

# Research report

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## China's Green Bond Market

Research Center for Green Finance Development

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### Abstract

In the report delivered at the 19th National Congress of the Communist Party of China in 2017, President XI Jinping emphasized that building an ecological civilization would be a “millennium project for the sustainable development of the entire nation,” and stressed the need to “construct a market-oriented system of innovation for green technology, develop green finance, as well as expand energy conservation and environmental protection industries, clean production industries, and clean energy industries.”

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 country's green sectors.

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The rapid growth of China’s green bond market is a testament to both the strong policy support and the enormous potential of China’s green finance system. Although the green bond market was launched in China only in December 2015—when the People’s Bank of China first introduced green financial bonds in the country’s interbank bond market and the Green Finance Committee of the China Society for Finance and Banking published its Green Bond Endorsed Project Catalogue—it became the world’s 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 bonds<sup>2</sup> 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 inter- national cooperation.

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<sup>2</sup> 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

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清华大学国家金融研究院

## 中国绿色债券市场

绿色金融发展研究中心

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**【摘要】**习近平主席在中国共产党第十九次全国代表大会报告中指出，建立生态文明是全国贯彻可持续发展的长久之计，并强调“构建市场导向的绿色技术创新体系，发展绿色金融，壮大节能环保产业、清洁生产产业、清洁能源产业”的需求。

十九大报告表明，中国政府将发展绿色金融提升至国家战略高度，以此为国家绿色产业和部门提供真正的支持。

中国绿色债券市场的迅猛发展是对强有力政策支持和中国绿色金融系统巨大潜力的印证。中国绿色债券市场于 2015 年 12 月刚刚建立。彼时，中国人民银行首次在全国银行间债券市场引入绿色金融债券，中国绿金委发布绿色债券认可目录。仅一年后，中国绿色债券市场就成为世界规模最大的绿色债券市场；2017 年，中国绿色债券市场的绿色债券发行量占世界总量的 40%。近年来，得益于绿色债券市场监管和

服务的改善，以及国际合作的日益紧密和频繁，创新证券化产品，如绿色担保债券<sup>3</sup>、绿色资产支持债券也逐渐兴起。

虽然我国的绿色债券市场取得了快速的发展，但是绿色债券市场仍然面临着激励机制较弱、投资者缺乏绿色投资理念、产品工具不足等问题和挑战。我国发行的绿色债券仍只占到国内全部债券发行量的2%，相对与每年几万亿且快速成长的中长期绿色融资需求来说，我国的绿色债券市场仍有巨大的增长空间。针对我国绿色债券市场发展特点和问题，我们就如何进一步推动绿色债券市场提出几点看法。

1. 加大宣传绿色债券市场和发行绿债给发行人带来的好处；
2. 进一步完善绿色债券的标准，提升认证评估质量和信息披露；
3. 强化对绿色债券的激励措施；
4. 鼓励绿债产品创新，扩大绿色资产证券化，支持绿色建筑；
5. 培育绿色机构投资者；
6. 加强绿色债券领域的国际合作。

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<sup>3</sup> 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 what is and is not “green.” A unified classification system, or taxonomy, serves the purpose of preventing “green washing,” enabling measurement of green performance, and applying policy incentives for green products.<sup>4</sup>

In China, the Green Bond Endorsed Project Catalogue developed by the Green Finance Committee of the China Society for Finance and Banking (under the supervision of the People’s Bank of China) and the Green Bond Guidelines issued by the National Development and Reform Commission are currently in use. The majority of green bonds issued in China follow the People’s Bank of China Catalogue.

So far, there has not been a global consensus on a green taxonomy. Nevertheless, four globally recognized principles and standards for green bonds are currently used. In addition to the People’s Bank of China’s 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.

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<sup>4</sup> “Green washing” here refers to any spinning effort on the part of a firm to claim that proceeds 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,<sup>5</sup> 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.<sup>6</sup>

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 ahead of China as the world's largest green bond market. If that specific green securitized product is excluded, China's total green bonds issuance would 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 trend toward annual expansion of the issuer base.

Looking especially at sovereign green bonds, in 2017, France, Fiji, and Nigeria issued sovereign green bonds. Among those, the French government's

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<sup>5</sup> The narrowly defined standard of the Climate Bonds Initiative focuses on measures addressing climate change, and is therefore more strict than other green standards. The former does not include the upgrading of power stations burning fossil fuels, clean coal, greater efficiency in coal use, transmission infrastructure for power grids using fossil fuel energy, large hydropower projects (greater than 50 megawatts), landfill waste treatment, and other projects with no clear climate benefits. The standard also requires that 95 percent of funds raised should go to green projects.

<sup>6</sup> Based on a broader definition (that is, the total sum of green bonds each country calculates based on its own definition), the total sum of green bonds in 2017 was US\$169.4 billion, according to the Climate Bonds Initiative.

green bonds—€700 million to increase environmental 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.

### ***OVERVIEW OF CHINA'S GREEN BOND ISSUANCE***

Since the inception of China's green bond market in 2016, China has issued 184 green bonds, totaling RMB 479.91 billion, or about 27 percent of green bonds globally.<sup>7</sup> The majority of issuance was onshore (167 bonds totaling RMB 409.71 billion), while the rest was issued in offshore financial centers, mostly in Hong Kong SAR.

In 2017 alone, China issued 123 green bonds totaling RMB 249 billion, including green bonds and green asset-backed securities. Of these, 113 bonds totaling RMB 204.48 billion were issued domestically.<sup>8</sup> According to the China Financial News Green Bonds Database, green bond issuance fell in the first half of 2017 because of fluctuations in interest rates but rebounded in the second half.<sup>9</sup> The growth of issuance for the whole year was 7.6 percent. The total issuance from China in 2017 accounted for 22 percent of green bonds issued globally.<sup>10</sup> In 2017, the issuers of green bonds (not including green

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<sup>7</sup> The denominator is also calculated based on a broad definition.

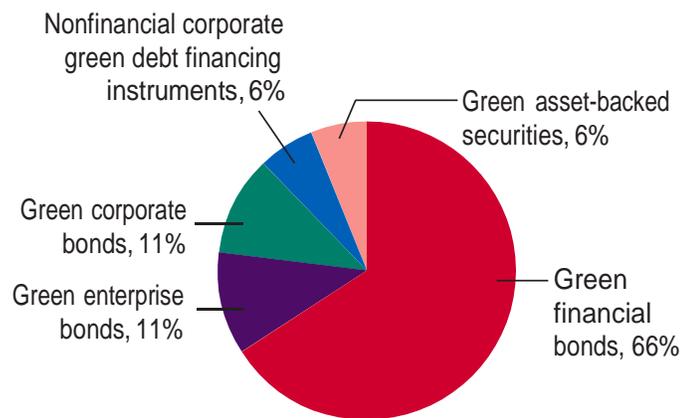
<sup>8</sup> Domestic issuance means green bonds issued through the capital markets in mainland China, excluding Hong Kong SAR. If not otherwise specified, the meaning of this term remains the same throughout the chapter.

<sup>9</sup> The database includes standard-compliant green bonds, that is, green bonds recognized under the Directory of Supported Green Bond Projects compiled by the Green Finance Committee and the Green Bond Issuance Guidelines of the National Development and Reform Commission.

<sup>10</sup> The denominator is broadly defined, which includes the total quantity of green bonds issued by each market (country) according to its own definition for these bonds.

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.

### ***TRENDS IN CHINA'S GREEN BOND MARKET***

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

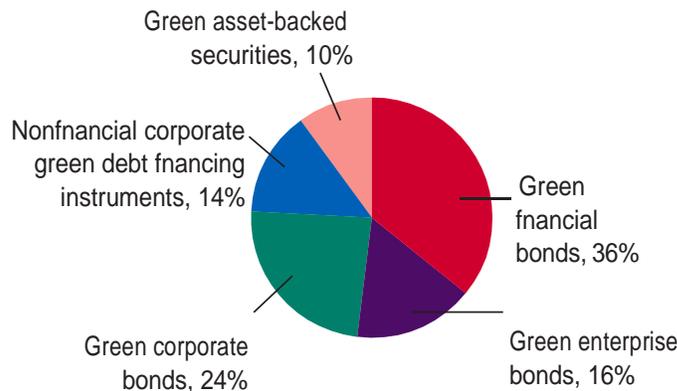
#### ***Green Bond Indices***

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 international investment in China's green bond market, and by extension,

foster the development of green industries. In 2017, participants in China’s 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 Industrial Bank (China) jointly published China’s 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

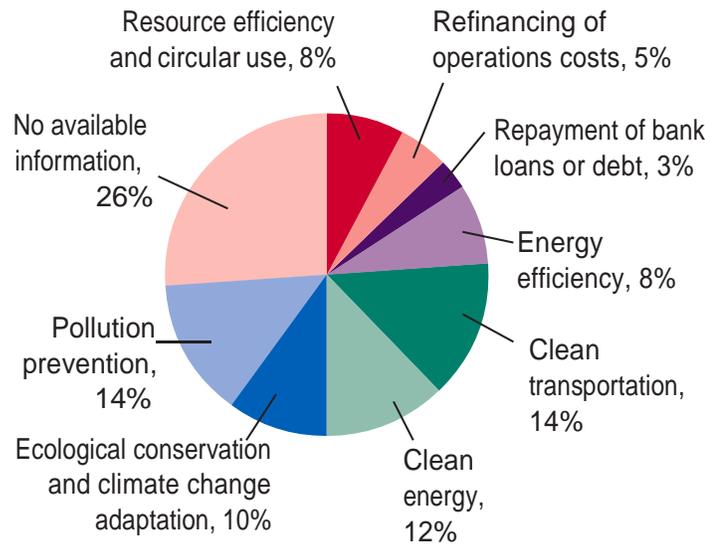
investors. Meanwhile, the International Institute of Green Finance at the Central University of Finance and Economics, the Shenzhen Stock Exchange, and the Luxembourg Stock Exchange jointly launched the first green bond index that is synchronously on display in China and Europe, the Central University 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***

While China's green bond market is a relative latecomer, it has grown rapidly 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 used the Bank of China’s green assets inside China as the encumbered asset pool<sup>11</sup> to provide guarantee payment obligations incurred by the bonds, and the bank used the funds for its green credit and loan projects inside China. The assets in the encumbered asset pool are all sample bonds from ChinaBond China Climate-Aligned Bond Index, which qualify as green both in terms of the purpose of the investment expenditure and the type of asset pool. Such instances of issuance set the standard in Chinese and international green markets and can be seen as an important achievement in the China–United Kingdom Economic and Financial Dialogue.

<sup>11</sup> An encumbered asset pool is one where the asset has been pledged or is subject to any form of securitization, collateralization, or transaction from which it cannot be freely withdrawn.

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.<sup>12</sup>

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 China's domestic green bond market.

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 and wind power. In 2017, China's 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.

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<sup>12</sup> For more information, see the Bank of China website at [http://www.boc.cn/aboutboc/bi1/201611/t20161104\\_7978208.html](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 Corporation, issued the first “purely dual-green” asset-backed note inside China.<sup>13</sup> 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.

### ***THE CHINESE GOVERNMENT’S ROLE IN 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 has led to rapid growth in China’s green bond market since 2016, as well 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.

China’s local governments are also playing a critical role in spurring green bond issuance through a combination of policy and regulatory supports and

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<sup>13</sup> The term “dual green” refers 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.<sup>14</sup> 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

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<sup>14</sup> “Xinhua: Jiangsu Province to Provide 30 Percent Interest Subsidies on Green Bond Issuance.” <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 disclose the extent of a project's green credentials, and to define the extent 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 encourage the formation of a green investors' alliance.

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 bonds and to avoid the risk of “green washing,” the People's Bank of China and the China Securities Regulatory Commission jointly issued the Green Bond Assessment and Verification Guidelines. This is the world's first guiding document that verifies the verifiers of green bonds, stipulating related requirements on the agencies' qualifications, bidding procedures, operations, 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-term report, which recommended China’s green bond 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 scheme, to build a green bond section, or a “green bond connect,” that allows international actors to invest directly in China’s green bond market.

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 China Agricultural Bank issued a 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 Bank also issued China's first quasi-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 first company from China's real sector to issue a green euro bond, while 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 engage in “green washing.” Therefore, the establishment of unified standards would be 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.<sup>15</sup> 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***

Even though China's green bond market has 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 characteristics and challenges faced by China's 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)

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<sup>15</sup> "Climate Bonds Initiative: China Green Bond Market 2017." [https://www.climatebonds.net/files/reports/china\\_annual\\_report\\_2017\\_en\\_final\\_14\\_02\\_2018.pdf](https://www.climatebonds.net/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 issuer, and win future clients. Steps should be taken to increase firms' awareness that the effort toward becoming a “green company” can help solve 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 people's congress, the media, banks, the debt market, and third-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
- Encourage Chinese institutional investors to disclose environmental information
- Encourage Chinese institutional investors to adopt principles of responsible investing

## 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.<sup>16</sup>

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.

Overseas institutions that issue green panda bonds can expand the domestic green market and help advance internationalization of the renminbi. The China–United Kingdom and China–France Economic and Financial Dialogues were concrete steps toward green finance collaboration. Such progress not only encouraged all parties to issue green bonds in one another’s markets, but also attracted British and French institutional investors to China’s green bond market and helped promote the development of green asset securitization. To make it more convenient for foreign capital to enter China’s green bond market, related financial institutions and third-party service providers can consider developing green exchange-traded funds, offering products that are traded off- shore, providing information on China green bonds in English, as well as developing more tools for research and analysis.

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<sup>16</sup> The term panda bonds denotes Chinese renminbi-denominated bonds issued by a non-Chinese organization inside the China mainland.

## Conclusions

Since the inception of its green bond market in 2016, China has become one of the world's largest green bond markets, gaining 40 percent of global 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 markets, look to China's experience as they develop their own markets.

Green bonds have great potential for further growth both in China and on the global stage. At present, less than 1 percent of the world's bonds are labeled green bonds. In China, around 2 percent of China's bonds are considered "green." Experts in the field expect the size of the green bond market to 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**

A unified classification system ("taxonomy") for projects supported by 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 can support the market's further development, attracting new investors and 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**

China's Belt and Road Initiative is providing huge investment opportunities for green infrastructure projects, especially since the first official mention of a "green coalition" along the Belt and Road in 2017. Going forward, green bonds are expected to be an indispensable financing instrument for development of infrastructure projects along the Belt and Road Initiative.

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