

Mechanisms and Practices of Green Finance in Promoting Sustainable Economic Transition in China

Lingqi Shi

Department of Economics, University of California, Davis, Davis, CA 95616, USA
shilingqi2022@163.com

Abstract: With the transformation of China to high-quality economic development and ecological civilization, green finance has become a key force to combine capital allocation with environmental goals. Green finance is widely defined as financial activities that support environmental sustainability, including green credit, bonds, insurance, carbon market and environmental, social and governance investments. Since the green financial reform and innovation pilot zone was launched in 2017, China has rapidly expanded its green financial infrastructure with the support of regulators and digital platforms. This paper studies the mechanism of green finance promoting sustainable economic transformation in China, focusing on policy framework, institutional coordination, financial instruments and regional implementation. According to literature analysis, policy comments and regional case studies (Zhejiang, Guangdong and Yellow River Basin), this paper reveals that green finance promotes resource efficiency, innovation and decarbonization, but it faces obstacles such as data fragmentation, regional differences, limited inclusiveness and green cleaning risks. This study emphasizes the importance of multi-stakeholder governance, regulatory standardization and digital ESG infrastructure in overcoming these obstacles. Finally, the paper puts forward the policy path to strengthen China's green financial ecosystem and its international compatibility, which can provide reference for other emerging economies seeking low-carbon transition.

Keywords: Green Finance; Sustainable Development; ESG; China; Low-carbon Transition; Carbon Neutrality; Financial Innovation.

1. Introduction

Amid intensifying climate challenges and ecological degradation, the global financial system is being reoriented to support environmental goals and sustainable development. Green finance—defined as financial services and instruments that generate environmental benefits—is at the core of this transformation. It serves as a policy tool to channel capital away from polluting industries toward clean energy, ecological restoration, and low-carbon technologies [1, 2]. The international community has increasingly acknowledged green finance as essential for achieving climate targets such as those in the Paris Agreement and the United Nations Sustainable Development Goals (SDGs) [3].

China, as the world's second-largest economy and largest carbon emitter, plays a critical role in the global green transition. In 2020, President Xi Jinping announced China's commitment to peak carbon emissions by 2030 and achieve carbon neutrality by 2060. These "dual carbon goals" have profound implications for industrial structure, energy consumption, and financial policy. According to Mebratu (1998), transitioning toward sustainability requires not only technological advancement but also institutional transformation, including in the financial sector.

Recognizing this, China has rapidly developed a comprehensive green finance system, guided by key policy documents such as the "Guidelines for Establishing a Green Financial System" and the implementation of pilot zones in provinces such as Zhejiang, Guangdong, and Guizhou [4]. By 2023, green loan balances exceeded ¥22 trillion, and green bond issuance ranked among the world's highest [5]. Financial institutions are increasingly integrating ESG (Environmental, Social, and Governance) considerations into risk assessment and capital allocation [6, 7].

However, despite significant progress, China's green finance faces several challenges: (1) inconsistent standards between domestic and international classifications, (2) fragmented ESG data, (3) underdeveloped green insurance and financial derivatives, (4) limited access for rural and small enterprises, and (5) regional disparities in implementation capacity [8, 9]. These constraints hinder the scaling and effectiveness of green finance as a tool for systemic transformation.

This paper attempts to answer the following research questions: How does green finance promote China's sustainable economic transformation, and what mechanisms and institutional arrangements determine its effectiveness? In order to solve this problem, this study adopts multi-level analysis, combining literature review, policy evaluation and regional case study. It explains the role of green finance in the transformation of China from the theoretical perspectives of ecological modernization theory, institutional economics, and sustainable development framework.

The structure of the paper is as follows: Section 2 reviews the evolution and conceptual foundations of green finance, highlighting both international and domestic perspectives. Section 3 outlines the research methodology, including analytical tools and data sources. Section 4 presents empirical cases from Zhejiang, Guangdong, and the Yellow River Basin, analyzing region-specific innovations. Section 5 discusses policy implications and proposes recommendations. Section 6 concludes with reflections on green finance's role in China's ecological transformation and its global significance.

2. Literature Review

2.1. Theoretical Foundations and Conceptual Development

Green finance refers to financial activities that integrate environmental protection objectives with economic development. According to Lindenberg [1], it encompasses green credit, green bonds, green insurance, carbon finance, and other tools aimed at mitigating climate risks and enhancing sustainability. Höhne et al. emphasize that green finance is essential in bridging the gap between available capital and low-carbon investment needs, especially in emerging economies [2].

From a theoretical perspective, green finance builds upon the logic of ecological modernization theory, which suggests that technological innovation and institutional reforms can align economic growth with environmental protection [10, 11]. At the same time, green finance also reflects elements of institutional economics, where financial institutions, regulatory bodies, and norms evolve in response to environmental externalities and sustainability imperatives [8].

In the Chinese context, green finance has been framed as a strategic instrument for achieving the “dual carbon” goals and guiding high-quality development. Government authorities, particularly the People’s Bank of China (PBOC), have taken a proactive role in shaping green financial standards and piloting experimental zones to test innovative mechanisms [4]. This state-led model is distinct from the more market-driven frameworks in the EU and the US [5].

2.2. International and Domestic Standards

Globally, green finance taxonomies have been developed to standardize what qualifies as “green.” The European Union’s taxonomy is considered one of the most comprehensive, grounded in the “do no significant harm” (DNSH) principle. China has published its own “Catalogue of Green Bond Endorsed Projects,” but inconsistencies remain—particularly in classifying clean coal or transitional industries, which are excluded in the EU framework but permitted in China’s system [5, 12].

Efforts to align these systems have emerged under the Common Ground Taxonomy (CGT) initiative launched by the International Platform on Sustainable Finance. Yet full harmonization is still a work in progress. Scholars such as Zhang argue that a lack of unified criteria hinders cross-border capital flows and increases greenwashing risks, undermining the credibility of green finance markets [12].

Domestically, ESG frameworks in China are still under construction. While listed companies are encouraged to disclose ESG information, requirements are not yet mandatory. This creates barriers to financial institutions’ risk assessment and pricing strategies [7, 5].

2.3. Financial Instruments and Empirical Research

The most commonly used tools in green finance include green credit, green bonds, carbon markets, and green insurance. Green credit remains the dominant instrument in China, accounting for over 60% of green financial assets [6]. Empirical studies show that green loans improve firms’ environmental performance, innovation capacity, and energy efficiency, especially when combined with government support or industrial guidance [13].

Green bonds are increasingly used to finance large-scale

infrastructure projects such as renewable energy, low-emission transportation, and green buildings. Guangdong province, particularly Shenzhen, has pioneered municipal-level green bond issuance and carbon-neutral instruments [5]. The growth of green ABS and sustainability-linked bonds also signals increasing diversification of financial products.

In addition to credit and bonds, carbon markets are gaining traction as a market-based tool for emission reduction. China launched its national carbon trading system in 2021, but coverage and pricing mechanisms are still limited. Li points out that household carbon behavior, a major but often overlooked factor, could be shaped through carbon finance products and consumption-based incentives [7].

Insurance and risk-sharing instruments, including climate-indexed insurance and catastrophe bonds, remain underdeveloped in China. However, scholars such as Zhou and Liu emphasize the importance of developing these tools to improve climate resilience and unlock long-term capital [8, 14].

2.4. Regional Practices and Institutional Mechanisms

Recent research has highlighted the importance of regional differentiation in implementing green finance. Zheng et al. [9] studied the Yellow River Basin and found that green finance contributes significantly to ecological-economic efficiency, especially when coordinated with government environmental policies. Meanwhile, Zhejiang has been at the forefront of integrating digital finance with ESG scoring systems, allowing dynamic risk pricing and targeted credit allocation [14].

Coordination among local governments, financial institutions, and regulatory bodies is key. Studies by Chen Donghui and Liu Yanan explore how green finance can empower “new productive forces,” especially when coupled with local innovation ecosystems and supportive policy environments [5, 14]. However, regional fragmentation and institutional capacity disparities remain significant obstacles.

The role of audit and supervision is also concerned. Zhang proposed a modern audit framework to improve the transparency and accountability of green finance, especially in public sector investment and public-private partnership projects [12]. This complements the existing call for strengthening the third-party verification and post-loan tracking mechanism.

2.5. Research Gaps and Contributions

Despite the expanding body of research, several critical gaps remain:

First, there is limited integration between macro-level policy studies and micro-level financial behavior—most analyses focus on either institutional frameworks or firm-level effects, rarely both.

Second, the role of digital technologies in promoting inclusive, efficient, and transparent green finance is underexplored in the literature.

Third, household and consumer-level impacts of green finance (e.g., on carbon-conscious consumption, green housing loans) are rarely analyzed in existing studies [7].

Fourth, few studies provide a comprehensive comparative analysis of regional implementation within China and its implications for national policy design.

This paper aims to make up for these gaps by combining multi-level analysis, regional case comparison and theoretical

synthesis. By studying how green financial instruments operate within the institutional framework of different provinces, this study will help to understand China's transition to a low-carbon economy in a more comprehensive way.

3. Methodology

This study adopts case-based qualitative method, supplemented by targeted literature analysis and second-hand data synthesis. The goal is to study the institutional mechanism, financial instruments and governance framework for green finance to promote sustainable economic transformation in China. By comparing regional practices and policy implementation in several provinces, this study attempts to identify best practices and systemic constraints.

3.1. Analytical Framework

The methodological foundation is grounded in institutional analysis and ecological modernization theory, which emphasize the interplay between policy structures, market mechanisms, and environmental outcomes [10, 11]. Specifically, the analysis draws upon the following dimensions:

Policy Design and Regulatory Architecture: How national and local governments design and enforce green financial policies (e.g., taxonomies, disclosure standards, fiscal incentives).

Financial Instruments and Innovation: What types of green financial products are used, and how they interact with market demand, environmental targets, and risk structures.

Institutional Coordination and Governance: How different actors—including central banks, commercial banks, regulators, and enterprises—coordinate in promoting green finance.

Regional Implementation and Adaptation: How policies are interpreted and applied differently across regions, especially in pilot zones and ecologically sensitive areas.

This multi-dimensional framework allows for a holistic assessment of green finance, emphasizing both structural design and operational performance.

3.2. Case Selection and Justification

The study focuses on three representative regional cases: Zhejiang Province, Guangdong Province, and the Yellow River Basin. These were selected based on the following criteria:

Pilot zone status: All three regions were designated as Green Finance Reform and Innovation Pilot Zones in 2017.

Economic diversity: Zhejiang is known for its digital finance infrastructure, Guangdong for its export-oriented economy and green capital markets, and the Yellow River Basin for its ecological vulnerability and underdevelopment.

Availability of data and policy transparency: Each region has published publicly accessible green finance reports, making them suitable for comparative analysis.

These cases offer contrasting perspectives on how local characteristics influence the application and evolution of green financial mechanisms.

3.3. Data Sources

This research uses secondary data drawn from:

Official publications and policy documents (e.g., PBOC, CBIRC, local governments).

Reports and statistical bulletins from financial institutions such as Industrial Bank, CDB, and Shenzhen Stock Exchange.

Academic studies published in peer-reviewed journals (e.g., Sustainability, Journal of Sustainable Finance & Investment).

International reports including those from the GIZ, OECD, and World Bank on green finance benchmarks and global best practices.

Local-level data on green loan volumes, green bond issuances, and ESG practices, particularly from 2020 to 2024.

Key sources include works by Chen et al. [5,8,9,15], which provide empirical findings on regional performance and institutional dynamics.

3.4. Limitations

While the study provides comprehensive insights into the mechanisms of green finance in China, it is subject to several limitations:

Lack of first-hand fieldwork: Due to access and resource constraints, the research relies on secondary data and does not incorporate stakeholder interviews or surveys.

Temporal scope: The analysis focuses on the post-2017 period when formal pilot zones were established. Earlier policy evolution is not covered in depth.

Limited generalizability: Findings based on selected regions may not fully represent conditions in inland or less developed provinces.

Nonetheless, the qualitative depth and comparative structure of the analysis allow for meaningful insights into the institutional mechanisms driving green finance and provide policy-relevant recommendations.

4. Empirical Evidence and Case Analysis

This section compares and analyzes the implementation of green finance in three different regions of China: Zhejiang, Guangdong, and the Yellow River Basin. Each case reveals different institutional strategies, financial instruments, and policy innovations determined by local development conditions and environmental pressures.

4.1. Zhejiang: Digital Innovation and ESG Integration

Zhejiang, particularly the cities of Hangzhou and Huzhou, has emerged as a national leader in digital green finance. As one of the earliest Green Finance Reform and Innovation Pilot Zones, Zhejiang has successfully integrated fintech platforms with ESG scoring systems to allocate credit efficiently to environmentally responsible firms [14].

The province launched the Green Financial Comprehensive Service Platform in 2019, which integrates real-time environmental data with enterprise-level credit risk indicators. This digital infrastructure enables commercial banks to evaluate borrowers' environmental performance dynamically, thereby reducing information asymmetry and enhancing risk-based pricing [12]. As of 2023, the platform had supported over 12,000 SMEs and reduced average loan interest rates by 1.2% for green-compliant firms.

Moreover, Zhejiang's local government has issued regional green bond guidelines and supported green ABS (asset-backed securities), making it a pioneer in product innovation. According to Wang et al. [6], the province's green loan balance reached ¥1.3 trillion by 2022, accounting for nearly 15% of total local lending—a significant share by national standards.

However, challenges remain. Many rural firms lack access

to digital tools or the capacity to meet ESG reporting requirements. As Liu Yanan points out, even in digital-first regions, there is a risk of "data elitism," where smaller entities are excluded from green finance due to weak disclosure capacity or low digital readiness [14].

4.2. Guangdong: Capital Markets and Cross-border Innovation

Guangdong province, especially the Pearl River Delta region, uses its strong financial market infrastructure and cross-border trade links to expand green finance. Shenzhen is home to Shenzhen Stock Exchange and many financial technology companies, and has taken the lead in launching several green financial innovations. In 2021, Shenzhen issued China's first carbon-neutral municipal bond, earmarked for solar infrastructure and clean transport. The city also launched a green ETF (Exchange Traded Fund) linked to an ESG-compliant index of listed companies. These innovations have made Guangdong a benchmark for market-based green finance [5].

Additionally, Guangdong's proximity to Hong Kong allows it to benefit from cross-border financial cooperation. Through the Greater Bay Area Green Finance Alliance, Guangdong banks participate in pilot programs for carbon-linked loans and sustainability-linked credit products denominated in multiple currencies [8]. Foreign investors have increasingly engaged with Guangdong's green bond market, attracted by its relative regulatory clarity and product diversity.

Nonetheless, scholars such as Long & Ding caution that most green bonds in Guangdong still rely on post-issuance self-disclosure with limited third-party verification, leaving room for greenwashing [13]. Moreover, large firms dominate the issuance landscape, while SMEs struggle to meet listing and compliance thresholds.

4.3. Yellow River Basin: Ecological Inclusion and Institutional Synergy

Unlike Zhejiang and Guangdong, the Yellow River Basin represents a more resource-constrained region where green finance is closely tied to ecological preservation and poverty alleviation. The region's green finance model is anchored in policy-driven microfinance, with strong support from local governments and rural financial institutions [9].

Key instruments include green guarantee funds, environmental rights pledges, and ecological compensation schemes that mobilize credit for water management, reforestation, and low-emission agriculture. Provinces like Gansu and Inner Mongolia have also piloted carbon sink loans, allowing forest cooperatives to monetize carbon sequestration capacity as loan collateral [15].

According to Zheng et al. [9], the ecological-economic efficiency of the region improved by 6.3% between 2018 and 2022, with significant contributions from targeted green loans. However, capacity gaps persist. Rural banks often lack ESG assessment tools, and many borrowers have low financial literacy. The coordination among local finance, ecology, and development departments is essential—but also difficult to sustain without central guidance and stable funding [8, 12].

Despite these limitations, the Yellow River Basin offers a model of inclusive green finance. As Li notes, addressing household-level carbon behavior through microloans and behavioral nudges could be the next frontier in green financial innovation [7].

4.4. Comparative Insights

These cases highlight how the institutional environment, regulatory innovation and digital readiness affect the scope and effectiveness of green finance. As shown in Table 1, Zhejiang and Guangdong emphasize financial innovation and market depth, while the Yellow River Basin embodies policy-led inclusiveness. In short, they illustrate the multi-faceted role of green finance in promoting the sustainable transformation of heterogeneous regions.

Table 1. Comparative Dimensions of Regional Green Finance Models

Dimension	Zhejiang	Guangdong	Yellow River Basin
Financial Focus	Digital ESG credit & bonds	Market-based bonds, ETFs	Microfinance, carbon sink loans
Institutional Drivers	Fintech firms & local government	Capital markets & cross-border flow	Government-subsidized banks & cooperatives
Strengths	Data infrastructure, SME support	Product innovation, investor access	Ecological targeting, social inclusion
Challenges	Data access for rural firms	Greenwashing risk, SME exclusion	Capacity constraints, reliance on subsidies

5. Discussion and Policy Recommendations

5.1. Key Challenges in China's Green Finance Ecosystem

Despite significant achievements, China's green finance system continues to face a series of systemic challenges that may limit its transformative capacity. These include:

(1) Fragmented ESG Disclosure and Data Infrastructure

A major challenge lies in the lack of unified and mandatory ESG disclosure standards. While China's regulatory authorities have issued guidelines, enforcement is uneven and often limited to listed companies. As Li and Chen et al. point out, many SMEs and rural enterprises do not report ESG data due to resource constraints or absence of incentives [5, 7]. This hinders effective risk pricing, asset classification, and policy targeting.

In comparison, the EU has adopted the Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy, creating a more robust disclosure system. The absence of comparable measures in China makes international capital integration difficult [12].

(2) Lack of Green Finance Audit and Post-loan Monitoring Systems

Zhang highlights the weakness of China's current green finance audit supervision mechanisms, particularly for post-loan tracking [12]. While issuance verification is increasingly common, there is insufficient emphasis on verifying whether funds are truly used for green purposes. This opens the door to greenwashing, undermining the legitimacy and environmental impact of green finance instruments.

(3) Regional and Institutional Capacity Gaps

The implementation of green finance varies widely across regions. Developed areas such as Zhejiang and Guangdong

have the digital infrastructure and institutional coordination to scale green products. However, regions such as the Yellow River Basin struggle with capacity constraints, underdeveloped ESG tools, and limited institutional experience [8, 9]. These disparities threaten the national consistency of green finance policy.

(4) Over-reliance on Credit, Underdevelopment of Green Insurance and Derivatives

Green credit remains the dominant instrument in China, accounting for the majority of green financial assets. However, other instruments—especially green insurance, sustainability-linked derivatives, and carbon pricing tools—remain underdeveloped [13]. This limits the system’s ability to manage climate-related financial risks in a comprehensive manner.

5.2. Policy Recommendations

To address the above issues and enhance the transformative power of green finance, the following policy recommendations are proposed:

(1) Standardize ESG Disclosure and Strengthen Data Platforms

The Chinese government should expedite the formulation and enforcement of mandatory ESG disclosure rules across all listed firms and large private enterprises. Integrating ESG standards with digital financial platforms—such as Zhejiang’s Green Finance Platform—can improve data coverage, reduce reporting costs, and foster more inclusive participation [5, 14].

Additionally, leveraging blockchain, IoT, and AI technologies can help automate ESG monitoring and reduce reliance on manual audits.

(2) Develop a Modern Green Finance Auditing System

To curb greenwashing and increase accountability, Zhang proposes a three-tier audit system including (1) pre-loan green qualification assessment, (2) mid-term project compliance monitoring, and (3) post-loan environmental outcome evaluation [12]. This model should be piloted in state-owned banks and extended gradually to private institutions through third-party certification agencies.

Aligning these audits with internationally recognized standards (e.g., ISSB, TCFD) will also enhance China’s global credibility.

(3) Promote Financial Innovation Beyond Green Credit

China should accelerate the development of green insurance products to mitigate climate risks in agriculture, real estate, and infrastructure. Pilot programs for parametric insurance, weather-indexed coverage, and catastrophe bonds should be launched in ecologically sensitive areas such as the Yellow River Basin [8, 15].

In addition, sustainability-linked derivatives—such as carbon swaps and ESG futures—can help investors manage climate exposure. This requires coordinated efforts between the PBOC, CBIRC, and capital market regulators.

(4) Enhance Institutional Coordination and Regional Policy Differentiation

Green finance policy must reflect local ecological and economic conditions. As seen in the Yellow River Basin, strong inter-agency coordination (e.g., between ecological, financial, and development bureaus) enhances effectiveness. The central government should encourage provinces to formulate region-specific green finance action plans, while providing technical guidance and financial transfers to under-resourced regions [9].

(5) Integrate Household and Consumption-based Green

Finance

As Li emphasizes, green finance should not remain confined to enterprise-level operations [7]. Household-level financial tools—such as green mortgages, eco-consumption credit, and carbon footprint-linked savings products—can mobilize broader social participation in climate action. Fintech platforms should collaborate with e-commerce and utility providers to develop personal carbon accounts that reward low-carbon behavior.

6. Conclusion

This study has explored the mechanisms and practices of green finance in promoting sustainable economic transition in China. By combining a theoretical review, multi-case empirical analysis, and policy evaluation, the paper provides a comprehensive understanding of how green financial instruments, institutional structures, and regional implementation strategies interact to drive China’s low-carbon development.

6.1. Summary of Key Findings

First, the paper confirms that green finance in China is deeply shaped by state-led institutional design, with the central government playing a crucial role in setting regulatory frameworks, piloting innovation zones, and mobilizing policy banks. This contrasts with market-driven models in Europe and North America, where private actors and investor demand exert stronger influence [1, 3].

Second, empirical evidence from Zhejiang, Guangdong, and the Yellow River Basin demonstrates the regional heterogeneity in green finance practices. While Zhejiang leads in digital green finance and ESG integration, Guangdong excels in capital market-based innovation and cross-border financial flows. The Yellow River Basin, though less developed, exemplifies policy-driven ecological finance aimed at inclusive development and poverty reduction.

Third, despite progress, China’s green finance system still faces significant challenges, including fragmented ESG data, weak auditing systems, product concentration in green credit, and uneven institutional capacity across regions. These structural constraints must be addressed to unleash the full potential of green finance as a lever for ecological transition.

6.2. Contributions and Policy Implications

The study contributes to existing literature by offering a multi-level institutional perspective on green finance implementation in China, linking macro-policies with local case studies and proposing actionable strategies to bridge policy-practice gaps. It also enriches comparative green finance research by demonstrating how socio-political context shapes the evolution of financial innovation.

From a policy standpoint, the findings underscore the importance of:

Standardizing ESG disclosure across firms and sectors to reduce information asymmetry and attract international investment.

Developing a robust green auditing and monitoring system to ensure accountability and mitigate greenwashing.

Promoting financial product diversification beyond green credit, including insurance, carbon-linked instruments, and consumer-targeted green finance.

Encouraging region-specific policy design while maintaining central guidance to promote equitable and effective outcomes nationwide.

6.3. Limitations and Future Research

This study is based on qualitative methods and secondary data analysis. While this allows for broad insights, it limits micro-level understanding of firm behavior, investor preferences, and household decision-making. Future research could incorporate:

Survey or interview-based fieldwork with banks, regulators, and enterprises.

Quantitative econometric analysis using panel data across provinces to measure green finance's causal effects on emissions and GDP.

Behavioral finance approaches to explore how green products influence household or investor behavior.

Cross-national comparisons between China and other emerging economies to examine institutional path dependencies and convergence trends.

Ultimately, as China moves closer to its “dual carbon” goals and deeper integration with global capital markets, green finance will remain a critical frontier of reform, innovation, and international collaboration. Ensuring that this transition is equitable, transparent, and effective will require not just financial tools, but a transformation of development logic and institutional governance.

References

- [1] Lindenberg, N. (2014). Definition of green finance. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- [2] Höhne, N., Taylor, J., Elias, R., et al. (2012). Contribution of green finance to climate change mitigation. *Climate Policy*, 12(4), 601–619.
- [3] Sachs, J. D., Woo, W. T., Yoshino, N., & Taghizadeh-Hesary, F. (2019). Importance of green finance for achieving sustainable development goals and energy security. In *Handbook of Green Finance* (pp. 3–12). Springer.
- [4] People's Bank of China (PBOC), et al. Guidelines for Establishing a Green Financial System. 2016.
- [5] Chen, D., Shi, D., Qi, D., & Shi, H. (2025). Green finance statistical standards: International comparison and practices in China. *Statistical Research*, 42(1), 75–87.
- [6] Wang, K.-H., Zhang, Y., & Lin, X. (2022). The impact of green finance on economic growth and environmental protection: Evidence from China. *Journal of Sustainable Finance & Investment*, 12(3), 310–329.
- [7] Li, R. (2024). How does green finance affect household carbon emissions? A life-cycle perspective. *China Finance Forum Working Paper Series*, (03), 1–22.
- [8] Zhou, C. (2024). Green finance regulation, resource allocation, and high-quality development: Based on a DSGE model. *Financial Regulation Research*, 12(3), 15–32.
- [9] Zheng, Q., Liu, Y., & Sun, M. (2024). The impact of green finance on ecological-economic efficiency in the Yellow River Basin. *Ecological Economics Review*, 10(1), 88–102.
- [10] Mebratu, D. (1998). Sustainability and sustainable development: Historical and conceptual review. *Environmental Impact Assessment Review*, 18(6), 493–520.
- [11] Harris, J. (2003). Sustainability and sustainable development. Global Development and Environment Institute, Tufts University.
- [12] Zhang, M. (2023). Audit supervision systems for modern green finance in China. *Audit and Finance Studies*, 38(4), 89–104.
- [13] Long, S., & Ding, R. (2024). Environmental regulation, green credit, and technological learning in hydrogen enterprises. *Journal of Green Finance Research*, 9(2), 45–63.
- [14] Liu, Y. (2024). Digital ESG systems and green finance inclusion: Evidence from Zhejiang pilot platform. *Journal of Sustainable Development in China*, 11(2), 55–68.
- [15] Ren, Y., & Hu, Y. (2024). Can green finance reconcile carbon reduction quantity and quality? Evidence from green finance reform pilot zones. *Journal of Guizhou University of Finance and Economics*, Advance online publication.