Assessment and Optimisation of China's Green Finance Policies under the ‘Dual Carbon’ Target

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Abstract. China's 'Dual Carbon' targets aim to peak carbon emissions by 2030 and achieve carbon neutrality by 2060, a critical step for China towards sustainable development. Green finance is a key mechanism to support these targets. It is essential to promote low-carbon industries, reduce carbon emissions, and encourage sustainable growth. This paper assesses the effectiveness of China's current green finance policies using a policy evaluation framework that includes empirical analysis and case studies. It also highlights achievements and challenges in policy implementation, including regional and sectoral differences. A comparative analysis of international green finance practices is conducted to provide insights for optimising China's policy framework. Based on these findings, appropriate recommendations are given to enhance the coherence, innovation, and market mechanisms of green finance policies, ultimately contributing to the realisation of China's 'Dual Carbon' goals.

Keywords: Green finance, "Dual Carbon" goals, policy evaluation, carbon neutrality, sustainability, market mechanisms.

1. Introduction

Climate change has become one of the most pressing global challenges of the 21st century, and its effects are increasingly visible worldwide – rising temperatures, frequent extreme weather events, and rising sea levels are damaging ecosystems and threatening the livelihoods of millions of people. These challenges are particularly acute in China, as the country seeks to balance rapid economic development with environmental sustainability. To meet this challenge, China has committed to achieving its 'dual carbon' targets – peaking carbon emissions by 2030 and achieving carbon neutrality by 2060. Setting these targets demonstrates China's determination to take responsibility for combating climate change and highlights the urgency of transforming the economic structure. Green finance plays a key role in this transition and is a critical tool for directing investment flows toward sustainable projects aligned with the dual carbon targets. Therefore, continuously assessing and optimizing current green finance policies is beneficial to ensure their effectiveness in reducing carbon emissions and promoting sustainable growth. This paper aims to assess the implementation of China's green finance policies against the backdrop of these targets and provide insights for policy improvement.

2. China's ‘Dual Carbon’ Target and Its Path to Achieving It

2.1. Background and Main Content of China's ‘Dual Carbon’ Goal

China's ‘dual carbon’ goal, namely to achieve carbon peaking by 2030 and carbon neutrality by 2060, is a major commitment in the global response to climate change. In September 2020, Chinese President Xi Jinping first proposed this goal at the United Nations General Assembly: to contribute to global greenhouse gas emission reductions through systematic emission reductions and energy structure transformation. Carbon peaking means that China's carbon emissions will peak around 2030 and gradually decrease, while carbon neutrality requires that all greenhouse gas emissions reach a 'net zero' state through carbon sinks, technological innovation, and other means by 2060. The proposal of this goal not only reflects China's commitment to the international community as the world's largest carbon emitter but also reflects China's strategic needs to promote domestic economic transformation, improve industrial competitiveness, and optimize the energy structure.

2.2. The Main Paths and Key Areas for Achieving the 'Dual Carbon' Goal:

To achieve the goal of a "dual carbon" transition, China will have to design and implement systematic reforms in the fields—of energy, industry, transportation, and management of natural resources. The main paths and relevant data support are outlined as follows:

1. Energy transformation: Energy is the starting point for China to realize its "double carbon" strategy. The figure is that more than 57.7% of China's energy mix is coal. To meet this carbon peak, China should intensify the shift to renewable energy. By 2030, China aims to have non-fossil fuels account for approximately 25% of the total primary energy consumption and to have wind and solar power installed capacity reach around 1.2 billion kilowatts. In 2022, the installed capacity of wind and solar is around 600 million kilowatts, which is good news for China to move to this goal of 1 billion kilowatts.

2. Industrial emissions reduction: Carbon pollution in most of China comes from the industrial sector, especially the steel, cement, and chemical industries, which are known as the three major industries. In 2020, the industrial sector was responsible for roughly 65% of the overall carbon emissions in China. This can be achieved by replacing production technologies with energy-efficient ones and introducing energy-saving production policies. For example, the carbon emissions reduction target for the steel industry may be around 30% up to 2030. In this respect, businesses should also participate in the process by reducing carbon emissions with the help of green technology and using less carbon-intensive production methods.

2.3. The Role and Importance of Green Finance in Supporting the 'Dual Carbon' Path:

Green finance has contributed to this by acting as the main tool for implementing the above measures through capital allocation. Based on the data released by the People's Bank of China, as of December 31, 2022, the amount of green credit balance in China was about 20 trillion yuan, contributing to making China the country with the second largest green credit market after Germany in the world. Green finance involves:

1. Financial support: Green bonds and green credit are increasingly crucial financing tools in supporting various fields such as renewable energy, green transportation, low-carbon buildings, etc. The scale of green bond issuing in China reached about 1.5 trillion yuan in the first half of 2023, whose amount was dominant in the global green bond market, accounting for over 20%. Thus, it is demonstrated that China is an important country in the worldwide green financial market.

2. Risk management: It also gives companies and financial institutions an advantage over how climate change will influence their operations by showing the way for environment-relevant risk management. The People's Bank of China promulgated the 'Green Finance Evaluation Plan' in 2021 to assess financial institutions' green credit and investment behaviour, evaluating their compatibility with 'dual carbon' objectives.

3. Market incentives: As the green finance market has been growing, more and more enterprises understand that green investment helps with environmental issues and secures long-term economic advantages. Companies can use green financial tools to gain their financial capital, which allows them to push the economy's transition to low-carbon intensively. Approximately 100 million tons of carbon dioxide allowances have been traded in the carbon emissions trading market since its commencement in 2021, which sends forth the signal of forming the market-based mechanism of emission reductions in the future.

3. Overview of Current Green Finance Policies in China

3.1 Definition and Development of Green Finance:

Green finance refers to using financial instruments and market mechanisms to channel capital towards sustainable development projects, promote environmental protection, and reduce carbon emissions. It covers a variety of financial instruments, such as green credit, green bonds, and carbon trading. Green finance's core objective is to support the transition to a low-carbon economy through financial means and help achieve the 'dual carbon' target.

The development of green finance in China began in 2016 when the People's Bank of China released the 'China Green Finance Development Report' and officially proposed constructing a green financial system. China became one of the first countries to establish a national strategy for green finance. Since then, green finance policies have gradually improved, expanding from the initial green credit to green bonds, carbon trading markets, and other fields. As of 2023, China's green finance market has exceeded 30 trillion yuan, and the variety of green financial products is constantly enriched.

3.2 Key Policy Documents and Guidelines:

Green finance development in the most populated country in the world has been given overwhelming consideration through the adoption of several policy papers and guidelines. Here's a snapshot of key documents:

1. Green Credit Guidelines (issued in 2012): The Guidelines on Credit for Green Projects issued by the China Banking Regulatory Commission aim to direct bank credit facilities to environmental projects, including renewable energy, energy efficiency, and pollution control projects. By 2023, the amount of green credit extended in China will surpass 20 trillion yuan, representing the biggest green credit market globally.

2. 'Green Bond Issuance Guidelines' (issued in 2015): This document from the People's Bank of China provides a framework for issuing and managing green bonds. Green bonds are assets held in bond form, with the resources specifically allotted for green projects. Since the guidelines were launched, China's green bond market has grown to be the second-largest globally, with green bond issuance reaching 1.5 trillion yuan in the first half of 2023.

3. 'Administrative Measures for Carbon Emissions Trading' (released in 2021): The document is the legal basis for establishing a national market for trading carbon. Established in 2021, the carbon-trading market is the largest in the world, and the results are in hand. In 2023, carbon emissions traded in China's carbon emissions trading system are to be beyond the level of 100 million tons and are predicted to be valued at over 100 billion yuan.

4. Core Elements and Objectives of The Policy

Guiding capital flows is the primary pillar of China's green finance strategy, and it integrates financial instruments that lead to low-carbon, environmentally sound, and sustainable development. The specific aims of the policy are as follows:

1. Promote green investment: The green finance policy is about providing such investments in the green bending to result through financial means, which are, to name a few, renewable energy, smart buildings, environment protection technologies, etc. The figures released by 2023 reveal that China's green credit has amounted to more than 20 trillion yuan, while the total green bond bounced off 2 trillion yuan. This further proves that voracious green finance has obtained tremendous results in backing up green financing.

2. Promote sustainable development: Green finance's another intricate goal that we grapple with is the conservation and promotion of sustainable growth. For using these vehicles, such as green credit, green bonds, and carbon trading, Chinese companies are getting important financial backing for researching, developing, and applying low-carbon tech to energize the innovative green tech and green industries rapidly.

3. Reduce carbon emissions: The major goals of green finance policies are to aid in achieving the 'dual carbon' and mitigate the formation of greenhouse gas emissions. Therefore, the use of green financial policies to back green projects with these utilities is capable of reducing emissions by more than 100 million tons per year, which demonstrates that green finance has impacted emissions reduction.

5. Assessment of the Role of Green Finance Policies in Supporting the 'Dual Carbon' Target

5.1 Policy Impact Evaluation Framework

To determine the role of China's green finance policies in tackling the dual carbon targets more comprehensively, this chapter will carry out a combination of input-output and policy impact evaluation models. Input-output analysis is a prevalent approach for the evaluation of policy implementation outcomes. It methodically compares the inputs (including capital, technology, etc.) of green financial strategies and their outputs in carbon dioxide emissions reductions and green investment. Besides that, econometric and causal inference analysis is applied in the Policy Impact Evaluation Model to assess the causal impacts of the policy implementation. These research methods will be used to analyze the contribution of green finance policies, which are included in the measures to create a green economy and the target for emission reduction, based on real data.

5.2 Policy Impact Analysis

Green finance policies have played a significant role in promoting green investment and reducing carbon emissions.

1. Growth of green investment

The implementation of green finance policies has driven eco-investment quickly. The balance of green credit in China as of June 2023 was over 25 trillion yuan, while the issuance of green bonds exceeded 2.2 trillion yuan, according to the People's Bank of China. It is amazing that innovative financial products like green credit, bonds, and insurance have energized environment protection and low-carbon project investment in capital markets. More precisely, in renewable energy, a bulk of the scarce financial funds have been poured into wind and solar energy projects, and such support has significantly assisted the revitalization of energy in China.

2. Reduction of carbon emissions

Furthermore, carbon emissions have been reduced due to green finance policies. According to the National Development and Reform Commission data on greening finance, China's carbon emissions per unit of GDP 2022 are about to lower by almost 40%, respectively, compared to 2010 due to such promotion. Moreover, the implementation of clean energy projects and the utilization of low-carbon technology supported by green credit have been able to mitigate carbon level emissions in the energy and industrial sectors. For instance, the green bond financing from the State Grid Corporation of China has financed the creation of many clean energy projects, which helps eliminate several million tons of carbon dioxide emissions.

5.3 Case Study: Green Bonds Supporting Clean Energy Projects

For instance, China Three Gorges Corporation released the green bonds method. The funds raised were mainly used to build the first-largest hydropower station in China and some wind power projects. These projects surely deliver eco-friendly energy for the locality; however, they also significantly decrease the number of fossil fuels; accordingly, carbon dioxide emissions are declining by millions of tons annually, thereby playing an important part in China's success in achieving carbon peaking and carbon neutrality goals.

5.4 Policy Issues and Challenges

Despite the significant achievements of green finance policies, there are still some challenges in the actual implementation process:

1. Inadequate Policy Implementation

For instance, policy implementation might need to be revised depending on the area and sectors of the economy. Government and financial institutions may need more support, such as inconsistent policy attitudes, unclear understanding of policy, and poor implementation. Particularly, the preference for active participation in green financing programs is lower among small and medium-sized organizations, thereby inhibiting the development of the full-scale promotion of the program.

2. Regional and Industry Differences

Although the approach of financing green projects is applicable internationally, there are interregional inequality and industry gaps. For instance, green finance is developing faster in economically developed coastal areas, while promoting green finance in the central and western regions is unlikely to work because of the relatively weak economic conditions and insufficient policies. Also, the adoption and acceptability of green finance differ among sectors. Much strength is in the fact that despite many high-energy-consuming industries being high carbon emitters, the entrance of capital is not quickened because of the high technical barriers.

6. Comparative Analysis and Implications of International Green Finance Policies

6.1 Introduction to international green finance policy practices

In the context of the global response to climate change, green finance has become an important tool for countries to promote sustainable development. Internationally, many countries and regions are actively formulating and implementing green finance policies to promote the flow of capital to green projects and a low-carbon economy. The following is an overview of the green finance policies of several representative countries and regions:

1. European Union: The European Union is undeniably the world leader in green investments. The union aims to achieve carbon neutrality by 2050 through the EU Green Deal. One of the key ways the EU began working toward this objective was with the rollout of the EU Taxonomy for Sustainable Finance in 2020, which outlines what economic activities can be classified as green or sustainable and makes it mandatory for investors to apply these measures to their investment decisions. Furthermore, the EU mandates businesses and financial institutions to publish their environmental effects in the Green Bond Standard and the SFDR to guarantee the reality and sustainability of resources.

2. United Kingdom: The UK is known for its leadership in climate-related financial disclosure. The UK government created the Green Finance Institute to help the financial market shift to a low-carbon economy. Furthermore, the UK has taken the lead in adopting this legislation that requires enterprises to disclose information on climate-related risks. This adherence was inspired by the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFDs). The UK also aims to cut emissions of greenhouse gases by 68% by 2030 and to support that with the development of new economic green finance.

6.2 China compared with international policies

When comparing China's green finance policies with those of the countries above, the following two aspects can be compared:

1. Implementation effect: The stringent and comprehensive requirements for environmental-related information disclosure in the UK and the European Union lie ahead of China. The way the UK novated the information disclosure to the financial market through legislation, and meanwhile, the project concerning environmental information disclosure in China is still at the age of development. The disclosure of financial data and business behavior remains only partially compulsory, and troubles with the consistency and transparency of information remain.

2. Market incentives and regulatory mechanisms: A market-oriented approach is adopted more by the European Union, which counts on market mechanisms (such as carbon trading or starting the green bond market) in their roadmap for redirecting money flows towards greener activities. Contrary to that, China pushes forward green investments through policy financial institutions, the central bank's green finance evaluation mechanism, and executive promotion by local governments. This has resulted in disproportionate local discrepancies among China's policy implementation programs, with uneven scales of green finance being developed in specific places.

7. Recommendations for Improving China's Green Finance Policies

7.1 Basic Principles and Direction of Policy Optimisation

To better support the realization of China's 'dual carbon' goals, the optimisation of green finance policies needs to follow the following basic principles:

1. Systematic and coherent: The transition to green finance is most effective when it is realized in the contexts of both the national economy and the environment to ensure there is harmony among various policies. Old policies are supposed to chart out the different phases of the 'dual carbon' goals and make green finance part of economic and industrial policies. Scholars have also pointed out that coherent and systematic policies will not only help avoid policy conflict but also ensure that the capital flows are consistent with the long-term environmental goals of the country.

2. Regional differentiation: China is marked by remarkable geographic disparities in economic development and industrial structure. While framing green finance strategies, the local differences of the regions must be considered, allowing local governments to innovate financial policies based on actual local circumstances to address local economic issues and ecological conditions.

3. International cooperation and standard alignment: Global climate issues constitute a challenge that should be tackled through a global approach involving all countries. Improving green finance policies in China must strengthen the harmony with international standards. China should progress in green financial product certification and environmental information disclosure by learning from international experience and participating in the formulation of global green finance standards to strengthen international competitiveness.

7.2 Specific Recommendations for Policy Optimisation

Based on the evaluation of current green finance policies and practical experience at home and abroad, this section puts forward the following optimisation recommendations:

1. Strengthen the systematic and coherent nature of policies: Green finance must cover larger industries and projects while expanding financial support to high-emission and energy-intensive enterprises. In the case of transforming carbon-intensive industries, the push for financing energy-saving technologies, industrial upgrading, and others must be considered for adequate coverage of green financial instruments.

2. Strengthen supervision and evaluation of policy implementation: A lack of provision and implementation of supervision and evaluation of the efficiency of existing green finance policies leads to big problems in their actual implementations. In this regard, the regulatory mechanism and policy evaluation system that is strictly supervised should be put into place to achieve the desired outcomes. It is recommended that a platform with a unified national green finance information disclosure be built, pressuring banks and companies to recognize their green finance activities and provide carbon emissions data. Through transparent data, the market may better assess real green finance policies.

3. Encourage local governments to innovate green finance policies: Local governments are key to generating green finance policies since the environments and development levels vary across China. It is advisable that the central government increase the waywardness of local governments and enforce that innovation and provision of green financial instruments be local needs-driven. For example, Shenzhen has created a specific green financing platform for different enterprises and financial institutions to connect with green projects, offer green certification, and provide financing. As for the other territories, they will have a chance to learn from similar experiences, so the regions will be able to introduce customized green finance policies, considering their local industrial policies and the availability of resources.

4. Strengthening international cooperation and learning from experience: China will be in a better light if it takes part in international green finance cooperation and gets the know-how and learning from the best practices of green finance of international organizations and other countries like it. For instance, the EU's Green Deal entails much for China, from appreciating policy formulation to capital distribution and supervision. More generally, assisted by the Belt and Road Initiative, China can finance the aspirations of countries and regions along the route by forming alliances with them to bring about green development. Thus, it can be more prominent in Global Climate Governance.

8. Conclusion

China's 'Dual Carbon' targets of carbon peaking by 2030 and achieving carbon neutrality by 2060 underscore its commitment to combating climate change while maintaining economic growth. Green finance plays a critical role in supporting this transition by directing capital toward environmentally sustainable projects. This paper has evaluated the effectiveness of China's green finance policies, highlighting their significant contributions to promoting green investment and reducing carbon emissions. However, challenges such as uneven policy implementation, regional disparities, and the need for stronger international cooperation remain.

To optimize the effectiveness of these policies, several recommendations have been proposed. These include enhancing the systematic and coherent nature of policies, improving supervision and transparency, encouraging local innovation, and aligning with international standards. By addressing these issues, China can better leverage green finance to achieve its ambitious carbon goals and contribute to global sustainability efforts. Ultimately, the success of green finance in China will serve as a model for other nations in the collective fight against climate change.

References

[1] Green, A. (2023). International standards and green finance: A comparative analysis. International Finance Journal.
[2] Green Finance Institute (2022). UK Green Finance Strategy.
[3] Liu, Y. (2021). Regional differences in green finance implementation in China. Environmental Economics Studies.
[4] National Development and Reform Commission (2021). Green bond-supported project catalog.
[5] National Development and Reform Commission (2022). Per unit GDP carbon emissions statistical report.
[6] People's Bank of China (2022). China Green Finance Development Report.
[7] People's Bank of China (2023). China Green Finance Development Report 2023.
[8] People's Bank of China (2023). Green bonds issuance in China.
[9] Shenzhen Green Finance Public Service Platform (2023). Annual Report.
[10] Wang, J. (2023). The role of coherence in environmental policies. Journal of Environmental Policy Research.
[11] Wu, X. (2023). Green finance information disclosure: Supervision and challenges. Economic Observer.
[12] "China's green credit balance exceeds 20 trillion yuan" (2023). China Banking and Insurance Regulatory Commission.
[13] "China's green finance market report" (2022). China Financial News.
[14] China Ministry of Commerce (2022). Belt and Road green finance cooperation report.
[15] European Commission (2020). EU Sustainable Finance Taxonomy.
[16] European Commission (2021). European Green Deal.
[17] Li, M. (2022). Application of financial instruments in the green transition of high-carbon industries. Journal of Economic Studies.