

Research on Optimizing Green Loans of State-owned Banks to Energy Enterprises--Taking China Energy Group and Three Gorges Corporation as Cases

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Abstract. Following the introduction of the "dual carbon" goals, green and low-carbon transition has become a strategic priority across all sectors of society. In order to support green and low-carbon transformation, green finance actively plays the "three major functions" of resource allocation, risk management and market pricing. In order to better play the "three major functions", it is necessary to consolidate the "five pillars" including the green financial standard system, financial institution supervision and information disclosure requirements, incentive and restraint mechanisms, green financial products and market systems, and international cooperation in green finance. This paper takes the green credit cooperation between state-owned banks and energy enterprises as the research object, uses case analysis method and copy analysis method to explore the current situation of green credit operation. Using China Energy Investment Group Co., Ltd. and China Three Gorges Corporation as representative cases, this study conducts an in-depth analysis of the challenges inherent in green credit implementation.

Keywords: state-owned banks, central energy enterprises, green credit model, case analysis

1. Introduction

In order to implement the important deployment of the financial work conference on doing a good job in the "five big articles" of finance, the State Administration of Protection and other relevant departments jointly proposed a green credit policy. In 2012, the China Banking Regulatory Commission issued the "Green Credit Guidelines". In 2021, Bank of China will create carbon emission reduction support tools and include green credit in the MPA assessment [1]. The core objective of these policies is to channel capital toward green, low-carbon, and environmentally sustainable industries through financial mechanisms, while curbing credit allocation to highly polluting and energy-intensive sectors, thereby fostering sustainable economic development. The current green credit and energy green projects have insufficient matching characteristics of long cycle, high investment, and high risk, and there will be problems such as maturity mismatch, relatively outdated asset value evaluation, and lack of green pure credit loans [2]. The reason, on the one hand, is that it is difficult for the project to attract sufficient bank funds due to the uncertainty of new technology performance and low market share expectations, and the bank's green credit is less

profitable and the cost is relatively high. On the other hand, it is because the supply of green credit is insufficient to further market demand, forming a vicious circle [3]. Through literature analysis and case analysis, this paper systematically studies the green credit cooperation between state-owned banks and energy companies. By selecting typical companies to carry out case analysis, it sorts out the current situation and time issues of green credit, analyzes the deep causes and proposes targeted optimization paths. To a certain extent, this research offers practical insights for state-owned banks seeking to innovate and enhance their green credit operations, while also assisting energy enterprises in accelerating their green transition.

2. Theoretical basis and development status of green credit

Green credit is an important part of green finance, and its concept is closely related to the concept of green civilization, and it is gradually implemented under the strategic framework. The relevant theoretical basis of green finance mainly includes the theory of feasibility and the theory of externalities. The typical feature is that it can effectively improve, gradually transform external diseconomy into stable externalities, internalize factors into financing costs of enterprises through financial innovation, and optimize financial resources. Allocation to promote industrial green transformation. In China, since the green credit policy was jointly promoted by relevant departments in 2007, specific implementation plans have been formed in many places across the country. Its scale is rapid. As of September 2021, the green credit balance of major banks has reached 14.08 trillion yuan, ranking first in the world [4]. As core financial institutions, commercial banks need to pay attention to social responsibility and green environmental protection industries in order to develop market. However, at present, the proportion of green credit in total loans of commercial banks in my country is low, and most of them are cautious [5]. In serving the low-carbon transition of centrally administered energy enterprises, commercial banks have gradually developed a range of specialized green credit services. These include: issuing fixed-asset loans with tenors exceeding ten years; facilitating financing through financial leasing arrangements; organizing cross-regional syndicated loans to accommodate the multi-province operations characteristic of central energy enterprises; extending working capital loans for technological upgrades; pioneering subsidized confirmation loans; and deploying instruments such as green bills and green financing bonds [6]. Although green credit has formed various forms mentioned above, it still does not adapt to the characteristics of energy green projects in actual operation. The existing green credit is still based on credit ideas in terms of term, product and risk assessment, and it is difficult to fully comply with the project operation rules. Moreover, green credit products continue to rely predominantly on mortgage and pledge-based financing, with insufficient utilization of alternative assets such as energy project revenue rights and subsidy entitlements.

3. Case selection and green credit cooperation status

As a leading central enterprise in the domestic energy field, China Energy Investment Group is the world's largest coal production and sales, thermal power generation, wind power generation and coal-to-liquids chemical enterprise. China Three Gorges Corporation, supervised by the State-owned Assets Supervision and Administration Commission of the State Council, is the world's largest clean energy group, and its business covers clean energy such as hydropower, wind power, and solar energy. The green projects of the two enterprises have the characteristics of large investment scale, long construction period and stable capital demand. In green credit cooperation, state-owned banks have formed a cooperation pattern of "national layout and multi-point implementation" through

high-level meetings, special credit support and diversified tools. For example, ICBC took the lead in underwriting the first phase of green medium-term notes of China Energy Investment Group in 2025, and the funds raised were specially used for green projects; Bank of China launched carbon-related financial products such as "Carbon Easy Finance" to provide services for China Three Gorges Corporation. However, the cooperation between the two parties has problems such as serious product homogeneity, imperfect risk assessment system, and mismatch of credit terms, and has failed to form a "finance-industry" chain synergy. For example, China Construction Bank took the lead in providing a 125 billion yuan syndicated loan with a term of 18 years for the Three Gorges Corporation Jinsha River Baihetan Hydropower Station, which has an obvious mismatch with the 100-year design life of the project.

4. Problems existing in green credit cooperation between state-owned banks and energy enterprises

4.1. Insufficient product adaptability and serious homogeneity

At present, the green credit products of state-owned banks are still mainly project loans, with serious homogeneity, which cannot fully match the green project funds of energy central enterprises and the financing needs of the entire industrial chain; Carbon finance business is concentrated in coal power, petrochemical and other manufacturing fields, with narrow coverage and lack of exploration related to personal carbon finance [7]. The core problem is that the construction period of green projects is long and the results are slow, which leads to commercial banks facing problems such as insufficient capital adequacy ratio and asset-liability maturity mismatch, and green credit is difficult to make profits in the initial stage, which restricts them [8]. It can be seen that the motivation of commercial banks to carry out green finance mainly comes from the guidance of national policies, and the endogenous motivation is insufficient. It is necessary to improve the internal driving force from their own perspective, and inject funds into green credit through financial innovations such as asset securitization under the premise of controllable risks [8].

4.2. Imperfect green credit risk assessment system

Some green projects of energy companies have the problems of high technical uncertainty and difficult to quantify the effect of carbon emission reduction [9]. For example, although China's solar cell production ranks first in the world, the core polysilicon and monocrystalline silicon technologies of the photovoltaic industry basically rely on "technology leasing" from Japan and Germany, resulting in Chinese photovoltaic companies concentrating on low value-added links [9]. If state-owned banks lack green risk assessment capabilities, fail to identify industry traps such as "greenwashing" and "pseudo-transformation", and have an imperfect risk sharing system, bank credit risks will be exacerbated-this is related to the shortage of green credit professionals in large state-owned commercial banks, difficulties Evaluating the green return on investment and risk coefficient of projects or enterprises is closely related [9]. At the same time, the imperfect risk sharing mechanism leads to institutions taking risks alone; New types of pledges such as pledges of carbon emission rights have not yet formed economies of scale, and risk management and control tend to be conservative.

4.3. Low efficiency of green credit financing

Since most of the enterprises in my country's energy-saving and emission-reduction technologies are small and medium-sized enterprises, the development of green projects has the characteristics of large capital demand, long return period, high risk, and slow returns [9]. The head office approval still adopted by large state-owned commercial banks has strict risk ratings for green credit products, limited credit lines, long loan approval and withdrawal processes, and low efficiency in restarting projects and refinancing processes. This problem stems from two primary factors. On the one hand, during the low-carbon transition, high-carbon enterprises may face escalating costs and declining net profits due to technological upgrades and carbon peaking pressures, thereby expanding the credit risk exposure of state-owned commercial banks. On the other hand, high-tech industries such as new energy require a large amount of investment and high risks, which exacerbates bank credit risks [7].

5. Green credit optimization path for state-owned banks to serve energy enterprises

5.1. Product innovation: customized green credit products adapting to energy green projects

In terms of financing channels, in addition to carbon emission rights pledges, green bonds and green asset securitization can be introduced to enhance the carbon emission rights trading market. Carbon emission rights have use value and scarcity, and can bring economic benefits to enterprises. Carbon emission rights can solve problems such as the difficulty of pledging fixed assets of enterprises, financing costs, and increase the possibility of loans for small and medium-sized enterprises. At the same time, because carbon emission rights are tradable, it can help banks to settle their own risks by disposing of carbon emission rights when companies default. In terms of credit business, carbon banks can be launched; Combined with the numbers that will be launched soon, the carbon footprint calculator; The Bank innovatively launched personal carbon credit business, combining mobile banking APP with carbon footprint calculator. For example, the Industrial and Commercial Bank of China has integrated a carbon footprint calculator into its mobile banking platform. This feature calculates users' carbon emissions based on data such as water, electricity, and gas payments, as well as walking and public transportation activity, and converts the resulting carbon savings into quantifiable metrics [7]. In terms of green services, in addition to designing special green loan products, such as green energy loans, energy conservation and emission reduction loans and other special loans to meet the financing needs of different types of green projects, it can also provide green consulting and evaluation services to help customers evaluate the feasibility of green projects. Feasibility and risks [10].

5.2. Risk management: a green credit risk assessment system with a high degree of construction

As an operable and clear industry consensus and principle, the Equator Principle provides financial institutions with a unified standard to evaluate the possible social risks and risks of financing projects. In the process of promoting green credit business, large state-owned commercial banks should combine their own operations Reasonably learn from and apply the Equator Principle to improve risk identification, control and prevention capabilities; At the same time, it can strengthen cooperation with national institutions, focus on learning advanced aspects such as loan business management and control and non-performing loan disposal under the background of green credit, and continuously improve its own risk management and internal control [9]. In December 2019, the

China Banking and Insurance Regulatory Commission (CBIRC) issued the "Guiding Opinions on Promoting High-Quality Development of the Banking and Insurance Industries," which require banks to establish a sound social risk management system and integrate ESG considerations throughout the credit approval process. As a core financial institution, my country's large state-owned commercial banks need to build a professional ESG review team, add evaluation factors in line with Chinese characteristics on the basis of drawing lessons from foreign ESG evaluation standards, and build an exclusive ESG evaluation mechanism. Enterprises and give preferential interest rates to give full play to the guiding role of ESG evaluation [9].

5.3. Process optimization: build a professional business operation system

State-owned banks should further clarify the specific direction of green finance. On the one hand, banks should increase loans to carbon reduction industries and invest in renewable energy fields such as solar energy and energy-saving and environmental protection industries strongly supported by the state. On the other hand, on the basis of determining the focus of green credit resources, banks refine and decompose the overall goals into feasible plans. In addition, a dedicated green finance team should be established to conduct in-depth research on the characteristics and related standards of green projects, scientifically assess project feasibility, accurately identify risks, provide expert consultation, and improve the overall process of green credit [10].

6. Conclusion

Through examples of China Energy Investment Group and Three Gorges Corporation, this paper analyzes the problems and reasons of green credit in current state-owned banks in terms of product adaptability, risk assessment system, and financing efficiency. On this basis, three optimization paths are proposed: cross-product innovation, risk management and strategic direction. This study is limited to a certain extent. Only two energy companies are selected for analysis, and the coverage is not wide enough. It does not consider all and medium-sized energy companies, and does not compare and analyze the green credit of different types of state-owned banks. Future research could expand the case to include energy firms of different sizes and ownership structures.

References

- [1] Mao Yi & Zhang Wenwen. Has green credit policy improved corporate ESG performance? Resources and industry, 1-16.<https://doi.org/10.13776/j.cnki.resourcesindustries.20260401.002>.
- [2] You Yi. (2022). What are the mismatches between the current credit policy and the requirements of the green economy? How?.<https://cenews.com.cn/news.html?aid=963169>.
- [3] Cui Wenxin & Hu Yuancheng. (2014). Analysis of Green Finance Credit of Commercial Banks--Based on the Case Perspective of Industrial Bank. Wuhan Finance, (12), 9-12.
- [4] Gao Ping. (2021). Year-end report | Green finance under the "dual carbon" goal: financial institutions are competing to develop carbon neutral bonds, green trusts, and green credit.<https://www.cls.cn/detail/906350>.
- [5] Xiang Junxiong. (2026). Empirical Research on the Impact of Green Credit of State-owned Commercial Banks on Their Competitiveness. Heilongjiang Science, 17(03), 22-26.
- [6] Peng Zhong & You Baode. (2023). Research on green credit of commercial banks boosting the low-carbon transformation of energy central enterprises. Agricultural Bank of China Journal, (03), 15-19. <https://doi.org/10.16678/j.cnki.42-1864/f.2023.03.003>.
- [7] Industrial and Commercial Bank of China Hubei Wuhan Branch Research Group. (2022). Research on Carbon Finance Business Countermeasures of my country's State-owned Commercial Banks under the Background of Carbon Neutrality. Modern Finance Guide, (04), 22-26.

- [8] Jiang Ke & Fan, Liangzhi. (2023). Research on Innovative Practice, Trend and Improvement Direction of Green Credit in China--Based on Data Analysis of Commercial Banks. *Contemporary Economy*, 40(04), 93-98.
- [9] Zhang Jiyun, Gu Runwu, Yin Fei, Du Min & Mao, Sirui. (2023). Exploration of the path of high green credit for large state-owned commercial banks. *International Finance*, (07), 17-26. <https://doi.org/10.16474/j.cnki.1673-8489.2023.07.003>
- [10] Research Group of Accounting and Finance Department of Bank of China Gansu Branch *Gansu Finance*, (03), 15-23.