

China's Green Bonds Development and Financial Reforms

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Abstract—As a new phenomenon in the field of green finance, green bonds are of great significance for promoting green development and strengthening international cooperation. In 2008, the World Bank and the Nordic bank of Sweden jointly issued the first bond explicitly named green bond. In 2016, China began to issue large numbers of green bonds and became the world's largest issuer of green bonds in the same year. This paper firstly sorts out the green bond standards and relevant theoretical researches from the theoretical level, and then systematically sorts out the policy framework and development vein of China's green bonds in recent years from the practical level, explores the existing problems in the development process, and puts forward targeted development suggestions.

Keywords—green bonds; green finance; financial reforms; financial innovation

I. INTRODUCTION

Environmental protection has become a common challenge due to the worse global climate problems. In recent years, China has actively promoted the development of green finance. Because of the support and guidance of relevant national policies, China is becoming the pioneer and leader of global green finance. The Hangzhou G20 Summit in 2016 put green finance at the top of the agenda for the first time. The 13th Five-year Plan and reports of the 19th National Congress of the Communist Party of China (CPC) all made the development of green finance become the national strategy of China. At present, China has become the first country in the world, which has built a systematic green financial policy system.

According to the World Bank and the Organization for Economic Co-operation and Development (OECD), a green bond is a fixed income bond issued by a government, multinational bank or company to mobilize financial resources towards the progressive decarbonisation of the global economy. However, the definitions of green bonds are different at home and abroad. International definitions of green bonds can usually refer to The Green Bonds Principles (GBP) and the Climate Bonds Standard (CBS). The GBP regulates the aspects of fund raising, project evaluation and screening, fund raising tracking management, information disclosure and report, evaluation and certification. Green bonds were defined by the latest version of the GBP, released in June 2018, as International Capital Market Association [1] defined “any type of bond instrument where the proceeds will be exclusively applied to finance or re-

finance, in part or in full, new or/and existing eligible green projects.”

The People's Bank of China and the National Development and Reform Commission (NDRC) have issued the List of Green Bonds Support Projects and the Issuance Guidelines of Green Bonds to determine the standards that meet the scope of green projects. List of Green Bonds Support Projects provided technical guidance for the screening and certification of green projects. It mainly applies the bond issuance certification fields other than green corporate bonds. The Issuance Guidelines of Green Bonds determined 12 types of projects which included energy, transportation, low-carbon buildings, industry and energy-intensive businesses. At the same time, it provided the policy which supported the participation of social capital in the construction of green projects and the creation of bond varieties.

Differences of identifications of green bonds between China and the global standards are mainly in the following aspects. On the one hand, the recognition of fossil energy is different because of the different energy structures. International green bonds identifications exclude the use of fossil fuels (especially coal) and any projects that may extend their life cycle from the green category, while Chinese green bonds identifications still support industrial sectors related to fossil fuels (especially coal) with consideration of China's resource situations. On the other hand, international green bonds identifications focus more on tackling climate change, but Chinese green bonds identifications pay more attention to the waste gas, waste water and waste pollution prevention and environmental protection. Therefore, Chinese green bonds identifications include new energy vehicles, and fuel upgrade two, reflects the key direction of transportation technology progress in China.

II. LITERATURE REVIEW

Criscuolo and Menon [2] investigated the green field of risk investment and policy in 29 countries during 2005-2010 and found that green project is highly affected by the policy. Gianfrate and Peri [3] studied 121 European green bonds issued between 2013 and 2017 and found that green bonds are more financially convenient than non-green ones. The advantage is larger for corporate issuers, and it persists in the secondary market, potentially playing a major role in greening the economy without penalizing financially the issuers.

Zhou and Liu [4] analyzed the development status of China's regional green finance and found that local government was obviously deficient in both system construction and development motivation. Yin and Wang [5] believed that supply and demand structure of China's economic had reached the inflection point of the environmental Environment Kuznets Curve. Shan [6] emphasized that the development of green finance should avoid market distortion caused by excessive use of government power.

III. DEVELOPMENTS OF GREEN BONDS

The issuing bodies of green bonds then began to show a trend of diversification after 2013 when financial institutions, enterprises and local governments began to issue green bonds. With the rapid development of China's green bond market in 2016, the development pace of the green bond market has significantly accelerated. According to the data from Climate Bond Initiative (CBI), the issuance of green bonds from 2013 to 2018 was \$11 billion, \$36.6 billion, \$41.8 billion, \$81 billion, \$120.2 billion and \$182.2 billion respectively, which showed a rapid growth trend. Fig. 1 shows the global issuance of green bonds from 2013 to 2018.

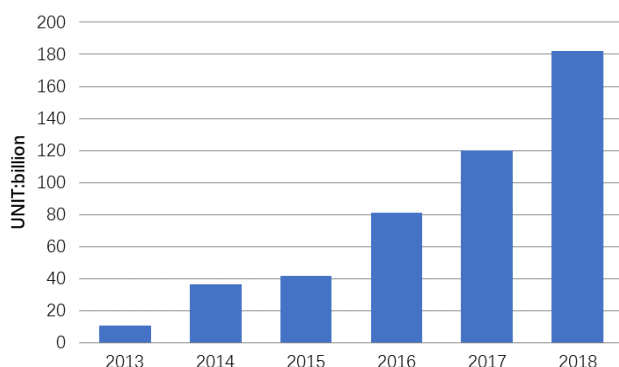


Fig. 1. Global issuance of green bonds from 2013 to 2018

China's green bond market began to develop in 2016. In July 2016, the BRICs Development Bank issued the first panda bond in China, and in September 2016, the green corporate bond issued by Beijing water (China) investment co. LTD by renewable financing. In September 2017, China Development Bank issued its first green over-the-counter financial bonds, and sold green bonds to individual investors for the first time. China Development Bank then issued the first quasi-sovereign international green bonds on the Stock Exchange of Hong Kong Ltd. and China Europe International Exchange in November 2017, which could contribute to the improvement of the influence of China's green bond market in the world. It also speeds up the internationalization of the China's bond market. In April 2018, Tianjin Rail Transit Group issued 400 million euros of green bonds on the Luxembourg Stock Exchange. The raised funds would be used to help the integrated green development of the Beijing-Tianjin-Hebei region which included pollution prevention, transportation system energy efficiency and renewable energy, etc. In the end of 2018, China had issued \$31.2 billion of green bonds that meet the international definitions of green bonds, accounting for 18% of

the annual global issuance of green bonds. And at the same time, supported by policy and market, China's green bond market had made further innovations in terms of products and distribution channels.

IV. FINANCIAL REFORMS OF CHINA'S GREEN BONDS

The "top-down" policy framework in China for green bond market is different from the "bottom-up" market orientation of international green bond market. In December 2015, the People's Bank of China issued the announcement of "The People's Bank of China in 2015". In December 2015, the National Development and Reform Commission issued "Green Bonds Issuance Guidelines", launching the pilot program of green corporate bonds. In August 2016, the People's Bank of China, the ministry of finance and other seven ministries issued the guidance on "Building a Green Financial System", which became a programmatic document for the development of green finance in China. In 2017, the People's Bank of China and the China Securities Regulatory Commission issued the "Guidance on the Conduct of Green Bond Evaluation and Certification", specifying specific provisions and requirements on the qualification, business undertaking and implementation, report issuance, supervision and management of green bonds evaluation and certification institutions. In March 2018, the People's Bank of China issued the "on Strengthening the Supervision and Administration of Green Financial Bonds Duration Related Matters Notice" and would continue to improve the supervision and administration of green financial bonds duration, focusing on verifying the operating conditions of the issuers, the authenticity of the green project and schedule, the selection and decision-making process of green projects of compliance, etc.

TABLE I. REGULATIONS AND FINANCIAL REFORMS OF GREEN BONDS

Year	Regulation	Content
December 2015	Green Bonds Issuance Guidelines	the pilot program of green corporate bonds
August 2016	Building a Green Financial System	a programmatic document for the development of green finance in China
2017	Guidance on the Conduct of Green Bond Evaluation and Certification	specific provisions and requirements on the qualification, business undertaking and implementation, report issuance, supervision and management of green bonds evaluation and certification institutions
March 2018	Strengthening the Supervision and Administration of Green Financial Bonds Duration Related Matters Notice	improve the supervision and administration of green financial bonds duration, focusing on verifying the operating conditions of the issuers, the authenticity of the green project and schedule, the selection and decision-making process of green projects of compliance, etc

V. CURRENT CHALLENGES OF CHINA'S GREEN BONDS DEVELOPMENT

According to the Report on China's Green bond market in 2018, it can be found that financial bonds are the main project in China, while other kinds of green bonds are quite few. Therefore, commercial banks are the largest entity issuing green bonds, and other entities are not active in the market. This may be related to China's bank-dominated financial market system, which also reflects that the green concept is not popular enough. Although non-financial enterprises issue green bonds, it is related to the policy effect of trying the "first order" of green bonds. As there is no obvious cost advantage compared with ordinary bonds, sustainability is affected. What's worse, the investment cycle of green projects is quite long with low economic benefits and difficult to quantify environmental benefits, investors who lack expertise are cautious about such products. As the result, it will restrict the healthy and sustainable development of China's green bonds.

In terms of information disclosure, there are three problems: low transparency of environmental information, differences in the disclosure degree of various green bonds, scattered channels and platforms for environmental information disclosure, and inconsistent format requirements.

In terms of the use of funds, although all the issued bonds have disclosed the proportion of the first-level classified areas of the funds raised, 84% of the green bonds have not disclosed the detailed second-level and third-level release conditions, and 49% of the bonds have not disclosed the idle fund release plans. Green debt financing tools, green corporate bonds and other products give relatively rough descriptions of the direction of funds. For example, they only describe "the funds are released as planned, and the purpose has not been changed", and lack of detailed description of the project.

As for the degree of environmental information disclosure, green financial bonds, green debt financing tools, green corporate bonds and green corporate bonds are listed in order from high to low. At present, the environmental information disclosure documents of green financial bonds are the most comprehensive, and the environmental information disclosure of issued green financial bonds basically meets the requirements.

Lastly, there is a lack of national unified platform for the release and sharing of environmental information, and relevant competent authorities have not clearly put forward channel requirements for the disclosure of environmental information of green bonds. Environmental information disclosure reports of different green bonds are distributed on platforms such as China bond information network, China monetary network and Cninfo consulting. On the other hand, the competent authority of green corporate debt does not make clear requirements on the frequency, template and format of environmental information disclosure. As a result, all kinds of green bonds can disclose environmental information through different channels such as social responsibility report, general annual report, bond fiduciary management report or specific responsibility report, making it difficult for investors to obtain environmental information from a single channel.

VI. CONCLUSIONS AND SUGGESTIONS

The development of green bond market has become an inevitable choice to promote China's transformation to green and low-carbon industry and financial market reform. However, it is necessary to pay attention to the practical problems facing China and formulate a feasible path for green bond China.

Green project is the benchmark of "green" bond judgment, and the multiple defined standards will cause expected difficulties in market judgment, certification and supervision of green project. It is necessary to establish a coordinated regulatory mechanism and unified regulatory standards for green bonds, unify the definition of the category of green bonds and the classification of green projects, and form an authoritative standard. To encourage the development of local green certification organizations and formulate market access standards for green certification organizations. On the basis of the introduction of foreign independent certification agencies, actively cultivate the specialization, standardization of domestic third-party certification body green, under the principle of "guidance" issued by the independent "green certification report", the green bonds to raise funds flow to monitoring and evaluation, and energy conservation and emissions reduction benefits of green bonds green benefits of professional certification of the project, so as to improve the credibility of the green bonds, transparency and standardization development, which is beneficial to the objective evaluation of issuers and green environmental performance of the project. The local governments actively participate in the green bond market. Local governments play an important role in organizing and managing economic activities, promoting the transformation of economic development pattern and restructuring, and assume major tasks. Therefore, it is necessary to strengthen the propaganda, guidance and coordination of local governments. From the policy perspectives, the regulations can promote the development of green bonds, let local government from the reality of the regional economic development, based on the way to carry out the concept of green development and promote economic restructuring, actively participate in the top of the existing design refinement, implementation and promotion, form a complete set of incentives, promoting the development of green business debt markets.

Finally, establish a unified information disclosure standard and system to operate the market constraint mechanism. The issuance of green bonds shall fully disclose the types of green industry projects invested, project screening criteria, project decision-making procedures, expected environmental benefit targets, fund raising plans and management system information. The issuers shall regularly disclose the use of the raised funds, including detailed investment details and capital input, during the term of the bonds.

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