

Analyzing Opportunities and Challenges for Financial Institutions in the Area of Carbon Finance



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Abstract: Human industrial activities not only promote human social and economic development, but also intensify carbon dioxide emissions, and their impact on the global climate has threatened the fate of human beings and the Earth. The issue of climate change is not only a matter of environmental governance but also a political and economic issue that determines whether a country can take the lead in the global energy revolution. This paper mainly analyzes the opportunities and challenges of financial institutions in the field of carbon to understand the development status of financial institutions in China, especially the banking industry, as well as the opportunities and challenges, to put forward some innovations and measures to promote the development of financial institutions in the field of carbon finance in China.

Keywords: financial institutions; carbon finance; opportunities and challenges

1. The Concept of Carbon Finance and the Development Status of Carbon Finance in China

Carbon finance is carbon trading, the broad meaning of carbon finance refers to the financial trading activities and various financial institutional arrangements related to the control of greenhouse gas emissions and the transfer of carbon trading risks. The formation of carbon finance comes from the *United Nations Framework Convention on Climate Change*, and the *Kyoto Protocol* is the global common response to climate change legal principles, carbon finance is an important financial innovation mechanism to cope with global climate change, a low-carbon economic investment and financing activities, it contains huge business opportunities (Du & Zhang, 2013).

In China, the carbon finance market is gradually becoming a new hot spot in the financial field, and its development is influenced by various factors such as policy, market, technology, and international cooperation. The government plays a key role in promoting the development of carbon finance, and our government has been committed to achieving carbon neutrality and responding to climate change by establishing a carbon emissions trading system,

promoting carbon tax legislation and other policy measures to provide policy support and legal protection for the carbon financial market. At the same time, China also actively participates in international climate cooperation and commits to achieving carbon neutrality by 2060, which provides a broader space and opportunity for the development of the carbon financial market. The development of the carbon financial market cannot be separated from the construction of a market system and the innovation of financial products. At present, China has established a carbon emissions trading market, including national and local level markets, and the gradually improved carbon trading system provides a platform and infrastructure for the trading of carbon financial products, financial institutions have also actively launched various carbon financial products, including carbon emissions trading, carbon neutral fund, carbon offset projects, etc., to meet the needs of different The needs of the main bodies of interest in carbon emission reduction and carbon neutrality have promoted the diversification and healthy development of the carbon financial market. In addition, the progress of technology plays a key role in the development of the carbon financial market. China has made certain progress in carbon

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monitoring, carbon data analysis, carbon neutralization technology, etc., which provides technical support for the design, assessment, and supervision of carbon financial products; at the same time, the international cooperation also brings technical support, experience, and market opportunities for the development of China's carbon financial market, which promotes the carbon financial market to be in line with the international standards and accelerates the development of China in the field of global carbon emission reduction. At the same time, international cooperation has also brought technical support, experience, and market opportunities for the development of China's carbon financial market, promoting its convergence with international standards and accelerating its influence in the field of global carbon emission reduction. However, the carbon financial market still faces many challenges in the process of development. For example, imperfect carbon pricing mechanisms, insufficient market liquidity, and non-transparent carbon data constrain the development and trading of carbon financial products (Zhang et al., 2013). Therefore, in the future, governments, financial institutions, research institutions, and enterprises must make joint efforts to strengthen policy formulation, market regulation, technological innovation, and international cooperation, to further improve the carbon financial market system, and to promote the carbon financial market towards a healthier, more mature and sustainable development path.

2. Opportunities for the Banking Sector Among Financial Institutions in the Field of Carbon Finance

Carrying out a carbon emission business is a very good opportunity for the development of financial institutions in the field of carbon, which can not only enhance the good social image of financial institutions but also create good conditions for the credibility of financial institutions. Especially in the requirements of the *Kyoto Protocol*, there are many financial needs related to carbon emissions that can be involved in investment and financing needs, carbon emissions trading market as well as the needs for the development of a low-carbon model of the real economy. Carbon emission rights can also have liquidity and market value like general commodities.

In recent years, China has taken a large share of the global market in terms of carbon emission reduction and thus has a very broad prospect for the development of carbon emission resources, carbon trading, and other markets derived from it. China can be the largest provider of emission reduction market in the global market, and the future development potential of China is also very worth looking forward to. Meanwhile, with the development of carbon finance, many financial institutions in China, especially the banking industry, have already recognized the huge development potential and market prospects of carbon finance, and a large number of banks have already carried out the corresponding carbon financing business in China and achieved certain profits. Therefore, the development of the banking industry in the field of carbon finance is also a good opportunity.

3. Challenges Faced by the Banking Industry Among Financial Institutions in the Field of Carbon Finance

3.1. The need to further establish and improve the domestic carbon financial market mechanism

At present, China's domestic carbon financial market mechanism trading system is not perfect and sound. At present, some of the environmental exchanges established in China mainly develop projects to deal with CDM-based projects and are not standardized trading contracts. There is no perfect trading system of its own, and thus not having the pricing power, if you want to achieve a certain position in the international market is very difficult. This directly leads to China's international carbon market in the international carbon market does not have sufficient rights to speak. Moreover, at present, China's domestic intermediary market development is not perfect, the CDM trading rules and procedures are very complex and strict, and for non-professional organizations is difficult to have the development and implement such projects. And because China's intermediary institutions are still in the initial stage, it is difficult to complete a large number of relevant projects, and it is difficult for the banking industry to achieve a professional technical system to support the project risk assessment.

3.2. The status of the carbon financial market and the need for it to be improved

In the development process of the global carbon trading industry chain, China's carbon financial market is still at the bottom of the industry chain. Many developed countries for our country's financial institutions to attract a large number of, let them participate in the establishment of the carbon financial market in the process so that you can maximize the profits of our capital (Gu, 2012). This form must cause us a high degree of concern and vigilance, some developed countries purchase at a low price, after packaging and development, and then sell to our country at a high price to earn the difference in profit, the development of China's carbon financial market is extremely unfavorable.

3.3. The incentive policy of carbon financial business is relatively backward

In China, the carbon financial business incentive policy is relatively backward, which is one of the important factors hindering its development, although the carbon financial business has the potential of good social benefits for the development of society as a whole, China's banking industry in the face of the carbon financial business is still in the initial stage, the understanding of the field is relatively not in-depth enough, in particular, the banking industry is more conservative in the understanding of the risk of carbon financial business, carbon finance is characterized by high risk, which makes the banking industry have certain concerns in actively exploring carbon financial business. In addition, the corresponding national policies and measures for the development of carbon financial business have yet to be further improved. Although the Chinese government has been committed to promoting carbon emission reduction and sustainable development, the incentive policies for carbon financial business have not yet been fully followed up, and at present, there is a lack of clear supportive policies and preferential measures for carbon financial business, which restricts the banking industry's input and enthusiasm in the field of carbon finance.

3.4. The banking industry's understanding of the carbon finance business is not comprehensive and in-depth enough

In the process of the development of the international carbon trading market, the spread of the development of carbon finance in China belongs to the initial stage. Many domestic banks have yet to

have an in-depth and comprehensive understanding of the development of carbon finance and are unable to fully recognize the huge business opportunities it holds. Moreover, they do not know enough about the operation mode of carbon finance and the profits and social benefits brought by it, and the banking industry is less involved in this business. Therefore, many banks do not dare to vigorously develop a carbon finance business (Qi et al., 2024).

3.5. The banking industry lacks professional institutions and professional talents in the field of carbon finance

To realize the vigorous development of the carbon finance business, the banking industry must have professional departments and professionals. Only with the relevant specialized departments and talents can the products involved in the banking industry and the entire business process be scientifically and reasonably designed. However, from the current development of most of China's banking industry, there is a lack of professional departments and talents. The development of a carbon finance business needs to have comprehensive professional knowledge of the talents, most of the financial institutions for the comprehensive talent reserve are relatively small, which also makes the banking industry in the field of carbon finance lack development momentum.

3.6. The carbon finance business has more and greater risks than other businesses

The banking industry faces more risks in the process of conducting carbon finance business. For example, it will encounter market risk, credit risk, engineering and construction risk, operation risk, policy risk, legal risk, and so on. The existence of these risks can cause great losses to the development of the banking industry in the field of carbon finance. It is the existence of many risks that create a great challenge for the development of the banking industry in the field of carbon finance.

4. Relevant Suggestions for China's Banking Industry to Innovate in the Financial Field

4.1. Corporate governance structure needs to be further improved

The soundness of the corporate governance structure is crucial to the sound development of the banking industry, which should strengthen cooperation with relevant environmental

organizations to jointly promote the further improvement of the corporate governance structure, which includes cooperation with regulators, industry associations, and environmental protection organizations to jointly formulate and implement relevant policies to ensure that the banking industry performs its duties adequately in terms of environmental governance and social responsibility. The banking industry should ensure that responsibilities are clearly defined and assigned at both the management and employee levels. This means establishing a scientific organizational structure and workflow, clarifying the duties and responsibilities of managers and employees at all levels, and ensuring that decisions can be implemented efficiently and accurately (Liu et al., 2024). In addition, the banking industry should carry out accountability procedures and reports by relevant policies to ensure that the policies are scientifically sound and standardized, which includes establishing a sound internal control and risk management system, disclosing information promptly, and accepting supervision by regulators and the society to ensure the transparency and compliance of business operations. In terms of financing, the banking industry should vigorously implement green loan policies such as low-interest incentives and limitations on the amount of credit to support environmental protection and sustainable development projects, and at the same time, it should strictly implement the audit and supervision system to ensure the reasonableness and transparency of the flow of funds to environmental protection areas, in addition, it can also set up a system for disclosure of information on environmental impacts, requiring enterprises that have obtained financing to disclose to the society information on their environmental impacts, and promoting the transparency of environmental protection investments and social responsibility. Taken together, the banking industry needs to further improve its corporate governance structure, and through initiatives such as strengthening cooperation with relevant environmental organizations, ensuring clarity of responsibilities, strictly enforcing relevant policies, and strengthening environmental financing, it can enhance its corporate governance level, promote the sustainable development of the banking industry, and facilitate the green transformation of the economy.

4.2. The banking sector needs to establish specialized teams for the development of carbon finance business

The establishment of a professional team is one of the key measures for the banking industry to develop carbon finance business, which requires the banking industry to focus on the future, actively cultivate relevant talents and set up a professional team to meet the needs of carbon trading and carbon finance. The banking industry needs to focus on cultivating talents with professional knowledge and skills in the field of carbon finance, who need to have profound knowledge of financial theories, familiarity with the operating rules of the carbon market, understanding of the carbon trading mechanism as well as good risk management ability, which can be attracted and cultivated through the establishment of training programs, the creation of professional positions in the field of carbon finance, and the provision of professional certifications. In addition, the banking industry needs to establish a perfect carbon trading team, which should be composed of professionals, including carbon trading experts, financial product designers, market analysts, risk management experts, etc. They need to pay close attention to the dynamics of the carbon market, grasp the market opportunities, formulate an effective trading strategy and adjust the portfolio in time in order to maximize the returns and minimize the risks, in addition to that, the banking industry needs to establish carbon finance business teams across borders in order to operate in the international carbon market, which requires the banking industry to recruit talents with international perspectives and cross-cultural communication skills, and to establish cooperative relationships with international institutions in order to ensure the provision of high-quality carbon financial services globally (Chao, 2023). Finally, the banking industry needs to continuously invest resources to enhance the professionalism and competitiveness of the team, which includes continuous training and learning opportunities, as well as providing good career development and promotion mechanisms for team members. Only in this way can the banking industry build up an efficient and professional carbon finance business team, which can provide strong support for the sustainable development of carbon finance business, and also lay a solid foundation for the

banking industry's own competitive advantage in the field of carbon finance.

4.3. The banking industry should actively participate in and promote the construction of intermediary organizations

The active participation and promotion of intermediary organizations by the banking industry is crucial to the development of China's carbon finance business. At present, China's banking industry has the problem of lack of intermediary organizations in the field of carbon emissions, which leads to the fact that banks are often in a disadvantageous position in the international carbon market and are unable to negotiate and trade effectively, therefore, the banking industry needs to strengthen communication and cooperation with foreign investment banks and other professional institutions to jointly promote the intermediary organization's construction, and provide relevant advice and services. The banking industry can establish cooperative relationships with foreign investment banks to learn from their experience and professional knowledge in the field of carbon finance. Through cooperation with foreign institutions, banks can gain more experience in carbon finance transactions and improve their competitiveness and bargaining power in the carbon market, and the banking industry can actively promote the construction and development of domestic intermediary organizations. It can promote the standardization and healthy development of the carbon financial market by cooperating with environmental protection agencies and carbon exchanges to jointly formulate rules and standards for carbon financial business, establish industry certification agencies, and provide assessment and certification services for carbon financial products. In addition, with the development of operational diversification in the banking industry, banks can actively explore the role of investment banking departments in carbon financial transactions, which can give full play to their professional advantages in financial product design, market analysis, risk management, etc., and provide support and guidance for the business transformation and development of the banking industry in the field of carbon finance (Song, 2023).

4.4. Construct cross-border financial strategic alliance

In developing the carbon financial market, the banking industry should make full use of the network information platform and its development advantages, and actively launch international communication and cooperation to promote the development and cultivation of the domestic carbon trading market. With the continuous expansion of the international carbon trading market and the increase in trading volume, more and more banking industry began to pay attention to and invest in the field of carbon trading, although compared to the international forerunners, although China's banking industry is relatively late in understanding and starting the carbon trading business compared with international pioneers, this also provides it with more space and opportunities for development. The banking industry should make use of the network information platform to actively obtain the latest information and trends in the international carbon trading market. By strengthening cooperation with international carbon trading platforms and research institutions, banks can keep abreast of the market dynamics, grasp the investment opportunities, and provide references and support for the development of the domestic carbon trading market; at the same time, the banking industry should establish alliances and strategic cooperative relationships with international companies with relevant experience, which can help banks learn from international advanced experience and improve their professional level and competitiveness in the field of carbon trading, and at the same time, through the resource integration and sharing of the partners, banks can promote the deepening of the development of the domestic carbon trading market and accelerate the maturity and growth of the market more effectively. By participating in the exchanges and cooperation in the international carbon trading market, banks can continuously expand their international vision, strengthen their connection with the international market, and provide more opportunities and possibilities for the internationalized development of China's carbon financial market. From a comprehensive point of view, the banking industry should make full use of the network information platform and its development advantages to actively develop international communication and cooperation, and strengthen communication and cooperation with international counterparts, to

promote the development and cultivation of domestic carbon trading market, which not only helps to improve the competitiveness and influence of the banking industry in the field of carbon finance, but also promotes the internationalization of China's carbon financial market, and makes a positive contribution to China's economic low-carbon transformation and sustainable development (Shi & Xu, 2023).

4.5. Further promote the internationalization of RMB

In the modern international community, many countries in the process of carbon trading business development want to make their national currency become the leading currency of carbon trading. Especially under the influence of multiple factors such as the contemporary financial crisis, the hegemonic financial dominance of the US dollar, dominated by the US, is no longer evident. But as the international community's participation in the carbon trading market continues to increase, there will be more countries that want to enhance the status of their currencies in the international monetary system, to accelerate the process of dominating the international currency. China's banking industry must grasp this opportunity, relying on China's unique advantage of huge carbon trading volume and turnover, to promote the binding of the RMB and carbon emission rights, and strive to promote the internationalization of RMB-denominated carbon trading, and ultimately realize the RMB as the main settlement currency for carbon trading. This is crucial for China to strive for pricing power in the new energy field.

Summary

In conclusion, the greenhouse effect has seriously damaged the global ecological environment, and strengthening the governance of carbon emissions has become a problem that the world must face together. Carbon finance has received widespread attention in solving environmental problems and is the goal of the international community to follow green low-carbon development. China's financial institutions, especially the banking industry can fully utilize carbon finance to realize the road of green development in China and bring new economic growth points for the transformation and development of China's low-carbon economy.

Conflict of Interest

The author declares that she has no conflicts of interest to this work.

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