

## A Study on Valuation of Carbon Assets

FENG Bo<sup>[a]</sup>; XU Hao<sup>[a]</sup>; FENG Junwen<sup>[a],\*</sup>

<sup>[a]</sup>Jinshen College, Nanjing Audit University, Nanjing, China.

\*Corresponding author.

Supported by the Social Sciences Foundation of China (16BZZ074).

Received 16 May 2020; accepted 28 July 2020

Published online 26 September 2020

### Abstract

Carbon is an important resource for human survival, and the development of society cannot do without carbon, but now carbon emissions have affected our quality of life, low-carbon economy has become a global consensus. At present, the country is emphasizing the low-carbon economy, and the low-carbon activity of enterprises is also the main form to improve their competitiveness.

**Key words:** Carbon Assets; Carbon Trading; Asset Evaluation; Development bottleneck

Feng, B., Xu, H., & Feng, J. W. (2020). A Study on Valuation of Carbon Assets. *Canadian Social Science*, 16(9), 17-21. Available from: <http://www.cscanada.net/index.php/css/article/view/11861>  
DOI: <http://dx.doi.org/10.3968/11861>

### 1. INTRODUCTION

From the first industrial revolution to the present, with the development of social economy, the material life of the world has undergone a qualitative leap. But in the process, the damage to the environment is enormous. Meanwhile, resource depletion and global warming have become the focus of experts in every field. As a big energy country, China's sustainable consumption is the motive force of its future existence and social development. Information Revolution is entering a low carbon era, and the low carbon economy is a historical trend. So the importance of carbon asset valuation is self-evident, this article is mainly on the definition of carbon asset valuation, development bottlenecks and the approach to explore.

### 1.1 Background and Significance of the Study

At present, the low-carbon economy has become a global trend, the definition of carbon assets and the value of carbon assets to assess the role and significance of the growing. Because the current low carbon era has controlled greenhouse gas emissions in the global developed countries and international markets, emissions from carbon assets are also valuable because carbon resources are limited. Therefore, the accumulation of "carbon assets" is vital to the development of enterprises, which is also an important factor and source to enhance the core competitiveness of low-carbon enterprises. However, the current limited technical methods and management tools for managing the carbon assets of enterprises and the lack of a clear definition of carbon assets seriously hinder the understanding and understanding of carbon assets by governments and enterprises. Therefore, this paper studies the definition of Enterprise Carbon Assets, and estimates the value of carbon assets through the valuation of Carbon Assets. Through the development and management of carbon assets to better achieve the enterprise competitiveness of the important strategic purposes. In addition, as the number of carbon asset trading will gradually increase due to the continuous concern of enterprises on low carbon emissions, the management and development of carbon asset market trading is also meaningful.

### 1.2 Ideas and Contents of the Study

At present, the definition of carbon asset has not been unified at home and abroad, and China's carbon market is developing. At present, with the increasing emphasis on the valuation of Carbon Assets, the valuation process is moving towards openness, ensuring that the public is provided with information on the assessor, the assessment process and the results, and that it is conducted under external oversight and constraints.

## 2. CORE CONCEPTS AND THEORETICAL FOUNDATIONS

### 2.1 Definition of Carbon Assets

For the assessment of carbon assets, the object and subject of the assessment should be the so-called carbon emission credits. Carbon credits generally refer to a credit certificate issued by state organs, social organizations, the state and the government. From the perspective of Carbon Asset Valuation, Carbon Asset Valuation is clearly understood as a form of ownership or control of a particular entity. It cannot have any material value, but it can play a sustainable role, and directly bring about its economic and social benefits.

### 2.2 Definition of Carbon

Market carbon trading is China's first total carbon emissions authorization trading partner country carbon trading specific implementation form and its abbreviation, that is, the total carbon emissions or the right to reduce emissions of pollutants as a valuable commodity directly in the carbon trading market for carbon trading economic activities.

### 2.3 Definition of Carbon Asset Valuation

Carbon Asset Accounting Valuation is an estimation of the ownership of a business's carbon emissions based on accounting measurement standards and calculation methods relevant to the ownership of the business's carbon assets, fair measurement and value of various carbon financial assets such as carbon emission reductions and other carbon financial derivatives.

### 2.4 The Development Process of Carbon Trading in China

Theory and practice of carbon asset assessment and the long-term strategic investment of the People's Bank of China in supporting the Fund Management Center of the China Joint Development Mechanism for Clean Energy Information Industry, after the CO-OP agreement was signed and officially published. The book is the First International Academic Work on Integrated Assessment of Energy and carbon assets in domestic history, is to promote China's energy and carbon asset assessment in the international energy asset management field further integration of a major achievement.

## 3. THE INFLUENCING FACTORS OF CARBON ASSET VALUATION

The valuation of carbon assets is mainly influenced by carbon emissions and prices determined by the energy trading markets. Among the factors influencing the valuation of carbon assets, due to the policy nature of carbon assets, this property makes the price of carbon assets subject to government regulation, economic development and carbon trading market and other factors.

### 3.1 Factors of Government Control

Unlike past mandatory emissions reduction markets, policies on carbon trading markets are determined by governments. Its operating mechanism lies in the normative trading policy and the supervision support. Trade policies, legal restrictions and policy guidance stipulated by government agencies have changed the mode of production and operation of enterprises and affected the value of carbon assets.

### 3.2 State of Economic Development

There is a clear contradiction between the rapid economic growth and the government's efforts to save energy and reduce emissions.

### 3.3 External Environment of Carbon Trading Market

Carbon trading market external environmental carbon assets are sold in the carbon trading market, the carbon trading market situation has certain diversity. Research has shown that there is a lack of safety threshold in carbon trading market. The evaluation indexes of market factors include market demand, market risk and market consumption.

### 3.4 Basic Data of the Enterprise Itself

In the process of carbon trading in China, it is necessary to perfect the standardized information content for the basic data of enterprises, it includes data accounting of carbon dioxide emission, accurate verification of carbon emission benchmark value in the industry, energy consumption data of enterprises, basic data of production and operation, etc.

## 4. THEORY AND METHOD OF CARBON ASSET VALUATION

At present, for the first simulation experiment of global climate change, low-carbon asset trading economy has become a widely used economic model. At present, there are still many differences and disputes between the value treatment and assessment systems of some countries and regions in the world and the carbon emission accounting treatment and assessment in China's trade market, and the carbon emission decentralization, there are also issues related to the Accounting Treatment and valuation of Carbon Assets. China's carbon asset value processing and evaluation system and accounting calculation system still need to be gradually established, further improve and international development. At present, the actual transaction of carbon assets in China lacks of theoretical basis, practical research and operation. There are some problems in the evaluation and treatment of accounting value. This paper discusses and studies the calculation and accounting value of actual trading value of carbon emission right in China. The carbon asset evaluation model is of great significance in the current international

practice. Based on the basic theory and calculation methods commonly used in the world, this paper evaluates and calculates the real value of carbon emission trading in China. This paper studies the evaluation and calculation of the real value of carbon emission trading in China. In this paper, the basic value theory and evaluation method of carbon emission value calculation of actual carbon asset trading in China are discussed by using the traditional inductive method and the traditional practical transaction inductive method.

---

## **5. CARBON TRADING SUCCESS CASE- - TESLA MADE MONEY ON CARBON TRADING FOR FOUR STRAIGHT QUARTERS**

---

### **5.1 Tesla's New Energy**

With the change of the global environment and climate, protecting the environment to reduce pollution and relieve the pressure of energy has become one of the important development directions of automobile industry. Even the investment wind of capital market also looks covetously at this domain to new energy vehicle. What's more, this year's big jump in Tesla and Tesla's revelations about new battery technology have made the power battery chain a major focus. Led by Tesla, shares of electric car giant Tesla have hit record highs this year, and the industry's upward trend has not changed. On February 21, the China Securities Exchange new energy vehicle ETF was officially established. The announcement shows that the subscription amount is about 10.763 billion Yuan, which means that about 10 billion Yuan will be "disguised" to buy 25 new energy vehicle concept stocks. Tesla is certainly a big boost to the position of new energy vehicles in the automotive space.

### **5.2 Tesla Made a Profit for the Fourth Quarter in a Row**

"I have never been more excited and optimistic in the history of Tesla than I am right now." – Elon, Florida on July 22, 2020, Tesla announced second-quarter earnings of 50 cents a share, beat the average analyst estimate (\$1.06 a share). Profit is at 25.4%. Revenue fell to \$6.04 billion from a year earlier, beating analysts' expectations of \$5.4 billion. It was Tesla's first quarterly profit in a row, surprising Wall Street and pushing up the already high share price. A year ago, Tesla's share price was \$260, but it has soared to \$1,600, making it the world's most valuable car company. But if we strip away Tesla's earnings, we find that in the first half of the year, Tesla earned \$12.02 billion in revenue and \$120 million in net income. But according to Bloomberg, Tesla's first half profits came from trading carbon credits rather than operating the company. In the second quarter, Tesla's

carbon trading revenue was \$428 million, higher than net income, pre tax and operating income and cash flow for the same period. In the first half, Tesla made an overall profit of \$782 million on carbon trading. Tesla's carbon trading revenues have been growing, and Tesla has relied heavily on carbon trading for four straight quarters of earnings. From \$133 million in the fourth quarter of last year increased to \$354 million in the first quarter and \$428 million in the second quarter. Tesla's chief financial officer, Zachary Kirkhorn, said he expects carbon trading revenues to double this year from 2019. But as other automakers increase sales of their electric cars, Tesla's profit margin on carbon trading will narrow or disappear. Global sales of electric cars topped 2.1 million last year, less than 3 percent of the total, but up 40 percent from 2018, according to the International Energy Agency. While electric cars still account for a small percentage of new car sales, Tesla has established an absolute lead in this fast growing market. Tesla's growing share of the electric car market and optimism about building factories in many places have boosted Tesla's share price, making it a benchmark for new energy companies, after four consecutive quarters of profit.

---

## **6. THE BARRIERS AND COUNTERMEASURES OF CARBON ASSET VALUATION**

---

### **6.1 Barriers to Valuing Carbon Assets**

Insufficient economic and social conditions to develop carbon resources China's extensive environmental protection sustained, healthy and rapid economic and social development and the sustainable and healthy development of carbon assets still exist contradictions.

Compared with the developed countries such as the United States and Europe, China's carbon trading assets risk assessment and pricing market started late, and the related international carbon trading assets risk assessment market mechanism is not perfect.

Delays in the delivery of corporate emergency funding requirements and emission benefit the United Nations Educational, Scientific and Cultural Organization Long Review Procedures. Complex rules and poor efficiency in the planning and application of existing CDM energy conservation and emission reduced the projects. The theory and practice of assessing carbon assets need to be improved.

China is currently in the initial stage and mature stage of the development of carbon financial assets market in China, most of the transaction theory and successful cases of carbon financial assets market lack eyes and experience, market is not flexible, lack of mature risk assessment theory and practical experience.

Lack of relevant basis and information in the actual assessment of carbon trading assets, the effective calculation of assets related to carbon emission reduction

rights, the effective assessment and data measurement of risks in China's carbon trading market, concrete and effective assessments and data are also needed.

## 6.2 Carbon Asset Valuation Management Countermeasures

In the future, the people's awareness and quality of environmental and economic protection need to be improved step by step. The traditional economic concept of environmental protection pays too much attention to restricting sustainable development. China's economy is growing healthily and rapidly, and needs further liberation in its development. This kind of extensive economy restricts the sustained and healthy economic growth for a long time.

The establishment of a positive and fair international carbon financial asset trading market mechanism and the maintenance of stable liquidity are the basis for the Chinese government to encourage financial investment enterprises to actively carry out international carbon trading and carry out international carbon financial asset allocation, and to assess the risk of the enterprise.

Government financial institutions shall provide timely other corresponding policy fund support for small and medium-sized enterprises and other relevant policy support for the fund market for Small and medium-sized enterprises. Appropriate financing and financial subsidies should be provided in a timely manner to small and medium-sized enterprises that are able to actively undertake low-carbon financing projects under the clean development mechanism, and banks should also appropriately reduce the energy-saving and emission-reduction loans and credit lines and thresholds for small and medium-sized enterprises, setting the minimum loan amount and the threshold flexibly, extending the repayment period of energy saving and emission reduction, effectively relieving the pressure on them to provide low-carbon loan and energy saving and emission reduction financing projects.

The government, enterprises, banks, assessment agencies and associations and other states and their relevant financial institutions and their competent authorities and personnel shall organize their relevant professional organizations for research and financial management, government and other internationally recognized advanced relevant professional financial management groups in the field of research and assessment services for Carbon Trading and international advanced carbon trading and asset finance projects, it is necessary to maintain a continuous and smooth exchange of knowledge and technology between the textile industry and its related organizations and personnel, and to cooperate closely with the in-depth knowledge and technology learning of carbon assets and related business exchanges.

We should closely observe the authenticity and openness of relevant information such as carbon emissions, and strictly examine the specific information of carbon asset valuation to make the data and conclusions of carbon asset valuation more scientific and more decision-making reference value.

## REFERENCES

- (2019). China carbon trading emissions network. *Journal of Carbon Asset Definition*, (06), 26-28.
- Bi, S. (2015). Some thoughts on carbon asset valuation. *New Economy*, (26), 225-246.
- Chang, C.-P. (2015). Research on theory and practice of carbon asset management. *Finance and Finance*, (05).
- Dong, Y. Z. (2015). *Titanium media network*. Retrieved from [Http://www.tmtpost.COM199301.HTML](http://www.tmtpost.COM199301.HTML).
- Gammon. Valuation of Carbon Assets Based on Real option theory. 2018.12.
- Gao, Y. (2013). How asset appraisal serves for carbon accounting treatment. *Green Finance and Accounting*, (8), 33-35.
- Griffin, P. A. (2010). *How will the billions free'climate change allowances cap and trade affect US Companies'Balance Sheets*. UC Davis Graduate School of Management Research Paper, no. 610.
- Guo, W., Ye, Z. Y., Wang, J., & Yan, C. D. (2019). Research on Carbon Asset Valuation of Enterprise Project based on real option. *Journal of Business Accounting*, 20 May 2019, 68-72.
- Han, L. Y., & Huang, G. B. (2015). Carbon asset attribute and pricing of Hwanggumbo Technology. *Statistical Research*, (2).
- He, B. J. (2014). China Association of Asset Appraisal. Evaluation of Carbon Assets: A professional help for developing low-carbon economy. *State Assets Management*, (6), 46-46.
- Jiang, Y. G., & Fan, L. L. (2014). Research on the evaluation of low-carbon competitiveness of enterprises from the perspective of intangible asset. *Commercial Economy and Management*, (9), 42-51.
- Liu, H. J., & Li, B. Y. (2015). Analysis of carbon asset evaluation theory in China. *Journal of Reform and Opening*, (13), 169-172.
- Nguyen Pung-hee (2017). Research and reference on international accounting standards for carbon emission trading. *Certified Public Accountant*, (163), 93-97.
- Niu, Y. J. (2017). *Based on marginal cost and real options for carbon asset valuation of power enterprises*. Beijing: North China Electric Power University (Beijing).
- Qian, J. Y., & Liang, F. Y. (2014). Thoughts on carbon asset assessment. *The Economic World*, (8), 79-80.
- Roberts J. A. (2017). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research*, (06), 269-280.
- Song, H. B. (2017). *Currency war*. Beijing: China Industry and Commerce United Press.



- Takashi (2015). Comparison of futures pricing models for carbon assets and traditional energy commodities . *The Journal of Alternative Investments*, (14), 35-40.
- Wolfowitz, P. (2007). *Carbon Finance at The World Bank*. Washington USA The World Bank.
- Yuan, G. P., & Wei, C. W. (2013). Valuation of carbon assets. *Journal of Guangxi University of Finance and Economics*.
- Yuan, Z. M., & Li, Y. Z. (2013). Total amount trading mechanism carbon emission rights recognition and measurement research. *Accounting Research*, (13).
- Yuan, Z. M., & Li, Y. Z. (2016). Study on carbon emission recognition and measurement under the total volume trading mechanism. *Accounting Research*, (11), 9-10.
- Zhang, W., Wu, Z. X., Wang, M., & Wu, H. Z. (2014). Property rights protection-oriented accounting recognition and measurement research. *Accounting Research*, (3), 88-94.
- Zhang, Z. H., & Qi, J. (2015, April 30). Asset appraisal perspective of carbon emission right asset F view research. *The Study of Economic Management*, 585-593.
- Zhao, Z. L., & Dong, X. L. (2014). Enterprise carbon asset management financial accounting research. *Scientific Decision-Making*, (07), 63-76.
- Zhou, L. J., & An, X. (2016). A study on enterprise carbon asset evaluation under the background of low carbon economy. *Heilongjiang: Harbin University of Commerce*, (02), 94-95.