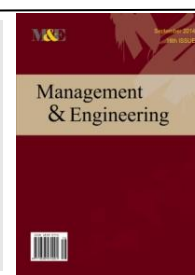




Contents lists available at SEI

Management & Engineering

Journal homepage: www.seiofbluemountain.com



The Study of Pattern and Measures on Green Finance Promoting Low-carbon Economical Development

Yuanyuan LIANG

Zhejiang Yuexiu University of Foreign Languages, Shaoxing, Zhejiang Province, P.R.China

KEYWORDS

Green finance,
Low-carbon economy,
Development pattern,
Measures

ABSTRACT

With the improvement of people's living standard and quality, following the global pollution of environment and atmosphere, the low-carbon economy of new economic pattern, which has the characteristics of low pollution, low energy consumption and low emission, during the promotion of green finance, through using energy technology and pollution control, improving industrial structure, adjusting the package of management systems, low-carbon economy has increased use ratio of energy, changed the pattern of economic development and improved the quality of environment and air, exerted vital impact and significance. This article through the theoretical summarization of green finance analyzes the pattern of promoting low-carbon economic development and explores the pattern of promoting low-carbon economic development, so as to boost the domestic development of financial industry and keep up with the trend of international financial industry.

© ST. PLUM-BLOSSOM PRESS PTY LTD

Introduction

Green finance is an alternative name of environmental finance, low-carbon finance and sustainable finance, whose main aim is to provide a set of feasible solution for climatic change and global environmental pollution, and application methods are the arrangement of financial products combination and financial system. Financial industry as the core element of modern economy exerts vital impact and significance on low-carbon economic development, not only by means of green finance to change economic pattern and structure, but also through strengthening its own competitiveness and improving industry image to gain a firm foothold in the situation of economic globalization.

1 Overview of Green Finance

1.1 Connotation and origin

In 1997, part of overseas countries commenced applying the theory of green finance, these countries used this theory also enlarged and improved it through adopting the experience acquired by each civil organization, governmental structure and international structure so as to meet the current situation of development in each country. We have three kinds of definition towards green finance, firstly it appears in the article of *Green Finance and the Sustainable Development of Finance*, via the relation of trade, the improvement of innovation rate and other aspects of evaluation on environmental protection, towards the influence of financial

English edition copyright © ST. PLUM-BLOSSOM PRESS PTY LTD

DOI:10.5503/J.ME.2014.16.017

structure decision making, environmental protection value in the operational process of financial structure, financial structure and green financial products perfect the environmental protection system of financial industry, and apply this system to the theory of low-carbon economic development so as to promote domestic economic development and growth.

1.2 The relations among green finance and sustainable development, circular economy and low-carbon economy

The relations among green finance and sustainable development, circular economy and low-carbon are quite close, which mutually connected influenced and promoted our domestic economic development and growth. We can find from the material research that part of specialists consider that different types of financial industry and investment and financing also exerts different influence towards sustainable development, whose influence can be divided into short-term influence, long-term influence, direct influence and indirect influence. Part of specialists perceive that economy, environment and society are closely related, and financial industry makes the decision of industry meet the regulation of environmental causes through exerting impact on cash flow of bank. Part of specialists consider, in a complete system, environmental finance, circular economy and financial innovation are elements mutually influenced, and every two factors are mutually influenced and connected. The development of low-carbon economy depends on the push of carbon finance development, which needs the assistance of finance. Therefore, the relationship between green finance and low-carbon economy is close, related to our domestic economic lifeline of development and livelihood, with significant effect and value.

2 The Pattern of Green Finance Promoting Low-carbon Economic Development

2.1 Empirical study exploring the relationship between carbon emission and economic growth

Taking age limit as the time quantum of study, we observe the increasing rate of domestic GDP at some stage and calculate the emission of carbon dioxide to provide data and index basis for the study of the relationship between carbon emission and economic growth.

Study on the relationship between them, we must construct measurement model, then calculate and inspect. Among which index regulates that explaining variable is GDP, while explained variable is carbon emission. The measurement model of relationship between them is $CF_t = \alpha + \beta GDP_t + \mu t = 1, 2 \dots 29$.

Adopting aggression analysis method to examine the chosen time series data, firstly we need to examine its roots of unity, then examine the smoothness of data, apply ADF test method in line with the characteristics of data to choose the trend term and constant term of pattern, and come out the inspection result.

In the study of this article, the inspection result of ADF is:

Chart 1 The inspection result of ADF

Time Series	Critical Value	Statistics	Conclusion
CF	-3.587 522	-1.413 775	Unsteady
GDP	-3.612 182	2.348 388	Unsteady
Δ CF	-3.587 522	-2.505 466	Unsteady
Δ GDP	-3.644 862	-1.714 960	Unsteady
Δ CF	-3.595 024	-5.352 862	Steady
Δ GDP	-3.603 205	-4.025 367	Steady

From the aforementioned chart we can find that, unit root exists in the first difference of time series, not in the second difference of time series, so from the second difference of time series with the characteristics of smoothness, we can conclude that both CF series and GDP belong to the range of the second difference of time series.

Apply the method of Granger causality test to see if the domestic carbon emission and economic growth are in a steady relationship. The following chart is the test result:

Chart 2 The test result of causality

Granger causality test	F-statistics	Value of P	Conclusion
GDP not affecting CF	3.735 77	0.025 8	Refuse
CF not affecting GDP	4.219 58	0.016 8	Refuse

From Chart 2 we can see, between the relationship of the two sets of time series, CF and GDP is two-way causality, they are mutually influenced and supplemented.

We do empirical analysis on the aforementioned test result, and then we find out the relevance between carbon emission and economic growth, it has strong force, with the features of long term and smoothness, they mutually supplemented and influenced; so if we control one aspect, we are able to promote the comprehensive development of domestic low-carbon environmental protection industry and bring oriented force of financial policies in play.

2.2 Pattern construction

For green finance hasn't yet been on track, the frame of financial system can be perfected only under the support of government, low-carbon economy is goal-oriented, economical and technical; therefore, in the process of pattern construction, we shall take this feature as the development direction and accelerate green finance development.

So far, the developing patterns of foreign green finance are mainly equator banks, carbon exchanges, carbon trust and financial innovation of carbon futures, and consequently, in accordance with our national conditions and the requirement of economical development, we adopt different ways to apply in the process of conducting green financial business.

From the development of green finance pattern we can see, agricultural banks absorb carbon trust and financial innovation of carbon futures to realize the innovative development of industry; construction banks absorb the pattern of equator banks and strengthen the cooperative program with financial group overseas; part of commercial banks adopt the method of energy reservation and emission reduction to finance and loan so that to set up different development patterns, which promotes the development situation of low-carbon economy and makes green finance play a crucial role in the development of low-carbon economy.

3 The Measures of Green Finance Promoting Low-carbon Economic Development

The methods of introducing experience, individual case analysis, leading edge analysis and empirical approach are the primary means and measures for green finance to promote low-carbon economical development. Through the introduction of foreign green finance experience, we make the experience adapt to our national conditions to promote the development of various industries. We apply practice experience of financial institutions and equator principle for reference to propel products innovation and improve the quality of green finance products. Apply pragmatic research method to testify the shortage in the process of domestic green finance development, then transfer the pattern of economic development, and adopt strategic structure to push forward the development of low-carbon economy. Green finance is the major direction of our domestic financial industry development, by means of wide development prospect and theory resources, we provide basis for the development of low-carbon economy. Several methods merging into diverse industries are expressed as follows.

3.1 About bank

3.1.1 Improve own management level

Banks shall be aware of the development prospect of low-carbon economy while in the process of adopting green finance promoting low-carbon economic development, and better relevant business patterns of low-carbon economy through raising own management level. We shall adopt different ways to transform towards different industries, for example, treating "two high one low" industries, which need to change the situation of excess production capacity by controlling loan; treating rising low-carbon industries, we need to make reasonable and objective judgment of its risk and innovative consciousness; treating backward industries, we need to supply loan support, guarantee the transformation of industries and management system to promote the development of industry.

3.1.2 Different management pattern of industries

Different management pattern of industries is the main pattern that bank has employed so far, classified by the nature of industries to boost the standard of credit management; under control and support of national policies, adopt structural pattern of energy conservation and environmental protection to develop pollution intensive industry, heavy industry and so on.

3.1.3 The regulation of credit system

Through observing the pattern of credit system, we find out that there are problems existing in examination and approval and other procedure, to make the business operation and risk management system complete. Via the evaluation of industry environment, then drawing up evaluation report and environmental improvement project, and strictly observe credit system, while on industries load, they must acquire the recognition of environmental protection administration.

3.2 Product innovation

The realization of product innovation is from the aspects of insured products, credit products and service, security products and so on, so as to enhance the innovative product quality of green finance.

Green insurance mainly covers green car insurance, environmental pollution liability insurance, energy conservation and environmental protection guarantee insurance and carbon insurance. On the basis of these aspects, we boost the growing pace of environmental pollution liability insurance, build up new-type insurance pattern of energy management, aim at industry development and the program of carbon emission to commence carbon insurance, popularize and announce energy conservation and emission reduction, enhance energy-saving consciousness of the whole people and combine insurance business with climate to prevent

concerning nature, artificial forest damage and the like.

Green security includes government-leading security financing, which pledges of assets to support securitized financing and security derivative financing. Large-scale programs of energy conservation and emission reduction are financially supported by the combination of security and stock rights, which can raise long-term fun fast and lessen the development degree of industry pollution, to reduce the situations of assets and liabilities. Green industries appearing on the market can improve the development level of high-tech industries, and then lower the development degree of industry pollution. By means of conceding certain shares to finance to improve the specialization and rationalization of management structure, prevent the phenomenon of industry oligarch. For green innovation of industry assets, we can expand the development structure of green assets, supplemented with environmental causes, which contributes a great deal to the fund raiser of society and renewable resources.

Green credit mainly consists of green real estate credit products, green car credit products and industry energy efficiency and energy improvement credit products. Through boosting the quality of these sorts of products and service patterns, learning from foreign experience and analyzing failed individual case, we can enhance the industry ability of conducting financial transactions, investing and finance management. For supporting innovative individual case of products, it pushes forward the development of low-carbon economy to combine credit with forestry industry and transportation industry.

3.3 Legal path

To realize that green finance promotes economic development of low carbon, we must act in cooperation with related legal guarantee mechanism of international cooperation act.

3.3.1 Legal monitoring of macroeconomic readjustment and control

The establishment of socialist market economy system is the necessary condition of domestic financial economy, in which condition we adopt the method of macroeconomic readjustment and control to rationally allocate domestic resources to ensure scientificness and accuracy of resource allocation. America firstly realized macroeconomic readjustment and control since Keynesianism, and the core of its policy is finance and currency. For domestic natural condition, climate condition and political condition are all different from American economic current situation, so we shall draft the case of macroeconomic readjustment and control in accordance with national conditions.

When we implement macroeconomic readjustment and control in our country, based on law, we adopt the method to relieve global warming to enhance the ability of preventing climate risk, and place the proposal of clean resources into implementing schemes of resource development strategies.

3.3.2 Energy conservation and emission reduction

The goal of emission reduction in our country still needs quite a long time to realize, according to industries, government and relevant administrations we make the law, so as to promote research and development progress of zero-carbon and low carbon and other emission reduction technology; legally set up development system of each sector featured by low carbon and control and enlarge the regulation of law enforcement by the means of macroeconomic readjustment and control.

During the process of realizing energy conservation and emission reduction in our country, we must realize sustainable development of industry under the guidance of scientific outlook on development, through the interaction and support between social organization and social members to carry out policies, improve sound legal system, perfect structure and efficient development, rationalized division of labor, powerful supervisory mechanism and so on.

3.3.3 Legal construction and the adaptability of climate change

During the process of developing low-carbon economy, the legal norms we legislate shall adapt to the change of climate so as to construct harmonious international social environment.

Developed countries adopt containment and constraint means towards the problem of carbon emission, and our country provokes the procedure of sustainable development in two aspects of environmental protection and energy conservation according to national conditions. Climate change, is the significant factor to domestic social economic development and national safety, therefore, our country shall implement scientific development perspective, adopt effective legal measures, change the economic pattern which not adapt to climate development and control carbon emission so as to boost ecological civilization construction.

Legal construction in our country shall accommodate to climate change, so as to ensure the perfection of ecological system and real achievement of slogan of energy conservation and emission reduction. So far, our country bases green finance and actively adopt each party's opinions to prevent biological environment from destruction and control the situation of environmental pollution.

3.3.4 Rule of law and low-carbon economic development mutually supplemented

In Copenhagen Conference, our country put forward proposal to control the emission of greenhouse gases. Our country makes the management and supervision system sound through taking example by foreign advanced experience in tax policies, finance, monetary policy and price adjustment and perfection.

4 Conclusion

Green finance promotes low-carbon economic development, so this article is making the detailed theoretical summarization about the relationship between connotation and origin of green finance and low-carbon economy; it adopts empirical approach to reasonably discuss the relation between carbon emission and economic growth and explore the domestic status quo of pattern at the moment;

during the process of studying the pattern of green finance promoting low-carbon economic development, we analyze the relevant measures of green finance boosting low-carbon economic development from various industries to promote the development of domestic financial industry and make it keep up with the trend of international financial industry.

Fund:

This article is one outcome of philosophy and social science key projects, number 125272 of Shaoxing Province “The Study of Pattern and Measures on Green Finance Promoting Low-carbon Economical Development-Take Shaoxing as the Example”.

Brief Introduction of Author:

LIANG Yuanyuan, Xianyang, Shaanxi Province, 1980.4- , ethnic Han, lecturer, master, research direction: international trade, world economy.

References

- [1]. TAO Liuyang. Explore, Develop Carbon Finance and Promote Low-carbon Economy—From the Angle of Green Credit [J]. *Economist*, 2011 (6): 66, 68 (in Chinese)
- [2]. CHEN Liuqin. Study on Financial Support of Low-carbon Economic Development [J]. *Southern Finance*, 2010 (7): 12-18 (in Chinese)
- [3]. XUE Shuling, HONG Sun. Green Finance Supporting the Pattern and Measures of Low-carbon Economic Development [J]. *Economic Herald*, 2011 (10): 36-37 (in Chinese)
- [4]. YANG Tianwei. Green Finance—The Development of Financial Industry in Low-carbon Economy [J]. *New Finance and Economics (Theoretical Version)*, 2010 (3): 28-29 (in Chinese)
- [5]. CHEN Liuqin. Finance Support Research of Low-carbon Economic Development [J]. *Modern Economic Management*, 2010, 32 (8): 6-12 (in Chinese)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.