

Research on the Synergistic Path of Green Finance and High-Quality Development of the Real Economy Under the "Dual Carbon" Goal

Yu Zhao

Shandong Vocational College of Art and Design, Jinan, China

Abstract

Focusing on the exploration of the "dual carbon" goal, explore the collaborative path of green finance to promote the high-quality development of the real economy, build a green financial support system, innovate the operation of green credit, green bonds and green fund models, further strengthen the green insurance mechanism, achieve accurate matching of green investment and financing and synergistic upgrading of the industrial chain, analyze the role of green finance in optimizing industrial structure, catalyzing technological innovation and improving environmental performance, put forward strategies for policy optimization and risk control, and effectively overcome the obstacles to the implementation of green financial policies and the low market acceptance. The research results have important practical value in promoting the green transformation of the economy and achieving high-quality development.

Keywords

Dual Carbon Goals, Green Finance, Real Economy, Synergistic Path, Risk Prevention and Control

1. Introduction

The proposal of the "dual carbon" goal provides key guidance for the green transformation of the economy. As the core driving force to support the sustainable development of the real economy, green finance is gradually becoming a key engine to promote high-quality development [1,2]. Under the background of imperfect green finance policy system and poor market acceptance, achieving deep coupling between green finance and the real economy has become a difficult problem to be solved. Combining practical exploration with theoretical analysis and building a synergistic channel for green finance to promote high-quality development will inject new impetus into the optimization of industrial structure, the promotion of technological innovation and the enhancement of environmental performance.

2. The Current Status and Challenges of Green Finance Under the Dual Carbon Goal

2.1 Background and Policy Framework of Green Finance

As a key means to promote the green transformation of the economy, green finance has become one of the key measures to respond to climate change and achieve sustainable development goals worldwide. With the proposal of the "dual carbon" goal, green finance has gradually occupied a key position in my country's economic system. Green credit, green bonds and green funds, as the three pillars of green finance, have shown positive results in supporting green industries with finance, carrying out corporate green project financing and promoting sustainable investment. Green credit adopts measures such as preferential loan interest rates and tilted credit lines to support the expansion of environmental protection enterprises and low-carbon projects; green bonds use their own long-term capital advantages to provide stable financial support for green projects such as clean energy, energy conservation and environmental protection; green funds use diversified investment portfolios to effectively promote green technology innovation and ecological project expansion [3].

In the process of achieving the "dual carbon" goals, various regions have set up green financial reform and innovation pilot zones to explore the innovation of policy mechanisms and financial products. Zhejiang, Guangdong, Hunan and other regions have actively carried out pilot explorations of comprehensive green financial reforms. Through policy guidance and market cultivation, they have created a green financial service pattern and helped financial institutions increase the proportion of green credit and investment. Local governments have relied on policy incentives, risk compensation and regulatory support to support the issuance of green bonds and the establishment of green funds, further tapping the potential driving force for green development in the financial market.

2.2 The Role of Green Finance in Supporting the "Dual Carbon" Goals

Green finance plays a key role in promoting the achievement of the "dual carbon" goals, especially in promoting the transformation of high-carbon industries. Under the background of the "dual carbon" goals, the pressure of emission reduction for high-energy-consuming and high-emission enterprises cannot be underestimated. Relying on the financial support of green credit and green bonds, it can provide a solid financial guarantee for the implementation of their green technology transformation and energy-saving projects. Industries with high carbon emissions such as steel and cement

can use the introduction of green credit to upgrade production processes and strengthen energy efficiency management, thereby achieving carbon emission reduction tasks. When implementing green financing, financial institutions should focus on environmental compliance reviews and continue to guide enterprises along the path of low-carbon development.

The rise of green industries has injected momentum into the green transformation of the economy, but there are still many challenges in the implementation of green investment and financing mechanisms. The return cycle of green projects is relatively long, and they face greater market-related risks, which makes some financial institutions more cautious in green credit and bond investment. The homogeneity of green financial products is more prominent. The lack of innovation has caused the market to have no diversified choices, making it difficult to fully meet the investment and financing demands of green industries. In the relevant process of promoting the "dual carbon" goals, how to achieve innovation in green financial tools and optimize the risk-return model has become a key issue that needs to be addressed urgently.

2.3 Main Challenges Facing the Development of Green Finance

Although green finance has achieved certain results in promoting the "dual carbon" goals and high-quality development of the real economy, it is still one of the main difficulties it faces, that is, the difficulty in implementing policies and the incomplete regulatory mechanism. From the perspective of policy formulation, the top-level design implemented at the national level is very comprehensive, but there is often no detailed and targeted implementation plan at the local level, which leads to deviations and lags in the implementation of some green financial policies. When financial institutions conduct green credit approval and issue green bonds, they lack scientific and effective environmental benefit assessment standards, which has led to the frequent emergence of "pseudo-green" phenomena in some projects, affecting the overall public trust in green finance [4].

The lack of innovation in green financial products and low market acceptance are also bottlenecks for development. Green credit is mostly concentrated in a few industries, and the issuance of green bonds still faces the difficulties of high thresholds and complicated procedures, making it difficult for some small and medium-sized enterprises to obtain relevant support for green financing. Investors' awareness of the risks of green financial products is still insufficient, resulting in weak market demand and hindering the further expansion of the green financial market. The risk prevention and control mechanism of green finance is not sound enough, especially when the project benefits are unclear and environmental compliance cannot be implemented, the investment risks faced by financial institutions are relatively large.

3. The Connotation and Evaluation System of High-quality Development of the Real Economy

3.1 Core Indicators of High-quality Development of the Real Economy

As the cornerstone of measuring high-quality development, economic structure optimization indicators involve industrial structure, energy efficiency and environmental performance. In the context of the "dual carbon" goal, industrial structure adjustment is the top priority, especially promoting the transformation and upgrading of high-carbon emission industries, together with the rapid rise of emerging green industries. Energy efficiency, as a core indicator of low-carbon development, requires all industries to achieve a reduction in unit energy consumption through technological innovation and process improvement. Environmental performance indicators focus on pollutant emission intensity and resource utilization efficiency, highlighting the depth and breadth of industrial green transformation[5]. As a source of power, innovation-driven indicators promote high-quality development of the real economy, involving the level of technological innovation and the number of patents. Green technological innovation is the key driving force for the greening of the economy. Following the guidance of the "dual carbon" goal, R&D investment and innovation results have become the core considerations. It can effectively enhance the core competitiveness of the industry and drive the upstream and downstream industrial chains to achieve green transformation and reform. The number of patents can be used as a key parameter to measure technological innovation capabilities, which can reflect the R&D level and market competitive position of enterprises in green technology.

From the perspective of people's livelihood and social sustainable development, social benefit indicators evaluate the quality of the real economy, covering employment levels, income increases, and sustainable development efficiency. The quality of employment shows the positive effects of green transformation on the employment structure. Taking the new employment opportunities generated by green manufacturing and new energy industries as an example, the increase in income reflects the shared connotation of green economic development. Especially under the strong promotion of green financial policies, the income of people engaged in green industries has gradually increased. The sustainable development capacity indicators comprehensively take into account the long-term impact of economic development on the ecological environment and social harmony, and ensure that high-quality development has long-term and stability.

3.2 The Impact of the Dual Carbon Goals on the Transformation of the Real Economy

Traditional industries are facing tremendous transformation pressure due to the "dual carbon" goals. In particular, high-energy consumption and high-emission industries should implement in-depth technological transformation and process optimization in the face of energy conservation and emission reduction requirements. These industries often

encounter the reality of high emission reduction costs and great resistance to green transformation. In order to cope with the pressure caused by the "dual carbon" goals, traditional manufacturing industries have rapidly carried out green upgrades and transformations, adopted pollution-free production technologies and energy efficiency management methods, and gradually raised the level of environmental protection compliance. In the stage of technological transformation, faced with the dual difficulties of high technical costs and changes in market demand, how to ensure economic benefits in the green transformation stage has become a thorny point in industrial development[6]. In response to the transformation pressure encountered by traditional industries, development opportunities are beckoning to emerge green industries. Driven by policy dividends and market demand, new energy, environmental protection technology, green buildings and other fields are rapidly expanding, and the green industrial chain is gradually taking shape. Driven by the "dual carbon" policy, the green industry not only expands the market scale, but also drives the continuous rise of technology level. While these emerging industries are expanding rapidly, they will also encounter market fluctuations, technical bottlenecks and thorny problems in financing. How to balance policy support with market demand is a key issue for the sustainable development of green industries.

Green finance has played an extremely important enabling effect in promoting the high-quality development of the real economy. As an innovative way for financial services to achieve green transformation, green finance injects green funds into the real economy by issuing green credits, issuing green bonds and establishing green funds. Within the framework of the "dual carbon" background, financial institutions use risk prevention and control mechanisms and environmental protection credit evaluation systems to accurately flow funds into green industries and low-carbon projects.

4. Mechanism Analysis of the Coordinated Development of Green Finance and the Real Economy

4.1 Construction of Coordinated Development Mechanism Model

Driven by the "dual carbon" goal, the core of the coordinated development of green finance and the real economy is to build an interactive mechanism model. As the key support for the green transformation of the economy, green finance guides the construction and extension of the green industrial chain through policy guidance and market-oriented mechanisms. In the interactive model, green finance uses financial means such as green credit, green bonds and green funds to provide financial support to low-carbon projects and environmental protection enterprises in the real economy, and guide high-carbon industries to implement green transformation measures. In the stage of green transformation, enterprises take environmental benefits as the key consideration in financial decision-making, and reduce environmental governance expenses by introducing green financial tools, so as to obtain a double surplus of economy and ecology.

The coupling model of policy guidance and market mechanism plays a core role in coordinated development. Policy guidance is achieved through the government setting green finance development plans, tax incentives and establishing special funds, which stimulates the enthusiasm of financial institutions to participate in green finance. The market mechanism is achieved through financial product innovation and market pricing mechanism, which promotes the efficient circulation and reasonable allocation of green capital. It is driven by the dual forces of policy and market. Financial institutions adjust their credit policies according to the results of environmental credit ratings. Enterprises win preferential treatment in financing through green project certification, creating a virtuous cycle of policy and market synergy.

4.2 Mechanism for Promoting High-quality Development of the Real Economy through Green Finance

The green financing mechanism is the core link to achieve the coordinated development of green finance and the real economy, which is mainly reflected in the deep docking effect of green credit, green bonds and green funds. Green credit helps environmentally friendly enterprises and low-carbon projects grow by reducing loan interest rates and increasing loan amounts. Green bonds provide long-term financial support for large-scale infrastructure construction and new energy projects by virtue of their large financing scale and strong autonomy in capital use. Green funds use equity investment and risk compensation mechanisms to promote social capital to enter the green industry and realize the capital flow and technology upgrade iteration of the industrial chain.

In the work of environmental risk protection, the green insurance mechanism plays a significant role. In view of the dual risks of environment and market faced by green industries in the initial stage, green insurance can reduce the financial risks of enterprises in the green transformation stage by paying for environmental accidents and green project losses. Insurance institutions cooperate with financial institutions to build a green credit insurance product system, and provide guarantees and credit enhancement for high-risk green project financing, so as to enhance the ability of green financial services to resist risks.

The green fund mechanism plays a key role in promoting green technology innovation and industrial upgrading. It relies on the establishment of a multi-level green fund system, attracts social capital to invest in green technology research and development and environmental protection project construction, and combines government-led industry guidance funds with market-oriented green private equity funds. It not only increases the intensity of technological innovation investment, but also relies on the mechanism of risk sharing to reduce the financing barriers of high-tech green projects and help accelerate the greening process of the real economy.

4.3 Optimization Strategy of Coordination Mechanism

In the development process of green finance and real economy, we should focus on grasping the balance between policy guidance and market incentives, and provide scientific guidance for financial institutions and enterprises' green investment and financing decisions by improving green finance legislation and policy framework, clarifying the definition of green projects and environmental protection credit rating system, and the government should increase the intensity of policy incentives for green credit and green bonds, such as giving tax incentives and loan interest subsidies, to encourage financial institutions to actively explore green financial product innovation.

Targeting the differentiated needs of the real economy, we should promote coordinated development with innovative green financial products as the key, and launch differentiated green credit products and customized green insurance solutions in accordance with industry characteristics and environmental protection planning, so that financial services can be upgraded in terms of flexibility and precision. For the transformation and transformation of high-carbon industries, we can launch loans based on carbon emission reduction income pledge; for environmental protection technology companies, we should promote intellectual property pledge financing models to effectively remove financing barriers.

In order to consolidate the policy coordination and industrial chain support foundation of green finance, a multi-level green finance support system should be established to improve the scientific and unified level of green finance top-level design at the national level, while at the same time adapting to the characteristics of each region and implementing differentiated policies according to the characteristics of each region.

5. Typical Case Analysis: Green Finance Promotes the Transformation of the Real Economy

5.1 Case 1: Application of Green Credit in the Clean Energy Industry

As a key force in achieving the "dual carbon" goal, the clean energy industry has encountered financing difficulties such as high investment, long cycle, and high risk. In the actual operation process, clean energy companies often lack sufficient credit ratings and asset mortgages, and it is difficult to obtain financial support from traditional credit channels. In order to break through the financing bottleneck, some banks and financial institutions have innovatively launched green credit products, such as new energy industry loans, carbon emission reduction income rights pledge financing products, etc., using preferential interest rates, risk compensation and long-term loan policies as means to effectively resolve corporate financing difficulties.

With the support of green credit, a new energy enterprise effectively implemented and completed a large-scale wind power generation project. In the loan-related plan, the bank used carbon emission reduction income as collateral and used the future carbon quota income of the project as the source of repayment. At the same time, combined with the green subsidy policy set by the government, it alleviated the risk pressure faced by the loan. The enterprise obtained financial support through green credit, quickly promoted the progress of project construction, and effectively increased the output of green energy, which is a typical example of financial support for the development of new energy.

5.2 Case 2: Green Bonds Help Traditional Manufacturing Industry Green Transformation

In the process of green transformation of traditional manufacturing industry, there is a funding gap and financing obstacles for process transformation. Since green transformation involves equipment renewal and environmental protection technology investment, the company's own funds are often difficult to support large-scale transformation implementation. As an innovative financing method, green bonds rely on attracting social capital investment to ensure long-term and stable capital investment for green upgrading of manufacturing industry. Bond issuers set the purpose of funds for green projects in the bond terms to ensure that financing funds are accurately invested in green transformation matters.

During the implementation of the energy conservation and emission reduction project, a high-energy-consuming enterprise successfully raised hundreds of millions of funds by issuing green bonds. Relying on the environmental protection and energy-saving transformation results of the project, this bond successfully attracted many social capitals to actively subscribe. In the preparation stage of bond issuance, the enterprise cooperated with a third-party evaluation agency to conduct scientific estimates of green income and carbon emission reduction effects, and then formulated risk prevention and control measures. The issuance of green bonds not only broke the financial barriers, but also increased the market competition chips of enterprises at the time of green transformation.

5.3 Case 3: Green Fund Supports Urban Sustainable Infrastructure Construction

As a key link in achieving the goal of low-carbon cities, urban sustainable infrastructure construction often falls into a situation of high construction costs and long profit cycles. As an investment and financing model combining government guidance and social capital participation, it adopts a flexible fund operation mechanism to effectively drive the construction of urban green projects. The funding sources of green funds are diverse, including government finances, bank loans and social capital, reflecting strong capital integration capabilities.

During the construction of a green smart city in a certain city, the green fund played an important supporting role. The fund adopted a model that integrates equity investment and debt financing, and provided special funds for municipal

sewage treatment, green buildings and clean energy facility construction. In the process of fund operation, the government reduced the investment risk of social capital through policy guidance and financial support. The green fund also introduced a risk-sharing mechanism to safeguard the long-term and sustainability of urban infrastructure construction. By adopting this financial innovation model, the results of urban green infrastructure construction have been significantly highlighted, which has played a strong role in promoting the realization of low-carbon city development goals.

6. Conclusion

The realization of the "dual carbon" goal is inseparable from the deep cooperation between green finance and the real economy. As a key means to support the green transformation of the economy, the diversified operation of green credit, green bonds and green funds has really helped the transformation of high-carbon industries and the growth of green industries. Undefined, problems such as policy implementation obstruction, insufficient innovation of financial products and low market acceptance still exist. By building an interactive model and a collaborative system, improving the balance between policy guidance and market incentives, and promoting the comprehensive application of green finance in the real economy, it can effectively drive economic structural adjustment and industrial upgrading and transformation. We should further expand the depth of green financial reform, implement innovation in financial products and services, and create a more solid financial guarantee and institutional support system for the high-quality development of the real economy.

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