Research on Industrial Support of Green Finance Development for Automobile Industry

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Abstract: The development of the new energy vehicle industry is likely to become one of the future trends in the automotive industry. The development of the new energy vehicle industry can effectively alleviate energy pressure, reduce environmental burdens, promote industrial upgrading and structural transformation, and also affect the enhancement of the international competitiveness of the automotive industry. Capital is one of the key factors in promoting the development of the new energy vehicle industry, and the support of financial capital is crucial for the development of the new energy vehicle industry. Currently, China's green financial system is under construction, and efforts should be made to vigorously develop green finance, support the development of the new energy industry, guide the transformation of energy production and consumption methods, and promote the development of the country's ecological civilization. Based on reviewing the literature related to green finance and industrial development, this article analyzes the current status of green finance supporting the development of the new energy vehicle industry, and proposes three mechanisms for green finance to support the development of the new energy vehicle industry: policy guidance mechanism, financing security mechanism, and scientific research innovation mechanism.

Keywords: Green Finance; New Energy Vehicles; Financial Support

1. Introduction

Since the reform and opening up, China has achieved tremendous economic development. However, the environmental cost we have paid is immeasurable. According to the World Bank, the environmental cost of pollution in our country accounts for as much as 9% of annual GDP. Against this backdrop, green development has become an important trend in the world today. Countries around the world are prioritizing the development of green industries as a key driver for adjusting economic structures. China is actively exploring ways to transform its economic development, shifting from sustainable development to a scientific development outlook to a green development philosophy. In the process of economic green transformation, finance, as the core of the modern economy, inevitably becomes a crucial driving force [1]. The key role of green finance lies in attracting social capital to support the development of resource-efficient and environmentally friendly industries, addressing the financing issues of green industries, and raising public awareness to foster a societal consensus for green development. This creates a virtuous cycle, attracting more social investment and ultimately promoting green sustainable development. In this process, not only are funding issues resolved and green technology innovation guided, but it also helps drive the improvement and innovation of ecological environmental protection and governance mechanisms [2]. The development of green industries and the green transformation of traditional industries have sparked enthusiasm and trends in financial institutions to develop green finance. However, in practice, there are still many obstacles to advancing green finance, and it will take time to accommodate and drive the significant changes that are happening.

The new energy vehicle industry, as one of the strategically emerging industries for current development, plays a significant role in leading the transformation of the automotive industry. China's automotive industry has experienced rapid growth in recent years, ranking first in the world in terms of growth rate, while also being the world's largest producer and consumer of automobiles. However, the development of the automotive industry and the increase in the number of vehicles will lead to a series of energy and environmental issues [3]. In terms of energy, the increased fuel demand for motor vehicles has raised the country's external dependence on oil, posing a serious threat to energy security. In terms of the environment, vehicle emissions are a major source of air pollution and a significant source of carbon emissions, exacerbating global climate change. Capital remains one of the key issues for the development of the new energy vehicle industry. Research and development innovation, as an important way of technological innovation, requires continuous capital investment, and the market demand and research and development of emerging industries have high levels of uncertainty. Compared to traditional industries, emerging industries face higher financing constraints and are at a financing disadvantage. Currently, the funding sources for the new energy vehicle industry are gradually shifting from government subsidies to market financing [4]. On one hand, government subsidies are gradually being phased out in a stable manner, while on the other hand, facing market financing needs, green finance must effectively supplement them.

This article explores the inherent mechanisms of green finance supporting the development of the new energy vehicle industry from the theoretical perspective of green finance and the development of green industries. It analyzes the current development status of green finance and its specific role in the new energy vehicle industry, attempting to explain whether the existing green finance system effectively promotes the growth of the new energy vehicle industry and the mechanisms through which green finance influences the growth of the new energy vehicle industry.

2. Current Status of Green Financial Support for the New Energy Vehicle Industry

2.1 Current Status of Green Financial Policy

As early as 2014, the Central Economic Work Conference pointed out that "China's environmental carrying capacity has reached or is close to its limit." Finance, as the lifeblood of modern economy, must urgently develop green finance. The externalities inherent in green finance necessitate initial government intervention, implementing top-down design to establish a green financial system. From an economic perspective, green financial policies can internalize the positive externalities of green investment and the negative externalities of pollution investment through policy and institutional arrangements, guiding social capital into environmentally friendly industries. An effective green financial system can leverage social capital investments in green industries up to several times over with limited fiscal funds.

Currently, both domestic and international experts agree that 2016 was the inaugural year of China's green finance development. Besides the government's release of many related policies, China also achieved significant progress in green financial products, tools, methods, etc. in 2016, such as the issuance of green bonds, establishment of green industry funds, and introduction of methods for evaluating the environmental benefits of green projects [4]. In 2016, China officially issued the "Guiding Opinions on Building a Green Financial System." Despite the short period of green financial development in China, the country's green financial institutional system has become increasingly sound, initially establishing a comprehensive green financial system covering all aspects of green financial operations. Since 2016, China has continuously introduced innovative green financial products, many of which are globally leading. Additionally, efforts such as establishing a green finance research group at the G20 Summit have propelled green finance to the mainstream, all thanks to the government's driving role.

2.2 The Current Status of Green Financial Support for the New Energy Vehicle Industry

The new energy vehicle industry is a capital-intensive industry that requires a significant amount of funding for its development. The purpose of green finance is to serve such green industries by providing them with credit funds directly or by mobilizing social funds. Currently, the funding sources for the new energy vehicle industry are mainly divided into three parts: support from government subsidy policies, guidance from green finance policies for financial institutions, and direct financing from the financial market.

2.2.1 Green Credit

In the process of green finance development, China's existing financial market structure determines that bank-dominated indirect financing is leading the way. China has issued many policies related to green credit, making various aspects relatively comprehensive. As profit-driven institutions, banks have actively become the hub for green enterprises and green financial resources under the guidance of national policies, channeling funds to enterprises that comply with green financial policies. Currently, all green credit in the China Banking Regulatory Commission's statistics is divided into two parts: energy conservation and environmental protection services, and strategic emerging industries [5]. The new energy vehicle industry, as a subproject of strategic emerging industries, is listed separately alongside energy conservation and environmental protection industries and new energy industries, indicating the importance of new energy vehicles in the country's development strategy.

At the same time, China's green credit balance has been increasing year by year, with a rapid growth rate. It has increased by approximately 71% from 4852.84 billion yuan in June 2013 to 8295.63 billion yuan in June 2017. Energy conservation and services grew by about 90%, while strategic emerging industries grew by about 24%. Within strategic emerging industries, the new energy vehicle industry grew by more than twice. The difference in growth rates between energy conservation and services and strategic emerging industries is partly due to the fact that energy conservation and service projects involve more infrastructure investments within the scope of government services, with broad coverage and large investments. On the other hand, in the development of strategic emerging industries, government support is mainly aimed at opening up the market, providing assistance in the initial stages of industry development, with the ultimate goal of achieving industry self-reliance. Therefore, there is a significant difference in the growth rate of green credit [6]. Regarding green credit for the new energy vehicle industry, as a part of green credit for strategic emerging industries, although the total amount is not significant, the growth rate is very fast, demonstrating that under the guidance of green financial policies, green credit has provided strong support for the development of the new energy vehicle industry.

2.2.2 Green Bonds

Green bonds originated in the international market in 2007, issued by multilateral development financial organizations and policy financial institutions. They are a type of green securities. The key feature that sets them apart from other securities is that the funds raised are used to promote and achieve green benefits. Green bonds in China officially began issuing in 2016. From 2016 to 2020, the number of green bonds issued in China steadily increased, with the issuance scale initially rising and then falling. In 2020, there were a total of 217 green bonds issued domestically in China, totaling 224.27 billion yuan. Due to the impact of the COVID-19 pandemic on credit risks, there was a slight decrease compared to the previous year, accounting for 13% of the global issuance of green bonds during the same period. As of 2020, the cumulative issuance amount of green bonds domestically in China exceeded 1 trillion yuan, reaching 1.11 trillion yuan. The Chinese green bond market is currently in a clear upward trend, with an increasing level of internationalization in green bond issuances and a growing number of issuers. According to data from the Forward-looking Research Institute, in 2020, green financial bonds accounted for about 60% of the total transaction amount, with the remaining 40% coming from non-financial green bond transactions. These phenomena indicate the high activity level of the green bond market. Green bonds can provide green financing resources for green projects and financial institutions beyond credit and equity financing. They serve as an effective supplement to long-term project financing in situations where long-term loans are limited. Compared to green credit, green bonds have the advantages of longer fund durations and lower financing costs. Additionally, they significantly improve the issuer's environmental risk management level while providing investors with high-quality green assets, strengthening investors' sense of responsibility.

2.2.3 Green Funds, Green Indices

In addition to green credit, green bonds, and green insurance, the green financial system also includes green funds and green indices. Although they do not currently hold a major position in the green financial system, international experience shows that they play a vital role in constructing the green financial system. Green funds mainly include green private equity funds and green venture capital funds, which are financial instruments prepared for small and medium-sized enterprises that do not yet qualify for public listing but can conduct green projects. Green funds participate in green projects through investment and financing, providing financial or operational guidance to businesses. Upon project completion, they generate income through transferring ownership in the securities market. In 2018, the China Securities Investment Fund Association released the "Green Investment Guidelines (Trial)," aiming to promote the development of green investment in the fund industry, improve the environmental performance of investment activities, and promote green and sustainable economic development. As of the end of 2019, a total of 133 public-raised green funds had been issued nationwide, with a total scale reaching 68.71 billion yuan. Green index products primarily consist of equity indices, also involving targets such as bonds and futures. Green indices contribute to the promotion of green environmental concepts, offering investors more and higher-quality investment choices. They can also prompt businesses to improve the environmental impacts of their production and business operations, actively shoulder social responsibilities. At present, green index products can be categorized into three main types: green development indices, environmental industry indices, and social responsibility indices, with China's SSE 180 Carbon Efficiency Index belonging to the green development indices.

2.2.4 Green Car Loans

As a crucial part of credit, car loans have a comparative advantage over traditional financing methods in the capital-intensive automotive finance industry, which is beneficial for supporting the development of China's real economy. With the introduction of the "peak carbon emissions" and "carbon neutrality" goals, China has been increasingly supporting the new energy vehicle industry with lower carbon emissions. In 2021, the sales of new energy vehicles saw substantial growth, shifting the industry from policy-driven to market-driven. Green car loan assets issued by automotive finance companies are increasing, with lower interest rates and cost advantages compared to other financing methods. Green car loan products, mainly based on new energy vehicle loans, are emerging. In response to the "dual carbon" goals, Automotive finance companies and commercial banks have been continuously introducing exclusive products and risk control systems for new energy vehicles. Several companies have also initiated green financing activities related to new energy vehicles. In 2021, SAIC Finance issued the nation’s first green personal auto mortgage loan asset-backed securities, raising 910 million yuan. The Industrial and Commercial Bank of China (ICBC) issued the country's first green auto installment asset-backed securities by a commercial bank. Since 2014, car loans have entered a period of rapid development, with increasing issuance scale, speed, and proportion in the asset securitization market. Especially after the implementation of the registration system in 2015 and driven by various factors such as institutional demand, industry development, and regulatory policies, car loans have gradually become the main product type in credit over the past decade. Therefore, leveraging green car loans based on new energy vehicle credit assets not only actively responds to the country's industrial optimization layout but also contributes to the development of the new energy vehicle industry, attracting more automotive finance companies to participate in financing.

3. The role Mechanism of Green Finance in Supporting the Development of the New Energy Vehicle Industry

3.1 Policy Guidance Mechanism

Green finance policy is a series of policies and institutional arrangements that direct social funds to support the development of green industries such as environmental protection, energy conservation, clean energy, and transportation (Ma Jun et al., 2014). From an economic perspective, in the market price system, green investments have positive externalities, while investments in the "two highs and one surplus" industries have negative externalities. This defect cannot be internalized on its own, but green finance policies and institutional arrangements can guide social funds through various financial services to correct it. According to Ma Jun et al (2014), China's annual total demand in the fields of environmental protection, energy conservation, clean energy, and clean transportation is at least 2 trillion yuan, with green industries requiring an annual input of about 3% of GDP. However, government contributions only account for 10% to 15% of all green investments. Therefore, the main role of green finance policy is not to directly promote industrial development but to guide social funds to support green industries.

3.2 Financing Security Mechanism

The core function of the financial sector is capital allocation. The financial system aggregates idle funds in society to form industrial capital and supports the development of green industries under the guidance of economic policies. The core of green finance is to absorb social funds and match them with the needs of green industries. From the perspective of financial supply, in the green finance system, financial institutions expand green finance-related businesses and innovate green financial instruments to supply funds to green industries. The scope includes loans, funds, bonds, stocks, insurance, and more. Firstly, expanding financial business also expands financing channels, making it easier to absorb more social funds and increase available investment capital. In the green industry, there are many high-tech industries and small and medium enterprises, such as the new energy vehicle industry, which are already at a disadvantage in financing competition with traditional industrial enterprises. Fully utilizing green financing methods established by investment banks and private equity can enhance the financing efficiency of green industries. Currently, the largest source of funding for green industries is green loans, followed by green bonds, offering significant space for expanding financial business. Secondly, innovative financial instruments can enhance the efficiency of savings turning into investments. Without violating industry principles and complying with financial regulations, the innovation of financial instruments can improve financing efficiency. For example, the development of green industry funds can promote equity financing for green projects, and once national background green funds enter green projects, they can attract more private funds into green industries, greatly boosting the financing efficiency of green industries.

3.3 Research and Innovation Mechanism

In the existing analysis on the role of green finance in adjusting industrial structure, the research focus mainly revolves around the formation and direction of fund flows. As mentioned in the previous section, the financing guarantee mechanism referred to in this paper is also about the supply and allocation mechanism of funds in promoting the development of green industries through green finance. However, for green industries, what is more critical than fund supply is the innovation of green technologies. The innovation of green technologies is a crucial driving force for green development and a key pillar for the development of green industries. In 2019, the National Development and Reform Commission and the Ministry of Science and Technology jointly issued the "Guiding Opinions on Constructing a Market-oriented Green Technology Innovation System", emphasizing that technological innovation will become a significant driving force for the development of green industries. This paper summarizes the mechanism of green finance promoting technological innovation in green industries as a research and innovation mechanism. Increasing investment in technological innovation through policy measures can stimulate economic growth and play a significant role in the technological innovation and development of emerging industries. The research and innovation mechanism of green finance is precisely under the guidance of policies that lead to the aggregation of funds, providing assurance for enterprise research and innovation.

4. Conclusion

This paper has theoretically analyzed the mechanism through which green finance promotes the development of the new energy vehicle industry. It includes the current state of support of green finance for the new energy vehicle industry, as well as the policy guidance mechanism, financing guarantee mechanism, and research and innovation mechanism of green finance in the context of the new energy vehicle industry. The following conclusions are drawn: under the influence and transmission of policy guidance mechanisms, the green finance inputs received by the new energy vehicle industry, mainly through direct financing, can significantly promote the increase of net assets in the new energy vehicle industry, positively promoting the overall development of the new energy vehicle industry with a good effect. As a result of policy transmission, the green financial resources obtained by the new energy vehicle industry have enhanced financing efficiency and provided financing guarantees, continuously supporting the development of green industries. The expansion of funding scale provides sufficient capital for enterprise production, thereby promoting the development of the new energy vehicle industry. The research and innovation mechanism primarily provides a "green channel" for financing new energy vehicle industries and manages risks in innovative production, thereby smoothing the entry of financial resources into the channel for enterprise research and innovative production, ultimately promoting the development of the new energy vehicle industry.

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