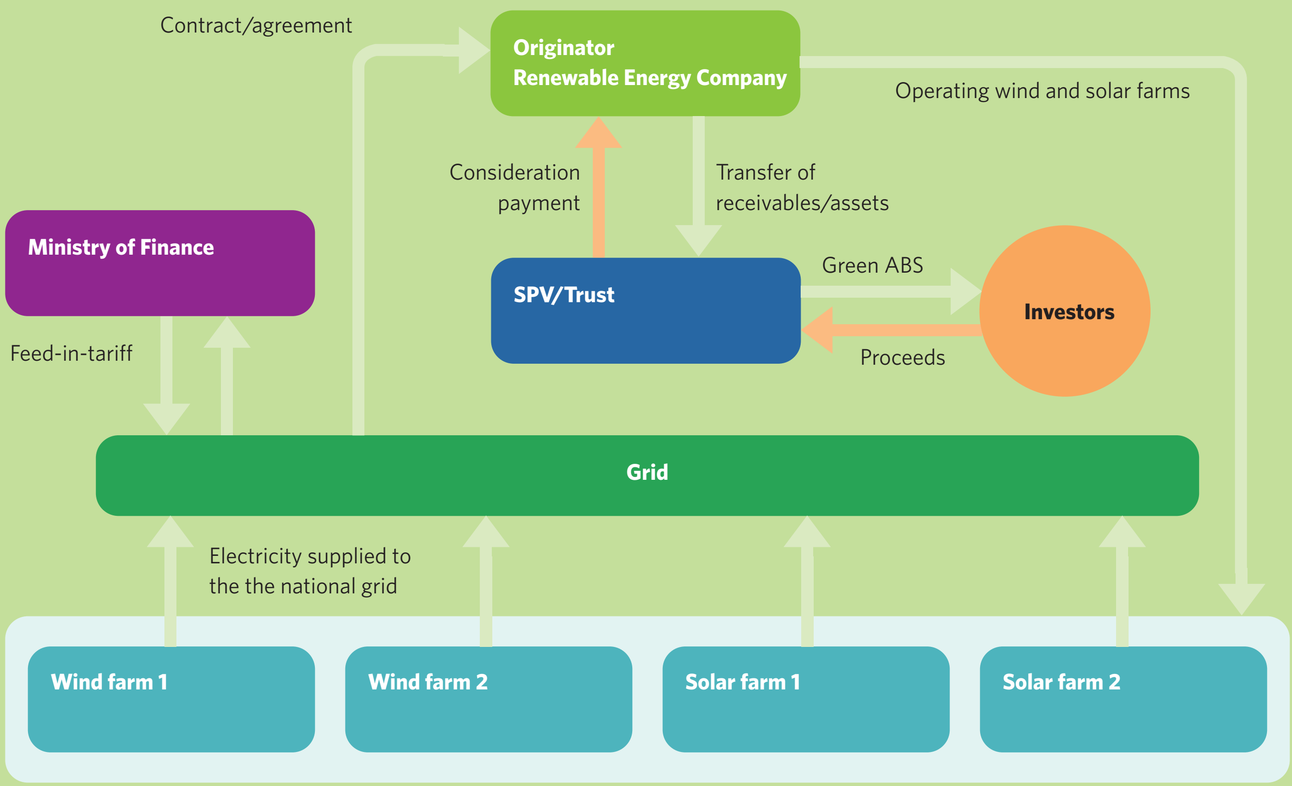
Underlying assets type: Feed-in-tariff receivables

Underlying assets theme: Renewable energy feed-in-tariff receivables

Use of proceeds: Repay bank loans and supplement operating expenses for wind and solar projects

Green ABS reviewer: iGreenBank

Taking China State Power (Ningxia) as an example, its RMB560m deal is backed by a feed-in-tariff linked to both four solar farms and 11 wind farms, with a total of RMB626m expected subsidies based on the estimated electricity generation capacity. 82% of the total RMB560m proceeds will be used to repay previous loans made to wind and solar projects, while the remaining will be used to supplement working capital and other operational expenses for solar and wind farms. The originator also carries an external review from iGreenBank. The external review confirms it's a "green issuer" according to the Shanghai Stock Exchange's guidance as 87.5% of all revenue come from wind and 12.2% from solar.



Note: the above chart is a simplified structure of the deal with a focus on illustrating how the green assets are securitised.

Case study 4: EV leasing

In recent years, EV leasing companies have acquired new financing channels by securitizing their bundles of leasing claims. Particularly, leasing revenue was generated from customers who agreed to make leasing payments for the use of the vehicle, whereas the EV was actually purchased and owned by the leasing company. By the characteristics of EV leases, each could offer a relatively stable and consistent cash flow stream to the ABS originator to cover interest and repayment.

In 2018 and 2019, there were four ABS deals backed by EV auto leasing in the Transport sector. Two out of four were issued by Shenzhen Byd International Financial Leasing Co., Ltd. The parent company of Byd International Financial Leasing, BYD Limited Company, is by far China's biggest electric car manufacturer.

Originator: Shenzhen Byd International Financial Leasing

Issuer: Tianfeng Securities (SAMP plan)

Instrument type: CSRC regulated ABS

Underlying assets type: leasing receivables

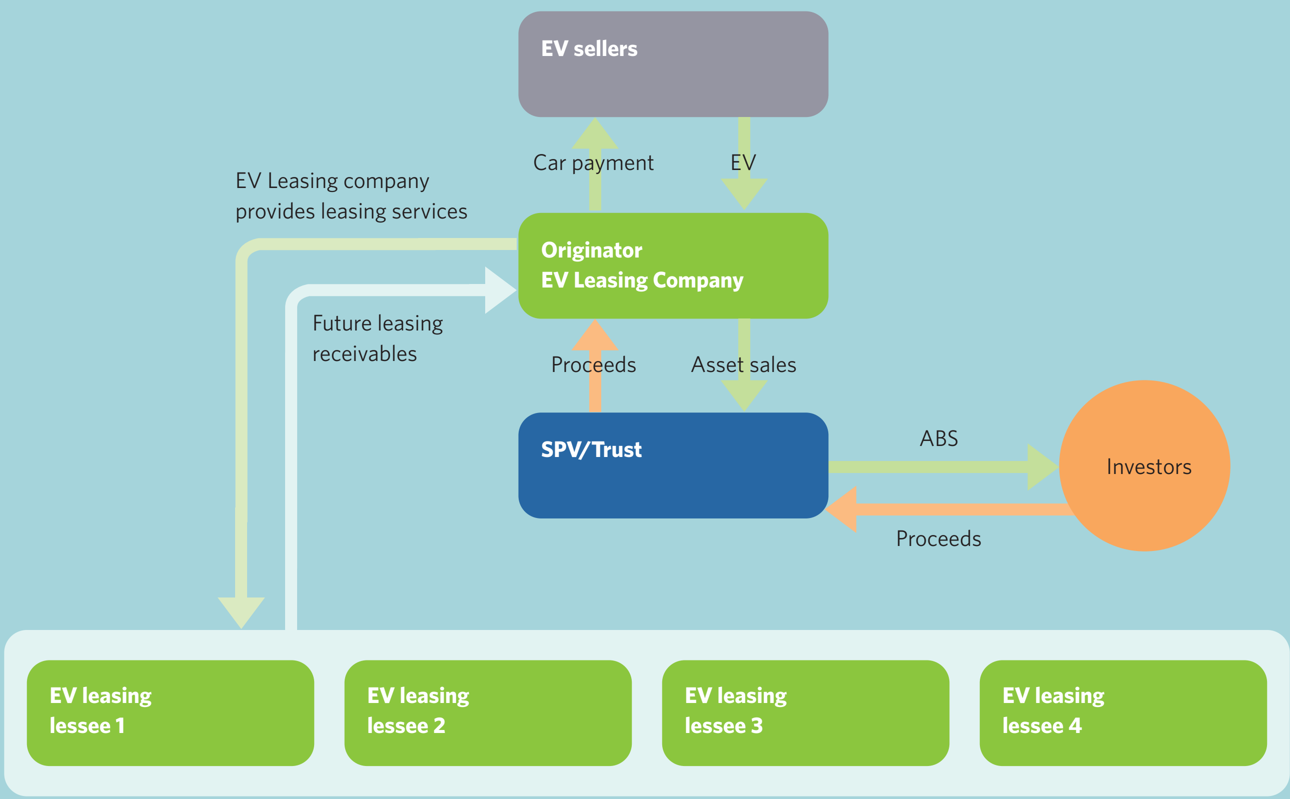
Underlying assets theme: EV leasing receivables

Use of proceeds: asset purchase

Green ABS reviewer: n.a

Being the first EV-leasing-backed ABS in the Chinese market, BYD's RMB366mn deal issued in 2018 was backed by 24 EV leasing claims that were related to 17 different lessees. Most of the lessees are companies affiliated to DIDI-a company that provides app-based transportation services, including private car hailing, social ride-sharing and bike sharing and on-demand delivery services.

The use of proceeds of this issuance was allocated to finance both of their direct-leasing and their sales-and-leaseback operations.



Note: the above chart is a simplified structure of the deal with a focus on illustrating how the green assets are securitised.

Case study 5: CMBS

Commercial mortgage-backed securities, or CMBS, are bonds or notes created via securitisation that are backed by commercial mortgages or other commercial real estate assets. CMBS originators are typically financial institutions that originate commercial real estate or commercial mortgage loans, including banks, building societies/savings & loans and mortgage finance companies. When the deal is secured on commercial mortgages or other receivables linked to [illegible] as green CMBS.

Originator: Chengdu Greentown Energy Saving Investment

Issuer: Harvest Capital

Instrument type: CSRC regulated ABS

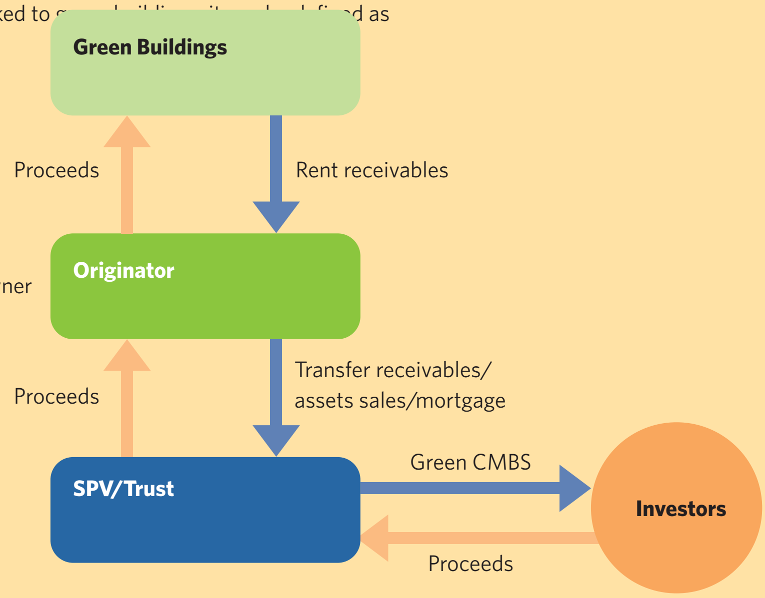
Underlying assets type: CMBS

Underlying assets theme: Green CMBS

Use of proceeds: n.a

Green ABS reviewer: Zhongcai Green Finance

China recorded the first green CMBS in 2017. The three-tranche deal was issued by Harvest Capital Management and CECEP Group. The underlying asset is an office building owned by China Energy Conservation and Environmental Protection (CECEP) Group. The building received both the LEED Gold certificate and China Green Building Label (GBL) two-star certificate.



Note: the above chart is a simplified structure of the deal with a focus on illustrating how the green assets are securitised.

5. Recommendations to develop green securitisation in China

While international investors now have shown greater interests in China's ABS market, investment are still concentrated in certain asset classes such as auto loan ABS. To attract investors to China's green ABS market, the transparency on credit quality, defaults and recoveries, etc have to be improved. In addition to this, the discrepancies between China's local green definitions and the international ones need to be further bridged.

Conducting capacity building on green asset identification

Securitization operations were initiated relatively recently in China, so that substantial gaps remain in such areas as management experience, data accumulation, and market practices when compared with more advanced markets. Professionalism, standardisation, and transparency all need improvement.

To achieve the desired scale of issuance, one challenge in the short term is to identify qualified green asset pools and encourage companies that currently have portfolios of suitable small scale green projects to access the green bond market by aggregating. There is a need for capacity building amongst companies in the present early stage of China's green ABS market development. To increase interest in issuing green ABS, companies may need to have a better understanding of the benefits and differences of green ABS compared to standard ABS issuance. Chinese issuers may also need step-by step guidance on the process of green asset aggregation. Potential green ABS issuers may also need assistance to easily navigate the domestic official green bond guidelines, and the international green bond standards and guidelines, such as the Climate Bonds Standard and the Green Bond Principles.

Improving the disclosure of the credit risk and green eligibility of the underlying assets

The disclosure requirements for credit asset securitisation are relatively complete at present, but the disclosure framework for enterprise asset securitisation on the exchange markets remains relatively general, For example, there has no explicit requirements for disclosure according to individual underlying assets or the ongoing disclosure; and the level of standardisation of disclosures is inadequate.

To make it easier for investors to systematically analyse underlying asset information, impeding the timely mitigation and control of risk, regulators should comprehensively increase the transparency and timeliness of information disclosure for securitisation products formulating more meticulous and specific information disclosure requirements, and strengthening ongoing information disclosures. Regulators should also establish guidelines for the disclosure of green eligibility, providing further transparency for green investors.

Supporting the development of standardised green loans and leasing contracts

To facilitate securitisation of large portfolios of smaller loans, it is crucial that new green loans are standardised – this was instrumental in kick-starting securitisation in other areas in the international market such as mortgages. Currently there is a lack of standardised loan contracts available for green assets in China. The government could play a role in facilitating market-led development of standardised contracts by offering direct financial support to existing market efforts on standardisation of green loan contracts, and establishing public-private initiatives and working groups to develop standardisation processes.

Chinese regulators have rolled out green bond and green industry catalogue, indicating the green assets that are eligible for green bond financing. However, detailed and specialised guidelines on the types of green assets suitable for securitisation have not been established. The standardisation of loan contracts could help to identify asset base suitable for securitisation. This would incentivise the aggregation of smaller loans such as residential mortgages to green and energy efficiency buildings, and auto loans related to electric vehicles.

Incentivising green RMBS and CMBS

In the US, government agencies Fannie Mae and Freddie Mac purchase a substantial volume of mortgage pools from originating lenders and refinance them in the MBS market. Their purpose is to expand the secondary mortgage market by securitizing mortgage loans in the form of mortgage-backed securities. Fannie Mae's Multifamily Green Initiative Program targets mortgages to certified low-carbon buildings and financing for energy and water efficiency improvements of at least 20%. It has become the largest green bond (RMBS) issuer globally. China could set up a similar agency to allow lenders to reinvest their assets into more lending and in effect increasing the number of lenders in the mortgage market by reducing the reliance on locally based savings and loan associations. It can also set up a similar green initiative and send a strong signal to lenders, incentivising best practice such as certification for buildings and lending for energy efficiency.

Developing green incentives and monetary tools

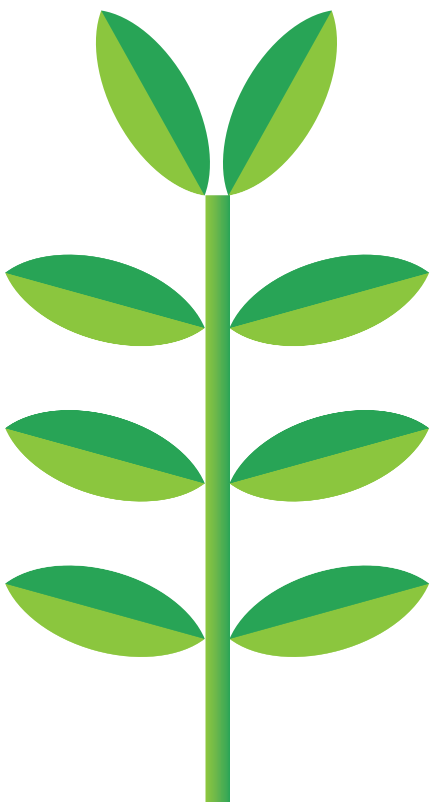
The introduction of tax incentives, a preferential regulatory framework and other initiatives will be fundamental to support the development of the green securitisation market. For example, the introduction of improved regulatory capital treatment for green asset backed securities or tax incentives (to be introduced at national level) for could help promote green ABS to all investor categories, not only to those with a green mandate.

In June, 2018 the PBoC issued the "Notice on Launching the Evaluation of Green Credit Performance of Deposit-Type Financial Institutions in the Banking Industry". The Macro Prudential Assessment (MPA) mechanism introduced in 2016 to address the challenge of potential systemic risk in the financial system. According to the PBoC's requirements, the evaluation of green credit performance is conducted quarterly. The quantitative indicators of green credit performance evaluation include the proportions of green loan balance, green loan balance market share, and green loan increment, the growth rate of green loan balance, and the green loan non-performing rate. The results of the green credit performance evaluation are included in the bank's macro-prudential assessment. This could further incentivise green securitisation from banks.

Improving the soundness of domestic credit rating

Domestic ratings in China often cluster in the top two rating bands (AAA and AA), providing insufficient differentiation of credit risk and challenging the investors to develop objective views. Credit ratings are an important reference for the pricing of ABS and a key basis for investor decision making. The rapid development of the securitisation market and the opening of the interbank bond market to foreign-owned rating agencies have also demanded greater professionalism and service quality from Chinese rating agencies.

To improve the soundness of domestic credit rating, it is important to strengthen government supervision and self-regulation of credit rating agencies while ensure the independence of credit rating agencies, the analytical clarity of rating methods, and the fairness of rating results. It's also key to establish an accountability system to clarify the responsibilities that rating agencies should assume for the ratings they provide.



Endnotes

1. PBoC (2016) http://finance.china.com.cn/money/bank/yhyw/20160317/3631992.shtml
2 https://www.sohu.com/a/456628501_352307
3. In 2012, the 18th National Congress of the Communist Party of China made a strategic decision of "promoting the construction of Ecological Civilization vigorously".See also the "Opinions of the CPC Central Committee and the State Council on Accelerating the Construction of Ecological Civilization" in 2015.
4. Green credit is debt financing provided by a bank or bank syndicate to firms or projects that offer environmental benefits
5. Integrated Reform Plan Promoting Ecological Civilisation(2015). http://www.gov.cn/guowuyuan/2015-09/21/content_2936327.html
6. Guidance on Establishing a Green Finance System (2016). http://www.mee.gov.cn/gkml/hbb/gwy/201611/t20161124_368163.htm
7. https://cib.bnpparibas.com/think/safe-harbours-china-s-abs-market-comes-of-age_a-1-3558.html
8. https://www.reuters.com/article/china-credit-bond-2019-default-0119-idCNKBS1ZI09P
9. No.39 [2015] Notice on Financial Corporate Bonds. http://www.gov.cn/xinwen/2015-12/22/content_5026636.html
10. Credit assets are bank loan receivables.
11. Q&A on green ABS (1), Shanghai Stock Exchange, http://www.csrc.gov.cn/pub/newsite/gszqjgb/zcfggszq/zqbjgwd/201605/t20160513_297243.html
12. Q&A on green ABS (2), Shanghai Stock Exchange, http://www.sse.com.cn/services/greensecurities/guide/c/4694311.pdf
13. "Notice of the Shanghai Stock Exchange on Rolling out the Pilot Program concerning the Green Corporate Bonds". Shanghai Stock Exchange. 2016.03.16. http://www.sse.com.cn/lawandrules/sserules/listing/bond/c/c_20160316_4058800.shtml
14. "Notice of the Shenzhen Stock Exchange on Rolling out the Pilot Program concerning the Green Corporate Bonds". Shenzhen Stock Exchange. 2016.04.22. http://www.szse.cn/lawrules/rule/listed/bond/t20160422_565143.html
15. "Guidelines on the Evaluation and Certification of Green Bonds (Interim)". People's Bank of China. 2017.12.27. http://www.pbc.gov.cn/rmyh/105208/3449893/index.html
16. Better Growth Better Climate. The New Climate Economy Report, https://www.unilever.com/Images/better-growth-better-climate-newclimate-economy-global-report-september-2014_tcm244-425167_en.pdf
17. Zhengwei, Lu. A research on the green securitisation (2020)
18. https://www.hoganlovells.com/-/media/hogan-lovells/pdf/2018/v3_global_china.pdf?la=en
19. https://www.hoganlovells.com/-/media/hogan-lovells/pdf/2018/v3_global_china.pdf?la=en
20. New regulation has been introduced in Europe governing asset backed securities to remedy the collapse in confidence of the ABS market after the economic crisis: a framework for simple, transparent and standardised (STS) securitisation as part of the Securitisation Prudential Regulation (SPR). The STS framework sets out the conditions under which certain institutional investors might obtain more favourable regulatory capital treatment for STS securitisation exposures. Regulation supporting the STS framework applies to securitisation transactions completed after January 2019.
21. https://www.fitchratings.com/research/structured-finance/what-investors-want-to-know-chinese-residential-mortgage-securitisation-03-04-2020#:~:text=Chinese%20RMBS%20has%20expanded%20quickly,and%20USD71%20billion%20in%202019.
22. https://www.asifma.org/wp-content/uploads/2018/09/asifma-2018-securitization-handbook-final-003.pdf

Climate Bonds INITIATIVE

Report prepared by Climate Bonds Initiative

Authors: Alan Meng, Wenhong Xie, Ellen Li
Editor: Bridget Boulle
Design: Godfrey Design