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The Significance of Improving China's Green Finance Legal Framework from the Perspective of the "Dual Carbon" Goals

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Abstract. "Green finance" has emerged as a novel financial service over the past decade, offering distinct advantages in addressing ecological challenges and climate change within the context of economic and social activities. This paper examines the impact of green finance from the perspective of China's "dual carbon" (carbon peaking and carbon neutrality) goals and uses empirical analysis to demonstrate the achievements of green finance development. Meanwhile, it highlights challenges hindering the progress of green finance, such as incomplete legal frameworks, regional development disparities, and issues like "greenwashing." Drawing on international experiences in green finance, this paper provides policy recommendations and underscores the critical role of green finance in achieving China's "dual carbon" goals and advancing sustainable development. This analysis serves to clarify the importance of improving China's green finance legal framework.

Keywords: green finance, economic structure, low-carbon transition, policy recommendations

1. Introduction

The academic community holds varying perspectives on the definition of green finance. However, a common viewpoint is that green finance refers to financial services aimed at supporting activities that improve ecological environments, address climate change, and promote the efficient use of resources. It encompasses a diverse range of financial tools and services, including green credit, green bonds, green insurance, green funds, green trusts, and green leasing. The primary goal is to channel financial resources toward green and low-carbon industries and projects, fostering sustainable economic and social development.

In recent years, with the intensification of global climate change and the establishment of China's "dual carbon" goals (carbon peaking and carbon neutrality), the development of green finance has received increasing attention. Since the joint issuance of the Guidelines on Establishing a Green Financial System by seven ministries in 2016, China has achieved remarkable progress in green finance. At the national level, several policy measures, such as the Catalogue of Green Bond-Supported Projects and the Guidelines for Green Credit, have been introduced. Additionally, pilot programs for green finance reform and innovation have been conducted in nine locations across six provinces, providing valuable experience for the development of green finance. On a local level, regions such as Shenzhen, Huzhou, and Shanghai have implemented localized green finance regulations, laying a practical foundation for the legal construction of green finance.

However, the development of green finance in China still faces numerous challenges. 1. Incomplete Legal Framework: The lack of high-level legal statutes limits the standardization and operational feasibility of green finance development. 2. Underdeveloped Market Elements: Green finance products and tools remain limited in variety, and the market scale is relatively small, making it difficult to meet the diverse financing needs of green industries and projects. 3. Weak Risk Control Mechanisms: The mechanisms for identifying and managing risks in green finance are inadequate, affecting the stable development of the sector. 4. Regional Disparities: The development of green finance is uneven across regions. Eastern coastal areas progress more rapidly, while central and western regions lag behind, necessitating enhanced regional collaboration.

Green finance plays a vital role in achieving China's "dual carbon" goals. By directing financial resources toward green and low-carbon industries and projects, green finance can effectively promote industrial restructuring and optimization, facilitate energy transition, improve energy efficiency, and reduce carbon emission intensity. Moreover, it incentivizes enterprises to increase investment in green technological innovation and research, driving green technology advancement and providing technical support for achieving the "dual carbon" goals. Additionally, green finance can enhance public awareness of environmental protection, foster green lifestyles, and create a favorable societal atmosphere for the realization of these goals.

2. Literature Review

Since 2010, as global environmental issues have become increasingly severe, green finance, as a financial model promoting sustainable development, has garnered growing attention from governments and financial institutions worldwide. However, a unified definition of green finance has yet to be established in academic circles, both domestically and internationally. For instance, Yuan Kang [1] defines green finance as "a category of financial activities with specific green preferences, where financial institutions fully consider environmental factors in investment and financing decisions. Through institutional arrangements and product innovation, more funds are directed toward enterprises and projects focusing on environmental protection, energy conservation, emission reduction, and resource recycling, while reducing investment in polluting and energy-intensive enterprises and projects. Essentially, it is a combination of financial tools, market mechanisms, and regulatory arrangements [1]." Meanwhile, Fan Shaohong [2] emphasizes the "greening" aspect of green finance, viewing it as an enhancement and adjustment of financial law under the principles and spirit of sustainable development, aimed at achieving harmony between humanity and nature [2].

Green finance serves dual functions of promoting economic growth and environmental protection. Yuan Kang [1] argues that green finance can reduce public fiscal pressure by encouraging private sector investment and guide the financial industry's sustainable development. Fan Shaohong [2] believes that green finance can advance environmental protection industries and initiatives, alleviate the environmental burden of economic growth, and direct social investments toward environmental outcomes, contributing to environmental improvement.

Globally, green finance has seen significant progress. Feng Guo and Lü Jiaxin [3] highlight that international green bond regulations mandate at least 95% of raised funds be allocated to green projects, whereas China's regulatory requirements for this proportion are comparatively lenient [3]. Huang Tao [4] examines three pathways for the development of green credit in commercial banks: voluntary mechanisms, civil liability mechanisms, and administrative power-driven mechanisms. He notes that green credit development in China primarily relies on administrative power-driven approaches [4].

The sound development of green finance requires a robust legal framework. Feng Guo and Lv Jiaxin [3] stress the importance of information disclosure mechanisms, suggesting that market forces and social oversight can prevent the misuse of raised funds. Wei Qingpo [5] emphasizes that legal regulations on green credit should be tailored to China's national conditions, using a phased classification of commercial banks' environmental responsibilities. Wei advocates for a coordinated approach combining the "hardening of soft laws" and the "softening of hard laws" to establish a multi-stakeholder regulatory framework [5].

Currently, the pathways for implementing green finance primarily include voluntary mechanisms, civil liability mechanisms, and administrative power-driven mechanisms: Voluntary Mechanisms: Represented by the "Equator Principles," these rely on voluntary market guidelines to drive the green credit business in commercial banks. Civil Liability Mechanisms: These expand the application of civil liability laws, holding commercial banks jointly liable for environmental damage under certain conditions. Administrative Power-Driven Mechanisms: These are implemented through green credit policy frameworks designed and enforced by administrative authorities.

When discussing the impact of green finance on carbon emissions, scholars such as Zhang Ruihan [6] and Zhou Yahong [6] identify both explicit positive impacts and certain potential negative effects. On the positive side, green finance supports the growth of green industries by providing financial resources. Incentive policies like green credit encourage enterprises to invest in green initiatives and innovations, driving carbon reduction. Furthermore, the information disclosure requirements associated with green finance enhance corporate attention to sustainability and encourage responsible investment based on Environmental, Social, and Governance (ESG) principles, prompting enterprises to adopt measures to reduce carbon emissions. However, during its early development, green finance may encounter issues such as "greenwashing," where companies gain access to green finance through misleading claims without genuinely transitioning to greener practices. Additionally, the pricing mechanisms for green financial products remain underdeveloped, potentially dampening the enthusiasm of some enterprises to participate actively [6].

3. The Mechanisms of Green Finance

Green finance operates through various mechanisms, which can be broadly categorized into two major aspects from the perspective of this paper: its significant contribution to achieving the "dual carbon" goals and its profound impact on socioeconomic development. As a subset of finance, green finance inherently involves businesses as participants in investment and financing activities. Its development not only helps enterprises reduce carbon emission intensity but also enhances their Environmental, Social, and Governance (ESG) performance and economic outcomes, achieving a "win-win" scenario for economic growth and environmental protection.

3.1. Mechanisms Through Which Green Finance Impacts Enterprise Carbon Emission Intensity

Green finance influences enterprise carbon emission intensity through multiple mechanisms, driving a green and low-carbon transformation of the economic structure.

1. Green Finance Policies: Policies such as green credit and green bonds send clear environmental signals to enterprises by providing preferential support to green businesses and projects while imposing restrictive measures on high-emission, high-

pollution, and high-energy-consuming enterprises [7]. These signals incentivize enterprises to prioritize environmental considerations in their business decisions and adopt proactive measures to reduce carbon emissions. For instance, green credit policies impose higher interest rates and financing caps on heavily polluting enterprises, increasing their financing costs and encouraging green transformation and restructuring. Simultaneously, incentive measures, including fiscal support, financial subsidies, and green bonds, create intrinsic motivation for high-pollution, high-energy-consuming enterprises to transition toward green practices [8].

2. Financial Support for Green Enterprises and Projects: Green finance reduces financing costs and alleviates financing constraints for green enterprises and projects, encouraging investment in environmental protection. Examples include purchasing clean energy equipment and developing green production processes, thereby achieving carbon emission reductions. For instance, green bond schemes, such as those introduced by the Bank of China, provide long-term funding for clean energy projects, facilitating large-scale technological upgrades and equipment renewal. Moreover, enterprises need not worry about eligibility for green bond support, as the People's Bank of China has published the Catalogue of Green Bond-Supported Projects and, in coordination with the Green Credit Guidelines issued by the China Banking and Insurance Regulatory Commission, has clarified the scope, standards, and eligible projects for green finance support.

3. Economic and Market Mechanisms: From an economics and market perspective, green finance and its associated policies guide capital flows toward green, low-carbon projects and industries. This optimization of resource allocation drives structural transformation and industrial upgrades. Support for green technological innovation and research encourages enterprises to advance technologies and improve production efficiency. This not only reduces the proportion of high-pollution, high-energy-consuming enterprises and lowers overall carbon emission intensity but also promotes the development of low-carbon technologies and clean production processes, enhancing energy efficiency and achieving dual benefits [9].

3.2. The Mechanisms Through Which Green Finance Impacts ESG Performance and Economic Outcomes

ESG, which stands for Environmental, Social, and Governance, is an investment philosophy and corporate evaluation standard that focuses on a company's environmental, social, and governance performance rather than traditional financial metrics. Environmental: Examines corporate environmental policies, employee awareness of environmental protection, and waste management measures. Social: Considers community relationships, employee health, and workplace gender equality. Governance: Focuses on issues like internal power struggles, effective oversight of management, and corruption among executives. Investors evaluate a company's ESG rating to assess its contributions to green initiatives, social responsibility, and long-term viability, making ESG performance a critical consideration in green finance.

Information Disclosure Mechanisms: Green finance emphasizes rigorous information disclosure, such as environmental reporting requirements for green credit. These disclosures enhance corporate awareness of environmental, social, and governance responsibilities, encouraging enterprises to improve their ESG management systems and performance. For example, issuers of green bonds must disclose their environmental performance and green investment plans, subjecting themselves to market scrutiny and incentivizing improvements in ESG performance.

Impact on Economic Performance: From an economic standpoint, green finance supports corporate green technological innovation and R&D, enhancing competitiveness and expanding market share, thereby positively impacting economic performance. Green finance also helps mitigate environmental and reputational risks, strengthening a company's capacity for sustainable development. Furthermore, as enterprises respond to green finance initiatives by transitioning toward sustainability, they improve their corporate image, enhancing social influence. This fosters government and societal recognition, boosts brand value, and creates favorable conditions for long-term growth [6].

All in all, green finance operates through multidimensional and multi-tiered mechanisms to influence enterprise carbon emission intensity and ESG performance, ultimately driving a green and low-carbon transformation of the economic structure and promoting high-quality economic development. These mechanisms work in synergy, helping enterprises lower carbon emissions, improve ESG performance, and enhance economic outcomes, achieving a win-win scenario for economic growth and environmental protection.

4. Empirical Results of the Impact of Green Finance Development

4.1. Impact of Green Finance Development on the Low-Carbon Economic Development

Recent studies over the past two years have shown a positive correlation between the development level of green finance and the progress of low-carbon economic development. At the national level, for example, the study by Zhou Zejiong and Xu Jinxue [10] found significant spatial correlations in China's low-carbon economic development, with the overall development trend showing a higher level in the eastern regions and a lower level in the western regions. The development of carbon finance has promoted regional low-carbon economic growth, while green investment has also driven low-carbon development in surrounding areas [10].

From the perspective of regional heterogeneity, there are differences in the development level of green finance and the degree of low-carbon economic development across different regions. For instance, Lin Muxi and Xiao Yubo [11] found that the eastern regions have a higher level of green finance development than the national average, and it plays a stronger role in promoting high-quality economic development. This is related to factors such as the economic development of the eastern regions, industrial structure optimization, and the improvement of the financial system [11].

The following sections present five case studies to demonstrate these impacts.

4.2. Empirical Analysis of the Impact of Green Finance Development on Corporate Carbon Emission Intensity

4.2.1. Case Study 1: Huzhou, Zhejiang Province

As a national pilot zone for green finance reform and innovation, Huzhou has actively explored paths for green finance development. Through the implementation of the Huzhou Green Finance Promotion Regulations, the establishment of a green project database, the introduction of green financial products and services, and the establishment of a green finance risk prevention mechanism, Huzhou has achieved significant progress in green finance development. In 2022, the balance of green credit in Huzhou reached 151.5 billion yuan, a year-on-year increase of 31.4%, ranking among the top in Zhejiang Province. The development of green finance has strongly promoted the optimization of Huzhou's industrial structure and low-carbon transformation.

4.2.2. Case Study 2: Pudong New Area, Shanghai

Pudong New Area has actively explored the digital development of green finance. Leveraging a specialized green finance data service platform, Pudong has established carbon accounts for both enterprises and individuals, encouraging financial institutions to offer favorable financial products and services to enterprises and individuals with high carbon credits. In addition, Pudong supports financial institutions in conducting carbon finance business and promotes the development of the carbon trading market. Through digital tools and carbon finance instruments, Pudong has continuously enhanced its green finance development level, providing strong support for the low-carbon economic development of the region.

4.2.3. Case Study 3: China Power Investment Corporation

China Power Investment Corporation has actively responded to national green finance policies by issuing green bonds to raise funds for supporting the construction of clean energy projects. For example, in 2021, the company issued 10 billion yuan in green bonds to invest in wind and solar energy projects. Through green bond financing, China Power Investment Corporation has increased its investment in clean energy, significantly reducing the company's carbon emission intensity.

4.3. Impact of Green Finance Development on Corporate ESG Performance and Economic Performance

4.3.1. Case Study 4: BYD Company Limited

As a leading company in the new energy vehicle industry, BYD actively participates in green finance development. The company issues green bonds to raise funds for supporting the construction of new energy vehicles and charging infrastructure. In addition, BYD actively participates in the carbon trading market to achieve carbon emissions reductions. By engaging in green finance, BYD has not only improved its ESG performance but also achieved continuous growth in economic performance.

4.3.2. Case Study 5: Industrial and Commercial Bank of China (ICBC)

ICBC, as a leading commercial bank in China, actively explores green credit business. For example, ICBC launched the "Green Inclusive" loan product, which provides green financial services to small and micro enterprises and rural areas. Through green credit business, ICBC has not only enhanced its ESG performance but also innovated and transformed its business model, creating greater value for both enterprises and society.

These case studies provide strong evidence of the significant positive impact of green finance development on corporate carbon emission intensity, ESG performance, and economic performance. Future efforts should focus on strengthening green finance policy support, improving the green finance system, and taking green finance development to new heights.

4.4. International Comparison

From an international comparative perspective, we can observe that the development models of green finance vary across countries and regions, yet all have achieved significant results and offer valuable lessons for each other.

The European Union (EU) is a global leader in green finance development, with a well-established green finance system and comprehensive policy framework. The EU has introduced a series of laws and regulations, such as the Sustainable Finance

Directive, providing legal guarantees for the development of green finance. It has also established certification standards for green bonds and green investment funds to ensure the authenticity of green finance products. The EU encourages green investment and innovation through tax incentives and has established a carbon trading market to provide a market mechanism for green finance development.

In the United States, green finance development is market-driven, with the government primarily promoting it through policy formulation and information support. The U.S. is the world's largest green bond market, with a vast market size and a wide variety of products. The U.S. places significant emphasis on ESG investment, which has been growing rapidly, with an increasing number of investors incorporating ESG factors into their investment decisions. Financial technology companies in the U.S. are actively developing green finance products and services, driving innovation in green finance.

Japan, on the other hand, adopts a government-guided green finance development model, regulating the market with "visible hands" to promote the growth of green finance.

Through this international comparative analysis, we see that green finance is a crucial force in driving the green and low-carbon transformation of economic structures. China can draw lessons from international experiences and, in light of its own national conditions, explore a green finance development path suited to its context.

5. Conclusion

Although the development of green finance has achieved significant results, it still faces several challenges. For example, the legal framework and regulatory system for green finance remain underdeveloped, resulting in a lack of unified standards for green finance products and services. Additionally, green finance resources are unevenly distributed across regions, with some areas experiencing lagging development in green finance, along with issues like "greenwashing" as mentioned earlier. To address these challenges, China should not only improve the legal framework and institutional structure of green finance but also strengthen regional cooperation and enhance market supervision. Through legislation, market mechanisms, and policy support, the country can promote the diversified development of green finance [12].

As a key force in achieving the "dual carbon" goals, the importance of green finance is self-evident. It can not only direct capital towards green and low-carbon sectors but also foster technological innovation and accelerate the transformation and upgrading of the economic structure. The development of green finance contributes to achieving a win-win outcome between economic and social development and ecological environmental protection. It has profound significance for building an ecological civilization and promoting sustainable development. Against the backdrop of increasingly severe global climate change, green finance has become a crucial bridge connecting economic activities and environmental protection. It is not just a financial innovation, but also a transformative development concept. In the future, China should continue to deepen green finance reforms, fully leverage the role of green finance as an engine for achieving the "dual carbon" goals, and contribute Chinese wisdom and solutions to global climate governance. Through the continuous development of green finance, we can look forward to a greener, lower-carbon, and more sustainable future.

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