China green finance status and trends 2023-2024

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About this Publication

This brief is produced by the Griffith Asia Institute (GAI) at Griffith University, Brisbane, Australia in collaboration with the Green Finance & Development Center (GFDC) of the Fanhai International School of Finance at Fudan University, Shanghai, PR China.

The brief aims to provide a vehicle for publishing preliminary results on topics related to China's green finance trends to encourage discussion and debate. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author(s) and should not be attributed in any manner to Griffith University, FISF or Fudan University, to its affiliated organisations, or members of its Board of Executive Directors.

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Acronyms and abbreviations

BRI	Belt Road Initiative
CASI	Capacity-building Alliance of Sustainable Investment
CBIRC	China Banking and Insurance Regulatory Commission
CCER	China Certified Emission Reductions
CFC	Central Financial Commission
CGT	Common Ground Taxonomy
CPC	Chinese Communist Party
CSR	Corporate Social Responsibility
CSRC	Chinese Securities Regulatory Commission
CSRC	China Securities Regulatory Commission
ETFs	Exchange-traded funds
EMDEs	Emerging Markets and Developing Economies
EPLI	Environmental pollution liability insurance
ESG	Environmental, social and governance
FSDC	Financial Stability and Development Committee
GFANZ	Glasgow Financial Alliance for Net Zero
HKMA	Hong Kong Monetary Authority
ICBC	Industrial and Commercial Bank of China
IFS	Institute of Finance and Sustainability
IPFS	Interplanetary File System
ISSB	International Sustainability Standards Board
KPI	Key Performance Indicators
MEE	Ministry of Ecology and Environment of People's Republic of China
MOF	Ministry of Finance of the People's Republic of China
NBFIs	non-bank financial institutions
NBS	National Bureau of Statistics of China
NDRC	National Development and Reform Commission
NEA	National Energy Administration
NFRA	National Financial Regulation Administration
PBOC	People's Bank of China
PICC	People's Insurance Company of China
P&C	Property & Casualty Insurance
REITs	Real estate investment trusts
RMB	Renminbi
SAMR	State Administration for Market Regulation
SASAC	State Council's Asset Supervision and Administration Commission
SLBs	Sustainability-linked bonds
SLLs	Sustainability-linked loans
SMEs	Small and medium-sized enterprises
SOEs	State-owned enterprises
SPT	Sustainable Development Performance Targets
UNEP	United Nations Environmental Program
USD	United States Dollar
WMPs	Green wealth management products

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Introduction

Echoing the central government's "30/60" decarbonisation goal of reaching a carbon peak before 2030 and carbon neutrality before 2060, China attaches great importance to the role of finance in green and low-carbon transition, putting in place a multi-tiered green finance market system, with outstanding green loans and bonds both ranking among the top in the world. Benefiting from "top" government policies and "bottom" local initiatives like the carbon trading market and green finance pilot zones, China has seen rapid development of green industries over the past decade. For instance, China's BYD overtook Tesla as the world's best-selling brand of electric vehicles; China's share of renewable energy capacity—mostly solar, wind and hydro—reached about 50 per cent of its total generation capacity; and the clean energy sector[1] contributed 40 per cent to the 2023 growth of China's GDP.[2]

In 2023, green finance has been mentioned in several high-level policy documents and by China's President Xi to support China's green economic ambitions. Yet progress in policy and green finance application have been mixed.

On the policy side, an important development impacting green finance in China was the establishment of the Central Financial Commission (CFC) for financial decision-making, the creation of the National Financial Regulation Administration (NFRA) to replace the China Banking and Insurance Regulatory Commission (CBIRC), the strengthened role of the CSRC in capital market regulation and the streamline of PBOC on monetary policy and macro-prudential supervision. The governance reshuffle might have led to a slower pace of green finance policy advancement in 2023, for example in transition finance standards or sustainable finance disclosure guidelines. Nevertheless, progress was evident in segments like green insurance and carbon markets through the re-introduction of China Certified Emission Reductions (CCER) after a hiatus since 2017 as well as on sub-national level through new pilots and local regulatory advances (e.g., in Shanghai, Shenzhen).

On the application side, the growth of green financial instruments has been mixed: green loans have grown, while green bond issuances have declined (possibly due to stricter standards on the use of proceeds in force since 2023). This brief, building on the previous report analyses the development of China's green finance policies and tools in 2023 to identify trends and provide recommended actions to further scale green finance in China. It is a snapshot of various developments and uses specific examples to understand trends and directions. It is by no means a complete guide to Chinese green finance and its developments.

Key findings

Key policies for green finance in China identified include (more details in Chapter 2):

- Green finance governance:
    - The Central Financial Commission (CFC) was established and takes over the responsibilities from the former FSDC under the State Council, becoming the primary body for financial decision-making and coordination. This move strengthens the China Communist Party (CPC) oversight of financial regulation.
    - The National Financial Regulation Administration (NFRA) replaces the CBIRC and takes on broader responsibilities, including oversight of financial holding companies and financial consumer protection (previously under the PBOC's purview), as well as investor protection (previously under the CSRC's purview). The reform plan empowers dispatched agencies, particularly the NFRA, to lead the local financial regulatory framework.
    - The PBOC now concentrates on monetary policy and macro-prudential supervision, no longer overseeing financial holding companies. The reform plan also streamlines the PBOC's organisation by replacing nine large regional branches with 31 provincial and five municipal branches.
    - The CSRC's role as the capital market regulator has been enhanced by incorporating supervision of enterprise bond issuance from NDRC into its purview, consolidating oversight of both enterprise and corporate bond issuance. CSRC initiated two sequential reforms in July and December, leading to significant reductions in fee rates and transaction commissions.

- Disclosure standards:
    - China's major stock exchanges in Shanghai and Shenzhen jointly issued draft guidelines for corporate sustainability disclosure in February 2024, mandating ESG information, including Scope 3 emissions and scenario analysis, by April 30, 2026, mirroring the global trend towards ESG transparency.
    - The International Sustainability Standards Board (ISSB) opened an office in Beijing after it released the ISSB S1 and S2 sustainability disclosure standards in 2023 with China's contributions. China's application of ISSB is uncertain.

- Subnational initiatives: Several local pilot initiatives, including Huzhou, Shanghai, Chongqing, Tianjin, and Hebei, have issued transition finance catalogue. These efforts are poised to serve as a cornerstone for a national-level catalogue.

- Carbon finance: China's Certificated Emission Reduction (CCER) officially relaunched, with a standardised framework and process for voluntary GHG emission trading.

- Green energy: Green Certificates are officially stamped as the sole mechanism for verifying renewable power consumption nationally, assigning oversight to the NEA and ensuring coverage of all renewable sources.

- Green insurance: The green insurance sector established more comprehensive classification standards, statistical systems, and sustainable information disclosure policies through the Insurance Association, which may be adopted by NFRA.

Key developments in green finance instruments identified include (more details in Chapter 3):

- The PBOC extended the implementation of carbon-reduction support tool to 2024, and included more foreign banks and local corporate banks. The clean coal re-lending program, set to expire at the end of 2023, has a remaining quota of RMB 25.2 billion (USD 3.57 billion) from its total allocation of RMB 300 billion (USD 42.45 billion). Continuation and additional funding are uncertain, but the remaining allocation is likely to be used up.

- Green loan balance reached RMB 30.08 trillion (USD 4.256 billion) at Q4 2023, marking a 36.5 per cent year-on-year increase and constituting 12.7 per cent of the total loan balance. Green bond issuances decreased by 4.4 per cent in volume in 2023, accounting for 1.17 per cent of the overall bond market. SOEs and financial institutions continue to be the primary participants, although non-SOEs have become increasingly active; offshore green bonds issued by Chinese mainland issuers reached a record low in 2023 due to rate hikes and a lack of property issuers, while foreign investor involvement in green bond issuances in China is resuming but remains limited.

- Green insurance lacks comparable data due to institutional reforms and continuous policy adjustments. However, scattered information suggests that premiums totalled RMB 229.7 billion (USD 32.5 billion) at Q4 2023, and the outstanding investment in the green industry amounted to RMB 1.67 trillion (USD 236.3 billion) at Q2 2023.

- Nearly all green funds, including traditional mutual funds, index funds, ETFs, and WMPs, experienced varying degrees of contraction in 2023 due to investment return challenges, where green funds across various categories have notably underperformed the CSI 300 Index.

- China's national carbon market traded 212 million tons in 2023, with annual transaction value growing to RMB 14.44 billion (USD 2.04 billion) from RMB 2.81 billion (USD 397.62 million) in 2022. This growth is primarily due to the biennial compliance cycle, with 2022 being a non-compliance year, while daily transaction volume data does reveal a noticeable compliance-driven pattern.

- Transition finance experienced a 38.7 per cent decrease in volume, primarily due to unclear rules regarding fund utilisation. This lack of clarity has posed challenges for transition bonds, particularly in navigating market interest rates.

Key barriers for green finance in China identified include (more details in chapter 5):

- Lacking incentives for green over brown finance. The draft of 2023 Green Industries Guidance Catalogue retains "clean coal" as a green industry. In addition, financial incentives for brown assets have partly expanded, for instance, 2023 PBoC delivered RMB 193.7 billion (USD 27.41 billion) in clean coal special re-lending, representing a 147 per cent increase of 2022.

- Too many channels and managerial systems for environmental/ESG disclosure exist with different rules. Various entities, including the Stock Exchange, MEE, PBOC, SASAC, and ministry-affiliated associations, issue diverse disclosure guidance and standards aimed at different target audiences. Additionally, there is a proliferation of formats and terms for disclosure reports (e.g., ESG, CSR, sustainability, climate disclosure), resulting in confusion and discrepancies in compliance and evaluation procedures. Small and medium-sized enterprises (SMEs) encounter particular difficulties in adhering to these standards. This complexity presents a significant barrier to transition finance, which necessitates transparency and a robust system for post-disclosure evaluation and monitoring.

- Low market share and imbalance in green finance instruments. Green loans continue to be the primary, and perhaps sole, driving force behind the current green financial market. It is essential to diversify and enrich other types of financial products to foster a more comprehensive development of green finance. Long-term capital, particularly insurances and funds, can play a significant role in powering the development of the green market, as these entities prioritise stability over profitability. However, their scale in China remains very small, yet holds significant growth potential.

- Challenges persist in transition finance, including issues like undefined standards, restricted information disclosure, and underutilised range of instruments. While China has played a prominent role in the international framework for transition finance, there has been limited progress in fundamental policy design. By the end of 2023, local trail catalogues or standards for transition finance have been issued and implemented in Huzhou, Chongqing, Tianjin, Shanghai, and Hebei. However, there is a pressing need for the central bank and other localities to release a national transition finance catalogue.

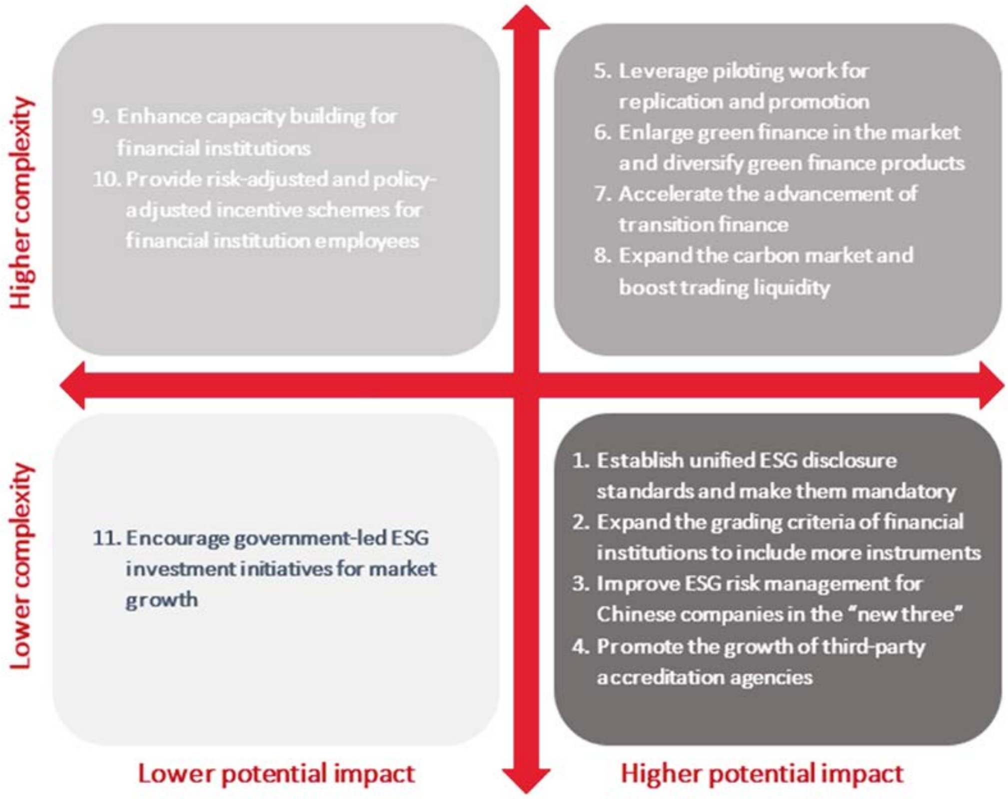
- Low activity in carbon market trading. The national carbon market currently limits trading entities to the power industry, while industries responsible for 60 per cent of the country's carbon emissions are not yet included. Monthly trading volume varies, with 75 per cent occurring before contract fulfillment. The evolution of the carbon market, particularly the phase-down of free allocation of carbon emission allowances, is unclear, potentially impacting the expectations and actions of market participants. The re-initiation of CCER, seen as a means to diversify market instruments, need further development if to form interaction with the international carbon market.

- Financial institutions lack capacity to meet diverse market needs. While capacity building is predominantly driven by top-down implementation guidance, practical operations pose dilemmas as financial institutions struggle to identify green-standard projects, address needs accurately, and manage associated risks. Consequently, their green business approach often becomes superficial, resembling box-ticking, rather than prioritising sustainable practices and comprehensive risk assessment. Evidence includes the notably low share of green finance in their total finance portfolios and the substantial decrease in issuance scale for innovative financial instruments post-pilot phase.

- Mismatch between risks and rewards in the supply of green finance. Current incentive structures within green finance policies predominantly cater to entities within the real economy grappling with "capital shortages" and "financial difficulties", sidelining the critical role played by financial institutions and investors in providing capital. This omission creates a disincentive for financial actors to engage in social capital investment in green enterprises and projects due to the uncertainty surrounding returns from risk-taking endeavours.

Accordingly, we develop the following recommended actions in *Figure 1* to utilise green finance in line with accelerated green transition ambitions (more details in Chapter 5):

Figure 1: Heat map of potential actions on green finance development



Source: Authors.

- Establish unified ESG disclosure standards and make them mandatory, possibly based on and harmonised with ISSB including Scope 2 emission with a timeline for Scope 3 emissions. Unified standards and mandatory requirements are essential to tackle the major barriers in the accessibility, usability, and reliability of ESG data. Expand emerging regulatory efforts among equity markets to include public corporate debt markets, e.g. to cover more SOEs.

- Expand the grading criteria of financial institutions to include more instruments. It's imperative to include green insurance in scoring mechanisms now that it has clarified these aspects. Moreover, expediting the clarification process for other green financial instruments is vital to ensure their incorporation into scoring mechanisms.

- Improve ESG risk management for Chinese companies in the "new three". China's "new three" industries are poised for increased attention amid rising global demand and China's export growth. With biodiversity, labour, and community concerns surrounding critical mineral extraction and processing, Chinese companies need to pay special attention to these issues and improve risk management particularly to address domestic and international scrutiny.

- Promote the growth of third-party accreditation agencies and create a collaborative multi-party supervision for disclosure and supervision. This framework would encompass internal corporate oversight, third-party agency assurance, and regulatory authority supervision. The objective is to enhance the credibility of green and transition-related information.

- Leverage piloting work for replication and promotion. After six years, pilot green finance zones have gained expertise, urging nationwide sharing of successful practices. The government should expand and enhance these zones, encouraging diverse regional green financial reforms to foster transition finance.

- Enlarge green finance in the market and diversify green finance products. Prioritising the instrument connection between green finance and transition finance, and the integration between green finance with inclusive finance are essential, as they can facilitate greater engagement with non-SOEs and wider range of green financial products.

- Accelerate the advancement of transition finance. Promptly introduce unified definition standards, enhance incentive mechanisms, expand the scope of information disclosure and supervision requirements, and enrich the variety of financial instruments for transition finance.

- Expand the carbon market and boost trading liquidity. Expanding the scope to include more industries is recommended. Financial institutions should play an active role as intermediaries to facilitate efficient carbon trading, thereby supporting the gradual inclusion of financial institutions and promoting innovation in carbon financial products. Incrementally increasing the share of paid carbon quotas and outlining a roadmap for changes in carbon quotas are also advisable steps.

- Enhance capacity building for financial institutions. Financial institutions must use preferential interest rates, select high-impact green projects, partner with international organisations, innovate green financial products, and improve capabilities. Innovative steps are needed to lower green financing costs, boost returns, and optimise financial services for enterprises, ensuring adequate investor returns.

- Provide risk-adjusted and policy-adjusted incentive schemes for financial institution employees to support sustained growth of green financial markets (primary objective of employees) and de-facto green economic growth (indirect objective of employee) with different incentives for different levels of employees.

- Encourage government-led ESG investment initiatives for market growth. Use government funding to support ESG investment, initiate pilots in mature markets, and promote ESG fund growth. Standardise practices, establish accurate values, and increase investor engagement. Also, boost public understanding of green finance for market expansion.

China green finance policy landscape

Overview of China's top-down and bottom-up practices in green finance systems

China's financial system has undergone significant transformation in 2023. The Central Committee of the Communist Party of China and the State Council released an institutional reform plan in mid-March, aiming at restructuring China's financial regulatory framework to strengthen governance over the next 5-10 years.[3] As shown in *Figure 2*, this plan involves a significant redistribution of power and entails a major overhaul of China's financial regulatory system, expected to have a profound impact on China's financial landscape.

- The newly established Central Financial Commission (CFC) replaces the responsibilities of the former FSDC under State Council, becoming the primary body for financial decision-making and coordination. This move strengthens the CPC's oversight of financial regulation.

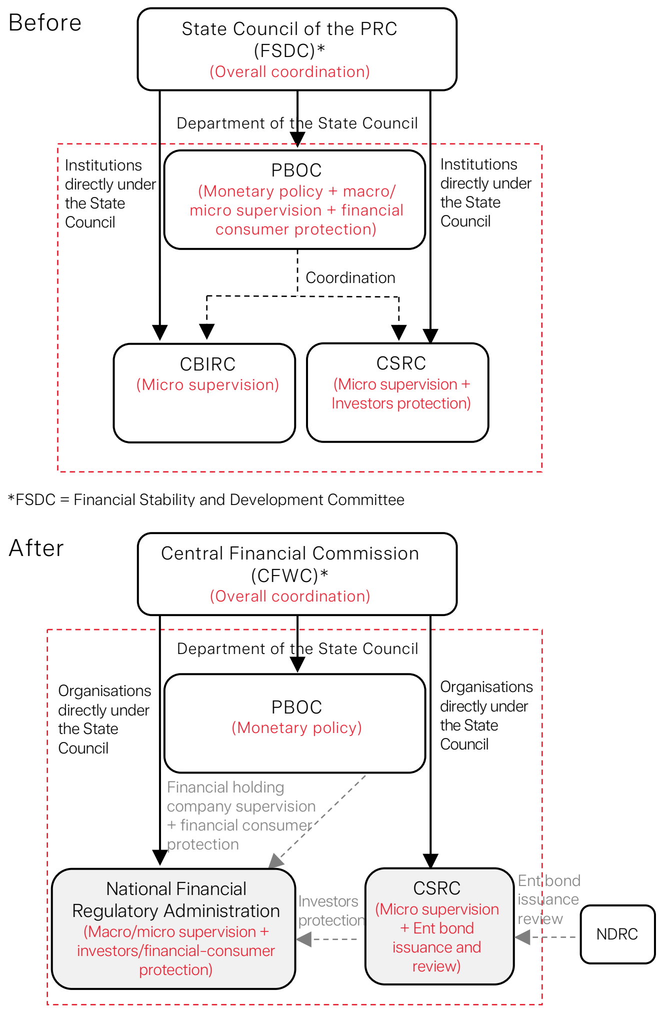
- The National Financial Regulation Administration (NFRA) replaces the CBIRC and takes on broader responsibilities, including oversight of financial holding companies and financial consumer protection (previously under the PBOC's purview), as well as investor protection (previously under the CSRC's purview). Meanwhile, the reform plan empowers dispatched agencies, particularly the NFRA, to lead the local financial regulatory framework. As of Oct 2023, the NFRA oversees 31 provincial, five municipal, 306 city-level, and 1,730 county-level regulatory agencies and dispatch offices. This restructuring creates a 'super-regulator' similar to a blend of the UK's Prudential Regulation Authority and Financial Conduct Authority.

- The PBOC now concentrates on monetary policy and macro-prudential supervision, no longer overseeing financial holding companies. The reform plan also streamlines the PBOC's organisation by replacing nine large regional branches with 31 provincial and five municipal branches. The new structure comprises headquarters, regional branches, and city-level branches (the county branches phasing out).

- The CSRC's role as the capital market regulator has been enhanced by incorporating supervision of enterprise bond[4] issuance from NDRC into its purview, consolidating oversight of both enterprise and corporate bond[5] issuance. CSRC initiated two sequential reforms in July and December, leading to significant reductions in fee rates and transaction commissions.[6] The head of CSRC was replaced in February 2024.[7]

We view these institutional changes positively as they aim to streamline regulatory oversight and eliminate fragmentation in supervision, which holds promise for the advancement of green finance. However, it is crucial to recognise that green finance operates within a complex regulatory environment involving multiple government departments, including the Ministry of Finance, the Ministry of Ecology and Environment, and the State-owned Assets Supervision and Administration Commission. As a short-term consequence of this departmental reorganisation and leadership changes coordination efforts for green finance policy might become hampered. These challenges could manifest as delays in the establishment of standard statistical systems and regulatory frameworks, potentially impeding the efficient implementation of green finance initiatives and policies.

Figure 2: Comparison of China's financial regulatory regime before and after reforms



*CFWC = Central Financial Work Commission

Source: Jefferies/Reuters, developed/corrected by authors.

Meanwhile, on sub-national level, local green finance pilot zones (have been initiated to explore replicable and scalable green finance practices (Green Finance Reform and Innovation Pilot Zone -绿色金融改革创新试验区 [8] since 2017, and Climate Investment and Financing Pilot - 气候投融资试点 [9] since 2022).

Figure 3 provides an overview of green finance pilot zones of the first and second batch and their focus for accelerating green finance. Following the initial launch in eight cities across Zhejiang, Jiangxi, Guangdong, Guizhou, and Xinjiang provinces, subsequent green finance reforms have been implemented in Lanzhou, Gansu, and Chongqing, Sichuan. In addition, cities such as Chengdu[10] in Sichuan, Weihai[11] in Shandong and Xiamen[12] in Fujian are actively pursuing the pilot qualification as well.

Figure 3: Overview of provincial green finance pilots and initiatives

Source: Authors.

In 2023, both cities inside and outside the above pilot zones have promoted green finance policy, for instance:

- Shenzhen (in pilot province) still spearheaded green finance practices. The government issued *Shenzhen Carbon Peak Implementation Plan* in September and also *Shenzhen Green Investment Assessment Guidelines* in October 2023.
- Gansu Province (pilot province) circulated *Notice on Promoting Green Finance to Support Green Development of Urban and Rural Construction* in October 2023, which mainly laid focus on green building relative area such as clean heating, sponge city construction, etc.
- Beijing published the *Notice on collaboratively promoting green finance to support high-quality development in Beijing, Tianjin and Hebei* in June, followed by the *Guidelines for the Construction Of Green Financial Systems and Mechanisms for the Banking and Insurance Industries* in September 2023.
- Shandong Province (non-pilot) published the consultation on *Three-Year Action Plan for Carbon Finance Development (2023-2025) in April 2023.*[13]
- Xiamen (non-pilot) released *Guiding Opinions on Strengthening Green Finance to Support the Development of Green Buildings* in May 2023.
- Cities including Shanghai, Nanchang, Changsha, Ningbo, and Provinces covering Gansu, Ningxia, Qinghai, Shan'xi, Anhui, Guanxi, Sichuan, etc. all issued carbon peak and carbon neutral planning documents, with green finance as a supporting service area.[14]

Climate finance pilots show progress but also face challenges. Southern Finance reports that as of October 2023, 8 of 23 pilot cities[15] have climate investment plans, 10 are issuing project evaluation guidelines for their financing databases, and 16 have established climate investment platforms.[16] In an earlier guideline - *Local Reference Standards for the Inclusion of Climate Investment and Financing Projects* released by MEE in October 2022, it required that local database should be established by October 2023. Therefore, the overall progress, albeit considerable, seems not have reached MEE's goal. The current level of raised finance fell short to meet the target scale of climate fund by 2060 – at an average of more than RMB 1.6 trillion (USD 226.4 billion) annually.

Recent green finance policies in China

The following sections highlight and analyse recent green finance policy developments in China based on the five pillars[17] for green finance development promulgated by PBOC in early 2021:

1. Improve the green finance standard system;
2. Strengthen regulation and disclosure requirements;
3. Enhance the incentive and restraint mechanisms;
4. Enrich the product and market system; and
5. Expand international cooperation and lead the setting of international standards for green finance.

Standard system

Progress in standard system were observed in the insurance industry, in green taxonomy (green industry catalogue) and in transition finance.

In 2022, NFRA (original CBIRC) issued the *Guidelines for Green Finance in the Banking and Insurance Industry* and *Green Insurance Statistics System*, bringing insurance underwriting and asset management business into the green finance scope. In September 2023, the Insurance Association of China introduced the *Green Insurance Classification Guidelines (2023 Edition)*. As shown in *Appendix 2*, the Guidelines outline 10 service scenarios, corresponding to 16 first-level catalogues, with 69 second-level catalogues, and more than 150 third-level catalogues. [18]

In March 2023, NDRC revealed a public consultation version of the *Green Industry Guidance Catalogue (2023 version)*[19], aligning with carbon reduction goals by incorporating new sectors like "biodiversity" and "greenhouse gas emission control", while also expanding green building and green transportation. However, it is notable that the 2023 draft has retained "clean coal" within its provisions, despite its removal from the definition of "eligible green project" in the 2021 Green Bond Endorsed Projects Catalogue. Advocates argue that coal continues to account for 60 per cent of primary energy production, leading to the assertion that its removal would be both unrealistic and irresponsible. As a compromise, the draft suggests considering only "clean coal" projects, with the overarching goal of encouraging their wider adoption. This decision corresponds to China's escalated concern with energy security subsequent to pronounced power shortages experienced in both 2021 and 2022, which has played an important role in the recent expansion of new coal power plants. In general, the green industry catalogue serves as a unified standard blueprint for green classification at the Chinese ministries and commissions level. Following the 2023 revision, it is foreseeable that clean coal may persist in provincial guidelines as well, leading to potential accusations of greenwashing. But, it remains uncertain if green loans and green bonds will undergo similar revisions after the official release of the 2023 version, requiring potential coordination across guidance documents if not. NDRC is reviewing over 370 comments and recommendations to finalise the Catalogue.

PBOC aimed to release transition finance standards for multiple sectors including steel, coal and electricity, construction materials, and agriculture, but they are not available when the report was written. [20] Meanwhile, at the local level, Huzhou in Zhejiang released the first transition finance catalogue (trial) in 2022, followed by an updated version in 2023, which covered 9 key industries, such as textile, paper, chemical manufacturing, non-metal smelting, and electricity generation.[21] Shanghai also issued its own trial version of the transition finance catalogue at the end of 2023[22], which came into effect on January 1st, 2024. One notable feature is that it includes six industries that are distinct from Huzhou, such as water transportation, ferrous metal smelting, petroleum processing, and automobile manufacturing. By January 2024, five cities, including Chongqing, Tianjin, and Hebei, have issued transition finance catalogues.[23]

Box 1: Key trends in China's green finance standard system

Positive:	Challenges:
• Detailed guidance on product and service standards for green insurance. • Update of green taxonomy, particularly the Green Industry Catalogue, to align with efforts on carbon reduction and green development.	• Lack of unity in green taxonomies (e.g. clean coal was removed from the 2021 Green Bond Endorsed Projects Catalogue but remains in the 2023 drafted Green Industry Guidance Catalogue). • Slow progress in transition finance standards.

Disclosure Policy

China made some progress in disclosure policies in 2023. For listed companies' disclosure, China's three major stock exchanges in Shanghai, Shenzhen, and Beijing worked on guidelines for corporate sustainability disclosure for listed companies which were released on February 8, 2024.[24] The guideline mandates companies to disclose ESG information, including Scope 3 emissions (indirect emissions in a company's value chain) and scenario analysis, by April 30, 2026, and thus with stricter standards than current US disclosure standards and similar to the EU standards. Beijing stock exchange promotes disclosure among its numerous innovative SMEs without imposing a mandatory requirement.

The Hong Kong stock market further spearheaded ESG disclosure requirements. In April 2023, the Hong Kong Stock Exchange proposed mandatory climate information disclosure for all issuers in their ESG reports, aligned with ISSB standards from 2024, with a transition period for stringent requirements like scope 3 emissions.[25]

For central state-owned enterprises (SOEs), there has been ongoing progress in ESG disclosure. Following the issuance of the work plan by the State Council's Assets Supervision and Administration Commission (SASAC) to mandate ESG disclosure for SOEs by 2023[26], 86.8 per cent of SOE-holding listed companies have published independent ESG or social responsibility reports. In July 2023, SASAC introduced ESG disclosure regulations for listed companies under central enterprise control, featuring basic and recommended disclosure levels, along with a report template for technical guidance.[27]

Chinese financial institutions meanwhile have already been more engaged with ESG disclosures. As of August 1, 2023, 105 of the 130 listed companies in the financial industry had disclosed ESG reports.[28] Part of this could be driven by *PBOC's Guidelines for financial institutions Environmental Information Disclosure* issued in July 2021 and reinforced on a sub-national level: Shenzhen, provided the "Green Finance Regulations" in early 2022, mandating its 161 local financial institutions to provide ESG disclosure reports by May 2023.[29]

Another noteworthy progress is the issuance of *ESG Disclosure Guidelines for Insurance Institutions* by Insurance Association of China in December 2023. It was developed based on the aforementioned insurance-related standards in section 1 and incorporated "double carbon" (meaning carbon peaking and carbon neutrality), "green finance" and "green operations" into the ESG information disclosure system.[30]

Furthermore, in November 2023, Chinese Green Bond Standards Committee, one of the key members in devising and issuing of the advanced China Green Bond Principles in July 2022, has published the *Green Bond Duration Information Disclosure Guide* [31] – aiming to further improve the transparency of the use of funds raised by green bonds and ensure that 100 per cent of the funds raised are used for green projects.

China also supported the two new standard documents issued by the International Sustainability Standards Board (ISSB) in June 2023: *S1 General Requirements for Disclosure of Sustainability-related Financial Information*[32] and *S2 Climate-related Disclosures*[33]. China was the only representative of a developing country in the ISSB's five jurisdictional working groups[34], engaging regularly through the Ministry of Finance's Accounting Regulatory Department.

The latest revision of the *Company Law*,[35] approved by the National People's Congress Standing Committee on December 29th, 2023, added Article 20, which requires all limited liability and joint stock companies including most foreign-invested enterprises, to fully consider the interests of employees, consumers and environmental protection into their corporate operations and encourages companies to publicise social responsibility reports. The new provision elevates corporate social responsibility from a policy to a legal imperative. This aligns with the requirements of stock exchanges for listed companies. For instance, the updated Listed Rules in January 2022 mandated the disclosure of social responsibility. Generally, state-owned enterprises, high-emission/polluting entities, and top-listed companies must provide ESG reports, while social responsibility reports are more common (as basic requirements) among general companies, with overlapping disclosures and unclear report boundaries.

Box 2: Key trends in disclosure policy standards

Positive:	Challenges:
• Detailed support for global sustainability disclosure standards. • Enhance disclosure for listed companies and advocate for Scope 3 emission reporting. • Refine rules for listed companies controlled by state-owned enterprises. • Refine rules for green finance sub-sectors like insurance and bond.	• Multitude of regulators and disclosure standards for different industries, listed- and non-listed, SOEs and SOEs-controlled companies, etc. • Absence of inter-ministerial coordination mechanism. • Dispute over disclosure alignment with Chinese and international standards.

Incentive and restraint mechanisms

Incentive and restraint mechanisms for green finance provide policy preferences for entities and financial institutions to stimulate the use of green finance and restrain non-green finance. PBOC and NFRA are leading on policy development in this field.

At central level, those implemented in previous years and still existing and valid in 2023 include:

- The PBOC conducts quarterly assessments of 24 major banks on their green finance performance, currently focusing on green loans and green bonds, with potential expansion to other areas of green finance in the future. Green insurance may be the promising next step in this endeavour. Banks are incentivised for green performance with higher scores.

- 2023 PBOC delivered RMB 231.4 billion (USD 32.74 billion) in carbon reduction support tools, representing a 3.2 per cent increase of 2022.[36]The PBOC extended the implementation of carbon-reduction support tool [37] for two years to the end of 2024 [38], and included more local branches of foreign banks such as DBS (Singapore)[39] and HSBC (Hong Kong)[40] into the scope of support, in addition to Deutsche Bank (Germany) and Société Générale (France) that were admitted in August 2022. Meanwhile, local corporate banks[41] from green finance pilot cities, were incorporated into the scope as well.[42]

- 2023 PBOC delivered RMB 193.7 billion (USD 27.41 billion) in clean coal special re-lending[43], representing a 147 per cent increase from the previous year's total of RMB 78.4 billion (USD 11.09 billion).[36] The program's initial aim is to enhance the coal industry's efficiency and reduction of air pollution, but the second batch announced at a value of RMB 100 billion, aims to support coal development while ensuring energy security and stable supply. This may provoke international concern and counteract China's carbon reduction efforts. As of November 2023, the China Development Bank had financed the construction of 29 modern/intelligent/smart coal mines and 94 coal-fired power projects under this program since 2021.[44] This measure, set to expire by 2023's end, retains RMB 25.2 billion (USD 3.57 billion) from its RMB 300 billion (USD 42.45 billion) total allocation. Continuation and potential additional funding are uncertain, yet full utilisation of the remaining allocation is anticipated.

- CSRC and SASAC jointly published the *Notice on Supporting the Issuance of Green Bonds by Central SOEs* in December 2023,[45] aiming to bolster their role in green investment and potentially fuel growth in China's green bond market.

At local level, incentives primarily target financial institutions, financial products, and financing entities:[46]

- Green finance pilot zones like Huzhou, offer financial incentives such as subsidies and rewards to attract financial institution headquarters and specialised green finance entities to register and relocate to these zones.

- Local governments encourage green finance product innovation and address uncertainty through incentives like one-time rewards, interest discounts, re-loans, and insurance subsidies. For instance, Gansu awarded RMB 100,000 (USD 14,150) to selected green finance innovation cases.

- Local governments incentivise green enterprises as well. For instance, Huangpu District in Guangzhou offers a 1 per cent interest discount for enterprises that securing green loans for over 6 months from financial institutions.[47]

Box 3: Relevant trends in incentive and restraint mechanism

Positive:	Challenges:
• Increased incentive for Central SOEs through bond issuance. • Improved incentives for financial institutions, promoting product innovation.	• Continued incentives for coal-related investments. • Insufficient coverage and unclear efficacy of incentives, particularly for smaller banks at local levels (i.e. highly selective, limited in amount). • Over-reliance on short-term measures (i.e. Carbon Reduction Support Tools and Clean Coal Special Re-lending).

Product and market system

MEE officially re-launched the China Carbon Emission Reduction (CCER) market on 22 January 2024. After a seven-year hiatus, the CCER allows companies to both sell and buy carbon credits e.g., to offset carbon emissions and thus reduce the need to buy emission allowances on the national carbon market.[48] The reactivation of CCER, coupled with the launch of the national ETS market in July 2021, signifies the finalisation of China's domestic carbon market architecture.

To support voluntary carbon credit trading, MEE published the *Measures for the Administration of Voluntary Greenhouse Gas Emission Reduction Trading (Trial)* [49] in October 2023. The Measures establish a standardised framework and process for voluntary GHG emission trading. Notable aspects include:

- Beijing Green Exchange will serve as the sole venue for trading[50], aiming to centralise market liquidity, addressing previous fragmentation across multiple venues. The National Climate Strategy Centre of MEE serves for the registration and deregistration of carbon credits.
- MEE organises and formulates the CCER methodology with extensive public consultation. Following the principle of "release one when it is mature", the first batch of four project methodologies has been approved by the end of 2023 and includes afforestation carbon sequestration, grid-connected solar thermal power generation, grid-connected offshore wind power generation, and mangrove creation. [51]
- Credits need to be verified by third parties, which themselves need to be approved by SAMR (State Administration for Market Regulation) and MEE.
- The Measure aims to develop separate provisions for cross-border carbon trading.

Apart from national carbon market system development, sub-national carbon markets also continue to operate and evolve: The Shenzhen Emissions Exchange and Hong Kong Exchange signed a Memorandum of Understanding on October 31st, 2023, to link carbon markets between the two regions and collaboratively establish a voluntary carbon market within the Greater Bay Area. [52] This initiative follows the establishment of the Hong Kong International Carbon Market Committee to outline the development of a unified carbon market for the area.

Further to carbon credits, NDRC issued several documents to ensure the proper development of the green certificate system.

- In July 2023, NDRC, MOF and the National Energy Administration (NEA) issued a notice to comprehensively revise and improve China's green certificate system.[53]
- In November 2023, NDRC and NEA introduced the "Coal-fired Power Capacity Tariff Mechanism". [54]
- On January 27, 2024, the NDRC, NBS, and NEA jointly issued a Notice on Strengthening the Alignment of Green Power Certificates with Energy Saving and Carbon Reduction Policies to Vigorously Promote Non-Fossil Energy Consumption.[55]

These documents establish Green Certificates as the sole mechanism for verifying renewable power consumption nationally, assigning oversight to the NEA and ensuring coverage of all renewable sources. In December 2023, the NEA commenced the issuance of green certificates, approving and distributing approximately 11.91 million certificates to 1,168 projects and 755 power generation companies.[56] Coal power plants are compensated based on their capacity, rather than solely for the electricity they produce. The measure aimed to support financially underutilised backup coal power, but it could risk entrenching inefficient coal power in China's energy system and subsequently slow down the transition to renewable energy.

In addition, China's MEE in January 2024 issued the China Biodiversity Conservation Strategy and Action Plan (2023-2030)[57], as part of the efforts to implement the Kunming-Montreal Global Biodiversity Framework, and a scientific guide to comprehensively improve the level of biodiversity management in the country.

Box 4: Recent trends in product and market

Positive trends:	Challenges:
• Preparation and re-launch of voluntary carbon reduction products (i.e., CCER). • Exploration of new market mechanism (i.e., Coal-fired Power Capacity Tariff Mechanism, green electricity certificate).	• Lack of long-term roadmap for carbon market. • Continued high share of free allowances on carbon market reducing efficiency of trading. • Continued existence of parallel pilot carbon markets leading to potential confusion.

International green finance cooperation and standards

China is active internationally in setting and shaping green finance standards. After previous efforts in the *Common Ground Taxonomy* (CGT) first published in 2021 and updated in 2022[58], the Taxonomy Working Group led by China and the EU initiated the phase II work of the CGT in May 2023, with a target to expand the country basis of CGT (such as including Singapore' and other countries' green catalogue for comparison), enlarge the scope of economic activities covered by CGT, and carry out CGT-related capacity building for more countries and regions.[59] In July, the Green Finance Committee labelled and released the first batch of 193 compliant Chinese green bonds to enhance their international acceptance.[60]

In January 2024, PBOC and Hong Kong Monetary Authority jointly launched a package of measures[61]—upgrading "Bond Connect"[62], optimising "Cross-Border Wealth Management Link"[63], and deepening the cross-border pilot of the digital renminbi—to promote mainland's financial opening up and consolidate Hong Kong's role as a leading hub for green finance—of which, the development of the green bond market becomes a priority, with Hong Kong serving as the global offshore RMB hub.

Turning to progress in Asia, China has elevated its overseas green finance effort through *China–Singapore Green Finance Taskforce*[64] unveiled in April 2023. China and Singapore are enhancing interoperability between their taxonomies by aligning design aspects, with the goal of strengthening connectivity in the sustainability bond market. This could potentially serve as a model for broader Asian green finance efforts, potentially aligning with the ASEAN Taxonomy of Sustainable Finance. Future cooperation may extend to ASEAN and its member states.

The ISSB's release of two new sustainability disclosure standards marks a significant milestone in advancing global reporting norms. China actively supports ISSB's efforts to establish a global framework for sustainability disclosure, providing feedback during the consultation phase for S1 and S2 standards. [65] Its involvement is crucial as a representative for developing nations. Despite ISSB's stringent standards, tailored adaptations are encouraged. With the recent establishment of the IFRS Beijing office, China reiterated its full support for ISSB's work, and the Ministry of Finance is assessing adoption strategies within the context of China.

The G20 tasked the SFWG with monitoring progress on the Sustainable Roadmap and prioritising mechanisms for climate finance, SDGs finance, and capacity building. In response to the proposal, China's leading green finance think tank, the Beijing-based Institute of Finance and Sustainability (IFS), launched a global initiative on sustainable finance capacity building for Emerging Markets and Developing Economies (EMDEs), in collaboration with over 30 global institutions. The new Capacity-building Alliance of Sustainable Investment (CASI)[66] was first announced during the 3rd Belt and Road Forum in Oct 2023 and aimed to provide quality learning programs for 100,000 people before 2030, to support countries to develop sustainable finance in the ASEAN, Central Asian, African, the Middle East, and Latin American regions.

The Sino-US "Sunnylands Statement[67]" underscores the urgency of accelerating the transition from fossil fuels to renewable energy, a commitment echoed in the landmark agreement at COP28, emphasising the critical need for transition finance to enable practical actions. It is highly likely that China may aim to assert its influence at the 2024 G20 Summit in Brazil, possibly focusing on transition finance and biodiversity finance.

As a significant global financier through its investments in the Belt and Road Initiative (BRI), China enters the next decade of BRI involvement in 2023. China's Belt and Road Initiative (BRI) outlook highlighted several key "green cooperation" areas, encompassing green infrastructure, green energy, and green finance.[68] While past investments heavily favoured high-emission sectors like coal, redirecting funds demands reassessing financial packages for coal assets and fostering new investments in green energy.

Box 5: Trends in international green finance

Positive trends:	Challenges:
• Active involvement of China in international regulatory green finance institutions (e.g., IPFS, ISSB, G20). • Strong policy signals for green finance engagement in the EMDEs and BRI countries.	• Limited engagement of Chinese financial institutions in voluntary international associations and standard setters (e.g., GFANZ). • Ongoing support for various fossil finance projects (e.g., gas, oil) with no new coal. • Limited involvement in discussions related to nature disclosure standards and addressing deforestation financing issues.

Green finance application through green finance instruments

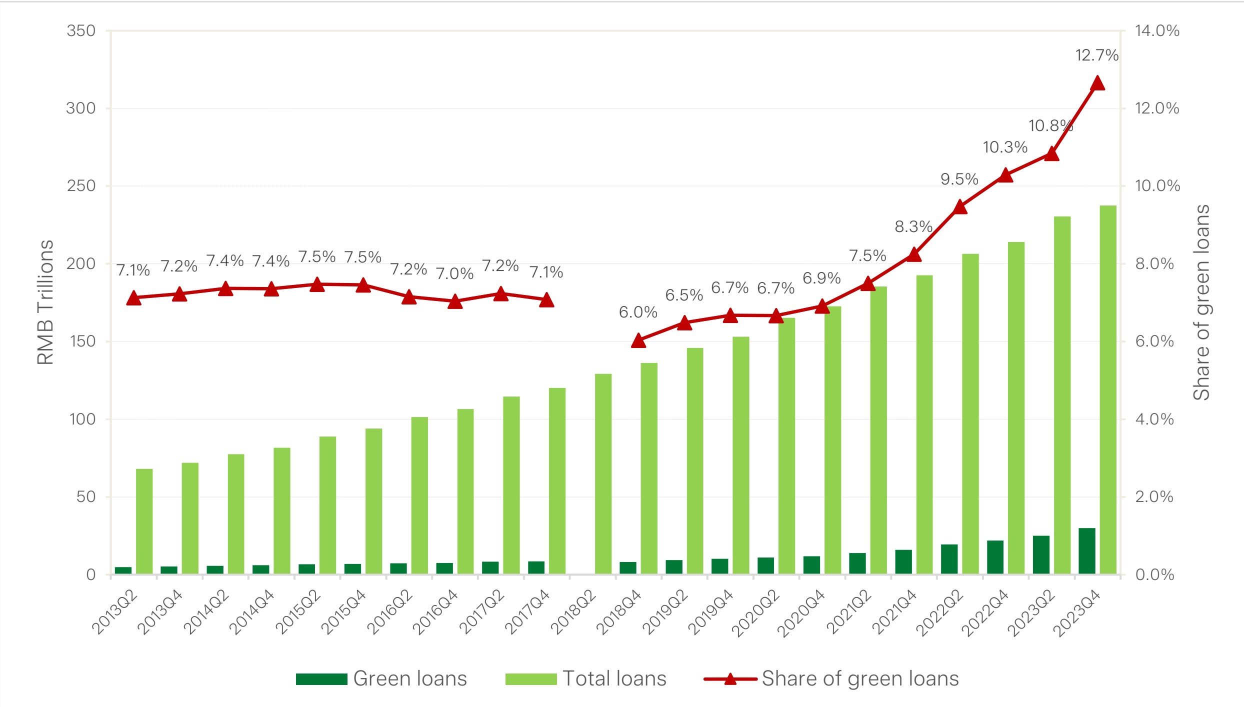
China has established a comprehensive and multi-tiered system of green financial instruments.[69] This includes relatively mature instruments such as green loans and green bonds, developing green insurance, funds, and trusts, alongside emerging options such as green leasing. Furthermore, China has integrated low carbon transition, ocean conservation, biodiversity protection, and rural revitalisation into the green finance framework, leading to corresponding derivatives like transition finance, biodiversity finance, and carbon finance. The next section analyses the development of the following green finance instruments:

- Green loans
- Green leases
- Green bonds
- Green insurances
- Green funds
- Green trusts
- Carbon finance
- Transition finance

Green loans maintain growth

By the end of 2023, China's outstanding green loans balance in both domestic and foreign currencies reached RMB 30.08 trillion (USD 4.26 trillion), marking a 36.5 per cent rise over 2022 and 26.4 per cent higher than the growth rate of total loans (see *Figure 4*).[70] The NFRA claims that the green credit of the 21 major banks can save more than 400 million tons of standard coal and reduce carbon dioxide equivalent by more than 1 billion tons each year[71].

Figure 4: Green loans and total loans issued by 21 major financial institutions[72] in China



Source: Data: CBIRC, PBOC.

Note: Data before 2018 adhere to the statistical criteria of the CBIRC, while data from 2018 onward follow the statistical criteria set by the PBOC.

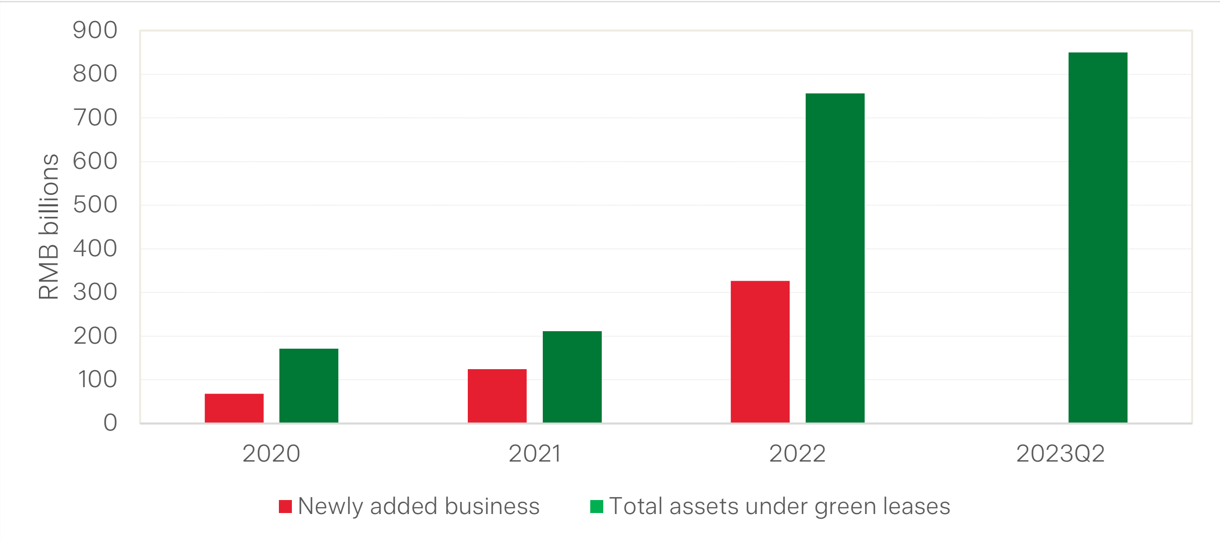
Green loans constitute 12.7 per cent of China's total loan balance, reflecting a notable increase from 8.3 per cent in 2021 and 10.3 per cent in 2022. This increase can be attributed to two factors: Firstly, the growth rate of total loans slowed slightly in 2023. Secondly, the continual increase in green loans is due to policy initiatives. Banks are mandated to regularly report green loan data to the PBOC, and these metrics were incorporated into performance evaluations, incentivising banks to issue more green loans. At the local level, various regions, like Shanghai[73], Guangdong[74], Fujian[75], Chongqing[76], Shandong[77]and Zhejiang[78], have set localised policy goals for green loans, fostering sustained growth in 2023 and ensuring future expansion.

Green leases experience explosive growth

Green leases[79] refer to the products and services provided by leasing agencies to support green industries. It includes direct lease and sale-leaseback two types. The former is suitable for newly acquired fixed assets and significant equipment purchases, as exemplified by CITIC Financial Leasing's collaboration with State Power Investment Corporation and LONGi to construct 600 megawatts of "Photovoltaic + energy storage" power stations. The latter is mostly applicable to companies with completed projects but insufficient liquidity. For instance, Ping An Leasing partnered with a photovoltaic power station in Golmud, Qinghai Province, investing RMB 10 million (USD 1.42 million) to help mitigate liquidity risks. On October 27, 2023, the NFRA issued a *Notice on Promoting the Standardised Operation and Compliance Management of Financial Leasing Companies*, mandating financial leasing companies to gradually reduce sale-leaseback business over three years, aiming for a 50 per cent ratio of direct leasing business by the end of 2026.

Currently the PBOC classified the majority of green leasing business as green loans for unified management under the "Special Statistical System for Green Loans". As shown in *Figure 5*, financial leasing companies invested around RMB 326.7 billion (USD 46.23 billion) in 2022, marking an increase of RMB 202.36 billion (USD 28.63 billion) from 2021 (plus 162.8 per cent). This led to a 12 per cent of cumulative green leasing assets to approximately RMB 850 billion (USD 120 billion) as of June 2023. [80]

Figure 5: The annual growth of green leasing business



Source: Authors.

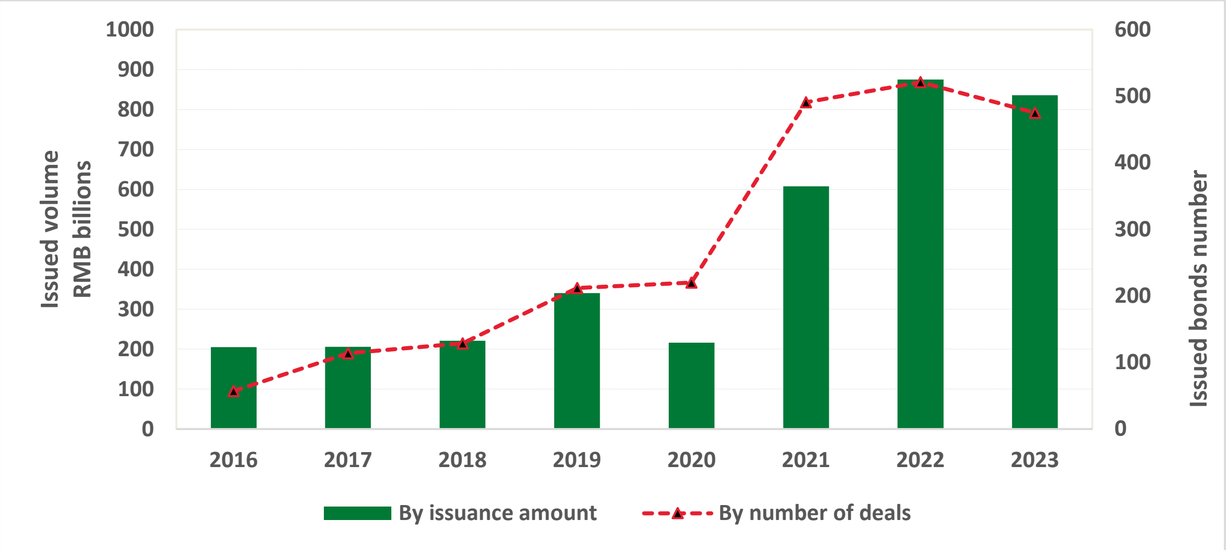
Green bonds growth slowdown

As of December 31, 2023, the total cumulative scale of green bonds has reached approximately RMB 3.5 trillion (USD 495.25 billion). *Figure 6* shows the annual issuance volume and number of Chinese labelled green bonds from 2016 to 2023, where the drop in 2020 may be attributed to the shift in domestic priorities towards Covid-19. After that, the total issuance had two major growth years in 2021 and 2022, where the issuing volume (in RMB) increased by 180 per cent in 2021 and 44 per cent in 2022, and the number of issuances increased by 123 per cent in 2021 and 6 per cent in 2022. This growth was driven by various factors: Firstly, a dedicated green channel facilitates a faster approval process. Secondly, companies issuing green bonds enjoy relaxed policies concerning asset-liability ratios and fund usage. Third, green bonds exhibit cost advantages compared to their traditional counterparts[81], with minimal identification costs. Over 75 per cent of green bonds exhibit an average interest rate advantage of 30 basis points.[82]

Green bond market saw slower growth in 2023 with 475 issuances (minus 8.8 per cent) worth RMB 836 billion (USD 118.29 billion) (minus 4.4 per cent), making China the second largest green bond market in 2023. Green bonds accounted for 1.17 per cent of the overall bonds volume (down from 1.5 per cent in

2022 and up from 1 per cent in 2021) of approximately RMB 71.2 trillion and 0.93 per cent of the total issuances in 2023 of approximately 51,000 bonds.[83] Several factors contribute to the deceleration of growth in the green bond market in 2023. Notably, the overall economic slowdown plays a significant role in this downturn. Secondly, the Green Bond Principles published in July 2022 mandate that all funds raised through the four[84] primary types of green bonds issued in China must be allocated exclusively to green projects. This regulation effectively closes a loophole that previously allowed up to 50 per cent of funds to be diverted for general operations, a practice recognised as "greenwashing" and previously discouraged by international investors. The more rigorous review system implemented during this period also serves as a contributing factor, adding an additional layer of scrutiny to green bond issuance processes. These combined challenges underscore the need for a nuanced analysis of both macroeconomic trends and regulatory dynamics to comprehend the intricacies of the market's growth trajectory in the given year.

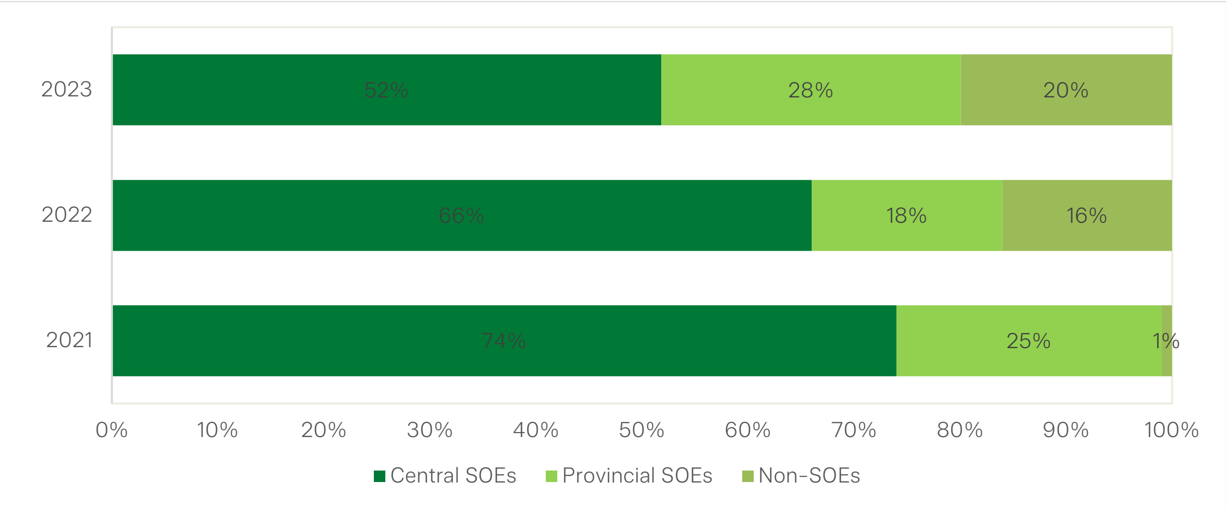
Figure 6: Resilience amidst decline in the 2023 Chinese onshore green bond market



Source: Authors.

Interesting observations in the green bond market include the growing relevance of non-SOE issuers compared to prior years (*Figure 7*). In 2023, about 20 per cent of green bond issuance volume, or RMB 167.3 billion (USD 23.7 billion) came from non-SOEs. Examples included China Merchants Bank, Ping An Bank and Guangzhou Rural Commercial Bank, which are classified as non-SOEs.

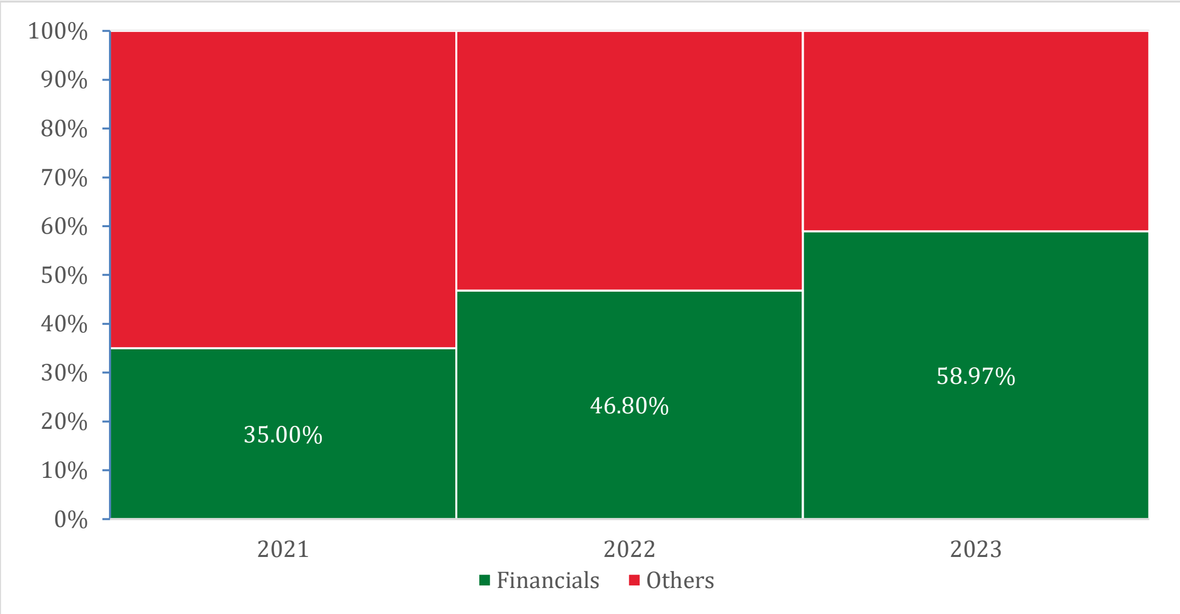
Figure 7: 2023 saw more participation from non-SOEs in green bond issuance



Source: Authors.

Another observation is the growing role of financial issuers reaching nearly 60 per cent of the total volume in 2023. While the financial industry has historically been a dominant force in China's green bond market, there was a notable shift in 2021 as non-financial companies outpaced their financial counterparts in green bond issuance for the first time[85]. However, the depicted data of 2023 reveals a resurgence in the scale of financial industry issuance, reclaiming the highest share at 58.97 per cent (*Figure 8*). This was followed by the electricity, heat, gas, and water production and supply industry at 14.57 per cent, with other industries remaining below the 10 per cent threshold.

Figure 8: 2023 saw more participation from financials in green bond issuance



Source: Authors.

Offshore green bonds by the Chinese mainland issuers contracted to record low in 2023 on rate hikes and lack of property issuers. This downturn is influenced by the notable increase in interest rates by central banks worldwide, particularly those in the United States, leading to a substantial rise in the cost of bond financing relative to China. The slow recovery in market confidence, along with the ongoing credit crisis, contributes to the challenges faced by the Chinese offshore bond market. While judging from the existing news and reports, Bloomberg[86] reported that China (China Merchants Bank, Industrial and Commercial Bank of China, and Chong Hing Bank Ltd.) collectively issued only three green dollar bonds in the first half of 2023, totalling around RMB 10 billion (USD 1.415 billion), excluding bonds for restructuring and refinance. According to a report from Lianhe Ratings[87], a total of 21 green bonds issued in offshore market in the first three quarters of 2023, amounting to a total issuance size of RMB 60 billion (USD 8.49 billion). These figures represent a significant decline compared to the numbers and scale observed in 2022, where Chinese issuers issued a total of 47 offshore green bonds with a total value of RMB 109.2 billion (USD 15.45 billion), accounting for 11.1 per cent of its overall supply (onshore plus offshore).[88] On the other hand, despite the possibility of the Federal Reserve initiating interest rate cuts in 2024, the prolonged inversion in the yield spread between China and the United States is anticipated to persist. This is likely to hinder the willingness to issue overseas US dollar bonds, making it challenging for the offshore US dollar bond to exhibit substantial improvement in the near future.

At the same time, we have observed that the offshore RMB bond market is rising, driven by the refinancing needs of a large number of urban investment companies, and is expected to develop into the backbone of the Chinese offshore bond market. This observation is evident in *Table 1*, however, the scale is still relatively modest, indicating ample room for expansion and enhancement, as the PBOC promised to open the doors for more wealth management products, bonds and green financing instruments to be issued and traded in Hongkong.

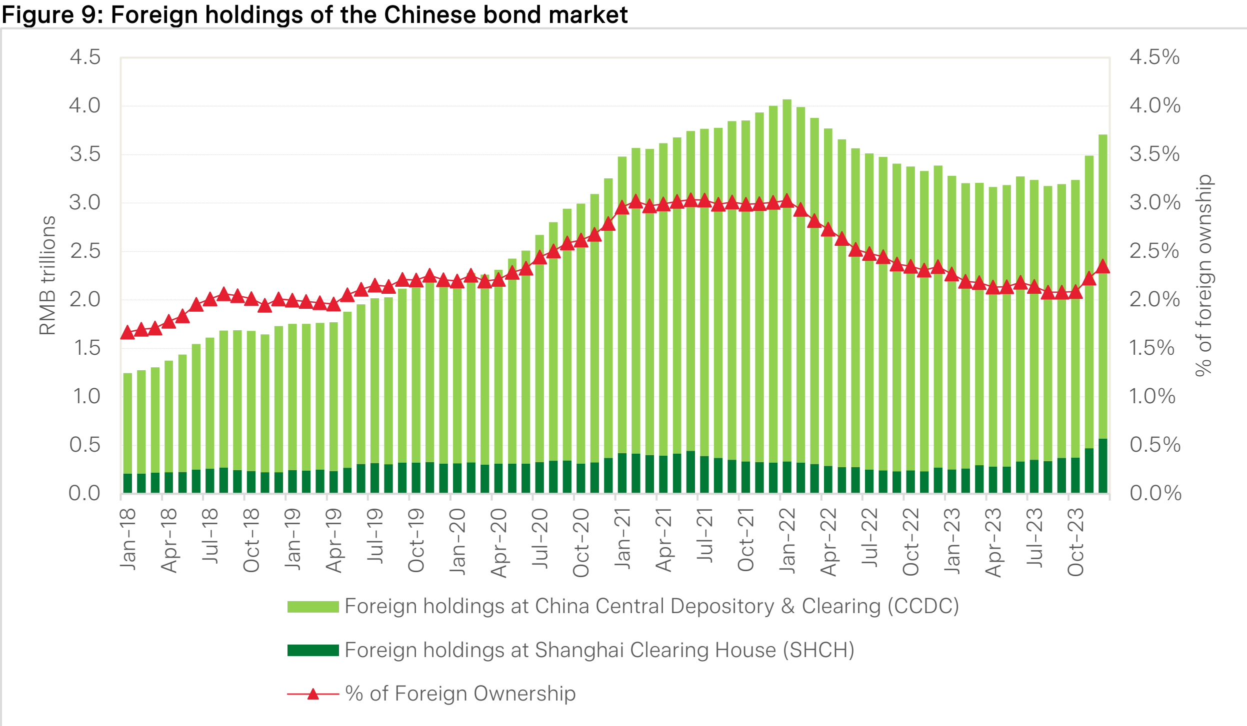
Table 1: Offshore RMB green bonds issued by local governments

	Date	Size	Use of proceeds	Location
Shenzhen Municipal Government	19 Oct 2021[89]	1.5 billion/3-year 2.4 billion/5-year	Green transportation/ water/sponge city-related projects	Hongkong
	7 Nov 2022[90]	1.5 billion/3-year 1.1 billion/5-year	Green transportation /water/sponge city-related projects	Hongkong
	29 Aug 2023[91]	2.1 billion/3-year [2 billion/5-year[92]]	Green transportation /water/sponge city-related projects	Hongkong
	30 Aug 2023[93]	1 billion/3-year	Sewage prevention and treatment	Macau
Hainan Provincial Government	26 Oct 2022[94]	1.2 billion/2-year[95]	Ocean conservation and sustainable development	Hongkong
	12 Sep 2023[96]	1 billion/3-year 1 billion/5-year	Biodiversity and ocean conservation	Hongkong

Source: Authors.

Another important trend is the return of foreign investors to China's overall bond markets—albeit with overall low rates. Over the past two years, foreign investors have stepped back from the market due to the increase in US government bond yields and an extended economic slowdown in China. Foreigners cut their holdings of Chinese bond market by the net equivalent of USD 91 billion in 2022[97] and this has continued as of April 2023 given the post-COVID recovery that is softer than anticipated. With several investors expecting the US Federal Reserve to cut interest rates and the support of China's central bank (PBOC) to advance the opening of the bond market to international participants (e.g., China Monetary Policy Implementation Report[98]) including new regulation by the State Administration of Foreign Exchange[99] to enhance the management of panda bond funds, foreign institutions' access to financing in China's bond market is improving. As of the end of 2023 (*Figure 9*), the outstanding bonds held by overseas institutional investors reached RMB 3.72 trillion (USD 526.38 billion)[100].

Figure 9: Foreign holdings of the Chinese bond market



Source: PBOC, CCDC and SHCH.

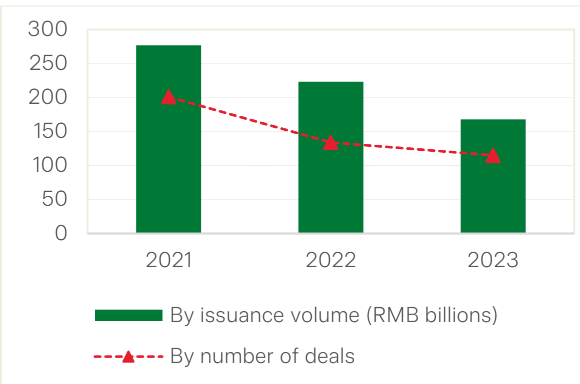
Market participants have welcomed the opening of China's onshore repurchase market to more foreign investors, but questions remain about how it will function in practice. The PBOC is looking to expand access to onshore repo to all foreign institutional investors that have access to China's interbank bond market, according to a consultative notice released on January 24, 2024.[101] This expansion includes not only the three existing categories of offshore entities with access but also encompasses various offshore financial institutions (e.g., commercial banks, insurance companies, securities firms, fund management entities, futures companies, trust companies, and other asset management institutions) along with medium and long-term institutional investors (such as pension funds, charitable funds, and endowment funds). And Article 10 of the Consultative Document specifically designates investors in Hong Kong, Macau Special Administrative Region, and Taiwan as offshore investors.

Apart from conventional green bonds, China has introduced a variety of innovative green bonds products, including carbon-neutral bonds, blue bonds, biodiversity bonds, rural revalidation bonds, social responsibility bonds, and sustainability bonds. Most of these bonds are in the early stages of development and the funds raised are not substantial.

Carbon-neutral bonds

In 2023, China has issued a total of 115 carbon-neutral bonds—about half as many as in 2021 when the first batch of carbon-neutral bonds was issued (see *Figure 10*), The decline might be attributed to the absence of clear benefits compared to regular green bonds, coupled with a more limited scope for fund utilisation.[102]

Figure 10: Declining trends in China's carbon-neutral bond issuance

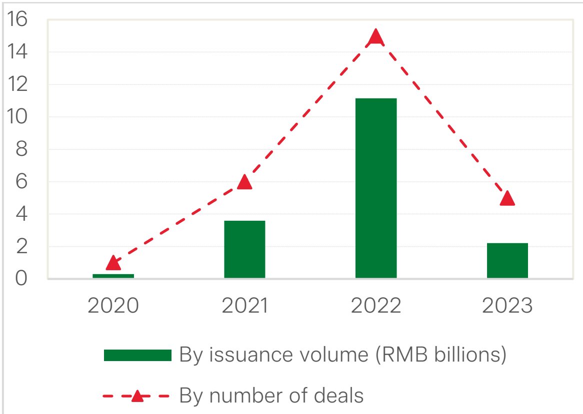


Source: Authors.

Blue bonds

The number of blue bonds increased from 1 in 2020 to 6 in 2021 and to 15 in 2022, followed by a decrease to 5 in 2023 (*Figure 11*). Concurrently, the volume of blue bonds experienced significant variability, with a notable surge from RMB 0.3 billion (USD 42.45 million) in 2020 through RMB 3.6 billion (USD 509.4 million) to 11.147 billion (USD 1.58 billion) in 2022, and then a decrease to RMB 2.2 billion (USD 311.3 million) in 2023, which accounts for 0.27 per cent of the overall green bond issuance scale in 2023. [103]

Figure 11: Fluctuating of blue bonds issued in China



Source: Authors.

Biodiversity bonds

Biodiversity finance is being piloted mainly in offshore markets by overseas branches of several financial institutions to tap its potential: in November 2021, the Bank of China issued the first biodiversity-themed green bond in Macao on an RMB 1.8 billion equivalent scale (USD 254.7 million)[104]. Building on this success, in November 2022, BoC issued another biodiversity-themed green bond in US dollars through its Paris branch, with a fixed interest rate for three years, reaching a scale of USD 400 million[105]. In May 2023, China Construction Bank issued dual-themed green bonds in Sydney and London focusing on biodiversity and the BRI, amounting to a scale equivalent to US$780 million[106]. In a significant development, the Hainan Provincial Government issued a biodiversity-themed green bond of RMB 1 billion (USD 141.5 million) in Hong Kong on September 12, 2023, marking a pioneering move in the realm of offshore RMB local government bonds. The first trial in the mainland market took place in October 2023, where the Agricultural Development Bank of China issued a three-year green bond with a term of RMB 4.3 billion (USD 608.45 million) in support of biodiversity protection through public bidding at the Central Depository and Clearing Company, with an interest rate of 2.5 per cent [107] (see *Table 2*).

Table 2: The issued biodiversity-themed bonds until 2023

Issue date	Issuer	Place of issue	Volume of issue
November 2021	Bank of China	Macau	RMB 1.8 billion (USD 254.7 million)
November 2022	Bank of China	Paris	US$400 million
May 2023	China Construction Bank	Sydney & London	US$780 million
September 2023	Hainan provincial government	Hongkong	RMB 1 billion (USD 141.5 million)
October 2023	Agricultural Development Bank of China	Mainland China	RMB 4.3 billion (USD 608.45 million)

Source: Authors

Additionally in the first half of 2023, 21 rural revitalisation-themed bonds were issued, raising RMB 10.9 billion (USD 1.542 billion). This growth is built upon the issuance of a total of 19 rural revitalisation-themed green bonds on the domestic exchange market in 2022, totalling RMB 11.65 billion (USD 1.648 billion). There were two sustainable development bonds and no social responsibility bonds issued in 2023. Innovative bonds of this nature may encounter similar challenges as carbon-neutral bonds. Direct investments in public funds specifically targeting ocean conservation and biodiversity protection remain uncommon due to challenges like insufficient data, an undefined investment framework, and unclear financial returns. Nonetheless, China is on the track of actively exploring various financial instruments related to these special needs. Sustaining their development could be challenging if they fail to deliver distinctive advantages compared to regular green bonds.

Green insurance with significant potential

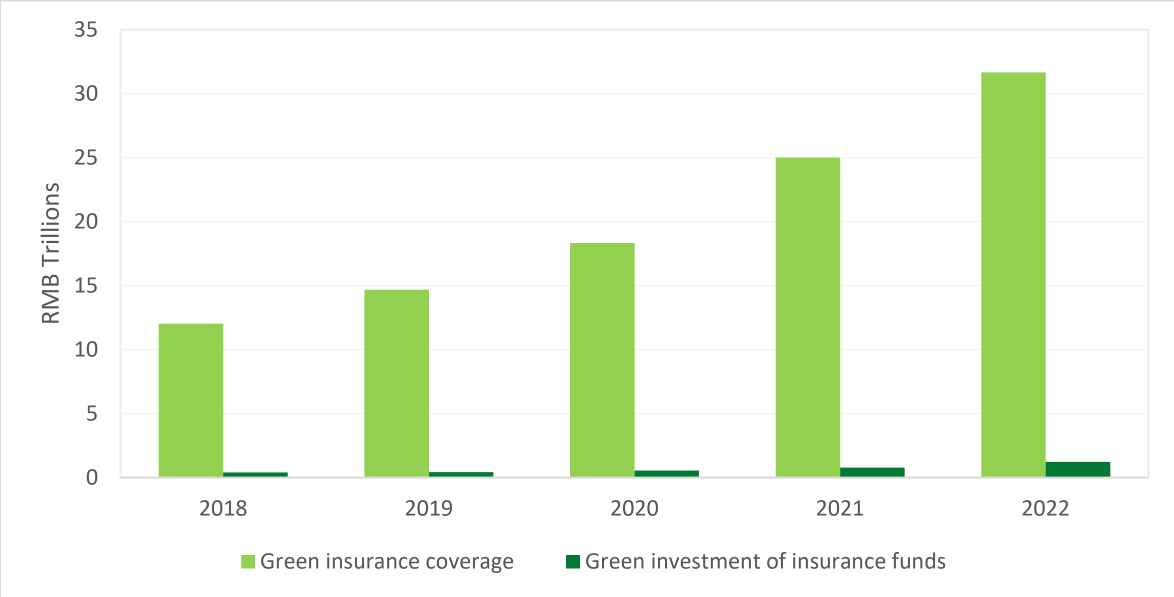
Green insurance, when narrowly defined, generally pertains to environmental pollution liability insurance (EPLI). EPLI addresses claims from third parties for bodily injury and property damage resulting from hazardous waste materials released during a company's operations. Promoting a compulsory EPLI system lies at the core of China's green insurance policy design.

China is also proactively venturing into and piloting initiatives in sectors such as green buildings, photovoltaic power generation, green technology and equipment. For instance, green building insurance protects green building credit by facilitating banks in providing project loans and insurance companies in offering risk protection, supervision, and compensation services if green standards are not met after completion, given the uncertainty that construction guarantees full alignment with design expectations. In February 2023, Ping An Property & Casualty Insurance (Ping An P&C) has launched its first ocean carbon sink index insurance policy for marine ecosystem protection in the city of Dalian.[108]

In July 2023, the People's Insurance Company of China (PICC) unveiled the nation's inaugural comprehensive property insurance designed specifically for the operational phase of natural gas differential pressure power generation and refrigeration systems. Aimed at helping enterprises navigate risks tied to emerging technologies, this initiative provides coverage for equipment losses due to natural disasters, accidents, and unforeseen events in residual pressure power generation and refrigeration systems.[109] And insurance companies like Yingda, Pacific, Ping An, and PICC provide risk protection to photovoltaic companies for solar panels' long-term quality and power guarantee. These exploratory efforts underscore the commitment to fostering environmental sustainability and aligning insurance practices with the evolving landscape of green and eco-friendly industries.

In contrast to green loans and green bonds that need labels from rating agencies or regulatory bodies, explicit criteria for either classification or statistics have not been firmly established for green insurance until the end of 2022. According to the China Insurance Industry Social Responsibility Report issued by the Insurance Association from 2020 to 2022, a consistent upward trend is evident in both the insured coverage and the amount of green insurance premiums utilised for green investments (*Figure 12*). Over the five years from 2018 to 2022, a total of RMB 101.7 trillion (USD 14.39 trillion) was provided in green insurance coverage (the maximum compensation paid by the insurance company after the insured event occurs), demonstrating an average annual growth rate of 27.5 per cent. In the entirety of 2022, the insured amount for green insurance is projected to reach RMB 31.67 trillion, marking a substantial 26.7 per cent increase compared to the preceding year. Also, insurance funds have actively engaged in investments within green industries. Starting at RMB 395.4 billion (USD 56.09 billion) in 2018, these investments surged to RMB 1.2 trillion (USD 169.8 billion) in 2022, showcasing an average annual growth rate of 34.0 per cent, marginally surpassing the growth rate observed in insured amounts.

Figure 12: Green insurance growth and investments



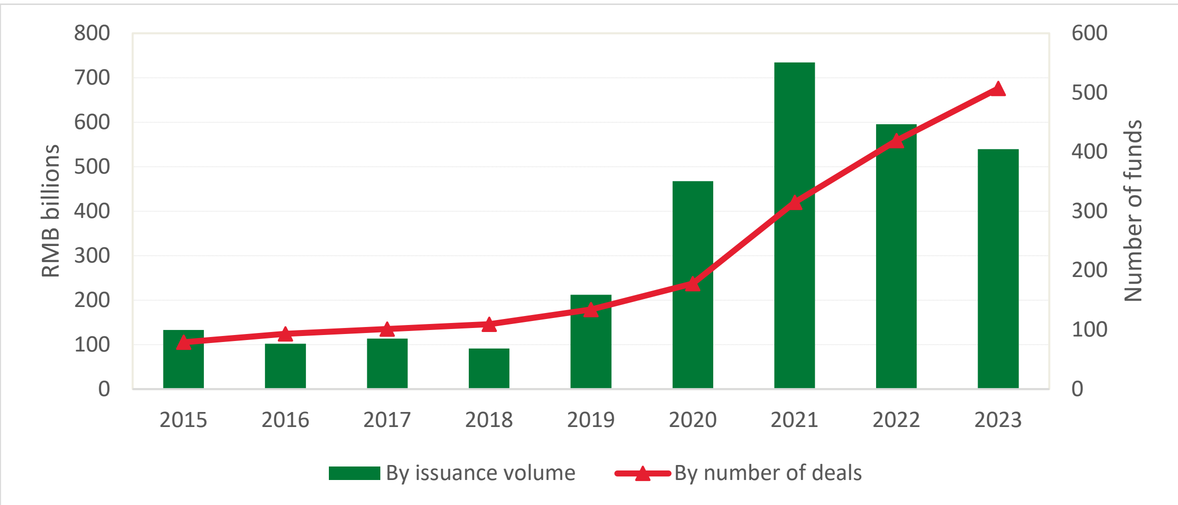
Source: Data from China Insurance Association.

With a set of newly issued documents, there is currently very limited comparable statistics available in 2023. However, scattered information suggests that premiums totalled RMB 229.7 billion (USD 32.5 billion) at Q4 2023[110], and the green investment of insurance funds amounted to RMB 1.67 trillion (USD 236.3 billion) at Q2 2023. [111]

Green funds are shrinking

Green funds are a category of funds dedicated to investing in companies and projects committed to environmentally friendly and sustainable practices. China's green funds only operate within broad investment guidelines that came into effect in 2018 and do not have a mandatory labelling regime so far. Thus, various types of concept funds fall under the umbrella of "green" funds because there are no unified classification rules. This also leads to variations in the reported number of funds across different sources. When measured against the expansive product range and scale of the total domestic public funds industry, green funds only represent less than 2.5 per cent in quantity and less than 1 per cent in volume.[112] The issuance number of "green funds" [113] surges from 79 since 2015 to 507 by the close of 2023. However, the issuance volume of these funds has been subject to fluctuations influenced by the dynamics of the capital market. Notably, the total size in 2022 and 2023 experienced a decline, where the aggregate volume escalated from RMB 132.931 billion (USD 18.809 billion) at the outset of 2015 through RMB 731.5 billion (USD 103.5 billion) in 2021, but dropped to RMB 539.649 billion (USD 76.36 billion) by the conclusion of 2023.

Figure 13: Dynamics in ongoing green funds of China



Source: Authors.

Green index

Green index funds encompass various subdivisions based on different classification, including ESG, climate transition, and green industry themes. Looking at ESG index funds in China development was accelerated in 2021 and 2022 (*Figure 14*).

There were around 180 ESG-themed indexes and nearly 250 pan-ESG-themed indexes (covering at least one aspect of E, S or G) have been issued since 2005. [114]

Figure 14: The issuance number of ESG index funds

Source: Caixin Insight.

Exchange traded funds (ETFs)

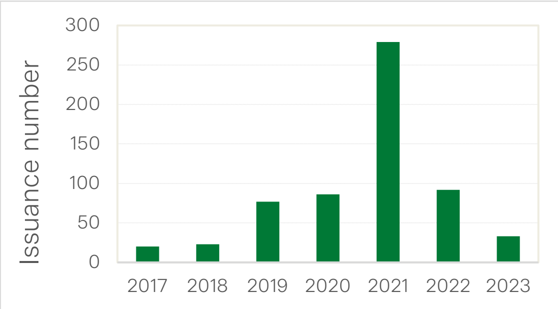
Exchange-Traded Funds (ETFs) are baskets of assets that are traded on stock exchanges like individual stocks, allowing for intraday trading. As shown in *Figure 15*, there has been a growth in the number of ESG ETF issuances from 2019 to 2020 in comparison to the number of ESG ETF products issued in 2018.

Fuelled by the Covid pandemic, the annual new issuance volume of domestic ESG ETF products skyrocketed to 279 in 2021, indicating a significant growth trend. While there is a continuing decline in 2022 and 2023, the cumulative nationwide issuances have surpassed 700, underscoring the heightened institutional interest in the ESG field.

Green wealth management products (WMPs)

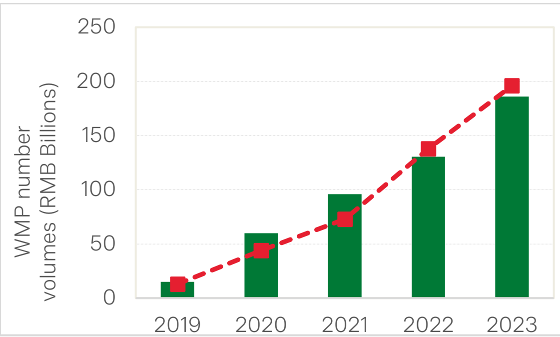
Chinese WMPs are investment options marketed to retail and corporate investors and sold by both banks and non-bank financial institutions (NBFIs), sometimes with explicit principal or interest guarantees. They differ from conventional funds in that their returns are fixed, and the products have a set maturity (which is usually fairly short). However, WMPs are also distinct from bank deposits in that the funds raised are invested in a range of loans and securities and the returns offered significantly exceed regulated deposit rates.[116] As of December 31, 2023, there are a total of 196 existing green, sustainable and ESG wealth management products (*Figure 16*). Excluding products with undisclosed volume, the overall net value has reached RMB 185.95 billion (USD 26.312 billion). Among these, 77 per cent are fixed income products, 23 per cent are hybrid products, and only about 1 per cent are equity products (*Figure 17*), and about half are redeemable in less than a year.

Figure 15: Development of ESG ETF issuances



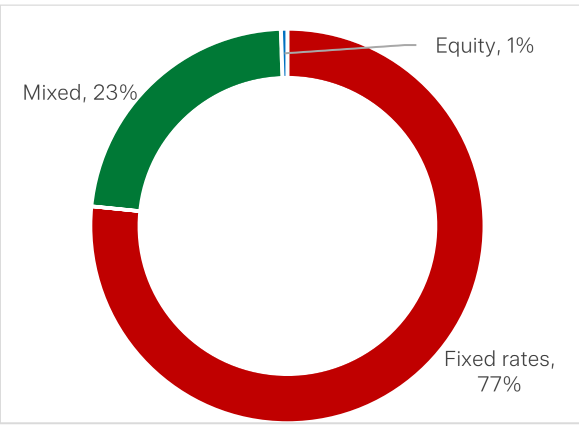
Source: Authors.

Figure 16: The number and volume of wealth management products



Source: Data from China Wealth[115]

\Figure 17: The composition of wealth management products



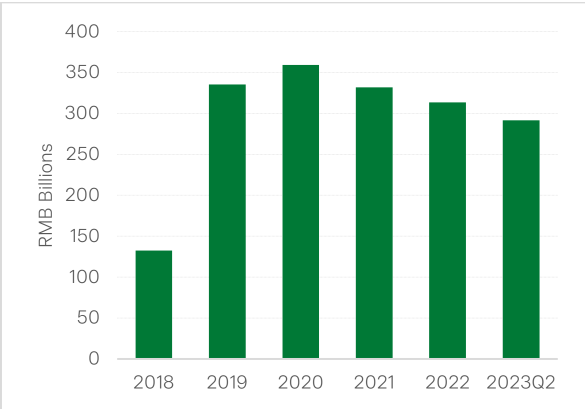
Source: Data from China Wealth.[115]

Overall, the observed shrinking in scale of various green fund products in this section align closely with the trends in the A-share market of 2023 and the overall dynamics of the public fund market. This correlation suggests that the enthusiasm of domestic investors for green/ESG funds is not solely contingent on attention and recognition of green, sustainable and ESG principles but is also influenced by the prevailing market environment. Although some product like ETFs once became popular during the short development process, the future development prospects are still unclear. In addition, expanding beyond stocks to incorporate bonds and multi-asset categories is a vital strategy for fostering innovation and development within the funds field as the investor's goal is always to maximise profits, not charity. This is especially true for public funds.

Green trusts

As defined in the "Green Trust Guidelines", green trust refers to trust companies that support green initiatives through various financial instruments. According to data collected from the social responsibility reports[117] issued by the China Trusteeship Association, cumulative trust assets showed a dynamic pattern characterised by fluctuations in values over the observed period 2018-2023 (*Figure 18*). In 2019, there was a discernible upward trend (plus 153 per cent) and further growth of 7 per cent in 2020, following a reversal in 2021 (minus 7.6 per cent) and 2022 (minus 5.5 per cent). This shift is attributed to the trust industry's heightened supervision since 2020, leading to a reduction in the scale of general trust business and an increase in the disposal of on- and off-balance sheet risk assets. The industry's response to these regulatory measures involved the reorganisation or takeover of several high-risk trust companies, contributing to the observed trend reversal in subsequent years. Green trusts have demonstrated resilience amid the broader reduction in the scale of the trust industry. The influence of regulatory measures on green trusts has been comparatively modest in 2021-2. As a result, the assets held under green trusts amounted to RMB 291.6 billion (USD 41.261 billion) in the first half of 2023[118], already reaching 93 per cent of the total value recorded for the entire year of 2022.

Figure 18: Cumulative green trust assets in China



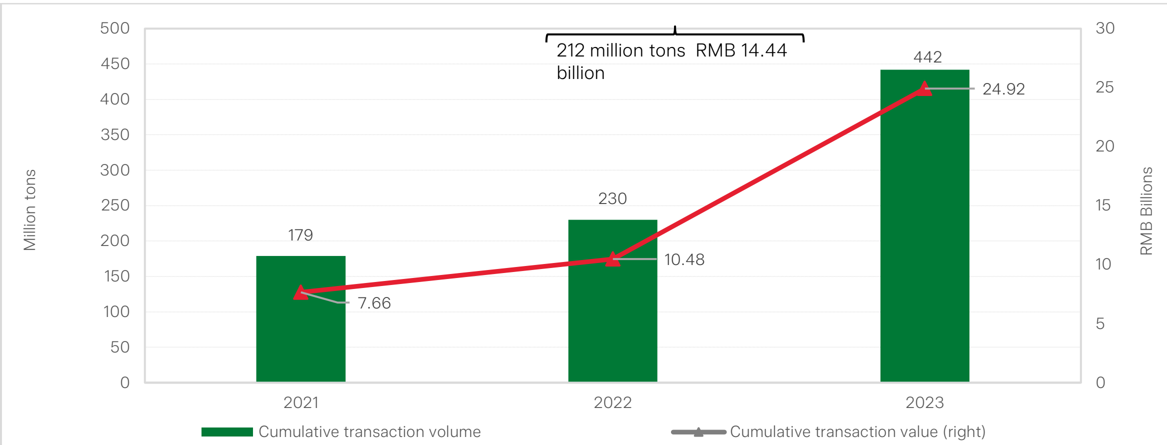
Source: Data from China Trusteeship Association.

Moreover, China's first two new energy real estate investment trusts (REITs) were approved in March 2023 with a volume of over RMB 10 billion (USD 1.415 billion). They are a wind power REIT project initiated by State Power Investment with China Securities as fund manager and financial advisor and a solar energy REIT project by Beijing Energy International Holdings.

Carbon finance

Since the initiation of China's national ETS (July 2021), transactions have gradually expanded (see *Figure 19*). In 2023, the market traded 212 million tons of carbon emission allowances, with a total transaction value of RMB 14.44 billion (USD 2.04 billion).[119]

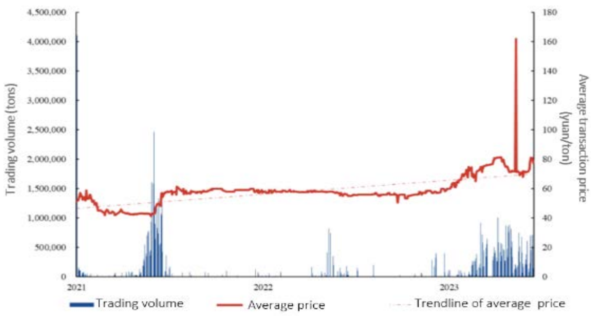
Figure 19: Carbon market transaction volume and value



Source: Authors.

Daily transaction volume data indicates a noticeable compliance-driven pattern in China's national ETS. As shown in *Figure 20* and *Figure 21*, the trading activity during the first compliance year in 2021 and the subsequent year in 2023 is significantly more robust compared to 2022, with notable price jumps observed during the compliance periods. But on average, transaction price in 2023 stood at RMB 68.15 per ton (USD 9.64 per ton), reflecting a 23.24 per cent increase compared to 2022.

Figure 20: Listing agreements of CEA trade on China national carbon market



Source: China Industrial Securities

Figure 21: Bulk agreements of CEA trade on China national carbon market

Source: China Industrial Securities

China's carbon price has been lower than EU and US (see *Figure 22*). According to *China Carbon Price Survey Report*, as other high emission industries as steel, construction material etc. might enter the market, the average carbon price could rise to RMB 87 per ton (USD12.31/ton) by 2025, and RMB 139 per ton (USD 19.67/ton) by 2030[120].

Figure 22: Carbon prices (USD/ton) as of 31 December 2023 in EU, California, China national and Beijing and Guangdong Pilots

Source: ICAP.

Transition finance

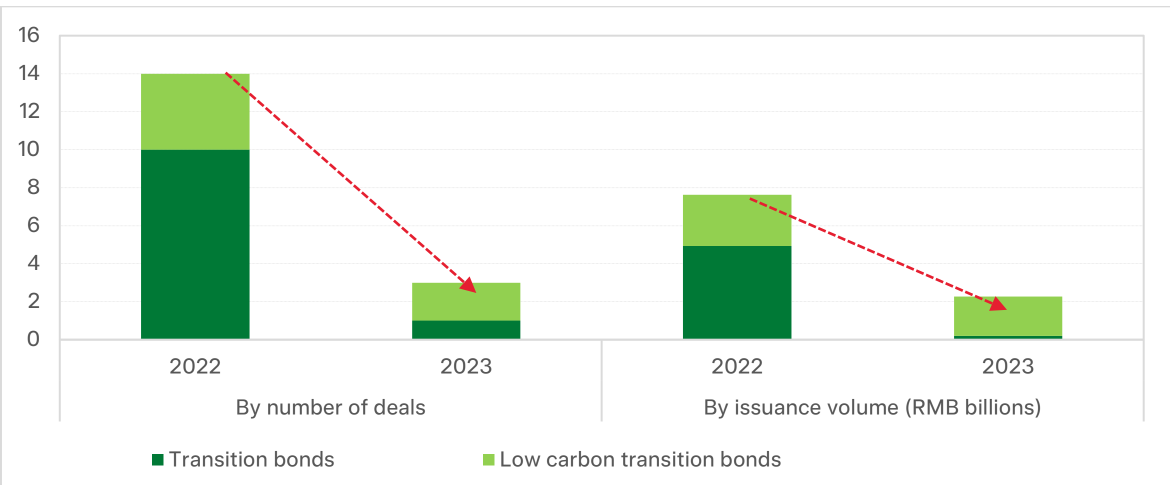
Introduced in 2021, transition finance aimed to address the financing needs of brown industries that committed to a greener future, leading to innovations in financial products like transition bonds, loans, and funds. Sustainability-linked bonds and loans also emerged, tying financing costs to environmental performance. However, the market is in early stages, needing clear policy guidance, standards, and incentives for further growth. PBOC is expected to introduce sector-specific transition finance standards, starting with steel, thermal power, construction materials, and agriculture, later expanding to additional sectors driven by demand for credible sectoral transition standards.

Transition bonds and low carbon transition bonds

Transition bonds were developed by the National Association of Financial Market Institutional Investors of China, while low carbon transition bonds were developed by main stock exchanges in China. Both types of bonds are required to allocate the raised funds exclusively for the eight recommended industries (electric power, steel, building materials, nonferrous metals, petrochemicals, chemicals, papermaking, civil aviation), while the former requires 100 per cent of the funds raised to be used for transition matters and the latter generally requires no less than 70 per cent of the total funds raised used for the purpose of the bond.

Since its initiation in May, a total of 14 (low carbon) transition bonds (*Figure 23*) —10 transition bonds and 4 low carbon transition bonds , with a combined issuance scale of RMB 7.63 billion (USD 1.08 billion), with RMB 4.93 billion (USD 697.60 million) transition bonds and RMB 2.7 billion (USD 382.05 million) low carbon transition bonds respectively. In 2023, the market has seen the issuance of only 1 transition bond and 2 low-carbon transition bonds, totalling RMB 2.268 billion (USD 320.92 million) in scale. The three issuers are Wuxi Huaguang Environment & Energy Group, China Aircraft Leasing Group, and Meishan Development Holding. The funds raised are allocated for initiatives related to clean energy, equipment renewal, and energy conservation.

Figure 23: Evolution and trends in (low carbon) transition bonds



Source: Authors.

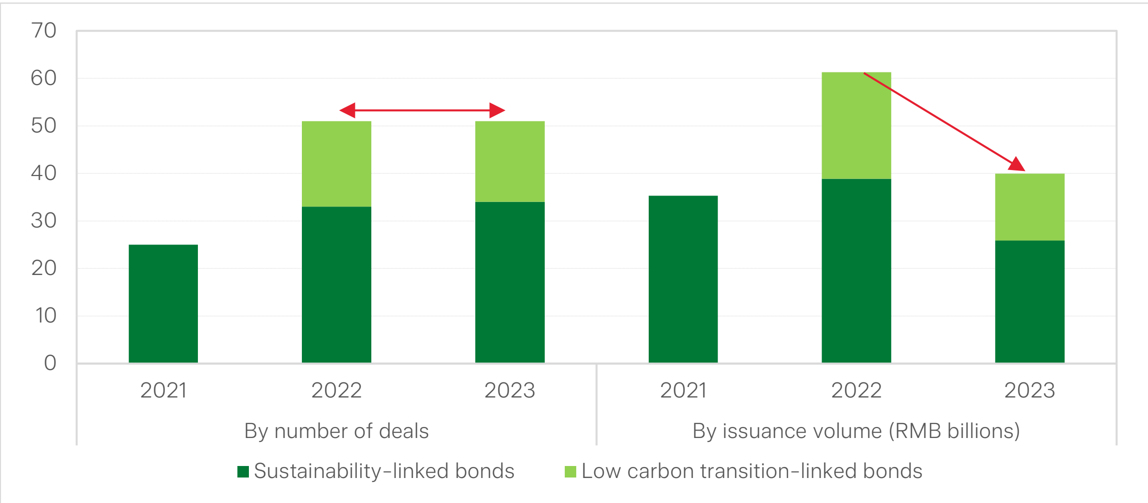
This drop is mainly due to the absence of clear standards and strict rules on how the raised funds can be used. Furthermore, when compared to other green bonds issued during the same period, (low carbon) transition bonds do not have distinct advantages in terms of market interest rates. So, the initial pilot issuances across various exchanges experienced a significant reduction, suggesting a need for more clarity and competitive market positioning for these transition finance instruments.

Sustainability-linked bonds/loans (SLBs and SLLs) and low carbon transition-linked bonds

Similarly, sustainability-linked bonds were developed by the National Association of Financial Market Institutional Investors of China, while low carbon transition-linked bonds were developed by main stock exchanges in China. But different to (low carbon) transition bonds, there are no restrictions for both of them on how the raised funds can be used. The terms of these linked bonds are tied to the entity's Key Performance Indicators (KPI) and Sustainable Development Performance Targets (SPT). They will focus on achieving specific results rather than dictating where funds should be invested, with adjusting interest rates and redemptions based on how well the entity performs compared to the deliverable agreed with the investors.

In 2023, there were 33 sustainability-linked bonds and 18 low carbon transition-linked bonds issued, with issuance scales of RMB 38.9 billion (USD 5.5 million) and RMB 22.39 billion (USD 3.168 billion), respectively. As presented in *Figure 24*, the combined issued number of these two linked bond types remains consistent with 2022, but there's an overall decrease in issued volume by 34.8 per cent compared to the previous year. Specifically, sustainability-linked bonds have decreased by 33.5 per cent, and low-carbon transformation-linked bonds have experienced a slightly more substantial decline of 37.1 per cent. This decline in the overall issuance scale suggests a shift or adjustment in the market dynamics for these types of bonds, possibly influenced by various factors affecting investor preferences or market conditions.

Figure 24: Evolution and trends in sustainability-linked bonds & low carbon transition-linked bonds



Source: Authors.

Sustainability-linked loans (SLLs) are tailored for companies that may find it challenging to access the bond market. They employ a reward-based interest rate arrangement, wherein the borrower, upon achieving key performance indicators, experiences a reduction in the loan interest rate. Compared with green loans, SLLs can be applied to a wider range of industries and projects, have fewer restrictions on funds, and have stronger incentives for borrowers, thus their use has expanded in the international market. However, in the Chinese market, green loans overshadow sustainability-linked loans in terms of market awareness, development scale, and innovative research. As of 2023, there were 6 SLLs issued by different financial institutions. In 2023, the Postal Savings Bank Guangxi Branch pioneered the nation's first "carbon emission reduction support tool + sustainable development linkage + digital renminbi loan" scenario business in Nanning City in April. [121] In May, the Agricultural Bank of China, the Export-Import Bank of China, Bank of Communications, and China Merchants Bank issued sustainability-linked loans totalling RMB 1 billion (USD 141.5 million) to a pulp and paper company in Singapore.[122] In June, Shandong Hengfeng Bank provided RMB 500 million (USD 70.75 million) for mining management and environmental protection project in Jining city.[123] The information available in the second half of 2023 is that, Bank of China Sydney Branch announced its plan to issue SLLs in overseas markets in November.[124]

Trend scouting

In 2023, China's economy exceeded its growth target (5 per cent) set at the beginning of 2023 with consumption rising by 7.2 per cent and industrial output rebounding by 4.6 per cent, based on the official data released on 17 January 2024. However, foreign trade held up and rose only by 0.2 per cent, while private investment contracted by 0.4 per cent, foreign invest fell by 8 per cent, and real estate investment dropped by 9.6 per cent. Future economic growth is challenged by systemic issues, including elevated local government debt, crises within the real estate industry, cautious consumers, and geopolitical risks. As a result, major international organisations such as the IMF, World Bank, and OECD have forecasted a slowdown in China's GDP growth to 4.5-4.8 per cent in 2024, with expectations for a further cooling to 4.2-4.5 per cent in 2025.

At the same time, China's pursuit of technological self-reliance and investments made in high technologies have delivered significant returns this year, particularly in the strategic sectors like automotives, batteries and solar panels, where their investments, outputs and exports have made record contributions to China's economy, surpassing all other sectors in 2023. At the same time, China's economy has not weaned itself off fossil fuels, especially coal and is not expected to do so anytime soon (despite some claims of peak coal). China's economic policy risks further investments in fossil fuels and there is ongoing investment in coal-based industrial capacity, including sectors like iron and steel.

Furthermore, China's ambitions suggest strategic engagements across various domains with aligned countries, e.g., spanning economics, culture, and ecology in the Belt and Road Initiative. Simultaneously, China aims for strategic dependence and independence from non-aligned countries, particularly evident in areas such as trade, investments, and finance.

In this larger picture, specific areas of green finance that seem to gain prominence based on an analysis of recent speeches by leading policymakers and think tanks include:

1. "Five Big Articles" anchoring the direction of financial resources. General Secretary Xi Jinping's speech at the Central Financial Work Conference[125] proposed to "do a good job in five major areas on technology finance, green finance, inclusive finance, pension finance, and digital finance," to "make financial work to serve the real economy", and to "use more financial resources to promote scientific and technological innovation, advanced manufacturing, green development, and micro, small and medium-sized enterprises". These will become the key priorities of financial work for the foreseeable future. Meanwhile, the integration of green finance and inclusive finance was encouraged by the State Council in the 2023 "Implementation Opinions on Promoting the High-Quality Development of Inclusive Finance". In practice, numerous banks are already creating green and ESG financial products for small enterprises and individual consumers.

2. Further strengthen in financial regulation. The full text of China's Central Financial Work Conference emphasised 'financial regulation' a total of 18 times. Mr Li Mingxiao, Spokesperson of the NFRA and Director of the Policy Research Department, answered at the State Council Information Office's press conference on "Financial Services for High-Quality Economic and Social Development" on 25 January 2024 that: "The NFRA, in promoting green finance, will work in the following five aspects: strengthening regulatory guidance, improving statistical monitoring, optimising assessment and evaluation, enriching products and services, and strengthening risk management".[126] Plus, China restructured the financial regulator in 2023 and replaced the head of its securities regulator in 2024. These changes signify a continued effort to strengthen financial supervision.

3. Anticipated influx of local initiatives within green finance. Local green finance innovation stands out as a defining feature of China's progress in green finance. Since the launch of green finance pilot zones in 2017, the number of pilot zones has grown from eight in five provinces to ten in seven provinces. Pilot zones such as Huzhou City of Zhejiang Province have innovated and accumulated many achievements. As a next step, it is worth paying attention to how these results will be circulated and whether the pilot zones will further expand or upgrade. In addition, regions that are not yet included in the pilot also have noteworthy features like the environmental disclosure requirements and green finance branches in Shenzhen, which already have been thoroughly implemented.

4. Greater progress in transition finance. Transition finance in four fields including steel, coal generation, construction and building materials, and agriculture have been under research for over a year. Together with five experimenting transition finance catalogues at local level, namely Huzhou and Shanghai, there is a high chance that relevant practice will be put forward soon. As the Research Bureau of the PBOC stated that "the next step will be to fully incorporate climate change-related factors into the design of transition finance policies and instruments." This includes improving the standard system and incentive and restraint mechanisms, developing and transforming financial products and markets, and promoting local pilot trials.

5. Anticipated surge in green insurance. The 2023 Central Financial Work Conference proposed "to leverage the insurance industry's role as an economic shock absorber and social stabiliser". The consecutive release of guidelines on classification, statistics, and disclosure from late 2022 to late 2023 forecasts substantial development for the sector in 2024. Given this context, green insurance is likely to see new opportunities in 2024, particularly in cross-border demand and market integration.

6. Anticipated growth in carbon market activity and carbon finance diversity with CCER re-initiation. China's CCER scheme relaunched on 22 January 2024, sparking expectations for enhanced standardisation of carbon emission accounting practices. This is anticipated to drive heightened activity within the domestic carbon market, foster a wider array of carbon financial products and possibly accelerate the expansion of national ETS to seven other sectors as well. Meanwhile, Chinese authorities are expected to implement further regulations aimed at aligning national carbon ETS, green certificates, and CCERs, to ensure that each system operates without compromising the integrity of the others and therefore to prevent 'double counting'.

7. Smaller and greener BRI. 2023 is China BRI's greenest year ever and the second lowest year in terms of average deal size for construction since 2013, according to the latest report on China BRI Investment.[127] This trend is likely in line with China's ambition to have "small yet beautiful projects" in the BRI propagated through official channels.

8. More emphasis on "Chinese characteristics" in above regulations and initiatives. China for the first time established a target to "accelerate building a financial powerhouse" and highlighted the necessity for financial initiatives to align with the centralised and unified leadership of the Central Committee of CCP, at the government's every five-year Central Financial Work Conference. At a special seminar for leading cadres at the provincial and ministerial levels held at the Central Party School on 16 January 2024, General Secretary Xi Jinping calls for financial development to "unswervingly follow the path with Chinese characteristics", pointing the way forward for improving China's soft power. And Guo Jun, deputy director of the Listed Company Supervision Department of CSRC, said at the first China Listed Company Sustainable Development Conference on November 16, 2023 that, the Sustainable Development Information Disclosure Guidelines being drafted will prioritise three key factors: 1) will add topics reflecting China's national conditions to the agenda, for instance, environmental pollution, poverty alleviation and rural revitalisation; 2) will consider the capabilities of most listed companies in setting indicators to encourage broader participation; 3) will adhere to classified guidance and step-by-step implementation, acknowledging variations among over 5,000 listed companies in practical foundations and management capabilities.[128] These were subsequently exemplified by the "Guidelines for Self-Regulation of Listed Companies - Sustainability Reporting (Trial) (Draft for Comments)" issued simultaneously by the Shanghai, Shenzhen and Beijing stock exchanges on February 8, 2024. For the foreseeable future, a heightened emphasis on Chinese characteristics is expected to be prevalent in (green) finance regulations and instruments.

Barriers and recommendations to accelerate green finance in China

Barriers for green finance in China

Chinese regulators and relevant government bodies have undergone institutional restructuring in 2023, while continuously issuing innovative and ambitious guidelines, guidance, opinions, and tools to accelerate the development of green finance. This has stimulated the utilisation of various green financial instruments such as loans, bonds and insurances, as well as enhanced ESG disclosure and risk management practices. Financial sector participants and local governments have responded to these policy signals by implementing new practices and enhancing their ESG disclosure. However, despite these efforts, the absolute development of green finance, excluding loans, experienced declines of varying degrees in 2023. This trend has the potential to halt the expansion of green finance or even trigger a reversal into negative growth, marking a departure from its previous state of very slow growth. Accelerating the adoption of green finance is crucial for a sustainable financial system. However, the application of green finance has not fully reflected its ambitions, as evidenced by the decreased share of green bonds and funds in the overall system, and the continued financing of non-financial institutions.

Several reasons can explain the dichotomy between signal and action:

1. Lacking incentives for green over brown finance. While China's latest green bond endorsed projects catalogue (2021) removed clean coal and fossil-powered generation, including gas and LNG, from the list of green activities, the draft of 2023 Green Industries Guidance Catalogue retains "clean coal" as a green industry. In addition, financial incentives for brown assets have partly expanded, for instance, 2023 PBOC delivered RMB 193.7 billion (USD 27.41 billion) in clean coal special re-lending, representing a 147 per cent increase of 2022. This measure expires at the end of 2023.

2. Too many channels and managerial system for environmental/ESG disclosure. Various entities, including the Stock Exchange, MEE, PBOC, SASAC, and ministry-affiliated associations, issue diverse disclosure guidance and standards aimed at different target audiences. While most of these standards are voluntary or recommended, MEE's latest regulation mandates disclosure for high-polluting entities and companies issuing bonds. Additionally, there is a proliferation of formats and terms for disclosure reports (e.g., ESG, CSR, sustainability, climate disclosure), resulting in confusion and discrepancies in compliance and evaluation procedures. Small and medium-sized enterprises (SMEs) encounter particular difficulties in adhering to these standards. This complexity presents a significant barrier to transition finance, which necessitates transparency and a robust system for post-disclosure evaluation and monitoring.

3. Low market share and imbalance in green finance instruments. The market share of green finance is still low, and the structure of green finance instruments is unbalanced. Green loans continue to be the primary, and perhaps sole, driving force behind the current green financial market. It is essential to diversify and enrich other types of financial products to foster a more comprehensive development of green finance. Long-term capitals, particularly insurances and funds, can play a significant role in powering the development of the green market, as these entities prioritise stability over profitability. However, their scale in China remains very small, yet holds significant growth potential.

4. Challenges persist in transition finance, including issues like undefined standards, restricted information disclosure, and underutilised range of instruments. While China has played a prominent role in the international framework for transition finance, there has been limited progress in fundamental policy design. By the end of 2023, local trail catalogues or standards for transition finance have been issued and implemented in Huzhou, Chongqing, Tianjin, Shanghai, and Hebei. However, there is a pressing need for the central bank and other localities to release a national transition finance catalogue. Lacking specific guidance and boundaries, transition finance instruments also remain inactive.

5. Low activity in carbon market trading. The national carbon market currently limits trading entities to the power industry, while industries responsible for 60 per cent of the country's carbon emissions are not yet included. Monthly trading volume varies, with 75 per cent occurring before contract fulfillment. The evolution of the carbon market, particularly the phase-down of free allocation of carbon emission allowances, is unclear, potentially impacting the expectations and actions of market participants. The re-initiation of CCER, seen as a means to diversify market instruments, need further development if to form interaction with the international carbon market.

6. Financial institutions lack capacity to meet diverse market needs. While capacity building is predominantly driven by top-down implementation guidance, practical operations pose dilemmas as financial institutions struggle to identify green-standard projects, address needs accurately, and manage associated risks. Consequently, their green business approach often becomes superficial, resembling box-ticking, rather than

prioritising sustainable practices and comprehensive risk assessment. Evidence includes the notably low share of green finance in their total finance portfolios and the substantial decrease in issuance scale for innovative financial instruments post-pilot phase.

7. Mismatch between risks and rewards in the supply of green finance. Current incentive structures within green finance policies predominantly cater to entities within the real economy grappling with "capital shortages" and "financial difficulties," sidelining the critical role played by financial institutions and investors in providing capital. This omission creates a disincentive for financial actors to engage in social capital investment in green enterprises and projects due to the uncertainty surrounding returns from risk-taking endeavours. Consequently, there is a pressing need to enhance incentive mechanisms to better align risks and returns on the supply side of green finance, facilitating increased participation from financial institutions and investors in funding sustainable initiatives.

Recommendations

Through an examination of China's green finance development and the identification of existing gaps and impediments, this study enables the formulation of specific recommendations aimed at enhancing green finance development in the nation. These recommendations are organised based on their potential to facilitate the transition of finance from brown to green and the anticipated challenges in their implementation, as depicted in *Figure 1*.

1. Establish unified ESG disclosure standards and make them mandatory, possibly based on and harmonised with ISSB including Scope 2 emission with a timeline for Scope 3 emissions. Unified standards and mandatory requirements are essential to tackle the major barriers in the accessibility, usability, and reliability of ESG data. Expand emerging regulatory efforts among equity markets to include public corporate debt markets, e.g. to cover more SOEs.

2. Expand the grading criteria of financial institutions to include more instruments. The steady growth of green loans and the resilience of green bonds are largely attributed to the PBOC's evaluation system for reviewing business performance in green finance. Before 2023, green credit and green bonds were the only products with well-established definitions, standards, and statistical systems. It's imperative to include green insurance in scoring mechanisms now that it has clarified these aspects. Moreover, expediting the clarification process for other green financial instruments is vital to ensure their incorporation into scoring mechanisms.

3. Improve ESG risk management for Chinese companies in the “new three”. China’s "new three" industries, tied to vital minerals like lithium, cobalt, and gallium, are poised for increased attention amid rising global demand and China's export growth. New standards by the ISSB on the climate disclosures and TNFD on nature-related disclosures would receive heightened focus given UN biodiversity conference and UN climate change conference in 2024. With biodiversity, labour, and community concerns surrounding critical mineral extraction and processing, Chinese companies need to pay more attention to these issues and improve risk management.

4. Promote the growth of third-party accreditation agencies and create collaborative multi-party supervision for disclosure and supervision. This involves:

    a. encouraging the expansion of third-party accreditation agencies with expertise in technical standards, carbon emissions calculations, and green finance. This aims to reduce disclosure costs for financial institutions through external certification; and

    b. exploring the implementation of a mandatory assurance system, striving to establish a multi-party joint supervision framework. This framework would encompass internal corporate oversight, third-party agency assurance, and regulatory authority supervision. The objective is to enhance the credibility of green and transition-related information.

5. Leverage piloting work for replication and promotion. After six years, pilot green finance zones have gained expertise, urging nationwide sharing of successful practices. The government should expand and enhance these zones, encouraging diverse regional green financial reforms to foster transition finance. While many city and provincial plans include green finance, broader implementation remains unclear due to focus on pilot cities. Some municipalities may lack capacity to utilise green finance fully. Tailored policy designs are needed to align with local characteristics.

6. Enlarge green finance in the market and diversify green finance products. Financial institutions at different levels and categories may adopt varied strategies in developing green financial products. The government should enhance positive incentives to encourage non-pilot local governments, regional banks, and non-banking financial institutions to explore suitable development models actively. Prioritising the instrument connection between green finance and transition finance, and the integration between green finance with inclusive finance are essential, as they can facilitate greater engagement with non-SOEs and wider range of green financial products.

7. Accelerate the advancement of transition finance. Promptly introduce unified definition standards, enhance incentive mechanisms, expand the scope of information disclosure and supervision requirements, and enrich the variety of financial instruments for transition finance. It is crucial to establish a post-evaluation system to monitor progress and prevent the risks of greenwashing. Vigilant oversight of non-green financing activities or those prone to being perceived as grey areas, such as investments related to clean coal, warrants additional attention and evaluation.

8. Expand the carbon market and boost trading liquidity. Expanding the scope to include more industries is recommended. Financial institutions should play an active role as intermediaries to facilitate efficient carbon trading, thereby supporting the gradual inclusion of financial institutions and promoting innovation in carbon financial products. In February 2023, China International Capital Corporation received the CSRC's approval for its involvement in carbon emissions trading, indicating the CSRC's openness to Securities participating in such trading. Incrementally increasing the share of paid carbon quotas and outlining a roadmap for changes in carbon quotas are also advisable steps.

9. Enhance capacity building for financial institutions. Financial institutions must use preferential interest rates, select high-impact green projects, partner with international organisations, innovate green financial products, and improve capabilities. Innovative steps are needed to lower green financing costs, boost returns, and optimise financial services for enterprises, ensuring adequate investor returns.

10. Provide risk-adjusted and policy-adjusted incentive schemes for financial institution employees to support sustained growth of green financial markets (primary objective of employees) and de-facto green economic growth (indirect objective of employee) with different incentives for different levels of employees.

11. Encourage government-led ESG investment initiatives for market growth. Utilise government-level funding, especially through entities like the National Social Security Fund or Central Huijin Investment, to guide and support ESG investment. Actively explore and discuss the application of ESG investment, initiate pilot programs in overseas mature markets, and strategically foster the healthy development of ESG funds. This will contribute to standardising practices, establishing accurate investment values, and stimulating increased investor response in the market. Meanwhile, enhancing public understanding of green finance and increasing awareness of environmental protection and sustainable development among investors, enterprises, and financial practitioners will contribute to the expansion of the green finance market.

Annex

Appendix 1: Green Finance Development in China

In a historical context, green finance in China can be conceptualised into four main stages. First, environmental issues started to be considered in financial system governance in the ’90s when the Chinese central bank, the People’s Bank of China, issued guidance to banks on how to include environmental variables in credit decisions [129]. Second, preparation for rolling out comprehensive green finance policies started around 2012 with the preparation and launch of the China Banking Regulatory Commission’s (CBRC) green credit guidance and statistics system. It further included the establishment of a People’s Bank of China (PBOC) and the UN Environment Program (UNEP) task force which released their report in 2015 [130]. Based on that report, China entered its third stage in 2016 when the PBOC and six other ministry-level bodies jointly launched Guidelines on green finance, and the Green Finance Committee was established to coordinate implementation. This Guideline is the core document coordinating green finance policies across different regulatory aspects and green finance instruments that includes direct accountability built in through performance targets allocated to each ministry-level body. This enabled initial rapid progress in green finance. However, entering the fourth stage around 2020, green finance progress started stagnating, with green loans and bonds growing at the same pace as the rest of the financial system. This means that despite substantial efforts and increasing environmental and climate ambitions, progress on greening the financial system is not keeping up [131].

Figure 25: Stages of green finance development in China

Source: Authors’ visualisation.

Appendix 2: Green Insurance Classification Guidelines

First level directory	Second level directory	Third level directory
Cope with extreme weather and climate events	Meteorological disaster insurance	• Meteorological disaster catastrophe insurance • Public infrastructure disaster insurance • Agricultural weather index insurance
Promote the development of green industries	Clean energy insurance	• Solar insurance • Wind insurance • Utilities and electricity insurance • Nuclear energy insurance • Energy storage insurance • Hydrogen energy insurance • Power Grid Insurance
	Industrial optimisation and upgrading insurance	• Green manufacturing system insurance • Circular economy insurance • Optimising and upgrading insurance in other industries
	Green transportation insurance	• New energy automobile industry insurance • Rail transit insurance • New energy ships and aircraft insurance • Green and efficient transportation system insurance • Green transportation infrastructure insurance
	Green building insurance	• Green building insurance
	Green low-carbon technology insurance	• Green environmental protection equipment insurance • Green low carbon material insurance • Green low-carbon technology insurance
Promote low-carbon transformation economic activities		• Fossil energy low-carbon transition insurance • Low-carbon transition insurance in the industrial sector • Low-carbon transformation insurance in the construction sector
Support environmental improvement	Pollution reduction insurance	• Environmental pollution liability insurance • Ship pollution liability insurance • Oil pollution insurance • Hazardous materials liability insurance • Environmental protection infrastructure insurance
Support biodiversity conservation	Ecological environment insurance	• Ecological planting industry insurance • Ecological forestry insurance • Green livestock insurance • Green fishery insurance • Ecological functional zone insurance • Wildlife insurance • Ecological restoration insurance • Landscaping insurance
Support the construction of green financial market	Green financing insurance	• Green loan insurance
	Carbon market insurance	• Carbon trading insurance • Carbon sink insurance
Promote green, low-carbon and safe social governance	Green and low-carbon social governance insurance	• Production safety liability insurance • Public safety liability insurance • Critical infrastructure insurance • Green service insurance provides
Promote green and low-carbon exchanges and cooperation	Green and low-carbon trade insurance	• Green foreign trade insurance • Green "Belt and Road" Insurance • Green domestic trade insurance
	Green and low-carbon activity insurance	• Green and low carbon exhibition insurance • Green low-carbon event insurance
Promote green and low-carbon lifestyle	Green life insurance	• New energy automobile insurance • Non-motor vehicle insurance • Residential decoration quality insurance
Other	Corporate Sustainability Insurance	• Corporate Sustainability Insurance

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Christoph regularly provides advisory to governments, financial institutions, enterprises, and civil society on sustainable development issues. He is the lead author of the UNDP SDG Finance Taxonomy, the Innovative Climate Finance Solutions report for the G20 in Indonesia, and the Green Development Guidance of the BRI Green Development Coalition under the Chinese Ministry of Ecology and Environment. He has authored four books and published articles in Science and other leading journals. Christoph serves as board director in scaling sustainability in businesses and finance.

Christoph is quoted regularly in Financial Times, The Economist, Reuters, Bloomberg, and other major outlets. Before joining Griffith University, he served as Founding Director of the Green Finance & Development Center and Associate Professor at the Fanhai International School of Finance (FISF), Fudan University and previously as Founding Director for the Green BRI Center at the Central University of Economics in Beijing. He worked with the World Bank in over 15 countries and was a Director in the German development agency GIZ. Christoph holds a Master of Engineering and a PhD in Economics from the Technical University Berlin, as well as a Master of Public Administration from Harvard Kennedy School.

About Griffith Asia Institute

Griffith Asia Institute (GAI) at Griffith University, Brisbane, Australia, is an internationally recognised institute providing knowledge, and solutions for sustainable development in Asia-Pacific. With a history of over 20 years, GAI has forged strong partnerships with key decision-makers in business, policy and with research institutions across the region. With over 80 faculty members and 50 adjunct members, GAI works in multidisciplinary teams and draws on a wide range of technical expertise in energy, finance, policy, and economics as well as in regional studies including a strong China component.

GAI is led by Professor Christoph Nedopil Wang and is organised through knowledge and regional hubs:

The Green Transition and Sustainable Development Hub addresses major challenges and opportunities for Asian and Pacific economies in addressing SDGs related to climate, life on land, life in the sea, partnerships, infrastructure and energy.

The Governance and Diplomacy Hub addresses major challenges and opportunities in the region for peaceful co-existence, diplomacy, inclusive governance, policymaking and institution building.

The Inclusive Growth and Rural Development Hub addresses major challenges and opportunities in the region regarding currently underserved communities (e.g., women, indigenous, youth, rural, or people with disabilities).

The four regional hubs address major regional and country-specific challenges and opportunities in (1) Southeast Asia, (2) South Asia, (3) Pacific and (4) China and the Region, each with their own hub lead.

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About the Green Finance & Development Center

The Green Finance & Development Center (GFDC) is a leading research center that provides advisory, research and capacity building for financial institutions and regulators for green and sustainable finance in China and internationally.

The GFDC works at the intersection of finance, policy, and industry to accelerate the development and use of green and sustainable finance instruments to address the climate and biodiversity crisis, as well as contribute to better social development opportunities.

The topics of our work at the Green Finance & Development Center respond to the needs and developments of the financial markets and related policies in China and internationally, while we also aim to provide evidence-based advisory and research for future policies and strategies to accelerate the greening of finance in policy and practice.

The Green Finance & Development Center was founded in 2021 by Christoph Nedopil Wang. It is associated with the Fanhai International School of Finance (FISF) at Fudan University in Shanghai, PR China.

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