

Green Finance Development Mode based on Technology Finance

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Abstract

In order to overcome the limitations of the traditional financial service model, this paper proposes a new green financial development model based on technology finance. This development mode combines a variety of advanced science and technology, such as blockchain technology, artificial intelligence technology, big data technology, etc., and can build a distributed shared account book to strengthen the security of financial transaction activities. Based on this, the development model can also give full play to the characteristics of technology finance, strengthen the organic combination of technology finance and green finance, and realize the transformation and upgrading of traditional financial model. The results show that the development model can overcome the limitations of the traditional financial service model and improve the service efficiency of the financial industry.

Keywords

Technology Finance; Financial Industry; Green Finance; Development Mode.

1. Introduction

With the rapid development of social economy, technology finance has gradually broken through the traditional mode, which combines with the current advanced science and technology, and then produces a new digital finance, which brings great impact and challenges to the traditional financial service industry. At present, the transaction mode of technology finance will face great changes, which can be divided into three aspects, namely, the transformation of manual counter business to automatic counter business, the change of branch function and the change of branch personnel allocation. In addition, in the context of technology finance, banking services are gradually changing from offline to online. Customers do not need to go to the bank counter, but also can directly realize various transaction activities, such as transfer, payment, transaction, etc. Obviously, the emergence of technology finance has greatly promoted the development of online banking services, enabling users to check the balance and carry out various transaction activities anytime and anywhere.

At present, from a global perspective, the functions of technology finance mainly include payment, insurance, deposit and loan, financing, investment management and market information supply. In addition, the technologies used in technology finance mainly include Internet technology, artificial intelligence technology, big data technology, blockchain technology, face recognition technology, etc. From the perspective of banking business, under the background of economic globalization, the development of financial industry gradually presents a trend of diversification, mainly including lending, payment, insurance, supervision, big data processing, wealth management, virtual currency, block chain, etc. It is worth proud that at present, China's technology finance is in the stage of rapid development, and China's mobile payment, online lending and network wealth management are in the forefront of the development of the world's financial industry, is an important leader in the global science and technology financial industry. At the same time, under the background of the rapid

development of China's technology finance, it not only promotes the transformation and upgrading of China's traditional financial industry, but also makes up for the shortcomings of China's traditional financial industry in green development, thus laying a solid foundation for the development and innovation of green finance. In addition, with the continuous development of China's digital technology, China's financial industry is also developing in the direction of digitization and intelligence, thus building a new form of science and technology financial industry.

2. Theoretical Basis

2.1. Technology Finance

The term "technology finance" originated from the United States, which refers to the new technology, new process, new product and new service mode related to finance, which is different from the traditional financial industry. Fig.1 demonstrates characteristics of technology finance. In essence, technology finance is an applied technology [1]. It is a new type of financial industry. It relies on the Internet platform and combines a variety of advanced science and technology. It can continuously optimize and adjust according to market demand or customer demand, and then provide customers with high-quality financial services. In other words, technology finance is also a kind of financial service, which realizes the organic combination of financial business and high-tech. It covers a variety of financial models based on Internet platform, such as online investment and financing, online lending, electronic payment, crowdfunding, etc.

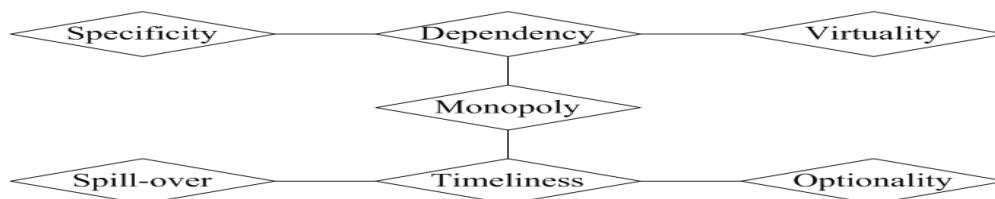


Fig 1. Characteristics of technology finance

At present, with the continuous development of science and technology, technology finance is constantly optimized, which produces a variety of financial services, such as mobile banking business, online investment business, cryptocurrency business, automatic insurance business, carbon trading system, risk management system, etc. Moreover, Fig. 2 shows composition of technology finance. In addition, with the development of artificial intelligence technology, technology finance also continues to develop. At present, technology finance has penetrated into people's daily life, and has a profound impact on people's production activities and lifestyle [2]. At the same time, the application field of technology finance is also expanding, and gradually there are virtual assistant, intelligent insurance service, intelligent securities system, intelligent loan system and so on, which makes financial business only need to invest low cost to make users get higher service experience.

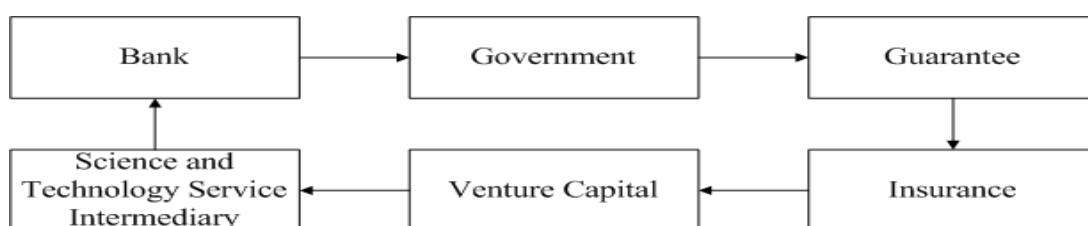


Fig 2. Composition of technology finance

2.2. Green Finance

Green finance, in essence, is an economic activity. Its purpose is to improve the living environment of human beings, deal with climate problems and improve the utilization rate of resources. Therefore, with the strengthening of people's awareness of environmental protection, green finance has also received the attention of all walks of life. At present, the application field of green finance has been expanding and developing, which is mainly used in the financial business related to energy conservation and environmental protection, clean energy, green transportation, green building and other fields. In addition, the service business of green finance mainly includes green enterprise financing, green consumer finance, green asset management, green bond, green credit rating service, etc. [3]. In a word, green finance has become one of the most important issues for human beings in financial activities after the increasingly aware of the importance of environmental protection and the strengthening of the concept of green development. The following picture shows two meanings of green finance, as shown in Fig. 3.



Fig 3. Two meanings of green finance

3. Development Status of Technology Finance and Green Finance

3.1. Development Status of Technology Finance

With the continuous progress of science and technology, technology finance which is deeply combined with high-tech is also in the stage of rapid development. The United States is the cradle of technology finance. However, it is worth noting that at present, more and more financial institutions in developing countries and regions pay more attention to the combination of science and technology and finance, and constantly increase investment in technology finance, aiming to break the limitations of traditional financial services and improve the efficiency and quality of financial services [4]. In the 21st century, with the progress of science and technology, the financial industry presents a diversified pattern. Under the social background of the rapid development of Internet technology, technology finance technology is mainly composed of three parts, namely Internet finance, artificial intelligence and biometrics, big data and blockchain [5].

3.2. Development Status of Green Finance

At this stage, the application of green finance is mainly in the banking industry, especially the credit business in the banking industry. Therefore, for many people, "green finance" is equivalent to "green credit". In the 1970s, the Federal Republic of Germany established the world's first policy environmental protection bank, and named it "ecological bank". Its main business is to help enterprises provide preferential loans for environmental projects [6]. At the beginning of this century, IFC and ABN put forward a criterion for enterprise loan, namely "Equator Principle". Its purpose is to make a comprehensive assessment of environmental projects, especially to assess the impact of the projects on the environment and society, and to promote green projects to play an active role in environmental protection and social development [7]. The following Table 1 shows us about comparison of the main types of green finance.

Table 1. Comparison of the main types of green finance

Type	Definition	Application
Green Consumption	Financial institutions provide relevant financial goods and services to encourage consumers to buy new energy-saving products or to improve existing equipment and devices	Green credit card, green car loan, green building and decoration loan, etc
Green Bond	Enterprises or banks will use the funds to invest in climate, environmental protection, energy conservation, carbon reduction and other green investment projects by means of borrowing	Renewable energy, energy efficiency improvement, greenhouse gas reduction, waste recycling, conservation of agricultural and forestry resources, biodiversity conservation, pollution control, water conservation and recycling, environment and climate change
Green Insurance	In addition to promoting electronic insurance policies, reducing paper and Telecommunications costs, and improving energy efficiency, the insurance industry can also vigorously promote the development of green energy industry according to the government, apply for projects, and cooperate to invest in public utilities such as solar photovoltaic	Invest in renewable energy power generation industry, launch green energy environmental protection vehicle insurance, bicycle insurance, etc
Green Asset Management	Green fund, green trust, etc	Invest in clean energy, waste management, green transportation, environmental services, sustainable living, water resources management, etc
Carbon Finance	Carbon financial services aim to reduce greenhouse gas emissions of various financial system arrangements and financial transactions, mainly including carbon emissions and derivatives trading and investment, low-carbon project development investment and financing and other related financial intermediary activities	Carbon emission can be regarded as a commodity with price, which can be traded in spot or futures

3.3. Integration and Development of Technology Finance and Green Finance

At present, the European Parliament is very concerned about how to successfully achieve the United Nations sustainable development goals and the Paris climate agreement, and believes that achieving these goals requires a lot of money. In recent years, around the development goal of green finance, governments of various countries have actively introduced relevant policies and measures, and enterprises, legislators and financial institutions have constantly strengthened the cooperative relationship, but it is still difficult to break through the structural barriers created by the traditional economy. At this time, with the rapid development of science and technology, technology finance in the field of green finance innovation and development, its purpose is to promote the development of human society and economy and the rapid transformation of society.

4. Innovation Mode of Green Finance Development based on Technology Finance

4.1. Green Digital Finance Alliance Program

The green digital finance alliance plan was produced in 2017, and ant financial services in China is also the main participant of the alliance. Ant financial puts forward an application program, which can provide users with a carbon account, and use this account as a user's credit account and savings. At the same time, ant financial also combines with social software to make a large number of users participate in it. In Sweden, Trine also participated in the alliance and built a digital investment platform that allows private investors to participate in the configuration and investment of solar photovoltaic projects in emerging countries, aiming to improve the current world energy crisis. In addition, M-KOPA of Kenya, Africa, is also a major participant in the alliance, which has built a mobile payment platform (M-PESA), which can provide solar energy to energy deficient regions. It can be seen that all countries in the world are participating in green financial activities with their own actions and making great contributions to the development of green finance [8].

4.2. Development Mode of Green Finance based on Blockchain Technology

4.2.1. Solving Information Asymmetry

With the development of science and technology, blockchain technology can solve this problem scientifically and efficiently. First, due to the characteristics of blockchain technology is distributed, so in the financial industry, blockchain can build a distributed shared ledger, which makes many nodes realize point-to-point communication in financial activities, to comprehensively improve the efficiency of information collection and information processing. Secondly, the consensus agreement based on blockchain technology can play an important role in the transaction activities. It can not only ensure the authenticity and security of information, but also lay the foundation for the construction of mutual trust mechanism in the financial industry. Finally, asymmetric encryption technology can ensure the security and privacy of transaction information, and provide users with a good trading experience. In a word, in the green finance development mode based on blockchain technology, blockchain technology mainly solves the problem of information asymmetry from two aspects, namely, pre loan review and post loan management.

4.2.2. Reducing Cost

Like other financial industries, green finance transaction is more complicated and requires a lot of time cost and human cost, which is undoubtedly an important factor restricting the rapid development of green finance. However, it is worth noting that the organic combination of blockchain technology and green finance can effectively solve this problem. As a sub technology of blockchain technology, smart contract technology can build a link between two or more traders, and then store the transaction information and contracts of all traders in the blockchain. When the traders complete the trading activities and reach the contract conditions, the intelligent contract system can automatically complete the settlement, which can undoubtedly save human resources and time costs, but also can reduce the risk of manual operation, thus ensuring the safety and objectivity of trading activities.

4.2.3. Improving the Supervision System

Blockchain technology has the function of building distributed shared ledger, which can meet the development requirements of green finance. Specifically, according to the needs of green finance, blockchain technology can build an alliance chain, which includes financial institutions, loan enterprises, environmental protection departments, etc., and then publish the detailed data of green projects submitted by various enterprises in the alliance chain, to exclude green projects fabricated by enterprises and ensure the preciseness of green projects. After that, the monitoring node is set up, and the information of blockchain technology is traceable but not tampered with, which can ensure the authenticity and security of various detailed data of green projects, and then track and supervise the implementation of green projects of enterprises. Once the enterprise breaks the contract, the contract can be suspended and the enterprise can be held responsible according to law.

4.2.4. Innovating Green Financial Products

At present, in China, green finance is in its infancy. At the same time, Alibaba's ant forest is an important achievement of China's green finance. It has creatively transformed each user's energy-saving and emission reduction behavior into a substantial green achievement, and has become the world's largest user's personal carbon trading center. Therefore, China's green financial industry has great development space and potential value. In addition, the combination of blockchain technology and green finance can realize the innovation and development of green financial products from three aspects, namely blockchain platform, financial institutions and information chain.

5. Conclusion

Different from the traditional financial service products, technology finance can comprehensively improve the service efficiency of the financial industry and provide high-quality technology and means for financial services. technology finance, in essence, is the combination of financial industry and science and technology. Specifically, blockchain technology can not only ensure the security of financial transactions, but also strengthen the relevance of financial data. Internet of things technology and artificial intelligence technology can promote the diversity of business model of financial industry, and then make green finance into people's daily life.

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