

Article

To Enhance the Credibility of the Green Bond Market through Regulating GBERs: The Case of China

Xiayang Chen and Weiqiu Long *

Law School, Beihang University, Beijing 100191, China; xiayangchen@buaa.edu.cn

* Correspondence: longweiqiu@buaa.edu.cn

Abstract: As the green bond market expands, an increasing number of Green Bond External Reviewers (hereafter ‘GBER’ or ‘GBERs’) have gained momentum among investors and financial regulators. A GBER enhances the credibility of green bonds and prevents greenwashing risk in the green bond market by reducing the information asymmetry between issuers and investors. China is the second largest issuer of green bonds in the world. The current Chinese GBER legal framework is insufficient to ensure green bond market sustainability. Our purpose in this paper is to analyze the inadequacies of the Chinese GBER regulatory framework and to provide suggestions for overcoming the potential challenges within it. A textual analysis of primary legal sources and secondary academic sources serves as the main research methodology in this study. This paper provides an in-depth analysis of China’s GBER regulatory framework and addresses its shortcomings and weaknesses. Furthermore, given the evolving stage of the Chinese green bond market, this paper analyzes potential challenges for GBERs and proposes some suggestions to ensure high-quality reviews by GBERs.

Keywords: green bond; green bond external reviewer; financial regulation; China

1. Introduction

In the last two decades, green bonds have become a crucial tool for combating climate change and other environmental challenges (The World Bank 2021). As per the IFC 2021 report, the global green bond market has expanded continuously and rapidly in recent years. The growth of the green bond market led to an increase in market demand for identifying which bonds are designated as green. To ensure the credibility of green bonds, the Green Bond External Review (hereafter ‘GBER’)¹ was created accordingly. By determining whether a bond qualifies as a green bond, the GBER plays an increasingly significant role in preventing greenwashing and improving market transparency. In early 2018, almost 90 percent of international green bond issuance had at least one external review (CBI 2019a).

Numerous studies have already addressed the significant role green finance plays in facilitating both environmental and financial sustainability. Green bonds, as an integral component of green finance, can assist in ‘internalizing the environmental externalities and adjust risk perceptions’ (G20 Green Finance Study Group 2016). In other words, green finance, for one thing, reduces the gap between individual and social costs associated with coping with pollution through using market-based techniques, namely increasing capital flows to environmentally friendly projects; for another, it also raises public awareness of the financial risks associated with environmental sustainability (Ehlers and Packer 2017). Many researchers have demonstrated that green finance is essential to achieving sustainable development goals as well as ensuring energy security (Sachs et al. 2019).

¹ GBER is the abbreviation of the Green Bond External Reviewer in accordance with the GBP, and it is also named as Assessment and Certification Institution (hereafter ‘ACI’) in line with Chinese regulations, such as the Guidelines for the Conduct of Assessment and Certification of Green Bonds (interim).



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The reasons for the emergence of the GBER as well as the importance of the GBER in the green bond market have already been addressed in existing research. In the view of Ehler and Packer, the emergence of the GBER is a response to the demand of investors for essential information to avoid greenwashing in the rapidly expanding green bond market (Ehlers and Packer 2017). According to the view by Lackmann et al., information plays a vital role in the free market, particularly for investors, if it satisfies both the relevance and reliability criteria (Lackmann and Ernstberger 2011). Furthermore, Simeth indicates that in the green bond market, investors still remain concerned about the credibility and insufficiency of the information provided by green bond issuers (Simeth 2022). The GBER fulfills this role. As Gao states, the GBER undertakes various roles in the green bond market and thus it underpins the green bond market, as it meets the information demand for investors, the financial demand for issuers, and the regulatory needs for regulators (Gao and Jiang 2019).

Many researchers have addressed the significance of the GBER for reducing information asymmetry between the issuers and investors in the green bond market, as it serves as an independent third-party ‘gatekeeper’ to enhance the credibility and consistency of the disclosed information (O’Dwyer and Owen 2005; Simnett et al. 2009; Zorio et al. 2012; Martínez-Ferrero and García-Sánchez 2017). As Simeth indicates, the GBER is effective in mitigating environmentally related credit risk (Simeth 2022).

There have been some studies that have examined how to ensure the quality of the GBER from a regulatory perspective; however, not enough attention has been paid to improving the current Chinese GBER regulatory framework to address potential challenges, namely the insufficient civil liability system of the GBER and potential oligopolistic GBER market structure, which provides an entry point for this study. The study by Rose merely discusses suggestions for the GBER regulations under the CBI approach (one type of GBER) (Rose 2019). Simeth suggests that an internationally harmonized GBER standard may increase market confidence and green bond credibility (Simeth 2022). Ba, Cong, and Zhu outline the Chinese top-level regulations pertaining to green finance, but they do not elaborate on the lack of supplementary regulations pertaining to green bonds in detail, nor do they make any suggestions regarding revisions to GBERs (Ba et al. 2019). Research in the Chinese domain in the area of GBER mainly focuses on making a definite and uniform GBER standard and strengthening GBER disclosure regulations (Ge 2017; Gan and Wang 2018).

The reason why this study chooses China as the case to discuss the GBER issues is that on the one hand, following the United States, China has become the second largest green bond market and the largest issuer in the emerging green bond market, with the amount of green bond issuance 68.2 billion dollars in 2021 and the cumulative issuance 221,267 million dollars from 2012 to 2021 (CBI 2022a; International Financial Corporation 2022); on the other hand, the current GBER legal framework is not sufficient to ensure high-quality green bond external reviews, and there are enough spaces to further improve this as the emerging green bond market.

Having illustrated the importance of green bonds and GBERs and the role of the Chinese green bond market, this paper aims to answer the following questions: (i) What is the current GBER regulatory system in China? (ii) Is the existing GBER legal framework sufficient to ensure high-quality external reviews on the Chinese green bond market? If so, how? if not, why? (iii) What are the challenges for the Chinese GBER market? How can we improve the existing GBER legal framework? Section 3 addresses the definition of green bonds and GBERs, the types of GBER, and the main international GBER systems. In Section 4, we provide an overview of the Chinese green bond legal framework and the GBER legal framework. We also analyze the GBER regulations and provide an in-depth discussion of the regulatory purposes of the current GBER framework. In order to ensure the proper conduct of the GBER and to prosper the green bond market, Section 5 proposes suggestions to cope with potential challenges in the Chinese GBER market.

2. Research Methods

An in-depth analysis of the Chinese GBER regulatory framework is presented in this paper, along with suggestions for dealing with potential challenges within this framework. The major research method applied in this paper is a textual analysis of primary legal sources and various secondary academic sources using classical legal methods, which entails reviewing relevant laws, regulations, rules, institutional research reports, and academic papers, in order to determine whether China's regulatory strategies are feasible in the current GBER market and whether any potential challenges exist that could adversely affect their achievement of these objectives. Any deficiencies in the existing regulatory framework could be addressed with appropriate suggestions. Hence, in this paper, a textual review of the relevant literary materials is conducted to determine whether the analyzed content is sufficient to achieve their intended goals; if so, how? if not, why and how could they be improved?

Based on primary and secondary sources, the textual analysis method uses a wide range of sources. Primary sources mainly include Chinese legislation, compulsory regulations issued by various regulatory agencies, self-regulatory rules, and GBER empirical cases. Secondary resources are used in this paper, ranging from institutional reports provided by relevant authorities and organizations to other relevant academic papers in Chinese and English. Moreover, the data supporting the arguments below are gathered from government websites, professional databases, and reports from international organizations.

3. The Green Bond and the GBER

3.1. The Significance of the GBER

As the term 'green bonds' is too broad, there has not yet been a global consensus on the concept. The International Capital Market Association² (hereafter 'ICMA') and the Climate Bond Initiative³ (hereafter 'CBI'), two of the most significant associations worldwide, have established widely accepted standards for green bonds. The ICMA provides a definition of green bonds, which are debt instruments raised to finance or re-finance 'green' projects⁴ that align with the Green Bond Principles (hereafter 'GBP')⁵. The CBI defines green bonds, also referred to as 'climate bonds' under the CBI system, as certain low-carbon and climate-resilient projects and assets in accordance with the Climate Bond Standard (hereafter 'CBS') (CBI 2019b)⁶. The CBI does not clearly distinguish between a climate bond and a green bond, as can be observed from the CBI's reports and website.⁷ According to the China Green Bond Standard Committee (hereafter 'CGBSC')⁸, green bonds are bonds that are invested in green industries, green projects, or green economic activities⁹.

² The ICMA is a not-for-profit financial markets industry trade group and serves as a Secretariat to the Green Bond Principles.

³ The CBI is an investor-focused NPO, which aims to facilitate the growth of the global climate-relevant capital market by promoting investments in low-carbon and climate-resilient projects and assets (CBI 2023d).

⁴ The green projects include (but are not limited to) anti-pollution, low-carbon, climate-resilient investment as well as renewable energy and other environmentally friendly investment projects (See ICMA 2022b).

⁵ The GBP is a self-regulatory initiative and 'voluntary process guidelines' that are designed to facilitate the green bonds market through information disclosure and transparency requirements as well as bond-issuance recommendations for issuers (See ICMA 2022b).

⁶ Climate Bond Standard provides clear criteria to verify certain bonds in order to ensure that the proceeds are used to finance and refinance projects and assets in alignment with the rapid transition to a low-carbon and climate-resilient future.

⁷ For example, 'the Climate Bonds Standard provides clear, sector-specific eligibility criteria for assets and projects that can be used for "Climate Bonds" and "Green Bonds".' CBI. Standard: Climate Bonds Standard and Certification Scheme. Available online: <https://www.climatebonds.net/standard> (accessed on 22 January 2023).

⁸ CGBSC [绿色债券标准委员会] was established through the National Association of Financial Market Institutional Investors (hereafter 'NAFMII') in December 2018, supervised by PBOC and CSRC (Chinese Securities Regulatory Commission), and designed specifically to regulate green bonds. NAFMII. Introduction of China Green Bond Standard Committee. Available online: https://www.nafmii.org.cn/ztbd/lzqbzwyh/lbwjj/202207/t20220728_256973.html (accessed on 22 January 2023).

⁹ Section 1, *Chinese Green Bonds Principles*. No. 1 [2022] of the China Green Bond Standard Committee.

In this regard, green bonds are also determined by the standards for identifying the underlying green projects. Table 1 illustrates the various standards used at both the international and national levels to identify eligible green projects. As shown in Table 1, the GBP provided by the ICMA is the most widely accepted global green bond standard, providing specific eligibility criteria for green projects. In addition, the Chinese regulators of the green bond market have issued numerous regulations that have updated the scope of green projects in recent years, aiming to improve domestic standardization and international alignment. At first, the People's Bank of China (hereafter 'PBOC') released the *Green Bonds Endorsed Project Catalogue (2015)* (hereafter '2015 Project'), which contained classification guidelines for the issuance of green financial bonds on the inter-bank market. In 2019, the National Development and Reform Commission (hereafter 'NDRC') issued the *Green Industry Guiding Catalogue (2019)* (hereafter '2019 Guiding Catalogue'), which provided classification guidelines for the issuance of green enterprise bonds. Due to the difference between the 2015 Project and 2019 Guiding Catalogue, the PBOC, NDRC, and Chinese Securities Regulatory Commission (hereinafter 'CSRC') jointly updated the *Green Bonds Endorsed Project Catalogue (2021)* (hereafter '2021 Project'), which is designed to harmonize domestic green project standards. Additionally, the 2021 Project incorporates the international principle of 'Do Not Significant Harm' and converges GBP in order to further align with international standards (CBI 2021).

Due to the fact that the various standards for green bonds and their underlying green projects do not conform to each other, information asymmetry arises. Therefore, the GBER fulfills the role of providing assistance in enhancing the transparency and credibility of the green bond market. The international and national authorities have provided a variety of definitions, principles, and standards for determining green bonds and green projects; however, disagreements still persist about what kind of bonds or projects can be considered 'green'. Therefore, it is essential for maintaining market confidence to ensure that the invested projects are aligned with specific criteria regarding green bonds, that the proceeds of green bonds are used to fund eligible projects that are green enough, and that the proceeds of green bonds are adequately tracked or managed so that funds are used solely for the intended purposes (Wim et al. 2015). A total of 79% of respondents to the CBI survey indicated that they would not purchase a green bond whose proceeds could not be clearly allocated to green projects (CBI 2020a). Moreover, this opaqueness raises concerns that issuers may be accused of self-labeling and greenwashing. In order to address this issue, GBER acts as a third-party intermediary to reduce information asymmetry. At this point, the ICMA highlights the importance of green bond external reviewers in improving the transparency of green bonds by assessing the compliance of the pre-issuance termed 'green bonds' projects or its framework with the GBP's four core components¹⁰ and verifying if the proceeds generated from the green bond issue have been allocated to the appropriate green projects after the issuance (ICMA 2022b).

From an empirical perspective, a number of studies have demonstrated that the GBER plays a significant role in investor decision-making and green bond pricing. First of all, the external review of green bonds is materially important for investors, especially during the decision-making process. Several studies have provided empirical support to the view that investors do not have access to adequate environmental information about companies (Lyon and Maxwell 2011; Lyon and Montgomery 2015). In accordance with the study conducted by Bachelet and others, external reviews can alleviate the information asymmetry between issuers and investors, as well as reduce the risk of greenwashing (Bachelet et al. 2019). Flammer argues that green bonds with external reviews receive more positive responses from investors, and corporate performance improves if its bonds are ex-

¹⁰ The GBP's four core components are (1) use of proceeds, (2) process of project evaluation and selection, (3) management of proceeds, and (4) reporting (ICMA 2022b, pp. 4–6).

¹¹ *Green Bonds Endorsed Project Catalogue* [绿色债券支持项目目录]. No. 39 [2015] of PBOC.

¹² *Green Bonds Endorsed Project Catalogue* [绿色债券支持项目目录]. No. 96 [2021] of PBOC, NDRC and CSRC.

¹³ NDRC, 2019. *Green Industry Guiding Catalogue* [绿色产业指导目录].

ternally reviewed (Flammer 2021). Furthermore, external reviews of green bonds play an important role in the pricing of green bonds. The study provided by Dorfleitner and others examines systematically the role played by GBERs in green bonds, which utilizes a comprehensive data set consisting of 250 green bonds matched with 500 conventional bonds, as well as more than 92774 daily observations between 2011 and 2020 (Dorfleitner et al. 2022). According to this study, green bonds with external reviews are priced higher than their counterparts. This green bond premium is apparent in SPOs and verification types. In general, green bond prices rise as the level of evaluation provided by GBERs increases. In this regard, the GBER serves as a pricing tool for green bonds, based on its assessment of the level of greenness. In bond pricing, this function is analogous to the role of the credit rating agency.

Table 1. The comparison of Chinese and GBP Green Bond Projects Catalogue.

Document	Green Bonds Endorsed Project Catalogue (2015) ¹¹	Green Bonds Endorsed Project Catalogue (2021) ¹²	Green Industry Guiding Catalogue (2019) ¹³	Green Bond Principles (2021)
Issuing Authority	PBOC	PBOC, NDRC, and CSRC	NDRC	ICMA
Context	<ol style="list-style-type: none"> 1. Energy Conservation 2. Pollution Prevention and Control 3. Resource Conservation and Recycling 4. Clean Transportation 5. Clean Energy 6. Ecological Protection and Climate Change Adaption 	<ol style="list-style-type: none"> 1. Energy-Conservation and Environmental-Protection Industry 2. Clean-Production Industry 3. Clean-Energy Industry 4. Eco-Environmental Industry 5. Green Upgrades of Infrastructure 6. Green Services 		<ol style="list-style-type: none"> 1. Renewable Energy 2. Energy Efficiency 3. Pollution Prevention and Control 4. Environmentally Sustainable Management of Living Natural Resources and Land Use 5. Terrestrial and Aquatic Biodiversity 6. Clean Transportation 7. Sustainable Water and Wastewater Management 8. Climate Change Adaptation 9. Circular Economy Adapted Products, Production Technologies and Processes 10. Green Buildings

Abbreviations in Table: PBOC: People's Bank of China; NDRC: National Development and Reform Commission; CSRC: China Securities Regulatory Commission; ICMA: International Capital Market Association.

3.2. The ICMA and CBI GBER Systems

Having illustrated the importance of the GBER to the green bond market, the current main GBER systems should be introduced. There are two different green bond GBER systems provided by the ICMA and CBI. As stated in the GBER system provided by the ICMA, there are four types of GBP external reviews, namely 'second-party opinions, certifications, verifications, and green bond scoring/rating' (ICMA 2022a). Firstly, the second-party opinion could be viewed as independent professional advice relating to environmental sustainability issued by independent institutions with environmental expertise, which is used by green bond issuers to better design green bond frameworks; secondly, in terms of verification, the issuer may obtain third-party verification to ensure that certain features of green bonds, such as the green bond framework and the sustainability of underlying assets, conform to internal or external standards or claims provided by the issuer; thirdly, the certification is generally issued by a qualified and accredited third party, which verifies whether or not the framework or use of proceeds or KPI indicators of green bonds are aligned with a recognized external green standard or label; finally, the green bond scoring or ratings could be regarded as a third-party assessment or evaluation provided by credit rating agencies or research institutions; finally, the green bond scoring or ratings could be regarded as a third-party assessment or evaluation provided by credit rating agencies or

research institutions, which take into account the material environmental risks associated with green bonds (ICMA 2022a).

The CBI set up a CBS certification system where issuers who are inclined to obtain the CBS label in the green bond market need to be certified. The CBS certification system, which positions itself as a complement to the GBP, consists of three steps, including pre-issuance verification, post-issuance verification, and an ongoing report. Firstly, at the pre-issuance stage, the verifier examines whether or not the green bonds meet the CBS requirement; secondly, after the bond has been issued, the post-issuance certification double checks whether the bond complies with the CBS requirements; and lastly, to ensure that their bonds are in continuous compliance with CBS certification requirements, the CBI requires issuers to provide an annual report following the post-issuance phase (CBI 2023a). The CBS integrates the GBP and sets forth criteria for identifying green bonds in detail. The CBI provides pre-issuance certification to bond issuers to enable them to raise more capital through the bond market before the bonds are issued, while post-issuance verifications are intended to ensure that the bonds meet the CBS requirements once the bonds are issued. The CBI provides pre-issuance certification to bond issuers to enable them to raise more capital through the bond market before the bonds are issued, and the post-issuance verification is designed to ensure that the bonds meet the CBS requirements once the bonds are issued.

As can be seen in Table 2, there are three obvious differences between the ICMA and CBI systems. Above all else, a GBER adopts the GBP on a voluntary basis. In contrast, a GBER that intends to be an approved verifier¹⁴ under the CBI system must submit an application first and then meet some requirements before approval is granted by the CBI. In addition, the ICMA does not charge bond issuers, whereas the CBI charges bond issuers for their certification. Finally, even for the GBERs (also known as ‘external reviewers’) listed on the ICMA webpage, who claim to comply with the GBP external review principles, the ICMA does not investigate or supervise their compliance with the guidelines nor will it be liable for their certification, verification, or other relevant reports. Contrary to this, the CBI is required to certify the reports provided by the approved verifiers. In terms of the CBI certification system, bond issuers should pay a certification fee to the CBI (and verification fee to external reviewers) and appoint one approved verifier who will provide assurance that the bond or bond issuers have met the CBS requirements; the CBI will certify the third-party verification against the CBS once it has received the report from the approved verifier (CBI 2019c). In summary, since the GBP is a voluntary market discipline, the ICMA does not ensure material compliance by external reviewers, nor is it responsible for review results. Comparatively, the CBI appears to be more of a market-driven labeling mechanism, making it capable of taking charge of its certification results.

Table 2. The difference between the ICMA and CBI systems.

	ICMA	CBI
Requirements for External Reviewers	×	✓
Cost for Bond Issuers	×	✓
Oversight for the External Review Results	×	✓

3.3. The Types of GBER

On the basis of the two GBER systems mentioned above, the GBERs can be categorized into four types in this paper: the second-party opinion, the verification, the certification, and the green bond rating.

Firstly, second-party opinions are research-based assessments of green bonds, which are usually provided by a consultancy or an organization with expertise in environmental,

¹⁴ All the approved verifiers are listed on the CBI webpage.

social, and sustainability issues (CICERO 2022). To ensure their independence, second-opinion providers should either implement appropriate procedures, such as information barriers or be independent of bond-issuer advisors (ICMA 2022a). According to a CBI report, the second-party opinion is the leading option for issuers, with more than half of issuance using the second-party opinion as an external review in the international green bond market (CBI 2019a). Unlike other GBERs, the second-party opinion providers do not necessarily adhere to a particular set of criteria or a consistent review methodology. The CICERO, for example, published two second-opinion reports in the same year for two issuers of green bonds, namely Industrial Bank¹⁵ and ADBC¹⁶, and the content and structure of the two reports are clearly different (CICERO 2018a, 2018b). In addition to the second-opinion report that CICERO provided to the Industrial Bank as mentioned above, another second-party opinion provider Hong Kong Quality Assurance Agency (hereafter 'HKQAA') issued another second-party opinion review to the Industrial Bank in 2021, which clearly differed in methodologies, frameworks, and standards (HKQAA 2022). On the one hand, the advantage of the second-party opinion is its flexibility, which allows them to provide more detailed information from a variety of perspectives based on their professions and expertise. In addition, this flexibility also reduces information asymmetry between investors and green bond issuers, contributing to increased transparency in the green bond market as well as preventing greenwashing. On the other hand, the lack of standardization of second-party opinions is a disadvantage in reverse. The absence of uniformity makes it difficult for end users to compare the results of various reviews from different providers.

Secondly, verification is often issued by accounting or audit firms to assess the alignment with a designated set of criteria, including internal or external standards or claims by the green bond issuer. It appears that the verification is more of a factual evaluation as to whether the green bond complies with some particular principles and requirements, rather than an objective evaluation of the environmental benefits or other features of the green bond. According to a recent report, third-party assurance as one type of GBER occupied the international corporate green bond market with a share of approximately 10 percent from 2013 to 2020, whereas in 2013, it represented about 8 percent, followed by 7.7 percent by the Big Four accounting firms (Allman and Lock 2022). Some verifiers should be subject to the relevant professional standards when providing green bond assurance services, such as the International Standard on Assurance Engagements 3000-Assurance Engagements Other than Audits or Reviews of Historical Financial Information (hereafter 'ISAE 3000') for audit firms. For example, Deloitte provided an assurance conclusion to a green bond issuer based on limited assurance engagements in accordance with the ISAE 3000 and other professional standards (Deloitte 2022). Therefore, the main advantage of third-party assurance is the combination of greenness verification with regular auditing engagements, which reduces issuance costs for issuers. However, the verification discloses less information related to the environmental benefits and other environmentally friendly features of the underlying green projects, especially compared to second-party opinions. It can be concluded that this verification has a high level of standardization, especially in the auditing and accounting fields, while at the same time having a moderate level of comparability.

Thirdly, a certification is designed to certify green bonds against a designated set of criteria or a recognized external green standard or label. A certifier generally issues certifications to qualified issuers after verifying and assessing their compliance. In 2019, CBI-certified issuances accounted for 17 percent of global green bonds volumes (CBI 2020b). According to the CBI approach, certified issuers who are allowed to issue bonds labelled as CBI climate bonds should be verified in conformance with CBS by CBI-approved verifiers both in the pre-issuance and post-issuance stages. As an example, Sustainalytics, as an approved verifier by the CBI, conducted the verification to determine whether the KBC Group meets the requirements for wind energy, marine renewable energy, and low-carbon

¹⁵ Industrial Bank [兴业银行].

¹⁶ Agricultural Development Bank of China [中国农业发展银行].

building criteria of the CBS (version 2.1) (Sustainalytics 2019). There is a higher requirement for the certifier itself because the certifier has to design a professional set of criteria for green projects to be certified. At this point, the certification is not appropriate for some green bonds whose projects are new or lack clear industry standards. Furthermore, certification criteria are often highly standardized, which sometimes complicates the comparability of green bonds certified by several different reviewers or whose underlying assets are subject to differing industry standards.

The last type of GBER is the green bond rating reviewer, which often involves credit rating agencies and other research institutions. It should be noted that unlike credit ratings, the green bond ratings do not reflect credit risks, but rather material environmental or sustainable risks. One-tenth of the international corporate green bond market is rated by green bond rating reviewers (Allman and Lock 2022, p. 9). The Green Bond Assessment is a methodology for assessing green bonds developed by Moody's¹⁷ that assigns a score to a green bond ranging from GB1 (excellent) to GB5 (poor) based on five broad factors, including the use of proceeds, ongoing reporting, organization, management, and disclosure on the use of proceeds (Moody's 2018; Moody's Investor Service 2016). In addition to the green bond rating, a rating provider usually issues an additional report pertaining to the rated bond, which provides investors with more information. Various levels of environmental risks of green bonds can be reflected in various ratings or scores, which makes it easy to compare. Because rating providers use different methodologies for rating green bonds, it is difficult to compare ratings across rating agencies. To put it another way, the level of standardization in the green bond rating industry is intermediate.

In summary, as can be seen in Figure 1, this paper addresses and compares the four types of GBERs in three dimensions, including standardization, comparability, and information quantity. The verification has the highest level of standardization but less amount of information; the green bond rating shows the highest comparability and has the intermediate level of both information quantity and standardization; the second-party opinion reflects the largest amount of relevant information based on its strong flexibility, while it is difficult to be compared due to the lack of industry standardization formats; the certification shows a high level of performance across all dimensions.



Figure 1. The Level of standardization, comparability, and information quantity of various types of GBERs.

¹⁷ Moody's is one of the Big Three credit rating agencies, which also includes Standard & Poor's and Fitch.

4. The Chinese GBER Regulatory System

4.1. The Chinese GBER Regulatory Framework

The Chinese green bond regulatory system is a top-down regulatory framework mainly established by the PBOC, CSRC, NDRC, the National Association of Financial Markets Institutional Investors (hereafter ‘NAFMII’), and other regulatory agencies. The Chinese bond market recognizes four types of bonds: financial bonds, corporate bonds, non-financial corporate debt instruments, and enterprise bonds (Escalante et al. 2020). Different types of bonds are issued and transacted on different platforms, and thus, each type of bond is regulated by a different regulatory authority. Specifically, the Chinese green bond market is also governed by a multi-regulatory framework. According to Table 3, the main four types of green bonds are regulated by the PBOC, CSRC, NDRC, and NAFMII, respectively.

Table 3. Chinese Green Bond Type by Different Regulators.

Regulator	Bond Type	Bond Issuing and Trading Platform
PBOC	Green Financial Bond	Interbank Bond Market
NDRC	Green Enterprise Bond	
NAFMII	Green Debt Financing Instruments (e.g., mid-term notes)	
CSRC	Green Corporate Bond	Exchange Bond Market (Shanghai Stock Exchange & Shenzhen Stock Exchange)

Abbreviations in the Table: PBOC: People’s Bank of China; NDRC: National Development and Reform Commission; NAFMII: National Association of Financial Market Institutional Investors; CSRC: China Securities Regulatory Commission.

Table 4 lists all the regulations related to the GBER in China to date. In 2017, PBOC and CSRC released the Guidelines for the Conduct of Assessment and Certification of Green Bonds (interim) (Hereafter ‘2017 Guidelines’), which is the first voluntary regulation specifically designed for the GBER (also known as the ACI), aiming to improve external review quality and promote green bond market prosperity. The CGBSC, as a self-regulatory organization, is designed to specifically regulate the GBER conduct as described in Article 5 of the 2017 Guidelines. Later in 2018, the CGBSC was formally established through NAFMII, under the guidance of the PBOC and CSRC. In Chapters 2 and 3 (Articles 6 to 16) of the 2017 Guidelines, the requirements for GBERs’ registration and professional standards for their staff are described, as well as the requirements for the GBER conduct in terms of independence, integrity, honesty, and diligence. Articles 19 and 20 outline the essentials that GBERs should consider both during the pre-issuance and post-issuance stages, including compliance, greenness, use of proceeds, disclosure of information, and environmental benefits.

Article 10 of the 2017 Guidelines requires the CGBSC to design and implement market-based evaluation frameworks for GBERs. As a result, in 2021, the CGBSC issued the Operational Rules for Market-Based Evaluation for Assessment and Certification Institutions of Green Bonds (for Trial Implementation) and supporting documents (hereafter ‘ACI Operational Rules’)¹⁸, which serve as supplementary implementation conduct rules for the 2017 Guidelines. The ACI Operational Rule is the first industry standard pertaining to GBERs, which aims to further improve the GBER conduct by formally conducting a market-based evaluation mechanism. A market-based evaluation is designed to assess, screen, and approve some GBERs based on both quantitative and qualitative criteria in order to improve the quality of external reviews and transparency of the green bond markets. The quantitative dimensions include the number of external reviews based on green bonds, staff,

¹⁸ [关于发布《绿色债券评估认证机构市场化评议操作细则(试行)》及配套文件的公告]. Announcement No. 1 [2021] of CGBSC.

experts, reports, publications, relevant business activities, business training, and others; the qualitative dimensions include the external review methodology, the quality of the external reviews, and internal controls, as well as market acceptance.

Based on the assessment of market-based evaluation as the ACI Operational Rules states, 18 GBERs have been registered with the CGBSC and approved by the NAFMII in 2022, according to the Notice on Matters Relating to the Business of Green Debt Financing Instruments by Assessment and Certification Institutions (hereafter ‘2022 Notice’)¹⁹. The approved GBERs will be discussed later.

The CGBSC enacted the China Green Bond Principles (hereafter the ‘CGBP’) in 2022, a voluntary framework intended to promote domestic green bond market standardization and prosperity.²⁰ As the CGBP states, it fully respects the GBP and other relevant international principles issued by the ICMA. The CGBP clarifies the four core elements of Chinese green bonds as well as the requirements for green bond issuers, GBERs, and other market participants, based on the GBP and domestic market practice. Some of the CGBP provisions relating to GBERs are as follows: in Section 2.2.3 of the CGBP, it is recommended that green bond issuers have an external review and that GBERs publish their external review methodologies; it is also recommended that the GBERs disclose external review reports periodically and update the relevant follow-up report in accordance with Section 2.4.3.

Table 4. The Chinese regulatory framework relating to GBERs.

	Issuing Authority	Name	Regulatory Documents
2016	CBRC, PBOC, MEP, CSRC, CIRC, NDRC, MOF	<i>Guiding Opinions on Establishing the Green Financial System</i> ²¹	This aims to determine the third-party green bond external review standard, ensure the high quality of external reviews, and encourage the investors to make use of green bond external reviews in investment decision-making.
2017	PBOC & CSRC	<i>Guidelines for the Conduct of Assessment and Certification of Green Bonds (interim)</i>	This regulation is a fundamental soft law specially designed for the GBER (also known as ‘ACI’), which aims to prosper the Chinese green bond market by improving the market behaviors of the GBER.
2021	CGBSC	<i>Operational Rules for Market-Based Evaluation for Assessment and Certification Institutions of Green Bonds (for Trial Implementation) and supporting documents</i>	This is the first self-regulatory industry standard related to GBERs in the Chinese green bond market, which is the supplementary document for the 2017 Guidelines and is designed to further improve the quality of GBERs.
2022	CGBSC	<i>China Green Bond Principles</i>	This is a ‘self-regulated framework for stakeholders’ reference to best practice’ of the green bond market, which is designed to ‘promote standardization and high-quality development across China green bond market’.
2022	NAFMII	<i>Notice on Matters Relating to the Business of Green Debt Financing Instruments by Assessment and Certification Institutions</i>	In this notice, there are 18 GBERs listed, 11 of which are independent, and the others need to consult at least two external experts when they provide external review services.

Abbreviations in this Table: PBOC: People’s Bank of China; MOF: The Ministry of Finance; NDRC: National Development and Reform Commission; MEP: The Ministry of Environment Protection; CBRC: China Banking Regulatory Commission; CSRC: China Securities Regulatory Commission; CIRC: China Insurance Regulatory Commission; NAFMII: National Association of Financial Market Institutional Investors; CGBSC: China Green Bond Standard Committee.

¹⁹ [关于评估认证机构开展绿色债务融资工具业务有关事项的通知]. Announcement No. 172 [2022] of NAFMII.

²⁰ [中国绿色债券原则]. Announcement No. 1 [2022] of CGBSC.

²¹ [关于构建绿色金融体系的指导意见]. Announcement No. 228 [2016] of PBOC.

4.2. The Characteristics of the GBER Regulatory System

4.2.1. The Alignment with International Principles

The first characteristic of China's current regulatory framework is internationalization, which is evident throughout the entire regulatory framework: firstly, the 2021 Project incorporated the international principle of 'Do Not Significant Harm' and updated the scope of green projects in accordance with the GBP, as mentioned above; secondly, the CGBP is based on the GBP and has adopted many of the ICMA principles as well; thirdly, Article 18 of the 2017 Guidelines states that all recognized international and domestic principles and practices concerning GBERs are accepted in principle. In addition to enhancing market transparency, these regulations are designed to attract both domestic and international investors.

4.2.2. The Self-Regulation Framework

The whole GBER regulatory framework is voluntary in China, as discussed above based on Table 4. A Credit Rating Agency (hereafter 'CRA') plays a similar role to a GBER in the bond market, which also serves as a third-party financial intermediary and reduces information asymmetry between issuers and investors in the bond market. The Chinese CRA regulatory framework is mandatory, as per the Interim Measures for the Administration of the Credit Rating Industry²². In comparison with the West, Chinese financial regulators are generally in a stronger position, and thus, the GBER self-regulation framework is relatively uncommon. In 2021, as per the approval of the proposed European Green Bonds Standard, a green bond external review will become mandatory, which means that all European green bond issuers are required to have an external review during both the pre-issuance and post-issuance stages (European Commission 2021). Additionally, a GBER can only provide external reviews to issuers of European green bonds if it is registered with the European Securities and Markets Authority and subject to ongoing supervision (European Commission 2021).

4.2.3. The Multi-Regulator System

The GBER multi-regulatory system was derived from the Chinese financial regulatory system (Chen 2021). Table 3 provides an overview of the different types of green bonds supervised by regulators, as discussed above. In more detail, below are several findings from Table 5, which lists the different regulatory requirements for each type of green bond. Different types of green bonds are subject to different requirements from various regulators, as demonstrated in the following aspects. Above all, there is apparent inconsistency among the regulatory requirements for various green bond types supervised by various regulators. The PBOC, CSRC, and NAFMII each have different requirements for their supervised types of green bonds in terms of proceeds as well as disclosure of information. As compared with the requirements for green financial bonds, green corporate bonds, and green debt financial instruments, the requirements for green enterprise bonds are far from adequate. The NDRC does not provide detailed instructions regarding special accounts of proceeds and allocations of proceeds, nor does it specify requirements for presenting information regarding green enterprise bonds. More importantly, in terms of the GBER requirements, issuers of green financial bonds, corporate bonds, and debt financial instruments are merely encouraged rather than required to have an external review. Furthermore, there is no requirement for green enterprise bond issuers provided by the NDRC relating to the GBER.

²² [信用评级业管理暂行办法 (征求意见稿)]. Order No. 5 [2019] of the PBOC, NDRC, CSRC, and the Ministry of Finance.

Table 5. The comparison of regulatory requirements for various green bonds.

Bond Type Requirement	Green Financial Bond ²³	Green Corporate Bond ²⁴	Green Debt Financing Instruments (e.g., Mid-Term Notes) ²⁵	Green Enterprise Bond ²⁶
Requirement for Allocation of Proceeds	100% of proceeds are required to be invested in green projects	At least 70% of proceeds are required to be invested in green projects	100% of proceeds are required to be invested in green projects	At least 50% of proceeds are required to be invested in green projects
Requirement for Proceeds Account	Special bank account	Special bank account	Special bank account	No requirement
Information Disclosure Requirement Related to Use of Proceeds	Quarterly report	Annual report	Biannual report	No requirement
Information Disclosure Requirement Related to Environmental Benefits	Report for the green projects with investment above a certain threshold amount	Report the pre-issuance targets of the environmental benefits and the post-issuance actual environmental benefits	Report the pre-issuance targets of the environmental benefits and the post-issuance actual environmental benefits	No requirement
Report Template	✓	×	×	×
Requirement for An External Review	Recommended	Recommended	Recommended	No requirement

4.2.4. The Regulation-Driven Green Bond Market

Regulation-driven markets can be viewed as the most pronounced characteristic of the Chinese green bond market, which is also supported by the mainstream view (Hong 2016). First, the enactment of the 2015 Project introduced guidelines for the issuance of green financial bonds on the inter-bank bond market, which marked the official launch of China's green bond market. Secondly, a recent report confirms the positive correlation between Chinese regulation stimulus intensity and green bond issued amount (CBI 2022b). In detail, a set of comprehensive and extensive regulations contributes to an increase in bond issuance by improving the market behaviors of issuers and other relevant intermediaries. Third, Figure 2 shows that the percentage of issuance receiving external review varies widely depending on the type of issuance. Green financial bonds have the highest rate of external review, followed by green corporate bonds and mid-term notes, whereas green enterprise bonds have the lowest rate of external review. These findings are also in

²³ The content of this column is based on the relevant regulations as below: 1. *Announcement on Matters Concerning the Issue of Green Financial Bonds on the Interbank Bond Market* [银行间债券市场发行绿色金融债券有关事宜的公告]. Announcement No. 39 [2015] of PBOC; 2. *Notice by the PBOC of Issues concerning Strengthening the Supervision and Administration of Green Financial Bonds in the Duration* [中国人民银行关于加强绿色金融债券存续期监督管理有关事宜的通知]. Announcement No. 29 [2018] of PBOC.

²⁴ The content of this column is based on the relevant regulations as below: 1. *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]. Announcement No. 6 [2017] of CSRC; 2. Shanghai Stock Exchange. *Developing Green Corporate Bond Pilot Project*; 3. Shenzhen Stock Exchange. *Developing Green Corporate Bond Business Pilot Project*.

²⁵ The content of this column is based on the relevant regulations as below: *Guidelines on Green Debt Financing Instruments of Non-Financial Enterprises* [非金融企业绿色债务融资工具业务指引]. Announcement No. 10 [2017] of NAFMII.

²⁶ The content of this column is based on the relevant regulations as below: *Guidelines for the Issuance of Green Bonds* [绿色债券发行指引]. Announcement No. 3504 [2015] of NDRC.

line with the trend found in Table 5. When they are combined, the rate of participation in external reviews for green bonds, which are recommended for external reviews by relevant regulations, is obviously higher than that for green enterprise bonds, for which there are no relevant regulations. As a result, the current regulations have a significant impact on the green bond market in China, whose positive aspects, on the one hand, can prosper the market; on the other hand, whose limitations will adversely affect a regulation-driven market.

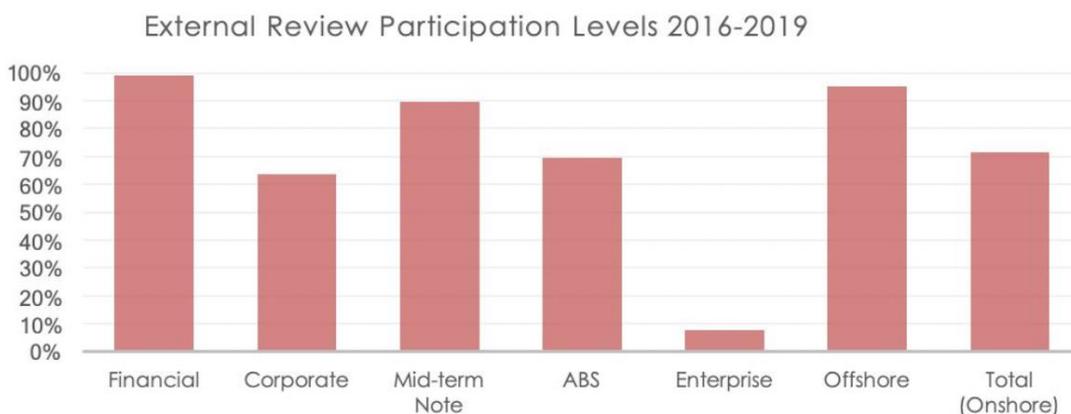


Figure 2. The percentage of external review by various bonds in the Chinese green bond.

4.3. The Insufficiency of the Current Chinese Regulatory Framework

The Chinese government is committed to creating a transparent, standardized, and stable market that will be attractive to both domestic and foreign investors. Taking into consideration the regulations and policies listed in Tables 1 and 5, two regulatory strategies are necessary to achieve this objective—improving alignment with international standards and improving the quality of external review. In this regard, the regulatory focus on the GBER has been reflected in the latest regulations.

Despite some attention being paid to GBER regulations, the current GBER regulatory framework is still inadequate in many aspects. First, the voluntary framework has limited enforcement power over GBERs. In other words, the existing GBER framework does not appear sufficient to ensure proper behaviors and high quality in the GBER. Second, in light of this inconsistency between various regulatory regimes, regulatory arbitrage may arise. According to Table 5, the regulatory requirements for green enterprise bonds are significantly fewer than those for other green bonds. Furthermore, green enterprise bonds are not subject to the 2017 Guidelines, which are the fundamental regulation for the GBER.²⁷ Issuers of green bonds may take advantage of loopholes in different regulatory regimes to pick the cheapest issuance method, which negatively affects the market confidence of market participants and the sustainable growth of the green bond market. Lastly, the regulation-driven market increases the negative effect of the insufficiency of the current GBER regulatory system. According to Table 5 and Figure 2, compared to the financial green bond, corporate green bond, and mid-term notes, the green enterprise bond has the lowest percentage of external review. This trend is in line with the findings found in Table 4 that there are fewer relevant regulatory requirements for the green enterprise bond. As discussed in Section 4.2.4, effective regulations positively affect the bond market. Conversely, this regulation-driven market is more likely to be negatively affected by a lack of relevant regulations. In a regulation-driven market, the inadequacy of the existing GBER regulatory framework will be further exacerbated.

²⁷ Article 3 of the 2017 Guidelines.

4.4. The Regulatory Strategy—Facilitate the Reputation Mechanism or a Gradual Three-Stage Reform

In such a regulation-driven market, we should examine in depth why China adopts a self-regulatory GBER approach to address market transparency, market behavior, and greenwashing. The regulatory purpose of each possibility under this regulatory approach will be analyzed as follows.

One possible explanation is that Chinese regulators created this voluntary approach for GBERs to facilitate a reputation mechanism that improves GBERs' conduct. Accordingly, this approach is consistent with the current trend of 'from regulation-driven to market-driven' Chinese economic transformation policy. The reputation mechanism is an ancient solution to the problem of building trust in a market with information asymmetry (McKenna and Olegario 2012). The reputation mechanism serves both as a deterrent to those with negative histories from misbehaving and as a reward to those with positive records. In other words, a reputation mechanism operates in such a way that GBERs with negative reputations are less likely to obtain business, whereas those with positive reputations are more likely to be chosen by potential clients. For one thing, a prerequisite for the reputation mechanism is to ensure that the market is transparent. Due to this, China's GBER regulatory system has specially designed a website that periodically publishes the results of market-based evaluations of GBERs.²⁸ For another, law enforcement needs to support the reputation mechanism so that they can work together to ensure proper behaviors (Milgrom et al. 1990). The following are the current GBER punishment provisions designed as a complementary device to the reputation mechanism, which helps to deter GBERs. A green bond label may be revoked under the circumstances described in Articles 36 and 37 of the 2017 Guidelines. A 'green bond label' cannot be reissued during the bond's lifespan once it has been revoked as per Article 38 of the 2017 Guidelines. According to Article 18 of the ACI Operational Rules, if a GBER is ineligible for Market-Based Evaluation, it must rectify this within a specified time period; if it still remains ineligible, it will be restricted or suspended from providing external reviews. For misconduct by GBERs, Article 43 of the 2017 Guidelines and Articles 19 to 22 of the ACI Operational Rules stipulate self-regulatory measures and administrative penalties. All of these provisions are intended to deter GBERs, ensure quality, and prevent greenwashing.

It appears, however, that the current penalty system is not yet fully established. To begin with, there are currently no systematic punishment regulations, as these punishment provisions are fragmented across multiple regulatory documents, as indicated above. The multi-regulatory system in the green bond market may further increase the inconsistency in punishments. Furthermore, the current punishment provisions are overly concise, which increases the barriers to enforcing them. Last but not least, another deterrent concern within the existing self-regulatory framework arises from the voluntary nature of the regulations themselves. In summary, the insufficiency of the existing punishment system may weaken its deterrent effect on improving market behavior and preventing greenwashing.

Another possibility is that the Chinese regulatory strategy is a gradual three-stage reform 'from voluntary to quasi-mandatory to mandatory'. In a similar move to the regulatory responses to ESG information disclosure, the Hong Kong Stock Exchange tightened the relevant requirements from voluntary to compulsory, step by step. The rationale behind this three-stage approach is as follows: the green bond market remains in the emerging stage, the relevant green projects or financial products are still very novel and may be changeable rapidly, and thus soft law is the best choice for regulators at the emerging stage of the green bond market. The flexibility of soft law can be tailored to market changes. The regulators will make certain provisions mandatory once the green bond market becomes stable or some element of the existing self-regulatory framework proves to be effective by the market. On the other hand, at the emerging stage of the green market, excessive tight-

²⁸ Article 23 of the ACI Operational Rules.

ening regulations may demotivate the market activities and increase the regulatory cost. It remains to be seen what the future holds for this possibility.

5. The Potential Challenges for the Chinese GBER Market and Suggestions

5.1. The Potential Oligopolistic Market

An oligopoly (derived from the Greek word meaning ‘few sellers’) is a market structure in which a few firms dominate the market (Varian 2010). For example, if the vast majority of shares of a market are owned by a few firms, this high concentration of market share is known as an oligopoly. As of this moment, oligopoly has begun to emerge in the Chinese green bond external review market.

As Figure 3 shows, seven GBERs held 88 percent of the market share in China in 2018, including four international firms (EY, Deloitte, CICERO, and Sustainalytics), and three domestic firms (Zhongcai Green Finance, CECEP, Lianhe Equator). EY and Deloitte, two of the Big Four accounting firms, accounted for half of the market share in 2018. Zhongcai Green Financing, with a nine percent share, ranked first among domestic GBERs, followed by CECEP and Lianhe Equator. Figure 4 shows that seven GBERs accounted for 82 percent of the Chinese market in 2019. More than half of the Chinese GBER market is held by international firms (such as EY, CICERO, and Deloitte). In 2019, Lianhe Equator, China Bond Rating, CCXI, and CECEP are the four largest domestic GBERs, with Lianhe Equator controlling 10% of the domestic GBER market. In addition to providing green bond ratings, they are all Chinese CRAs or subsidiaries of Chinese CRAs’. In China, CCXI and China Bond Rating were pioneers in green bond rating (CBI 2019d). To sum up, the GBER market in China is dominated by several GBERs.

In addition, regulatory licenses, which are the most common reason for market entry barriers, may further exacerbate the oligopolistic structure of the GBER market. As part of the CBS Scheme, the CBI maintains a list of all approved verifiers on its website and updates it in a timely manner (CBI 2023b). Green bond issuers seeking the CBS certification must first obtain verification from an approved verifier in accordance with the relevant requirements (CBI 2019c). It is pertinent to note that although approval from the CBI does not constitute a regulatory license, it can be viewed as a professional endorsement by a large international authority. This may lead to increasing market concentration of GBERs, since, under the same circumstances, a green bond issuer would be inclined to engage a verifier approved by the CBI instead of a verifier without the CBI approval. On NAFMII’s website, 18 Chinese GBERs registered with the CGBSC have been made publicly available through the 2022 Notice, as mentioned above. In accordance with the ACI Operational Rules, these registered GBERs are ranked based on their market-based evaluations provided by the CGBSC, and 11 of them are allowed to be independently engaged to provide external review services, whereas the remaining 7 GBERs may only be engaged under specified circumstances. The CGBSC approval consists of three parts: successful registration with the CGBSC, high ranking after market-based evaluation, and public announcement. Under the current regulatory framework for GBERs, registration with the CGBSC is not mandatory. However, under the Notice 2022 and the ACI Operational Rules, only GBERs that have successfully registered with the CGBSC may deliver external review services on both the interbank bond market and the exchange bond market.

According to Table 6, all domestic GBERs have been approved by either the CBI or the CGBSC as of the present time. A total of 17 domestic GBERs have been approved by the CBI, 18 domestic GBERs have been approved by the CGBSC, and 10 of these domestic GBERs have been approved by both the CBI and the CGBSC. Regarding the large domestic GBERs mentioned above, CECEP, Lianhe Equator, and Zhongcai Green Financial obtained both approvals, while China Bond Rating obtained approval only from the CGBSC. Regarding the large international GBERs, EY and PwC hold both approvals from the CGBSC and CBI (rather than themselves, their subsidiaries, EY Hua Ming LLP (special gen-

eral partnership)³⁰, and PwC Zhongtian LLP have received approvals from the CGBSC), while Deloitte China has only received approval from the CBI. Several large international GBERs have been aware of the significance of the CGBSC approval because they cannot participate in the domestic GBER market without approval. To obtain this approval easily, they register intentionally through their Chinese subsidiaries with the CGBSC. There is a possibility that these types of approvals will increase market concentration.

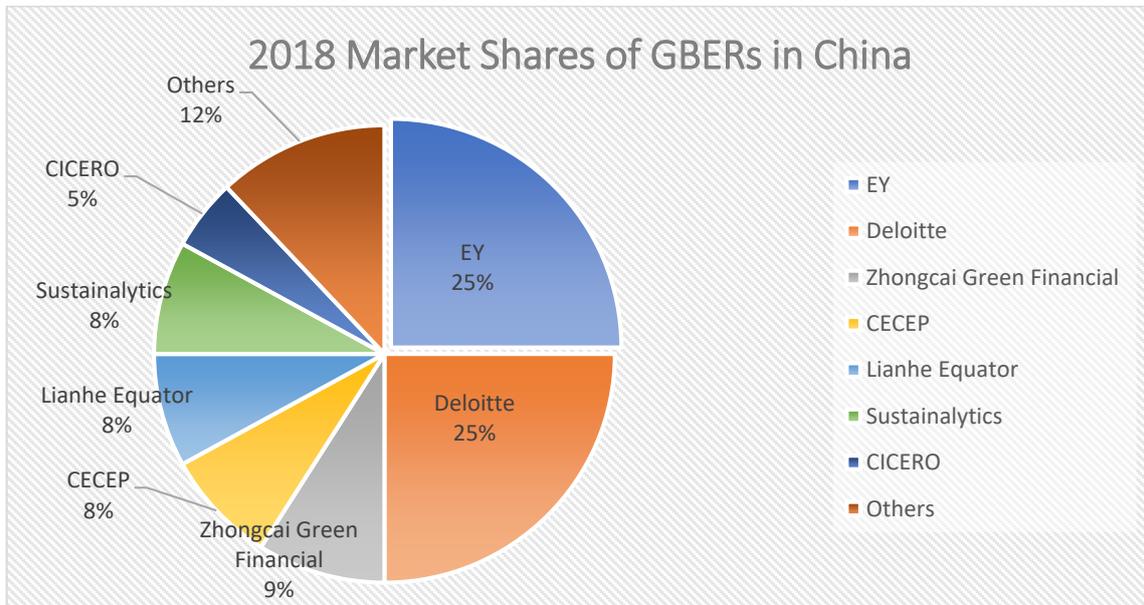


Figure 3. 2018 market shares of GBERs in China²⁹.

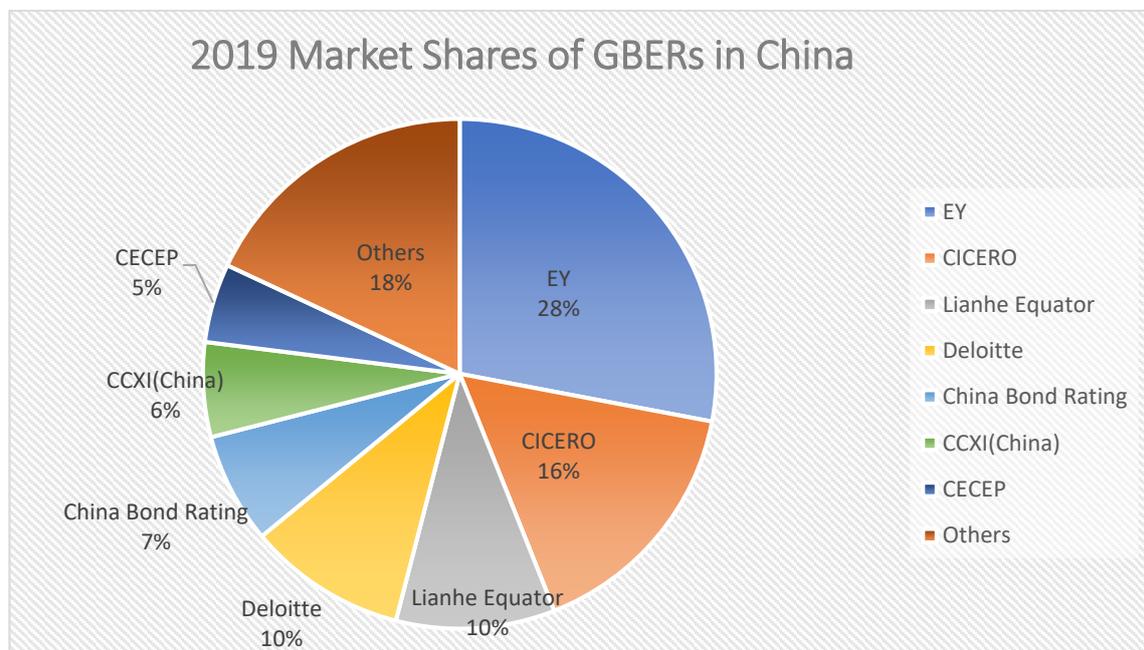


Figure 4. 2019 market shares of GBERs in China (CBI 2019d).

³⁰ In 1992, EY merged with Hua Ming, a domestic accounting firm, in accordance with some particular regulations, forming EY Hua Ming LLP.

²⁹ Figure adapted from the CBI (CBI 2019d).

Table 6. The approved GBERs by international and Chinese Authorities³¹.

Approved Chinese Green Bond External Reviewer			
Name	Approved by CBI	Approved by CGBSC	GBER Type
iGreenBank	✓	✓	Certification Body
China Quality Certification Centre (CQC)	✓	✓	Certification Body
CECEP Hundred Technical Service	✓	✓	Consultancy
Beijing Zhongcai Green Financial Consultants	✓	✓	Consultancy
SynTao Green Finance	✓	✓	Consultancy
Golden Credit Service	✓	✓	CRA
China Lianhe EIA	✓	✓	Subsidiary of CRA
China Chengxin Green Finance Technology (Beijing) (also known as 'CCXI')	✓	✓	Subsidiary of CRA
SinoCarbon Innovation & Investment Co., Ltd.	✓		Certification Body
Raising Clean-tech Investment Consulting	✓		Consultancy
Deloitte China	✓		Consultancy
Cushman & Wakefield	✓		Consultancy
Shenzhen CTI International Certification Co., Ltd.	✓		Certification Body
EY Hua Ming LLP (special general partnership)	✓ *	✓	Accounting Firm
PwC Zhongtian LLP (special general partnership)	✓ *	✓	Accounting Firm
China Building Material Test & Certification Group		✓	Certification Body
Morningstar Information Consulting (Shanghai)		✓	Consultancy
FarEast Credit Rating		✓	CRA
China Bond Rating		✓	CRA
Shanghai Brilliance Credit Rating & Investor Service		✓	CRA
AnRong Credit Information		✓	CRA
Shenzhen Pengyuan Green Finance & Technology		✓	Subsidiary of CRA
Dagong Low-Carbon Technology (Beijing)		✓	Subsidiary of CRA

Abbreviations in this Table: CBI: Climate Bonds Initiative; CGBSC: China Green Bond Standard Committee; CRA: Credit Rating Agency. * The verifiers approved by CBI are EY China and PwC China, while the verifiers approved by the CGBSC are PwC Zhongtian LLP (special general partnership) and PwC Zhongtian LLP (special general partnership).

As analyzed above, although the oligopoly has not formed, its trend remains evident. Additionally, oligopoly is common among other financial intermediaries, including accounting firms and credit rating agencies. For example, the Big Three credit rating agencies dominate the global market with approximately 98 percent of the market share (White 2010). In such an oligopolistic market, market competition decreases while regulatory costs and difficulties increase. In other words, regulatory challenges may arise from an oligopolistic market structure, especially in the financial intermediary sector. Therefore, it is still necessary to take active regulatory measures to prevent oligopoly risk in the GBER market.

It is imperative that Chinese regulators should attach high emphasis to the oligopolistic market for GBERs in order to avoid the main risk associated with the oligopolistic GBER market, namely the decline in external review quality (Mansfield 1970; Economics Online 2020), which manifests itself in two ways: (a) a lack of incentives and (b) hindering small

³¹ Due to a translation issue, the names of some Chinese GBERs mentioned in this paper may differ slightly from those listed in Table 6. The names of all Chinese GBERs listed in this table are official and full.

and new GBERs from entering the market. For one thing, once an oligopoly is formed, large GBERs are less likely to be motivated to continuously improve the quality of their external review, especially when they are aware of their dominant position. In an oligopolistic market, oligopolistic members have little fear of losing market shares to new competitors, which demotivates them from increasing their capability (Barnett 2019). For another, there is a high probability that an oligopoly will prevent small market participants from entering the market. This is because an oligopolistic market increases the cost of small GBERs, especially in terms of expertise, data collection, review methodologies, and specific equipment for green projects. In addition, due to the complexity of green bonds and the underlying green projects, technical requirements for GBERs are relatively high, and the entry threshold for the market is, therefore, relatively steep. As a result of both oligopoly and technical requirements, there are few competitors in the GBER market.

As we have illustrated the Chinese GBER market trend of oligopoly and its potential negative effects, it is incumbent upon China's regulators to design the possible regulations to prevent the emergency of oligopoly in advance. In reference to the CRA oligopoly in the United States, the US regulators granted the Big Three³² for several decades (United States Securities and Exchange Commission 2010), resulting in their dominance of the US market and even the global rating market. This is regarded as one of the issues that contributed to the rating failure during the 2007 financial crisis (Chen 2021, pp. 118–19). A regulatory license can, on the one hand, be viewed as a barrier to entry, impeding the entry of small GBERs; on the other hand, it ensures that GBERs entering the market possess a certain level of professional expertise. The Chinese green bond market is still quite young, and the GBER is acting as a financial intermediary to sustain the green bond market by reducing information asymmetry. The regulators should ensure that the recognized GBERs possess a certain level of professionalism. Therefore, Chinese regulators should focus on regulatory licenses to prevent oligopoly in the GBER market. In more detail, regulatory licenses for the GBER should be issued by Chinese regulators in a reasonable number.

5.2. Potential Conflicts of Interest

Conflicts of interest arise where GBERs have incentives to compromise their integrity for their own interests, which negatively affects the GBER quality. As GBERs reduce information asymmetry between issuers and investors in the green bond market, it is imperative that they remain neutral and independent. GBERs should avoid potential conflicts of interest to ensure high-quality external reviews. It is critical to note that there are, however, inherent conflicts of interest within the common business model of the GBER industry, namely the issuer-pay model. An issuer-pay model provides an incentive for GBERs to maintain their clients by providing favorable external reviews. It is likely that GBERs will apply lax criteria during this process, resulting in a deterioration in external review quality. The CBI operates under an issuer-pay model, which means that to obtain the CBI 'climate bond' mark, issuers need to pay a certification fee, and then the CBI conducts external review services (CBI 2023c). Currently, the issuer-pay model is the most commonly used business model for Chinese GBERs. A green bond issuer is more willing to pay for an external review, as a green bond external review can help them build more market confidence and raise more capital by providing more information to potential investors. Apart from that, ancillary services may also give rise to conflicts of interest. Table 6 illustrates that a certain number of Chinese GBERs are credit rating agencies or subsidiaries of credit rating agencies, making it possible for a GBER or its parent company to provide additional services, such as credit rating services while issuing green bond external reviews. The concern about this additional service is that the independence of a green bond external review may be negatively affected by other relevant businesses. The United States Securities and Exchange Commission report reveals that

³² The 'big three' are the largest credit rating agencies that hold approximately 98 percent for global credit rating market, including Standard & Poor's, Moody's Investment Service, and the Fitch Ratings (see White 2010).

the financial intermediary will suffer pressure from issuers (its clients) to stop purchasing its services and that it may have to compromise its integrity to maintain its businesses (United States Securities and Exchange Commission 2003).

In this paper, we do not discuss how to resolve conflicts of interest within the GBER business model itself because there is insufficient empirical evidence and market basis for making significant changes to the GBER business model. During the emerging stage of the CRA market, the investor-pay model³³ was the most commonly employed business model for decades. CRAs have shifted from investor-pay to issuer-pay business models since the 1970s, although some still practice investor-pay today (White 2010). However, unlike the CRA, the GBER industry does not have a similar history and therefore no market-based evidence supports other changes to its business model.

After illustrating the negative impact of conflicts of interest on GBER's performance, this paper will examine possible regulatory responses and corporate governance procedures to deal with this problem. For one thing, some GBERs, such as accounting firms, auditing firms, and CRAs, are required to adhere to international professional standards, including the International Code of Ethics for Professional Accountants, the ISAE 3000 (as mentioned above, for auditing firms), and others. In order to ensure independence, green bond verifiers, certifiers, and rating providers must safeguard their capability to make an external review conclusion free from potential influences that may compromise that conclusion. Furthermore, each GBER should establish independent corporate governance, enhanced internal controls, and more extensive and accessible information disclosures. Conflicts of interest can occur in the following situations but are not limited to (1) when a GBER also provides ancillary services to the issuer that purchases external review services; (2) when a GBER receives a fee from the issuer for the verification engagement; (3) when a GBER 'receives a material portion of its revenue' from the issuer (CBI 2019e). It is possible to manage direct conflicts of interest within GBERs through effective disclosure of information and indirect conflicts of interest through effective internal controls, including separating sales staff from review analysts, separating external review services from other ancillary services, and separating the remuneration system from external review services.

For another, a civil liability regime can complement the existing regulatory framework as a deterrent device to enhance GBER performance. A civil liability regime can deter potential GBERs from misconduct by penalizing them for assessment failures through lawsuits filed by the parties who suffered economic loss. Nevertheless, the current GBER civil liability regime is far from satisfactory. Due to the vast differences in various jurisdictions, it is not necessary to compare civil liability for GBERs across regions, and this paper will only focus on China's civil liability. Although the Chinese civil liability regime for the GBER has not yet been established, some provisions warrant analysis. In accordance with Article 78(1) of the Securities Law of the People's Republic of China³⁴ (hereafter 'Securities Law'), parties who bear the duty of information disclosure are required to comply with relevant laws in a timely manner. In this regard, Article 78 constitutes the legal basis for the GBER civil liability. The GBER fulfills the role of reducing information asymmetry in the green bond market and thus can be regarded as the obligor of information disclosure under Article 78. In addition, some Articles of Chapter 3&6 of the 2017 Guidelines created the duty of information disclosure for GBERs (also known as 'ACI'), and thus GBERs should accurately, independently, and honestly reflect the relevant information in the green bond market, which further specifies the duty for GBERs. In Article 160 of the Securities Law, the term 'securities service provider' is defined as accounting firms, law firms, and other securities service providers involved in asset appraisals, credit rating, securities investment consulting, financial consulting, and information technology system services. Despite the fact that the GBER is not directly included as one type of securities service provider, the services it provides may be regarded as a kind of asset appraisal. As per Article 163 of the

³³ 8 Investor-pay model, also called subscriber-pay model, means that a CRA charges the investor (subscriber).

³⁴ Order No. 37 [2020] of President of the President of the People's Republic of China.

Securities Law, securities service providers are required to act with due care and diligence, as they provide auditing, assurance, credit rating, asset appraisal, financial consulting, and other reports related to securities issuance and transaction, and to verify the truthfulness, accuracy, and completeness of the supporting documents on which these reports are based. In other words, Article 163 further specifies due diligence for securities service providers. More importantly, Article 163 also specifies that the parties who suffered losses caused by the infringing conduct can seek compensation through lawsuits against the securities service provider who makes any false record, misleading representation, and major omission, and the securities service provider bears the burden of proof.

Nevertheless, it still remains difficult to establish the civil liability of the GBER under the current civil liability regime. First, given that the Chinese legal system is a civil law system, it is necessary for the GBER to be defined in statutes as one type of securities service provider. As a second issue, GBER's expertise liability needs to be further clarified. If a GBER could be regarded as an expert in the financial market, its accountability would be further enhanced, which will adversely deter GBERs from ensuring the quality of their external reviews. Thirdly, because green bonds have dual financial and environmental benefits, it is still challenging to determine the scope of damage caused by the GBER-infringing conduct. It is, therefore, important to specify the relevant damages and compensations.

6. Conclusions

In this study, we addressed the characteristics of the Chinese GBER system, including the alignment with international standards, the self-regulatory framework, the multi-regulators system, and the regulation-driven market, and we analyzed its insufficiency. On this basis, this paper attempts to explain the regulatory purpose of the existing GBER legal framework, namely, to ensure the high quality of external reviews in the green bond market through facilitating the reputation mechanism or gradual three-stage reform. This paper analyzes the potential challenges for the Chinese GBER market in order to maintain high-quality external reviews and prosper the green bond market. These challenges, including the oligopolistic market and conflicts of interest, are likely to adversely affect the GBER's quality and independence. The Chinese GBER market has a trend of oligopoly, and the regulatory licenses as a regulatory technique should be paid enough attention to prevent the oligopolistic market structure. In order to deal with conflicts of interest in the GBER industry, it is necessary to further improve the relevant corporate governance, professional standards, and civil liability regime of GBERs.

This paper provides a vital framework for future research into the Chinese GBER financial regulation, albeit with some limitations. First, this paper provides a comprehensive analysis of the Chinese GBER regulatory framework and puts forward some suggestions for potential challenges. However, since GBERs in China are relatively new, the analysis in this paper is based on a relatively limited amount of market observations. As more market data become available, future research may provide in-depth analysis. Second, we consider the Chinese GBER approach, a voluntary regulatory framework, as an attempt to facilitate the GBER market and even the whole green bond market through a market-driven regulatory approach. It is possible that the GBER approach may be applied to other fields of financial regulation if this attempt is successful. Additionally, future research could examine whether the Chinese GBER approach will become quasi-voluntary or a combination of hard and soft law.

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References

- Allman, Elsa, and Brandon Lock. 2022. External Reviews and Green Bond Credibility. pp. 8–9, 24–26. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4146237 (accessed on 22 January 2023).
- Ba, Shusong, Yujia Cong, and Weihao Zhu. 2019. Green Bond Theory and Development Analysis in China Market. *Journal of Hangzhou Normal University* 41: 104–5.
- Bachelet, Maria Jua, Leonardo Becchetti, and Stefano Manfredonia. 2019. The Green Bonds Premium Puzzle: The Role of Issuer Characteristics and Third-Party Verification. *Sustainability* 11: 1098. [CrossRef]
- Barnett, Jonathan M. 2019. The Certification Paradox. In *Cambridge Handbook of Technical Standardization Law: Further Intersections of Public and Private Law*. Edited by Jorge L. Contreras. Cambridge: Cambridge University Press, p. 252.
- CBI. 2019a. Green Bonds The State of the Market 2018. p. 8. Available online: https://www.climatebonds.net/files/reports/cbi_gbm_final_032019_web.pdf (accessed on 22 January 2023).
- CBI. 2019b. Climate Bonds Standard Version 3.0. p. 4. Available online: <https://www.climatebonds.net/files/files/climate-bonds-standard-v3-20191210.pdf> (accessed on 22 January 2023).
- CBI. 2019c. Climate Bonds Standard & Certification Scheme: Guidance for Verifiers (Version 2.0). p. 8. Available online: <https://www.climatebonds.net/files/files/cbs-guidance-for-verifiers-v2.pdf> (accessed on 22 January 2023).
- CBI. 2019d. China Green Bond Market 2018. pp. 7, 9. Available online: https://www.climatebonds.net/files/reports/china-sotm_cbi_ccdc_final_en260219.pdf (accessed on 22 January 2023).
- CBI. 2019e. Guidance for Verifiers Version 1.0. pp. 14–15. Available online: https://www.climatebonds.net/files/files/Guidance%20for%20Verifiers%20-%20Version_1_0_January_2017.pdf (accessed on 20 March 2023).
- CBI. 2020a. Green Bond Treasurer Survey. p. 8. Available online: <https://www.climatebonds.net/files/reports/climate-bonds-gb-treasurer-survey-2020-14042020final.pdf> (accessed on 22 January 2023).
- CBI. 2020b. 2019 Green Bond Market Summary. p. 2. Available online: https://www.climatebonds.net/files/reports/2019_annual_highlights-final.pdf (accessed on 22 January 2023).
- CBI. 2021. China Green Bond Market Newsletter H1 2021. p. 3. Available online: <https://www.climatebonds.net/files/files/China%202021%20H1%20Final.pdf> (accessed on 22 January 2023).
- CBI. 2022a. [中国绿色债券市场报告2021]. p. 4. Available online: https://www.climatebonds.net/files/reports/cbi_china_sotm_2021_chi_0.pdf (accessed on 22 October 2023).
- CBI. 2022b. China Green Finance Policy Analysis Report 2021. p. 11. Available online: https://www.climatebonds.net/files/reports/policy_analysis_report_2021_en_final.pdf (accessed on 22 January 2023).
- CBI. 2023a. 'Certification'. Available online: <https://www.climatebonds.net/certification/get-certified> (accessed on 22 January 2023).
- CBI. 2023b. Certification: Approved Verifiers under the Climate Bonds Standard. Available online: <https://www.climatebonds.net/certification/approved-verifiers> (accessed on 22 January 2023).
- CBI. 2023c. Certification/Certification/Basic Certification/Cost of Certification. Available online: <https://www.climatebonds.net/certification/get-certified#costs> (accessed on 22 January 2023).
- CBI. 2023d. About Us. Available online: <https://www.climatebonds.net/about> (accessed on 22 January 2023).
- Chen, Xiyang. 2021. A Comparative Study of Credit Rating Agencies between the United States, European Union and China. Ph.D. thesis, University of Glasgow, Glasgow, UK; pp. 28–33, 118–19.
- CICERO. 2018a. 'Second Opinion' on ADBC's Green and Sustainability Bond Framework. Available online: <http://www.adbc.com.cn/en/n1061/c27026/part/12878.pdf> (accessed on 22 January 2023).
- CICERO. 2018b. 'Second Opinion' on Industrial Bank Co., Ltd. (IB)'s Green Bond Framework. Available online: https://download.cib.com.cn/netbank/download/cn/notice/20181121_en_2.pdf (accessed on 22 January 2023).
- CICERO. 2022. Second Opinions on Green Bonds. Available online: <https://cicero.oslo.no/en/articles/second-opinions-on-green-bonds> (accessed on 22 January 2023).
- Deloitte. 2022. Limited Assurance Report from the Independent Auditor. Available online: <https://www.castellum.se/contentassets/f8db614b924b47fcbacd6d4e38118c99/castellums-green-bonds-annual-report-2021-deloitte-limited-assurance-report.pdf> (accessed on 22 January 2023).
- Dorfleitner, Gregor, Sebastian Utz, and Rongxin Zhang. 2022. The Pricing of Green Bonds: External Reviews and the Shades of Green. *Review of Managerial Science* 16: 797–834. [CrossRef]
- Economics Online. 2020. Oligopoly: Defining and Measuring Oligopoly. Available online: https://www.economicsonline.co.uk/Business_economics/Oligopoly.html (accessed on 24 January 2023).
- Ehlers, Torsten, and Frank Packer. 2017. Green Bond Finance and Certification. *BIS Quarterly Review* 89. Available online: https://www.bis.org/publ/qtrpdf/r_qt1709h.htm (accessed on 24 January 2023).

- Escalante, Donovan, June Choi, Neil Chin, Ying Cui, and Mathias Lund Larsen. 2020. The State and Effectiveness of the Green Bond Market in China. p. 10. Available online: <https://climatepolicyinitiative.org/wp-content/uploads/2020/06/The-State-and-Effectiveness-of-the-Green-Bond-Market-in-China.pdf> (accessed on 22 January 2023).
- European Commission. 2021. Commission Proposal for a European Green Bond Standard. Available online: https://finance.ec.europa.eu/publications/commission-proposal-european-green-bond-standard_en (accessed on 22 January 2023).
- Flammer, Caroline. 2021. Corporate Green Bonds. *Journal of Financial Economics* 142: 499–516. [CrossRef]
- G20 Green Finance Study Group. 2016. Green Finance Synthesis Report. Available online: <http://www.g20.utoronto.ca/2016/green-finance-synthesis.pdf> (accessed on 22 October 2023).
- Gan, Yuanyong, and Fengjuan Wang. 2018. [我国绿色债券第三方认证问题探析]. *Finance & Accounting* 2: 56.
- Gao, Qingxia, and Linyi Jiang. 2019. Development of Foreign Green Bond and its Enlightenment to China. *Environmental and Sustainable Development* 6: 119.
- Ge, Xinfeng. 2017. [我国绿色债券第三方认证情况及发展建议]. *Financial Perspective Journal* 8: 81–82.
- HKQAA. 2022. 'Second-party Opinion' on Green Bond Framework for Industrial Bank Co., Ltd. Available online: https://download.cib.com.cn/netbank/download/cn/ZQKJ_20220308.pdf (accessed on 22 January 2023).
- Hong, Yanrong. 2016. The Regulatory Challenges and Improvements for the Chinese Green Corporate Bonds [中国绿色公司债券的制度挑战与改进]. *Securities Market Herald* 9: 9.
- ICMA. 2022a. Guidelines for Green, Social, Sustainability and Sustainability-Linked Bonds External Reviews. p. 3. Available online: https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/External-Review-Guidelines_June-2022-280622.pdf (accessed on 22 January 2023).
- ICMA. 2022b. Green Bond Principles: Voluntary Processes Guidelines for Issuing Green Bonds. pp. 4–7. Available online: <https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Green-Bond-Principles-June-2022-060623.pdf> (accessed on 22 January 2023).
- International Financial Corporation. 2022. Riding the Green Wave: Emerging Markets Green Bond Report 2021. pp. 10–13. Available online: <https://www.ifc.org/content/dam/ifc/doc/mgrt/202206-emerging-market-green-bonds-report-2021-vf-2.pdf> (accessed on 22 October 2023).
- Lackmann, Julia, and Jürgen Ernstberger. 2011. Market Reactions to Increase of Reliability of Sustainability Information. *Journal of Business Ethics* 107: 112.
- Lyon, Thomas P., and A. Wren Montgomery. 2015. The Means and End of Greenwashing. *Organization & Environment* 28: 223–49.
- Lyon, Thomas P., and John W. Maxwell. 2011. Greenwash: Corporate Environmental Disclosure under Threat of Audit. *Journal of Economics and Management Strategy* 20: 3–41. [CrossRef]
- Mansfield, Edwin. 1970. *Microeconomics: Theory and Applications*. New York: Norton, p. 330.
- Martínez-Ferrero, Jennifer, and Isabel-María García-Sánchez. 2017. Sustainability Assurance and Cost of Capital: Does Assurance Impact on Credibility of Corporate Social Responsibility Information? *Business Ethics: A European Review* 26: 223. [CrossRef]
- McKenna, Christopher, and Rowena Olegario. 2012. Corporate Reputation and Regulation in Historical Perspective. In *The Oxford Handbook of Corporate Reputation*. Edited by Timothy G. Pollock and Michael L. Barnett. Oxford: Oxford University Press, pp. 262–63.
- Milgrom, Paul R., Douglass C. North, and Barry R. Weingast. 1990. The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs. *Economics and Politics* 2: 6–14. [CrossRef]
- Moody's. 2018. A Greener Approach to Financing: Green Bond Assessment Overview. Available online: https://www.moody.com/sites/products/ProductAttachments/MIS_Green_Bonds_Assessment.pdf?WT.z_referringsource=TB-ESGhub-GREENBONDS (accessed on 22 January 2023).
- Moody's Investor Service. 2016. Moody's Green Bond Assessment. p. 1. Available online: <https://www.amwa.net/assets/GBA%20Methodology-final-30march2016.pdf> (accessed on 22 January 2023).
- O'Dwyer, Brendan, and David L. Owen. 2005. Assurance Statement Practice in Environmental, Social and Sustainability Reporting: A Critical Evaluation. *The British Accounting Review* 37: 205. [CrossRef]
- Rose, Paul. 2019. Certifying The "Climate" in Climate Bonds. *Capital Market Law Journal* 14: 70. [CrossRef]
- Sachs, Jeffrey D., Wing Thye Woo, Naoyuki Yoshino, and Farhad Taghizadeh-Hesary. 2019. Importance of Green Finance for Achieving Sustainable Development Goals and Energy Security. In *Handbook of Green Finance: Energy Security and Sustainable Development*. Singapore: Springer, p. 3.
- Simeth, Nagahan. 2022. The Value of External Reviews in the Secondary Green Bond Market. *Finance Research Letters* 46: 102306. [CrossRef]
- Simnett, Roger, Ann Vanstraelen, and Wai Fong Chua. 2009. Assurance on Sustainability Reports: An International Comparison. *The Accounting Review* 84: 937. [CrossRef]
- Sustainalytics. 2019. KBC Pre-Issuance Verification Letter. Available online: <https://www.climatebonds.net/files/files/KBC-Bond-2-Pre-Issuance-Verification-PUBLIC.pdf> (accessed on 22 January 2023).
- The World Bank. 2021. What You Need to Know about IFC'S Green Bonds. Available online: <https://www.worldbank.org/en/news/feature/2021/12/08/what-you-need-to-know-about-ifc-s-green-bonds> (accessed on 22 January 2023).

- United States Securities and Exchange Commission. 2003. Report on the Role and Function of Credit Rating Agencies in the Operation of the Securities Markets. p. 42. Available online: <https://www.sec.gov/news/studies/credratingreport0103.pdf> (accessed on 20 March 2023).
- United States Securities and Exchange Commission. 2010. Action Needed to Improve Rating Agencies Registration Program and Performance-Related Disclosures. p. 57. Available online: <http://www.gao.gov/new.items/d10782.pdf> (accessed on 28 February 2023).
- Varian, Hal R. 2010. *Intermediate Microeconomics: A Modern Approach*, 8th ed. New York: W. W. Norton & Company, p. 497.
- White, Lawrence J. 2010. Markets: The Credit Rating Agencies. *The Journal of Economic Perspectives* 24: 211–16. [CrossRef]
- Wim, Bartels, Paul Holland, and Tim Metzgen. 2015. *Sustainable Insights Report: Gearing up for Green Bonds*. Amstelveen: KPMG's Global Center of Excellence for Climate Change and Sustainability, pp. 1–14. Available online: <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/03/gearing-up-for-green-bonds-v1.pdf> (accessed on 22 October 2023).
- Zorio, Ana, Maria A. García-Benau, and Laura Sierra. 2012. Sustainability Development and the Quality of Assurance Report: Empirical Evidence. *Business Strategy and the Environment* 22: 484. [CrossRef]

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