The Impact of Green Finance Policies on Carbon Emission Trading

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Abstract. In the context of increasingly severe global climate change, the international community's demand for reducing greenhouse gas emissions is urgent. This paper explores the critical role of green finance policies in guiding capital flows to green and low-carbon areas. In order to achieve carbon reduction goals under the global climate change context. The main content of this paper includes how green finance, through green credit and green bonds, promotes the activity and efficiency of carbon emission trading, thus significantly affecting carbon emission intensity. Additionally, it details the policy background, development process, and challenges faced by the carbon emission trading system, including issues such as limited industry coverage and insufficient market liquidity. Finally, it proposes policy recommendations and future prospects, such as improving laws and regulations, promoting technological innovation, and expanding market coverage, and strengthening international cooperation to further optimize the carbon emission trading market and help achieve sustainable development goals.

Keywords: Green finance; carbon emission rights; environmental economics; low-carbon development.

1. Introduction

With the increasingly severe issue of global climate change, the international community's call for reducing greenhouse gas emissions and achieving sustainable development is growing stronger. Against this backdrop, green finance policies, as an innovative environmental economic policy tool, play a significant role in promoting global carbon reduction goals by directing capital towards green and low-carbon areas. Carbon emission rights, as a core component of the green finance policy system, play a key role in promoting the efficient allocation of carbon emission rights and incentivizing enterprises to reduce carbon emissions.

There have been some conclusions regarding the impact of green finance on carbon emission rights. For example, Liu Chuanheng analyzed how green finance promotes the activity and efficiency of carbon rights trading through green credit and green bonds, thereby significantly affecting carbon emissions [1]. Similarly, Yu Tongkui and Huang Jingdi, through data from 2011-2020, found that green credit, green securities, and green investments have a dynamic impact on carbon emission intensity and play an important role in curbing carbon emissions [2].

Green finance policies have important policy significance for the establishment of the carbon emission rights trading system. On the one hand, green finance policies provide strong financial support for the carbon emission rights trading system. By directing funds to green and low-carbon areas to promote technological innovation and industrial upgrading, they create a good market environment for the implementation of the carbon emission rights trading system. On the other hand, green finance policies and the carbon emission rights trading system jointly promote the goal of sustainable development. Green finance policies emphasize environmental benefits, while the carbon emission rights trading system uses market mechanisms to limit carbon emissions. Together, this policies promote enterprises to optimize resource allocation, improve energy efficiency, and reduce pollution emissions, thereby improving environmental quality and promoting the coordinated development of the economy, society, and environment.

This paper uses the review method to analyze the impact of green finance on carbon emission trading rights and puts forward future prospects.

2. The Impact of Green Finance Policies on Carbon Emission Trading Rights

2.1. The Pathways through which Green Finance Affects Carbon Emission Trading Rights

The Guiding Opinions on Further Strengthening Financial Support for Green and Low-carbon Development, issued in March 2024, clearly stated that an internationally advanced green financial system would be established within the next five years. By 2035, green economic policies will be more coordinated and unified, standards and support systems will be more sound, and resource allocation, risk management, and market pricing mechanisms will be more efficient [3].

Recently, the Guiding Opinions on Further Strengthening Financial Support for Green and Low Carbon Development issued. The relevant person in charge of the People's Bank of China stated in the interpretation of the Guiding Opinions that in the next five years, the China will be committed to building an internationally leading green finance support system. The China plan to achieve efficient coordination of various economic and financial policies in promoting green and low-carbon development by 2035, further improve the standards and policy system of financial support, optimize resource allocation and risk management [4].

2.2. Opportunities and Challenges

2.2.1 Development process of green finance

In 1987, the concept of "sustainable development" was first proposed in the report "Our Common Future" by the World Commission on Environment and Development, laying a foundation for the development of green finance. After entering the 21st century, the increasingly serious climate issues have attracted global attention. In December 2015, the 21st United Nations Climate Change Conference adopted the "Paris Agreement," which established a unified arrangement for global action on climate change after 2020. Countries are sparing no efforts to mitigate the effects of global warming through a series of green investment activities [5].

2.2.2 Optimization of green finance system

Optimizing the green finance system includes two aspects: policy support and market mechanism improvement. First, the government should strengthen its guidance on green credit policies and reduce the financing costs of environmental protection projects by encouraging financial institutions to increase loan support for these projects. At the same time, a series of policies have been introduced to regulate the green financial market to enhance investor confidence. In addition, the development of the green bond market should be promoted, more low-cost financing channels should be provided for enterprises, and green financial infrastructure should be strengthened, such as the establishment of evaluation and certification systems, and the transparency and credibility of investment projects should be enhanced. Optimizing the green financial system is a key measure to promote sustainable economic development, which requires the joint efforts of the government, financial institutions, enterprises and all sectors of society.

3. Carbon Emission Trading

3.1. Framework of Carbon Emission Rights Market Trading System

With the escalation of global climate change issues, countries around the world have taken measures to control greenhouse gas emissions. The carbon emission quota trading system is a market-oriented mechanism for reducing emissions, originating from the Kyoto Protocol in 1997, aiming to promote emission reductions through economic means. On December 12, 2015, the 21st United Nations Climate Change Conference adopted the Paris Agreement as the follow-up action to the Kyoto Protocol and officially came into effect on November 4, 2016.

To successfully implement the carbon emission market, it is necessary to establish a trading system. Only by establishing a sound trading system can carbon emission rights become a scarce valuable economic resource and be endowed with intangible asset attributes. According to the principles of carbon emission market trading and relevant international treaties such as the Kyoto Protocol and the Paris Agreement, a sound carbon emission market trading system should mainly include four mechanisms: carbon emission quota allocation mechanism, quota trading mechanism, carbon emission verification mechanism, and supervision and guarantee mechanism [6].

3.2. Current Situation of Carbon Emission Trading in China

3.2.1 Policy background

The Chinese government has issued a number of policy documents, including the Provisional Regulations on Carbon Emissions Trading, to clarify the direction and goals of the carbon market and encourage enterprises to actively participate. In order to achieve a peak in carbon emissions by 2030 and achieve carbon neutrality by 2060, the government is accelerating the construction of a national carbon market and guiding enterprises to reduce carbon emissions through market-based means.

3.2.2 Pilot and promotion

In order to improve the carbon trading market and ensure its smooth operation, the National Development and Reform Commission issued a notice on conducting pilot carbon emission trading in October 2011, suggesting pilot work be carried out in Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong and Shenzhen. Since 2013, pilot carbon emission trading projects have been launched in Beijing, Shanghai, and Guangdong, among other regions, accumulating valuable experience for the construction of a national carbon market.

In recent years, with the gradual improvement of the carbon trading market, China's carbon emission trading system has basically been established. Xu Zhengrong and Wang Hanying used factor analysis and based on information to study the relationship between three main components and China's carbon emission trading price using a multiple linear regression model [7]. The research results show that coal prices, macroeconomic conditions, and climate conditions all have an impact on the carbon emission trading price. Among them, when energy prices rise, the carbon emission trading price will decrease, while macroeconomic conditions and climate conditions are positively correlated with the carbon emission trading price.

3.3. Challenges

The first problem people face is that the industry coverage and trading varieties are single. Currently, it is known that China's carbon emissions trading industry only includes the power generation industry, and the industry coverage is too single. To better achieve the goal of energy conservation and emission reduction, the industry coverage should be appropriately expanded and expanded towards industries with higher carbon emissions. In addition, the variety of trading is too single, with only spot carbon emission shares, namely CEA. Therefore, it is necessary to develop new trading varieties.

The second issue is insufficient market liquidity. Market participation is low and companies have a weak awareness of carbon reduction. The carbon emissions trading months in pilot cities are mostly concentrated in one to two months, and the enthusiasm in other months is not strong, resulting in weak market liquidity.

Finally, there are issues of data transparency and verification. Due to the imperfect regulatory system for greenhouse gas emissions in China and the incomplete statistical system, the accuracy and authenticity of the emission data obtained from enterprises need to be studied. The improvement of data quality not only requires the government to improve its regulatory system and statistical system but also to strengthen the supervision of third-party verification agencies. At present, the access system and independence of third-party verification agencies in our country are yet to be verified [8].

4. The Impact of Green Finance Policies on Carbon Emission Trading Rights

4.1. The Path of Green Finance's Impact on Carbon Emission Trading Rights

4.1.1 Fund orientation and green investment

Another core strategy focuses on direct investment in green sectors. The green finance mechanism injects funds precisely into key areas such as clean energy projects, energy efficiency improvement technologies, and carbon emission reduction technologies, providing a strong impetus for environmentally responsible enterprises and projects. This not only accelerates the vigorous development of the green economy but also significantly reduces the global carbon footprint. Specifically, in-depth research into how green finance influences carbon trading markets and actual carbon emissions shows that under the active guidance of green finance, capital flows are distinctly biased towards promoting the widespread adoption of clean energy, thereby effectively reducing dependence on fossil fuels and contributing significantly to the sustainable development of the Earth's environment.

Another aspect is green credit and green bonds. Financial institutions provide financial support for environmental protection projects by issuing green loans and green bonds while limiting financing for high-pollution and high-emission projects. Data shows that in recent years, the balance of green credit and the scale of green bond issuance in China have continued to grow, and a multi-dimensional financial service mechanism has been constructed. Encourage financial institutions to innovate green products and establish a multi-level financial management model. Support the development of credit products in areas such as clean consumption reduction, green industry, green electricity, and green building materials, guide the combination of green financial derivatives with local environmental problems, and help achieve a win-win situation between the economy and the environment [9] .

4.1.2 Industrial structure optimization

Firstly, it is industrial transformation and upgrading. Green finance policies guide traditional high-pollution and high-emission industries to transform towards green and low-carbon directions and promote the optimization and upgrading of industrial structure. During the transformation process, enterprises will gradually phase out outdated production capacity and adopt clean production technologies to reduce carbon emissions.

Next is the development of green industries. Green finance supports the development of green industries and cultivates new economic growth points. The green industry has the characteristics of low carbon, environmental protection, and efficiency, which helps to reduce carbon emissions.

4.1.3 Technological innovation and energy efficiency improvement

Firstly, it drives innovation in green technology. Green finance policies act as a catalyst, stimulating in-depth exploration and research into green technologies, particularly in the areas of clean energy, energy efficiency, and emission reduction. This technological innovation can not only reduce the intensity of carbon emissions but also significantly enhance energy utilization efficiency, thereby effectively curbing the expansion of the carbon footprint.

Secondly, it facilitates a leap in energy efficiency. With the strong support of green finance policies, enterprises can adopt advanced energy-saving technologies and equipment, which directly improves the conversion efficiency of energy, reduces unnecessary energy consumption, and correspondingly decreases carbon emissions, laying a solid foundation for achieving low-carbon transformation [10].

4.1.4 Risk management and hedging tool innovation

The first point is risk pricing and evaluation. The green finance policy encourages financial institutions to establish risk assessment and pricing mechanisms related to carbon emissions, providing risk management tools for carbon emission trading. This helps to reduce market risk and increase the confidence of market participants.

The second point is green insurance and derivatives. The green finance policy encourages the development of derivative markets related to green insurance and carbon emission rights, providing risk protection and risk management tools for carbon emission rights trading. For example, green insurance can provide risk protection for clean energy projects, while derivatives such as carbon emission rights futures and options can provide risk hedging tools for market participants.

4.1.5 Policy incentives and market mechanisms

Firstly, it is policy incentives. The government encourages enterprises to participate in carbon emission trading and green investment through incentive measures such as tax incentives and fiscal subsidies. These incentive measures have reduced the cost and risk of enterprises participating in carbon emission trading and increased their enthusiasm.

Next is the market mechanism. The green finance policy promotes the establishment of a carbon emission trading market mechanism, and through market means, optimizes the allocation of carbon emission rights and achieves emission reduction goals. Under the market mechanism, the price of carbon emission rights is determined by the market supply and demand relationship, which can reflect the true cost of emission reduction and environmental value [11].

4.2. Opportunities and Challenges Faced

Firstly, the development trend of the global green finance market. The rapid development of the global green finance market has provided broad development space for the carbon market. Then there is government policy support and international cooperation. The policy support and international cooperation of governments around the world provide strong guarantees for the development of carbon markets. Finally, there is innovation in new financial products and services (such as green bonds, green funds, etc.). The launch of new green financial products has brought new vitality and opportunities to the carbon market.

The current challenge is first and foremost the standardization and recognition of green finance standards. The differences in green finance standards among countries have increased the difficulty of international cooperation and market operation. Secondly, there is a sound risk control and regulatory mechanism. The diversification of green financial products has brought new risks, and it is necessary to establish sound risk control and regulatory mechanisms. Finally, it is necessary to consider the improvement of market awareness and participation. At present, the market awareness and participation of various countries are too low. The government should increase the promotion of green finance, use new media to improve social awareness, and strengthen the participation of financial institutions to form a diversified green product portfolio, jointly promoting the prosperity and development of the green finance market.

5. Conclusion

5.1. Summary

Since its launch, the carbon market has undergone a leapfrog development from pilot projects to nationwide coverage and has become an important force in promoting emission reduction and environmental protection. It incentivizes enterprises to reduce greenhouse gas emissions, optimize resource allocation, and reduce emission reduction costs by establishing a carbon emission quota trading mechanism. The operation of the carbon market not only promotes the progress of environmental protection technology but also promotes the development of a green economy, laying a solid foundation for building a low-carbon society. With the continuous improvement of the carbon market, its positive role will become increasingly significant. The green finance policy has a significant impact on the carbon emission market. It optimizes the allocation of financial resources, guides capital towards environmental protection and low-carbon industries, and effectively motivates enterprises to reduce carbon emissions. This policy not only promotes the healthy development of the carbon market, but also guides the whole society to form a low-carbon and green lifestyle through the carbon price mechanism, playing a crucial role in promoting carbon reduction and green development.

5.2. Suggestions and Outlook

5.2.1 Suggestions

To provide guarantees for the stable operation of the market, the legislative department should improve and perfect the laws and regulations of the carbon market. The relevant technical departments should strengthen technical support and data management to ensure the accuracy and reliability of carbon emission data, and provide a solid data foundation for the carbon market. Improve the transparency of market information, establish a sound information disclosure system, and enhance market confidence. Promote innovation in financial products and encourage financial institutions to develop diversified carbon finance products to meet the needs of different market entities.

The government should gradually incorporate more industries and fields into the carbon market, forming a wider range of emission reduction effects. At the same time, strengthen public publicity and education, increase public awareness and participation in carbon emission trading rights, and form a good atmosphere for the whole society to participate in carbon reduction. Improve the level of carbon emission monitoring and verification technology to ensure the accuracy and authenticity of data. Through publicity and training, enhance the environmental awareness and participation ability of enterprises and the public, and promote the healthy development of the carbon market.

China should learn from the advanced experience and technology of the international carbon market, promote the improvement and development of the local market, promote the international docking and mutual recognition of carbon emission trading rights, and jointly address the challenges of global climate change. This not only helps to enhance the international influence of China's carbon market, but also promotes the coordinated development of the global carbon market. Promote cooperation and linkage in regional carbon markets. Strengthen cooperation in regional carbon markets, achieve resource sharing and complementary advantages.

5.2.2 Outlook

The carbon market will continue to promote the rational allocation of carbon emission rights, guiding enterprises, society, and individuals to form low-carbon and green production and lifestyle. This will help promote the achievement of global sustainable development goals and build a beautiful future of harmonious coexistence between humans and nature. Against the backdrop of global climate change, countries will further strengthen cooperation and exchange in the field of carbon markets. By sharing experiences, exchanging technologies, and jointly formulating rules, this paper aims to promote the coordinated development of the global carbon market and jointly address the challenges of climate change. This will help improve the efficiency and fairness of the global carbon market, injecting strong impetus into global emissions reduction and sustainable development.

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