

On the Transmission Mechanism of Carbon Finance Promoting the Green Transformation of Traditional Industries in China

--Taking Anhui as an Example

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Abstract

This article clarifies the specific impact mechanism of carbon finance on the industrial transformation of Anhui Province in China by studying the changes in carbon emissions and the current status of industrial development in Anhui. Through research and investigation, it has been found that the impact of carbon finance on industrial transformation is mainly reflected in four aspects: (1) Carbon finance enables some enterprises to have more funds to improve production processes and reduce carbon emissions in the production process through carbon emission trading. (2) Carbon finance promotes its transformation by changing the operating mechanism of the market, lowering entry barriers, and allowing more enterprises to enjoy the dividends of carbon finance. (3) Carbon finance uses financial means to eliminate high energy consuming and high emission enterprises and optimize industrial structure. (4) The emergence of carbon finance will encourage the government to increase support for financial related talents, cultivate more talents in carbon finance, change the management mode of enterprises, and enhance their international competitiveness. This article proposes countermeasures and suggestions from the perspective of promoting environmental protection and industrial green transformation and development.

Keywords

Carbon finance; Traditional industrial transformation; Transmission mechanism.

1. Introduction

Industry is the only sector that produces modern labor, which to some extent determines the growth rate, development scale, and level of modernization of the national economy. It plays a leading role in the national economy of various countries in the world today. Therefore, for the economic development of a country, the progress and takeoff of industry are essential. After experiencing several five-year plans, China's industry has also made great development and progress, and has achieved remarkable achievements in manufacturing, becoming a major industrial country in the world. The continuous development of China's industry requires more factors to empower and transform traditional industries. However, in recent years, with the proposal of high-quality development goals, the development of traditional industries in China has been greatly restricted, which is particularly prominent in traditional high energy consuming industries. Traditional industries have encountered unprecedented challenges, and many high energy consuming industrial enterprises cannot meet emission standards and are forced to go bankrupt or switch careers. Moreover, the impact of the development of traditional industries on the environment cannot be ignored. Studies have shown that more than 70% of

carbon dioxide emissions in China come from industrial production or industrial generated emissions. Global warming and intensified natural disasters make the transformation of traditional industries in China urgent. At the 75th United Nations General Assembly, China proposed the goal of achieving carbon neutrality and peaking carbon emissions. Many financial institutions have subsequently launched carbon finance related products, turning carbon emissions into a valuable commodity for spot and futures trading, aiming to reduce greenhouse gas emissions. This measure is bound to have a significant impact on the development of China's traditional industry. This article is based on the background of the issuance of carbon finance products, and conducts a relatively systematic study on the development and changes of traditional industries in Anhui Province, aiming to explore the role of carbon finance in promoting the green transformation of traditional industries in China, and then analyze its transmission mechanism, which has certain practical significance for the future development of carbon finance in China.

2. Literature Review

Currently, China is in a new normal, facing development opportunities and challenges such as improving economic growth, adjusting industrial structure, and transforming old and new driving forces. Industry remains the mainstay of China's industry. (Yu Yue, 2020) In recent years, industry has accelerated its transformation progress, and the green transformation of traditional industry has become a major trend in socialization. However, due to inadequate understanding of the transformation and upgrading of traditional industrial economy, insufficient investment in the transformation and upgrading of traditional industrial economy, and insufficient optimization of the growth environment for traditional enterprise transformation and upgrading (Zhang Dongrun, 2014), there are still many shortcomings in the transformation of traditional industry in China. Therefore, it is necessary to study industrial development and transformation. Since the signing of the Kyoto Protocol, China has put forward the goal and vision of controlling carbon emissions and achieving carbon neutrality and peaking. Under the guidance of policies, financial institutions in China have begun to promote carbon finance products based on carbon emissions. Developing carbon finance is an important means to empower China's "dual carbon" goals (Guo Xiaojie and Yan Bilu, 2023). Low carbon emissions reduction has become a trend, and the low-carbon economy encourages humans to create more low-carbon market-oriented ways to guide the rational allocation of emission reduction resources in society and help physical enterprises transition to green and low-carbon (Fu et al., 2023). The vigorous promotion of carbon finance presents both opportunities and challenges for the green transformation of traditional industries in China. The country's industrial system has long relied on the consumption of fossil fuels such as coal, oil, and natural gas, and its industrial structure is characterized by a strong emphasis on industrialization. It is in the middle and later stages of industrialization and urbanization development, and there is still a high expectation for future economic growth (He Chengying, 2022). If traditional industrial enterprises can grasp the direction of carbon finance reform and make timely use of it, they can promote the healthy development of enterprises, achieve industrial transformation, extend their lifespan, and promote their high-quality development. For enterprises themselves, the macro environment is an external factor, and to forge iron, they need to be tough and do their job well in order to gain a foothold in market competition. (Zhu Dong, 2020) However, if everything is predicted, it will be established. If industrial enterprises fail to grasp the wave of carbon finance development and miss the opportunity for transformation, they will be eliminated by the market. This raises the question of why some companies are in trouble while others have successfully transformed. What will help large industrial enterprises successfully achieve transformation? What are the driving and inhibiting factors for successful transformation? Internationally, large industrial enterprises have won

more market share through a series of reforms, implementing new services aimed at transferring experience and knowledge to different industries to meet important global needs. These services will be provided by local experts with the full support of the company's global team and will accelerate industry transformation. This article argues that macroeconomic policies at the national level play an extremely important guiding role in the development of enterprises, and the high-quality economic development caused by financial products also complement and interact with industrial transformation (Zhao Chunyan, Hao Yinhui, 2023). On the one hand, the connotation of industrial green transformation drives industrial enterprises to reduce environmental pollution and promote the development of carbon finance.

On the one hand, the connotation of industrial green transformation drives industrial enterprises to reduce environmental pollution and promote the development of carbon finance. On the other hand, the emergence of carbon finance products provides more financing channels for enterprises, thereby promoting the green transformation of industry. This article selects Anhui Province as the research object to study the differences in the speed of industrial transformation compared to the past in the context of carbon finance, in order to determine the impact and role of carbon finance on industrial transformation, and to have certain practical significance for the future development of carbon finance and the successful transformation of industrial enterprises.

3. Current Situation of Transformation and Development of Traditional Industries in Anhui

3.1. Industrial Structure of Anhui

Since modern times, Anhui Province has a long history of industrial development, with a large number of industrial enterprises. The proportion of enterprises above designated size in Anhui Province is on the rise nationwide, indicating that the industrial status of Anhui Province is increasingly important in the country. Therefore, the research results on Anhui Province's industry can be applied nationwide.

The industry in Anhui Province is currently mainly divided into two types. One is the traditional pillar industry, which mainly includes automobiles and parts, steel, electronic information, equipment manufacturing, non-ferrous metals, etc. These industries occupy an important position in Anhui Province's industry and are the traditional advantageous industries of Anhui Province. In recent years, these industries are accelerating their transformation, promoting the development of intelligent manufacturing and green manufacturing, while also making significant progress in technological innovation, product upgrading, and other aspects. Another type is emerging industries. Under the guidance of national policies, Anhui Province is actively cultivating emerging industries such as biomedicine, new materials, new energy, and high-end equipment manufacturing. These industries are gradually occupying an important position in the industrial structure of Anhui Province. In addition, some emerging industrial parks in Anhui Province, such as Hewu Industrial Park, Wanjiang Demonstration Zone, Hefei Comprehensive Bonded Zone, etc., provide a good platform for the cultivation and development of emerging industries. Many emerging technology industries can take root and develop in Anhui Province, thereby driving the development and progress of the entire Anhui Province's economy.

However, Anhui Province currently has a large number of traditional industries and manufacturing industries with high carbon emissions. In 2019, Anhui Province ranked 15th in total carbon emissions in China, and high emission enterprises accounted for a large proportion, mainly concentrated in the steel industry, paper industry, and so on. Overall, the industrial structure of Anhui Province is relatively unreasonable, and there is still an urgent need to accelerate the pace of transformation.

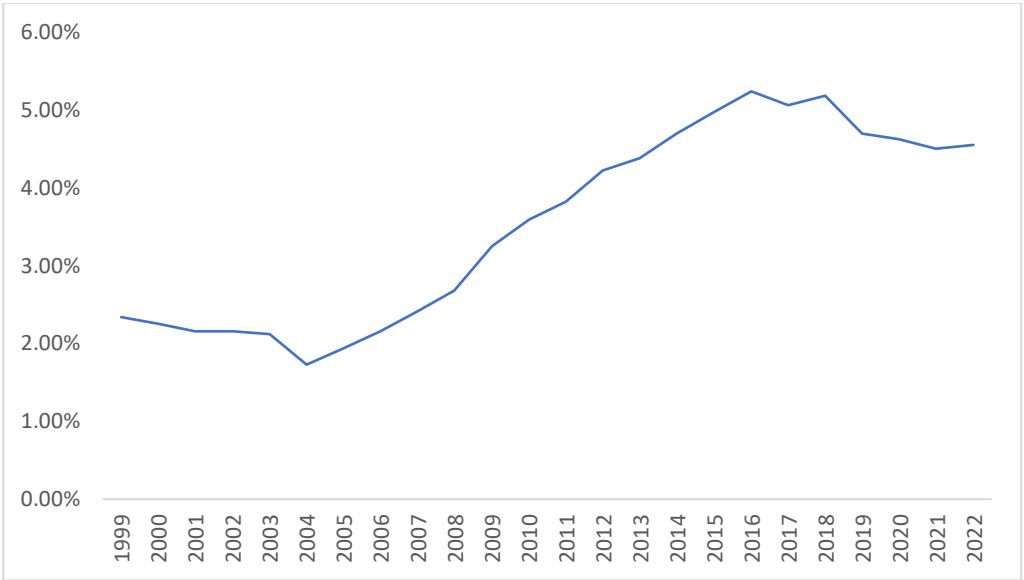


Figure 1. The proportion of enterprises above designated size in Anhui Province nationwide

3.2. Industrial Development in Anhui

Since the 18th National Congress, China's industrial production has maintained a trend of medium to high growth. Despite facing a complex and severe economic environment both domestically and internationally, China's industry has still achieved stable growth. As a typical province of industry in China, Anhui Province's level of industrial development is basically consistent with that of the whole country. In recent years, Anhui Province has been vigorously promoting industrial upgrading and transformation, strengthening the transformation and upgrading of traditional manufacturing industries, enhancing technological innovation capabilities, and cultivating new growth drivers. Anhui Province is promoting the industrial structure to move towards the mid to high end level, increasing investment in high-tech and high value-added industries, gradually reducing reliance on resource-intensive and labor-intensive industries, and gradually producing a number of emerging industries, such as high-tech industries and equipment manufacturing, whose growth rate exceeds the average level of large-scale industries. These industries, including new energy vehicles, artificial intelligence, 5G communication technology, biotechnology, etc., have become new engines driving industrial growth in Anhui Province. And as shown in Table 1, the carbon emissions in Anhui Province have always been at a relatively stable level. In short, the industry in Anhui Province is developing towards a green and low-carbon direction. The profit growth rate of industrial enterprises remains high, and the efficiency of enterprises in the province has improved. This will help promote enterprises to increase investment in technological transformation and innovation, and further promote industrial transformation and upgrading.

Table 1. Carbon Emissions of Anhui from 2014 to 2021

Year	Carbon Emissions (10000 tons)
2014	401.80
2015	392.85
2016	380.18
2017	397.02
2018	392.43
2019	398.96
2020	397.17
2021	415.06

4. Mechanism of Carbon Finance to Promote the Transformation and Development of Traditional Industries in Anhui

4.1. Provide financial support

Carbon finance has a profound impact on the development of Chinese enterprises. In fact, carbon finance uses carbon dioxide emissions as a commodity that can be bought and sold through carbon emission trading, allowing enterprises in need of more carbon emissions to purchase carbon emission rights in the market. Surplus enterprises can sell their carbon emission rights to obtain financial support, enhance their ability to improve technology, and enable emerging enterprises to obtain more capital for improving technology through carbon finance products, thereby enhancing their competitiveness. Moreover, carbon finance can provide services such as carbon emission rights and carbon trading through the carbon trading market, helping enterprises achieve their emission reduction goals. Enterprises can achieve their own development and transformation by purchasing carbon emission rights or obtaining additional carbon emission rights through emission reduction measures. Carbon finance can develop carbon funds, gather funds to support low-carbon industries and carbon reduction projects. In addition, carbon finance can also provide funding to support projects such as carbon neutrality, and support environmental protection and carbon reduction through donations, investments, and other means, helping traditional industries transform.

4.2. Lowering the entry threshold for enterprises

Carbon finance has expanded the scope of trading entities, allowing more enterprises, institutions and other entities in need of carbon emissions to participate in the trading of carbon emission rights. It can be said that carbon finance has built a trading platform, on which Chinese enterprises act as independent individuals for fair and transparent trading. The subsequent intervention of financial institutions has made carbon finance increasingly standardized and become an investment project. This trend has enabled major enterprises to have more investment products, while also lowering the entry threshold, allowing more enterprises to enjoy the dividends of carbon finance, thereby promoting the transformation of traditional industries in China.

4.3. Optimize industrial structure

Survival of the fittest is the norm in market operation. China's commitment to reducing carbon emissions and issuing policies and regulations on energy conservation and emission reduction means that high energy consuming, high pollution, and low output enterprises are no longer suitable for the country's development. Therefore, with the proposal of the dual carbon target, these types of enterprises will also be eliminated by the market, replaced by low emission and low pollution enterprises that adopt emerging technologies; Moreover, carbon finance products propose that some enterprises specializing in environmental pollution control will also have more development space, thus achieving rapid development in market competition. Therefore, carbon finance has changed the industrial layout, optimized the industrial structure, and promoted the green and low-carbon transformation of industry.

4.4. Provide financial talents

The proposal of carbon finance products has increased China's efforts in talent cultivation in this area, cultivating more finance talents who can shoulder important responsibilities and play an important role in major financial institutions and enterprises. They have innovative awareness and ability, can continuously explore new carbon finance products and services, meet market demand, and promote the development of the carbon finance market. They have rich experience and professional knowledge in risk management, which can help enterprises and institutions reasonably evaluate and manage various risks in carbon finance transactions,

ensuring the smooth progress of transactions. Financial talents are driving the development of carbon finance towards a healthier and more comprehensive direction. Talents working in industrial enterprises can apply their knowledge and talents to provide more comprehensive and socially oriented management and guidance, injecting new vitality into the healthy development and transformation of traditional industrial enterprises.

5. Policy Recommendations

5.1. Develop corresponding laws and regulations

The government is an indispensable organization in modern society, with the function of formulating policies and providing public services. The government should study and analyze the economic situation of society, formulate policies and plans that meet the needs of national development, and supervise its normal operation. The Chinese government needs to improve the policy system of carbon finance, regulate the development of enterprises, and carry out macroeconomic regulation through fiscal, financial and other policies to ensure the healthy and stable growth of the Chinese economy. Various policies and regulations on carbon finance should be implemented to ensure that China has a good financial environment and innovation space, and to promote the development and improvement of carbon finance in practice.

5.2. Research and development of new carbon finance products

Financial institutions are intermediaries for fund financing, promoters of financial transactions, and can also contribute to the improvement of China's economic level. In the development of carbon finance, financial institutions should play a good role as intermediaries, promote fund financing, and allow more enterprises to participate. Moreover, financial institutions can research and develop more new carbon finance products, further enrich the investment products of enterprises, give them more choices, and obtain more funds to promote their own development, ultimately improving the survival environment of enterprises, enhancing industrial transformation capabilities, and improving China's natural environment.

5.3. Strengthen environmental awareness

As the main body of economic activities, enterprises should take the initiative to assume social responsibility, strengthen environmental awareness, actively reduce carbon emissions in production, actively treat polluted environments, reduce industrial wastewater and exhaust emissions, restore ecological balance, and promote industrial transformation. Enterprises should strengthen environmental protection publicity and training education in their daily work, and enhance the environmental awareness of employees. Moreover, government departments should also use the power of the media to spread environmental awareness to the public through various means, promote green travel, live a frugal and emission reducing life, reduce environmental pollution, and promote enterprise transformation.

5.4. Strengthen international cooperation and communication

In terms of carbon finance, foreign countries have a longer development history than China, and also have experience that China lacks. Therefore, China should pay attention to international cooperation and communication, absorb advanced foreign experience, and transform it into domestic use. Emphasis should be placed on multilateral and bilateral cooperation, recommending successful experiences in carbon finance to foreign countries for use, expanding the international carbon finance market, allowing more countries around the world to participate, and encouraging more efforts to contribute to global environmental improvement. International cooperation can also provide our enterprises with more technological and financial support, thereby promoting the green transformation of traditional industries.

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