



Impact of Fintech on the Development of Carbon Finance

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Abstract. The development of the world needs the promotion of science and technology, in the face of global environmental and climate problems, the development of carbon finance is even more important, and fintech as a new age tool, it also plays an irreplaceable role. The purpose of this article is objectively analyze the impact of fintech on the development of carbon finance by reviewing several relevant studies. The main body of this paper will describe the positive and negative impacts of fintech on the development of carbon finance. Specifically including blockchain technology, big data analysis, market transaction frequency, market transparency, market stability, data security and other dimensions are summarized. The result of research shows that fintech can play a very significant role in promoting the development of carbon finance in many aspects, such as market transaction frequency, transaction cost and innovation of carbon financial products. Fintech will negatively impact the stability, data security, balanced development, and other aspects of the carbon finance market simultaneously. In this regard, this paper proposes that the positive impact of financial technology on the development of carbon finance should be fully developed and utilized. For negative impacts, the government or market should actively take measures to address them and jointly promote the development of carbon finance and the improvement of the world's environmental climate.

Keywords: Financial technology, Carbon market, Financial products, Big data.

1 Introduction

As the global climate problem becomes more and more serious, the traditional model of economic development takes a huge toll on the environment, various countries are actively taking measures to deal with it. According to the data of “BP Statistical Review of World Energy”, China accounts for 30.69% of the world's carbon emissions, which is the world's largest carbon emitter [1]. It is expected to reach peak carbon by 2030 and carbon neutrality by 2060 of China. The importance of green economy and carbon finance was also emphasized. Under the influence of the national environment, carbon finance gradually rises due to the transformation and upgrading of low-carbon economy, which needs More support from new technologies, so financial technology is the primary choice [2].

The goal of carbon finance is to encourage the trading of low-carbon economies and reduce greenhouse gas emissions by using financial innovation. To achieve a

situation where economic development and ecological environmental protection are mutually beneficial. The development of carbon finance would not be possible without the impact of fintech, given this background. Fintech can enhance the transparency and transaction efficiency of financial markets by providing superior data collection and processing capabilities. The production of more green financial derivatives can be promoted through fintech at the same time. Such as: green credit, green funds, green bonds and so on. It is not difficult for the author to see most of the existing studies, but they analyze the opportunities brought by fintech to the development of carbon finance from different aspects or how they are optimistic about the help of fintech to the development of carbon finance. But every coin has two sides. In the face of financial technology with great influence, people should not only see the advantages of technological innovation, market transparency and convenient trading brought by financial technology to the carbon financial market, but also see the disadvantages of technology and market risk level brought by it on market stability [2]. People should objectively and equally look at the two sides of fintech to the development of carbon finance.

Based on the analysis and summary of the existing articles on the impact of financial technology on the development of carbon finance, this paper objectively analyzes the advantages and disadvantages and risks brought by financial technology on the development of carbon finance, and how people should correctly view and cope with it. In order to fill the gap of objective research on the impact of fintech on the development of carbon finance, it is expected to provide references for research in related fields; Jointly promote the realization of global green, low-carbon and sustainable development goals.

2 Impact of Fintech on the Development of Carbon Finance

2.1 Positive Impact of Fintech on the Development of Carbon Finance

Fintech is an important pillar of the country's low-carbon economic development, Fintech provides more transparent information disclosure through the collection, analysis, statistics and sharing of carbon finance data of enterprises. In particular, blockchain technology helps the development of carbon finance, which can help financial institutions and investors better understand and observe the development of carbon finance products, facilitate the analysis of further investment and provide better support for carbon finance enterprises. For example, Zhenyan Zhang used vast amounts of financial data, Empirical testing has demonstrated that blockchain technology can foster transparency, market efficiency, and stability in financial markets through the use of regression models, time series analysis, and other methods. The security and traceability of data are enhanced by blockchain technology, which further enhances the trust mechanism of the financial market, improves the information transparency among market participants, and enables investors to have more trust in carbon financial products compared with other financial products, further expanding the carbon financial market [3]. By automating the collection and analysis of big data, fintech enables financial institutions to analyze and evaluate the

transactions of carbon financial products more quickly, improve the efficiency of transactions, and make market transactions more convenient. In this process, it can also save a lot of human and material resources, reduce the cost of data collection, analysis and transaction, and further promote the research and development process of carbon finance. It can be seen that fintech has a positive impact on the real economy, providing more confidence and reasons to stimulate the development of fintech and carbon finance [4]. Fintech plays a key regulatory role, which can enhance the effectiveness of green finance strategies and promote innovation and research and development of carbon financial products [5]. For traditional carbon financial products, their products are relatively simple and difficult to meet the market demand for carbon financial products. The financial technology that carbon finance can use to promote green innovation of enterprises, constantly improve product structure, carry out innovation, and produce more products that meet market demand to expand and enter the product market. For example, based on the classical economic man hypothesis, Huang Jiacheng and Li Ma propose that financial technology can promote innovation and facilitate the integration of finance and technology from two dimensions: cost reduction and expected return effects. Therefore, it can also promote the transformation of some enterprises with traditional economic model to carbon finance (low-carbon economic model) [6].

2.2 Negative Impacts of Fintech on the Development of Carbon Finance

The wide application of financial technology makes the frequency and speed of people's transactions faster and faster, but in this process, it may induce market volatility and affect market stability [7]. Using data from 37 commercial banks in Vietnam between 2010 and 2020, the study by Khai Nguyen Quang and Cuong Dang Van, for example, found that the development of fintech had a negative impact on financial stability. Therefore, in the financial market, the high frequency of trading may cause the market to fluctuate violently, resulting in the market bubble. When the volatility continues to expand and the market sentiment reverses, the market bubble bursts. The stability of the carbon financial market has been disrupted. Fintech can be understood as financial innovation driven by new technologies. The application of emerging technologies in the financial field is changing the operation mode of the traditional financial industry and improving the efficiency of financial services [8]. At the same time, technology has two sides. When people use fintech for calculation and transaction, they will also face technical and operational risks, such as fraud, data leakage and misleading business practices [9]. When people use financial technology, if they encounter system failures or algorithm errors, the carbon financial market will be affected by the normal operation of the market and the transaction will be interrupted, resulting in huge losses in the carbon financial market; At the same time, people should also pay attention to the security of data, if the data is leaked, the trading information of market participants is exposed, In addition, there will also be criminals using scientific and technological means to attack its trading system, causing data leakage or system paralysis, affecting the operation of the market and making market participants lose trust in the carbon financial market. Once carbon finance loses the trust of the market, the carbon finance market will collapse, and the

green finance industry will also be hit hard. Referring to the development of enterprises in the industry, the transformation of the industrial structure of enterprises is conducive to reducing the carbon footprint, and the transformation of the industrial structure of enterprises cannot be separated from the use of financial technology [10]. However, based on China's regional economic development, it can be seen that different countries in the world have different economic development conditions, and some countries are in different stages of economic development with different human resources. Therefore, the development level of fintech in different cities is very different, and the transmission of data and information is hindered. This will make the overall carbon financial market information asymmetry more serious [11]. For example, Yao Lu et al. Mentioned that different types of enterprises deal with standardized information and non-standardized information, and non-standardized information needs more financial and other support, while the financial industry obviously has more non-standard information; In addition, the use of financial technology requires more sophisticated instruments and equipment, more high-end technology development capabilities, and higher requirements for high-tech talents. In most of the local regions, these requirements are basically not met, which will make the use of financial technology in the carbon financial market, and undoubtedly make the development of carbon finance show regional information asymmetry, regional carbon financial development imbalance and other phenomena. At the same time, it will also bring higher barriers and conditions to some transformational enterprises, hindering the development of carbon finance.

3 Conclusion

This paper objectively analyzes the positive and negative impacts of fintech on the carbon financial market from various aspects such as information sorting and analysis, transaction efficiency, innovation promotion, market stability, technical risk and operational risk. This paper believes that although fintech can bring a lot of fast and convenient for the development of carbon finance, the risks brought by fintech cannot be ignored, and the market should pay attention to these problems. The market should make full use of the positive impact that fintech can bring to the development of carbon finance; In the face of negative impacts, the society should take active measures to control or improve them. Through national regulation and control, it can provide equipment and talent support to enterprises in transformation or regions with backward carbon finance development, balance the development of regional carbon finance market and make full use of financial technology. The government vigorously cultivates high-end technical talents to maintain the scientific and technological risks faced by the carbon financial market and so on. This paper is based solely on current relevant research and mainly describes the six aspects of fintech's collation and analysis of big data in the carbon finance market, market stability, and technical risks. Fintech has the potential to incorporate other technologies or risk factors that can either promote or hinder the growth of the carbon finance market. For example, the lack of relevant laws and regulations or policy restrictions on the use of fintech in the

carbon finance market may bring much illegal profit-making behaviors to the carbon finance market, resulting in a lack of trust in the market; The carbon financial market may be affected by the climate environment, and the change of the weather has been often unstable. Instability in the market can be caused by data deviations in financial technology. The follow-up study will conduct a comprehensive examination of the impact of fintech on the growth of carbon finance based on a wider range of factors.

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