



Developing a Green Bonds Market: Lessons from China

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Abstract

Since its launch in 2016, China's green bonds market has amassed a significant size and is currently ranked as the second largest in the world. This paper takes a pioneering step to analyze how a transitional economy can develop a burgeoning green bonds market within a short period, using China as a case study. It concludes that the Chinese government plays an instrumental but also evolving role in this process. The carefully designed use of government mechanisms in the context of unique government structures can constructively facilitate the growth of a green bonds market. At the emerging stage of this unique market, the government can play an active role in designing a conducive regulatory environment through law and policy, providing the necessary financial infrastructure and appropriate incentives for investors and green bond issuers. Government intervention is warranted at this stage, given the special characteristics of the green market, in particular, the desired positive externalities on environmental protection and climate change. In China, such a regime is implemented with a focus on inter-ministerial, central-local and international collaboration, centralized policy-making, and alignment of green goals with performance assessment of local officials. However, as the green bonds market matures, this paper suggests a transition towards a market-oriented model where the government should assume a limited role, providing funding and monitoring, and letting market forces play a greater role in achieving market efficiency. Unleashing the potential of market forces can mitigate several of the challenges faced by a top-down approach. This paper also examines the challenges that have surfaced in China, including low-quality information disclosure and under-utilization of green bonds financing by private enterprises. In response, several solutions are proposed to address these specific challenges.

Keywords China's green bonds market · Role of government · Sustainability · Green finance · Green bond standard · Sustainability information disclosure

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1 Introduction

According to the International Capital Market Association (ICMA) green bonds are ‘any type of bond instrument where *the proceeds will be exclusively applied to finance or re-finance in part or in full new and/or existing eligible green projects* and which are aligned with the four core components of the Green Bond Principles’.¹ The same definition is applied in the Climate Bonds Standard and Certification Scheme developed by the Climate Bonds Initiative (CBI), which also provides certifications to green bonds based on pre-issuance and post-issuance requirements.² The EU Green Bond Standard defines an EU Green Bond in a similar way requiring that the proceeds shall be exclusively used to finance or refinance in part or in full new and/or existing Green Projects.³

A vibrant green bonds market is desirable for China because it promotes environmental protection and sustainability even amid rapid economic development and introduces diversified portfolios into the capital market to alleviate climate risks. Over the past 40 years of reform and opening up, economic development in China has made world-renowned achievements. China’s GDP exceeded RMB 100 trillion for the first time in 2020.⁴ However, along with rapid economic development, China is also facing serious damage to the living environment.⁵ In recent years, the government has resolved to pursue environmental protection and sustainable development as an important national strategy and to mitigate some of the negative impacts brought about by decades of rapid growth. As a result, China specifically proposed the national strategy of achieving ‘ecological civilization’ in 2015⁶ and incorporated a green philosophy into the five major development concepts.⁷ It then began to explore reforms geared towards green and low-carbon economic development, becoming an active implementer of the climate control goals⁸ proposed by the United Nations Framework Convention on Climate Change, the Paris Agreement, and other related international conventions.

¹ International Capital Market Association (2018), p 3 [emphasis added]. The four core components are: (1) use of proceeds; (2) process for project evaluation and selection; (3) management of proceeds; and (4) reporting.

² CBI (2019), p 8.

³ EU Technical Expert Group on Sustainable Finance (2019a), Annex 1, Section 3 Definition of an EU Green Bond.

⁴ State Council (2021).

⁵ See, for instance, Kan (2009).

⁶ The Opinions of the Central Committee of the Communist Party of China and the State Council on Accelerating the Construction of Ecological Civilization [中共中央、国务院关于加快推进生态文明建设的意见], Central Committee of the CPC (25 Apr 2015); General Plan for the Reform of the Ecological Civilization System [生态文明体制改革总体方案], Central Committee of the CPC (21 Sep 2015); this became the top-level design plan to guide China’s development of the green economy.

⁷ The 13th 5-year plan for the National Economic and Social Development of the People’s Republic of China [中华人民共和国国民经济和社会发展第十三个五年规划纲要], National People’s Congress (3 March 2016), hereinafter referred to as the ‘13th 5-Year Plan’, puts forward the five new development concepts, i.e., ‘innovation, coordination, green economy, openness and sharing’.

⁸ I.e., to meet the objectives enshrined in the Paris Agreement, limiting the global temperature increase this century to below 2 °C above pre-industrial levels.

In September 2020, President Xi Jinping announced the ‘30/60 goal’ at the United Nations General Assembly, according to which China aims to peak carbon emission by 2030 and reach carbon neutrality by 2060.⁹ More specifically, at the 5th Anniversary of the Paris Agreement at the Climate Ambition Summit on 12 December 2020 he announced that

China will lower carbon dioxide emissions per unit of GDP by 65% from 2005 levels, increase the share of non-fossil fuels in primary energy consumption to around 25% by 2030, increase forest stock by 6 billion cubic meters above 2005 levels and bring the total installed capacity of wind and solar power to over 1200 GW by 2030.¹⁰

At the same time, a report by the Climate Policy Initiative suggests that a sizeable investment of RMB 3–4 trillion per year is needed for China to meet its commitments under the Paris Agreement.¹¹

In order to implement China’s ‘30/60 goal’, the 14th 5-year plan that started in 2021 aims to accelerate low-carbon development in China.¹² The State Council’s Guiding Opinions on Accelerating the Establishment of a Sound Green, Low-Carbon Circular Economic System released on 2 February 2021 reiterate the importance of establishing a sound green, low-carbon circular economic system, and includes comprehensive guidelines.¹³ The guidelines include the accelerated development of green finance, the strengthening of legal and regulatory support, and the improvement of green standards, the green certification system and the statistical monitoring system.¹⁴ The setting of such high-level policy goals sends a strong signal to the market and spurs market participants to actively initiate green projects and raise funds in green finance.¹⁵ The State Council further issued the Guidance for Carbon Dioxide Peaking, and Carbon Neutrality in Full and Faithful Implementation of the New Development Goals on 22 September 2021, detailing the principles and methods for achieving the ‘30/60 goal’.¹⁶

⁹ Myers (2020).

¹⁰ World Resources Institute (2020).

¹¹ Climate Policy Initiative (2020b), p 1.

¹² The Proposal of the Central Committee of the Communist Party of China on Formulating the 14th Five-Year Plan for National Economic and Social Development and the Visionary Goals for 2035 [中共中央关于制定国民经济和社会发展第十四个五年规划和二〇三五年远景目标的建议], Central Committee of the CPC (29 Oct 2020), proposed goals and initiatives such as ‘achieving new progress in ecological civilization construction’ and ‘accelerating the promotion of green and low-carbon development’.

¹³ State Council’s Guiding Opinions on Accelerating the Establishment of a Sound Green, Low-Carbon Circular Economic System [国务院关于加快建立健全绿色低碳循环发展经济体系的指导意见], State Council (2 Feb 2021), State Council No. 4 of [2021].

¹⁴ See for an English analysis Wang and Huang (2021).

¹⁵ Ma (2017); see also Wilkins (2021).

¹⁶ Guidance for Carbon Dioxide Peaking, and Carbon Neutrality in Full and Faithful Implementation of the New Development Goals [中共中央、国务院关于完整准确全面贯彻新发展理念做好碳达峰碳中和工作的意见], Central Committee of the CPC and State Council (22 Sep 2021).

Under this context, the establishment of the green bonds market assumes crucial significance in China's ongoing economic transformation from an energy-and-pollution-intensive economy to a resource-conserving and environment-friendly economy. With the accelerating pace of adopting low-carbon economic activities, the improvement of the green financial system, including green bonds, and its corresponding market operation mechanism becomes increasingly urgent. Accordingly, green bonds are considered by the Chinese government as an effective financial instrument to facilitate this economic transformation. As a result, developing the green bonds market has been a part of the central government's top-level green finance initiative.¹⁷ CGN Wind Power Co., Ltd. first issued a RMB 1 billion medium-term note (i.e., a debt financing instrument of non-financial enterprises), with interest rates linked to carbon emission reduction benefits, in the Interbank Bond Market in May 2014.¹⁸ In January 2016, the Industrial and Commercial Bank of China was approved to issue RMB 10 billion of green financial bonds in the Interbank Bond Market,¹⁹ marking the official launch of green bonds in China.²⁰

Despite its relative youth compared to its counterpart in the EU, where the European Investment Bank issued the first green bonds in the world - the Climate Awareness Bonds—in 2007,²¹ China's green bonds market developed at a rapid pace in the past few years.²² In 2016, China became one of the largest issuers of green bonds in the world.²³ According to statistics from the CBI and China Central Depository and Clearing Research Centre (CCDC Research), Chinese issuers issued a total of RMB 386.2 billion (US\$ 55.8 billion) of labeled green bonds in 2019 in both domestic and international markets, making China the largest source of labeled green bonds.²⁴ By the end of 2019, China's domestic green bonds market had a total outstanding

¹⁷ China proposed the strategic initiative of 'establishing a green finance system' in the General Plan for the Reform of the Ecological Civilization System in 2015, see *supra* note 6. In 2016, the People's Bank of China (PBOC) and six ministries and commissions jointly issued the Guiding Opinions on Building a Green Financial System [中国人民银行、财政部、发展改革委等关于构建绿色金融体系的指导意见] (31 Aug 2016), which were enacted to establish a green finance system. See, in general, Green China's Financial System Study Group of DRC (2016), stating that 'green bonds have become an important vehicle for green finance, as they are more easily incorporated into investment portfolios by institutional investors as a medium and long-term financial product'.

¹⁸ Hong (2016).

¹⁹ Zheng (2016).

²⁰ The operation of these green financial bonds follows the Green Bond Principles issued by the ICMA and the Climate Bonds Standard.

²¹ International Finance Corporation (2016), p 1.

²² Zhang (2020), p 1.

²³ Shi and Wang (2018), p 32.

²⁴ CBI and CCDC Research (2020), p 3. According to the CBI, an aligned green bond in the Chinese market is a green bond that has been approved for issuance by the regulator or has been registered on the bond exchange with a full name that includes the word 'green' in the label. Green bonds are considered to be aligned green bonds as defined by the CBI only if they invest at least 95% of the funds raised in green assets or projects that are consistent with the Climate Bonds Taxonomy. Verification of Certified Climate Bonds involves third-party assessments that are conducted by approved verifiers authorized by the CBI in accordance with the Climate Bonds Standard and industry standards, certifying that the funds raised are used to limit global warming to below 2 °C.

amount of RMB 977.2 billion (US\$140 billion).²⁵ As of March 2021, China leads the world in the value of outstanding green loans at about US\$ 2 trillion.²⁶ It is also the second largest green bonds market in the world ranking only after the United States.²⁷ Such a rapid expansion of the green bonds market contributed significant investment to important sectors such as energy, transport and environmental protection, paving the way for China's transition to a low-carbon green economy (Fig. 1).²⁸

However, the government-led approach in building a green bonds market in China comes in contrast with the *laissez-faire* approach which entrusts market forces alone to develop the green bonds market.²⁹ For instance, scholars have argued that the governance regime of the green bonds market in the United States is largely established by private ordering.³⁰ Meanwhile, the approach in the EU is somewhere in between government intervention and private ordering. This is demonstrated by the enactment of the EU Taxonomy Regulation³¹ and the EU Sustainable Finance Disclosure Regulation,³² where the regulators set certain bounds and rules for market activities to take place in a guided way. Going forward, while it is unlikely for China to straightly switch to the US style focusing primarily on private ordering, it does have a lot to learn from the EU experience.

These varying approaches beg the paradoxical question of what the limitations and drawbacks of industrial policies and centralized government strategies are. Against this backdrop, this paper takes a pioneering step to analyze how a transitional economy can develop a burgeoning green bonds market within a short period, using China as a case study. Although there is some literature discussing the role

²⁵ RMB 628.2 billion (US\$90 billion) of the total outstanding amount meets both the CBI definition and the Chinese green bonds definition, and another RMB 349 billion (\$50 billion) of bonds only meet the Chinese green bonds definition. Exchange rate conversions for the above data may vary, as the CBI uses the actual exchange rate on the date of issuance for each bond. See CBI and CCDC Research (2020), p 12.

²⁶ Brown (2021).

²⁷ CBI and CCDC Research (2021), p 3.

²⁸ Kidney et al. (2015), pp 249–253.

²⁹ Ma (2017).

³⁰ See, for example, Park (2018) (arguing that the green bonds market in the United States is largely a legacy of private governance and the role of government regulators is largely missing); see for another example MacLeod and Park (2011) (describing the role of investor-based coalitions in environmental governance based on political science scholarship).

³¹ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088.

³² Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector.

of government in the green bonds market,³³ there is little legal literature analyzing this issue in the context of China.³⁴ While there are a number of factual reports by research institutes shedding light on this issue, relatively less academic analysis is available.³⁵ This paper therefore aims to fill this literature gap. It also provides a timely reflection on the desirability of a government-steered green bonds market versus private ordering and their relative pros and cons.

To do this, three pressing questions need to be answered. First, why and how is China able to effectively develop a green bonds market within a short period of time? Second, what are some of the challenges in developing its green bonds market, and how might these be addressed through regulatory reform? Third, which parts of this analysis are unique to the Chinese context and what is the general advice applicable to other growing markets? These questions will be of special importance to policymakers and legislators in countries looking to develop their green bonds market or encountering difficulties in developing their green bonds market.

This paper suggests that a government can help to develop a green bonds market by playing an instrumental but also evolving role. First, at the emerging stage of this unique market, the government can play a more active role in designing a conducive regulatory environment through law and policy, providing the necessary financial infrastructure and appropriate incentives for investors and green bond issuers. Government intervention is warranted at this stage, given the unique features of the green market, in particular, the desired positive externalities on environmental protection and climate change. In China, such a regime is implemented with a focus on inter-ministerial, central-local collaboration, centralized policy-making, and alignment of green goals with performance assessment of local officials. Second, as the green bonds market matures with sophisticated market players and a well-established institutional and financial infrastructure, the government should assume a limited role, providing funding and monitoring, and letting market forces play a greater role in achieving market efficiency. Unleashing the potential of market forces can mitigate several of the challenges faced by a top-down approach.

The framework of this paper is as follows. Section 2 introduces the unique Chinese experience in developing a green bonds market in China through a top-down approach, inter-ministerial synergy, and central-local cooperation. Section 3 analyzes the special characteristics of China's green bonds market, highlighting the existing differences with international standards in important aspects such as the use of proceeds, sustainability information disclosure, and credit ratings, while making

³³ See, for example, Park (2018) (examining governance gaps in the green bonds market where there is an absence of government regulation); Freeburn and Ramsay (2020) (examining legal and policy issues present in the green bonds market and identifying how some of these issues could potentially be solved by the government and law).

³⁴ Some positive examples that have been written on this topic include Zhang (2020) (analyzing the definitional divergence in Chinese regulations governing China's green bonds market), Kidney et al. (2015) (highlighting the importance of green bonds in China and making a few policy recommendations to develop the market in China) and Ma et al. (2019) (discussing key features of China's green bonds market and the role of the government in developing the market). However, in general there is a shortage of academic writing on this topic and such positive examples are limited in number.

³⁵ See, for example, CBI (2017), CBI and CCDC Research (2020) and Climate Policy Initiative (2020b).

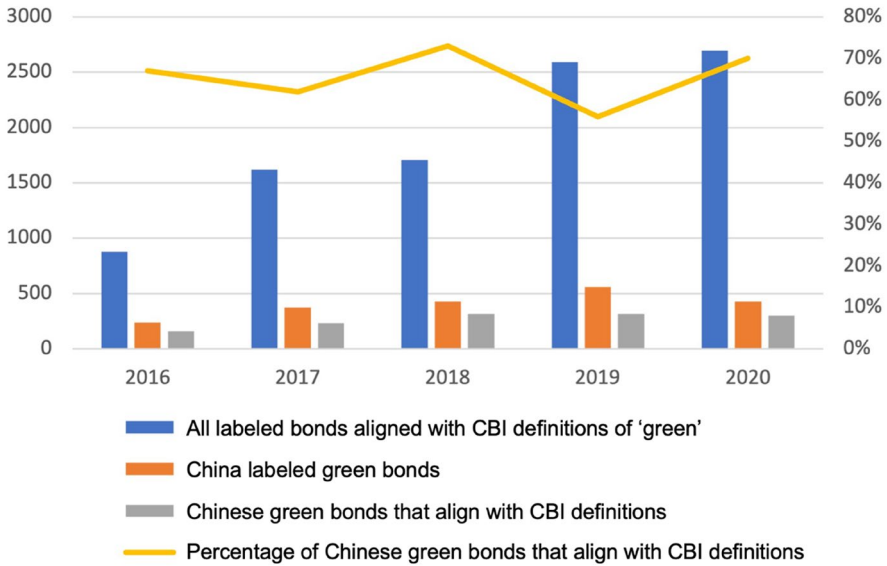


Fig. 1 Amount of China’s green bond issuance in 2016–2020 (in billion USD). The data is compiled by the authors according to the CBI green definition and China’s domestic green definition. It is also based on the statistics from CBI, Lianhe Equator Environmental Impact Assessment and China Bond Rating. The sources include CBI and CCDC Research (2017), CBI and CCDC Research (2018), CBI and CCDC Research (2019), CBI and CCDC Research (2020), and Jones (2021).

the case for greater convergence. Section 4 further examines the challenges that have surfaced in China, including under-utilization of green bonds financing by private enterprises, potential misallocation and waste of resources, and the need for greater retail investor education. It proposes several solutions to these specific challenges and, lastly, makes the case for a gradual transition from a government-oriented approach towards a market-oriented one. Section 5 concludes.

2 The Unique Chinese Experience in Establishing a Government-led Green Bonds Market

This Section explores in detail the unique Chinese experience in establishing a green bonds market with the help of high-level government policy guidance and intervention. It begins by introducing the different types of green bonds in China and goes on to explain how China is able to tap into a combination of top-down and bottom-up approaches in terms of top-level design, inter-ministerial synergy, and central-local coordination in taking a concerted approach in developing the green bonds market. In addition, the importance of tying sustainability goals with the performance evaluation of officials and the evolving role of the courts are also analysed. The authors note here that the Chinese experience is *sui generis* due to its political and social

constructs and not easily transferable to other jurisdictions where, for example, the government does not have a strong influence or incentive to guide the development of the market.

2.1 Multiple Types of Green Bonds in China

There are various types of green bonds in China and they are launched and administered by different regulatory agencies.³⁶ There are broadly three categories, namely green corporate bonds administered by the China Securities Regulatory Commission (CSRC), green enterprise bonds administered by the National Development and Reform Commission (NDRC), and green medium-term notes administered by the People's Bank of China (PBOC) and registered by the National Association of Financial Market Institutional Investors (NAFMII).³⁷ Unlike financial institution bonds, these three types of green bonds are ordinary corporate bonds financed on the basis of the issuer's commercial credit.

Chinese financial institutions have also issued green bonds securitized by credit assets in the Interbank Bond Market.³⁸ Non-financial corporations have issued green asset-backed securities and green asset-backed notes in exchange markets and the Interbank Bond Market respectively.³⁹ These green asset-backed financial instruments are based on assets that can generate cash flow returns in the future, and they are different from financial institution bonds or general green corporate bonds financed on the basis of issuers' credit.

Some local government financing vehicles (LGFVs, i.e., financing firms) have issued green bonds, which are often referred to as LGFV green bonds, in the market under the domestic bonds system.⁴⁰ On 18 June 2019, Ganjiang New Area of Jiangxi Province issued its first RMB 300 million green bond with a fixed maturity of 30 years, the first labeled municipal green bond from China,⁴¹ further enriching the type of green bonds and their issuers in China.

In addition, the Chinese government has also established various channels to facilitate greater access to the domestic bonds market by foreign investors. At

³⁶ There is a large non-labeled green bonds market in China, i.e., bonds that are not specifically labeled as green bonds but raise funds for green industries. In this market, local governments (including local state-owned enterprises and local government financing platform companies) are the most important issuers, and the funds raised are mainly invested in the clean transportation sector. According to statistics, from 2009 to 2020, a total of 3,368 non-labeled green bonds were issued in China's bond market, with an issue size of about RMB 10.32 trillion, RMB 6.12 trillion of which was used for green project investment. See Yun (2021).

³⁷ The green project standard set by the Green Finance Professional Committee of the Chinese Society of Finance applies to the former two types, while the green project standard set by the Development and Reform Commission applies to the last type. See also Climate Policy Initiative (2020a), p 5, Table 2.

³⁸ See, for example, CBI and SynTao Green Finance (2017), p 4.

³⁹ *Ibid.*, p 6.

⁴⁰ The volumes of LGFV green bonds have increased by four times since the inaugural issuance by Jiangsu Guoxin Investment, an investment and holding company of the State-owned Assets Supervision and Administration Commission of Jiangsu Province, in 2016. The surge was primarily driven by provincial LGFVs. See CBI and CCDC Research (2020), p 5.

⁴¹ Jiang and Lei (2019).

present, the main channels for international investors to invest in China's green bonds market include: (1) Qualified Foreign Institutional Investors (QFII); (2) Renminbi Qualified Foreign Institutional Investors (RQFII);⁴² (3) direct access to the Chinese Interbank Bond Market;⁴³ and (4) the Bond Connect programme.⁴⁴

Since Goldwind Science and Technology Co., Ltd. issued its first green bond of US\$ 300 million with a maturity of 3 years on the Hong Kong Stock Exchange (HKEx) on 18 July 2015,⁴⁵ China's overseas green bonds market has achieved a steady growth. As of 2019, Chinese entities have issued 66 green bonds overseas for a total amount of about RMB 212.995 billion, the issuers being policy banks, commercial banks, non-financial corporates, etc.⁴⁶ At a news conference on 19 July 2021, the NDRC reported 16 overseas green bonds issuances, with a total amount of about US\$ 8.5 billion in 2020, marking a significant increase.⁴⁷ For the exchange market, a number of international trading centers are included, such as the HKEx, the Luxembourg Stock Exchange, the London Stock Exchange and the Singapore Exchange, with the US dollar as the main issuance currency.⁴⁸ In terms of the use of funds raised, in addition to meeting the requirement of being green, they also feature targeted support for China's national strategies, such as the 'Belt and Road' bonds and Guangdong-Hong Kong-Macao Greater Bay Area bonds.⁴⁹

Among the channels used, the Bond Connect programme is currently the most convenient channel for international investors to invest in the domestic green bonds market.⁵⁰ The Hong Kong–Mainland Bond Market Connect allows investors from mainland China and overseas to trade bonds in each other's markets through an infrastructure link established in Hong Kong, which includes the 'Northbound Connect' and the 'Southbound Connect'.⁵¹ This means international investors can invest in bonds in the domestic Interbank Bond Market through an account opened for them by a custodian in Hong Kong, which in turn will open a corresponding account in mainland China through a domestic custodian.⁵² Given the proximity of Hong

⁴² The People's Bank of China and the Foreign Exchange Administration issued a document in September 2020 to abolish the restrictions on the investment quota of QFII and RQFII, while the restrictions on the pilot countries and regions of RQFII were also abolished, and the policies regarding different channels for foreign institutional investors to invest in the interbank market were, in principle, basically converged. See State Administration of Foreign Exchange (2020).

⁴³ See People's Bank of China Announcement [2016] No. 3 [中国人民银行公告 (2016) 第3号], PBOC (24 Feb 2016), <http://www.pbc.gov.cn/tiaofasi/144941/144959/3021203/index.html> (accessed 31 Nov 2021). This announcement stated that the 'direct access to the Chinese Interbank Bond Market' route requires investors to first register with the People's Bank of China and then invest through a qualified domestic correspondent bank.

⁴⁴ Bond Connect (2021a).

⁴⁵ Renewables Now (2015).

⁴⁶ Liao and Yun (2020), Section II.

⁴⁷ National Development and Reform Commission (2021).

⁴⁸ See *supra* note 46, Section II (2).

⁴⁹ *Ibid.*, Section II (3).

⁵⁰ Qian and Lu (2018), p 84.

⁵¹ People's Bank of China (2017).

⁵² Bond Connect (2021b).

Kong's existing market infrastructure to the international market, through the Bonds Connect programme, international investors can make use of Hong Kong's market infrastructure to invest in China's domestic bond market. This programme not only reduces the burden on international investors to understand and follow the specific rules and procedures of the Chinese Interbank Bond Market, but also avoids transaction costs.⁵³

The relaxation of investor eligibility requirements under the Bonds Connect programme means that more small and medium-sized foreign investors are able to access the domestic market.⁵⁴ There are also no investment quotas for small and medium-sized foreign investors under the Bond Connect programme. Through the programme, more international investors have direct access to the primary and secondary markets, increasing the liquidity of China's green bonds market.⁵⁵ It also allows mainland investors easy access to foreign bonds in Hong Kong, providing them with additional means to diversify their portfolios.⁵⁶

2.2 A Top-Level Design

The Chinese government takes the lead in developing the green financial system, which includes green bonds.⁵⁷ The central government believes that adopting a top-down approach and the so-called 'forced institutional change' in establishing the green bonds market in China is necessary.⁵⁸ First, it can help China to efficiently establish a green financial system for the transformation to a green low-carbon economy and the construction of ecological civilization, instead of waiting for the market to develop organically. Second, China has a vast land with different and complex energy structures, industrial structures and regional development status. The policy and regulatory guidance on green finance are conducive to forming a consensus on green development and unifying the institutional standards.⁵⁹ Nevertheless, it is noteworthy that this does not mean that the 'invisible hand' of the government replaces the invisible hand of the market in resource allocation. Instead, government policies help to construct the basic framework of green finance and leverage on tax incentives, financial subsidies and financial policies to support the development of green industries.

Following the policy goals of building the ecological civilization, achieving a green economy as one of the five major development concepts in the 13th 5-year plan, and vigorously encouraging green and low-carbon development, China has rapidly started the construction of a green financial system.⁶⁰ So far, the policy

⁵³ CBI (2017), p 26, Appendix 2.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Yeung (2021).

⁵⁷ Ba et al. (2019).

⁵⁸ Mai and Xu (2015) and Ba et al. (2018).

⁵⁹ See Table 1 below for more details.

⁶⁰ Ibid.

Table 1 Institutional framework of China's green bonds market

Issuing body and date	Regulations/guidelines	Significance
15 Dec 2015 People's Bank of China	Announcement on Issues concerning the Issuance of Green Financial Bonds on the Interbank Bond Market (《关于在银行间债券市场发行绿色金融债券有关事项公告》) together with the China Green Bond Endorsed Project Catalogue (2015 Edition) prepared by the Green Finance Committee, China Society for Finance and Banking	Allowed financial institutions to issue green bonds and provided a range of green industry projects for reference. They became the first industries in China allowed to issue green bonds
13 Dec 2015 National Development and Reform Commission	Guidelines for the Issuance of Green Bonds (《绿色债券发行指引》)	Used as a guide for the issuance of green corporate bonds and to clarify the scope of green projects
16 March 2016 Shanghai Stock Exchange	Notice on Launching the Pilot Programme of Green Corporate Bonds (《关于开展绿色公司债券试点的通知》)	Used as a guide for the issuance and trading of green corporate bonds in the exchange market, with reference to the China Green Bond Endorsed Project Catalogue (2015 Edition) for the scope of green projects
22 Apr 2016 Shenzhen Stock Exchange	Notice on Launching the Pilot Programme of Green Corporate Bonds (《关于开展绿色公司债券业务试点的通知》)	Used as a guide for the issuance and trading of green corporate bonds in the exchange market, with reference to the China Green Bond Endorsed Project Catalogue (2015 Edition) for the scope of green projects
31 Aug 2016 People's Bank of China and six Ministries ^a	Guidelines for Establishing a Green Financial System (《关于构建绿色金融体系的指导意见》)	Clarified the meaning of building a green financial system. The roadmaps and policies of green financial investment and financing tools in the guidelines are the overall institutional frameworks guiding China's green finance
2 March 2017 China Securities Regulatory Commission	Guiding Opinions of the China Securities Regulatory Commission on Supporting the Development of Green Bonds (《中国证监会关于支持绿色债券发展的指导意见》)	Used as a guide for the issuance and trading of green corporate bonds on the exchange market
22 March 2017 National Association of Financial Market Institutional Investors ^b	Guidelines for the Issuance of Green Debt Financing Instruments for Non-Financial Enterprises (《非金融企业绿色债务融资工具业务指引》) and the attached Green Debt Financing Instrument Disclosure Form and Green Assessment Report Disclosure Form	Used as a guide for the issuance and trading of green medium-term notes in the Interbank Bond Market, with reference to the China Green Bond Endorsed Project Catalogue (2015 Edition) for the scope of green projects

Table 1 (continued)

Issuing body and date	Regulations/guidelines	Significance
26 Oct 2017 People's Bank of China, China Securities Regulatory Commission	Interim Guidelines for Green Bond Assessment and Certification (《绿色债券评估认证指引(暂行)》)	Unified and guided the assessment and certification of green bonds
26 Dec 2017 China Securities Regulatory Commission	Guidelines on the Content and Format of Information Disclosure by Companies Issuing Public Securities No. 2—content and Format of Annual Reports (《公开发行证券的公司信息披露内容与格式准则第2号-年度报告的内容与格式》)	The CSRC requires listed companies, or their significant subsidiaries included in the list of key emission companies announced by the Ministry of Ecology and Environment, to disclose information on emissions, the construction of pollution prevention and control facilities and their operation, and environmental impact assessments of construction projects ^c
5 Feb 2018 People's Bank of China	Notice on Strengthening of Supervision and Management of Green Financial Bonds During the Term of the Bond (《关于加强绿色金融债券存续期监督管理有关事项的通知》) Code on Information Disclosure During the Term of the Bond (《绿色金融债券存续期信息披露规范》)	Rules for the regulation and information disclosure requirements of green financial bonds during the term of the bond
14 Feb 2019 People's Bank of China and six Ministries ^d	Catalogue of Green Industries (2019 Edition) (《绿色产业指导目录(2019年版)》)	Revision and refinement of the China Green Bond Endorsed Project Catalogue (2015 Edition) to better suit development needs
26 Apr 2019 People's Bank of China	Notice on Supporting the Issuance of Green Debt Financing Instruments in Green Finance Reform and Innovation Pilot Zones (《关于支持绿色金融改革创新试验区发行绿色债务融资工具的通知》)	Since 2017, China has been setting up pilot zones in several regions in six provinces (Zhejiang, Guangdong, Guizhou, Jiangxi, Xinjiang and Gansu) and has achieved significant results
20 Oct 2020 People's Bank of China and four Ministries ^c	Guiding Opinions on Promoting Climate Change Financing (《关于促进应对气候变化投融资的指导意见》)	Keeps up with China's Intended Nationally Determined Contributions by implementing financing initiatives to address climate change. It is considered an update and expansion upon the 2016 Guidelines for Establishing a Green Financial System

Table 1 (continued)

Issuing body and date	Regulations/guidelines	Significance
27 Nov 2020 Shanghai Stock Exchange	Guideline No. 2 on the Application of the Rules Governing the Examination and listing of corporate bonds—specific types of corporate bonds—Green Corporate Bonds (《公司债券发行上市审核规则适用指引第2号——特定品种公司债券》之“绿色公司债券”)	Repeals the 2016 Notice on Launching the Pilot Programme of Green Corporate Bonds and treats green corporate bonds as a specific type of corporate bonds
27 Nov 2020 Shenzhen Stock Exchange	Guideline No. 1 of the Shenzhen Stock Exchange on Innovative Corporate Bond Business—Green Corporate Bonds (《深圳证券交易所公司债券创新品种业务指引第1号——绿色公司债券》)	Repeals the 2016 Notice on Launching the Pilot Programme of Green Corporate Bonds and treats green corporate bonds as a specific type of corporate bonds
2 Apr 2021 People’s Bank of China, National Development and Reform Commission, China Securities Regulatory Commission	Notice on the Issuance of the Green Bonds Endorsed Project Catalogue (2021) (关于印发《绿色债券支持项目目录(2021年版)》的通知)	Introduces the latest version of the Green Bonds Endorsed Project Catalogue, taking into account public consultation on the 2020 draft. Improves alignment with international standards, for example, by excluding fossil energy-related projects
24 May 2021 Ministry of Ecology and Environment	Notice on the Issuance of the Plan for the Reform of the Legal Disclosure System of Environmental Information (关于印发《环境信息披露制度改革方案》的通知)	Mandates environmental information disclosure for key pollution units and other specified categories of entities. Requires that environmental information disclosure must be carried out in a timely, comprehensible and easily searchable manner and must be uploaded to a centralized, comprehensive system

The Table reflects the policy and regulations as of the end of April 2021

^a Including the Ministry of Finance, the National Development and Reform Commission, the Ministry of Environmental Protection, the China Banking Regulatory Commission, the China Securities Regulatory Commission, and the China Insurance Regulatory Commission

^b The National Association of Financial Market Institutional Investors is a self-regulatory organization under the supervision of the People’s Bank of China and is responsible for the registration and management of bond issuance in the Interbank Bond Market

^c Guidelines on the Content and Format of Information Disclosure by Companies Issuing Public Securities No. 2—Content and Format of Annual Reports (Revised 2017) [公开发行证券的公司信息披露内容与格式准则第2号——年度报告的内容与格式(2017年修订)], CSRC (26 Dec 2017), Article 44

^d This included the National Development and Reform Commission, Ministry of Industry and Information Technology, Ministry of Natural Resources, Ministry of Ecology and Environment, Ministry of Housing and Urban–Rural Development, and National Energy Administration

^e This included the National Development and Reform Commission, the Banking and Insurance Regulatory Commission, the Securities Regulatory Commission and the Ministry of Ecology and Environment

scheme of green development in China has basically covered all green development fields and has formed a relatively comprehensive systematic policy hierarchy.⁶¹ [See Table 1 above for a summary of major domestic regulations about green finance (including green bonds)]. It should be noted that laws and regulations have different levels of hierarchy in China and the Table mainly presents those at the national level with the highest significance and authority, whereas laws and regulations at the local level will also be canvassed in the following sub-sections.

2.3 Inter-ministerial Synergy

The issuance and regulation of green bonds cover a wide range of aspects, including natural resources, environmental protection, energy deployment, economics of people's livelihood, financial management and information sharing. The positive externality of green bonds is difficult for the market alone to internalize within a short period without the help of favorable state financial, fiscal and tax policies.⁶² Inter-ministerial cooperation mechanisms are necessary to facilitate communication, cooperation and coordination among different ministries and regulatory agencies in a nation. This is particularly crucial in the context of China due to the segmentation of the financial regulation system (the so-called 'one bank, two commissions and one committee' system), as well as the co-existence of three corporate credit bonds regimes.⁶³

To achieve 'inter-ministerial synergy', different regulators need to jointly discuss and decide on vital matters in the green field and share information on low-carbon development. For example, the PBOC issued the Plan for the Division of Work in the Implementation of the Guiding Opinions on Building a Green Financial System 2017, deciding on the leading ministries and examining the progress of construction article by article, setting a timetable and roadmap for the construction of the green financial system and holding symposiums to ensure implementation.⁶⁴ For another example, the National Leading Group to Address Climate Change was established by the State Council as an important deliberative and coordinating body in the green field.⁶⁵ It studies and formulates major strategies, guidelines and policies for addressing climate change and unifying the active responses to climate change. Such inter-ministerial collaboration is necessary and beneficial in the context of China's facilitating an efficient and fast-paced growth of the green bonds market.

⁶¹ China Center for International Economic Exchanges (2013), p 70.

⁶² Ma (2016), pp 2–3, and Dai and Kidney (2016), p 10.

⁶³ Hong (2010), pp 9–10.

⁶⁴ Green Finance Dynamics of the Research Bureau of the People's Bank of China: Further Promotion of the Symposium on the 'Division of the Work Plan for the Implementation of the Guidance on Building a Green Financial System [落实〈关于构建绿色金融体系的指导意见〉的分工方案], People's Bank of China (12 Oct 2018), <http://www.greenfinance.org.cn/displaynews.php?id=2334> (accessed 31 Nov 2021).

⁶⁵ See, for example, Xinhua News (2019).

2.4 Central-Local Unification

China is a vast country with differences in resource endowments, energy structures and economic development levels among provinces and municipalities in the east, centre and west. Since 2016, China has been taking the central-local unifying approach to set up a systematic framework at the central level, incentivizing local government officials and market players at all levels.⁶⁶ Similarly, central-local unification plays a pivotal role in making sure that targets set by the central government are met or even exceeded at the local level.

Since June 2017, China has selected nine cities in six eastern, central and western provinces to establish green financial reform and innovation pilot zones.⁶⁷ Such pilot zones explore green financial development models with regional characteristics, pilot new green financial regulations and standards, provide green financial services for the green transformation of the regional economy and gain a number of replicable beneficial experiences while making remarkable achievements.⁶⁸ As of the end of 2020, the stock amount of green bonds in the above-mentioned pilot zones was RMB 135.05 billion.⁶⁹

Local governments with more resources and showing greater economic progress should step forward in experimenting with green finance regulations and setting a role model for the other regions to follow. Take Shenzhen for instance: the Shenzhen Special Economic Zone Green Finance Regulations were issued on 5 November 2020 and became effective on 1 March 2021.⁷⁰ The Green Finance Regulations provide the legal basis in terms of standards and procedures, investment evaluations, information disclosure, monitoring and governance, as well as responsibilities and liabilities in relation to green finance.⁷¹ They are the first green finance regulations in China and provide the legal basis for regulatory actions against misbehaving market participants.⁷²

The implementation of the Green Finance Regulations is subject to sufficient market and infrastructure conditions in Shenzhen. Shenzhen has a relatively large share of green bonds. By the end of 2020, the balance of green loans from depositary financial institutions in Shenzhen was nearly RMB 350 billion, accounting for 5.1% of the balance of various loans.⁷³ The financial institutions in Shenzhen have

⁶⁶ People's Bank of China Research Bureau (2019), p 3.

⁶⁷ *Ibid.* For example, the Standing Committee of Shenzhen People's Congress issued the Shenzhen Special Economic Zone Green Finance Regulations in 2020 in order to promote the development of green finance, enhance the ability of green financial services to contribute to the real economy, promote the construction of a sustainable financial centre in Shenzhen, and promote sustainable economic and social development, according to the basic principles of relevant laws and administrative regulations, combined with the actual situation in the Shenzhen Special Economic Zone.

⁶⁸ *Ibid.*

⁶⁹ People's Bank of China (2021a).

⁷⁰ Shenzhen Special Economic Zone Green Finance Regulations, issued by Shenzhen People's Congress on 5 Nov 2020 and effective from 1 March 2020.

⁷¹ *Ibid.*, Chapters II, IV, V, VII and VIII.

⁷² Shenzhen Municipal Financial Regulatory Bureau (2021).

⁷³ *Ibid.*

also gradually started systematic sustainability information disclosure, as over half of the sample financial institutions involved in a study by the Green Finance Committee of the Institute of Finance in the Special Economic Zone had begun making public disclosure of sustainability information.⁷⁴ Additionally, due to its rapid economic progress, Shenzhen has the requisite private capital to invest in green bonds and the relevant expertise to monitor the health of the green bonds market and detect malpractices such as green-washing.⁷⁵

The financial institutions in Shenzhen are also well prepared for the implementation of the Green Finance Regulations.⁷⁶ The Industrial Bank, as the first Equator Bank in China, and a pioneer in green finance, has set up an internal governance structure to adapt to the development of green finance and actively participated in the building of the green financial system in Shenzhen. Another example is the Shenzhen branch of the China Development Bank, which also actively supports the Green Finance Regulations and played a major role in the formation of the Green Finance Committee.⁷⁷

As can be seen from the Shenzhen example, some municipalities are better prepared to take more progressive steps in developing the green bonds market due to the relative abundance of resources, expertise and environmental education. They should therefore implement relevant laws and regulations in advance of nationwide implementations. Such pilot projects can lend valuable experience and learning points for national roll-out at a later stage.

2.5 Integrating Sustainability Goals with Official Performance Evaluation

In order to provide a powerful incentive for local officials to faithfully and efficiently implement national policies on green finance, the Chinese government tied sustainability goals to the performance evaluation and promotion process for officials. Since 2005, China has been actively promoting the assessment of the environmental performance of leading officials in their respective jurisdictions to strengthen environmental protection measures by targeting the governmental organization.⁷⁸ Four indicators of environmental protection, namely enforcement of environmental protection laws, pollution emission intensity, change in environmental quality, and public satisfaction, were included in the assessment system for local government officials of all levels.⁷⁹ This fundamentally changes the phenomenon of local officials unilaterally pursuing GDP growth without paying attention to environmental indicators and links the problem of the deteriorating environmental quality directly to the power of officials. Among the four new indicators, pollution emission intensity is a qualitative index to comprehensively measure pollutant emissions. Changes in environmental

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Xinhua News (2021a).

⁷⁷ Ibid.

⁷⁸ Sina News (2005).

⁷⁹ Ibid.

quality are measured by regular environmental tests conducted by local environmental monitoring agencies to reflect changes in environmental quality at different times. The other two indicators—enforcement of environmental laws and public satisfaction—are relatively difficult to quantify. Environmental law enforcements are determined by reviewing enforcement records to determine whether the departments have complied with the environmental laws. Public satisfaction is determined by the number of public complaints about environmental problems.

Additionally, on 6 December 2013, the Organization Department of the CPC Central Committee issued the Notice on Improving the Performance Appraisal of Local Party and Government Bodies and Leading Officials.⁸⁰ This includes more comprehensive content regarding the local party leadership's and government officials' target performances, as well as a change in the format of the review and inspection of their performance. In addition to economic indicators, such performance indicators now include political, cultural, social and ecological progress and other aspects that showcase 'actual effectiveness'.⁸¹ In 2016, the General Office of the CPC Central Committee and the General Office of the State Council issued the Ecological Progress Target Evaluation and Assessment Methods.⁸² Subsequently, the National Development and Reform Commission, the National Bureau of Statistics, the Ministry of Environmental Protection and the Organization Department of the CPC Central Committee formulated the Green Development Index System and the Ecological Progress Assessment System as the basis for the evaluation and assessment of ecological progress.⁸³ On 24 October 2020, the Organization Department of the CPC Central Committee issued a circular on improving performance appraisals to promote high-quality development.⁸⁴ It stipulates that the 'comprehensive performance evaluation of high-quality development' is an important part of the performance evaluation of local party units and government bodies, and of leading officials of all levels. It also provided that, in response to the demand for innovative, coordinated, green, open and shared development, key indicators should be set precisely and assessments should be conducted on a tiered and classified basis.

Local governments have also cooperated with the central government's officials assessment reform. For example, in September 2017, Jiangsu Province introduced the Implementation Measures for the Ecological Progress Target Evaluation and Assessment in Jiangsu Province, the Jiangsu Province Green Development Index System and the Jiangsu Province Ecological Progress Assessment System.⁸⁵ These policies require that the party committee and government of each district and city

⁸⁰ Notice on Improving the Performance Appraisal of Local Party and Government Bodies and Leading Officials, issued by the Organization Department of the CPC Central Committee (6 Dec 2013).

⁸¹ *Ibid.*, point 1.

⁸² Goals Evaluation and Assessment Methods for the Construction of Ecological Civilization [生态文明建设目标评价考核办法], State Council (2 Dec 2016).

⁸³ Xinhua News (2017).

⁸⁴ Notice of the Organization Department of the Central Committee of the CPC on Improving the Performance Assessment for Promoting High-quality Development [中共中央组织部关于改进推动高质量发展的政绩考核的通知], Organization Department, Central Committee of CPC (24 Dec 2020).

⁸⁵ People.cn (2017).

will implement the ‘1-year evaluation and 5-year assessment’ mechanism for ecological progress targets. The assessment of whether targets are achieved is based on a score out of 100 marks, and categorized into four grades, namely excellent, good, qualified and unqualified. The leading appraisal department collates the scores of each district or city and their relevant situations, proposes the appraisal grading, and handles the appraisal results. This is combined with the formulation of assessment reports based on the audited results of the inspection of outgoing leading officials’ natural resources and assets usage, environmental protection responsibilities and environmental protection. The assessment reports are published to the public after being examined and approved by the Jiangsu Provincial Party Committee and the Provincial Government.

The assessment results serve as an important basis for the comprehensive assessment and evaluation of the party and government bodies and leading officials in each district or city, as well as the reward, punishment, appointment and removal of officials.⁸⁶ The Jiangsu Province Green Development Index System is mainly used to measure the dynamic progress of the local ecological progress each year, covering seven primary indicators, i.e. resource utilization, environmental management, environmental quality, ecological protection, growth quality, green life and public satisfaction, as well as 56 secondary indicators.⁸⁷ The Jiangsu Province Ecological Progress Assessment System includes 24 indicators in 5 aspects, i.e., resource utilization, ecological and environmental protection, annual evaluation results, public satisfaction, and ecological environmental events, among which 16 indicators are resource and environmental constraint indicators. The assessment grade of the region is determined unqualified if three or more of such constraint indicators are not satisfied. Meanwhile, ‘adverse ecological and environmental events’ result in score deductions. Each occurrence of a major environmental emergency, a major source of environmental pollution that causes severe social impact, or an incident that causes serious ecological damage results in a deduction of 5 points, up to a maximum deduction of 20 points. Both systems emphasize public participation, not only allowing people to have a say in the evaluation and assessment process, but also striving to harmonize the assessment results with public opinion. Therefore, ‘public satisfaction’ is an important indicator that is included in the Jiangsu Province Ecological Progress Assessment System, amounting to 10 points.

Similarly, in February 2021, Shenzhen completed the Gross Ecosystem Product (GEP) accounting ‘1 + 3’ system, led by the GEP accounting implementation plan and supported by technical specifications, the statistical reporting system and the automatic accounting platform.⁸⁸ This means that GDP will no longer be the only indicator to measure development, and GEP will become the ‘green baton’ to lead Shenzhen’s future development. In terms of the local standard for GEP accounting, the Shenzhen Administration for Market Regulation issued the Technical Specification for the Gross Ecosystem Product (GEP) Accounting in Shenzhen, which establishes a two-level indicator system for GEP accounting, as well as the technical

⁸⁶ Ibid.

⁸⁷ Ibid.

⁸⁸ Xinhua News (2021b).

parameters and accounting methods for each indicator.⁸⁹ Amongst the indicators, three are primary indicators, namely material products, regulation services and cultural tourism services. There are 16 secondary indicators, including, e.g., agriculture, forestry, animal husbandry and fishery products, climate regulation, water conservation, air purification, tourism and leisure services. Under the GEP accounting statistical reporting system, more than 200 accounting data are divided into 4 categories: ecosystem monitoring, environment and meteorological monitoring, socio-economic activities and pricing, and geographic information. Data sources and filling requirements are comprehensively regulated, involving 18 departments and 48 forms. Lastly, the GEP automatic accounting platform can facilitate online data filling and generate accounting results with one click, which greatly improves the efficiency and accuracy of the accounting.

It can be seen from the preceding analysis that efforts have been made at both the national and municipal level to integrate environmental protection with the performance evaluation of officials. Such moves are applaudable as they provide the appropriate incentive structure for officials to emphasize sustainability and pursue economic progress in a sustainable way.

2.6 The Role of the Courts

In the transition towards a low-carbon green economy, it is foreseeable that certain types of legal disputes will increase in number due to adjustment by companies under new regulations and a surge in the number of green investments. Accordingly, courts need to be forward-thinking and prepared to adjudicate such disputes when they arise.

To achieve carbon neutrality by 2060, related laws, regulations and policies will be gradually introduced and implemented in China.⁹⁰ As a result, a large number of enterprises will face production reduction, shutdown, default on contracts, or even restructuring and bankruptcy as a result of mandatory capacity reduction, being assigned the air pollution control catalogue, or not falling under the Green Industry Guidance Catalogue. Cases involving contractual disputes arising from industrial restructuring in key industries, green credit disputes, green bond disputes, administrative penalties, administrative compulsory measures, among other things, will likely increase. In 2021, the Ministry of Ecology and Environment issued the Management Measures for Carbon Emission Trading, and disputes and controversies will inevitably arise during the trading process.⁹¹

The Supreme People's Court has already proposed to make good forecasts, publish leading judgments in due course, formulate judicial policies and propose judicial solutions.⁹² This especially applies to cases involving climate change response

⁸⁹ Ibid.

⁹⁰ See Table 1 above.

⁹¹ Notice of the Supreme People's Court on the Issuance of the Type and Statistical Specification of Environmental Resources Cases (for Trial Implementation) [最高人民法院关于印发《环境资源案件类型与统计规范(试行)》的通知], Supreme People's Court (4 Feb 2021), SPC Order No. 9 of [2021].

⁹² Xu and Su (2020).

triggered by the development of renewable energy, reduction of energy consumption, carbon emission transformation, sustainable transportation, construction, etc. It also covers new types of green finance and carbon finance-related cases, with factual scenarios involving the provision of financial services to promote green low-carbon development, industrial transformation, and the application of new energy-saving and environmental protection technologies, equipment and product research.

On 4 August 2017, the Supreme People's Court proposed to explore the possibility of specialized financial trial institutions on the basis of the characteristics of financial disputes and cases.⁹³ In his speech at the World Judicial Conference on the Environment that took place at Kunming, Yunnan, on 26 May 2021, Zhou Qiang, the Chief Justice of the SPC, reiterated China's resolve to strengthen the environmental rule of law.⁹⁴ He emphasized three important aspects of the SPC's endeavor, namely specialized courts and tribunals for the adjudication of environment-related disputes, public participation in and monitoring of environmental issues, and the use of technology in dispute resolutions.⁹⁵

Courts have a role to play in contributing towards sustainability for a few reasons.⁹⁶ For instance, green finance courts can play a part in reducing financial risks and in promoting the sustainable development of financial institutions by strengthening the risk control norms of financial institutions in anticipation of potential lawsuits. Moreover, green finance courts assume their conventional role of deterrence.⁹⁷ Judicial decisions and punishments not only increase the cost of non-compliance and illegal activities that damage the environment, but also guard against systemic risk in the green finance system.⁹⁸ The use of a blacklist of institutions with records of litigation or dishonest behavior in tapping into green bonds (e.g., green-washing or fraudulent disclosure) discourages short-termism and prevents markets for lemons.⁹⁹ Furthermore, green finance courts and public prosecutors could actively prosecute companies that violated environmental protection laws and therefore send a strong signal to the market of the importance and seriousness of environmental protection. In this respect, much more can be undertaken and gradually implemented as such green finance courts are currently limited in number and still at their infancy stage.

3 Special Characteristics of the Green Bonds Market in China and Recent Trends Towards International Convergence

Currently, China's green bonds market has a number of characteristics that differ from other major market and international standards. Most importantly, these include the profile of major issuers, requirements on the use of proceeds, sustainability

⁹³ Ibid.

⁹⁴ Zhou (2021).

⁹⁵ Supreme People's Court (2021).

⁹⁶ Ibid.

⁹⁷ Wang (2021).

⁹⁸ Ibid.

⁹⁹ Ibid.

information disclosure and credit ratings. Some of these features that create difficulties and cause hindrance for the long-term growth of China's green bonds market are examined closely in this Section. But before delving into the specific features, the authors would like to acknowledge a general trend towards greater consistency, standardization and international convergence in China's green bonds standard.

Inconsistency and lack of standardization in green projects potentially hinder the evaluation and comparison of green projects. This risk is not unique to the Chinese market. As alluded to earlier, there are three sets of independent green bonds regulatory and supervision systems in China.¹⁰⁰ Previously, there used to be a lack of unified standards in green project classifications and no common set of indicators such as carbon emission. As a result, investors found it hard to effectively assess and compare green projects. The issuers of green bonds could also take undue advantage in terms of green-washing, aggravating the moral hazard problem in this context.

In recent years, the international green bond standards have undergone a widespread update. The ICMA, which first proposed the four principles of green bonds, updated the contents of the Green Bond Principles in June 2018 and of the Green Bond Impact Reporting in December 2020.¹⁰¹ Additionally, the ICMA's Handbook of Harmonized Framework for Impact Reporting refines and explains the disclosure methods and indicators for major categories of green projects and provides guidelines and templates for issuers to prepare impact reports, so as to further enhance the transparency and comparability of information on green bonds.¹⁰² The CBI, the main designer of climate bond standards, released version 3.0 of the Climate Bonds Standard in December 2019. This new version strengthens public disclosure requirements and timeliness for green bonds, advocates for more pre-issuance disclosure and further clarifies the certification requirements and use.¹⁰³

Since 2018, the EU has accelerated the pace of development of sustainable financing. The EU Green Bond Standard released in March 2019 shares similar features with the Green Bond Principles and the Climate Bonds Standard.¹⁰⁴ Additionally, the Report on EU Green Bond Standard issued in March 2020 specified that green economic activities should contribute to one of six environmental objectives,¹⁰⁵ including climate change mitigation, climate change adaptation, and adhering to the requirement of 'doing no significant harm' to any of the other environmental objectives.¹⁰⁶ These new criteria are expected to become the next international benchmarks for green bonds.

¹⁰⁰ See text accompanying note 37 *supra*.

¹⁰¹ See *supra* note 1 for the four principles.

¹⁰² International Capital Market Association (2021).

¹⁰³ See CBI (2019).

¹⁰⁴ EU Technical Expert Group on Sustainable Finance (2019a), p 13, Table 1.

¹⁰⁵ EU Technical Expert Group on Sustainable Finance (2019b), p 19. It also includes the following four major goals: sustainable use and protection of water and marine resources, transition to a circular economy, waste prevention and recycling, and pollution prevention control and protection of healthy ecosystems, p 16.

¹⁰⁶ Lu (2020), pp 77–78. See also Ma (2021).

In this light, in recent years, China has begun to harmonize its regulations and standards with the new international standards. Some progress has already been made. The Green Bonds Standards Committee was set up as a new self-regulatory authority and coordination mechanism for green bonds in December 2017.¹⁰⁷ In July 2020, the People's Bank of China, the National Development and Reform Commission and the Securities Regulatory Commission jointly released the China Green Bond Endorsed Project Catalogue (2020 Version) (Draft for Comments) for the first time for public consultation.¹⁰⁸ The 2020 version of the Catalogue is highly compatible with the Catalogue of Green Industries (2019 Edition) and inherits the basic principles of the China Green Bond Endorsed Project Catalogue (2015 Version). It unifies the domestic green bonds market in terms of the projects and fields endorsed, making significant progress for the standardization of green finance.¹⁰⁹ The 2020 version of the Catalogue also expands the green bonds market by increasing the categories of endorsed green consumption and trade projects and by extending the scope of endorsed projects to areas such as agriculture and ecological protection.¹¹⁰ Compared to the original two green project Catalogues, the new version eliminates projects involving the clean use of fossil energy and includes climate-friendly projects, which is an important step forward in the alignment with international standards.¹¹¹ Most recently, the Green Bond Endorsed Project Catalogue (2021 Version) was introduced in April 2021, having taken into account public opinions in response to the 2020 draft.¹¹²

Furthermore, China actively participates in bilateral and multilateral international exchange platforms, such as the International Platform for Sustainable Finance (IPSF) which it established together with the European Commission.¹¹³ China is also taking steps to establish a working group on green classification terminologies, and is conducting a study, organized by the People's Bank of China and its European counterparts, in exploration of the similarities and differences between the green

¹⁰⁷ Whiley (2018).

¹⁰⁸ Notice on the Public Consultation and the Issuance of the Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation) [《绿色债券支持项目目录 (2020年版)》(征求意见稿)], issued by the PBOC, CSRC and NDRC (8 July 2020). See further Response to the Public Consultation on the Announcement of the Issuance of Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation) [关于《绿色债券支持项目目录 (2020年版)》(征求意见稿)公开征求意见的反馈], issued by the PBOC, CSRC and NDRC (27 Apr 2021).

¹⁰⁹ Ma (2020).

¹¹⁰ Ibid.

¹¹¹ Taking into account China's economic and social development, its industry development and characteristics of its biodiversity and ecological environment, the new version of the catalogue retains many characteristics of a developing country. This is so as to provide a reference path for the development of green finance in developing countries along the 'Belt and Road' initiative. See Ma et al. (2020), p 16.

¹¹² Notice on the Issuance of the Green Bonds Endorsed Project Catalogue (2021) [关于印发《绿色债券支持项目目录 (2021年版)》的通知], issued by the PBOC, CSRC and NDRC on 2 Apr 2021 and effective from 1 July 2021, PBOC Order No. 96 of [2021]; Response to the Public Consultation on the Announcement of the Issuance of the Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation) [关于《绿色债券支持项目目录 (2020年版)》(征求意见稿)公开征求意见的反馈], issued by the PBOC, CSRC and NDRC (27 Apr 2021).

¹¹³ SWITCH Asia (2019).

financing standards in China and Europe with the intent of harmonizing their standards in 2021.¹¹⁴ Importantly, China is working with the EU to push for greater convergence of taxonomies of green finance and investments. On 21 March 2021, the People's Bank of China announced that China was working with the EU to adopt a China-EU Shared Classification Catalogue for Green Finance.¹¹⁵ The PBOC's announcement followed related milestones in the EU, namely the debut of the EU Sustainable Finance Disclosure Regulation and the EU Taxonomy Climate Delegated Act in March to April 2021.¹¹⁶ To push this harmonization even further, the adoption and incorporation of a globally recognized green taxonomy, reporting and disclosure regime was discussed at the G20 Summit in Rome in October 2021.¹¹⁷ All these efforts culminated in the Common Ground Taxonomy—Climate Change Mitigation Instruction Report, issued by the IPSF Taxonomy Working Group on 4 November 2021.¹¹⁸

At the PBOC-IMF High-Level Seminar on Green Finance and Climate Policy held on 15 April 2021, Yi Gang, the Governor of the PBOC, noted that, to achieve the '30/60' goal, China will need to invest RMB 2.2 trillion per year to reduce carbon emissions by 2030, and RMB 3.9 trillion per year from 2030 to 2060, and private capital participation is indispensable in this process.¹¹⁹ To encourage the participation of private capital, he noted the importance of information disclosure and the provision of policy incentives. In terms of information disclosure, the PBOC plans to set up a mandatory disclosure regime with uniform standards, and to promote greater information sharing between financial institutions and companies.¹²⁰ The importance of harmonization with international green taxonomy standards is again emphasized. Regarding policy incentives, the PBOC plans to launch a set of facilitative mechanisms to provide low-cost funds for carbon emission reduction, and to strengthen its support of green finance through measures such as commercial credit ratings, deposit insurance rates, and open market operations.¹²¹

China has actively sought other venues of international cooperation on green finance. For instance, China took the opportunity of its G20 presidency in 2016 to introduce green finance into G20 motions for the first time, leading the creation of the G20 Green Finance Study Group and promoting the formation of a global consensus on green finance.¹²² To date, this mechanism has exerted significant influence. In December 2017, China co-launched the Green Finance Network (NGFS) of central banks and regulators, focusing on the impact of climate change on macro-finance stability and macroprudential regulation, aiming to strengthen the risk management of the financial system and to mobilize capital for green and low-carbon

¹¹⁴ People's Bank of China (2021a).

¹¹⁵ Latham and Watkins LLP (2021), Chen Jia (2021).

¹¹⁶ Doyle (2021).

¹¹⁷ Latham and Watkins LLP (2021).

¹¹⁸ IPSF (International Platform on Sustainable Finance) Taxonomy Working Group (2021).

¹¹⁹ People's Bank of China (2021b).

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² International Institute for Sustainable Development (2016).

investments.¹²³ At the end of 2018, the Green Finance Professional Committee of the Chinese Society of Finance and the City of London jointly launched the Green Investment Principles (GIP) which introduced green and sustainable development into the investment and financing activities of the Belt and Road, and 39 Chinese and foreign financial institutions have signed the GIP.¹²⁴ In addition, China has carried out various forms of international dialogues and cross-border efforts on green finance through bilateral platforms, such as the Sino-British Economic and Financial Dialogue and the Sino-French High-Level Economic and Financial Dialogue.¹²⁵

As can be seen from the preceding analysis, the Chinese government has gained some momentum in terms of the unification of its domestic green bond standards and the convergence with international standards. It is of crucial importance that this endeavour be carried out in a thorough and consistent manner, paying special attention to the different aspects highlighted in the following sub-sections, including, most importantly, requirements regarding the use of proceeds, sustainability information disclosure and credit ratings. Following the international standards would help to resolve some of the hindrance created by the above-mentioned unique features of China's green bonds market. China's green bonds market stands to benefit from this convergence process as not only domestic but also overseas private capital would flow into the market when investors become more confident of its standardization and governance. Where applicable, recent reforms and recommended changes are included for a holistic analysis.

3.1 Profile of Major Issuers

In contrast with other markets where private issuers play a significant role, the major issuers of green bonds in China have been state-related entities so far. While there has been a change in the profile of major issuers of green bonds over the years, the main groups of issuers remain state-dominated or state-associated. Since 2016, policy banks and large commercial banks have been the main issuers of green financial bonds, with increased participation from small and medium-sized financial institutions (e.g., urban commercial banks) in recent years.¹²⁶ Non-financial enterprises became the largest group of issuers of green bonds in 2019.¹²⁷ Nevertheless, these non-financial enterprises still comprise mostly state-owned enterprises and a relatively smaller number of private enterprises. This situation is less than optimal as it leaves untapped the potential of private enterprises in China's green bonds market. Further recommendations on how the government can adjust the incentives and

¹²³ See, for example, Yi (2020). The initial institutions include the People's Bank of China, the Central Bank of the Netherlands, the Bank of France, the Bank of England, the German Central Bank, the Swedish Monetary Authority, the Monetary Authority of Singapore, and the Central Bank of Mexico, and now the membership has expanded to 83 institutions.

¹²⁴ Green Belt and Road Initiative Centre (2021).

¹²⁵ UK Treasury (2019) and CGTN (2020).

¹²⁶ China Green Bonds and Credits (2018).

¹²⁷ CBI & CCDC Research (2020), p 4.

constraints in the market to encourage participation by private enterprises can be found in Section 4 below.

3.2 Use of Proceeds

The Chinese requirements on the use of proceeds for green bonds also differ from international standards. The rule is that 100% of green financial bonds and medium-term notes, at least 70% of green corporate bonds and 50% of green enterprise bonds are to be invested in green projects.¹²⁸ In comparison, this threshold can be as high as 95% in the international rules.¹²⁹ The low threshold applied in China causes concerns about misuse of proceeds and green-washing. In practice, a portion of the capital is used for repaying debts, supplementing operation expenses, and other non-green purposes. For this reason, the Green Bonds Database managed by the CBI excluded USD 6.6 billion (RMB 46 billion) worth of purported green bonds in 2019.¹³⁰ While allowing the use of a large proportion of green bonds financing for peripheral purposes helps to meet the needs of green bond issuers and boosts the supply and scale of green bonds, it undermines the intended effect of green investment, weakening investor confidence, the appeal of green bonds and their valuations.

Another related concern is the major area of green bonds investment. In practice, the funds raised are mainly invested in clean transportation and clean energy projects, with a relatively smaller percentage of raised funds invested in ecosystem-based adaptation projects or pollution prevention and energy efficiency projects.¹³¹ As such, the focus is on the reduction of energy consumption per unit, the elimination of environmental pollution and the curtailment of environmental damage, and on directing the limited policy supports and grants to transforming the industries that have the greatest impact on the environment and display the highest urgency in promoting green development.¹³² As mentioned earlier, it is only until recently that fossil-based green energy projects have been excluded from the scope of green bonds; unlike international green standards, such projects used to qualify for green bonds in China.¹³³ The problem with this old arrangement was that although it fit the needs of China in the industrialization process, it limited the potential growth of green bonds, the alignment of the Chinese green standards with international ones, and the utilization of foreign funds.

The authors argue that, similar to the exclusion of fossil-based green energy projects, China can put in greater efforts aimed at the alignment of scope. For instance,

¹²⁸ Climate Policy Initiative (2020a), p 5, Table 2.

¹²⁹ CBI & CCDC Research (2020), p 13.

¹³⁰ CBI and SynTao Green Finance (2020), p 18.

¹³¹ CBI & CCDC Research (2020), p 9.

¹³² Lu (2020), p 78.

¹³³ Xinhua News (2021c). This news article cited the Notice on the Issuance of the Green Bonds Endorsed Project Catalogue (2021) [关于印发《绿色债券支持项目目录 (2021年版)》的通知], issued by the PBOC, CSRC and NDRC on 2 Apr 2021 and effective from 1 July 2021, PBOC Order No. 96 of [2021]. See also Ng (2021).

China currently places emphasis on the new energy vehicle industry¹³⁴ while the international standards take a cautious approach in this sector.¹³⁵ Similarly, China does not set carbon emission targets for its green projects¹³⁶ whereas the international standards exclude all projects related to fossil energy sources without carbon capture mechanisms.¹³⁷ Alignment of these areas would help to place China on the same track as other major global players. In this regard, China's guiding philosophy is expected to shift more towards climate change mitigation and adaptation, similar to international standards such as the EU Green Bond Standard.¹³⁸

3.3 Sustainability Information Disclosure

In China, sustainability information disclosure is required only to a limited extent. Except for listed companies and a few other specified categories, bond issuers need not disclose information regarding the use of funds or the performance of green projects.¹³⁹ Any information disclosed is mostly descriptive and not quantitative.¹⁴⁰ The frequency, however, is significant. Chinese banks are required to provide quarterly reports on how the green bonds are used, while corporate issuers must provide annual or semi-annual reports, which is more frequent than stipulated by international standards, which require annual reporting.¹⁴¹ In contrast, a number of international green bond standards require bond issuers to disclose reports on the use of funds and information on environmental benefits.¹⁴² They also recommend that issuers use qualitative performance indicators and/or quantitative performance indicators to measure the environmental impact of projects.¹⁴³

It is recommended that the disclosure of environmental information on green bonds should be mandated alongside the provision of a standardized format for disclosure and the quantification of environmental indicators. This provides

¹³⁴ Yin (2020), p 66.

¹³⁵ Ibid.

¹³⁶ Guo (2021), pp 45–46.

¹³⁷ Ibid.

¹³⁸ See *supra* note 104.

¹³⁹ China Central Depository and Clearing Co., Ltd. (2018), p 31. The specified categories include 'key emission units; enterprises subject to compulsory clean production audit obligations; listed companies, or debt-issuing companies subject to criminal liability or significant administrative penalties due to ecological and environmental violations; and other enterprises as required by laws and regulations', see Notice on the Reform Programme for the Environmental Information Disclosure System [关于印发《环境信息依法披露制度改革方案》的通知], Ministry of Ecology and Environment (24 May 2021), Ministry of Ecology and Environment Order No. 43 of [2021], Article 2(1) (1).

According to the latest rules, issuers are required to disclose information concerning the intended usage of funds raised from green bonds issuance. See SSE Corporate Bond Issuance and Listing Rules Application Guideline No. 2—Corporate Bonds of Specific Types [上海证券交易所公司债券发行上市审核规则适用指引第2号—特定品种公司债券], Shanghai Stock Exchange (27 Nov 2020), Article 4.4.

¹⁴⁰ Ibid., China Central Depository and Clearing Co., Ltd. (2018), p 32.

¹⁴¹ Climate Policy Initiative (2020a), p 5, Table 2.

¹⁴² Hong (2017), p 128.

¹⁴³ Ibid.

transparency and sufficient information for domestic and foreign investors to make their investment decisions, thereby enhancing investor confidence and increasing investments in China's green bonds market.

In fact, China has been accelerating the process of mandating the disclosure of green bond information. For example, in addition to green financial bonds and green medium-term notes, the fund usage and actual environmental benefits of which must be disclosed, carbon neutral bonds launched in 2021 on the Interbank Bond Market are also subject to the provision of information on their carbon emission reduction and other environmental benefits.¹⁴⁴ Meanwhile, the Securities Regulatory Commission has also included environmental protection in the scope of voluntary disclosure by companies listed on the Science and Technology Innovation Board.¹⁴⁵ Moreover, the People's Bank of China organized and developed a green financial information management system to promote information sharing and enhance regulatory effectiveness.¹⁴⁶ On 24 May 2021, the Ministry of Ecology and Environment issued the Notice on the Reform Programme for the Environmental Information Disclosure System.¹⁴⁷ The Reform Programme mandates environmental information disclosure for key pollution units, enterprises subject to clean production auditing obligations, listed companies and bond-issuing enterprises subject to criminal liability or major administrative penalties due to ecological and environmental violations, and other enterprises or institutions as required by laws and regulations.¹⁴⁸ It further requires that environmental information disclosure must be carried out in a timely, comprehensible and easily searchable manner and must be uploaded to a centralized, comprehensive system.¹⁴⁹

Additionally, at the international level, the pilot work on climate and environmental information disclosure for Sino-British financial institutions (there are already 13 such pilot institutions) continues to advance.¹⁵⁰ These 13 Sino-British financial institutions have made environmental information disclosures according to the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD) and the Climate and Environmental Information Disclosure Framework set up by China, with clear results and demonstratable effects.¹⁵¹

The green bond disclosure system should identify green bond issuers as the primary party responsible for green bond disclosure. They should be encouraged to disclose the carbon footprint of raised funds in a multi-dimensional and

¹⁴⁴ National Association of Financial Market Institutional Investors (2021a).

¹⁴⁵ SSE Guideline No. 2 on the Application of Self-Regulatory Rules for Listed Companies on the STAR Market – Voluntary Information Disclosure [上海证券交易所科创板上市公司自律监管规则适用指引第2号—自愿信息披露], Shanghai Stock Exchange (25 Sep 2020), Article 4.14.

¹⁴⁶ UN Partnership for Action on Green Economy (2016).

¹⁴⁷ Notice on the Reform Programme for the Environmental Information Disclosure System [关于印发《环境信息依法披露制度改革方案》的通知], Ministry of Ecology and Environment (24 May 2021), Ministry of Ecology and Environment Order No. 43 of [2021].

¹⁴⁸ *Ibid.*, Section II (1) (1).

¹⁴⁹ *Ibid.*, Section II (1) (4).

¹⁵⁰ UNPRI (2019).

¹⁵¹ See Energy Foundation (2020), p 3.

comprehensive manner. Additionally, the system should enable external evaluation agencies to prudently verify the content of such disclosures,¹⁵² and complement the regulatory authorities in ensuring strict enforcement and accountability in order to fulfill China's green bond environmental information disclosure obligations. While certain efforts have been made in this respect, more extensive reforms are required to deliver optimal impact.

3.4 Credit Ratings and Environmental Risk Analysis

Finally, green bond credit ratings in China are generally above AA+, with most receiving AAA ratings.¹⁵³ The bonds are mostly certified by domestic third-party evaluation agencies, with a small portion being certified by overseas agencies.¹⁵⁴ However, there is also a large proportion of bonds that are unrated, and the proportion of green bonds that are certified is currently not as high as desired.¹⁵⁵ Furthermore, China's green bond standard does not mandate third-party certification. There is no unified or recognized certification process,¹⁵⁶ with the process varying from institution to institution. This differs greatly from the international green bond standards, which emphasize the importance of third-party certification, requiring the quantification of environmental benefits as a basic criterion for certification.¹⁵⁷

It is therefore recommended that more efforts be put into the effective assessment of a project's greenness and the establishment of trustworthy credit-rating agencies. The determination of the green attributes prior to the issuance of green bonds also requires active monitoring of the use of raised funds during their subsequent operation and measurement of the environmental benefits they generate. In September 2020, the NGFS released two important documents, i.e., the Overview of Environmental Risk Analysis by Financial Institutions and the Case Studies of Environmental Risk Analysis Methodologies, calling for a concerted effort to promote the use of environmental risks analysis in the financial industry.¹⁵⁸ As one of the founders of the NGFS, China should take this opportunity to make full use of the expertise of market institutions to accelerate the construction of a statistical database on environmental benefits, to develop and share environmental risk analysis methods and assessment models, and to complete work on green financial investment analysis tools. As the green bonds market becomes increasingly popular, the government should lead the way by redirecting local government subsidies or concessions for individual green bond issuers into various forms of green funds (e.g., green industry funds, green guarantee funds, green M&A funds, green guidance funds, green

¹⁵² China Government Securities Depository Trust and Clearing Co. Ltd. and CECEP Consulting Co. Ltd. (2018), p 113.

¹⁵³ Ibid.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid. Non-public issuance of bonds does not need to be rated.

¹⁵⁶ Shi (2019), p 93.

¹⁵⁷ CBI (2019), Part B and Part D.

¹⁵⁸ Network for Greening the Financial System (2020).

development funds, etc.) in order to guide the development of green industries.¹⁵⁹ In doing so, market participants in China should attempt to align with international developments, such as the NGFS guidelines, as much as possible in order to secure international confidence in their environmental risk assessment methodologies right from the start.

Additionally, in-depth use of financial technology in the field of green bonds will arguably improve the accuracy and automation of the systematic measurement of the environmental performance of green enterprises and projects.¹⁶⁰ For instance, the use of big data analysis may improve the accuracy and sensitivity of external evaluations based on data such as green bond ratings and certifications and promote information sharing. Other forms of measurement technologies such as earth observations via satellites or drones, and spatial finance can help overcome the difficulty with independent verification of sustainability information disclosure.¹⁶¹ China has already begun adopting fintech for green finance in some pilot regions. For example, in Huzhou city, the local government makes use of the internet, big data and other technologies to build a comprehensive green finance service platform to reduce environmental and climate-related information asymmetries and to quickly match green enterprises and projects with financial institutions.¹⁶²

4 Lessons Learnt and Ways Forward

After canvassing the unique policies and features in China's green bonds market, this Section identifies several problems arising from the top-down approach taken by the Chinese government as well as from the fact that the green bonds market is still at its emerging stage. Such problems include potential misallocation and waste of resources, resource and manpower constraints on the regulators, and the lack of investor education. Targeted recommendations are made accordingly. The last part of this Section makes the case for the evolving role of the government as the green bonds market matures and the approach shifts from a government-oriented to a more market-oriented one.

4.1 Adjustment of Incentives and Constraints to Ensure Efficient Allocation

As it stands, there is a disproportionate allocation of capital in China's green bonds market in favor of state-owned enterprises (SOEs). This means that private companies find it harder to secure financing through green bonds and accordingly have a small share in the green bonds market. In 2019, while the number of times that green bonds had been issued by private enterprises had increased to 11, an 83.33% increase compared to 2018, the actual amount of green bonds issued by private

¹⁵⁹ An et al. (2018), pp 76–78.

¹⁶⁰ Yin (2020), p 67; see also Avgouleas (2021).

¹⁶¹ Avgouleas (2021), pp 68–72.

¹⁶² Shanghai Branch of the State Administration of Foreign Exchange (2020).

enterprises (RMB 5 billion, comprising 2% of the market) was still far lower than that issued by SOEs (RMB 194.937 billion, comprising 79.90% of the market).¹⁶³ This is still the prevailing situation as at the date of this paper.

As a result, private enterprises that lack a government background or government connections, or have a low credit rating, tend to find it hard to secure a favorable interest rate even though they might have good-quality green projects with significant environmental impact. The lack of participation by private enterprises is undesirable in the long term as it stifles competition, limits the long-term potential of the market and creates potential concerns about the waste of resources or unaccountability of SOEs.

Chinese local policies primarily focus on green projects with high credit ratings, a large scale and relatively mature technology.¹⁶⁴ However, a number of projects with vast potential in promoting green low-carbon growth may not receive funding because they did not fulfill the local requirements. The issuers of green bonds that are backed by government support enjoy several advantages.¹⁶⁵ They get quicker approval for issuance from regulatory authorities. They can also use a higher proportion of the capital raised for purposes other than supporting their green projects, as explained above. As some of the companies controlled by local governments find it hard to issue ordinary corporate bonds, they may switch to issuing green bonds for financing.¹⁶⁶ At the same time, companies in industries heavily regulated by macroeconomic policies may also tend to raise funds by issuing green bonds or even seek undue advantages from the green bond standards yet to be standardized, adding more risks to the system.¹⁶⁷

On top of inefficient allocation of resources, corruption, fraud and green-washing are potential vices hidden in a top-down approach. As mentioned previously, sustainability information is still a weak link in China's green bonds market.¹⁶⁸ Because the quality of information disclosure cannot be adequately determined, problems such as fraudulent disclosure and green-washing tend to be present.¹⁶⁹ In addition, local officials may be influenced by bribery and nepotism to provide green bonds-related subsidies and grants in an unfair manner, although it should be noted that corruption by officials in China has been strongly subdued in recent years.¹⁷⁰ Rent seeking is also an area where companies issuing green bonds may accrue undue advantages and benefits by selecting a more favorable regulatory environment,¹⁷¹ and such regulatory arbitrage is particularly likely in China, where there used to be different sets of standards governing green bonds.¹⁷² In this regard, it should be

¹⁶³ United Equator Bonds Research Institute (2020).

¹⁶⁴ Climate Bonds Initiative and SynTao Green Finance (2020), p 18.

¹⁶⁵ Ibid.

¹⁶⁶ Ba et al. (2019), p 102.

¹⁶⁷ Xiao and Yan (2018), p 85.

¹⁶⁸ See Section 3.3 above.

¹⁶⁹ See, for example, Harlan (2019).

¹⁷⁰ See, for example, Ting (2020).

¹⁷¹ Park (2018), p 31.

¹⁷² See Climate Policy Initiative (2020a), p 5, Table 2.

noted that the standardization has significantly improved after the PBOC, NDRC and CSRC jointly issued the Green Bonds Endorsed Project Catalogue (2021).¹⁷³

These issues could be aggravated by the resource and manpower constraints of regulators. As regulators face challenges in allocating sufficient resources to the regulation of such matters, the risks associated with under-regulation of illegal activities and non-compliance loom large.¹⁷⁴ Compared to ordinary bonds, green bonds attract positive attention because of their positive impact on the environment. However, it is much more difficult to quantitatively assess the green nature and environmental impact of such projects.¹⁷⁵ Regulation of green bonds therefore requires greater manpower, resources and money. Suitable monitoring tools and techniques are needed for each industry.¹⁷⁶ These requirements far exceed the resource and capability constraints faced by conventional financial regulators. This dilemma brings unprecedented challenges for regulators and results in practical problems such as the difficulty to deal with green-washing in a timely manner. All of these complications make it difficult for regulators to perform their role of safeguarding and promoting the healthy development of the green bonds market.

In this regard, on top of the conventional role of regulators, enforcers and courts,¹⁷⁷ it is important to contemplate the roles of other market players, such as financial institutions and third-party service providers like law firms, auditing firms and credit-rating agencies. Financial institutions can act as checks and balances of the quality of sustainability information disclosure.¹⁷⁸ Similarly, credit rating agencies should uphold fairness and be held to their task of quality control, and not be unduly influenced by conflicts of interests.¹⁷⁹ Law firms should also properly advise their clients on the requirements of the laws and regulations and the risks of non-compliance or green-washing. In this sense, regulations and monitoring are a systematic design instead of a one-sided effort.

Accordingly, China should adjust the incentives and constraints of green bond investment and financing, promote the internalization of the positive externalities of green bonds through market-based mechanisms, and design a suitable environment for the development of green bonds by complementing the market's functions with the government's functions. In this regard, as illustrated in Fig. 2 below, the government's role is to provide sufficient incentives to market players and eventually allow market mechanisms to promote the development of the green bonds market. In doing so, it should provide the institutional framework for issuers to issue green bonds in

¹⁷³ See *supra* note 112.

¹⁷⁴ Ba et al. (2019), pp 102–103.

¹⁷⁵ Climate Policy Initiative (2020a), p 3.

¹⁷⁶ For instance, the SASB framework devised by the Sustainability Accounting Standards Board provides sector-specific standards and guidance for ESG disclosure in 77 industries, Sustainability Accounting Standards Board (2021).

¹⁷⁷ See Section 2.6 for a discussion on the role of the courts.

¹⁷⁸ Chang et al. (2019).

¹⁷⁹ Climate Policy Initiative (2020a), pp 9–10.

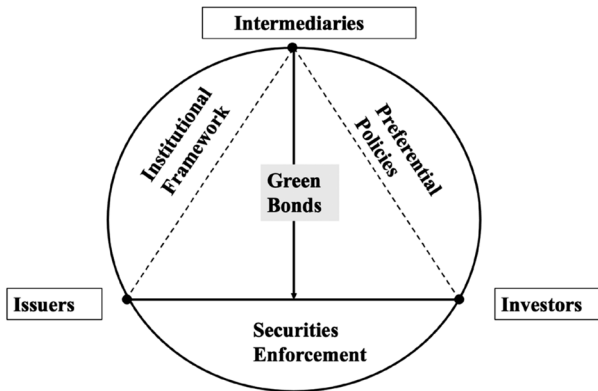


Fig. 2 Government measures to facilitate effective market mechanisms

a conducive regulatory environment,¹⁸⁰ introduce preferential policies such as tax exemptions and investor education to attract investors to invest in green bonds, and act as an enforcer and a conduit for dispute settlement between issuers and investors to maintain investor confidence in the market.

Government policies can help to construct a favorable institutional framework for green bond issuers in a number of ways. In terms of financing, as of end 2020, the market capitalization of China's green bonds market, which is the world's second largest, only amounted to RMB 813.2 billion. This is much lower than the market size of China's green loans market, which is the world's largest, with a market capitalization of RMB 12 trillion.¹⁸¹ As compared to green credit, the financing model of green securities is more direct, and green industries can obtain funds at a lower cost and through a simpler process.¹⁸² Therefore, it is necessary to increase policy support for green bonds in the future. Achieving a low-carbon green economy requires investment by the masses. In the future, China needs to stimulate private enterprises' interest in joining the green cause and the government should divert more financial concessions and subsidies to such private enterprises as well as to green projects with greater potential environmental benefits. Since private enterprises face certain disadvantages in seeking green financing in the current context, it is recommended that such difficulties should be removed by reforms for the benefit of diversification and healthy competition in the green bonds market.

At the same time, China must guide green bond issuers in investing more raised funds in green projects, release a greater variety of green bonds in accordance with China's economic transition, support the development of not only dark green projects but also medium and light green projects, and develop transition bonds to help

¹⁸⁰ Such an institutional framework would encompass the key recommendations in this paper, such as greater standardization and consistency of green bonds, and more stringent requirements on information disclosure and use of proceeds.

¹⁸¹ People's Bank of China (2021a).

¹⁸² Wang and Ma (2020), p 75.

brown industries transit to becoming green ones. Since green bonds no longer have any advantage in the issuance approval process after the implementation of the new Securities Law as of 1 March 2020, mandating that all corporate bonds comply with the ‘registration system’, the rules in that law should be adjusted.¹⁸³ A suitable market mechanism and legal liability framework should be formulated for the rational evaluation of green bond prices. These measures, together with market intermediaries that assist green bond issuers with green certification and environmental information disclosure, will raise the costs of environmental damage, hence incentivizing green bond issuers to improve the environmental benefits of green bonds in order to enhance their attractiveness.

4.2 Improvement of Retail Investor Education

From the investor’s perspective, the lack of investor education means that investors do not have a strong sustainability mindset while the market demands sophisticated retail investors.¹⁸⁴ In recent years, the negative impact of climate change on socio-economic conditions has been increasingly felt, particularly amidst COVID-19, and has become an inevitable source of financial risk.¹⁸⁵ At the same time, the demand for and interest in sustainable investment by retail investors has increased and should be tapped into for further growth of the green bonds market. However, because green bonds carry both the credit risks of ordinary bonds and the environmental risks associated with their environmental goals, investors are required to have relevant knowledge about environmental risks and the methodology to identify, evaluate and manage such risks in their portfolios.¹⁸⁶

According to statistics, the majority of green bond (medium-term) buyers in 2020 are institutional investors.¹⁸⁷ There is limited participation by other enterprises and retail investors. Retail investors are still primarily concerned with the financial returns of their investment and not with information disclosure concerning the public welfare goals and the sustainable impact of the use of the funds.¹⁸⁸ The situation is a far cry from having investors with proper techniques to evaluate and manage environmental risks in their investments. Because of the lack of analytical tools, many investors cannot identify and quantify the credit and market risks arising from environmental factors, and therefore underestimate the risks in unsustainable assets and overestimate the risks in green investment.¹⁸⁹ As such, the lack of incorporation of concepts and tools for managing environmental risks covered by the Principles

¹⁸³ The Measures for the Administration of the Issuance and Trading of Corporate Bonds (2021 Revision) [公司债券发行与交易管理办法(2021修订)], Order No. 180 of the CSRC [2021] (26 Feb 2021), consolidated the reform of the registration system concerning the public issuance of corporate bonds.

¹⁸⁴ See, for example, Daeniken (2020) and Standard Chartered (2020), p 10.

¹⁸⁵ Lau (2020).

¹⁸⁶ Hong (2017), p 134.

¹⁸⁷ National Association of Financial Market Institutional Investors (2021b).

¹⁸⁸ Liu (2018), p 110.

¹⁸⁹ Ma (2019), p 8.

for Responsible Investment (PRI)¹⁹⁰ may further limit the sustainable growth of the green bonds market in China.

With regard to further incentivizing investors to invest in green bonds, there is a need to further publicize, and educate people on the importance of a green and low-carbon circular economy, to encourage investors to use the ESG criteria to screen potential investments, to guide financial resources toward a green, low-carbon circular economy and to enhance investors' preferences for and sensitivity to green attributes. Ideally, green and sustainable development or social welfare should gradually become the main investment objective of investors and the areas that China's domestic markets focus on.¹⁹¹ An important pre-condition for attracting sophisticated retail investors to enter the green bonds market is adequate investor protection, demonstrated by enhanced requirements on the use of proceeds, continuous monitoring and certification, and information disclosure, as recommended in this paper.

After investors put their money into the green bonds market, the government's role continues in terms of enforcing green bond issuers' compliance with their obligations and adjudicating disputes between investors and issuers. Much ink has already been spilt about guarding against malpractices, such as fraud and green-washing, that undermine investor confidence. The role of courts has been canvassed earlier as well.¹⁹² Ultimately, investors will only stay in the green bonds market when they have enough confidence that the issuers stay true to their commitment to sustainability and any disputes can be resolved in an efficient and fair manner. The government can do much in this respect in terms of regulatory design and boosting judicial expertise in this area.

4.3 Evolving Role of the Government and Gradual Transition Towards a Market-oriented Model

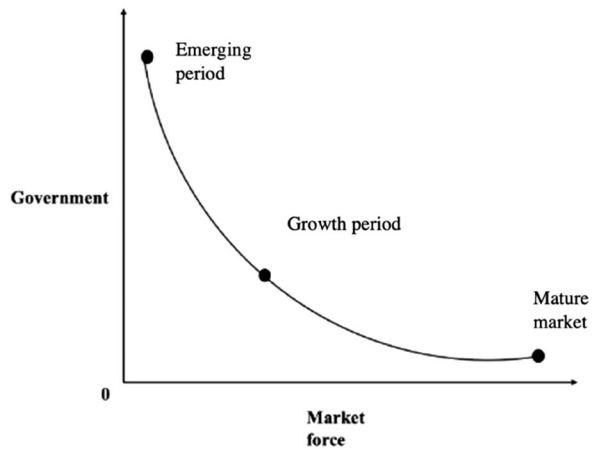
On the one hand, China, with a transition economy, has impressed many in pioneering the establishment of a government-led green bonds market that fulfills the goals of green bonds. However, on the other hand, the hidden challenges brought about by China's top-down development model and new pressures arising from the green development at home and abroad render it necessary to recharacterize the government's involvement from that of a government-oriented model with a limited role for the market to a market-oriented model with a limited role for the government. The authors therefore argue that the role of the government should not be a stagnant one where the green bonds market is concerned but requires evolution in response to the level of maturity of the market.

¹⁹⁰ The Six Principles for Responsible Investment promulgated by the United Nations Environment Programme are as follows: (1) incorporate ESG issues into investment analysis and decision-making processes; (2) be active owners and incorporate ESG issues into our ownership policies and practices; (3) seek appropriate disclosure on ESG issues by the entities in which we invest; (4) promote acceptance and implementation of the Principles within the investment industry; (5) work together to enhance our effectiveness in implementing the Principles; and (6) each report on our activities and progress towards implementing the Principles.

¹⁹¹ Feng et al. (2019), p 502.

¹⁹² See Section 2.6 above.

Fig. 3 Evolving role of the government in developing a green bonds market



As illustrated in Fig. 3 above, at the emerging stage of the market the government has a greater role to play. Such a role would involve setting up a conducive institutional and regulatory framework, creating preferential policies to attract investors, and providing reliable dispute resolution mechanisms, as explained earlier. Overall, these government interventions are not an end in themselves, but rather a means to reach desirable ends such as diversification, reliability and competence of green bond issuers, sophistication of investors and expertise of the courts. It is not difficult to see that these end goals all drive towards a more mature market where market forces alone can distribute resources in an efficient and environment-friendly way. Similarly, scholars have identified the signs of a mature market as including proper management of information asymmetry, strong investor protection (particularly for minority investors), and continuous monitoring of company directors and managers.¹⁹³

Once there are observable signs of a mature market, the extent of government intervention should be significantly curtailed, letting market forces take the leading role in shaping its development.¹⁹⁴ At this later stage, the role of government as a limited participant should be reduced to the provision of necessary funding and of efficient dispute resolution mechanisms, and monitoring of the performance of green bond issuers. In fact, overregulation at this stage risks stifling the attractiveness and competitiveness of a market.¹⁹⁵ By letting market forces take a predominant role, the government will also be mitigating some of the issues related to the top-down approach, such as inefficient allocation of resources. Overall, while at the present stage the government still has a major role to play in terms of putting in place a robust regulatory regime that properly incentivizes different stakeholders to

¹⁹³ See, for example, Black (2001) (although in the context of stock markets the concepts are transferable).

¹⁹⁴ Chen (2014), p 45.

¹⁹⁵ Coffee (2007), pp 233–247.

enter the green bonds market, eventually its role is going to diminish to a facilitative monitor in the long run as the market matures.

5 Conclusion

China has progressed from a high-energy consumption, high-pollution economic model to a green and low-carbon economic model in its attempt to build an ecological civilization. In the process, China established the world's second largest green bonds market in a short period of time through top-down government-led reforms. This is a significant example of how a country with a transitional economy can build a vibrant green bonds market. The top-down design, unified deployment and efficient implementation of its green bond system and operation mechanisms have empowered China to overcome certain market failures and thereby shorten the natural evolutionary process of the market. This highlights the government's positive role as the institutional force that mandates change. However, despite the initial successes of its green bonds market, China also faced challenges brought about by its government-led reform model that varied between regions and eras. Additionally, China also realized the importance of allowing the market to work hand-in-hand with the government, the importance of giving effect to market mechanisms for resource allocation and the importance of establishing efficient incentive and constraint mechanisms for the market.

In response to the new changes in international green standards and the need to fulfill its '30/60 goal', China must reform and improve on the mechanism and institutional framework of its green bonds market with the aim of unifying its domestic practices and aligning them with international standards. It should further strengthen sustainability information disclosure requirements and cultivate a group of sophisticated retail investors. The role of courts as a bridge between black-letter laws and actual stakeholders such as issuers and investors should be enhanced as well. In implementing these measures, the government needs to be guided by the ultimate goal of constructing an efficient and independent green bonds market driven by market forces with an appropriate institutional design. All these policy reforms will eventually allow the market to further develop and to more effectively promote the making of a green, low-carbon circular economy so as to realize the vision of building a better home on earth.

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