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# Developing A Green Bonds Market: The Case of China


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**Developing A Green Bonds Market: The Case of 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 mechanism 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 could play an active role in designing a conducive regulatory environment through law and policy, providing necessary financial infrastructure and appropriate incentives for investors and green bonds 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 collaborations, 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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## Table of Contents

## I. Introduction

Green bonds are defined by the International Capital Market Association (ICMA) as "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 & 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 portfolio 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 2015[6] 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 goals[8] proposed by the United Nations Framework Convention on Climate Change, the Paris Agreement, and other related international conventions.

In September 2020, President Xi Jinping announced the "30/60 goal" at the United Nations General Assembly, which aims to peak carbon emission by 2030 and reach carbon neutrality by 2060.[9] More specifically, he announced during the 5th Anniversary of the Paris Agreement at the Climate Ambition Summit on December 12, 2020 that "by 2030, China's carbon dioxide emission per unit of GDP will lower by more than 65% from 2005 levels, the use of non-fossil energy in its primary energy consumption will reach about 25%, forest accumulation will increase by 6 billion cubic meters from 2005 levels, and the generation of wind and solar power will reach more than 1.2 billion kilowatts."[10] At the same time, a report by the Climate Policy

[1] International Capital Market Association (2018), at p 3. The four core components involve 1) use of proceeds, 2) process for project evaluation and selection, 3) management of proceeds and 4) reporting.
[2] CBI (2019), at p 8.
[3] EU Technical Expert Group on Sustainable Finance (2019a), at Annex 1, Section 3 Definition of an EU Green Bond.
[4] State Council (18 Jan 2021).
[5] See for instance, Haidong 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 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 Five-Year Plan for 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 Five-Year Plan", puts forward the five new development concepts of "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 lower than 2°C above pre-industrial levels.
[9] Steven Lee Myers (23 Sep 2020).
[10] World Resources Institute (12 Dec 2020).

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 Five-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 reiterates 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]

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.[16] CGN Wind Power Co., Ltd. first issued a US$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.[17] In January 2016, the Industrial and Commercial Bank of China was approved to issue RMB10 billion green financial bonds in the Interbank Bond Market,[18] marking the official launch of green bond in China.[19]

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 Bond, in

[11] Climate Policy Initiative (2020b) at p 1.
[12] *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 an English analysis by Christoph Nedopil Wang, and Huiyu Huang (27 Feb 2021).
[15] Ma Jun (13 Oct 2017), see also Rebecca Choong Wilkins (22 March 2021).
[16] China proposed the strategic initiative of "establishing a green finance system" in *General Plan for the Reform of Ecological Civilization System* in 2015, see *supra* note 6. In 2016, the People's Bank of China (PBOC) and six other 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], PBOC and other ministries, (31 Aug 2016), which was 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 it is more easily incorporated into investment portfolios by institutional investors as a medium and long-term financial product."
[17] Hong Yanrong (2016).
[18] Zheng Yinghao (2016).
[19] The operation of these green financial bonds follows the Green Bond Principles issued by the ICMA and the Climate Bonds Standard.

2007,[20] China's green bonds market developed at a rapid pace in the past few years.[21] In 2016, China became one of the largest issuers of green bonds in the world.[22] According to statistics from the CBI and China Central Depository & Clearing Research Centre (CCDC Research), Chinese issuers issued a total of RMB 386.2 billion (US$ 55.8 billion) of labelled green bonds in 2019 in both domestic and international markets, making China the largest source of labelled green bonds.[23] By the end of 2019, China's domestic green bonds market had a total outstanding amount of RMB 977.2 billion (US$140 billion).[24] As of March 2021, China leads the world in the value of outstanding green loans at about US$2 trillion, making it the second largest green bonds market in the world ranking only after the United States (see Figure 1 below).[25] 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.[26]

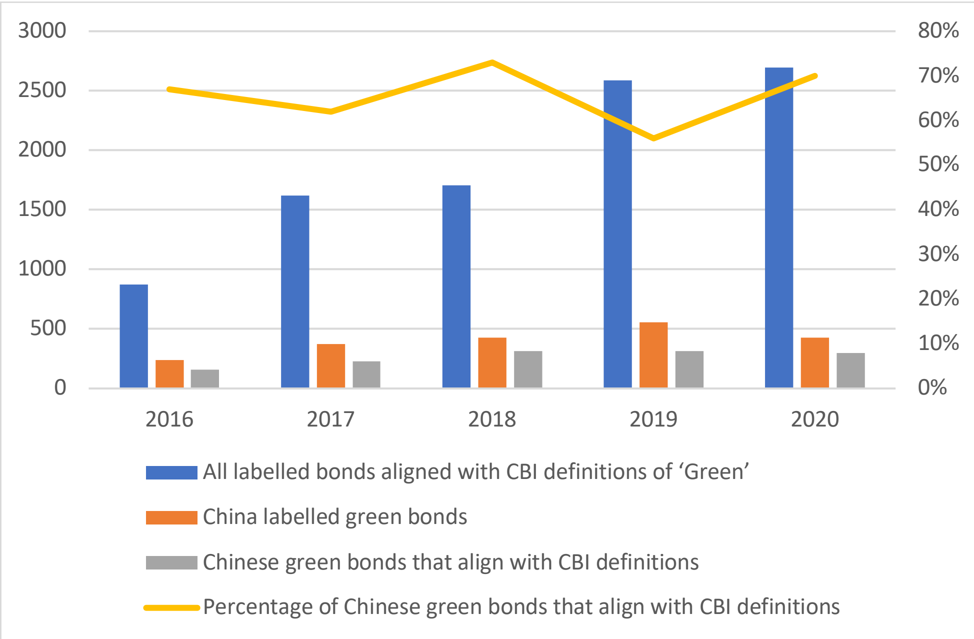


**Figure 1 : Amount of China's Green Bond Issuance 2016-2020 (in billion USD)[27]**

[20] International Finance Corporation (2016), at p 1.
[21] Hao Zhang (2020), at p 1.
[22] Shi Yingzhe and Wang Yao (2018), at p 32.
[23] CBI & CCDC Research (2020), at p 3. According to the CBI, an aligned green bond in 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 Gonds are 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 in use of limiting global warming within 2°C.
[24] 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 CBI uses the actual exchange rate on the date of issuance for each bond. See CBI & CCDC Research (2020), at p 12.
[25] Mayer Brown (25 March 2021).
[26] Sean Kidney *et al* (2015), at p 249-253.
[27] The data is compiled by 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 & CCDC Research (2017), CBI & CCDC Research (2018), CBI & CCDC Research (2019), CBI & CCDC Research (2020), and Liam Jones (24 Jan 2021).

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.[28] For instance, scholars have argued that the governance regime of green bonds market in the United States is largely established by private ordering.[29] 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 Regulation*[30] and the *EU Sustainable Finance Disclosure Regulation*,[31] 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 to 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 of government in the green bonds market,[32] there is little legal literature analyzing this issue in the context of China.[33] While there are a number of factual reports by research institutes shedding light on this issue, relatively less academic analysis are available.[34] This paper therefore aims to fill this literature gap. This paper also provides a timely reflection of the desirability of 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 is unique to the Chinese context and which are 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 could play a more active role in designing a conducive regulatory environment through law and policy, providing necessary financial infrastructure and appropriate incentives for investors and green bonds issuers. Government intervention is warranted at this stage given the unique features of the green market, in particular, the desired positive externalities on

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[28] Ma Jun (13 Oct 2017).

[29] See for example, Stephen 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 another example, Michael MacLeod & Jacob Park (2011) (describing the role of investor-based coalitions in environmental governance based on political science scholarship).

[30] 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.

[31] 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.

[32] See, for example, Stephen Park (2018) (examining governance gaps in the green bonds market where there is an absence of government regulation); Lloyd Freeburn and Ian 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).

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

[34] See for example, CBI (2017), CBI & CCDC Research (2020), and Climate Policy Initiative (2020b).

environmental protection and climate change. In China, such a regime is implemented with a focus on inter-ministerial, central-local collaborations, 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 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 II 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 III 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 the case for greater convergence. Section IV 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 V concludes.

## II. 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 on 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.

### a. 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. [35] 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 PBOC and registered by the National Association of Financial Market Institutional Investors (NAFMII).[36] Unlike financial institution bonds, these

[35] 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, of which RMB 6.12 trillion was used for green project investment. Yun Ziting (19 Jan 2021).

[36] 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

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.[37] Non-financial corporations have issued green asset-backed securities and green asset-backed notes in exchange markets and the Interbank Bond Market respectively.[38] These green asset-backed financial instruments are based on assets that can generate cash flow returns in the future, which are different from financial institution bonds or general green corporate bonds financed on the basis of issuer's credit.

Some local government financing vehicles (LGFVs, i.e. financing firms) have issued green bonds, which are often referred to as LGFVs green bonds, in the market under the domestic bonds system.[39] 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,[40] 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 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),[41] (3) direct access to the Chinese Interbank Bond Market,[42] and (4) the Bond Connect programme.[43]

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,[44] China's overseas green bonds market has achieved a steady growth. As of 2019, Chinese entities have issued 66 green bonds overseas with the total amount of about RMB 212.995 billion, with the issuers being policy banks, commercial banks, non-financial corporates etc.[45] 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 U.S. dollar as the main issuance currency.[46] In terms of the use of funds raised, in addition to meeting 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.[47]

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type. See also Climate Policy Initiative (2020a), at p 5 Table 2.

[37] See for example, CBI & SynTao Green Finance (2017), at p 4.

[38] Ibid, CBI & SynTao Green Finance (2017), at p 6.

[39] The volumes of LGFVs green bonds have increased by four times since the inaugural issuance from 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 & CCDC Research (2020), at p 5.

[40] Jiang Yong & Lei Na (21 June 2019).

[41] The People's Bank of China and the Foreign Exchange Administration have 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 have also been abolished, and the policies of different channels for foreign institutional investors to invest in the interbank market have basically converged in principle. See State Administration of Foreign Exchange (7 May 2020).

[42] 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), online: <http://www.pbc.gov.cn/tiaofasi/144941/144959/3021203/index.html>. This announcement stated that the "direct access to the Chinese Interbank Bond Market" route requires investors to first file with the People's Bank of China and then invest through a qualified domestic correspondent bank.

[43] Bond Connect (undated a).

[44] Renewables Now (21 July 2015).

[45] Liao Ziyi and Yun Zhiting (2020), at Section II.

[46] Ibid, at Section II (2).

[47] Ibid, at Section II (3).

Among them, the Bond Connect programme is currently the most convenient channel for international investors to invest in the domestic green bonds market.[48] 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".[49] 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.[50] Given the proximity of Hong 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.[51]

The relaxation of investor eligibility requirements under the Bonds Connect programme means that more small and medium-sized foreign investors will be able to access the domestic market.[52] There are also no investment quotas for small and medium-sized foreign investors under the Bond Connect programme. Through the programme, more international investors will have direct access to the primary and secondary markets, increasing the liquidity of China's green bonds market.[53] It also allows mainland investors easy access to foreign bonds in Hong Kong, providing them with additional means to diversify their portfolios.[54]

b. A top-level design

Chinese government takes the lead in developing the green financial system, which includes green bonds.[55] 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.[56] First, it can help China establish a green financial system efficiently 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.[57] Nevertheless, it is noteworthy that this does not mean that the "invisible hand" of the government replaces the invisible hand of the market to play the role of 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 green economy as one of the five major development concepts in the 13th Five-Year Plan, and vigorously encouraging green and low-carbon development, China has rapidly started the construction of

48 Qian Lihua & Lu Zhengwei (2018), at p 84.
49 People's Bank of China (2 July 2017).
50 Bond Connect (undated b).
51 CBI (2017), at p 26 Appendix 2.
52 Ibid.
53 Ibid.
54 Karen Yeung (5 May 2021).
55 Ba Shusong, *et al* (2019).
56 Mai Junhong and Xu Feng (2015), and Ba Shusong *et al* (2018).
57 See Table 1 below for greater details.

green financial system.[58] Presently, the policy scheme of green development in China has basically covered all green development fields and has formed a relatively comprehensive systematic policy hierarchy.[59] See Table 1 below 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 the ones at the national level with the highest significance and authority, whereas laws and regulations at a local level will also be canvassed in the following sub-sections.

**Table 1: Institutional Framework of China's Green Bonds Market[60]**

| Issuing body & date | Regulations/guidelines | Significance |
|---|---|---|
| 15 Dec 2015<br><br>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宜公告》) 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 become the first industries in China that are allowed to issue green bonds. |
| 13 Dec 2015<br><br>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<br><br>Shanghai Stock Exchange | Notice on Launching the Pilot Program 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<br><br>Shenzhen Stock Exchange | Notice on Launching the Pilot Program 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<br><br>People's Bank of China and | 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 |

[58] See Table 1 below for greater details.
[59] China Center for International Economic Exchanges (2013), at p 70.
[60] The table reflects the policy and regulations as of the end of April 2021.

| | | |
|---|---|---|
| Seven other Ministries[61] | | investment and financing tools in the guidelines are the overall institutional frameworks guiding China's green finance. |
| 2 March 2017<br><br>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<br><br>National Association of Financial Market Institutional Investors[62] | 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. |
| 26 Oct 2017<br><br>People's Bank of China, China Securities Regulatory Commission | Interim Guidelines for Green Bond Assessment and Certification (《绿色债券评估认证行为指引（暂行)》) | Unified and guided the assessment and certification of green bonds. |
| 26 Dec 2017<br><br>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》) | CSRC requires listed companies, or their significant subsidiaries included in the list of key emission companies announced by Ministry of Ecological Environment to disclose information on emission, construction of pollution prevention and control facilities and its operation, and environmental impact assessment of construction projects.[63] |
| 5 Feb 2018<br><br>People's Bank | Notice on Strengthening of Supervision and Management of Green Financial Bonds during the | Rules for the regulation and information disclosure requirements of green financial |

[61] Including the then People's Bank of China, 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.

[62] 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.

[63] *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), at Article 44.

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| of China | Term of the Bond (《关于加强绿色金融债券存续期监督管理有关事宜的通知》)<br><br>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》) | bonds during the term of the bond |
| 14 Feb 2019<br><br>People's Bank of China and Seven other Ministries[64] | Catalogue of Green Industries (2019 Edition)<br>(《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<br><br>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 set up pilot zones in several regions in six provinces (Zhejiang, Guangdong, Guizhou, Jiangxi, Xinjiang and Gansu) and has achieved significant results. |
| 8 July 2020<br><br>People's Bank of China, National Development and Reform Commission, China Securities Regulatory Commission | China Green Bond Endorsed Project Catalogue (2020 Edition) (Draft for Comments) (《绿色债券支持项目目录（2020 年版）》（征求意见稿）) | Revision of the China Green Bond Endorsed Project Catalogue (2015 Edition) to prevent regulatory arbitrage. It is the first time that three ministries agreed on a unified standard for the scope of green projects. |
| 20 Oct 2020<br><br>People's Bank of China and Five other Ministries[65] | 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. |
| 27 Nov 2020<br><br>Shanghai Stock | Guideline No. 2 on the Application of the Rules Governing the Examination and Listing of Corporate Bonds – | Repeals the 2016 Notice on Launching the Pilot Program of Green Corporate Bonds and |

[64] This included the then People's Bank of China, 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.
[65] This included the then People's Bank of China, the National Development and Reform Commission, the Banking and Insurance Regulatory Commission, the Securities Regulatory Commission and the Ministry of Ecology and Environment.

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| Exchange | 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") | treats green corporate bonds as a specific type of corporate bonds. |
| 27 Nov 2020<br><br>Shenzhen Stock Exchange | Guideline No. 1 of Shenzhen Stock Exchange for 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 Program of Green Corporate Bonds and treats green corporate bonds as a specific type of corporate bonds. |
| 2 Apr 2021<br><br>People's Bank of China, National Development and Reform Commission, China Securities Regulatory Commission | Notice on Issuing 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 with the 2020 draft. Makes better alignment with international standards, by for example, excluding fossil energy related projects. |
| 27 Apr 2021<br><br>People's Bank of China, National Development and Reform Commission, China Securities Regulatory Commission | Response to the Public Consultation on the Announcement of Issuing 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) | Provides detailed response to the concerns and opinions collected from the public following the issuance of Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation). |

c. Inter-ministerial synergy

The issuance and regulation of green bonds cover a wide range of aspects, including natural resources, environmental protection, energy deployment, economics on people's livelihood, financial management and information sharing. The positive externality of green bonds is difficult to be internalized effectively by the market alone within a short period without the help of favorable state financial, fiscal and tax policies.[66] Inter-ministerial corporation 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 financial regulation system (the so-called "one

[66] Ma Jun (2016), at p 2-3, and Dai Weihui (Lily) & Sean Kidney (2016), at p 10.

bank, one commissions and one committee" system), as well as the co-existence of three corporate credit bonds regimes.[67]

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 the implementation.[68] 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.[69] It studies and formulates major strategies, guidelines and policies for addressing climate change and unifying the active responses to the climate change. Such inter-ministerial collaboration is necessary and beneficial in the context of China to facilitate an efficient and fast-faced growth of the green bonds market.

d. 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, middle 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.[70] 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.[71] Such pilot zones explore green financial development models with regional characteristics and pilot new green financial regulations and standards, provide green financial services for the green transformation of regional economy and gain a number of replicable beneficial experiences while making remarkable achievements.[72] As of the end of 2020, the stock amount of green bonds in the above-mentioned pilot zones is RMB 135.05 billion.[73]

Local governments with more resources and 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* was issued on 5 Nov 2020 and became effective on 1 March 2021.[74] The *Green Finance Regulations* provide for the legal basis in terms of standards and procedures,

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[67] Hong Yanrong (2010), at p 9-10.
[68] *Green Finance Dynamics of the Research Bureau of the People's Bank of China: Further Promotion of the Symposium on the "Division of 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 October 2018), online: <http://www.greenfinance.org.cn/displaynews.php?id=2334>.
[69] See for example, Xinhua News (11 July 2019).
[70] People's Bank of China Research Bureau (2019), at p 3.
[71] Ibid. For example, 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 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.
[72] Ibid.
[73] People's Bank of China (9 Feb 2021).
[74] *Shenzhen Special Economic Zone Green Finance Regulations*, issued by Shenzhen People's Congress on 5 Nov 2020 and effective from 1 March 2020.

investment evaluations, information disclosure, monitoring and governance, as well as responsibilities and liabilities in relation to green finance.[75] It is the first green finance regulation in China, and provides the legal basis for regulatory actions against misbehaving market participants.[76]

The implementation of the *Green Finance Regulations* is met with 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 depository financial institutions in Shenzhen was nearly RMB 350 billion, accounting for 5.1% of the balance of various loans.[77] The financial institutions in Shenzhen have 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 at the Special Economic Zone had started to make public disclosure of sustainability information.[78] 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 mal-practices such as green-washing.[79]

The financial institutions in Shenzhen are also well prepared for the implementation of the *Green Finance Regulations.*[80] The Industrial Bank, as the first Equator Bank in China, and a pioneer in green finance, has set up internal governance structure to adapt to the development of green finance and actively participated in the building of green financial system in Shenzhen. For another instance, the Shenzhen branch of China Development Bank also actively supports the *Green Finance Regulations* and plays a major role in the formation of the Green Finance Committee.[81]

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 nation-wide implementations. Such pilot projects can lend valuable experience and learning points for national roll-out at a later stage.

e. 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 with the performance evaluation and promotion process for officials. Since 2005, China has begun to actively promote the assessment of the environmental performance of leading officials in their respective jurisdictions to strengthen environmental protection measures by targeting the governmental organization.[82] Four indicators of environmental protection, namely the enforcement of environmental protection laws, the pollution emission intensity, the change in environmental quality, and public satisfaction, were included in the assessment system for local government officials of all levels.[83] This fundamentally changes the phenomenon of local

[75] Ibid, at Chapters II, IV, V, VII, VIII.
[76] Shenzhen Municipal Financial Regulatory Bureau (2 March 2021).
[77] Ibid.
[78] Ibid.
[79] Ibid.
[80] Xinhua News (1 Mar 2021).
[81] Ibid.
[82] Sina News (17 Mar 2005).
[83] Ibid.

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 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 – the 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 Dec 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*.[84] This includes more comprehensive content regarding the local party leadership and government officials' target performances, as well as a change in the format of the review and inspection of their performances. In addition to economic indicators, such performance indicators now include political, cultural, social, ecological progress and other aspects that showcase "actual effectiveness".[85] 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*.[86] 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.[87] On 24 October 2020, the Organization Department of the CPC Central Committee issued a circular on improving performance appraisals to promote high-quality development.[88] 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 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*.[89] These policies required that the party committee and government of each district and city will implement the "one-year evaluation and five-year assessment" mechanism for ecological progress targets. The assessment of whether targets are achieved is based on a score out of 100 marks four grades of excellent, good, qualified and unqualified. The leading appraisal department collates the scores of each district or city and

[84] *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).
[85] Ibid, at point 1.
[86] *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).
[87] Xinhua News (26 Dec 2017).
[88] *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).
[89] People.cn (5 Sept 2017).

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 report shall be published to the public after being examined and approved by 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 the government bodies and leading officials in each district or city, as well as the reward, punishment, appointment and removal of officials[90]. The *Jiangsu Province Green Development Index System* is mainly used to measure the dynamic progress of the local ecological progress each year, covering 7 primary indicators of resource utilization, environmental management, environmental quality, ecological protection, growth quality, green life and public satisfaction, as well as 56 secondary indicators.[91] The *Jiangsu Province Ecological Progress Assessment System* includes 24 indicators in 5 aspects, including 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 3 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 emergencies, 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 on public participation, not only allowing people to have a say in the evaluation and assessment process, but also striving to harmonise 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.[92] 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 parameters and accounting methods for each indicator.[93] Amongst the indicators, three are primary indicators, namely material products, regulation services and cultural tourism services. There are 16 secondary indicators, including agriculture, forestry, animal husbandry and fishery products, climate regulation, water conservation, air purification, tourism and leisure services, etc. 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

[90] Ibid.
[91] Ibid.
[92] Xinhua News (24 March 2021).
[93] Ibid.

efficiency and accuracy of the accounting.

It can be seen from the preceding analysis that efforts have been taken 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.

f. The role of court

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, the court needs 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 introduced and implemented in China gradually.[94] This will bring a large number of enterprises to 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 catalog, 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 to 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.[95]

The Supreme People's Court has already proposed to make good forecasts, issue typical cases in due course, formulate judicial policies and propose judicial solutions.[96] This is especially for cases involving climate change response triggered by the development of renewable energy, reduction of energy consumption, carbon emission transformation, sustainable transportation, construction, among other things. 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 Aug 2017, the Supreme People's Courts proposed to explore the possibility of specialized financial trial institutions according to the characteristics of financial disputes and cases.[97] In his speech on the World Judicial Conference on 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.[98] He emphasized three important aspects of the SPC's endeavor, including specialized courts and tribunals for the adjudication of environment-related disputes, public participation and monitoring of environmental issues, and the use of technology in dispute resolutions.[99]

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[94] See Table 1 above.

[95] *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 Order No. 9 of [2021], (4 Feb 2021).

[96] Xu Tao & Su Fei (29 Apr 2020) .

[97] Ibid.

[98] Zhou Qiang (26 May 2021).

[99] Supreme People's Court (26 May 2021).

The court has a role to play in contributing towards sustainability for a few reasons. [100] First, the green finance court can play a part in reducing financial risks and promotes the sustainable development of financial institutions by strengthening the risk control norms of financial institutions in anticipation of potential lawsuits. Moreover, the green finance court assumes its conventional role of deterrence.[101] 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.[102] The use of a blacklist of institutions with records of litigations or dishonest behaviors in tapping into green bonds (e.g. green-washing or fraudulent disclosure) discourages short-termism and prevents the market for lemons.[103] Furthermore, the green finance court 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 desired and gradually implemented as such green finance courts are limited in number currently and still at their infancy stage.

## III. Special Characteristics of 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 information disclosure and credit-ratings. It is in this section that some of these features create difficulties and hindrance for the long-term growth of China's green bonds market and they should be accordingly revised. 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 hinders 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.[104] Therefore, there used to be a lack of unified standard in green projects classifications and the lack of a 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.

Furthermore, 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 the *Green Bond Impact Reporting* in December 2020.[105] Additionally, the ICMA's *Handbook of Harmonized Framework* 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.[106] The

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[100] Ibid.
[101] Wang Chunxia (19 March 2021).
[102] Ibid.
[103] Ibid.
[104] See text accompanying *supra* note 36.
[105] See *supra* note 1 for the four principles.
[106] International Capital Market Association (undated) "Impact Reporting", online: <https://www.icmagroup.org/sustainable-

CBI, the main designer of climate bond standards, also 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 uses.[107]

Since 2018, the EU has accelerated the pace of development of sustainable financing. *The EU Green Bond Standard* released in March 2019 shared similar features as the Green Bond Principles and the Climate Bonds Standard.[108] Additionally, the *Technical Report on Sustainable Finance* released in March 2020 specified that green economic activities should contribute to one of six environmental objectives,[109] such as climate change mitigation, and climate change adaptation, adhere to the requirement of "doing no significant harm" to any of the other environmental objectives.[110] These new criterions are expected to become the next international benchmark for green bonds.

In this light, China begins in recent years to harmonize their 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.[111] 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.[112] The 2020 version of the catalog 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.[113] 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 expanding the scope of endorsed projects to areas such as agriculture and ecological protection.[114] 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 aligning with international standards.[115] Most recently, the *Green Bond Endorsed Project Catalogue (2021 Version)* was introduced in April 2021 after taking into account of public opinions in response to the 2020 draft.[116]

finance/impact-reporting/>.

[107] See CBI (2019).

[108] EU Technical Expert Group on Sustainable Finance (2019a), at p 13, Table 1.

[109] EU Technical Expert Group on Sustainable Finance (2019b), , at p 19. It also includes the four major goals of: sustainable use and protection of marine and water resources, transition to a circular economy and pollution prevention and control, conservation of the ecosystem, and its restoration, at p 16.

[110] Lu Wenqin (2020), at p 77-78. See also Ma Jun (18 Jan 2021).

[111] Andrew Whiley (15 Jan 2018).

[112] *Notice on Public Consultation and Issuing Issuing Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation)*, issued by PBOC, CSRC, NDRC, (8 July 2020). See further *Response to the Public Consultation on the Announcement of Issuing Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation)*, issued by the PBOC, CSRC and NDRC, (27 Apr 2021).

[113] Ma Min (10 July 2020).

[114] Ibid.

[115] 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 catalog 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 Jun *et al* (2020), at p 16.

[116] *Notice on Issuing the Green Bonds Endorsed Project Catalogue (2021)*, issued by 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 Issuing Green Bonds Endorsed Projects Catalogue (2020) (Draft for Public Consultation)*, issued by the PBoC, CSRC and NDRC, (27 Apr 2021).

Furthermore, China actively participates in bilateral and multilateral international exchange platforms, such as the establishment of the International Platform for Sustainable Finance (IPSF) together with the European Commission.[117] China is also taking steps to establish a working group on green classification terminologies, and conduct a study, organized by the People's Bank of China and its European counterparts, in exploration of the similarities and differences of the green financing standards between China and Europe with the intent of harmonizing their standards in 2021.[118] Importantly, China is working with the EU to push for a greater convergence of taxonomies of green finance and investments. On 21 March 2021, the PBOC announced that China is working with the European Union to adopt a *China-EU Shared Classification Catalogue for Green Finance* that is set to be rolled out later this year.[119] 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.[120] To push this harmonization even further, the adoption and incorporation of a globally recognized green taxonomy, reporting and disclosure regime will be discussed at the upcoming G20 summit in Rome in October 2021.[121]

At the PBOC-IMF High-Level Seminar on Green Finance and Climate Policy held on 15 Apr 2021, Yi Gang, the Governor of 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.[122] 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 promote greater information sharing between financial institutions and companies.[123] The importance of a harmonisation with international standards of green taxonomy is again emphasised. Regarding policy incentives, the PBOC plans to launch a set of facilitative mechanisms to provide low-cost funds for carbon emission reduction, and strengthen its support of green finance through measures such as commercial credit ratings, deposit insurance rates, and open market operations.[124]

China has actively sought other venues of international cooperation on green finance. For instance, China took the opportunity of China's G20 presidency in 2016 to introduce green finance into G20 motions for the first time, leading the formation of the G20 Green Finance Study Group and promoting the formation of a global consensus on green finance.[125] Such a mechanism has been operated and continued to exert significant influence to date. 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 mobilize capital for green and low-carbon investments.[126] At the end of 2018, the Green Finance

[117] SWITCH Asia (2019).
[118] People's Bank of China (9 Feb 2021).
[119] Latham & Watkins LLP (12 Apr 2021), Chen Jia (29 April 2021).
[120] David Henry Doyle (1 Apr 2021).
[121] Latham & Watkins LLP (12 Apr 2021).
[122] People's Bank of China (16 Apr 2021).
[123] Ibid.
[124] Ibid.
[125] International Institute for Sustainable Development (22 Feb 2016).
[126] See for example, Yi Gang (9 Dec 2020). The initial institutions include the People's Bank of China, the Central Bank of the Netherlands, the Bank of France and the Macroprudential and Disposal Committee, 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.

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.[127] 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.[128]

As can be seen from the preceding analysis, Chinese government has gained some momentum in terms of 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 on the use of proceeds, sustainability information disclosure and credit-ratings. Following the international standards would help to resolve some of the hindrance created by these special features. 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 with increased confidence of its standardisation and governance. Where applicable, recent reforms and recommended changes are included for a holistic analysis.

a. 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 issuer of green bonds over the years, the major groups of issuers remains state-dominated or state-associated. Since 2016, policy banks and large commercial banks were 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.[129] Non-financial enterprises became the largest group of issuers of green bonds in 2019.[130] Nevertheless, these non-financial enterprises still comprise of mostly state-owned enterprises and a relatively smaller number of private enterprises. This situation is less-than-optimal as it leaves the potential of private enterprises untapped in China's green bonds market. Further recommendations on how the government can adjust the incentives and constraints in the market to encourage participation by private enterprises can be found in Section IV below.

b. Use of proceeds

The Chinese requirements on the use of proceeds for green bonds also differs 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.[131] In comparison, this threshold can be as high as 95% in the international rules.[132] This low threshold applied in China causes concerns for the 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.[133] While allowing the use of a large proportion of green bonds financing for

[127] Green Belt and Road Initiative Centre (last updated 30 Apr 2021).
[128] UK Treasury (2019), and CGTN (21 July 2020).
[129] China Green Bonds and Credits (19 Jan 2018).
[130] CBI & CCDC Research (2020), at p 4.
[131] Climate Policy Initiative (2020a), at p 5 Table 2.
[132] CBI & CCDC Research (2020), at p 13.
[133] CBI & SynTao Green Finance (2020), at p 18.

peripheral purposes help to meet the needs of green bonds issuers and boost 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 funds raised invested in ecosystem-based adaptation projects or pollution prevention and energy efficiency projects.[134] As such, the focus is on the reduction of energy consumption per unit, the elimination of environmental pollution and the curtailment of environmental damages, and places the limited policy supports and grants on transforming the industries with the greatest impact and urgency in promoting green development.[135] As previously mentioned, it is only until recently that fossil-based green energy projects are excluded from the scope of green bonds, where unlike international green standards, such projects used to qualify for green bonds in China.[136] The problem with this arrangement is that although it fits the needs of China in the industrialization process, it limits the potential growth of green bonds, the alignment of the Chinese green standard 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 for the alignment of scope. For instance, China currently places an emphasis on new energy vehicle industry[137] while the international standards take a cautious approach in this sector.[138] Similarly, China does not set carbon emission targets for its green projects[139] whereas the international standards exclude all projects related to fossil energy sources without carbon capture mechanisms.[140] The alignment of these areas 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 the international standards such as *the EU Green Bond Standard*.[141]

c. Sustainability information disclosure

Sustainability information disclosure is required only to a limited extent in China. Except for listed companies and a few other specified categories, bond issuers need not disclose information regarding the use of the funds or the performance of the green projects.[142] Any information disclosed is mostly descriptive and not quantitative.[143] The frequency is, however,

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[134] CBI & CCDC Research (2020), at p 9.

[135] Lu Wenqin (2020), at p 78.

[136] Xinhua News (22 Apr 2021). This news article cited the *Notice on Issuing the Green Bonds Endorsed Project Catalogue (2021)*, issued by PBOC, CSRC, and NDRC on 2 Apr 2021 and effective from 1 July 2021, PBOC Order No. 96 of [2021]. See also Eric Ng (22 Apr 2021).

[137] Yin Hong (2020), at p 66.

[138] Ibid.

[139] Guo Xinshuang (2021), at p 45-46.

[140] Ibid.

[141] See *supra* note 108.

[142] China Central Depository & Clearing Co., Ltd. (2018), at p 31. The specified categories include "key emission units; enterprises imposed with compulsory clean production audits 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 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 Order No. 43 of [2021], (24 May 2021), at Art 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), at Article 4.4.

[143] Ibid, China Central Depository & Clearing Co., Ltd. (2018), at p 32.

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 international standards which require annual reporting.[144] 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.[145] They also recommend that issuers use qualitative performance indicators and/or quantitative performance indicators to measure the environmental impact of projects.[146]

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 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, which are required to disclose their fund usage and their actual environmental benefits, carbon neutral bonds launched in 2021 on the Interbank Bond Market are also required to disclose information on its carbon emission reduction and other environmental benefits.[147] 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.[148] The People's Bank of China also organized and developed a green financial information management system to promote information sharing and to enhance regulatory effectiveness.[149] On 24 May 2021, the Ministry of Ecology and Environment issued the *Notice on the Reform Programme for Environmental Information Disclosure System*.[150] The Reform Programme mandated environmental information disclosure for key pollution units, enterprises with compulsory clean production auditing obligations, listed companies and bond-issuing enterprises imposed with criminal liabilities or major administrative penalties due to ecological and environmental violations, and other enterprises or institutions as required by laws and regulations.[151] It further required that environmental information disclosure must be carried out in a timely, comprehensible and easily searchable manner and be uploaded to a centralized, comprehensive system.[152]

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.[153] A total of 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* formulated by China in accordance with its circumstances, with clear

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144 Climate Policy Initiative (2020a), at p 5 Table 2.
145 Yanrong Hong (2017), at p 128.
146 Ibid.
147 National Association of Financial Market Institutional Investors (2021a).
148 *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), at Art 4.14.
149 UN Partnership For Action On Green Economy (31 Aug 2016).
150 *Notice on the Reform Programme for 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 Order No. 43 of [2021], (24 May 2021).
151 Ibid, at Section II(1)(1).
152 Ibid, at Section II(1)(4).
153 UNPRI (2019).

results and demonstratable effects.[154]

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 funds raised in a multi-dimensional and comprehensive manner. Additionally, the system should strengthen the need for external evaluation agencies to prudently verify the content of such disclosures,[155] 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 aspect, more extensive reforms are required to deliver optimal impact.

d. Credit ratings and environmental risk analysis

Finally, on bond ratings**,** green bond credit ratings in China are generally concentrated above AA+, with most receiving AAA ratings.[156] The bonds are mostly certified by domestic third-party evaluation agencies, with a small portion certified by overseas agencies. [157] 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.[158] Furthermore, China's green bond standard does not mandate third-party certification. There is no unified or recognised certification process,[159] with the process differing 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 the basic criteria for certification.[160]

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 funds raised during its subsequent operation and the measurement of the environmental benefits it generates. In September 2020, the NGFS released two important documents, 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.[161] As one of the founders of 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 works 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 instead (e.g. green industry fund, green guarantee fund, green M&A fund, green guidance fund, green development fund, etc.) in order to guide the development of green industries.[162] In doing so, market participants in China should attempt to tail international developments such as the NGFS guidelines as much as possible to secure international confidence in their environmental risk assessment methodologies right from the start.

[154] See Energy Foundation (2020), at p 3.
[155] China Government Securities Depository Trust & Clearing Co. Ltd. and CECEP Consulting Co. Ltd. (2018), at p 113.
[156] Ibid.
[157] Ibid.
[158] Ibid. Non-public issuance of bonds is not required be rated.
[159] Shi Yingzhe (2019), at p 93.
[160] CBI (2019), at Part B & Part D.
[161] Network for Greening the Financial System (2020).
[162] An Guojun *et al* (2018), at p 76-78.

Additionally, in-depth use of financial technology in the field of green bonds will arguably improve the accuracy and automation of a systematic measurement of the environmental performance of green enterprises and projects.[163] 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 to overcome the difficulty with independent verification of sustainability information disclosure.[164] China has already began 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.[165]

## IV. 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 transition from a government-oriented approach towards a more market-oriented one.

### a. 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 that favours state-owned enterprises (SOEs). This means that private companies find it harder to secure financing through green bonds and accordingly have a small market share in the green bonds market. In 2019, while the number of terms of green bonds issued by private enterprises has increased to 11 terms, an 83.33% increase compared to 2018, the actual amount of green bond issuance by private enterprises (RMB 5 billion, comprising of 2% of the market) is still far lower than that of SOEs (RMB 194.937 billion, comprising of 79.90% of the market).[166] This is still the prevailing situation as of the date of this paper.

As a result, private enterprises that lack government background or connections, or have a low credit rating, tend to find it hard to secure a favourable 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 a long term as it stifles competition, limits the long-term potential of the market and creates potential concerns with the waste of resources or unaccountability by SOEs.

Chinese local policies primarily focus on green projects with high credit ratings, large scale

[163] Yin Hong (2020), at p 67; see also Emilios Avgouleas (2021), at p. 5-6.
[164] Ibid, Emilios Avgouleas (2021), at p. 18-22.
[165] Shanghai Branch of the State Administration of Foreign Exchange (2020).
[166] United Equator Bonds Research Institute (2020).

and relatively mature technology.[167] 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.[168] They get quicker approval for issuance by regulatory authorities. They can also use a higher proportion of the capital raised for purposes other than supporting their green projects as above explained. As some of companies controlled by local governments used to find it hard to issue ordinary corporate bonds, they may switch to issuing green bonds for financing.[169] 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 yet standardized green bonds standards, adding more risks to the system.[170]

On top of inefficient allocation of resources, corruption, fraud, and green-washing are potential vices hidden in a top-down approach. As previously mentioned, sustainability information is still a weak link in China's green bonds market.[171] Because the quality of information disclosure cannot be adequately accessed, problems such as fraudulent disclosure and green-washing tend to be present.[172] On top of these, local officials could 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.[173] Rent seeking is also an issue where the companies issuing green bonds could accrue unduly advantages and benefits by selecting a more favorable regulatory environment,[174] and such a regulatory arbitrage is particularly likely in China where there are different sets of standards governing green bonds.[175]

These issues could be aggravated by the resource and manpower constraints of regulators. As regulators face challenges in allocating sufficient resources to such regulations, the risks associated with under-regulation of illegal activities and non-compliance loom large.[176] 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.[177] Regulation of green bonds therefore requires greater manpower, resources and money. Suitable monitoring tools and techniques are required for each industry.[178] These requirements far exceeded the resource and capability constraints faced by conventional financial regulators. This dilemma brings unprecedented challenge for regulators and results in practical problems such as difficulty to deal with green-washing in a timely manner. All of these complications make it difficult for the 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 the regulators, the enforcers and the court,[179] it is important to contemplate on the roles of other market players such as financial institutions

[167] Climate Bonds Initiative & SynTao Green Finance (2020), at p 18.
[168] Ibid.
[169] Ba Shusong, Cong Yujia & Zhu Weihao (2019), at p 102.
[170] Xiao Jiang & Yan Xing (2018), at p 85.
[171] See Section III (c) above.
[172] See for example, Tyler Harlan (2019).
[173] See for example, Ting Chen (20 Aug 2020).
[174] Stephen Park (2018), at p 31.
[175] See Climate Policy Initiative (2020a), at p 5 Table 2.
[176] Ba Shusong, Cong Yujia, and Zhu Weihao (2019), at p 102-103.
[177] Climate Policy Initiative (2020a), at p 3.
[178] 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 (undated).
[179] See sub-section III.(e) for a discussion on the role of the court.

and third-party service providers such as law firms, auditing firms, and credit-rating agencies. Financial institutions can act as checks and balances of the quality of sustainability information disclosure.[180] Similarly, while shielding the influence of conflict of interest, credit rating agencies should uphold fairness and be held to their tasks of quality control.[181] 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 is 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 Figure 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 institutional framework for issuers to issue green bonds in a conducive regulatory environment,[182] 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 the issuers and the investors to maintain investor confidence in the market.

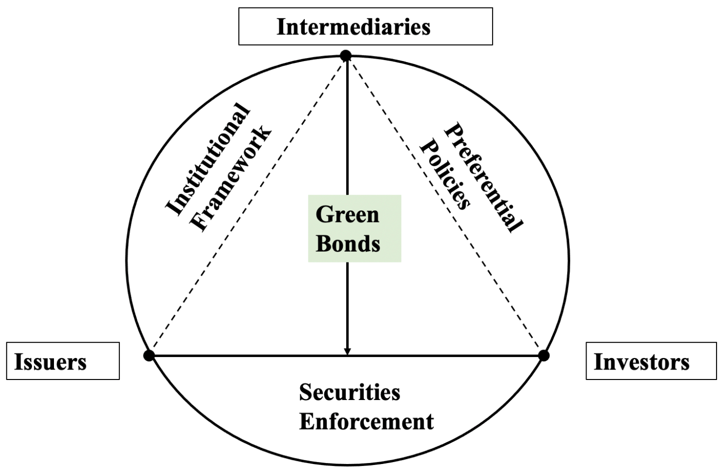


**Figure 2. Government Measures to Facilitate Effective Market Mechanisms**

Government policies can help to construct a favourable institutional framework for green bonds issuers in a number of ways. In terms of financing, as of end 2020, the market capitalisation 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.[183] 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.[184] Therefore, it is necessary to increase policy support for green bonds in the future. Achieving low-carbon green economy requires investment by the masses. In the future, China needs to stimulate the interests of private

180 Weng Foong Chang *et al* (2019).
181 Climate Policy Initiative (2020a), at p 9-10.
182 Such an institutional framework would encompass the key recommendations in this paper such as greater standardization and consistency of green bonds, more stringent requirements on information disclosure requirements and use of proceeds.
183 People's Bank of China (9 Feb 2021).
184 Wang Yao and Ma Qinghua (2020), at p 75.

enterprises to join the green cause and the government should divert more financial concessions and subsidies to such private enterprises as well as green projects with greater potential environmental benefits. Although private enterprises face certain disadvantages in seeking green financing in the current context, is it recommended that such should be reformed for the benefit of diversification and healthy competition in the green bonds market.

At the same time, China must guide green bond issuers to invest more funds raised into 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 brown industries transit to green ones. Since green bonds will no longer have any advantage in the issuance approval process after the implementation of the new Securities Law on 1 March 2020, which mandated that all corporate bonds comply with the "registration system", its regulations should be adjusted.[185] 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 its attractiveness.

b. 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 and the market demands the cultivation of sophisticated retail investors.[186] In recent years, the negative impact of climate change on the socio-economic conditions has been increasingly felt, particularly amidst covid-19, and it has become an inevitable source of financial risks.[187] At the same time, the demand and interest for sustainable investment by retail investors has increased and it should be tapped on for further growth of the green bonds market. However, because green bonds possess both the credit risks of ordinary bonds, and environmental risks associated with its environmental goals, the investors are required to have relevant knowledge about environmental risks and the methodology to identify, evaluate and manage such risks in their portfolios.[188]

According to statistics, the majority of green bonds (medium term) buyers in 2020 is institutional investors.[189] 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 concerned with information disclosure concerning the public welfare goals, and sustainable impact in the use of the funds.[190] The situation is a far cry from having investors with proper techniques to evaluate and manage environmental risks in their investment. Because of the lack of the 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.[191] As such, the lack of incorporation of concepts and tools for managing environmental risks covered by the *Principles for Responsible*

[185] *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 to the registration system concerning the public issuance of corporate bonds.
[186] See for example, Didier von Daeniken (28 Oct 2020), and Standard Chartered (2020), at p 10.
[187] Lau Kam Yuen (2020).
[188] Hong Yanrong (2017), at p 134.
[189] National Association of Financial Market Institutional Investors (2021b).
[190] Liu Tao (2018), at p 110.
[191] Ma Jun (2019), at p 8.

*Investment* (PRI)[192] may further limit the sustainable growth of the green bonds market in China.

With regards 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, guide financial resources toward a green, low-carbon circular economy and 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.[193] An important pre-condition for attracting sophisticated retail investors to enter the green bonds market is adequate investor protections, demonstrated by enhanced requirements on use of proceeds, continuous monitoring and certification, and information disclosure as recommended in this paper.

After the investors put their money into the green bonds market, the government's role continues in terms of enforcing that green bond issuers comply with their obligations and adjudicating disputes between investors and issuers. Much ink has already been spilt previously about guarding against mal-practices such as frauds and green-washing that undermine investor confidence. The role of the court has been canvassed earlier as well.[194] Ultimately, investors would only stay in the green bonds market when they enough confidence that the issuers stay true to their commitment to sustainability and any disputes can be resolved in an efficient and fair manner. Government can do much in this respect in terms of regulatory design and boosting the judicial expertise in this area.

c. Evolving role of the government and gradual transition towards a market-oriented model

On one hand, China, with a transition economy, has impressed many in pioneering the establishment of a government-led green bonds market that fulfils 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 involvement from that of a government-oriented model with a limited role for the market to a market-oriented model with limited role for the government. The authors therefore argue that the role of the government should not a stagnant one concerning the green bonds market but requires evolution in response to the level of maturity of the market.

As illustrated in Figure 3 below, at the emerging stage of the market, the government has a greater role to play. Such a role would involve setting up the 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 desirables ends such as the diversification, reliability and competence of green bond issuers, sophistication of investors

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[192] 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.
[193] Feng Guanghua *et al* (2019), at p 502.
[194] See Section II (f) above.

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 environmental-friendly way. Similarly, scholars have identified the signs of a mature market to include proper management of information asymmetry, strong investor protection (particularly for minority investors), and continuous monitoring of company directors and managers. [195]

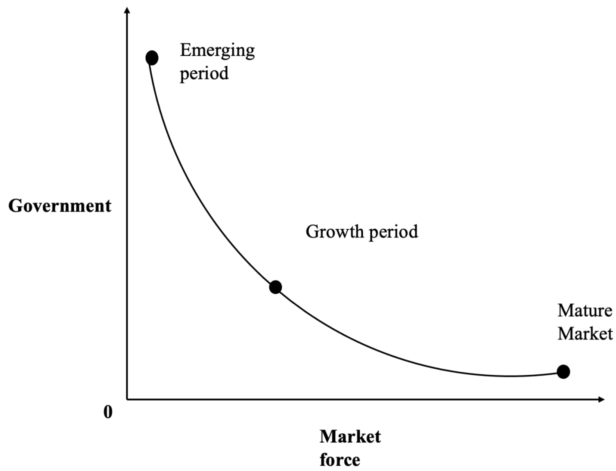


**Figure 3. Evolving Role of the Government in Developing a Green Bonds Market**

Once there are observable signs of a mature market, the extent of government intervention should be significantly curtailed and let market forces take the leading role in shaping its development.[196] At this later stage, the role of government as a limited participant should be reduced to the provision of necessary funding, 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.[197] By letting market forces take a predominant role, the government is also 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 much role to play in terms of putting in place a robust regulatory regime that properly incentivizes different stakeholders to enter the green bonds market, eventually its role is going to diminish to a facilitative monitor in the long-run as the market matures.

V. 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

[195] See for example, Bernard Black (1999) (although in the context of stock markets, the concepts are transferrable).
[196] Chen Su (2014), at p 45.
[197] John Coffee (2007), at p 233-247.

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 goals”, 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 its practices with international standards. It should further strengthen sustainability information disclosure requirements and cultivate a group of sophisticated retail investors. The role of the court 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 with an ultimate goal of constructing an efficient and independent green bonds market driven by market forces with appropriate institutional design. All these policy reforms would eventually allow the market to further develop and to promote more effectively 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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