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The green bonds market in china

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Abstract:

This paper is come to identify one of the most important market of green bonds in the world which is china, ti was issued in 2015 and since then the PRC has become a significant player in the world's green bond market. In just five years, green bond issuance in the PRC has skyrocketed from almost none to the country becoming one of the largest issuers globally. Given the nascency of the green bond market in the PRC, In 2019, the total amount of Chinese green bonds issued in both domestic and overseas market reached USD55.8bn (RMB386.2bn), representing a 33% increase from the USD42bn.

Keywords: bonds, green bonds, green projects, capital markets, china.
JELClassificationCodes: G15, G23.

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1. INTRODUCTION

Green bonds have received increasing attention over the past few years as key instruments to finance the transition towards a low-carbon economy. From being a niche at its creation in 2007, the market has grown significantly, with new types of investors and issuers participating in its expansion.

The green bond market is attracting new issuers and a more diversified base of investors.

However, the size of the green bond market remains small compared to the challenges it is meant to address and to the overall traditional bond market. This paper is based on a unique methodology combining an extensive literature review, market data analysis, and interviews with a large spectrum of green bond market participants.

Officially, the PRC's green bond market started after the promulgation of three essential national regulatory documents on green bonds, namely the People's Bank of China (PBoC) Announcement, the Guidelines on Green Bond Issuance by the National Development and Reform Commission (NDRC), and the China Securities Regulatory Commission (CSRC)'s Guiding Opinions for Supporting the Green Bonds. The PBoC Announcement lays down some fundamental regulatory aspects of green bond issuance in the PRC's market for interbank bond, including the definition of green bond and the requirements for green labeling, as well as the eligible projects that are listed in the Annex, known as the Green Bonds Endorsed Catalog of Projects.

This leads us to raise the following problematic:

What is the reality of china's green bond market?

The importance of this study lies in a set of points that we mention below:

- Green bonds are an excellent way to secure large amounts of capital to support environmental investments that may not otherwise be available, or that may be uneconomic using more expensive capital.
- Fot the foreseeable future, green bond issuers are leaders in developing this space.
- Green bonds offer an exciting opportunity for both investors and issuers to encourage sustainible growth while leading the investment community.
- Green bonds provide governments with a chance to brand themselves as forward thinking, innovative, and sustainable.

The research in this field allowed us to see a few number of studies, most of them are reports. Among these studies we mention:

- Aaron, M., & Björn, N. (February 2020). Understanding the role of green bonds in advancing Sustainability. journal of sustainable finance & investment.

The analysis of this study is one of the first empirical studies designed to address the broader questions of what attracts investors and issuers to the green bond market, the role of green bonds in shifting capital to more sustainable economic activity, and how green bonds impact the way organisations work with sustainability. Using Sweden as a case study, this paper provides insights into the rapid growth of the green bond market and how green bonds affect market participants' engagement with sustainability that are easily missed if one focuses only on how green bonds are marketed.

- Alan, X. M., & Monica, F. (February 2019). china green bond market . Climate Bonds Initiative.

It is a report Published jointly by the Climate Bonds Initiative and China Central Depository & Clearing Company (CCDC), This report summarises the major developments that have taken place during 2018 focusing on issuance, policy development and wider market growth.

2. Definition of Green bonds:

Green bonds are one of the most prominent innovations in the area of sustainable finance over the past decade. However, to date there have only been a few academic studies on green bonds. (Aaron & Björn, February 2020)

2.1 What are green bonds?

Green bonds are debt securities issued by financial, non-financial or public entities where the proceeds are used to finance 100% green projects and assets. Just like regular vanilla bonds. "Green" is a bonus feature to the bond. It's about the projects and the assets, not the issuer. The green label is a tool for investors. (Vento, 2019)

Green bonds are issued in order to raise finance for climate change solutions. The key is for the proceeds to go to green assets. They can be issued by central and local governement, banks or corporations. The green bond label can be applied to any debt format, including private placement, securitisation, covered bond, and sukuk, as well as labelled green loans which comply with the Green Bond Principles (GBP) or the Green Loan Principles (GLP). (Monica, Camille, & Amanda, 2019)

The difference between Green bond a regular bond that A green bond is a debt security that is issued to raise capital specifically to support climate related or environmental projects. This specific use of the funds raised to support the financing of specific projects distinguishes green bonds from regular bonds. Thus, in addition to evaluating the standard financial characteristics (such as maturity, coupon, price, and credit quality of the issuer), investors also assess the specific environmental purpose of the projects that the bonds intend to support. (Development (IBRD), 2015)

2.2 Green bonds principles:

Growth in the green bond market has spurred the attention of investors willing to invest in alternative financial instruments that provide environmentally-friendly results. Increased demand for green bonds has called for greater regulation in the market. Despite impressive growth, the absence of universally-accepted institutions, norms, and guidelines to govern, regulate, and certify green bonds has limited the market's potential. Without proper regulatory oversight, capital will remain inefficiently allocated as investors continue to be burdened with high due diligence costs.

In recent years, strides have been made to bring greater transparency and integrity to the green bond market. Different organizations and institutions have worked, independently and collectively, to develop their standards that outline best practices for green bond issuances. While many project bonds that benefit environmental purposes remain unlabeled and uncertified as "green," there is reason to believe that greater structure and uniformity is settling in the market.

The International Capital Market Association publishes, on a yearly basis, procedural guidelines that "recommend transparency and disclosure and promote integrity" of the green bond market known as the Green Bond Principles (GBP). These set of recommendations outline a suggested approach for issuers to launch a "credible" green bond. The guidelines serve a far-reaching purpose and target all participants in the market. Investors benefit from greater visibility and transparency as it allows them to make better informed decisions on their investments. More available information helps move the market closer to expected disclosures, which also helps facilitate transactions and reduce costs.

It is important to note that project managers do not have to specifically comply with the GBP in order to issue a green bond. The guidelines set out in the GBP are merely suggestions for issuers to consider in order to successfully manage the security, and following them is completely voluntary. No certification or label is issued by the GBP to place on bonds that follow their recommendations.

The GBP propose a set of processes for issuers to follow that covers the complete timeline of a green bond. The four core components of the GBP assist any interested parties understand the dynamics and features of a green bond by stressing "transparency, accuracy, and integrity". (Helvia, october 2017) They are as follows:

- Use of Proceeds;
- Process for Project Evaluation and Selection;
- Management of Proceeds; and
- Reporting.

Currently, there are four types of green bonds on the market:

1. Standard green use of proceeds bond;
2. Green revenue bond;
3. Green project bond; and
4. Green securitized bond.

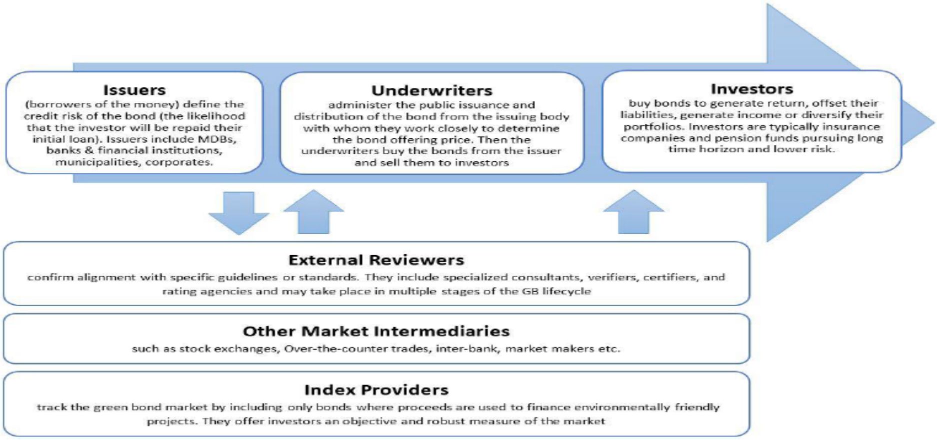
Taken together, by enhancing transparency and disclosure the GBP promote integrity in the development of the green bond market by providing guidance on green bond issuance. (Frederic, December 2017)

2.3 The main actors in the green bond market:

The main actors in the green bond market can be categorised as issuers, underwriters, external reviewers, market intermediaries (such as stock exchanges), index providers, and investors. Civil society, multi-stakeholder groups and policy makers, which pro-mote transparency and disclosure, also play an important role in the green bond mar-ket development.

The interaction between the main market actors and their core roles are illustrated in a simplified green bond value chain. It is important to note that the sequence of interaction could differ, as it is not necessarily linear. For example, external reviewers typically are involved multiple times in different stages of the green bonds lifecycle, depending on specific circumstances.

Fig.1. Green bond's value chain



Source: EUROPEAN COMMISSION, 2016, P 25

The issuers are the borrowers of the money, typically MDBs, banks and financial institutions, municipalities and corporations. The quality of the issuer de-termines the credit risk of the bond. The Green Bond Principles (GBP) are a key framework, which provides the issuers with guidance on the key components in launching a credible green bond.

The underwriters administer the public issuance and distribution of the bond. They work closely with the issuers to determine the bond-offering price. In 2015, some of the largest underwriters in terms of volume were Bank of America Merril Lynch, Credit Agricole, HSBC, J.P. Morgan, HSBC, CITI, Morgan Stanley, SEB and Barclays respec-tively. The GBP assist the underwriters by moving the market towards expected dis-closures, which facilitates the transactions.

The external reviewers provide independent opinion by confirming alignment of the green bond with specific guidelines or standards. External reviews are key to investors in assuring them that their investments qualify as green. As suggested in the GBP, the issuers can publicly disclose an external review of their green bond or associated green bond framework, assessing alignment with the core components of the GBP. An external review may be partial, covering only certain aspects of an issuer's green bond or associated green bond framework or full. Specifically, external reviewers can pro-vide:

- **Consultant Review (including second opinions):** An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental sus-tainability or other aspects of the issuance of a green bond, such as the estab-lishment/review of an issuer's green bond framework. "Second opinions" may fall into this category. The second opinion providers with the largest market share are CICERO, VIGEO, Oekom, DNVGL and Sustainalytics. In 2015, 60% of total green bond issuance has officially incorporated a second-party opinion.
- **Verification:** An issuer can have its green bond, associated green bond frame-work, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. In 2015, 40% of green bonds have audited assurance reports or benchmark measures to assess the use of proceeds and impact.
- **Certification:** An issuer can have its green bond, or associated green bond framework or use of proceeds certified against an external green assessment standard. An assessment standard defines criteria, and qualified third parties / certifiers test alignment with such criteria. The third party review is the most rigorous form of assessment, which reviews the bond criteria, project selection and evaluation, internal processes of tracking proceeds, non-financial data on environmental outcomes, and processes for preparing progress reports.8 Cur-rently, only the Climate Bond Standard (CBS) is designed for certification of green bonds.
- **Rating:** An issuer can have its green bond or associated green bond framework rated by qualified third parties, such as specialized research providers or rating agencies. Green Bond ratings are separate from an issuer's ESG rating as they typically apply to individual securities or green bond frameworks / pro-grammes. In this context, S&P Global Ratings has developed a Green Bond Evaluation tool, and an ESG evaluation framework and scoring

methodology for corporate issuers. Moody's Investor Services also has a methodology for as-sessing green bonds.

Other market intermediaries, such as stock exchanges, dedicate green bond seg-ments with listed green bonds fulfilling a set of relevant green criteria. Today 11 stock exchanges offer green bond listings, demonstrating that exchanges are supporting the transition to a green economy9. Some of them also develop green bond platforms for trading environmentally friendly securities (e.g. the Luxembourg Stock Exchange).

Index providers are usually banks or credit rating agencies, sometimes in collabora-tion with other parties, who design indexes to help investors benchmark green bonds performance. Each index has its own requirements for eligible green bonds. The launch of numerous green bond indices such as the S&P Green Bond Index, the S&P Green Project Bond Index, the China Climate-Aligned Bond Index, the Bank of America Merrill Lynch index and indices by the rating agencies MSCI and Barclays are a sign of the market's growing maturity.

Investors could be institutional investors (i.e. national development banks, insurance companies, pension funds, public pension reserve funds, foundations, endowments and other forms of institutional savings) and private investors (i.e. commercial banks, households savings). Most active in the green bond market are pension funds and insurance companies. The GBP aid investors by promoting availability of information necessary to evaluate the environmental impact of their green bond investments. (COMMISSION, November 2016)

2.4 The forms of green bonds:

The green bonds come in six forms: (OECD, December 2015)

- **Corporate bond**: A "use of proceeds" bond issued by a corporate entity with recourse to the issuer in the case of default on interest payments or on return of principal. This category includes bonds issued by "YieldCo" vehicles to finance asset acquisitions.
- **Project bond**: A bond backed by single or multiple projects for which the investor has direct exposure to the risk of the project, with or without recourse to the bond issuer.

- **Asset-backed security (ABS)**: A bond collateralised by one or more specific projects, usually providing recourse only to the assets, except in the case of covered bonds (included in this category). For covered bonds, the primary recourse is to the issuing entity, with secondary recourse to an underlying cover pool of assets, in the event of default of the issuer.
- **Supranational, sub-sovereign and agency (SSA) bond**: Bonds issued by international financial institutions (IFIs) such as the World Bank and the European Investment Bank. SSA bonds have features similar to a corporate bond relating to "use of proceeds" and recourse to the issuer. Agency bonds are included in this category, as are sub-sovereign national development banks
- **Municipal bond**: Bonds issued by a municipal government, region or city. A national government entity could theoretically also issue a "sovereign" bond; no green sovereign bonds have been issued to date.
- **Financial sector bond**: A type of corporate bond issued by a financial institution to specifically raise capital to finance "on-balance sheet lending" to green activities. This type of bond is considered separately for the purposes of OECD scenario modelling to retain a distinction between financial sector bond issuances which finance lending and those which directly finance green investments.

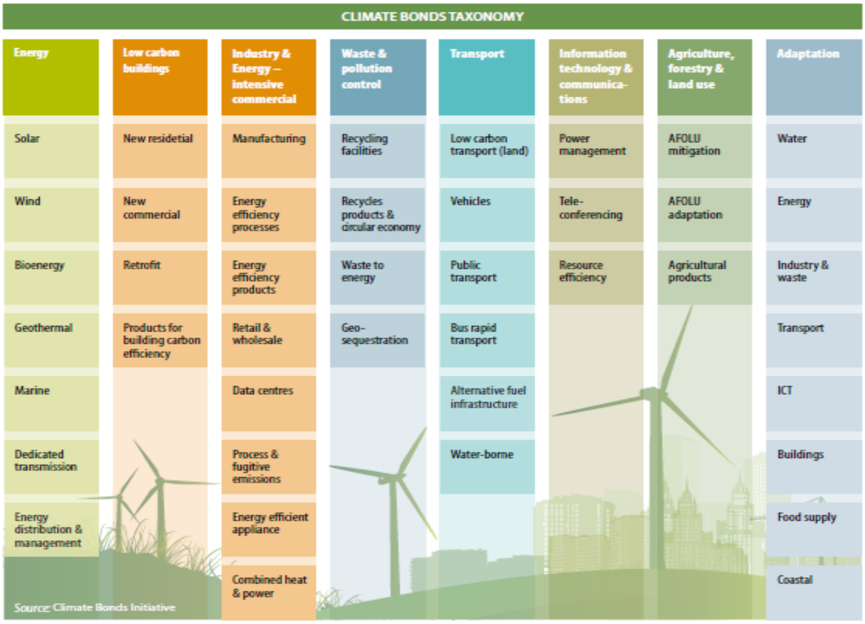
2.5 Green bonds taxonomy:

For instance, the Climate Bond Initiative's taxonomy specifies the green definitions for the Climate Bond Standards and Certification Scheme and is guided by a panel of climate and energy experts. It is the only current industry effort to address the challenge of green standards within each of the broader asset categories provided by the GBP.

CICERO, a second-party reviewer of green bonds, offers a "Shades of Green" methodology whereby green bonds are graded "dark, medium or light" green depending on the underlying project's contribution to "implementing a 2050 climate solution".

A key element in the development of standards involves working out exactly how to verify the proper use of proceeds. While shortcomings in the disclosure of information about the use of proceeds may, for instance, be alleviated by the guidelines set out in the GBP, these are voluntary guidelines only, and do not currently spell out material requirements for the type and nature of activities, nor do they mandate a certain threshold of environmental benefits. (OECD, December 2015)

Fig.2. green bonds taxonomy



Source: OECD, 2015

3. Green bonds market in china:

China has remained one of the leading players in the global green bond market, with a higher proportion of overall labelled Chinese green bond issuance aligned to international definitions. Chinese issuance in 2018 topped USD30bn, and Industrial Bank became the second largest issuer globally with USD9.6bn. Regulators continued to improve market integrity through a series of measures and to stimulate market growth through policy tools.

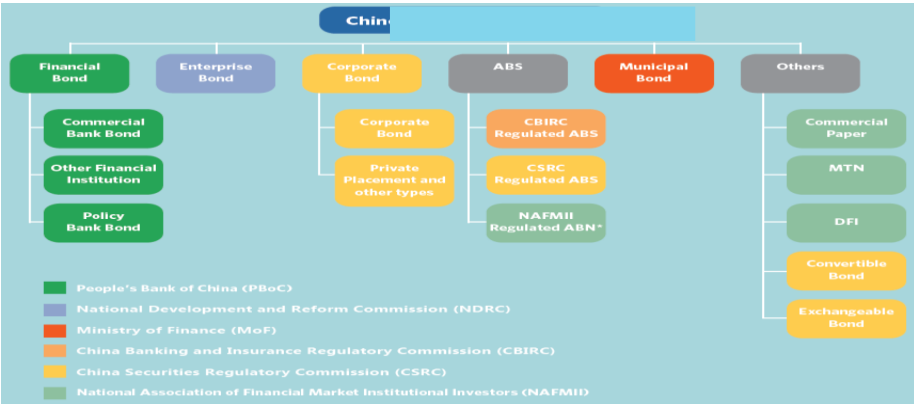
3.1 The history of green finance and green loan in china:

The severe environment pollution as well as China's commitment made under Paris Agreement provides an incentive for the Chinese government to develop green bond market. Chinese government has provided strong policy supports with a top-down approach to the green finance within China. The first guideline on green bonds was issued by the People's Bank of China (PBoC) in December 2015 (Announcement on Matters concerning the Issue of Green Financial Bonds in the Interbank Bond Market) (the PBOC Guidelines) for financial institutions. At the same time, the PBoC also published its definitions of "green" in "Green Bonds Endorsed Project Catalogue" while the National Development and Reform Commission (NDRC) published the (Guidance on Green Bond Issuance). The latter governs green enterprise bonds issued by corporate issuers, in which the eligible uses of proceeds are defined in a slightly different way from those in the PBoC’s Catalogue. For exchange-traded corporate bonds, the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) issued their notices on Green Bond Pilot Program respectively in March and April 2016. In March 2017, China Securities Regulatory Commission (CSRC) and National Association of Financial Market Institutional Investors (NAFMII) issued different guidelines to cover green bond issuance by other non-financial corporates. In 2018, each of the Shanghai Stock Exchange (SSE) and the CSRC issued clarifications concerning disclosure requirements for PRC onshore-listed companies seeking to raise domestic green financing. (Angela, Connie, & David, june 2020, p. 2)In February 2019 seven competent authorities including NDRC and PBoC issued Green Industry Guidance Catalogue (2019 Edition) in an aim to align different green guidelines and standards. (Secondary Market of Green Bonds: With a focus on Chinese Market, , 2019)

China’s green loan policy was first issued in 2007, then revamped in 2012 as Green Credit Guidelines. In 2007, China’s Ministry of Environmental Protection (MEP) and the China Banking Regulatory Commission jointly announced the Green Credit Initiative under which the environmental performance of loan applicants must be taken into account by the bank5. Loan applicants with poor compliance records are required to pay higher interest rates, and serious violators are denied credit.According to the China Banking Regulatory Commission (CBRC).

The first green loan labelled against international principles was closed in December 2018 between Crédit Agricole CIB (China) Limited and EDF Lingbao, a joint venture between French electricity company EDF and the city of Lingbao. The CNY122m (USD17.7m) loan was made to replace inefficient coal boilers with a central heating system fuelled by biomass products, namely wood waste from neighbouring orchards and mushroom farms. According to Wind Financial Terminals, EDF holds a 65% stake in the joint venture, while Lingbao City Urban Renovation Investment Co., Ltd, a LGFV of Lingbao City, holds a 35% stake. This deal is in line with the LMA/ APLMA Green Loan Principles, published in March 2018, making it the first deal labelled against GLP in mainland China. (Alan & Monica, February 2019, p. 7). And the figure below explain the differente types of chinese green bond:

Fig.3. Chinese green bond types



Source: Alan Xiangrui Meng, 2020, P 6

3.2 The global issuance of green bonds:

Green bonds and climate bonds have received increasing attention over the past few years as key instruments to finance the transition towards a low-carbon economy. From being a niche at its creation in 2007, the market has grown significantly, with new types of investors and issuers participating in its expansion.

- **Global green bond issuance:**

Fig.4. green bond issuance 2017-2019

Source: Climate Bonds Initiative, 2020, p 1

2017 has continued the groundbreaking trend as by the third quarter it already marked an annual as well as quarterly issuance record, $94.5 billion and $32.7 billion correspondingly. Also 2017 showed a more equitable spread of projects funded (compared to previous years) largely covering buildings and industry along with transport, water, and waste and pollution control. (Frederic, December 2017)

Global green bond and green loan issuance reached USD257.7bn in 2019, marking a new global record. The total is up by 51% on the final 2018 figure of USD170.6bn. Of the total, USD10bn (4%) are green loans. For inclusion, at least 95% of proceeds must be dedicated to green assets or projects aligned with the Climate Bonds Taxonomy.

The 2019 volume was primarily driven by the European market, which accounted for 45% of global issuance. This is followed by the Asia-Pacific and North American markets, at 25% and 23%, respectively. In 2019, the total amount of green bonds issued in Europe increased by 74% (or USD49.5bn) year-on-year, reaching a total of USD116.7bn.

- **China's share of the global issuance:**

The first green bond was issued in the PRC in 2015 and since then the PRC has become a significant player in the green bond market in the world. In just three years, green bond issuance in the PRC has skyrocketed from there being almost none to the country becoming one of the largest issuers globally.

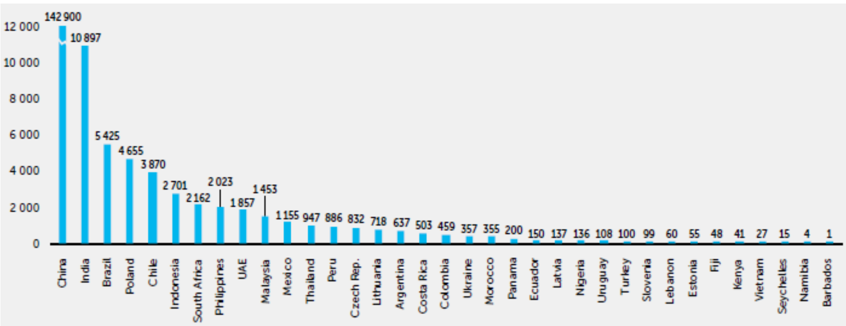
East Asia and the Pacific remains the leader in emerging market green bond issuance, with China's more than $34 billion last year still accounting for most of the regional total. Outside China, the region moved to the forefront of green bond market development. Southeast Asian countries have been stepping up issuance, with another sovereign green bond from Indonesia ($750 million), a green sukuk from Malaysia, and a mix of corporations and financial institutions issuing in the Philippines and Thailand. In South Asia, benchmark-sized issuances from nonfinancial corporates in India included those from Adani, Greenko, and Renew, with the use of proceeds going to renewable energy.

After a slow year in 2018, issuance in Latin America and the Caribbean grew rapidly in 2019, buoyed by two sovereign issues from Chile and new entrants including Barbados, Ecuador, and Panama. With 40 issuers from 11 countries, the region has the largest number of countries with nascent green bond markets.

Poland again led Europe and Central Asia with a sovereign bond issuance of €2 billion, as well as several by financial institutions. Both the Czech Republic and Ukraine saw debut issues from nonfinancial corporates, and private placements from financial institutions in Turkey added to the region's totals.

The Middle East and North Africa saw $1.2 billion in green sukuk issuance from the United Arab Emirates company Majid Al Futtaim. Green bond market activity in Sub-Saharan Africa included a repeat sovereign issue by Nigeria, financial and corporate offerings in South Africa, and a debut green bond from a corporate in Kenya. (Amundi, 2020, p. 14)

Fig.5. Cumulative Emerging Market Green Bond Issuance, 2012–19 ($ million)



Source: Amundi, 2020, P 15

In 2019 the USA, China and France topped the country rankings once again. Together they accounted for 44% of global issuance in 2019. US issuers contributed USD51.3bn to the total, whereas their Chinese and French counterparts brought USD31.3bn1 and USD30.1bn to market.

Top 3 issuers of 2019 Fannie Mae – the pioneer of issuing agency Green Mortgage Backed Securities (MBS) – remained the largest green bond issuer in 2019 with USD22.9bn issuance (or 9% of the total). KfW, the

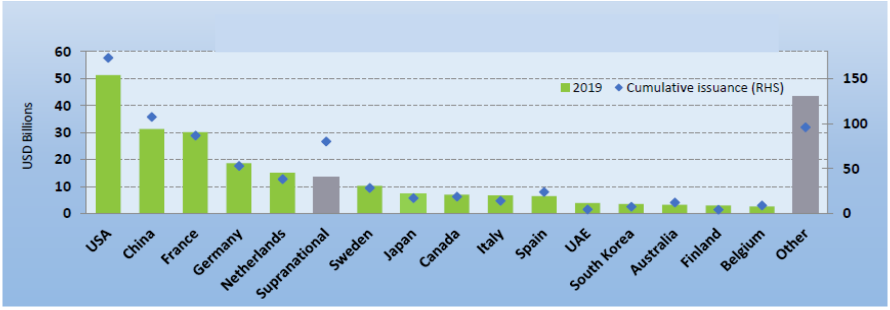
German state-owned development bank, was the second largest issuer in 2019. It brought a total of USD9bn worth of green bonds to market. Proceeds will be used to provide financing or co-financing to renewable energy and green building projects.

The Dutch State Treasury Agency (DSTA) ranked as the third largest issuer in 2019 with its USD6.7bn debut green sovereign bond. The Certified Climate Bond meets the requirements of multiple sector criteria under the Climate Bonds Standard, including: Low Carbon Buildings (Upgrades), Low Carbon Transport, Marine Renewable Energy, Solar, and Water Infrastructure.

By the end of 2019, cumulative Certified issuance under the Climate Bonds Standard reached USD101.4bn, marking a significant milestone for the international assurance scheme established by the Climate Bonds Initiative in 2011.

Notably, 2019 Saudi Arabia debut and Certified Climate Bond came from Islamic Development Bank, with its USD1.1bn deal allocated to renewable energy and energy efficiency for buildings. Other debut issuances from financial institutions came from Ecuadorian Banco Pichincha (USD150m) and Panamanian CIFI (USD27m). (Initiative, Februrary 2020)

Fig.6. 2019 green bond issuance top 15 contries



Source: Climate Bonds Initiative, 2020, p 1

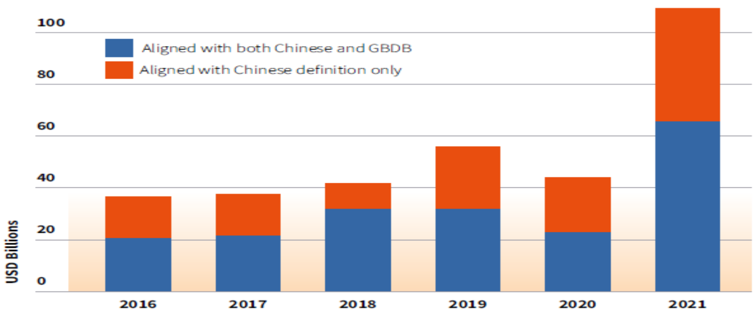
3.3 The evolution of chinese green bonds market:

The total amount of Chinese green bonds issued in both domestic and overseas market reached USD55.8bn (RMB386.2bn), representing a 33% increase from the USD42bn (RMB282.6bn) achieved in 2018. Driven by policy initiatives and regulations, the total annual volume of China's domestic green bond market has increased by 60% since 2016, when People's Bank of China (PBoC) and the National Development and Reform Commission (NDRC) both issued green bond guidelines to kick off the market. China's green bond market rebounded rigorously in 2021. The rapid expansion was underpinned by President Xi Jinping's September 2020 commitment to the twin goals of carbon peaking before 2030 and carbon neutrality by 2060.

The volume of Chinese green bonds issued overseas has also grown rapidly. Since the first off shore green bond brought to the Hong Kong Exchange (HKEX) by Gold Wind in June 2015, there have been 36 Chinese issuers with a total of USD33.8bn (RMB240bn) green bonds issued overseas. (Alan, china green bond market 2019, June 2020, p. 3)

Industrial Bank is the second largest global issuer and the largest from China. Its USD9.6bn (CNY66.5) worth of issuance in 2018 includes two onshore issues totalling CNY60bn (USD8.6bn) and a dual tranche offshore issue of USD943m. The bank accounts for 23% of China's total in 2018. Cumulative issuance from Industrial Bank reached USD17.4bn (CNY119.2bn) (USD10bn is aligned with international definitions), making it the largest single issuer in China since the market started in 2016. (Alan & Monica, February 2019, p. 4)

Fig.7. Chinese green bond issuance in 2016-2021



Source: Climate bonds initiative, 2022, P 3

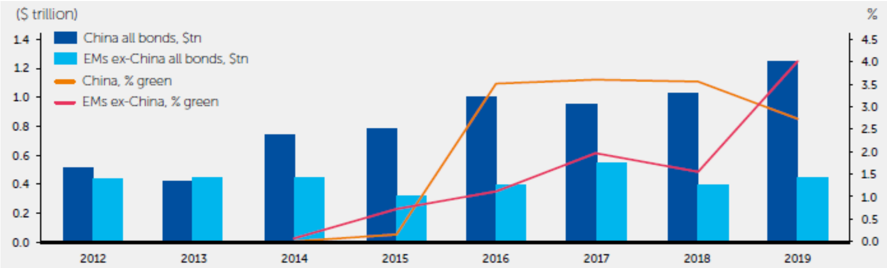
3.4 The emerging of chinese green bond market:

China remained the largest emerging market issuer, as well as the second largest issuer globally. Although China has issued more than $30 billion in green bonds each year since 2016, its issuance in 2019 declined by 7 percent from a year before.11 Other emerging markets drove the overall growth in 2019 with $18 billion of issues, nearly triple that in 2018. The largest volumes were registered by India, followed by Chile, Poland, the Philippines, the United Arab Emirates, and Brazil. New entrants to the green bond market included Barbados, the Czech Republic, Ecuador, Panama, and Ukraine, demonstrating the increasing geographical diversification of the green bond market across all regions.

Bond market conditions were supportive of debt issuance in 2019, with total issues by all sectors from emerging markets amounting to $1.7 trillion, up from $1.4 trillion in 2018. Whereas bond issues by China rose by 21 percent, issuance in emerging markets other than China increased only 11 percent.

Stronger growth in green bond issues outside China was attributable to increasing awareness and know-how about green bonds among both issuers and investors as well as to demand for ESG products. Indeed, the incorporation of these instruments into investor strategies gained considerable momentum in 2019. Globally, ESG-dedicated funds hold about $850 billion in assets under management, with many signs that demand has been outpacing supply. The entry of emerging market issuers into this space has been quite recent but encouraging, enabling them to tap into strong demand for green bonds to secure capital from both domestic and international investors. (Amundi, 2020, p. 12)

Fig.9. Emerging Market Green Bond Issuance



Source: Amundi, 2020, P 14

3.5 Risks and uncertainties of investing in the green bond market in china:

At present, the taxonomy of green bonds in China is not harmonized. This may lead to weak connectivity between different financial products and tools, as well as difficulty in the implementation of incentive and penalty mechanisms, especially in the fiscal space. The market participants may seek to arbitrage different regulatory policies, and may tend to engage in "green washing." Therefore, the establishment of unified standards would be important for strengthening and improvingthecurrentgreenfinancial system. In addition, green bond products in China typically have low liquidity in the secondarymarket.Thedevelopment ofthegreenbondmarket hasoccurredamid abackdrop of enhancedfinancialregulationinChina, whichispartlyattributable to an ongoing deleveraging process and prudent monetary policy.13 Nonetheless, green bond issuance will likely be less affected, partly because of strong policy supportandregulatoryincentives fromthegovernment. (MA Jun, 2019)

4. Conclusion:

The growth of China's bond market provides increasing opportunities for green bonds. Green bonds can enable companies, government and development banks to close the investment gap for China's environmental investments, as well as addressing non-environmental concerns such as transparency in the financial system.

The development of the green bond market in the PRC is supported by the central government's regulatory and policy framework through a top-down approach. With strong policy support and streamlined approval procedures, green bond issuance has been underpinned by the increasing demand for green finance by Chinese investors. Although there has been some offshore issuance of green bonds by Chinese issuers, the definitional divergence within the Chinese regulatory documents and their difference from the international standards are the major stumbling blocks to further enhancing the attractiveness of Chinese green bonds.

Through our study about china's green bond market, we reached a set of results, the most important of them are:

- By the end of 2019, the total outstanding amount of China's domestic green bond market stood at USD140bn (RMB977.2bn). A total of USD124bn (RMB865.5bn) worth of green bonds in China reach maturity in the next 5 years, representing 88% of the total outstanding.
- China, the USA and France led the country rankings once again by the total amount of labelled green bonds. China was the largest source of labelled green bonds. China also remains one of the largest global sources of Certifi ed Climate Bonds.

- In China, big commercial banks that hold a large amount of green loans on their balance sheets could also play a significant role in providing demonstration issuance to the green bond market. These banks could issue green bonds to refinance their outstanding existing green loan portfolios.
- Green bonds are the most commonly used debt instrument in the labelled bond market, but other debt formats such as labelled green loans are emerging.
- the gaps that remain between Chinese and international green bond definitions have the potential to dent foreign investors' enthusiasm in the booming Chinese market.

And we propose some Suggestions, it is as follows:

- With the foundations for rapid growth in Chinese green bond issuance established, the next step for China is scaling up the issuance of green bonds. Enabling a wide range of issuers to enter into the green bond market and issue at scale is essential for green bonds to play a material role in helping meet China's environmental investment needs.
- The government could provide smart, tailor-made policy incentives to green bond market players, both at national and local level Diversify green instrument types Mobilise the financial sector to support 'brown-to-green' transition Encouraging greenhouse.
- Successful policy measures need to be stimulatory while ensuring investor confidence in market integrity.

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