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China's Green Bond Market

Research Center for Green Finance Development

Ma Jun¹, LIU Jialong, CHEN Zhouyang, and XIE Wenhong

Abstract

In the report delivered at the 19th National Congress of the Communist Party of China in 2017, President XI Jinping emphasized that building project for the

-oriented system of innovation for green technology, develop green finance, as well as expand energy conservation and environmental protection industries, clean production industries, and

The Party Congress report signals that the Chinese government has elevated the development of green finance to the level of a national strategy, in an effort to provide real support to the co

¹ MA Jun is Chairman of Green Finance Committee of China Society for Finance and Banking, and Director of Center for Finance and Development (CFD) at Tsinghua University. LIU Jialong, CHEN Zhouyang, and XIE Wenhong are researchers or visiting fellows at Tsinghua CFD. This article was



finance system. Although the green bond market was launched in China only in December 2015, when

and the Green Finance Committee of the China Society for Finance and Banking published its Green Bond Endorsed Project Catalogue, it is the largest within a single year, making up 40 percent of total green bond issuance in 2017. In recent years, innovative securitized products such as green covered bonds² and green asset-backed securities are also beginning to emerge, thanks to improvements in the regulations and service of the green bond market, as well as increasing international cooperation.

² Green covered bonds have green features on both the use of proceeds and the supporting asset pool. The proceeds will only be used for eligible green projects and the underlying assets are also green assets.

研究报告

³ 绿色担保债券在现金流用途和底层资产池方面均有绿色特征。现金流仅用于喝个绿色项目，底层资产也是绿色资产。



DEFINITIONS OF GREEN BONDS IN CHINA

An important precondition for the effective functioning of green financial products, such as green bonds and green loans, is to have a clear definition of

serves the

green performance, and applying policy incentives for green products.⁴

In China, the Green Bond Endorsed Project Catalogue developed by the Green Finance Committee of the China Society for Finance and Banking (under the

issued by the National Development and Reform Commission are currently in

China Catalogue.

So far, there has not been a global consensus on a green taxonomy. Nevertheless, four globally recognized principles and standards for green

Catalogue, there are the Green Bond Principles developed by the International Capital Market Association, the Climate Bonds Taxonomy by the Climate Bonds Initiative, and the Common Principles for Climate Mitigation Finance Tracking developed by the joint climate finance group of multilateral development banks and the International Development Finance Club.

⁴ “

will be used for green projects but they are actually used for nongreen projects.



THE GLOBAL GREEN BOND MARKET

According to the strict definition used by the Climate Bonds Initiative,⁵ the total global issuance of green bonds in 2017 amounted to US\$155.5 billion, the highest annual issuance to date, representing a 78 percent increase from the total issuance of US\$87.2 billion in 2016.⁶

The three biggest issuers are the United States, China, and France. The US mortgage guarantor, Fannie Mae, is the largest single issuer. It issued US\$24.9 billion green mortgage-backed securities in 2016, putting the United States green

rank first in the world, and the United States second.

Upon the urging of Group of Twenty countries and international organizations, many countries and regions have begun researching or establishing green finance policies and road maps, and many have launched green bond markets. In 2017, 239 issuers from 37 countries issued green bonds, 146 of them for the first time, according to Climate Bonds Initiative statistics, reflecting a

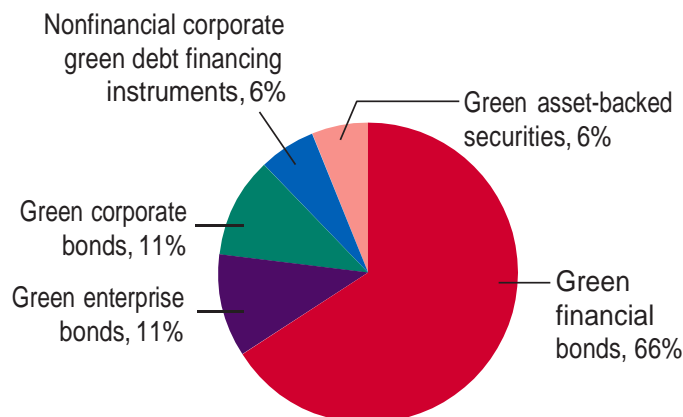


green bonds investment were well received by the market. Internationally, renewable energy investment remains the most popular destination for the proceeds. It is notable that funds spent on low-carbon buildings and energy-efficiency projects have grown 2.4 times year over year, up from 21 percent of total loans in 2016 to 29 percent in 2017.



asset-backed securities) in China became more diverse (Figure 7.1), and their issued bonds have received further differentiated credit ratings. Green bonds with maturities of one and two years were issued for the first time, together with a general increase in the issuance of bonds of longer maturity (Figure 7.2). The proceeds are primarily going to clean energy, pollution clean-up, clean transportation, and other related sectors (Figure 7.3).

Figure 7.1 Shares of Green Bond Issuance in China since 2016, by Raised Capital



Source: China Financial News Green Bonds Database, as of November 12, 2018.

The green bond market in China is continuously moving forward through product innovation, regulation improvement, and international cooperation.

Green Bond Indices

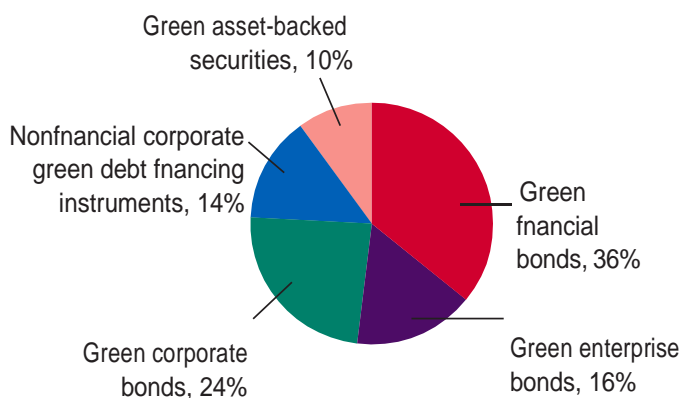
Green bond indices can reveal many dimensions of market trends in the green bond space, and provide investors with diverse performance benchmarks and investment targets. Such indices can also help promote domestic and green bond market, and by extension,



green bond market have enhanced efforts in research, development, and innovation of green bond indices. However, further improvements are still needed when it comes to applying the indices to investments.

In 2016, the China Central Depository and Clearing Co., the China Energy Conservation and Environmental Protection Group Consulting Co., and the first green bond indices, the ChinaBond China Green Bond Index and ChinaBond CIB Green Bond Index. In addition, the Shanghai Stock Exchange and China Securities Index Co. published the Shanghai Stock Exchange Green Corporate Bond Index, Shanghai Green Bond Index, and the Green Securities Exchange Bond Index in June 2017.

Figure 7.2 Shares of Green Bond Issuance in China since 2016, by Number of Bonds



Source: China Financial News Green Bonds Database, as of November 12, 2018.

The first two indices are now on real-time display on the Shanghai and Luxembourg stock exchange websites, with an aim to attract international



investors. Meanwhile, the International Institute of Green Finance at the Central University of Finance and Economics, the Shenzhen Stock Exchange, and the Luxembourg Stock Exchange jointly launched the first green bond index that is synchronously on display in China and Europe, the Central University of Finance and Economics (CUFE) CNI Green Bond Index. In addition, the ChinaBond Pricing Center Co. included nine local government bonds in the ChinaBond China Green Bond Index and ChinaBond China Green Bond Select Index.

In the wealth management market, in June 2017, Industrial Bank launched Wanlibao-Green Finance, an index-based financial product that uses the ChinaBond CIB Green Bond Index as its benchmark and tracking target. It is also the first financial product based on green bond indices in China. The product invests its principal based on the ChinaBond CIB Green Bond Index, and dynamically sets the benchmark for performance comparison.

PRODUCT INNOVATION

since its inception. The market reaction is particularly striking for certain innovative products such as green covered bonds and green asset-backed securities.



Figure 7.3 Use of Green Bond Proceeds since 2016

Source: China Financial News Green Bonds Database, as of November 12, 2018.

Note: Circular use is related to the circular economy, which is a framework for an economy that is restorative and regenerative by design.

In November 2016, the London branch of the Bank of China, a Chinese commercial bank with a global presence, issued US\$500 million of green cover bonds. It

encumbered asset pool¹¹ to provide guarantee payment .rn 1 530.6rn0 G[tt.6rn0 (o)4(n)-3so



Meanwhile, the bonds issued were rated a notch above the rating of the Bank of China, owing to a credit-enhancing effect from the structuring of its asset pool. This asset pool structuring also lowered the financing costs for the Bank of China by 15 basis points. At a coupon rate of 1.875 percent and the final issue spread of 95 basis points, the outcomes achieved a narrower spread than other non-green senior debt issued by the Bank of China during the same period, making it a successful pilot for Chinese banks that are interested in developing low-cost financial channels.¹²

The securitization of assets, using future cash flows as the underlying asset for structured financing, is well tailored to the financing needs of organizations dedicated to green projects. The number of green asset securitized products in China increased from 6 in 2016 to 10 in 2017. The total funds raised from those products also grew by RMB 6 billion to RMB 14.6 billion in 2017. Green asset securitized products, which include green asset-backed securities and green asset-backed notes, now represent 5 percent of

Among the 12 green asset-backed securities issued since 2016, the original holders of the 10 green securitized products in nonfinancial industries all belong to green industries, including enterprises in wastewater treatment, subway and highway transport, and hydro
first commercial mortgage-backed securities to receive green certification from a third party, Harvest Capital CECEP Green Building Asset Backed Special Plan, was launched at the Shenzhen Stock Exchange.

¹² For more information, see the Bank of China website at http://www.boc.cn/aboutboc/bi1/201611/t20161104_7978208.html.



A number of additional innovative green bonds were also issued in 2017. RHZL, an investment and financing company under China Power Investment - -backed note inside China.¹³ The Beijing Enterprises Water Group (China) Investment issued the first asset-backed note in China. Zhejiang Tailong Commercial Bank issued the first green financial debt for small and medium enterprises. In addition, green financial bonds were made available to individual investors for the first time. China Development Bank, in issuing RMB 5 billion of thematic Yangtze River Economic Belt Water Resources Protection green financial bonds, for the first time retailed bonds of no more than RMB 600 million to the public.

DEVELOPING THE GREEN BOND MARKET

Since 2015, China has been continuously refining policy and regulations to promote green bonds as a tool to finance environmental solutions. This effort will as further regulation of bond issuance. The key initiatives to scale up green bonds in China include the Green Bond Endorsed Project Catalogue (2015) and the Guidelines for Establishing the Green Financial System, as well as a wide variety of policy documents, pilot programs, and supporting mechanisms, which have been used to set standards for information disclosure, evaluation and certification, use of proceeds, and supervision.

been bond issuance through a combination of policy and regulatory supports and

¹³ to investments that can be classified as green both in terms of the purpose of the investment expenditure and the type of asset pool.



fiscal and financial measures. For instance, the provincial government of Jiangsu announced an interest subsidy of 30 percent toward green bond and green asset-backed securities. It also provides a cash reward (RMB 300,000, or US\$43,400) for each bond issuance for third-party guarantors of green bonds, as well as a risk compensation mechanism (covering 30 percent of actual loss) to third-party guarantors of aggregate green loans that are tailored to small and medium enterprises.¹⁴ In 2017, the State Council set up pilot zones in five provinces, Guangdong, Guizhou, Jiangxi, Zhejiang, and Xinjiang, to promote green finance reform and innovation. The provincial and municipal governments from the pilot programs provide subsidies and establish facilities such as local green project information sharing platforms to encourage the use of proceeds.

Since 2017, various regulatory authorities have issued detailed regulations, including opinions and business operation guidance to lead and discipline the development of green bonds. In March 2017, for example, the China Securities Regulatory Commission issued the Guidelines to Support the Development of Green Bonds, defining in principle the issuing entity, purpose of capital spending, information disclosure, management requirements, and related policy measures. In the meantime, the National Association of Financial Market Institutional Investors published the Guidelines for Non-financial Enterprise to Issue Green Debt Financing Tools and related forms, clarifying the type of information, including project vetting and capital management, that enterprises should disclose in issuing green debt financing instruments. For the first time, the guidelines require the issuer to disclose the

¹⁴ “

<http://greenfinance.xinhua08.com/a/20181011/1780880.shtml>.



environmental benefit of the project and encourage third-party certification agencies to assess and certify before and after the issuance of the instrument. Meanwhile, the guidelines also set out measures to encourage agencies to which green debt financing instruments can be integrated into funds raised by green financial bonds. Last, the guidelines aim to develop green channels and enc

It is notable that the Chinese national government has also promoted third-party green verification as an important means for information disclosure, as it provides guarantees of both the authenticity and reliability of green bonds. In December 2012, for example, to improve the verification standard of green and the China Securities Regulatory Commission jointly issued the Green Bond guiding document that verifies the verifiers of green bonds, stipulating related issuing of reports, and supervision and management.

DEEPENING INTERNATIONAL COOPERATION

In 2017, the European Investment Bank and the Green Finance Committee jointly conducted a study on the standardization of green bonds in China and Europe. The parties aimed to promote cross-border green capital flows and to strengthen collaboration between China and Europe in green bonds and green finance space. At the United Nations Climate Change Conference held in Bonn, Germany, in November 2017, *The Need for a Common Language in Green Finance A White Paper*, was published after the joint European



Investment Bank Green Finance Committee study. The paper compared green bond standards in countries to provide a basis for raising comparability and consistency across green bonds in China and the European Union.

In September 2017, the China United Kingdom Green Finance Taskforce released its mid-

database be made available to investors worldwide. The report also recommended that the Hong Kong Stock Exchange consider using the database under Bond Connect, a recently launched mutual market access

The influence of Chinese issuers on the international bond market has also been growing. Deeper connection and convergence between green bond markets can be attested to by the issuance of offshore green bonds by several Chinese-owned institutions. In October 2015, the Agricultural Bank issued green bond in the United Kingdom, making it the first Chinese bank to issue a green bond overseas. Since then, the Industrial and Commercial Bank of China, the Bank of China, and several others have issued green bonds compliant with international standards, effectively promoting and leading the global development of green bonds.

In 2017, Chinese-owned issuers continued to make their presence felt in the international green bond market. In addition to issuing green senior bonds and green covered bonds, the Bank of China issued its third green bond offshore. It is notable that, in October 2017, the Industrial and Commercial Bank of China issued the Belt and Road Initiative Green Climate Bond through its



Luxembourg branch. The bond was listed on the Luxembourg Stock Exchange. China Development Finance Corporation issued a US\$1 billion -sovereign international green bond, verified by the Climate Bonds Initiative. The bond is now listed on the Hong Kong Stock Exchange and the China Europe International Exchange.

In addition, the Bank of China issued about US\$1.5 billion (equivalent) in climate bonds through its Paris branch. These bonds not only were compliant with the latest standards laid out in the Green Bond Principles (2017), but also received standards-consistent verification from the Climate Bonds Initiative, as the first green bond denominated in three currencies verified by the Climate Bonds Initiative. In addition, the China Three Gorges Corporation became the

China General Nuclear Power Group issued a green euro bond for the first time in 2017.

RISKS AND UNCERTAINTIES OF INVESTING IN THE GREEN BOND MARKET IN CHINA

At present, the taxonomy of green bonds in China is not harmonized. This may lead to weak connectivity between different financial products and tools, as well as difficulty in the implementation of incentive and penalty mechanisms, especially in the fiscal space. The market participants may seek to arbitrage different regulatory policies, and may tend to

important for strengthening and improving the current green financial system.



In addition, green bond products in China typically have low liquidity in the secondary market. The development of the green bond market has occurred amid a backdrop of enhanced financial regulation in China, which is partly attributable to an ongoing deleveraging process and prudent monetary policy.

¹⁵ Nonetheless, green bond issuance will likely be less affected, partly because of strong policy support and regulatory incentives from the government.

RECOMMENDATIONS FOR FURTHER DEVELOPING THE GREEN BOND MARKET

developed rapidly, it still faces problems and challenges, including relatively weak incentive mechanisms, insufficient understanding of green investment by investors, as well as inadequate products and tools. The green bonds issued in China constitute a mere 2 percent of total bond issuance. Nevertheless, the needs for green financing are growing quickly and are estimated at trillions of dollars annually in the medium to long term, creating enormous potential for green bonds.

On the basis of the existing green bond market, several recommendations are offered to scale up the green bond market in China:

1. Promote Awareness of Green Bonds among Potential Issuers

Even though nearly 100 entities in China have issued green bonds, the majority of potential issuers (including banks, real sector enterprises, and government entities participating in medium- and long-term green projects)

¹⁵ “

files/reports/china_annual_report_2017_en_final_14_02_2018.pdf.



still lack a basic understanding of the green bond market. As such, industry associations, underwriters (such as banks and securities dealers), and third-party service providers (green bond verifiers and rating agencies) should reach out to potential clients, as well as build awareness that green bonds can help solve the problem of maturity mismatch, build up the market reputation of the

environmental risk and obtain policy support from the government.

2. Improve Green Bond Standards, Quality of Verification and Assessment, and Information Disclosure Mechanisms

In 2013 the Third Plenary Session of the 18th Chinese Communist Party Congress decided that central and local governments would henceforth publish their government balance sheets, in order to enhance the transparency and responsibility of local government operations. Progress has been slow, with many local governments compiling but not publishing their balance sheets.

The rapid increase in local government quasi-fiscal debt in the past five years has underscored the importance and urgency of implementing this reform. A mandatory requirement for disclosure of local government balance sheets, including local financing vehicle debts, which represent contingent or implicit liabilities of the local governments, is critical to deter irresponsible and excessive borrowing by local governments. Publishing information on quasi-fiscal borrowing gives the general public, local residents, members of the local
-party service
providers such as rating companies important information with which to



assess local government debt risks. Public opinion and pressure from all these parties for local governments to stay prudent could be very powerful.

3. Strengthen Incentives for Green Bonds

A common complaint from the issuers of green bonds has been that the green bond issuance incurs extra verification and disclosure costs, reducing their willingness to participate. The Guidelines for Establishing the Green Financial System, which were jointly issued by seven Chinese ministries, call for supporting green finance development through measures such as central bank macroprudential assessment and refinancing, and guarantees, as well as interest rate subsidies from the local government. These incentive measures can reduce costs, while other efforts should also be made to explore more concrete and feasible solutions. For example, local governments in Huadu district of Guangzhou province and Huzhou and Quzhou in Zhejiang province have rolled out subsidies for green bonds, while Shanghai issued measures to cover the cost of verification for medium and small green bond issuers. These practices should be promoted and emulated.

4. Encourage Product Innovation, Expand Securitization of Green Assets, and Support Green Buildings

Financial institutions should increase innovation in green bond products through measures such as issuing collective green bonds for small and medium enterprises, promoting investment in and application of green bond indices, and further developing green asset-backed securities products.



Green asset-backed securities, using cash flow from the underlying assets for financing, provide fast, long-term, and stable funding for enterprises through a different credit enhancement method. Not only is this in line with the distinct features of development in the green sector, but it also helps ensure at the outset that funds are used for designated green projects and increases the effectiveness and precision of resource allocation. It can make use of existing assets and provide innovative investment products, matching the diverse needs of the investor and the borrower. The underlying assets for green asset-backed securities can gradually expand to include renewable energy, pollution prevention and management, and other types of green assets.

China should also explore the model through which green bonds support green building. At present, most capital raised through green bonds and other green financial instruments in China flows to green energy, green transport, and environmental protection, while green building receives only a small portion. The policy on standards and implementation guidelines for green building should be accelerated. At the same time, financial regulators can work together with the Ministry of Housing and Urban-Rural Development and the National Development and Reform Commission to explore measures to support green building through financial instruments, including green loans and green bonds.



5. Cultivate Green Institutional Investors

The majority of institutional investors in China are only beginning to learn about the concepts of green investment and responsible investing. Their investment preference for green assets, including green bonds, is still lukewarm. Efforts to cultivate green investors can create strong demand for the green bond market in eight areas:

- Build and improve compulsory environmental information disclosure for listed companies and bond issuers
- Run a publicity campaign to popularize green investment to raise long-term returns
- Provide government backing for long-term investors to pioneer green investments
- Encourage the development of green financial products
- Support the ranking, rating, and assessment of third-party agencies for green assets
- Strengthen capacity building in areas such as environmental risk analysis



6. Strengthen International Cooperation in the Green Bond Sector

China should encourage state-owned institutions to issue more offshore green bonds and foreign institutions to issue green panda bonds in China.¹⁶

When Chinese institutions issue offshore green bonds, more green capital is attracted to China, and issuers are provided with an important opportunity to understand and participate in international capital markets and to promote their corporate branding.



Conclusions

Since the inception of its green bond market in 2016, China has become one market share in its first year. In addition to issuing more than 200 green bonds, China is also growing into a global leader in setting frameworks and institutions for green bond issuance and verification. In particular, China has come up with the definition and taxonomy of green bonds, formulated guidelines for verification, issued a licensing scheme for the verifiers, announced information disclosure standards for the issuers, and introduced a number of innovative products and mechanisms to foster further development in the green bond space. The green bond ecosystem in China has become a global benchmark. Many countries, especially emerging s they develop their own markets.

Green bonds have great potential for further growth both in China and on the idered

grow to around 20 percent of total bond issuance in China to meet the market need for green investment. There are several things to watch for in green bond market development in China.

1. China Is Further Harmonizing Its Domestic Green Bond Taxonomies

green bonds is an essential step in the efforts to channel investments into



sustainable economic activities. Without a clear green bond taxonomy, it is difficult for investors to distinguish between green and brown projects. The lack of a uniform standard may also create confusion and generate additional transaction costs. China is making progress in promoting the further harmonization of its two domestic green bond taxonomies and studying the design of a common standard for cross-border green bond investment.

2. China is Making Progress in Issuing Its Sovereign and subsovereign(Subnational) Green Bonds

Given their benchmark role in domestic debt markets, sovereign green bonds providing strategic direction and an anchoring effect for other issuers. With countries such as France, Indonesia, Poland, and Nigeria issuing sovereign green bonds to support domestic green projects, subnational levels of the Chinese government (municipalities) are also currently preparing guidelines and planning for actual issuance of green sovereign bonds to support green investments.

3. China Is Expected to Play a Leading Role in Scaling Up Green Investment in the Belt and Road Countries

for green infrastructure projects, especially since the first official mention of bonds are expected to be an indispensable financing instrument for development of infrastructure projects along the Belt and Road Initiative.

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