



Transmission Mechanism and Restraining Factors of Green Finance Policies

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Abstract. Within the framework of global climate governance and sustainable development agendas, green finance serves as an essential instrument to reconcile economic expansion with ecological conservation. China has formed a policy-led green finance development model, achieving remarkable results in areas such as green credit, bonds, and reform pilots. This article, based on domestic and international literature, analyzes the policy transmission mechanism and the constraints. Green finance can regulate corporate behavior, boost the macroeconomy, and reduce carbon emissions and increase efficiency through various pathways, including alleviating financing constraints, promoting green technology innovation, optimizing industrial and energy structures, and signal transmission. However, its policy effects exhibit significant heterogeneity, hampered by issues such as inconsistent green standards, information asymmetry, greenwashing, unbalanced policy incentives, and external uncertainties. Furthermore, it demonstrates a stronger constraint than incentive characteristic and a pronounced structural bias. Therefore, it is necessary to improve green standards, strengthen information disclosure, optimize the policy framework, and deepen regulatory coordination to enhance policy effectiveness and facilitate the achievement of dual-carbon goals.

Keywords: Green Finance, Policy Transmission Mechanism, Financing Constraints, Greenwashing.

1 Introduction

Amid accelerating global climate change and widespread international consensus toward green, low-carbon transition, green finance is evolving into a pivotal institutional vehicle that links economic expansion to environmental regulation. Motivated by the carbon peaking and carbon neutrality targets, China is undergoing a shift in its economic development paradigm, moving away from the previous high-energy, high-emission growth pattern toward green and sustainable progress. The pivotal role of the financial system in resource allocation makes it a key lever to promote this transformation. In recent years, China has initially built a multi-level green finance system through a series of policy arrangements such as green credit, green bonds, and green finance reform and innovation pilot zones, and has made significant

progress in guiding funds to environmental protection and low-carbon industries [1]. However, while the policies are being rapidly promoted, their actual effects and pathways remain uncertain, which makes it of great practical significance to systematically sort out the internal mechanism of green finance policies.

The existing literature has extensively discussed the economic and environmental effects of green finance. According to one school of academic thought, enterprises' financing restrictions can be markedly relieved via green finance, which simultaneously facilitates green technological breakthroughs and curbs carbon pollutant emissions [2]. Another type of research points out that the impact of Green Finance on financing costs and corporate behavior is unstable, and may even cause problems such as resource mismatch or green drift [3]. Such inconsistent conclusions primarily stem from two limitations in current research: most existing literature merely analyzes empirical outcomes, fails to systematically sort out the transmission channels of green finance policies, and overlooks institutional barriers emerging throughout policy enforcement. Therefore, from the dual perspective of transmission mechanism and constraints, a systematic review of relevant research will help deepen the understanding of the logic of the role of green finance policy.

Against this background, this study selects China's practical context as the research setting to clarify the transmission mechanism and restrictive factors of green finance policies. This study firstly establishes a multi-dimensional transmission framework for green finance policies, covering five core pathways, which are financing constraint alleviation, green technological innovation, industrial structure optimization, energy structure restructuring, and market signal transmission. Then, from the perspective of institutional environment and market operation, this paper analyzes the restrictive effects of such factors as the disunity of green standards, information asymmetry, green drift, the imbalance of policy incentive structure and external shocks on the policy effect. The study found that the green financial policy as a whole promotes the green transformation of the economy through multiple mechanisms, but its path of action shows obvious structural characteristics. The constraint effect is stronger than the incentive effect [4], and there is significant heterogeneity between different enterprises and regions [5].

Relative to existing academic achievements, the marginal contributions of this paper are embodied in the following two perspectives. First, from the perspective of mechanism integration, the role path scattered in different literatures is systematically summarized, so as to make up for the lack of single-mechanism research. The second is to bring the transmission mechanism and constraints into the unified analysis framework, reveal the internal reasons for the differences in the effects of green finance policies, and provide a new analytical perspective for understanding the boundaries of policy effectiveness. It not only expands the green financial policy analysis framework in theory, but also provides targeted policy implications for the optimization of China's green financial system.

2 The Development Background of Green Finance Policy

The green financial policy is to support environmental improvement and low-carbon transformation through financial means, and realize the coordination and unification of environmental benefits and economic returns. Green financial instruments cover various forms such as green credit, green bonds, green funds, carbon financial instruments and green insurance. Their essence is a policy-oriented financial resource allocation mechanism [6]. The theoretical basis of this mechanism mainly comes from externality theory and information asymmetry theory. On one hand, negative externalities such as environmental pollution lead to market failure, which requires internalization of environmental costs through financial and policy tools. On the other hand, green projects are often characterized by high uncertainty and opaque information, leading to financing constraints, which need to be alleviated through policies and information disclosure mechanisms [7].

From the perspective of institutional evolution, China's green financial policy has experienced a gradual transformation from administrative led to market driven. In the initial stage (2006-2010), the policy mainly focuses on green credit, restricts the financing of high pollution industries through administrative means, and guides banks to support environmental protection projects. In the development stage (2011-2015), green financial instruments have been gradually enriched, green bonds and carbon trading pilot projects have been launched, and the market mechanism has begun to play a role. In the systematization stage (since 2016), China has built a green financial system of regulation market information coordination, and promoted institutional innovation and regional practice through the green financial reform and innovation pilot zone [1]. Policy instruments have changed from a single administrative intervention to a market-oriented mechanism, and green finance has gradually changed from a policy subsidiary to a market-oriented resource allocation mechanism. At the same time, the governance structure has changed from one-way central leadership to central local interaction, and local governments have formed experience through pilot exploration and fed back central policies [1]. This institutional evolution provides an important institutional basis for the formation of the multi-level transmission mechanism of green finance.

3 Transmission Mechanism of Green Financial Policy

From the existing research, the path of green financial policy shows an obvious multi-level structure. Its principle is to affect enterprise behavior and macroeconomic operation through a series of intermediary mechanisms.

First, at the micro level, the financing constraint mitigation mechanism constitutes the most basic transmission path of green finance. Green finance makes it easier for green enterprises to obtain financing through differentiated credit allocation. At the same time, the financing space of high-polluting enterprises is compressed to realize resource reallocation [4]. This mechanism is essentially reflected in the credit rationing effect, that is, the policy plays a role by affecting the availability of funds rather than

the price mechanism [4]. However, further research shows that the influence of Green Finance on financing costs is not significant, which means that it has not yet fully formed a market-oriented pricing mechanism [4]. In this context, green finance is more similar to an access constraint tool. Its main role is to change whether enterprises can obtain financing, rather than the financing cost level. This feature reflects, to a certain extent, that China's green financial system is still in the policy-leading stage.

On the basis of the financing mechanism, green finance will further play its role through the technological innovation mechanism. Green finance promotes enterprises to increase green R&D investment by easing financing constraints and reducing innovation risks, and promotes green technology innovation through economic growth, industrial upgrading and R&D investment [8]. However, it should be pointed out that the mechanism presents obvious differences among different enterprises. Green finance has a significant effect on the forced innovation of polluting enterprises, while the incentive effect on green enterprises is relatively limited, which indicates that green finance is more inclined to be a constrained policy tool at the current stage [4].

At the same time, green finance also affects economic operation through the industrial structure upgrading mechanism. Green finance reshapes the allocation of social capital and directs resource transfer away from high-emission and high-pollution industries toward low-carbon sectors, which further optimizes industrial structure and enhances green total factor productivity[9]. This mechanism is not only reflected in the reallocation of resources among industries, but also in the upgrading of technology and efficiency within the industry.

At the macro level, green finance plays a role through the energy structure transformation and signal transmission mechanism. By funding renewable energy projects on a long-term basis, green finance accelerates the shift of the energy system toward a low-carbon development model [10]. At the same time, the ESG rating and information disclosure mechanism enable green finance to have the function of signal transmission, and high ESG enterprises can obtain lower financing costs [5]. In addition, green finance also reduces information asymmetry through the reputation insurance effect, so as to improve the financing conditions of enterprises. This mechanism is primarily reflected in enterprises' active commitment to social responsibility and environmental information disclosure, which helps mitigate information asymmetry and lower financing costs. The mediation effect accounts for about 33% -39% [11].

In general, the green financial policy forms a complete transmission chain through multi-layer mechanisms, and ultimately reduces carbon emissions and improves environmental performance. However, this transmission process is not linear, but is affected by a variety of institutional and market factors.

4 Heterogeneity Effect of Green Financial Policy

From the existing research, the implementation effect of green finance policy is not evenly distributed. It shows significant structural differences at the regional, industrial and enterprise levels. Such heterogeneity not only mirrors disparities in economic

development stages, industrial layouts and institutional environments across regions, but also exposes the varying transmission efficiency and effective scope of green finance policies under diverse contextual conditions.

First, at the regional level, the effect of green finance policy shows obvious spatial differences. In general, the marginal effect of policies is more significant in regions with a low level of financial development or high pressure on green transformation [1]. On the one hand, due to the high proportion of traditional high-polluting industries in the central and western regions or resource-based regions, green financial policies can more directly promote industrial adjustment through credit constraints and capital reallocation, thus producing stronger effects in reducing pollution emissions and promoting structural upgrading. On the other hand, in the eastern developed regions, due to the relatively perfect market mechanism and the diversification of enterprises' own financing channels, the incremental effect of green financial policy is relatively limited, and even a marginal decline may occur [3]. Variations in the strictness of environmental rules and local government execution capabilities across different regions also widen the regional gaps in policy implementation outcomes. This shows that the green financial policy has obvious institutional dependence. Its effect depends not only on the policy itself, but also on the regional economy and institutional basis.

Secondly, at the industry level, the impact of green financial policy on different industries shows significant differentiation characteristics. For highly polluting and energy-intensive industries, green finance exerts a prominent restraining effect. By tightening credit supply and elevating financing thresholds, it compels incumbent firms to conduct technological upgrading or phase out inefficient production capacity, thereby substantially cutting pollutant emissions and accelerating short-term industrial transformation and upgrading [4]. For green industries or strategic emerging industries, green finance mainly plays a supporting and guiding role by providing long-term funds to promote their expansion and technological innovation. However, it is worth noting that due to the high risk and long return cycle of the green industry itself, financial institutions may have limited support for it under the constraint of risk control. The policy incentive effect is weaker than the constraint effect [4]. In addition, in some transitional industries between green and pollution, the role of green financial policy is often uncertain, which has also become an important controversial point in the current research.

Finally, at the enterprise level, the effect of green finance policy shows a more complex heterogeneity. In terms of enterprise ownership, state-owned enterprises enjoy greater access to green financial resources, attributable to their superior credit endorsement capacity and policy sensitivity. Private enterprises face a higher financing threshold, resulting in uneven distribution of policy dividends [4,5]. From the perspective of scale, large enterprises are more likely to obtain green credit and green bonds because of their stronger ability to disclose information and more controllable risks. Small and medium-sized enterprises find it more difficult to benefit from information asymmetry and credit constraints. From the perspective of pollution degree, high-pollution enterprises often face financing contraction pressure under policy constraints. Enterprises are forced to increase green investment or withdraw from the market. The effect of green enterprises is more reflected in the marginal

improvement effect [4]. In addition, the level of corporate governance and ESG performance will also affect the policy effect. Enterprises with high governance quality and high ESG rating are more likely to obtain low-cost financing through the signaling mechanism. Enterprises with low governance level may distort the policy effect through green drift [7].

On the whole, the heterogeneity of green finance policy is essentially due to the differences in regional resources, industries and enterprise characteristics. The result is the unbalanced transmission of policies in different dimensions. This feature means that more attention should be paid to the design of differentiated systems in the process of promoting green financial policies. The accuracy and effectiveness of policies can be improved through regional stratification, industry classification and enterprise hierarchical support.

5 Constraints of Green Financial Policy

Although green finance plays a positive role in both theoretical and empirical research, its policy effect is restricted by many factors in reality.

First of all, non-uniform green standards and asymmetric information are the most basic institutional barriers [6]. Inconsistent green project recognition criteria across financial institutions, coupled with inadequate corporate environmental information disclosure, hinder investors' accurate identification of qualified green projects, thereby lowering the overall efficiency of resource allocation [6]. Secondly, the green drift behavior constitutes an important distortion to the effect of green financial policy. In an environment where financing constraints and policy incentives coexist, some enterprises may obtain financing by exaggerating environmental performance, thereby weakening the actual effect of green finance [3,12]. The research shows that the stronger the financing constraint, the more obvious the enterprise's motivation to go green. Private enterprises and foreign-funded enterprises are more prone to such behavior [3,12]. Although green finance can restrain green drift through innovation and profit mechanisms to a certain extent, this effect is highly dependent on the intensity of supervision and the quality of information disclosure [3]. Thirdly, the policy incentive structure is obviously unbalanced. Green financial resources tend to flow to large enterprises, state-owned enterprises and non-polluting industries. In contrast, small and medium-sized enterprises as well as private firms struggle to acquire equivalent green financial support [5]. This structural bias not only reduces the fairness of policy, but also may lead to a decline in the efficiency of resource allocation. In addition, green projects are generally characterized by long investment cycles and uncertain returns. External shocks such as international oil price fluctuations and geopolitical risks have further increased the uncertainty of green investment [6]. Finally, unbalanced regional development is also an important constraint. Research shows that the marginal effect of green finance is more significant in less developed regions, while it shows a decreasing trend in developed regions [12]. This indicates that the functional effect of green finance is strongly contingent on institutional conditions, and such regional disparities further exacerbate the uneven implementation effects of relevant policies.

6 Research Prospects

From the overall literature, the research on green finance shows a trend of deepening from macro description to micro mechanism. Early studies focused on the direct impact of Green Finance on environmental performance. In recent years, it has gradually turned to the analysis of transmission mechanisms and micro behavior. However, there are still some deficiencies in the existing literature. Most studies focus on single-mechanism analysis and lack a systematic framework for the synergy of multiple mechanisms. There is insufficient attention to the nonlinear effect and threshold effect of green financial policy. The research on the dynamic evolution mechanism of behavior such as bleaching is still relatively limited [3].

Future research can be further deepened from multiple perspectives. For example, build a multi-mechanism integration analysis framework to systematically evaluate the comprehensive effect of green financial policies. Researchers should attach importance to the nonlinear nexus between policy strength and innovation outcomes, while investigating the possible negative consequences of over-financialization [12]. Strengthen the collaborative research of green finance, digital finance and social finance [6]. Analyze the differences and experience of green finance policies under different institutional backgrounds from the perspective of cross-border comparison [6].

7 Conclusion

To sum up, the green financial policy promotes the green transformation of China's economy through multiple mechanisms. But its action path shows obvious structural characteristics. The constraint effect is stronger than the incentive effect, and there are significant differences between different enterprises and regions. At the same time, factors such as inconsistent standards, information asymmetry, greenwashing behavior and external uncertainty have formed systematic constraints on the effect of the policy.

Based on the above research findings, targeted measures should be adopted to optimize the green financial system in future practice. Firstly, it is essential to improve the unified green financial standard system and strengthen corporate environmental information disclosure, so as to effectively mitigate information asymmetry in the green financial market. Secondly, it is necessary to optimize the existing policy framework and increase targeted financial support for small and medium-sized enterprises as well as private enterprises. Thirdly, strengthen supervision to curb green drift. Fourthly, promote the synergy of green finance, industrial policy and environmental regulation. Fifthly, establish a risk management mechanism to deal with external shocks. Through the above measures, the transmission efficiency and implementation effect of green financial policy can be further improved.

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