

# Study of Carbon Financing Innovation of Chinese Financial Institutions

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**Abstract-** *In the past few years, commercial banks and other financial institutions as the intervention of financial products and financial services innovation have become the international financial market development of a new bright spot. It provides a huge space for developing carbon finance system. Chinese low-carbon economy has made considerable progress, but the development is still at a relatively early stage. This essay explains several bottlenecks of involvement in carbon finance of Chinese financial institutions, in terms of the establishment of carbon credit trading platform, strengthening the impact of financial institutions as fund agent and trading agent and promoting the innovation of carbon financial products.*

**General Terms-** *Research Article*

**Keywords-** *Carbon finance; Carbon trading; Financial innovation*

## 1. INTRODUCTION

People around the world paid more attention on low-carbon economy, which made the space of Chinese financial institutions increasingly apply to participate in carbon finance. As a branch of environmental finance, carbon finance is about financial activities related to carbon trading, such as direct investment, carbon index trading and bank loans, etc. That is to regulate the carbon emissions of a new type of financial operation model in society.

With a short history, carbon finance is considered to be the important financial innovation of international finance in recent years. International carbon finance market in recent years is showing a trend of rapid development. Barclays Bank launched the first standardized OTC (Over the Counter) CER (certified emission reduction) futures contract since October 2006, and the Netherlands Bank and the German Dresden Bank developed and tracked the retail products of EU carbon emission quotas futures by 2008, with that, investment banks began to participate in the carbon finance market in a more direct way, which involved in Clean Development Mechanism (CDM) of emission reduction projects. Later on, Kanji Bank in Korean as an emerging market institution has also introduced a "Carbon Bank" program. It's extremely rich in carbon emissions resources, and with a great potential in carbon emission reduction for our country. According to UNDP (United Nations Development Program) statistics, it shows that China's carbon emission reduction is to the level of 1/3 among the global market ranking the second. It indicates that a great demand and profitability

of financial opportunities, and carbon finance market has a sustainable development.<sup>[1]</sup> Carbon finance is different from the traditional financial innovation and financial activities, which promotes low-carbon economic development. The carbon demand for financial services gives birth to a low carbon economy, and brings modern financial industry to expand new areas and space. However, the development of China's carbon finance exists a series of constraints and how to break through these barriers is a topic that should be solved.

## 2. THE NECESSITY OF DEVELOPING CARBON FINANCE BUSINESS INNOVATION OF THE FINANCIAL INSTITUTIONS

It has a great significance of developing carbon financial system to our country. On one hand, it is of great importance to the economic transition. It contributes to the transition of national real economy into the low-carbon type, and can also speed up the adjustment of economic structure. On the other hand, for the financial industry, the great prospective of low-carbon economy also means the arrival of historical opportunities. As a carrier of financial system innovation, carbon financing is to the benefit of optimizing the financial system structure to our country, improving the cooperation of financial institutions between China and other countries. With the booming carbon-trading market, China's commercial banks and other financial institutions also have a positive attempt to this new financial model. There have been considerable innovations in the financial level. In 2007, China launched the first China Green Carbon Fund, later

on, the Carbon Fund started expanding continuously in Beijing, Shanxi, Dalian, Wenzhou and other places. Commercial banks have also carried out on carbon finance businesses, launching CDM project finance and structured products linked to carbon trading and other services and products, such as green credit business innovation of CIB (China Industrial Bank).

However, despite Chinese low-carbon economy-related financial innovation has made considerable progress, but its development is still at a relatively early stage, simple type of business, there are also many aspects needed to be further improved. At this point, researching the design of products, system innovation on commercial banks and other financial institutions in the carbon finance is particularly important. Raised in the 20th century and the mid 90's scrutiny of financial institutions "function point" by Ziv Bodie and Robert • Morton (Robert Mer-ton), corresponding to the carbon finance market in China, the requirement of the theory will be refined to keep the current situation and prospect of the market, promoting the financial system market while improving the resource allocation efficiency of carbon financial.<sup>[2]</sup> Commercial banks, for example, CDM project contains on the huge demand for financial intermediation services, commercial banks can expand the intermediary business revenue and optimize the revenue structure by providing the provision of related financial services. As a new business, carbon finance needs commercial banks to innovate business mode of operation; it can promote the innovation capacity of commercial banks objectively. Moreover, CDM often involve two or more countries cooperation between financial institutions, commercial banks can take to improve international business negotiation skills, strengthening the international financial institutions and business, and accumulated experience in international operations.

In addition, the rise of carbon trading and new energy sources is becoming a huge market for a wide range of excellent opportunity to boost the currency diversification, building the carbon financial system will help to contribute to get hold of more chips in the internationalization of RMB in China.

### **3. PROBLEMS ON FINANCIAL INSTITUTIONS PARTICIPATING IN CARBON FINANCING INNOVATION**

The construction of carbon finance market in China is far behind developed countries. China is now establishing a national carbon finance market realistically, indicating that as the representative of China's commercial banks may face problems of financial institutions and obstacles, offering detailed proposals on those situations in the light of products and institutional innovation that may

participate in carbon finance by Chinese financial institutions. Not only the significance and possible exploration of the preliminary theory to establish carbon finance market in china, but also is the complement and expansion of financial innovation of financial institutions of our country.

#### ***3.1.The development of China's carbon trading market is in its early stage which lacks of a national carbon exchange.***

Developed countries all currently dominate global Carbon Exchanges. Beijing Environment Exchange (established in 2008), Shanghai Environment and Energy Exchange and the Tianjin Emissions Exchange are the earliest of the three environmental rights trading institutions. Shanxi Lvliang Emission Reduction Trading Centre, Wuhan, Hangzhou and Kunming and other exchanges that have been established since 2009. The carbon trading system has its own characteristic gradually. However, Chinese carbon trading is mainly for the European to develop some of the rules for buying or selling, the real Chinese carbon trading market has not yet appeared, the carbon exchanges across the country has not been established.

#### ***3.2. The current market development of the relevant intermediary is not complete.***

Carbon emission is a virtual commodity under the CDM, the trading rule is very stringent with a more complex development process. The contract period is very long. It's difficult for non-professional organizations to have the capability to develop and implement. Assessment of CDM projects abroad and the purchase of most of the emissions are done by the intermediaries, and local agencies in China are still in its infancy, it's difficult to develop or to digest a large number of projects. In addition, we're currently lack of professional technical advisory system to help financial institutions to analyze, evaluate, and avoid project risk and transaction risk.<sup>[3]</sup>

#### ***3.3. Financial institutions are not mature***

It is imperfect on the carbon financial mode of operation, project development, trading rules led by Chinese commercial banks. A series of risks and difficulties are the reason for hindering the pace of carbon finance business innovation. Industrial Bank is one of the few banks that currently keeping a watchful eye on the carbon finance.

### **4. ANALYSIS OF CARBON FINANCIAL DEVELOPMENT PATH OF FINANCIAL INSTITUTIONS**

With the national climate change policy efforts continue to strengthen, the financial markets made this quick and powerful response. First, the international mainstream

commercial banks are active in the credit business loans for projects related environmental impact assessment, and strictly monitoring the implementation of environmental risk in the lending process, such as commercial banks are actively expanding its loans to low carbon projects. Second, various financial innovations related to climate change are arising at a historic moment. The interaction between the exchange transactions of CERs and ERUs, spread option based on the spread, can not only be locked, isolated, and avoiding the risks associated with climate change, and is more stable in expectations about the future, can also improve the efficiency of the price mechanism, so that it can allocate resources to more cleaner production technologies sector through the development of a variety of different markets arbitrage connected products. Moreover, it improves to include direct investment, bank loans, carbon funds, carbon credits trading, carbon futures and options to support a range of financial instruments for carbon financial system through the financial markets and transparent pricing of carbon emissions targets.

#### **4.1. Construct carbon credit trading platform.**

We need to further explore and develop a quota system for carbon emissions quota trading market. Establish and improve standards of risk assessment of carbon to enhance China's international trading in carbon credit pricing, and to create a stable system environment for the development of carbon finance. The development of China's carbon trading platform should be based on the policy and targeted at economic results as the goal. Building a multi-level system includes spot trading and derivatives trading platform including multi-level system. As the market is still in the initial rearing period, the inactive trading hinders the platform to play. We need a more clear policy direction to encourage Chinese enterprises to enter the market platform for trading during the "12th Five-Year plan" period. In that way can we promote the development of spot trading platform, futures and other derivatives trading platform to join.<sup>[4]</sup>

#### **4.2. Encourage NGOs (Non-Governmental Organization) and financial institutions to join.**

We need to pay attention to the role of financial institutions as financial intermediaries and trading intermediary, allowing financial intermediaries to purchase or develop with the project owner of carbon reduction project. Commercial banks should explore more modes, especially the intermediary service model to satisfy carbon credits to meet the diversity of financial needs except for the carbon rights that has been carried out secured loans and related financial products. Investment banks, financial companies should explore carbon finance, providing new investment ways for investors. Accounting firms, asset appraisal agencies need

to improve the assessment and advisory work of financial products. Insurance companies and other security companies can provide some related insurance products and promote carbon financial product development and transactions by increasing trust and guarantee systems.

#### **4.3. Efforts to promote carbon finance product innovation**

- Great efforts should be made to promote commercial banks to launch financial services innovation in the name of pledge loan business carbon. Establish a carbon credit as financing, which is good potential for CDM (Clean Development Mechanism) project development and corporate credit as a pledge to CERs income right to apply for loans to banks is of an innovative form of innovative form. As CERs income right is a right to future earnings, which has a great uncertainty, so that banks need to pay more attention to the risk of achievements of the right CERs income when providing pledge loans for enterprises. As to enterprises that acquired CERs must go through CDM projects approved by the enterprise, CERs issued by the authenticity and validity. For CDM projects registered in the UN need to be closely tracked of the progress of the project, and up-floating interest rate appropriately in case of risks.

- Developing financial leasing business based on carbon trading. Companies are not necessarily to purchase pollution discharge and dirty oil treatment facility owing to Clean Development Mechanism (CDM) project, and it releases the working fund of the company. In practice, in order to encourage companies to reduce carbon emissions, financial leasing and carbon right pledge loan can be combined. It offers loan support for the companies that use leased equipment, but also can reduce the risk of CERs right benefits and reduce the possibilities of bad debts of carbon credit secured loans. In practical applications, it might also be combined with factoring and finance leasing.

- Actively develop Carbon Fund financial products. Commercial banks, securities companies and fund companies and other financial institutions can actively explore the carbon fund market, they can develop and design or sale investment and management plan to specific targeted customer, but also can sale the open-ended fund management plan for general public investors in the analysis of potential target customers. Gathering the idle funds of the customers to form a dedicated carbon fund to apply to the enterprises with a clean development mechanism (CMD) projects of development potential and credit records, and offer CDM projects financing. Customers can get benefit from the profits of Carbon dioxide emissions index sold by the enterprises. The CDM project development cycle is long, a more complex



approval process and also risky. Therefore, such a long period of financial products should be designed for 2 to 3 years; in general, the rate of return should be higher than the same period of deposit, which is 20% to 30%.

- Develop Trust category of carbon finance products. Such design philosophy is for those with environmental awareness and knowledge of the enterprises to set up carbon finance Carbon Trust investment fund, the money will be invested in clean development mechanism (CDM) development potential project to obtain the corresponding CERs (CDM emission reduction units) indexes through the development of these projects. Commercial banks or other financial institutions can operate these Carbon Trust categories of financial products.

- Gradually promoting the securitization of carbon financial assets. Carbon assets that companies will have great potential for the Clean Development Mechanism (CDM) projects (carbon assets) sold to a special purpose agency or company (SPV) (usually are investment banks), SPVs will import these carbon assets to asset pool, and then clear off the securities generated by the asset pool of cash flows. And to form an asset pool of commercial banks carbon right pledge loans, finance leasing specific to carbon credits, assets of open-book credit and bank factoring of business-related carbon emission rights that combined together and make issuance of asset-backed securities. The securitization of carbon asset improves liquidity of the carbon asset, and the risk is transferred, it's conducive to the development of carbon finance. In order to encourage investment banks to promote securitization of carbon asset, it needs to strengthen the risk assessment institution development of carbon asset, and establish credit mechanism of carbon asset-backed securities.

In addition, although the carbon finance is a huge market cake for financial institutions, however, there are also hidden financial risks that traditional products don't have. Insurance is still vacant in China, and is also press for exploration.

## 5. CONCLUSION

How to develop "carbon finance" is a system which needs to set specific standards. In accordance with the principles of sustainable development, government, regulators and financial institutions must issue a mature carbon trading system, as well as scientific and rational interest compensation mechanism to improve the carbon finance markets and carbon financial instruments. Financial institutions play an important role in investment and financing activities of energy saving and economic sustainable development.

## 6. REFERENCES

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