Problems And Countermeasures in The Development of Green Credit in China

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Abstract. In the context of global climate change, China has put forward the goal of "double carbon", and green credit has become the core financial tool of green economic transformation. At present, China's green credit scale is expanding rapidly, but it faces three structural contradictions: at the policy level, there are institutional obstacles such as vague standards, insufficient incentives, and weak cross-departmental regulatory coordination; There are some technical shortcomings in risk management, such as difficulty in quantifying environmental risks, mismatching of time limit and asymmetric information. Products and services are characterized by serious homogenization, insufficient innovation tools, and lagging application of science and technology. This paper proposes solutions by constructing the "policy-market-technology" trinity coordination mechanism: 1) Establish a classification standard system that is in line with international standards, and strengthen the construction of cross-departmental data sharing platform; 2) Develop a climate scenario stress test model and build a government-led risk sharing mechanism; 3) Innovate supply chain finance and carbon finance products, and use blockchain and AI technology to improve the efficiency of the whole process management. It is found that through system optimization, technology empowerment and market deepening, the financing problems of small, medium and micro enterprises can be effectively solved, sustainable financial support can be provided for the transformation of high-carbon industries, and the realization of the "dual-carbon" goal and high-quality economic development can be helped.

Keywords: Green credit; sustainability; China.

1. Introduction

With global climate change, environmental pollution, resource consumption and other global environmental problems become more and more serious, human beings have realized the harm of the past production and consumption mode to the environment, and more and more countries have raised "carbon neutrality" as a national strategy. In 2020, China announced the vision of "carbon peak" and "carbon neutral" goals, and the "dual carbon" goal has far-reaching impact. Green finance is of great significance to promote "carbon emission reduction". Commercial banks, as the main hub of financial institutions connecting macro policies and economic entities, guide the green upgrading of industrial structure and sustainable economic and social development with green credit. However, countries still face challenges in supporting "carbon emission reduction".

At present, China's green credit legal system has taken shape, but it is still difficult to promote in terms of corporate awareness, policy systems, risk management and other aspects. As the largest carbon emitter, China has actively responded to the call and proposed the goal of "carbon peak by 2030 and carbon neutrality by 2060", which requires not only technological innovation and industrial transformation, but also the support of the financial system. Green finance is an important engine for the construction of Chinese-style modernization, and credit is a key means to promote carbon neutrality. It is the earliest, largest, broadest and most mature green financial tool in China [1]. It mainly guides funds to green industries through differentiated pricing, thus promoting the green transformation of the economy. It is of great significance in promoting China's high-quality economic development, improving the ecological environment and people's livelihood, promoting technological innovation and industrial upgrading, and enhancing coordinated regional development.

In recent years, China's green credit scale has continued to grow, and its products and services have been continuously innovated, with remarkable results. However, in the actual promotion, it still faces bottlenecks and challenges in policy, risk management, product innovation and other aspects to

restrict its development. Therefore, it is of great theoretical and practical significance to study the development bottleneck and breakthrough path of green credit. By combing and analyzing the development status quo of green credit, this paper will deeply analyze the development bottlenecks faced by China's green credit, and combine the development experience of international green credit, propose targeted and feasible solutions, so as to provide reference and reference for promoting the healthy development of China's green credit and helping the realization of carbon neutrality.

2. Green Credit Development in China

In recent years, China's green credit scale has continued to expand, with a focus on clean energy, energy conservation, emission reduction and green transportation. Progress has also been made in the innovation of green financial products, such as green bonds, green funds, green consumer credit and other new tools are gradually popularized, and blockchain and big data technology are applied to risk assessment and fund tracking, improving transparency and efficiency. In addition, more than 90% of the projects supported by green credit have achieved emission reduction targets, reducing carbon dioxide emissions by more than 100 million tons per year, helping enterprises to go public and industrial upgrading. According to the data of the People's Bank of China in January 2024, by the end of 2023, the balance of local and foreign currency green loans was 30.08 trillion yuan, an increase of 36.5%. In addition, according to China Green Finance Development Report, the balance of the fourth quarter of 2024 reached 36.6 trillion-yuan, accounting for 18.6% of the total credit balance. From the overall trend, the scale of China's green credit increased from 10.22 trillion yuan in 2019 to 35.75 trillion yuan in 2024, an increase of 25% year-on-year [2]. This growth is mainly driven by policy support, the active participation of financial institutions and the demand for green economy development.

3. Problems

3.1. Policy and Supervision

China's green credit standards and regulations are relatively lagging behind, and the current definition standards on green credit projects are vague and lack effective docking with international classification frameworks (such as the European Union's Sustainable Finance Classification Act) [3]. For example, transition finance (supporting the decarbonization of high-carbon industries) accounts for only 1% of green financing due to the lack of clear classification criteria and corporate transformation planning capabilities. The incentive measures for green transformation are also relatively insufficient, and the policies such as tax incentives and risk compensation are limited. Data from 2024 show that the average interest rate of green credit is only 0.3-0.5 percentage points lower than that of ordinary loans, and the coverage rate of policy discount interest is less than 15%. According to the Carbon Cloud Management Center Report, green loan rates are generally 0.5 to 1 percent lower than regular loan rates, but user data reflects limited actual offers. This indicates that the current incentive mechanism for green credit in China is insufficient, resulting in a mismatch between bank income and cost, and limited coverage of policy tools, especially for small, medium and micro enterprises, which have difficulty in obtaining financing due to low credit rating and insufficient mortgage [4-5]. Secondly, supervision and coordination are also poor, and there are differences in the implementation of policies across regions and industries. Local governments tend to "emphasize scale expansion over project quality", lack regulatory technical means, and lack of cross-departmental data sharing (such as environmental protection and financial sectors), which makes it difficult to monitor the flow of green funds in real time [6].

3.2. Weak Risk Management

It is difficult to quantify environmental risks. China lacks a unified environmental risk assessment model, and it is difficult to quantify indirect benefits such as carbon sink and ecological restoration

(such as indirect benefits from carbon sink and ecological restoration), resulting in risk assessment relying on subjective judgment, and it is difficult for financial institutions to accurately identify potential risks. At the same time, the maturity mismatch is serious, the average cycle of green projects is 8-10 years, while the source of bank funds is mostly short-term debt (average 6 months), resulting in the limited financing capacity of medium and long-term projects [7]. Prominent information asymmetry is also a major problem, environmental protection departments and financial institutions lack of data sharing, green information platform has not been fully opened up, corporate environmental information disclosure coverage rate is less than 40%, ESG data authenticity and comparability is poor, it is difficult for banks to accurately assess the "green color" of the project, which increases the difficulty of project screening and monitoring.

3.3. Product and Service Innovation

At present, China's green products are seriously homogenized, 78% of green credit products are concentrated in the fields of new energy and environmental protection, and the coverage of emerging fields such as green agriculture and green building is insufficient, and the service model is dominated by traditional loans, and there is a lack of diversified tools such as supply chain finance [8]. By 2023, transformational finance will account for less than 1% of total green financing. Among the outstanding green credits in 2024, traditional project loans will account for 78%, and innovative products such as supply chain finance and carbon finance will be less than 5%. In addition, the Green Finance Professional Committee of the China Society of Finance and Banking estimates that by 2025, China's cumulative demand for green low-carbon investment and financing is expected to reach 487 trillion yuan, of which about 60% is related to the low-carbon transformation of enterprises in high-carbon industries. Its market depth and technological application are still insufficient, the issuance scale of green asset securitization only accounts for 1.2% of the total credit, and the application rate of risk mitigation tools such as CDS is less than 3%. At the same time, although technologies such as big data and AI have been partially applied, risk assessment models and climate scenario analysis tools are still in the pilot stage and have not formed systematic support. The application coverage of blockchain traceability is less than 10%, and the climate scenario analysis tool is piloted in only five banks (China Digital Finance Development Report, 2024). The AI risk assessment model is still in the pilot phase, with manual audit costs accounting for 45% of operating costs. The demand and cognition of green credit in the Chinese market are still insufficient, and enterprises and the public have misunderstandings about green credit. 64.4% of smes believe that the obstacles to the promotion of green finance are due to the lack of cognition, and that the approval of green finance is complicated, and the cost is high, resulting in insufficient demand [2, 9]. At the same time, micro, small and medium-sized enterprises are less willing to apply for green financing because of the high cost and long cycle of transformation.

4. Suggestions

4.1. Policy and Regulatory Optimization

First of all, it is necessary to unify the standard system, give priority to developing a green credit classification catalogue that is in line with international standards (such as connecting to the ISSB sustainable disclosure standard), clarify the definition and evaluation methods of transitional finance, and establish a dynamically updated technical standard library to achieve mutual recognition with the international classification by 2026. It is suggested to expand the coverage of carbon emission reduction support tools, provide 1-2% financial discount interest and risk compensation fund support for qualified green credit projects, reduce the cost of bank capital, and set up a national green credit guarantee fund (refer to the German KFW bank model). At the same time, it focuses on strengthening cross-departmental collaboration, establishing data sharing platforms for environmental protection, finance and tax departments, forcing listed companies to disclose TCFD framework information (refer to the new EU ESMA regulations), and promoting transparency of green information [10-11].

4.2. Risk Management Innovation

Environmental stress testing tools can be developed, and the CCAR framework of the Federal Reserve can be used for reference to establish a stress testing model including climate scenarios, including indicators such as carbon price and ecological value, as well as scenarios such as carbon price fluctuations and extreme weather, into the risk assessment system. At the same time, a risk-sharing mechanism should be established: a government-led national green credit guarantee fund should be established to provide 30% risk guarantee for eligible transformation projects and diversify bank risks (refer to the US tax credit policy) [12]. And pay attention to improving the information disclosure mechanism, forcing listed companies to disclose TCFD framework information, establish a third-party certification body whitelist system.

4.3. Promoting Product and Service Innovation

Develop supply chain green finance and promote the "core enterprise + carbon account" model, such as the pilot project of Bank of Jiangsu to reduce the financing cost of smes by 2.1 percentage points (Jiangsu Bank Annual Report, 2023). At the same time, China should deepen carbon financial products, design special bonds and long-term loans for high-carbon industries such as steel and chemical industry, support their low-carbon technological transformation, and launch carbon emission rights futures, carbon sink income rights ABS and other products. Finally, they should apply more financial technology to enable innovation. China can optimize the screening process of green projects by using AI and realize the traceability of the whole process of funds through blockchain. Taking the Temasek pilot in Singapore to shorten the certification time from 30 days to 72 hours as a typical case, it can be seen that the enabling of financial technology is convenient to enhance the credibility of funds circulation. For example, the blockchain green credit platform can be piloted in the Yangtze River Delta to achieve traceability of the whole life cycle of the project.

5. Conclusion

China's green credit, as a core financial tool to promote the green transformation of the economy and achieve the goal of "double carbon", has achieved remarkable results in scale growth and product innovation, but it still faces structural contradictions such as lagging policy standards, weak risk management, and product homogeneity. Through multi-dimensional analysis, this paper finds that the sustainable development of green credit needs to build a three-in-one coordination mechanism of "policy-market-technology". First, by unifying the classification standards of international standards, strengthening cross-departmental data sharing and dynamic supervision, institutional barriers can be broken. Secondly, the use of blockchain, AI and other digital technologies to build a quantitative environmental risk model, improve the risk sharing and information disclosure system; Finally, innovative tools such as supply chain finance and carbon finance are used to expand the depth of services and activate the transformation needs of high-carbon industries. That is, through system optimization, risk sharing and technology empowerment, to solve the financing problems of small, medium and micro enterprises, and then provide sustainable financial support for China to achieve the "double carbon" goal.

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