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Research on the Impact of Green Finance on Carbon Emissions under the Background of "Dual Carbon" Goals

Han Zhang

School of Business, Nanjing Normal University, Nanjing Jiangsu, 210023, China

Abstract: It is of great significance to clarify the influence of green finance on carbon neutralization and quantify the influence of green finance on carbon emission in our country for better realizing government goals and realizing the economic benefits of carbon market. This paper uses the sample data from 2013 to 2021 to establish a VAR model to study the dynamic effects of green credit, green securities and green investment on carbon emission intensity. The results show that green credit, green securities and green investment have inhibitory effects on carbon emission intensity in different periods. Green investment and green securities have a fast inhibitory effect, but green investment does not have a long-term effect. The effect of green credit is slow, but it is long-term. The contribution of green credit to reducing carbon emission intensity is more than 50% at the highest, while that of green securities is less than 20%. The development of green securities is far from enough. Therefore, attention should be paid to the coordinated development of various financing means and the innovation of green financial products to promote the development of green finance, so as to achieve the goal of carbon neutrality more quickly.

Keywords: Carbon Emission; Green Finance; VAR Model.

1. Introduction

Floods, droughts, earthquakes, and sudden climate crises are becoming increasingly frequent. More and more countries have recognized the urgency of addressing climate change. Currently, 173 countries have established their own net-zero emission timetables. China has proposed the "dual carbon" goals of striving to achieve carbon peaking before 2030 and carbon neutrality before 2060. Among these, green finance plays a very important role. China was the first in the world to establish a complete set of green fiscal policies. In August 2016, the People's Bank of China and seven other ministries jointly issued the "Guiding Opinions on Building a Green Financial System", laying the foundation for the development of China's green finance.

The "Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively and Accurately Implementing the New Development Philosophy and Doing a Good Job in Carbon Peaking and Carbon Neutrality" issued in October 2021 proposed to vigorously develop green finance and establish and improve the green finance standard system. The People's Bank of China also listed "implementing major decisions and arrangements for carbon peaking and carbon neutrality, improving the green finance policy framework and incentive mechanism" as a key task, and established the policy thinking of "three major functions" and "five major pillars" for the development of green finance.

As time goes by, the connotation and extension of China's "dual carbon" goals have been enriched and expanded. Since October 2021, the Central Leading Group for Carbon Peaking and Carbon Neutrality has successively released the "1+N" policy system, which involves policies and measures for ten key areas and industries. In the future, China will continue to introduce new policies, improve the existing framework, and gradually fulfill its commitments to the world.

Table 1. Main Quantitative Targets for Carbon Peak and Carbon Neutrality in China

Indicator	2025	2030	2060
Energy consumption per unit of GDP	13.5% lower than in 2020	Significantly reduced	
Carbon dioxide emissions per unit of GDP	18% lower than in 2020	8% lower than in 2020 65% or more lower than in 2005	
Proportion of non-fossil energy consumption	About 20%	About 25%	Over 80%

Green finance plays a crucial role in addressing climate change and helping real economy enterprises achieve low-carbon transformation. Therefore, it is necessary to fully leverage the functions of financial institutions, guide the allocation of production factors, and provide financing opportunities for the green transformation needs of enterprises, thereby promoting the high-quality development of the country's low-carbon goals. High energy-consuming and high-polluting industries will all undergo green transformation, which presents both a huge opportunity and a challenge for financial institutions. To seize the opportunities of green development, it is not only necessary to have a reasonable investment strategy, but also to have corresponding risk prevention mechanisms and corresponding supporting systems. However, at present, China's green financial system is still in the stage of establishment and improvement and cannot yet be adapted to the goal of carbon neutrality. Compared with the huge demand for funds, the variety and quantity of green financial products are far from sufficient. The development path for the financial sector and enterprises is still long. Financial institutions urgently need policy guidance, and the indicators

for evaluating green business and financial products still need further development. Therefore, this article constructs a VAR model from the perspective of the role of green finance in promoting low-carbon development, which has significant theoretical and practical significance for the realization of China's carbon neutrality goal.

This paper first sorts out the existing research, collects and calculates data on various service forms of green finance, including green credit, green securities, and green investment, and studies the relationship between green finance and carbon emissions from multiple aspects, enriching the related research. At the same time, we will deeply discuss the contribution degree of different fields of green finance to carbon emissions, providing theoretical support for China's green finance to more fully play its role as a “lifeline” for carbon reduction. Sustainable development has become a common ideal and pursuit of all mankind. With the accelerated implementation of China's “dual carbon” goals, finance, especially green finance, which is the lifeblood of the modern economy, is bound to play a crucial role. This article starts from practical problems, conducts targeted research, quantifies the extent to which green finance affects carbon emissions, assists the government in implementing targeted policies for carbon reduction, fully utilizes the financial function in the green transformation, and strives to contribute to the realization of carbon neutrality. In empirical research, due to the lack of sufficient data or the lack of understanding of the importance of green finance, this paper mainly focuses on one or two areas of green finance, especially the fields of green credit and green bonds. The definitions of green investment also vary.

The marginal contribution of this article is mainly manifested in: in green securities, green stocks are used to replace green bonds for research, and the green development level of the stock market is compared and analyzed. In green investment, using environmental pollution control investment as the definition of green investment not only ensures complete data statistics and reliable sources, but also most of the environmental pollution control investment comes from government departments, thus enabling a comparison of the roles played by financial institutions and the government. Finally, a specific comparison was made of the contributions and influences of these three indicators, with the aim of promoting the relevant environmental protection departments to formulate corresponding countermeasures.

2. Literature Review

2.1. Research Status of Green Finance Development

With the enhancement of the public's environmental protection awareness, how to incorporate green finance into the research of the current financial system has become the focus of academic research. Scholar Gao Jianliang (1998) first expounded the concept of green finance in China. He believed that the idea of environmental protection should be integrated into green finance, and green finance should be regarded as the basic policy for financial development to promote the integrated development of the economy and the environment [1]. Oren Perez (2007) pointed out that “green finance” has had an impact on the traditional financial system, and new green financial tools will change the traditional investment model [2].

2.2. Current Research Status of Factors Influencing Carbon Emissions

With the intensification of the greenhouse effect, the exploration of the influencing factors of carbon emissions has gradually deepened. Scholars from various countries' research on the influencing factors of carbon emissions mainly focuses on population, economy, technology, foreign trade and other aspects.

Giovanni Baiocchi et al. (2010) investigated the direct or indirect impact of consumption behaviors of British residents in different lifestyles on carbon emissions [3]. Yanan Wang et al. (2015) studied the influences of factors such as population size, economic development level, technological level, urbanization rate, and foreign trade on carbon dioxide emissions under different degrees of economic development [4]. Chinese scholars Sun Yanzhi and Shen Lei (2017), from the perspectives of input, output and structural decomposition, hold that the main factors influencing carbon dioxide emissions include technological innovation, economic growth, population growth, industrial connection and economic structure. They also believe that the approaches to emission reduction are tending to diversify [5].

2.3. Research Status of the Impact of Green Finance on Carbon Emissions

As people's understanding of environmental issues deepens gradually, scholars have shifted their research on the impact of financial development on carbon emissions to green finance. Based on the data from 1990 to 2017, Chinese scholar You Xiaoxian (2019) selected indicators reflecting the scale and efficiency of finance to investigate the impact of green finance development on carbon dioxide emissions. The results showed that financial development has a certain inhibitory effect on carbon dioxide emissions, but in the later stage, its intensity will continue to increase. The per capita carbon dioxide emissions will also increase accordingly, which is in line with the Kuznets curve theory [6].

3. Theoretical Foundation

3.1. The Connotation and Characteristics of Green Finance

“Green finance” refers to the integration of environmental-related economic indicators into investment and financing decisions and other related financial activities for the sustainable development of society. Green finance not only needs to meet the constantly growing new demands of the general public for green services, but also ensure the stable operation of the financial system. It is an innovative financial service.

Specifically, the meaning of “green finance” is as follows: First, it should be applied to projects with environmental benefits, promoting the efficient use of resources, improving the environment, and addressing climate change; The second one provides a scientific direction for the definition and classification of green financial products. Thirdly, it demonstrates that green financial services should play a role throughout the entire green engineering construction. It not only covers basic financing businesses such as credit and bond issuance, but also includes risk management businesses like insurance, as well as powerful carbon finance businesses.

From the perspective of comparison with traditional finance, the characteristics of green finance are manifested as

follows: First, green finance has the concept of environmental protection; Green finance refers to the integration of environmental protection issues into financial projects on the basis of traditional financial business. By enhancing the environmental awareness of financial practitioners and related enterprises, it promotes the green upgrading of high energy-consuming and high-polluting industries. Utilize financial tools to create a green ecological environment and promote sustainable ecological development. The second is to achieve the goal of sustainable financial development. Compared with the traditional financial system that is oriented towards economic benefits, green finance pays more attention to establishing a long-term mechanism, taking green profits as the core, and seeking a win-win situation of economic and environmental benefits to promote the sustainable development of finance. Thirdly, there are certain environmental risks in China's green finance. The superimposition of environmental risks and traditional financial risks will bring new challenges to China's green finance. In addition, green finance is of great significance for the development of emerging green industries. However, due to its high uncertainty and long investment cycle, it will affect the enthusiasm of financial institutions to invest in green finance.

3.2. Green Finance Support Mechanism in Carbon Emission Reduction

(1) Technological innovation effect

The technological innovation capacity of enterprises is the key to modern economic development. Green finance has promoted technological innovation in aspects such as broadening financing channels and systematic risk management.

In terms of financing, funds are the foundation of technological innovation and support the entire process of an enterprise's progress. Green finance, relying on its own characteristics, has expanded the financing channels for enterprises, obtained long-term capital supply, and accelerated the process of technological innovation of enterprises. In the green finance system, green credit refers to the guidance of funds by banks towards green industries. Financial products such as green securities and green funds have a strong appeal to investors with different risk preferences, and at the same time, they concentrate idle funds in green industries.

From the perspective of risk, the uncertainty of technological innovation leads to its relatively high investment risk, while green finance can utilize various financial tools within its system to reduce or transfer the risks brought about by technological innovation. Technological innovation is an activity that requires the participation of high-tech personnel and long-term experimentation to achieve results. Moreover, the return on investment is uncertain and the payback period is long. Green finance is a new type of financial service approach. It can provide financing support for long-term projects through the allocation of various financial tools. Meanwhile, the risk compensation mechanism of green finance policies can also promote the long-term technological development and improvement of green enterprises, thereby facilitating their reduction of carbon emissions.

Therefore, green finance can broaden financing channels and promote technological progress in enterprises. Technological progress can eliminate backward production methods, improve energy utilization efficiency per unit, and effectively support carbon reduction.

(2) Signal transmission effect

In recent years, the government meetings and policy documents held in our country have repeatedly emphasized the development of “green finance” and sent out signals to the society to accelerate the transformation of the “green and low-carbon” economy. Under the circumstances of punitive high interest rates and credit limits, “two high” companies will serve as a warning to similar companies, effectively curbing the investment desires of the warned companies. These companies will take corresponding measures to reduce high-pollution and high-consumption production, promote technological innovation in production, and accelerate the pace of transformation. Private capital that has received this signal will make more green investments to better promote the optimization and upgrading of the industrial structure. Meanwhile, under the guidance of green finance policies, China's green and low-carbon projects have gained better development opportunities, which has led to better development of energy and other industries, made the energy structure cleaner, and thus achieved the goal of emission reduction.

(3) Industrial structure effect

From the perspective of operational mechanism, green finance has a strong match and coordination with supply-side structural reform. Green finance has a resource regulation function for green industries and productive services. Green credit policies offer a large number of preferential policies to energy conservation and emission reduction industries through banks. At the same time, it can also increase the financing costs of high energy-consuming and high-polluting industries, promoting the concentration of funds in green industries. This will promote the aggregation of green industrial capital, prevent the formation of capital in high energy-consuming and high-polluting industries, and force “high energy consumption and high pollution” enterprises to accelerate their transformation to meet the current development needs.

4. Empirical Analysis

4.1. Variable Selection and Data Sources

This paper selects the green finance and carbon emission data from 2013 to 2021 as the research object and conducts the following processing and screening on the data:

(1) Taking carbon emissions, green credit, green securities and green investment as the endogenous variables of the VAR model, the dynamic interaction relationship between green finance and carbon emission intensity is mainly explored.

(2) The sample data are all annual data from 2013 to 2021 across the country. Given that the sample size of green finance is relatively small, the monthly data obtained by linear interpolation method is used as the sample for regression analysis.

(3) Take the logarithm of the variable to reduce data volatility.

The explained variable: Carbon emissions (y). The total national carbon emissions are selected as the measurement indicator of carbon emission intensity. If a country is to achieve a low-carbon development model, its total carbon emissions must be continuously reduced.

Explanatory variables: Green credit (x1), green securities (x2), green investment (x3). The research object of this paper

is green finance. Considering the completeness and reliability of the data, these three variables are ultimately selected as the research objects in this paper.

Data sources: Carbon emissions are sourced from the Qianzhan Industry Research Institute, green credit data from the "China Banking Industry Social Responsibility Report", green securities data from the WIND database, and green investment data from the EPS data platform.

Table 2. Variable Definitions and Sources

	Variable name	Symbol	Variable definition	Data source
The explained variable	Carbon emissions	y	The total national carbon emissions	Qianzhan Industry Research Institute
Explanatory variable	Green credit	x1	The balance of green credit from 21 major banks	"Social Responsibility Report of China's Banking Industry"
	Green securities	x2	The total market value of the top ten energy conservation and environmental protection sector enterprises	WIND Database
	Green investment	x3	Total investment in environmental pollution control	EPS Data Platform

4.2. Model Settings

This paper constructs a vector autoregressive model (VAR) to study the dynamic impact of green finance on carbon emissions. The VAR model is often used to predict time series and analyze the dynamic impact of random disturbances on variable systems. The VAR model describes that within the same sample period; several variables can serve as a linear function of their past values.

$$Y_t = \phi_0 + \phi_1 Y_{t-1} + \cdots + \phi_p Y_{t-p} + \varphi X + \varepsilon_t, t = 1,2 \cdots T \quad (1)$$

$$Y_t = \begin{bmatrix} \ln Y_{1t} \\ \ln Y_{2t} \\ \vdots \\ \ln Y_{kt} \end{bmatrix}, \phi_0 = \begin{bmatrix} \phi_{10} \\ \phi_{20} \\ \vdots \\ \phi_{k0} \end{bmatrix}, \varepsilon_t = \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \vdots \\ \varepsilon_{kt} \end{bmatrix} \quad (2)$$

$$\phi_i = \begin{pmatrix} \phi_{11}(i) & \phi_{12}(i) & \cdots & \phi_{1k}(i) \\ \phi_{21}(i) & \phi_{22}(i) & \cdots & \phi_{2k}(i) \\ \vdots & \vdots & \ddots & \vdots \\ \phi_{k1}(i) & \phi_{k2}(i) & \cdots & \phi_{kk}(i) \end{pmatrix} \quad (3)$$

In equations (1) to (3), Y_t represents the k-dimensional endogenous variable column vector; X represents exogenous variables such as constant variables, linear trend terms, or other non-random variables; The estimated parameter matrices ϕ_i, φ are respectively k×k dimension and k×d dimension; T represents the sample size, p represents the lag order, and ε_t is the random perturbation vector.

4.3. Empirical Results and Analysis

(1) Unit root test

In the VAR model, it is essential to ensure the stability of the time series. In this paper, the ADF unit root method is adopted. If the data is stable, a model can be established; if the data is unstable, differential processing is carried out. The results of the unit root test are shown in the table below.

Table 3. Output Results of ADF unit Roots

Variable	ADF statistics	1% critical value	5% critical value	10% critical value	P-value	results
Δ^2lny	-9.557482	-3.502238	-2.892879	-2.583553	0.0000	Stable
Δ^2lnx1	-7.992894	-3.512290	-2.897223	-2.585861	0.0000	Stable
Δ^2lnx2	-9.532298	-3.502238	-2.892879	-2.583553	0.0000	Stable
Δ^2lnx3	-9.588193	-3.502238	-2.892879	-2.583553	0.0000	Stable

By conducting stationarity tests on the original levels and first-order and second-order differences of lny, lnx1, lnx2, and lnx3 in sequence, when P >0.05, the null hypothesis is accepted, there is a unit root, and the time series is not stationary. When P<0.05, the time series is stationary. It can be seen from the results that the time series of the four variables after the second-order difference does not have a unit root and is a second-order uninteger time series, denoted as I(2).

(2) Cointegration Analysis

Cointegration analysis is used to examine the long-term stable relationships among various variables and prevent false regression in the data. The four variables simultaneously satisfy the second-order simple integration, which meets the prerequisite conditions for the cointegration test. This paper adopts the maximum likelihood (also known as Johansen) test applicable to multiple variables.

"None", "At most 1", etc. respectively represent the null assumptions such as "no cointegration equation exists" and "at most one cointegration equation". When P>0.05, the null assumptions are accepted; when P<0.05, the null assumptions are rejected. Therefore, it can be concluded that there are at least two cointegration relationships in this model, and there are long-term equilibrium relationships among the variables.

Table 4. Cointegration Test Results

The number of cointegration equations	Characteristic values	Trace statistics	5% critical value	P-value
None *	0.223637	54.22619	47.85612	0.0112
At most 1 *	0.198396	30.43147	29.79707	0.0422
At most 2	0.097301	9.644196	15.49471	0.3091
At most 3	0.000232	0.021774	3.841466	0.8826

(3) VAR Model Establishment

Due to the limitation of the number of variable samples, the lag period cannot be too large. According to the calculation result of the optimal lag period in Eviews 9, the lag period is selected as 2 periods.

Table 5. Lag Selection Results

Lag period	Likelihood function	LR	FPE	AIC	SC	HQ
0	487.1883	NA	3.61E-10	-10.39115	-10.28222	-10.34716
1	1551.468	2014.122	5.85E-20	-32.93481	-32.39016	-32.71489
2	1830.172	503.4651*	2.06E-22*	-38.58435*	-37.60399*	-38.18851*
3	1833.108	5.051126	2.74E-22	-38.30341	-36.88733	-37.73163

The stability of the model was tested using an AR root graph, and the results are shown in the figure. All the feature roots are within the unit circle, indicating that the model is stable.

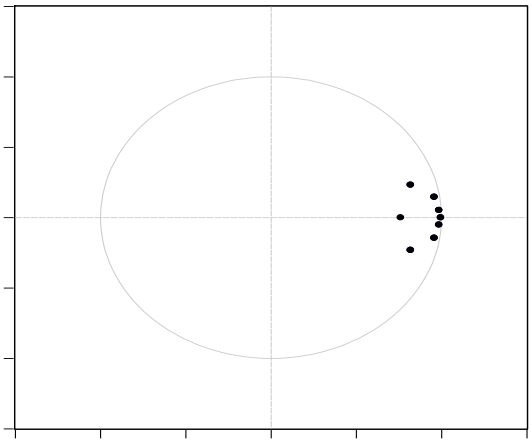

Figure 1. AR root graph

(4) Impulse Response Function

The impulse response function studies the impact on the current and future values of endogenous variables after applying a shock to a random disturbance term. The impulse response results of lnx1 (green credit), lnx2 (green securities), and lnx3 (green investment) to lny (carbon emissions) are shown in the figure.

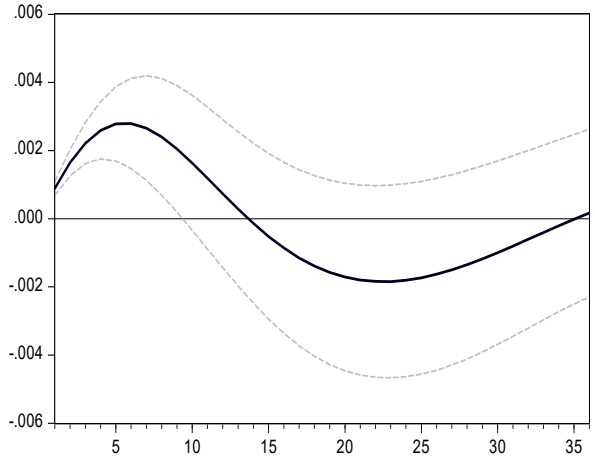

Figure 2. Graph of the impact response of carbon emissions on green credit

First, green credit had a positive impact on carbon emissions in the first 13 periods. From the 14th period, it began to have a restraining effect on carbon emissions. The impact peaked at -0.019 in the 24th period, and then the restraining effect disappeared in the 36th period. It went through a total of 22 periods.

Second, green securities had a negative impact on carbon emissions in the first period. The negative impact peaked at -0.016 in the eighth period and then rose slowly until the inhibitory effect disappeared in the 20th period.

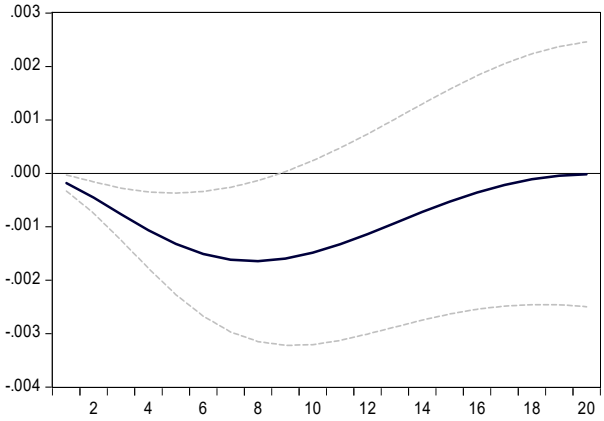

Figure 3. Impact Response Graph of carbon emissions on green securities

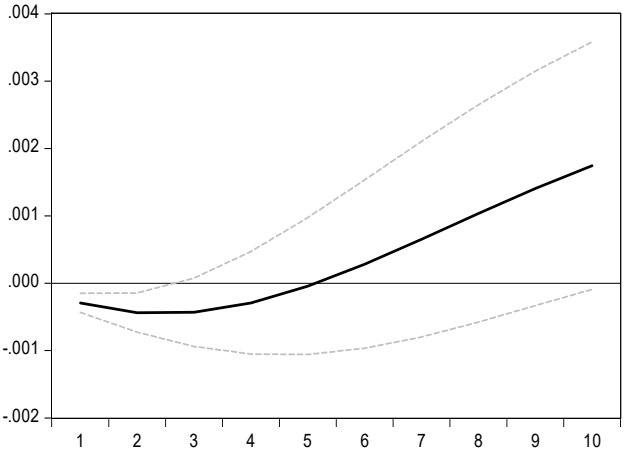

Figure 4. Impact Response Graph of Carbon Emissions on green Investment

Thirdly, green investment has a negative impact on carbon emissions in the first period, reaching a peak of -0.0004 in the third period, then rising slowly, and the inhibitory effect disappears in the fifth period.

In comparison, green credit has the longest duration of effect on carbon reduction and the greatest reduction intensity, but it takes effect relatively slowly. Green securities take effect quickly and have a relatively long duration, but their emission reduction efforts are not as significant as those of green credit. Green investment, on the other hand, takes effect quickly, but its duration is short and the intensity of emission reduction is relatively small.

Green credit, as an indirect financing method for

enterprises, is subject to many threshold restrictions from financial institutions, so its effect is slow. However, since green securities play a leading role in the development of carbon reduction in China, with the largest supply of funds and wide coverage, it has the greatest reduction effect and long-term benefits. Green stocks, as a direct financing means for enterprises, are less restricted by creditors and can be directly applied to green industry projects, thus taking effect quickly and having a greater impact. The green investment mentioned in this article refers to the investment in environmental pollution control, which is the direct treatment of pollution and the direct construction of a green environment, achieving immediate results. However, due to the lack of green production constraints on enterprises, which are the direct environmental responsibility subjects, relying solely on the governance of the environment by a single government department has limited effects and lacks sustainability.

(5) Variance Decomposition

Variance decomposition can analyze the contribution ratio of the orthogonal impact of each endogenous variable to the impact of the target endogenous variable, and thereby determine the importance of each variable.

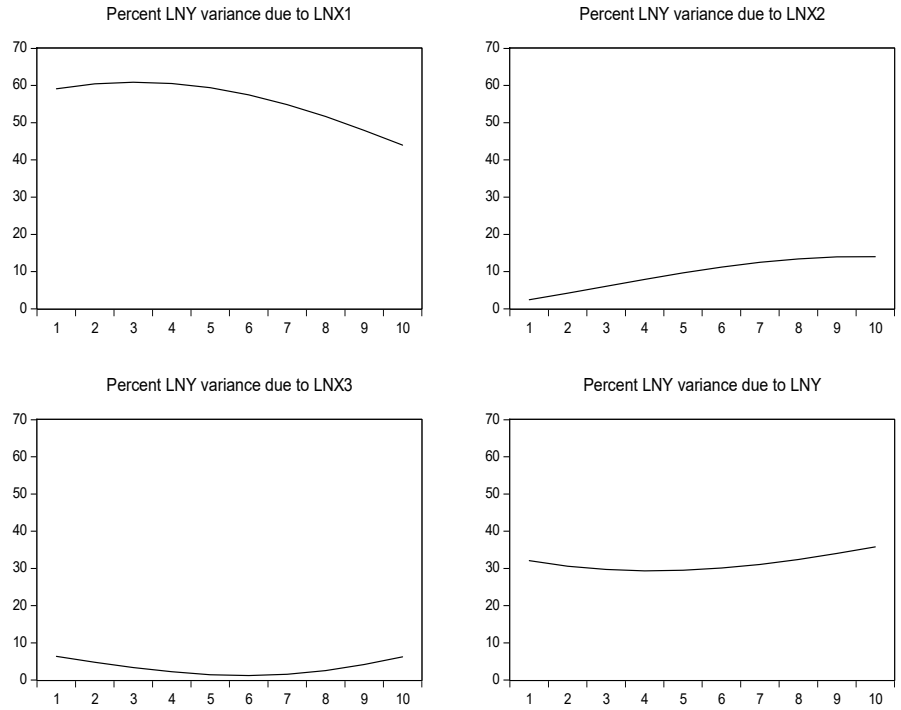

Figure 5. Results of variance decomposition

From the results of variance decomposition, it can be seen that the contribution of changes in green credit to the change in carbon emissions is the largest, approximately 50%, while the contribution of green investment and green securities is relatively small. This is because green credit is the “leader” of green finance demand. At present, the balance of green credit in China exceeds 11 trillion Yuan, accounting for over 90% of the total green financing scale. However, the scale of the equity market is far smaller than that of the credit market, and most green investments come from the government. Therefore, in terms of data performance, the contribution of green credit is much higher than that of green securities and green investment.

5. Research Conclusion and Policy Recommendations

5.1. Research Conclusion

There is a long-term equilibrium relationship among green credit, green securities, green investment and carbon emission intensity. Green finance plays a promoting role in reducing carbon emission intensity. Among them, green credit investment does not immediately have a restraining effect on carbon emissions but takes effect approximately 13 months later. Green investment and green securities, on the other hand, quickly have a restraining effect on carbon emissions. However, the short-term effect of green investment is relatively small, and the current effect of green investment basically does not exceed half a year. For enterprises, it does not have long-term operating benefits. It's just a direct treatment of pollution. Green credit and green securities, on the contrary, are long-term. Moreover, the role played by green credit is greater than that of green investment and green securities. The contribution of green credit is the highest, reaching over 50%, while the contribution of green securities and green investment is relatively low. This indicates that the development level of green securities in China is still far from sufficient, and their contribution to reducing carbon emission intensity is still quite low.

In terms of the pathways through which the three affect carbon emissions, green credit and green securities address the source of carbon emissions, providing the necessary funds for enterprises to achieve low-carbon, environmentally friendly, clean production and transformation. The green investment mentioned in this article is a direct treatment of pollution. Compared with other solutions, it only addresses the symptoms but not the root cause. Moreover, it cannot have a broader impact and cannot bring long-term business benefits to enterprises. Therefore, how to give full play to the role of green credit and green securities is even more important. However, judging from the results, the contribution of green securities is less than that of green investment, and there is

huge room for growth.

5.2. Policy Recommendations

(1) Continuously innovate green credit products and expand green coverage. Green credit has made considerable progress in China, with significant innovations in credit guarantee methods, cooperation with other financial institutions, and integration with local endowments. However, its investment targets are mainly enterprises, mainly focusing on energy efficiency financing loans and emission rights financial services. Compared with other countries, the number of green credit products in the retail sector offered by commercial banks in our country is relatively small. Therefore, this paper proposes some designs for financial products such as housing loans, auto loans, transportation loans, and green credit. Meanwhile, relevant policy-making units should carefully consider the feasibility of green financial products from both theoretical and practical perspectives to adapt to different market demands. On the premise of product feasibility, they should establish cooperation platforms related to other products to promote the healthy development of green finance, bring real benefits to more enterprises, and enhance the motivation of related enterprises to save energy and reduce emissions.

(2) Establish green channels and increase green investment. With the deepening of “financial disintermediation”, the development of China's green securities market is still far from perfect and requires the coordinated development of multiple financing methods. By providing direct financing to green enterprises, strengthening their ESG information disclosure, and simplifying their approval and filing procedures, a green channel is opened up for enterprises. We should continue to promote the development of green-themed indices related to “carbon peak and carbon neutrality”, and encourage asset management institutions to establish products that track their indices. In addition, this study finds that green investment takes effect quickly and has obvious short-term effects. However, in the past two years, the proportion of environmental protection investment in China's GDP has decreased. Therefore, pollution regulation of the environment should be further strengthened.

(3) Strengthen the institutional construction of the green financial system and utilize the mechanism to reduce carbon emissions. The top-level design of the system and policy measures are of great significance for achieving the goals of “carbon peak and carbon neutrality”. At present, there are still some problems in the development of green finance in our country, such as incomplete relevant laws and regulations, imperfect regulatory mechanisms, and imperfect assessment systems. In terms of the supply entities of green finance, the main manifestations are as follows: inaccurate environmental risk assessment, insufficient supply of green financial products, and restrictions on the development of green financial services by financial institutions. This has restricted the development of green finance in our country. Therefore, it is necessary to strengthen the construction of relevant laws and regulations, establish and improve the assessment index system, build a multi-level green finance regulatory system, clarify the responsibilities and divisions of labor of each department, form a working synergy, and while enhancing information disclosure and improving market transparency, intensify the construction of incentive and restraint mechanisms to stimulate the intrinsic motivation of market entities to participate in the innovative development of green finance.

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