Research on the Development of Green Finance in Shenzhen to Boost the Carbon Trading Market

Jiping Zhou[1], Siqin Xiong[2,3,*], Yucheng Zhou[1], Zijian Zou[2,3] and Xiaoming Ma[2,3,*]

1State High-Tech Industrial Innovation Center, Shenzhen 518057, China.
2School of Environment and Energy, Peking University Shenzhen Graduate School, Shenzhen 518055, China.
3College of Environmental Sciences and Engineering, Peking University, Beijing 100871, China.

Corresponding author: xiongsq95@163.com; xmma@pku.edu.cn

Abstract. This paper analyses the current development situations of Shenzhen carbon trading market and China's green finance, and makes the policy recommendations for promoting the carbon trading market by developing green finance in Shenzhen. Shenzhen should take the lead in driving the localized application of green principle, and formulate Shenzhen green bond guidelines ASAP, to promote carbon trading associated enterprises to finance by using green bonds; it shall work to lower the threshold for financial institutions to participate in carbon trading market, and explore development of carbon derivatives.

1. Introduction

Green finance refers to financial services provided for economic activities that are supportive of environment improvement, climate change mitigation and more efficient resource utilization. It includes the investment and financing activities for projects in areas such as environmental protection, energy saving, clean energy, green transportation, and green buildings. China is now at a crucial stage of economic structural adjustment and transformation for its development model. The demand for green finance to support green industries and economic and social sustainable development is constantly expanding [1]. The Guidelines for Establishing the Green Financial System issued by the People's Bank of China and other relevant institutions has elevated the green financial system as a national strategy, and is of profound significance to transforming economic growth pattern, guiding social capital to actively participate in green projects, lowering financing threshold and promoting healthy economic development.

This paper first analyses the current situations of domestic carbon market and Shenzhen carbon trading market, clarifies relevant operating systems of green finance by cantering on concept and practice of green finance, reviews the current policy environment of our country's construction of green financial system, and makes policy recommendations on green finance for promoting the development of Shenzhen carbon trading market.

2. Exploration of Current Development Situation of Carbon Market

2.1. Current Development Situation of Domestic Carbon Market

The seven carbon trading pilot markets of our country include over 2,000 enterprises and public institutions, covering industrial enterprises with high energy consumption as well as service industry

Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.
Published under licence by IOP Publishing Ltd

enterprises and large public buildings in some pilot areas, etc., with annual carbon allowances totalling about 1.2 billion tons of carbon dioxide equivalence, second only to EU-ETS (annual carbon allowances of about 2.0 billion tons) [2]. As the third year of carbon market pilot work in our country, 2016 witnessed the large amplification of trading volume, increasingly scattered and average deal closing time distribution, and more stable price fluctuations in the compliance period.

Among the 7 pilot areas at present, Hubei market has the largest trading volume, Shenzhen market has the highest trading activity, and Chongqing and Tianjin markets have relatively small trading volumes, with the trading almost stagnant. Carbon allowance price of each pilot market also varies: the carbon price in Beijing and Shenzhen is RMB 40-50/ton, while that of the other 5 pilot markets is around RMB 10/ton [3].

Restricted by the segmentation, limited scale and weak liquidity of each pilot market, imperfect trading mechanism, and the uncertainties of relevant policies and trading rules, etc., the carbon market of our country is still in the pilot phase and the trading volume and transaction price of each carbon market differ greatly. Apparently, there is still potential of the overall market to tap [4].

2.2. Current Development Situation of Shenzhen Carbon Market

As one of the 3 cities possessing both carbon exchange and financial center functions in the 7 national carbon trading pilot markets, and as the vanguard in China's economic system reform, Shenzhen leads the whole country in carbon emissions market construction and is much experienced in trading practice and management. Shenzhen generates nearly 9 million tons of trading volume with about 30 million tons of carbon allowance, with a liquidity rate of 30% which is far higher than that of Beijing and Shanghai carbon trading markets in the same period.

The high trading activity of Shenzhen market mainly benefits from three aspects: firstly, Shenzhen, the first carbon trading pilot area, has a long carbon market running time and high enterprise awareness; secondly, Shenzhen has the smallest total allowance: 30 million tons among the 7 pilot markets, but has the largest coverage: 845 enterprises and other subjects; thirdly, Shenzhen market has been open to institutions and individual investors from the beginning, without access restriction [5].

However, Shenzhen carbon trading market has some problems, despite the achievements and experience obtained. In particular, only single product is now traded in Shenzhen carbon market, the carbon price there is lower than the level of world mainstream carbon markets and far lower than the effective emission control price measured and calculated by National Development and Reform Commission, and its role in promoting enterprises' emission reduction is to be improved.

Shenzhen should use means of green finance to support green projects on energy conservation and emission reduction, to strengthen the market activity of carbon trading market by expanding the carbon emissions market breadth, increasing the diversity of carbon derivatives, and the carbon trading market thickness, trying to become regional carbon emission center and international green financial center.

3. Policy Recommendations for Boosting Carbon Trading with Green Finance in Shenzhen

Policy recommendations for developing green finance to drive Shenzhen carbon market include:

3.1. Formulate the green finance development plan and promotion scheme.

In accordance with G20 Green Finance Synthesis Report, each country in G20 shall mobilize support for the expansion of international and domestic capacity building platforms such as the Sustainable Banking Network (SBN), the UN-backed Principles for Responsible Investment (PRI). Shenzhen could take the lead in driving the localized application of the corresponding green principle, cooperate with the financial system via National Development and Reform Commission, formulate the green finance development plan and promotion scheme, introduce the green principle suitable for situations of Shenzhen, and reflect the carbon emission reduction principle therefrom [6].

3.2. Support the enterprises included in carbon emission trading allowance administration with green bonds.

Our country currently has the largest issuance volume of green bonds in the world, and has issued green panda bonds of certain size. Shenzhen carbon trading market has extensive coverage and includes the above enterprises of over 800. Shenzhen should support relevant international organizations, development banks and professional market institutions in aspects of green bond data collection, knowledge sharing and capacity building, etc., develop together with the financial sector Shenzhen green bond guidelines and information disclosure requirements, cultivate the ability in green bond certification, expand the green bond issuance periphery, drive the above enterprises to use green bond financing instrument, reduce enterprises' financing cost, and promote further energy conservation and emission reduction of enterprises.

3.3. Establish carbon assessment procedures.

Recommended by G20 Green Finance Synthesis Report, to facilitate exchange, G20/Green Finance Study Group could encourage a dialogue, involving the private sector and research institutions, to explore environmental risk, including new methodologies related to environmental risk analysis and management in the finance sector, etc. Shenzhen could implement the environment or green attribute assessment during the financing. Especially it should establish the carbon assessment procedures.

During "green attribute" assessment of independent projects, environmental risks of the financing projects could be evaluated by first referring to the "environmental guidelines" in "Equator Principles", or the environmental requirement agreements participated in by the financing institutions, or local environmental protection requirements not lower than the voluntary agreements. Pre-estimation of the project carbon emission could be conducted after meeting of project environmental protection requirements and passing of public inquiries. Financial institutions could cultivate reviewers who are capable of carbon verification, or seek help from third-party evaluation institutions that possess carbon verification qualification, to pre-estimate the project carbon emission level based on project energy consumption and production processes, etc.

Financial institutions should fully estimate the carbon emission policy and carbon market development situations during the project construction and operation. Seen from the current practice of China, 32 categories of industrial projects in the nationwide carbon emission market must be conducted for carbon allowance trading, and different projects have different allowance obtaining difficulties under the term of industry carbon allowance allocation and allowance application of new projects. Financial institutions could estimate the project carbon gain or carbon cost in combination with the price of emissions of the current carbon market or future carbon forwards or carbon futures market, and include it in the project long-term revenue stream for estimating the final yield containing carbon environment cost.

3.4. Lower the threshold for financial institutions to participate in carbon trading market, and explore the carbon derivatives orderly.

The above Guidelines for Establishing the Green Financial System issued on August 31, 2016 requires: "promote the development of a unified national carbon trading market", "progressively develop carbon forwards, carbon swaps, carbon options, carbon leases, carbon asset securitization, carbon funds and other carbon financial products", and "explore and research carbon emissions futures trading" [7]. In accordance with the above Guidelines, Shenzhen should strongly encourage the participation of banking, securities, insurance and fund institutions, etc., promote the institutional arrangements and financial trading activities that could form the large-scale trading, further loosen up restrictions on financial institutions' participation in carbon trading markets, and actively and progressively explore the carbon financial derivatives.

The annual carbon allowances of the 7 pilot markets total about 1.2 billion tons at present, with total trading size of only about 200 million tons and with low trading volume, while the derivative trading volume accounts for over 90% of the total trading volume of the European carbon market, with mainly the carbon futures [8].

Appropriate development of carbon derivatives could fully mobilize the market liquidity, and increase the attraction of the carbon market to financial institutions. Financial institutions have a large fund scale and high ability and willingness to participate in trading; therefore, their transactional throughput is far above that of emission control enterprises, and they could bring huge liquidity to the carbon market and strengthen the price discovery function; through development of derivatives and services, financial institutions could accelerate the carbon asset formation, help enterprise activate carbon assets and conduct risk management, and stimulate enterprises' trading activity; participation of the financial institutions will strengthen the financial attribute of the carbon market, thereby internally relating the carbon market and currency, asset and bulk commodity markets, etc. to attract external demand and further expand the market liquidity [9]. In turn, financial institutions have more stringent requirements for the market liquidity and risk management tool flexibility and validity; therefore, this will stimulate the development of derivatives, and reversely force the market to accelerate the formation of a more complete product structure [10].

Guangdong, Hubei and Shanghai carbon trading markets, etc. have developed different forward contracts and futures contracts. Shenzhen carbon market could also develop and launch the corresponding forward contracts ASAP based on full evaluation of risks and practical experience of other markets.

4. Conclusion

Shenzhen, the first carbon trading pilot area, has a long carbon market running time, high enterprise awareness, and high market activity, but the product traded is single and the carbon price there is lower than the level of world mainstream carbon markets.

To promote the development of Shenzhen carbon trading market, Shenzhen should further deepen the carbon market mechanism construction, give full play to its advantage of rich local financial resources, support the enterprises included in carbon emission trading allowance administration with green bonds, develop together with the financial sector Shenzhen green bond guidelines and information disclosure requirements, drive the above enterprises to use green bond financing instrument, reduce enterprises' financing cost, and promote further energy conservation and emission reduction of enterprises. Shenzhen should also explore carbon forward contracts and other trading forms, and appropriately develop carbon derivatives, and could implement the environment or green attribute assessment during the financing, especially simultaneously with the establishment of the carbon assessment procedures, it should match the information disclosure norm for carbon emission reduction verification with financial market demand, and reduce the information asymmetry between financial institutions and green project financing parties.

References

[1] Di Wang,2012. Analysis on the Development of Green Finance. Chinese Business Community.
[2] Lianghui Liao,2015. Analysis of Changsha, Zhuzhou and establish carbon trading market. Seeking,02:30-33.
[3] Xing Ye Research Institute,2016. Experience Analysis of China 's Carbon Market.
[4] Xing Ye Research Institute,2016. Analysis on the Development and Use of Voluntary Emission Reductions (CCER) in China.
[5] Zhengwei Lu and Weiqi Tang,2016. Policy Suggestions on Construction of Carbon Market in Fujian Province
[6] China Financial Information Network, 2016. "G20 Green Finance Comprehensive Report" proposed the development of green finance seven optional measures.
[7] Yuan Guo,2009. Increasing the Credit Investment in Forestry Development- Guidance Opinion on the Policy Interpretation of the National Five Ministries. China Rural Credit Cooperation.
[8] Jia Li,2014. A Comparative Study on the Progress of Domestic Carbon Trading Pilot Cities and Cities and the International Carbon Trading System. Wind energy,12:71-74.

[9] Zhixue Li and Xiaojie Zhang,2014. Research on the Operation Status, Problems and Countermeasures of China 's Carbon Emissions Trading Market. Journal of Eco–environment.
[10] Dan Wang and Lin Cheng,2016. The Relationship between Spot and Futures Price of EU Carbon Quota and Its Reference to China. Journal of Population and Environment,7:10-12.