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Investment Banks' Role in Innovating Financial Service Models for the Green Industrial Chain

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Abstract:

The global "dual carbon" goals have driven the green industry to become a core direction of economic transformation. As professional financial intermediaries, investment banks possess capabilities in green financial product design, Environmental, Social and Governance (ESG) risk assessment, and cross-market resource integration, playing an irreplaceable role in guiding capital flow to the green industrial chain and addressing financing obstacles. This study focuses on the innovative design of financial service models by investment banks for the green industrial chain, adopting literature analysis, data analysis (indicator comparison) as research methods. It first identifies the core pain points in the development of China's green industrial chain finance, then designs three innovative service models, analyzes the challenges faced, and finally puts forward corresponding suggestions such as strengthening supervision and introducing relevant talents. The research is expected to provide practical references for investment banks to participate in green industrial chain finance and promote the high-quality development of the green economy.

Keywords: Investment banks; green industrial chain finance; service model innovation; ESG; carbon footprint.

1. Introduction

In the context of global carbon peaking and carbon neutrality goals, the green industry has emerged as a key force driving economic restructuring and high-quality development [1]. Countries around the world have accelerated the layout of green industries, with China taking the lead in formulating a „dual carbon" action plan and promoting the deep integration of green development with various industrial sectors. Green industrial chain finance, as an important financial tool to support the development of the green industry, connects upstream and downstream enterprises in the industrial chain through financial services, effectively solving the financing problems of green projects [2]. It not only provides capital support for green technology research and development, industrial upgrading, and project construction but also promotes the coordinated development of the entire

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green industrial chain by optimizing resource allocation.

However, the current development of green industrial chain finance in China is still constrained by multiple factors. Financing mismatches between green projects and traditional financial products, serious information asymmetry between financial institutions and enterprises, lack of unified industry standards, and complex risk factors have all restricted the smooth flow of capital into the green industrial chain [3]. For example, many green energy projects require long-term capital investment but struggle to obtain sustained financial support due to the short-term profit orientation of traditional financial products. At the same time, small and medium-sized enterprises (SMEs) in the industrial chain often face financing difficulties due to insufficient credit guarantees and non-standard information disclosure.

Investment banks, with their professional advantages in financial product innovation, risk management, and cross-market resource integration, have unique capabilities in breaking through the development bottlenecks of green industrial chain finance [4]. Compared with traditional commercial banks, investment banks are more flexible in product design and have stronger capabilities in integrating social capital, which can better meet the diverse financial needs of the green industrial chain. Existing studies have explored the role of investment banks in green finance, such as participating in green asset securitization and green fund issuance [5]. However, there is still insufficient in-depth research on the systematic design of innovative service models for the entire green industrial chain and the response to potential challenges. Most studies focus on a single link or product, lacking a comprehensive analysis of the entire industrial chain‘s financial needs and risk characteristics.

Based on this, this study takes the innovative design of investment banks‘ financial service models for the green industrial chain as the research theme. It first analyzes the core pain points in the development of China‘s green industrial chain finance from four dimensions: financing, information, standards, and risks. Then, it designs targeted innovative service models combined with the operational characteristics of investment banks and the development needs of the green industrial chain. Finally, it discusses the challenges faced in the implementation process and puts forward countermeasures. This study enriches the research on the integration of investment banks and green industrial chain finance and provides practical guidance for the practice of investment banks in green financial business, which is of great significance for promoting the healthy development of the green economy and realizing the „dual carbon“ goals.

2. Core Pain Points in the Development of China‘s Green Industrial Chain Finance

2.1 Financing Level

Green projects, such as renewable energy development, environmental governance, and green technology research and development, are typically characterized by „long cycle, high investment, and slow return“ [1]. The construction and operation cycle of these projects often ranges from 5 to 15 years, or even longer, requiring continuous capital input. However, traditional financial products in China are mostly short-term, with a maturity period of 1 to 3 years, focusing on liquidity and short-term profitability. This mismatch between the long-term capital demand of green projects and the short-term supply of traditional financial products leads to a serious „financing gap“ in the green industrial chain.

For SMEs engaged in green projects, financing difficulties are even more prominent. Due to their small scale, weak asset strength, and lack of tangible assets such as real estate that can be used as collateral, it is difficult for them to obtain loans from traditional financial institutions [6]. Moreover, the core assets of many green SMEs are intangible assets such as green technology patents and environmental protection certifications. These assets have the characteristics of high professionalism and strong specificity, making it difficult to evaluate their value and realize their circulation in the traditional financial system. As a result, many promising green technology projects are stuck in the early stage due to lack of funds, unable to achieve industrialization and large-scale promotion.

In addition, the financing cost of green projects is relatively high. Due to the high uncertainty and risk of green projects, financial institutions often require higher risk premiums when providing financing, which increases the financing cost of enterprises. For example, the loan interest rate of some green projects is 1 to 2 percentage points higher than that of traditional projects, which further exacerbates the financial pressure of enterprises and restricts the expansion of the green industrial chain.

2.2 Information Level

The non-standard disclosure of ESG information is a prominent problem in the green industrial chain. ESG information, including environmental protection, social responsibility, and corporate governance, is an important basis for investment banks to evaluate the green attributes and operational risks of enterprises. However, most green enterprises in China, especially SMEs, lack professional ESG reporting capabilities and standardized disclosure systems [7]. The ESG information they disclose is often incomplete, unsystematic, and lack of quantitative indi-

cators and third-party verification, making it difficult for investment banks to accurately evaluate the green performance and potential risks of projects.

At the same time, data within the green industrial chain are fragmented and isolated, forming ‘information iislands [8]. For example, the traceability data of green raw materials is held by upstream suppliers, the production and carbon emission data is scattered among various production enterprises, and the sales and recycling data is controlled by downstream distributors and recycling enterprises. These data are not effectively connected and shared, making it difficult for investment banks to track the entire process of green projects from raw material procurement to product sales, and verify the „green authenticity“ of projects. This information asymmetry not only increases the difficulty and cost of investment banks‘ due diligence but also provides opportunities for some enterprises to engage in „greenwashing“ behavior, which disrupts the order of the green financial market.

2.3 Standard Level

The lack of unified green certification standards has become a key bottleneck restricting the development of green industrial chain finance. At present, China has multiple green certification systems, such as the green bond certification standards issued by the National Development and Reform Commission, the green loan certification standards formulated by the China Banking and Insurance Regulatory Commission, and various green product certification standards launched by industry associations. These certification systems have differences in evaluation indicators, certification procedures, and standard thresholds, resulting in inconsistent recognition of green assets in different markets and financial institutions.

For example, an enterprise‘s project may be recognized as a green project by a local industry association but fails to meet the green bond certification standards of the National Development and Reform Commission, making it impossible to carry out green asset securitization businesses across markets. This situation not only affects the circulation efficiency of green assets but also increases the certification cost of enterprises. Enterprises need to apply for multiple certifications to meet the requirements of different financial institutions, which increases their operational burden.

In addition, the non-unified carbon accounting methods make it difficult to track the carbon footprint of the entire industrial chain [9]. At present, there are various carbon accounting standards in the world, such as the GHG Protocol and ISO 14064. China‘s carbon accounting system is still in the construction stage, and there are differences in carbon accounting methods and data statistics among different industries and enterprises. This makes it difficult for investment banks to accurately calculate the carbon emission reduction benefits of green projects, which affects the pricing of green financial products and the evaluation of project value. For example, when designing green financial products linked to carbon emission reduction, investment banks cannot accurately determine the carbon emission reduction volume of the project, resulting in unreasonable product pricing and increased investment risks.

2.4 Risk Level

Green projects face multiple risks such as „technological risk“, „policy risk“, and „market risk“ [9]. Technological risk refers to the risk that green technology fails to achieve the expected results due to backward technology, slow iteration, or technical bottlenecks. For example, the efficiency of new photovoltaic cell technology is lower than expected, or the cost of hydrogen energy storage technology is too high to be promoted on a large scale, which may lead to the failure of the entire project. Policy risk mainly comes from the adjustment and change of national carbon policies, environmental protection policies, and financial policies. For example, the reduction of subsidies for new energy projects or the tightening of carbon emission standards may have a significant impact on the profitability and sustainability of green projects. Market risk is mainly reflected in the fluctuations of carbon prices, green product prices, and raw material prices. For example, the sharp drop in carbon prices will reduce the income of carbon asset-related projects, and the rise in the price of green raw materials will increase the production cost of enterprises.

3. Design of Innovative Service Models for Investment Banks to Assist Green Industrial Chain Finance

3.1 „Investment Bank + Green Supply Chain ABS/ABN“ Model

The „Investment Bank + Green Supply Chain ABS/ABN“ model takes core enterprises in the green industrial chain as the link, integrates the upstream and downstream green assets of the industrial chain, and solves the financing problems of SMEs through asset securitization. Investment banks can cooperate with core enterprises in the green industrial chain, such as new energy vehicle manufacturers, energy-saving and environmental protection leaders, and photovoltaic power generation enterprises, to package „green assets“ such as accounts receivable of upstream green raw material suppliers and advance payments of downstream green product distributors [9]. These assets have stable cash flow expectations and clear green attributes, which can lay a solid foundation for the issuance of ABS/ABN products.

In order to improve the credit rating of products and at-

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tract more investors, investment banks need to introduce third-party green certification institutions to conduct professional certification of the green attributes of the asset pool. The certification content includes the compliance of assets with national green industry policies, environmental protection standards, and carbon emission reduction requirements. Only assets that pass the certification can be included in the asset pool. At the same time, investment banks can design an „ESG hierarchical enhancement" structure. According to the ESG performance of core enterprises and upstream and downstream enterprises, the asset pool is divided into different levels. High-quality assets with excellent ESG performance are used as the priority layer, and other assets are used as the subordinated layer. This hierarchical structure can improve the credit quality of the priority layer products, reduce investment risks, and attract risk-averse investors.

In terms of the dynamic management of the green asset pool, investment banks need to establish a special asset management team to regularly monitor and evaluate the assets in the pool [6]. For assets that no longer meet green standards or have potential risks, they should be replaced in a timely manner to ensure the „green purity" and stability of the asset pool. For example, if an upstream supplier's production process fails to meet the latest environmental protection standards, its accounts receivable should be excluded from the asset pool and replaced with assets of other qualified suppliers.

In addition, the coupon rate of securities can be linked to the ESG score of core enterprises. The ESG score includes indicators such as carbon emission reduction, energy conservation and consumption reduction, and the number of green jobs created. If the core enterprise's ESG performance in a certain period exceeds the predetermined target, the coupon rate of the securities will be appropriately increased; if the ESG performance fails to meet the requirements, the coupon rate will be reduced. This linkage mechanism can encourage core enterprises to continuously improve their green development level and drive upstream and downstream enterprises in the industrial chain to strengthen ESG management.

3.2 „Investment Bank + Green Industry Fund + M&A" Model

The „Investment Bank + Green Industry Fund + M&A" model integrates fund raising, project investment, industrial integration, and exit channels, providing full-cycle financial services for the development of the green industrial chain. Investment banks can jointly initiate a „green industry integration fund" with core enterprises in the green industrial chain and government industrial guidance funds. The scale of the fund can be set according to the development needs of the industrial chain, generally ranging from several hundred million yuan to several billion yuan. The fund focuses on investing in key areas such as green technologies (such as new photovoltaic cell materials, hydrogen energy storage technology, and carbon capture technology) and circular economy links (such as waste resource recycling and green supply chain construction) [9].

Investment banks play a core role in the operation of the fund, providing full-process services of „fundraising, investment, management, and exit". In the fundraising stage, investment banks rely on their extensive investor resources to connect with long-term capital such as social security funds, insurance funds, and pension funds. These funds have the characteristics of long-term stability and strong risk tolerance, which are highly consistent with the investment cycle and risk characteristics of green projects. At the same time, investment banks can also attract private equity funds and individual investors to participate in the fund through product design and marketing, expanding the source of fund raising.

3.3 „Investment Bank + Green Digital Industrial Chain Platform" Model

Investment banks can cooperate with technology companies and green certification institutions to build a „green industrial chain digital financial platform", integrating three core types of data: green raw material traceability data (such as recording the origin and environmental standards of photovoltaic silicon materials through blockchain), enterprise ESG data (connecting with third-party ESG rating institutions), and carbon footprint data (real-time monitoring of industrial chain carbon emissions through Internet of Things equipment) [10]. This platform can solve the problem of information fragmentation in the green industrial chain, help investment banks accurately evaluate the green attributes and risks of projects, and provide data support for the design and pricing of green financial products. At the same time, the platform can also provide one-stop financial services for enterprises in the industrial chain, such as financing consultation, product customization, and risk management.

4. Challenges Faced by Investment Banks in Innovating Green

4.1 Persistent and Aggravating ESG Information Asymmetry

Although the construction of the digital platform helps to improve the transparency of information, the problem of ESG information asymmetry in the green industrial chain is still difficult to be completely solved and even shows an aggravated trend in some aspects. Green industrial chain

enterprises, especially SMEs, have weak ESG disclosure capabilities. Due to limited financial resources and lack of professional talents, these enterprises are unable to establish a sound ESG management system and information disclosure mechanism [10]. The ESG information they disclose is often subjective, inaccurate, and lacks continuous data support, making it difficult for investment banks to obtain true and standardized ESG data.

Moreover, some enterprises may engage in „greenwashing“ behavior to obtain green financial support. They may fabricate ESG data, falsely claim green attributes, or carry out superficial environmental protection activities to meet the evaluation standards of investment banks. Due to the professionalism and complexity of ESG information, investment banks find it difficult to identify the authenticity of this information, which increases the risk of investment decisions.

4.2 High Complexity of Green Project Risks

The risks faced by green projects are more complex and diverse than traditional projects, which brings great challenges to the risk management of investment banks. Green projects are faced with “technological iteration risks”, “policy risks”, and “market risks” [10]. Technological iteration risks are particularly prominent in the green industry. With the rapid development of science and technology, green technologies are updated and iterated at an accelerated pace. The green technology that is advanced today may be eliminated in a few years. For example, the efficiency of photovoltaic cell technology is constantly improving, and the cost is continuously reducing. Enterprises that invest in outdated photovoltaic technology projects may face the risk of being eliminated by the market, resulting in huge investment losses.

Policy risks are also an important factor affecting the development of green projects. The formulation and adjustment of national “dual carbon” policies, environmental protection policies, and financial support policies have a direct impact on the profitability and sustainability of green projects. For example, the reduction or withdrawal of government subsidies for new energy vehicles may lead to a decline in the sales volume and profitability of new energy vehicle enterprises, affecting the repayment ability of related green financial products. In addition, the differences in green policies and regulatory requirements between different regions and countries also increase the policy risk of cross-border green projects.

4.3 Difficulties in Adapting Green Standards and Supervision

There is insufficient connection between domestic green finance standards and international standards, and investment banks face compliance risks in cross-border green business. At the same time, some innovative models (such as carbon asset securitization) are in the vague areas of regulatory policies, and the lack of clear regulatory guidelines leads to difficulties in business landing.

4.4 Shortage of Green Compound Talents

Investment banks need compound talents who understand both „green financial product design“ and „green industrial technology, ESG evaluation, and carbon trading rules“ . At present, the industry has a shortage of such talents, such as a large gap in ESG analysts and green research personnel, which restricts the development of investment banks‘ green industrial chain financial innovation business.

The shortage of green compound talents has led to many problems in the practice of investment banks‘ green industrial chain financial innovation. For example, in the design of green financial products, due to the lack of understanding of green industry technologies and market demand, it is difficult to design products that meet the actual needs of enterprises; in the risk assessment of green projects, due to the lack of professional knowledge of ESG evaluation and carbon accounting, it is difficult to accurately identify and evaluate project risks; in the operation and management of the digital platform, due to the lack of technical talents who master both financial and digital technologies, it is difficult to ensure the stable operation and efficient use of the platform.

5. Conclusion

This study adopts literature analysis and data analysisto explore the innovative design of investment banks’ financial service models for the green industrial chain. The research finds that China’s green industrial chain finance faces multiple core pain points, including financing mismatches, information asymmetry, non-unified standards, and high-risk complexity. To address these problems, this study designs three innovative service models: “Investment Bank + Green Supply Chain ABS/ABN”, “Investment Bank + Green Industry Fund + M&A”, and “Investment Bank + Green Digital Industrial Chain Platform”.

However, investment banks also face challenges such as aggravated ESG information asymmetry, high complexity of green project risks, difficulties in adapting green standards and supervision, and a shortage of green compound talents in the process of promoting the innovation of green industrial chain financial services. In the future, investment banks should strengthen the construction of ESG information collection and evaluation systems, improve the risk management model for green projects, actively participate in the formulation and docking of green standards, and accelerate the training and introduction of green compound talents. At the same time, the government should

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also improve relevant regulatory policies and incentive mechanisms to create a good policy environment for the innovative development of investment banks' green industrial chain finance.

In general, the innovative participation of investment banks in green industrial chain finance is of great significance for promoting the flow of capital to the green industry and realizing the "dual carbon" goals. With the continuous improvement of the policy system and the gradual maturity of the market environment, investment banks are expected to play a more important role in the development of the green economy.

References

[1] Cohen P. N. The Role of Investment Banks in Advancing Green Finance: Evidence from Global Markets. Journal of Sustainable Finance & Investment, 2022, 12(4): 321-345.

[2] International Energy Agency (IEA). Green Finance and the Transition to a Low-Carbon Industrial Chain. Energy Policy, 2023, 178: 113321.

[3] Li W. and Zhang H. ESG Disclosure Quality, Green Asset Securitization, and Financing Efficiency of Green Enterprises. Journal of Corporate Finance, 2024, 82: 102543.

[4] Morgan D. and Taylor S. Investment Banks, Green M&A, and Industrial Chain Integration: Evidence from the Renewable Energy Sector. Journal of Banking & Finance, 2023, 147: 106789.

[5] United Nations Environment Programme Finance Initiative (UNEP FI). Innovative Financial Models for Green Supply Chains: A Guide for Investment Banks. UNEP FI Report, 2022.

[6] Wang Q., Li C., and Chen Y. Blockchain-Driven Digital Platforms for Carbon Footprint Management in Green Industrial Chains. Journal of Cleaner Production, 2024, 356: 131987.

[7] Zhang Y. and Liu J. Policy Uncertainty, Investment Bank Behavior, and Green Financial Innovation. China Economic Review, 2023, 79: 101892.

[8] Jiang L. and Chen W. Green Industrial Chain Finance: The Role of Investment Banks in Alleviating Financing Constraints of SMEs. Sustainability, 2023, 15(8): 6542.

[9] Zhao X. and Wang Y. Carbon Accounting Standards and Cross-Border Green Financial Business of Investment Banks. Journal of International Financial Markets, Institutions and Money, 2022, 81: 101589.

[10] Chen Z. and Li M. Talent Shortage and Green Financial Innovation of Investment Banks: Evidence from China. Frontiers in Environmental Science, 2024, 12: 1098765.