Study on the Sustainable Development of Green Finance in China

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Abstract. Green finance is an important driving force for green development. Recently, China's green financial system has achieved rapid development and has become a major highlight of reform and innovation in the financial sector. But on the whole, China's green finance is still in the initial stage of development. In order to further promote the deepening development of China's green finance, it is necessary to improve the green financial incentive mechanism, accelerate the construction of green financial infrastructure, increase the intensity of green financial product innovation, and clarify the environmental legal responsibilities of banks and other financial institutions through laws.

Introduction

Green finance refers to financial services provided to activities that support environmental improvement, climate change, and resource conservation and efficient utilization. It originates from the understanding of environmental protection and pursuit of sustainable development, with the core content of alleviating the contradiction between economic growth and environmental protection through financial means. Specifically, green finance mainly aims to change the production preferences of enterprises, guide the flow of funds, and strengthen corporate social responsibilities, so as to promote emission reduction and energy conservation, and achieve green transformation and sustainable development of the economy.

Recently, China attaches great importance to the development of green finance, which has now risen to the level of national strategy. However, as a whole, China's green finance is still in the initial stage of development, and there are a series of problems such as the imperfect government guidance mechanism, the lack of motivation for banks to develop green finance, and the imperfect green financial product system. Green finance has become an important force to promote the green transformation of China's economy and an important institutional guarantee for the construction of ecological civilization. Therefore, it is worthwhile to explore in depth the factors that restrict the development of green finance, in order to build a multi-level and diversified green financial market.

Major Progress in Green Finance Development

Preliminary Formation of the Policy Framework for Green Finance

In 2015, the state council issued the overall reform plan for ecological civilization system, which clearly proposed for the first time to establish a green financial system and formulate a green financial development strategy from the top-level design. In August 2016, the seven ministries and commissions jointly issued the “Guidelines on Building a Green Financial System”, which is the world's first government-led comprehensive green financial policy framework. The Guidelines, which has become a programmatic document for green finance development in China, for the first time systematically puts forward the definition, incentive mechanism, disclosure requirements, green financial product development planning and risk monitoring measures of green finance. In 2016, the “13th Five-Year Plan” adopted by the National People's Congress clearly proposed the development of green credit, green bonds, green funds, and green rating systems to support project financing in line with ecological environmental protection. Since then, green finance has become a national strategy. The report of the Nineteenth National Congress of the Communist Party of China
puts forward a road map for ecological-civilization construction and green development, which points out the direction for green finance development.

**Increasingly Diversified Green Financial Products.**

(1) Continuous Growth of Green Credit Scale.

Green credit refers to loans for environmental protection and ecological development projects. In October 2008, Industrial Bank officially announced the adoption of the Equator Principles, becoming the 63rd in the world and the first Equator Bank in China. The scale of green credit increased from 4.85 trillion yuan at the end of June 2013 to 8.29 trillion yuan at the end of June 2017, with an average annual growth of 14.3% (see Fig. 1). The environmental benefits of green credit are significant. Taking energy-saving and carbon-reducing environmental benefits as an example, loans to energy-saving and environmental protection projects and services are expected to have saved 215 million tons of standard coal per year and reduce CO₂ equivalent by 491 million tons per year.

(2) Starting Development of Green Insurance.

Green insurance usually refers to environmental pollution liability insurance, which is based on compensation and governance liability for damages caused by pollution accidents to third parties [1, 2]. The Guidance on Environmental Pollution Liability Insurance issued in December 2007 clearly defines the concept of ecological environment protection in the insurance industry and marks the basic establishment of green insurance for environmental pollution in China. At present, 31 provinces (autonomous regions and municipalities) have launched pilot projects for compulsory liability insurance for environmental pollution, covering heavy metals, petrochemicals, hazardous chemicals, hazardous waste disposal and other industries. Insurance companies have provided more than 160 billion yuan of risk protection for enterprises.

(3) Carbon Finance Pilot Gradually Popularized.

In November 2011, the National Development and Reform Commission (NDRC) issued the “Notice on Conducting Pilot Work on Carbon Emissions Trading”, proposing pilot projects on carbon emission trading in seven provinces and cities. In 2017, the total carbon transaction volume in the above pilot areas was approximately 211 million tons, with a turnover of approximately 4.81 billion yuan [3]. In addition, the aforementioned pilot provinces and cities have launched carbon quota mortgage loans, carbon quota repurchase financing and other carbon financial products. On December 19, 2017, NDRC issued the National Carbon Emissions Trading Market Construction Program and opened a national carbon market in the power generation industry firstly, marking the official opening of a national carbon trading system.

(5) Rapid Development of Green Bonds.

Green bonds refer to bonds issued specifically for the development of green economy. China's green bond issuance started in early 2016. In that year, 53 domestic bonds labeled “green” were issued, with a total issuance scale of 205.231 billion yuan, accounting for 33.6% of the total global issuance in the same period, making it the largest green bond issuance market in the world. In the first half of 2019, a total of 84 green bonds were issued, with a scale of 143.291 billion yuan and an...
increase of 174% over the same period in 2018. The types of green bonds include financial bonds, corporate bonds, enterprise bonds and asset-backed securities (see Fig.2). The funds raised by green bonds are mainly invested in the fields of clean energy, resource conservation and recycling, clean transportation, and pollution prevention and control, among which the clean energy sector is the most.

![Figure 2. Scale of issuance of various green bond types (RMB 100 million).](image)

**Comprehensive Promotion of the Construction of Green Finance Reform and Innovation Pilot Zones**

In June 2017, the State Council decided to set up pilot zones for green finance reform in five provinces (regions), focusing on promoting green financial reform and innovation in five areas. The pilot zones are a major innovation in the field of green finance practice in China. It forms a “green financial sample” in the way of first-try that can be replicated, and accumulates experience for deepening the development of green finance in an all-round way. Over the past two years, the pilot zones have made a lot of useful explorations to promote green development with financial innovation as the main line, and created a series of unique and marketable development cases.

**Gradually Deepened International Cooperation in Green Finance**

Since 2016, China has been developing international green financial cooperation on multiple platforms. In 2016, China incorporated green finance into the G20 agenda and initiated the establishment of the G20 Green Finance Research Group to promote the formation of a global consensus on green finance. The 2017 G20 Comprehensive Report on Green Finance systematically expounds the progress of green finance, identifies the main factors of environmental risk assessment, and provides a "Chinese sample" for the development of green finance innovation in the international community. In September 2017, the Green Finance Committee and Investment Association of China (IAC) issued “Environmental Risk Management Initiative for China’s Overseas Investment” to encourage Chinese enterprises and financial institutions to strengthen environmental risk management in the process of foreign investment. By strengthening the building of green cooperation platforms and formulating environmental protection standards for infrastructure construction, China has also promoted the development of green investment in the “Belt and Road” construction.

**Obstacles to Sustainable Development of Green Finance**

**Too Light Environmental Legal Liability**

Although China has established a series of environmental protection legal systems, which are dominated by the Environmental Protection Law and supported by the Air Pollution Prevention Law and the Water Pollution Prevention and Control Law, there have long been problems with low administrative penalties and low law enforcement efficiency for environmental violations [4, 5]. Too light environmental legal responsibility makes the illegal cost less than the illegal income,
which leads the company to prefer to violate the law and unwilling to build environmental protection facilities through financing, resulting in insufficient demand for green financial services such as green credit and green bonds. At the same time, although some projects have passed related auditing process and obtained green financing, enterprises have a stronger incentive to change green capital investment in order to pursue higher yields. Due to the imperfect supervision and information disclosure mechanism for green loans, the loopholes in which companies turn green financing to non-green projects to obtain higher returns always exist.

**Unbalanced Development of Green Financial Products and Insufficient Product Development Capabilities**

Although China’s green financial products have shown a trend of diversification, there are still problems such as insufficient product categories, uneven development speed of various types of green financial products, and lacking of personalized financing solutions. At the present stage, green finance in China is mainly based on green credit and green bonds, while the development of green insurance lags behind seriously, the influence of green stock index is very limited, and the related derivatives such as carbon finance are almost blank in the market. The insufficiency of green financial products and innovative ability in China makes it difficult to meet the diversified investment and financing needs of market participants.

**Insufficient Intermediary Service and Environmental Risk Assessment Capacity**

Because green finance projects involve environmental factors and are difficulty to evaluate, intermediaries are required to provide a series of intermediary services, to promote the smooth implementation of green financial business activities of financial institutions. At present, China's existing intermediary service organizations such as third-party certification bodies, asset appraisal institutions, and rating agencies have not yet entered the green field, and environmental risk assessment agencies and environmental damage appraisal and evaluation agencies have not yet been established. The lagged behind intermediary service infrastructure has seriously hindered the rapid development of green finance. For example, without third-party green rating system, when enterprises apply for loans, it is difficult for banks to make a comprehensive assessment of the potential environmental risk of the project.

**Imperfect Incentive Mechanism**

The development of green finance is a complex systematic project, which requires the government to effectively stimulate the vitality of green financial market by improving the mechanism of revenue and cost sharing. However, because the government's fiscal and tax policy follow-up is not timely and not in place, and subsidies and financial discounts to the green behavior is not enough, the cost of market entities cannot be effectively reduced. The enterprises and financial institutions have not been given sufficient incentives, which leads to low intrinsic motivation to carrying out their green financial business.

**Path Selections for the Deepening of the Development of China's Green Finance**

Green finance is an important driving force for green development, and green development provides fertile soil for green finance. In view of the challenges facing the development of green finance, the future development of green finance in China also needs to make efforts and improvements in the following areas:

**To Guide Green Consumption and Investment to Consolidate the Micro-Foundation of Green Finance Development**

The recognition and participation of consumers and investors determines the depth of green finance. We should attach importance to the cultivation of environmental protection and green consumption concept of consumers, guide their green consumption behavior through the strengthening of green consumption consciousness, and then change the consumer’s utility function, so as to achieve the
effect of forcing enterprises to engage in green production. It is necessary to strengthen the promotion of green investment and responsible investment concepts, cultivation of responsible green investors, and using of incentives such as tax relief, to encourage institutional and individual investors to participate in green investment and increase the activity of green financial markets. Also necessary is to speed up the construction of the green GDP accounting system, establish a green development performance evaluation mechanism, and increase the weight of environmental indicators in local governments performance appraisal, so as to fully mobilize the enthusiasm of local governments to carry out green finance.

To Tighten Environmental Legal Liability to Establish an Effective Restraint Mechanism

Only when enterprises and financial institutions really attach importance to environmental protection and put it into practice, can we realize the goal of promoting the development of green finance. To this end, the legal responsibility of environmental spoilers should be further clarified; the amount of punishment for environmental violations should be greatly increased, and the efficiency of law enforcement should be improved. The environmental protection department should be given the power to enforce administrative penalties in order to reduce the adverse effects on the efficiency of law enforcement by applying to the people's court for enforcement. At the same time, "green" elements need to be embedded in the existing Commercial Bank Law, Securities Law, Insurance Law and other related financial industry laws, to clarify the environmental legal responsibilities of financial institutions, and force them to pay attention to environmental risk evaluation of financing projects.

To Promote the Innovation of Green Financial Products

First, we should promote the innovation of green credit products, encourage commercial banks to actively carry out environmental-friendly green credit businesses such as green housing loans and green car loans, and establish a credit business system and risk management framework led by the green credit concept.

Second, we should vigorously develop green funds. Green fund is the most widely-sourced financing method in the green financial system, and it can be established in a variety of ways, including national-level green development funds, local government-funded green development funds, private and foreign investment funds, and so on.

Third, we should develop green stock index and related investment products. Through green index products, many passive investors will be guided to invest more money in the green industry. Asset managers should be encouraged to develop diversified green investment products, including public funds, ETFs, pooled wealth management, etc.

The fourth is to develop carbon financial markets and environmental rights mortgage system. On the basis of carbon trading markets, we need to accelerate the exploration and development of carbon futures, carbon options, carbon swaps, carbon funds and other carbon financial derivative products, and study the use of environmental rights and interests including sewage rights, carbon emission rights and energy rights as collateral to support green enterprise financing.

To Improve the Green Finance Incentive Mechanism

Because of the externality of green finance, it needs the support of fiscal and financial policy to provide certain positive incentives to market participants.

On the one hand, we need to improve the fiscal and taxation support system to broaden the development space of green finance by the "two-way" adjustment of supply and market demand. On the other hand, we should use monetary and financial policies to strengthen the incentive mechanism of green finance. Consideration could be given to extending the range of qualified collateral for monetary policy instruments such as the Central Bank's Medium-Term Lending Facility (MLF) and Pledged Supplemental Lending (PSL) to green assets such as green bonds and green credits, so that commercial banks can obtain low-cost funds to support green projects.
To Speed up the Construction of Green Finance Infrastructure

First of all, it is necessary to speed up the establishment of a standard and unified green finance certification mechanism across the country. Secondly, it is necessary to establish information exchange and linkage mechanism among financial institutions, financial regulatory bodies, environmental protection departments and other departments so as to realize the sharing of financial information and environmental protection information among different departments. Finally, we should actively introduce the principles and standards of international green finance, such as the Equator Principles and the Principles of Responsible Investment, to promote the integration of China's green finance business with international standards.

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