
INNOVATIVE RESEARCH ON GREEN FINANCIAL SERVICES IN CHINA

Keyuan Jin

North China Electric Power University, School of economics and management,
²Beinong Road, Beijing , China

Abstract

To support the innovative development of green financial services is not only an important measure to promote the high-quality development of green enterprises and increase the financing support for green enterprises, but also a practical need for the operation and development of financial institutions themselves, and an important factor to promote the transformation of China's economy to green finance. Using the methods of literature analysis and data collection, this paper first expounds the current situation of the development of China's green financial services, mainly introduces the development of China's two major green financial products, namely green bonds and green credit, and then analyzes the problems existing in the development of China's green finance, and points out that there are still some problems in the development of China's green finance, such as the single type of products and services, the lack of scientific and technological innovation, and the lack of related problems. Finally, it puts forward constructive and feasible countermeasures and suggestions for the above three problems.

Keywords: Green financial services; innovation

1. Introduction

In recent years, with the concept of green sustainable development, all walks of life are also putting into action to realize green sustainable development. Promoting green economic development is the inevitable requirement of economic transformation and upgrading and high-quality development. As one of the important factors driving green economy development, green finance has been widely concerned by scholars at home and abroad. Green finance refers to the projects that promote environmental improvement, respond to climate change and improve resource utilization efficiency, such as energy conservation and environmental protection, clean energy, green transportation and green building, and provide various financial services such as investment and financing, project operation and risk management. China has put forward the concept of economic development which is transforming to green finance, which emphasizes that: we should develop green finance vigorously, promote the construction of ecological civilization, and attach importance to the important role of green finance in promoting economy. However, because of the late development of green finance in China, there are still some shortcomings compared with foreign green finance. This paper is based on the policy suggestions to promote the innovation and development of green finance in China.

1.1 Research on green finance and its development

Xu Feng (2018) first analyzed the current situation of green finance development in Beijing after the promulgation of the "measures", and extracted the problems faced by the current

development of Green Finance: difficulties in green finance operation, immature green finance mechanism, and imperfect green finance laws and regulations. Zhao Liang (2018) combed the relevant research on green finance at home and abroad from three aspects of green products, economic benefits and social responsibility, and provided suggestions for the development of green finance in China from three aspects of market operation, tax policy and legal system. Liu Xia (2019) selected six central provinces (Henan, Jiangxi, Anhui, Shanxi, Hubei, Hunan) from 2004 to 2017 green credit ratio, per capita GDP and other relevant data, analyzed them by using fixed effect model, and explained that green finance has a promoting effect on regional economic growth, so it is necessary to develop green finance. Du Li (2019) pointed out that at present, the research on green financial policy and green financial policy system in China is still in the primary stage. Therefore, we should strengthen the reform of fiscal policy, environmental protection tax, pollutant emission, performance appraisal, financial market infrastructure construction and green insurance. Xia Wenbin (2020) learned about the current situation of China's green finance development by combing the characteristics of green finance in representative provinces (regions), and concluded that although China's green finance is still in the primary stage of development, in recent years, the country's attention to green finance has been increasing, and China's green finance system is also gradually improving. Pei Yingzhu (2020) analyzed and demonstrated the concept, development status, development necessity, development conditions and practical difficulties of basic development of green finance, and concluded the practical difficulties of green finance development in the Pearl River Xijiang economic belt: low participation and effectiveness of green financial market players, insufficient green financial products and services, and flat green financial information data Taiwan construction lags behind, and puts forward corresponding countermeasures.

1.2 Research on the innovation of green finance

Zheng Yuhang (2015) through the analysis of financial service path for scientific and technological innovation, the paper establishes a spatial model of variable parameter state from three stages: R & D input, achievement transformation and industrial output, and analyzes the effectiveness of financial service technology innovation. Zeng Xiaocen (2021) proposed that under the background of the current "double innovation" gradually prevailing, the scientific and technological enterprises and relevant financial institutions should be organically combined, and the policy advantages of "double innovation" should be fully exerted, and the financing channels of relevant scientific and technological enterprises in China should be effectively promoted to diversified direction, and the rapid upgrading of science and technology industry in China will be realized. Huang Jianhui (2021) introduces the development and upgrading of manufacturing industry in China, summarizes the development status of financial service manufacturing industry and the main methods of commercial banks supporting the development of manufacturing industry. It is suggested that during the period of the 14th five year plan, financial industry should strengthen special fund support, strengthen the recommendation and operation statistical analysis of industry enterprises, strengthen the support of credit data, strengthen the support of product and mode innovation The bank participation scope of the financial discount project and the formation of multi-channel financing pattern support the high-quality development of manufacturing industry. Lu Minfeng (2021) thinks that financial science and

technology should be promoted to stick to its original heart, to be good and to return to the origin of science and technology. Meanwhile, we should improve the legal norms and market rules, strengthen financial supervision, stimulate positive energy of financial innovation, give full play to the role of Finance and technology in serving the real economy, promote the high-quality development of financial institutions, strengthen the protection of legal rights and interests of financial consumers and vigorously develop regulatory technology. Zhang Yiwen (2021) argued that the development of various industries in China cannot be separated from the strong support of finance. It is also the key to survive the financial industry to provide relevant economic support according to the current situation of the development of real economy. Based on the current situation of green finance, this paper analyzes and studies the current situation of green finance and puts forward the development strategy of green finance to promote the real economy. Wang Wen (2021) believes that under the logic of carbon neutralization, financial resources will gradually incline to the green field, and the green financial industry will continue to develop rapidly. The paper also analyzes the latest status of green finance development, and thinks that the carbon market is strengthening the financial attribute, and puts forward some suggestions and prospects for the medium-term development of green finance.

2 The development status of green financial services in China

2.1 The scale of green finance is gradually increasing

2.1.1 Green credit

Since the establishment of green credit system, commercial banks and other financial institutions have responded to the call of the state to actively develop green credit to support the real economy. This paper will measure the development of green credit of commercial banks through the balance of green credit of 21 major commercial banks in China from 2013 to 2020.

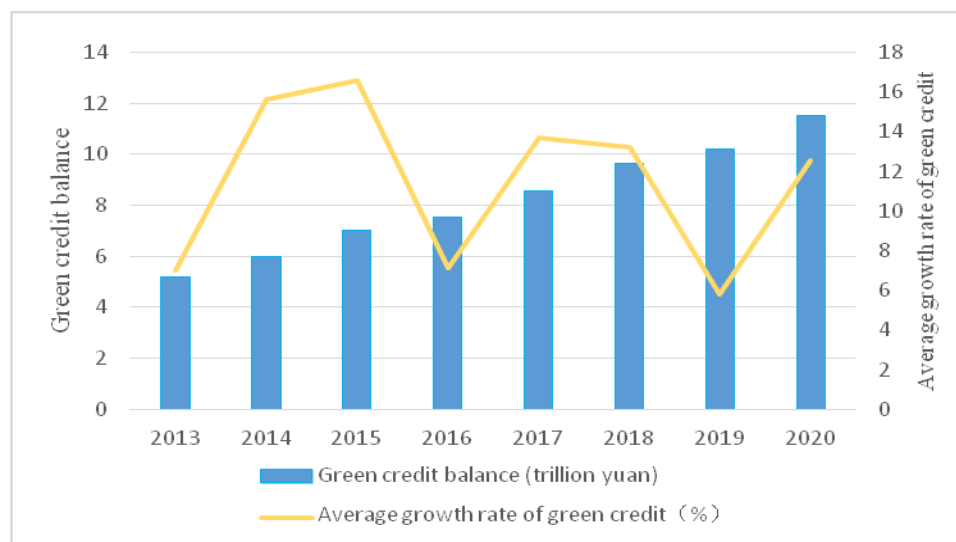


Figure 1. Balance and growth rate of green credit in China from 2013 to 2020

(Data source: caijing.com)

It can be seen from the chart that China's green credit balance is in a steady growth state from 2013 to 2020, and the average growth rate is more than 5%. The fastest growth is in 2015, with an average growth rate of 16.6%, and the slowest growth is in 2019, with an average growth rate of 5.8%. By the end of 2019, the balance of China's green credit has exceeded 100 billion yuan, and the balance of green credit is 10.22 trillion yuan. By the end of 2020, the balance of China's green credit has reached 11.5 trillion yuan. It is expected that the balance of green credit will continue to grow for a long time in the future.

2.1.2 Green bond

Green bond has the advantages of distinct theme, low issuing cost and long term. It can better match the financing cycle of green projects and solve the problem of term mismatch. It is a kind of green financing method with rapid development at present.

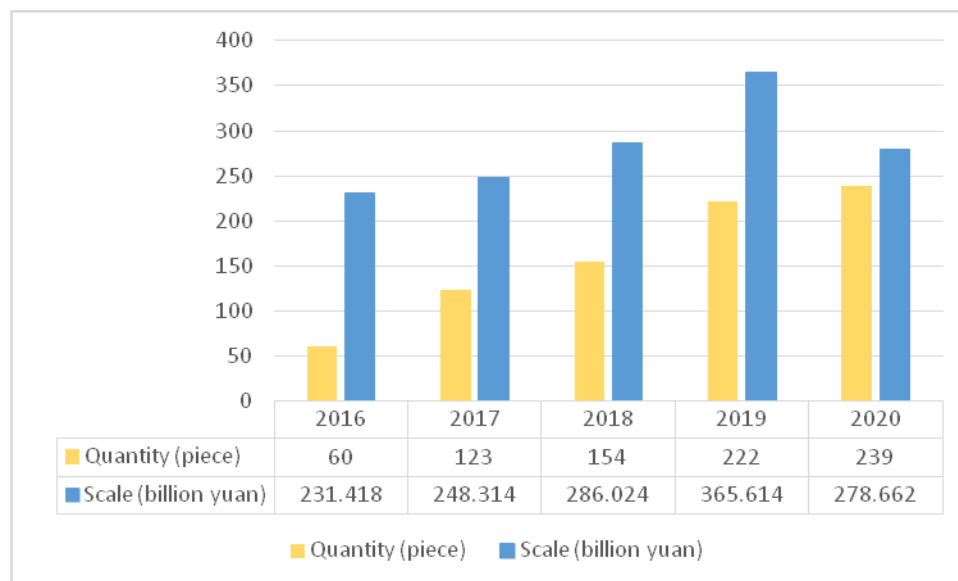


Figure 2. Number and scale of green bonds issued at home and abroad in China from 2016 to 2020

(Data source: caijing.com)

In recent years, the overall support of China's bond market for green industry remains high. China and China issued novel coronavirus pneumonia between 2016 and 2019. The number of green bonds issued in China decreased in 2020 compared with the previous year. However, the number of green bonds issued at home and abroad increased by 17 compared with the previous year, and is still growing.

2.2 The development of green financial services continues to penetrate into the green industry

At present, the global economy is undergoing complex and profound changes. New technologies, new models and new formats are changing the way and rules of market operation. The integration of green finance and green industry will also create more new opportunities, new

markets and new products. Green financial services can provide funds, products and information support for the construction of green industry. At the same time, green financial services can play a more important role in environmental governance with the help of green industry platform.

During the 13th Five Year Plan period, China's potential green bond market will reach 5.4 trillion yuan, while the demand for green financing will reach 14.6 trillion yuan in the five major areas of sustainable energy, environmental infrastructure construction, environmental remediation, industrial pollution control, and energy and energy conservation. According to the statistics of the central bank, by the end of 2018, the total amount of listed financing and refinancing of green enterprises was 22.42 billion yuan, which shows that the development of green financial services has met the financing needs of green enterprises to a certain extent.

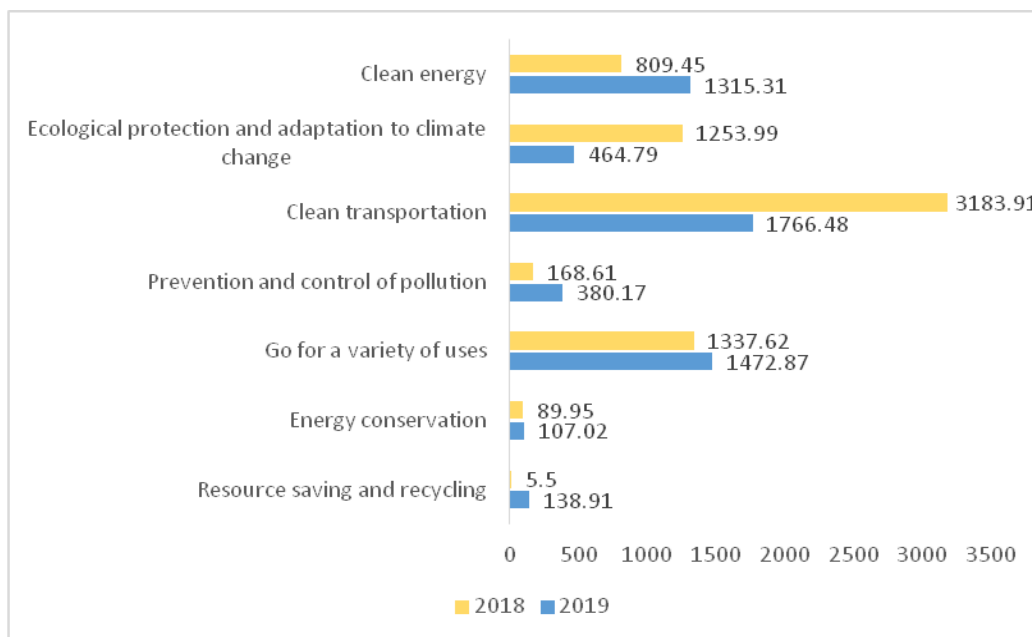


Figure 3. Distribution of capital use of non labeled green bonds in China from 2018 to 2019 (Data source: International Research Institute of green finance, Central University of Finance and Economics)

From the perspective of the issuance scale of non labeled green bonds, the situation in 2018 and 2019 is similar. The issuance scale of non labeled green bonds invested in clean transportation is the largest, with 318.391 billion yuan and 176.648 billion yuan respectively; the second is multi-purpose, with 133.762 billion yuan and 147.287 billion yuan respectively; the third is clean energy, with 80.945 billion yuan and 131.531 billion yuan respectively. With the help of energy saving, environmental protection, financing and other negative pressure, we should give priority to the development and elimination of large enterprises in the fields of energy saving, environmental protection and green finance.

3. Problems of green financial service innovation

3.1 Single green financial products and services

At present, the types of products and services provided by green financial institutions in China are single, and the green financial products in the market are mainly traditional green credit and green bonds, lacking innovative services, products and financing mechanism, which can not meet the diversified financing needs of green industry. In 2018, China's total demand for green finance funds is 2.1 trillion yuan, but the total supply is only 1.3 trillion yuan, and the gap between supply and demand is 800 billion yuan. Although China's green finance has achieved rapid development in 2018 under the joint efforts of supply and demand, the total supply of green finance funds is still seriously insufficient. In 2019, the new demand for green finance is 2.048 trillion yuan, but the new supply of green capital in 2019 is only 1.43 trillion yuan, and the new supply and demand capital gap in 2019 is 618 billion yuan, which is still an increasing trend. The products and services provided by financial institutions are insufficient, the financing channels of enterprises cannot be expanded, and the financing cost and project risk of enterprises are difficult to reduce, which hinders enterprises from developing new green projects.

At the same time, due to the green credit and green bonds in the specific practice, they are faced with the problems of high risk and low income, and the information communication mechanism needs to be improved. In addition, the investment risk of green projects is large and the return cycle is long, and a large amount of money needs to be invested in the development of the project, the operation and maintenance of the industry. The cost of green industry is high, which makes it more difficult to meet the needs of buyers. The requirement of "high yield, low risk" of assets.

3.2 Insufficient scientific and technological innovation effect of green financial services

The scientific and technological innovation effect of green financial services on the development of green industry is mainly realized through the information processing function of the financial system, so as to reduce the information cost and control the risk. However, at present, the information about green projects in China's financial system is not comprehensive, and the sources of information are not unified, the security and authenticity of information can not be guaranteed, and the market risk is difficult to control. At the same time, the two-way communication system between green enterprises and financial institutions is not perfect, which leads to the lack of timely, safe and low-cost access to information, and the information asymmetry between them hinders the financing activities of green enterprises to a certain extent.

At present, there are still many people who stay at the level of Internet Finance and lack a clear plan for its development. They have not yet formed a complete set of development mechanism for scientific and technological innovation of green financial services. Most financial institutions still stay on the traditional technical means to support green enterprises, The lack of full application of big data, cloud computing, blockchain and other financial technologies to effectively identify the needs and risks of green enterprises is not conducive to maximize the resource allocation efficiency of limited funds.

3.3 The legal system of green finance is not perfect

The restriction of effective laws and regulations is closely related to the development of green finance. But at present, there is no special green financial law in China. Only some relevant laws and regulations have been issued, which has no substantive effect. Therefore, the Green Financial Law in China is still lacking, which is far from enough for the healthy development of green finance. It can be shown as follows: first, the legislative level is low. The main body of the legal documents on green finance in China is the State Council and relevant ministries and commissions, and there is no special green finance law formulated by the highest state authority. The lower level legal documents are not authoritative, systematic, targeted and compulsory, and the legal effect is low, which can not restrain and deter the violators. Second, the content is not comprehensive, the green finance development started late in China, which leads to the lack and lag of the content of green finance law in China. At present, most of the relevant laws and regulations have been issued tend to pollution control, and few laws and regulations are formulated for new energy and environmental protection enterprises.

Green enterprises should first evaluate the products when they invest and finance green financial products. However, because the legal system is not perfect, the evaluation standards are difficult to be unified, which has a certain obstacle to the investment and financing activities of enterprises.

4. Effective ways to promote the innovative development of green financial services

4.1 Encourage financial institutions to further increase green financial business innovation

For the financing demands of green enterprises, first of all, we need to encourage financial institutions to innovate green financial products, effectively broaden the financing channels of green projects, and provide comprehensive and one-stop financial services for green enterprises. Among them, non-traditional financial services include: first, actively carry out the supply chain financial business, take the green enterprise supply chain core enterprises as the breakthrough point, and design personalized and comprehensive financial service products for the upstream and downstream enterprises of the industrial chain. Second, enrich cross-border financial products, provide more financial services for enterprises to "go global", and support green enterprises to enhance their international competitiveness through project financing, export credit and other products. Thirdly, on the premise of controllable risks, we should make good use of the market-oriented mechanism of green development and capital market financing channels, actively launch green industry fund, green guarantee fund, carbon emission, green financial leasing and other emerging products and services, and comprehensively improve the comprehensive service capacity of green finance.

Secondly, we need to cultivate a large number of innovative talents of green finance to carry out research and innovation of new green financial products, and strive to expand the coverage of green financial products, so as to meet the needs of green financing of various enterprises. We can also strengthen international exchanges and cooperation, take the initiative to learn from the successful experience of green finance business of foreign financial institutions, and promote the steady development of green finance from the actual situation of the institutions themselves. For the new products developed at present (such as green insurance, green fund, green trust, green

PPP, etc.), it is necessary to increase publicity efforts, so as to help the development of emerging green financial products while serving green enterprises.

4.2 Strengthen the innovation of financial services science and technology

Green finance should reasonably collect and sort out the green financial business data and customer demand information by means of big data, cloud computing, artificial intelligence and blockchain, and understand the financial needs of different life cycles of the enterprise, and establish green financial database by means of information identification, anti fraud, risk portrait and automatic approval, and establish green financial database according to historical data in the database. The demand of green financial products is predicted. From its development and value creation, innovation and improvement are made according to customer demand information to meet the needs of customers for green financial products. Meanwhile, the database has the scientificity, accuracy and foresight of credit evaluation, and strictly controls the security and authenticity of information sources, reduces market risk and solves the financial benefits. The information asymmetry between financial institutions and green enterprises has improved the efficiency of green financial services. At the same time, it is necessary to establish an environmental risk assessment and pricing model, from direct and indirect investment products to financial derivatives such as forward, futures, options, swaps, and financial services to the whole industrial chain of green industry.

4.3 Improve the green finance standard system and laws and regulations

The healthy development of green finance needs to improve the legal system of green finance, including building a standardized, unified and international green finance standard system, improving the classification standard of green projects, and improving the special statistical system of green finance. First of all, it is necessary for the state authorities to formulate green finance law. The formulation of green finance law can unify and standardize the definition and scope of green finance, eliminate the obstacles to the development of green finance caused by different local policies, and provide guarantee for the development and innovation of green finance. Secondly, it is necessary to clarify the regulatory agencies of green finance and implement the legal supervision of green finance. In the regulatory legislation of green finance, we need to formulate detailed and operable business rules to effectively prevent and control environmental risks. Finally, the establishment of green finance law should develop in detail, clarify the legal responsibilities of polluting enterprises and commercial banks, so that the business activities of commercial banks and polluting enterprises are subject to the constraints of the legal system, and incorporate social responsibility into the relevant legal system, so as to guide the enterprise owners to bear the corresponding environmental protection responsibility, and realize the win-win situation of their own interests and social responsibility.

5. Conclusion

In recent years, China's green finance has developed rapidly. As the main products of green finance, green credit and green bonds have gradually increased in scale. At the same time, green financial services have gradually penetrated into the green industry, actively promoting the development of green enterprise financing activities. In view of the single product problem of China's green financial service innovation, this paper proposes to encourage financial institutions

to carry out green financial product innovation from three aspects of developing financial supply chain, enriching cross-border products and developing financing channels, and cultivate innovative talents to develop new products; in view of the insufficient effect of scientific and technological innovation in China's green financial service innovation, this paper puts forward some suggestions In order to reduce the market risk and meet the information exchange between financial institutions and green enterprises, this paper proposes that we should reasonably use big data, cloud computing, artificial intelligence, block chain and other financial technology applications to establish a green financial database; in view of the imperfect legal system of China's green finance, this paper proposes that we need to formulate a green financial law, clarify the regulatory agencies of green finance, and clarify the legal system of green finance In order to standardize the development of green finance, we should strengthen the legal responsibility of dyeing enterprises.

Reference

- Xu Feng, Wang Weihua, Ma Xintong, Xiao Feng. Analysis on the current situation and problems of green finance development in Beijing [J]. Northern economic and trade, 2018 (11): 110-111
- Zhao Liang. Review of green finance theory [J]. Modern commerce and trade industry, 2018,39 (19): 106-108
- Liu Xia, he Peng. Research on the impact of Green Finance on the economic development of central China [J]. Industrial technology economy, 2019,38 (03): 76-84
- Du Li, Zheng Lichun. Effect evaluation of China's green finance policy system -- Analysis Based on pilot operation data [J]. Journal of Tsinghua University (PHILOSOPHY AND SOCIAL SCIENCES EDITION), 2019,34 (01): 173-182 + 199
- Xia Wenbin, Guo Xianjun. Development status and practice innovation of regional green finance in China [J]. Modern enterprise, 2020 (05): 57-58
- Pei Yingzhu. The dilemma and outlet of green finance development -- Taking the Pearl River Xijiang economic belt as an example [J]. Coastal enterprises and technology, 2020 (01): 48-53
- Zheng Yuhang, Li Zhenghui. Research on the effectiveness of scientific and technological innovation in financial services in China [J]. China soft science, 2015 (07): 127-136
- Zeng Xiaocen. Research on Financial Technology Service Innovation under the background of "innovation and entrepreneurship" [J]. Cooperative economy and technology, 2021 (06): 68-69
- Huang Jianhui, Li Yanyu, Dong Yunjia, Guo Xiaobei, Wang run, Huang He, Liu Hao, sun xuran. Suggestions on innovating high quality development path of financial service manufacturing industry [J]. China's national conditions and national strength, 2021 (01): 31-35
- Lu Minfeng, Xu Yangyang. Technology for the good: the path to stimulate the positive energy of financial technology in financial innovation and financial supervision [J]. Southern finance, 2021 (01): 10-19

Zhang Yiwen. Developing green finance to effectively serve the real economy [J]. China's collective economy, 2021 (04): 87-88

Wang Wen, Liu Jintao. The development of green finance in China under the logic of "carbon neutral": current situation and future [J]. Contemporary financial research, 2021 (01): 18-26