

Analyzing the Impact of Industrial Bank's Low-Carbon Transition Loans on Environmental Industries

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Abstract. In response to the intensification of global climate change, countries have launched green financial policies to promote economic transformation in the direction of low-carbon and sustainable development. China Industrial Bank has initiated a low-carbon transition-linked loan business to encourage enterprises to actively adopt low-carbon transition measures through financial means, and to propel the real economy towards a green and low-carbon trajectory. The aim of this research is to investigate the ways in which green finance facilitates the growth of environmental industries. This article primarily employs the conventional research method to examine the low-carbon transition-linked loan business of Industrial Bank, using the green amount theory as a case study. The final result demonstrates that expanding financing channels and enhancing international cooperation not only provide financial support for financial products, but also serve as guidelines for green financial policies that encourage corporate environmental protection. The final point is that establishing subsidies and incentives can encourage enterprises to accelerate their transition towards a low-carbon future. The findings of this paper can provide a reference for the government and relevant regulatory agencies to formulate green financial policies. By comprehending the real impact of environmentally sustainable financial offerings and the market's requirements, the government can formulate more targeted policies to motivate financial organizations and corporations to actively contribute to green and low-carbon development efforts.

Keywords: Industrial Bank, green finance, market mechanism, green credit.

1. Introduction

With rising global temperatures, frequent extreme weather events, and the gradual depletion of fossil fuel resources, governments and enterprises are beginning to realize the significance of eco-friendly development. Green finance plays a crucial role in advancing green development, providing robust support for sustainable development by focusing capital flows on environmental protection, energy conservation, and clean energy, among other green areas.

The European Union (EU) has adopted a range of green financial instruments and policies to support its green transition and climate change objectives. For example, the EU has established the European Green Deal (EGD) with the objective of attaining carbon neutrality by the year 2050. To this end, the EU has introduced green bonds, green funds, and sustainable finance standards to encourage the private sector to invest in green projects. In addition, China's banking industry has enthusiastically embraced the national policy by rolling out green credit offerings and boosting financial backing for environmental protection, energy efficiency, and clean energy domains. It has also actively participated in green bond issuance to provide direct financing support for enterprises. Industrial Bank, a domestic pioneer in green finance, has introduced green credit, engaged in green bond issuance, and offered carbon accounting services, among other things, to bolster environmental protection and energy-saving sectors. Furthermore, the bank has actively aligned with policies aimed at directing credit towards green initiatives, thereby contributing to the long-term prosperity and ecological balance of both the economy and society.

A multitude of experts have dedicated their study efforts to investigating the effects of green finance on sustainable development. Lai perceives green financial goods as entities and evaluates their pertinent contribution to China's sustainable development [1]. The study highlights the importance of



green finance in promoting sustainable economic development, particularly its beneficial impacts on China's economic growth, industrial advancement, energy efficiency, and the reduction of greenhouse gas emissions [1]. Volz's paper investigates the green financial system and its significance in financial governance, alongside the financial sector's pivotal position in the "green industrial transition" [2]. Hou and colleagues have chosen green finance as the central theme of their research, examining its critical challenges related to the progress of a low-carbon economy [3]. Hou and his colleagues also give strategic suggestions for speeding up the development of a low-carbon economy by increasing the use of green finance. These suggestions are based on a study of low-carbon economies and the growth of green finance [3].

Despite the abundance of research on green finance, the majority has focused on exploring the environmental and economic advantages associated with this field. However, there are limited studies on the environmental impacts of green finance in the banking industry. Therefore, there exists a noticeable research void in this field. To bridge this gap, the present dissertation aims to explore the mechanisms through which green finance fosters the growth of the environmental industry.

This research will employ the Industrial Bank of China as a case study in the banking sector, elucidating its distinctive procedures and corresponding financial results to address the aforementioned difficulties. It will then analyze how these items impact diverse environmental and industrial sectors. Ultimately, this paper will provide judicious recommendations based on the studied outcomes. The environmental sector can be advanced in accordance with the suggestions of the green finance sustainability study.

This study emphasizes the pivotal role of finance in environmental protection and sustainability, with a particular focus on green financial instruments as key drivers of the environmental industry's growth. By analyzing their mechanisms and examining their beneficial effects on investment, innovation, and sustainability, this paper aims to underscore green finance's positive impact on green economic transformation and sustainable development.

This paper examines the Industrial Bank of China as a case study within the banking sector, detailing its specific practices and associated outcomes in finance, followed by an analysis of how the relevant products function across various contexts and industrial domains based on these outcomes. Ultimately, this paper will provide judicious recommendations based on the studied outcomes. The environmental sector can be advanced in accordance with the suggestions of the green finance sustainability analysis.

2. Case Description

Industrial Bank of China Limited, or Industrial Bank for short. Founded in August 1988, the company is among the initial joint-stock commercial banks that received approval from both the State Council and the People's Bank of China, and its headquarters are situated in Fuzhou City, Fujian Province. The primary business of Industrial Bank includes accepting public deposits, providing loans of varying durations such as short, medium, and long-term, managing both domestic and international settlements, and issuing government bonds on its behalf. In addition, the bank is actively expanding into green finance, investment banking, asset management, and other emerging business areas, thereby forming a diversified and integrated business pattern.

Having established a comprehensive suite of green financial products and services, Bank stands as a forerunner and prominent figure in China's green finance sector. This encompasses green financing, green leasing, green trusts, green funds, green wealth management, and green consumption, among others. The bank does more than just try to make money. It also takes care of its social duties by funding environmental protection and sustainable development projects with these green financial instruments and other alternative methods. This makes a big difference in the long-term health of society. The bank actively contributes to society through green finance, public welfare, and charity, as well as promoting the coordinated development of the economy, society, and environment. In addition, Industrial Bank actively participates in international exchanges and cooperation, aiming to

enhance the influence and voice of China's banking industry in the field of international finance. In response to the national "double carbon" goal and its advocacy for the transition to a low-carbon economy in Xinjiang, Industrial Bank has initiated a low-carbon transformation-linked loan business. Through the innovative use of a dynamic price adjustment mechanism, loan interest rate, enterprise pollution reduction, carbon reduction, unit energy consumption, and other green economy indicators, the business provides incentives for enterprises to achieve the development goals of low-carbon transformation. Industrial Bank successfully issued a medium- and long-term low-carbon transformation-linked loan of Renminbi (RMB) 395 million for Xinjiang Henglian Energy Company Limited's "2x660MW supercritical coal-fired unit energy-saving integration transformation project." The enterprise uses this loan not only to meet the national and Xinjiang regional requirements for the transformation and upgrading of coal-fired power units, but also to significantly reduce the coal consumption of the existing units' power generation, thereby enhancing their market competitiveness. The upgraded unit reduces annual standard coal consumption by 102,000 tons, which is equivalent to 68,300 tons of carbon emission reduction, and has achieved significant economic and environmental benefits.

3. Analysis

3.1. Reasons on Final Support

The Industrial Bank has delivered substantial assistance to the environmental sector through the introduction of innovative financial products, consequently promoting sustainable growth and development.

Green Leasing offers financial assistance to environmental enterprises for equipment acquisition and technological innovation via financial leasing, alleviating investment burdens, facilitating the adoption of advanced environmental protection technologies and equipment, and improving environmental performance and market competitiveness. This service facilitates the swift transformation of environmental firms.

Simultaneously, Industrial Bank's Green Trust and Green Fund offer tailored financial solutions and support for equity investments, emphasizing environmental, social, and governance criteria. They assist enterprises in growth, foster technological innovation and industrial advancement, and enable the comprehensive integration of the green sector with financial capital to collectively advance the environmental industry's sustainable development.

Highlighting the importance of apt fund allocation, many researchers conducted an empirical analysis utilizing panel data from 30 Chinese provinces between 2006 and 2017. The study's focus was to examine how green investments and the standard of institutional arrangements influence environmental pollution, employing both the spatial Durbin model and the dynamic threshold model [4]. The results of the study show that green investment has a negative impact on local environmental pollution, indicating that green investment helps to reduce environmental pollution by improving energy-saving and emission reduction efficiency, enhancing technological innovation capacity, and promoting industrial structure upgrading [4]. The theory of sustainable development clearly emphasizes the rational allocation of funds as the key to achieving environmental protection and industrial development.

3.2. Reasons on Incentives for Corporate Environmental Behavior

Incentivizing companies to be environmentally friendly through mechanisms such as carbon emission reduction linkages will help reduce carbon emissions and promote green transformation in the industry.

Industrial Bank issued its first "carbon emission reduction linked" loan to encourage enterprises to control and reduce carbon emissions, thereby promoting green and low-carbon development. The loan facility links the interest rate to the enterprise's low-carbon transformation goal, allowing for a

downward adjustment of the interest rate upon emission reduction, thereby effectively stimulating the enterprise's environmental protection initiative. The transformed unit will reduce annual standard coal by 102,000 metric tons and carbon emissions by 68,300 metric tons, contributing to carbon emission reduction in Xinjiang [5].

The research on green finance policies and heavily polluting enterprises underscores the significance of market-driven mechanisms. By employing a data set spanning 2013 to 2022 and utilizing a difference-in-differences model, the study investigated how green credit policies influence the financing choices of enterprises with substantial environmental pollution. Researchers found that green credit policies significantly reduce bank and non-bank lending to firms with high levels of environmental pollution, while also significantly contributing to the management of sustainable climate quality in regions where heavily polluting firms operate [6]. Another early study, based on a sample of 15 European countries, aimed to investigate the ability of specific elements to mitigate CO₂ and greenhouse gas emissions [7]. The study from Adnan et al. used a variety of statistical methods to analyze cross-sectional correlations and found that innovation and environmental policies contributed to reducing emissions in both the long and short term. Carbon pricing strategies also mitigate intra-regional emissions to some extent, although the effect varies from country to country [7]. Overall, carbon pricing is an effective short-term tool for achieving the Sustainable Development Goals.

3.3. Reasons on Accelerating the Low-Carbon Transition

Industrial extending the scope of green financing, Industrial Bank furnishes financial assistance for the low-carbon transformation of firms, facilitating industrial enhancement and sustainable economic progress.

China's low-carbon economic development relies heavily on clean energy and resource recycling, with its green credit balance reaching RMB7472 billion by the end of June 2023 [5]. Industrial banks facilitate the execution of several low-carbon initiatives, provide new incentive structures, and develop a varied green financial service framework to generate a robust foundation for economic transformation. The project has effectively advanced industrial development, diminished carbon emissions, and enhanced company environmental consciousness and capability.

Jorge et al. also illustrated the importance of low-carbon transformation of traditional industries for the environment [8]. Researchers found that China has made significant progress in the EII low carbon transition, with the power, steam, and hot water sectors making significant progress [8]. Previous studies have also found that China excels in low-carbon financial efficiency [9]. The study clearly articulates the environmental importance of a low-carbon transition in traditional industries.

4. Suggestion

4.1. Suggestions on Broadening Financing Channels

The financial deficit in the environmental protection sector is substantial. In light of the extensive scope of environmental protection initiatives and governance requirements, the current capital investment remains inadequate. Historical data analysis indicates that China's investment in environmental pollution control has consistently fallen short of the requisite basic protection level, resulting in frequent funding shortages for environmental protection projects during implementation. This study proposes that the environmental sector can seek foreign financial and technical assistance by expanding funding channels and improving collaboration with international financial institutions. For instance, three provinces, namely Anhui, Jiangxi, and Sichuan, implemented the project on the conservation and development of rare tree species in the Yangtze River Economic Belt, successfully utilizing a loan of 100 million euros from the European Investment Bank and introducing international advanced concepts and sustainable management techniques. This initiative significantly improved the ecological environment of the Yangtze River Basin, enriched the structure of forests,

and protected biodiversity, all while fostering the sustainable growth of the local forest industry's economy.

4.2. Suggestion on Strengthening Green Finance Policy Guidance

In the present context of the environmental protection sector, companies' ability to implement sustainable practices has increased in tandem with the rising societal demand for eco-friendly products and services. As a result, companies in this sector are proactively adjusting to market changes by providing an expanded array of products and services that comply with environmental regulations. This market-driven impetus compels firms to consistently enhance their environmental protection practices. The article asserts that the environmental protection sector may enhance the green financial policy framework by reinforcing guidance and support for green financial policies. The government should continue to improve green finance policies, delineate the sectors and criteria for green finance assistance, and provide more explicit policy direction for the environmental protection sector.

This analysis utilizes the 2012 China Green Credit Guidelines and A-share business data to demonstrate that elevated financing costs diminish the risk-mitigating efficacy of these rules. The analysis highlights the disparate impacts on central and western regions, as well as non-state-owned firms, and suggests that policymakers should implement incentives and constraints to promote equitable environmental and corporate advancement [10].

4.3. Suggestion on Establishing Subsidies

In terms of low-carbon transition, environmental protection has become an important issue for business development. At present, most enterprises have realized the importance of low-carbon transition and taken certain actions, but there are still some deficiencies. Low-carbon technologies still have bottlenecks in some areas. Technological breakthroughs are essential to drive the low-carbon transition.

Establishing subsidies and rewards to encourage technological innovation and applied research and development (R&D) can solve this problem. The use of green financial funds to set up a special fund to provide subsidies and incentives for research and development and innovation in carbon technology, encouraging enterprises and scientific research institutions to increase their investment in research and R&D and to break through key technological bottlenecks.

National Energy Group Taizhou Power Generation Co., Ltd. has received R&D subsidies and awards from the government and relevant organizations to support its efforts to meet the challenges of large-scale carbon dioxide capture. The company did its own research and came up with a new type of high-efficiency absorbent. It also broke new ground in the carbon capture process and control technology. Finally, it successfully built Asia's largest thermal power Carbon Capture, Utilization, and Storage (CCUS) demonstration project, which got internationally top technical scores, cut decarbonization costs by a large amount, and pushed hard for CCUS to be used in coal power plants.

5. Conclusion

This article stands in the perspective of Corporate Social Responsibility (CSR) to determine the impact of green finance on the environmental protection industry. This paper utilizes the Industrial Bank's low-carbon transition-linked loan program as a case study. This program employs a dynamic pricing mechanism that ties loan interest rates to enterprises' green economy performance indicators, such as pollution reduction, carbon emission cuts, and unit energy consumption, thereby encouraging enterprises to pursue low-carbon transition goals. The findings of the study indicate that green finance exerts a positive influence on the environmental industry.

The study of Industrial Bank's Low Carbon Transition Linked Loan business provides a new green financial product for the financial industry, encouraging more financial institutions to participate in

green and low-carbon development. It also sets an industry model. The successful execution of this business model serves as a benchmark for the financial sector in promoting green and low-carbon development, inspiring a greater number of financial institutions to engage in green finance practices. This business has enhanced the variety of green financial products and equipped financial institutions with additional tools to assist in the low-carbon transformation of enterprises. However, this thesis may lack comparative analyses of similar green financial products at home and abroad, which could limit an in-depth understanding of the uniqueness and advantages of Industrial Bank's low-carbon transition-linked loan business.

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