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Research on the Application Risk and Regulation of Blockchain Technology in Financial Industry

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Abstract: *With the rapid development of our country's social economy, the financial industry ushered in the rapid development, but at the same time, it also faces more challenges. Traditional financial management methods have many limitations, low efficiency and security, and can not meet the requirements of the development of modern financial industry. The application of blockchain technology can solve this problem and provide a more efficient and safe management method for financial management. Using this technology, financial institutions can realize information sharing, improve the level of risk management, and improve the economic benefits of financial institutions. At the same time, the intelligent service of blockchain technology can also reduce the risk of human operation error and improve the execution accuracy. However, the application time of blockchain technology is short, so there are still some application risks in practical applications, and supervision needs to be strengthened. The article mainly discusses the application risk and supervision of blockchain technology in the financial industry, in order to promote the steady development of the financial industry.*

Keywords: *blockchain technology; The financial industry; Application risk; supervise*

1. Introduction

In the era of information globalization, the application of information technology has led to great changes in the production management mode of all walks of life, and the financial industry is no exception. Blockchain technology is a new focus of research in the financial industry at present. It has unique functions and functions, can provide effective support for financial management, and shows good application value in credit rating, anti-money laundering, reducing financial risks, transaction supervision and other aspects, and can promote the transformation and upgrading of traditional financial service models. However, from the actual situation, there are still some problems in the application process, which need to be further thought and solved.

2. Overview of blockchain technology

Blockchain technology is a decentralized distributed ledger with block chain storage, immutable, secure and trustworthy, which applies more information technologies such as distributed storage technology and point-to-point transmission technology, and records transaction information through an ever-growing data block chain to ensure transaction transparency and security [1]. The technology originated from Bitcoin, which was proposed by Satoshi Nakamoto in 2008 and is the underlying technology of Bitcoin. After that, it gradually evolved into a new technology and was widely used around the world. The main characteristics of blockchain technology are neutralization, immutability, transparency, security, and programmability. Each block of data in the blockchain is connected to the previous block to form a continuous chain that records information about each transaction. At present, blockchain technology is widely used in finance, supply chain, medical treatment, real estate and other fields, and shows good application value .[2]

The decentralized characteristics of blockchain technology can break through the full control of the system by a single central institution in the traditional financial management mode, and adopt the distributed management mode of network nodes. The transparency feature allows every trader to view the transaction information in the blockchain, thus improving the trust and traceability of financial transactions.[3] The immutable feature determines that once the transaction information is recorded in the blockchain, it will not be tampered with, which can ensure the authenticity and integrity of the transaction information. In general, the application of blockchain technology can make up for the

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shortcomings of the traditional financial management model and provide a more efficient and safe management method for financial management.

3. The application of blockchain technology in the financial industry

3.1. The application of blockchain technology in the banking field

The Industrial and Commercial Bank of China has used blockchain technology to build a blockchain management platform for Xiongan relocation funds, effectively helping the government achieve online and transparent management of relocation funds.

Supply chain finance: ICBC launched the bank credit increase unconditional confirmation product "ICBC E-credit", which realizes the credit transfer and circulation of core enterprises' accounts receivable among upstream and downstream suppliers, solves the problem of multi-level supplier credit granting and reduces enterprise financing cost .

Trade finance: ICBC has used blockchain technology to develop the "China-Eu E-Single Link" product, which provides trade logistics information support for financing of smes along the China-Europe Express routes .

Cross-border payment: ICBC, its ABU Dhabi branch and Fast Link Payment Service Co., LTD., a key third-party payment institution in Zhejiang Province, jointly issued the "ICBC & YiPay Cross-border Linked Payment Program", providing cross-border payment solutions for export-oriented smes.

Digital collections: Relying on its self-developed enterprise-class blockchain technology, ICBC has built a "1+N+X+Y" digital collection operation system, realizing an organic closed loop among banks, issuers and customers, and providing low-cost digital rights and interests for the digital operation of the whole bank.

Security and privacy protection : ICBC has patent layout in security detection and disposal, access control, password support, data availability, data confidentiality and other aspects, which ensures the security and privacy protection of the blockchain platform .

Industrial and Commercial Bank of China's patent layout in blockchain technology:

As of June 2023, ICBC has published 547 patent applications in the field of blockchain, and obtained 93 patent licenses. These patents are mainly distributed in the consensus algorithm of the consensus layer, data storage of the data layer, networking mechanism and verification mechanism of the network layer .

The decentralization, transparency and immutability of blockchain technology make it have a wide range of application prospects in the financial field. In the future, with the continuous progress of technology and the expansion of application scenarios, blockchain technology will play a more important role in financial innovation and promote the digital transformation and upgrading of the financial industry. [4]

3.2. Application of blockchain technology in the field of securities

Gf Securities and GF Capital Management cooperated to launch a self-developed ABS cloud platform based on blockchain technology. The platform realizes the precision, intelligent management and real-time monitoring of assets, effectively solves the pain points of the ABS industry, and promotes the transformation and upgrading of the financial service model. Guangfa Securities has launched a limited edition digital collection based on the company's mascot "Ben". Based on blockchain technology, these digital collections are unique and immutable, and are generated by customers' DIY and stored on the blockchain platform independently developed by GF Securities. The blockchain storage center independently developed by GF Securities adopts a chain structure and interlinks to enhance the credibility of the data, realize the chain trace of the whole process of general business, evidence tamper-proof and denial-proof, and one-stop verification and forensics. In addition, the quality evaluation system of investment banks reports project information, self-regulatory evaluation and negative events through self-maintained nodes, and obtains the return information of on-chain reporting results, thus realizing the scientific and intelligent of investment bank quality evaluation. Gf Securities is also actively exploring digital application innovation to improve digital compliance and

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risk management capabilities. Its enterprise financial intelligent early warning platform builds an enterprise financial analysis early warning index system by analyzing historical financial fraud, regulatory punishment and other cases, integrates machine learning algorithm model, and achieves a significant improvement in model accuracy and performance, reaching the industry-leading level . These applications demonstrate GF Securities' innovative capabilities in the field of blockchain technology and its leading position in fintech. [5]

3.3. The application of blockchain technology in the insurance field

Axa Insurance uses blockchain technology to optimize the claims management process, ensuring claims submission and processing are as secure and consumer-friendly as possible. Blockchain technology is able to seamlessly combine large numbers of data points from different sources, such as location-based and analytics-based data, thus significantly reducing the number of fraudulent claims. Insurance companies can leverage a distributed blockchain ledger to distribute many streams of information and documents, including third-party reports, field evidence, police oversight, and more. Some important steps when filing a claim can be fully automated, for example, when a car is collided in a traffic accident, a new claim application can be quickly triggered and an emergency signal can be sent to the medical department or the transportation department, all at the same time . At the same time, blockchain technology is used to implement smart contracts, which is a blockchain-based program that can automatically execute contract terms. Smart contracts can track insurance claims and hold both parties accountable, reducing human intervention and administrative costs. For example, the user agrees to pay a certain premium to the insurance company at a fixed time, and when an event occurs that triggers the insurance clause, the smart contract automatically helps the insurance company compensate the user. This automated process not only improves the speed and efficiency of claims settlement, but also enhances the sense of trust between users, because all data is transparently displayed, the mechanism is automated, and human losses are avoided . It also uses blockchain technology to improve data security. The blockchain's ledger is decentralized, meaning that data is stored on multiple nodes rather than centrally on a single server. This distributed storage makes it much more difficult to hack because hackers need to attack multiple nodes rather than a single server. In addition, blockchain uses encryption algorithms to protect customer information, further enhancing the security of data.

In summary, Axa Insurance has achieved significant results in claims management, smart contracts and data security through blockchain technology, improving operational efficiency and customer satisfaction.

4. The application risk of blockchain technology in the financial industry

4.1. Blockchain technology is not mature enough

Although blockchain technology has good application value, the technology is still not mature enough, and there are problems such as high energy consumption, low throughput, and slow processing speed. This is mainly due to the decentralized characteristics of the blockchain, resulting in each transaction needing to be verified by multiple nodes, resulting in slower processing speed. Especially the public chain, the transaction throughput is too much, resulting in the transaction processing speed can not meet customer needs, thus affecting its practical application effect. At the same time, a unified technical standard has not yet been formed, and different blockchains lack a unified interface, which leads to difficulties in data exchange. Financial institutions often need to use multiple blockchains, but the lack of uniform technical standards makes data interaction more complex. And due to the decentralized characteristics of blockchain, it is also necessary to pay attention to privacy protection issues. How to realize transaction security on the basis of ensuring data security is an important issue that urgently needs to be solved at present.

4.2. Laws and regulations are not perfect

Due to the decentralized characteristics of blockchain, legal supervision is facing new challenges, which not only needs to clarify the legal validity and liability judgment of smart contracts, but also needs to strengthen the legal supervision of digital assets. The legal validity and liability determination of smart contracts is the core issue of the application of blockchain technology at present, because smart contracts do not involve intermediaries and are automatically executed through coding

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procedures, so there are still some disputes about their legal validity and liability determination. For example, there are loopholes in the execution of smart contracts, and how to determine liability and compensation will become more complicated, resulting in more uncertainties in the application of blockchain technology.

5. The application strategy of blockchain technology in the financial industry

At present, there are still some shortcomings in the practical application of blockchain technology, so it is necessary to put forward effective application strategies according to the actual situation, so as to improve its nutritional effect and promote the sustainable development of the financial industry.

5.1. Constantly improve blockchain technology

Financial institutions need to actively promote the development of blockchain technology, improve its application performance and scalability, improve processing speed, reduce energy consumption, and ensure data security. At the same time, it is also necessary to promote the establishment of unified standards for blockchain technology, promote information sharing, and improve the compatibility of various blockchain systems. In the current financial field, the application of blockchain technology is wide, and promoting technological reform can promote the development of the industry. Therefore, financial institutions need to spend more manager physics to develop new technical solutions, such as the development of new data transmission protocols, and improve the information processing speed of the blockchain. At the same time, with the continuous expansion of the scale of blockchain, its energy consumption is also gradually increasing, so it is also necessary to explore more environmentally friendly mechanisms to reduce energy consumption.

5.2. Improve the relevant laws and regulations on the application of blockchain technology

In the new era, the financial industry is facing new opportunities and challenges. The application of blockchain technology has brought new driving forces to the development of the financial industry. Therefore, financial institutions need to actively participate in the formulation and improvement of relevant laws and regulations, strengthen exchanges and cooperation with regulatory authorities, and build sound laws and regulations and regulatory systems, so as to ensure the rational use of blockchain technology, protect the security of digital assets, and promote the steady development of the financial industry. For example, when revising laws and regulations, it is necessary to put forward professional opinions in combination with the characteristics of blockchain, so as to improve the applicability of laws and regulations. At the same time, it is also necessary to strengthen cooperation and exchanges with regulatory authorities, understand relevant policy changes, take the initiative to report their own development status, actively cooperate with regulatory work, and maintain the stability of the financial market. In addition, with the wide application of smart contracts, they play an important role in financial transactions, but there are still many disputes about the legal validity and liability identification, which requires financial institutions to cooperate with government departments to study new identification standards, so as to ensure the security of financial transaction contracts and provide effective legal support.

6. Conclusion

With the development of China's market economy globalization trend, the globalization trend of financial market is further deepened. How to do a good job in risk control has become an important issue that financial institutions need to solve urgently. The traditional financial management mode has some problems, such as information island, insufficient risk prevention and low management efficiency, which will hinder the sustainable development of financial institutions. The application of blockchain technology can provide a new management method for financial management, and its characteristics have a good application prospect in the financial industry, especially the decentralized characteristics, which can eliminate the centralized management in the traditional financial management model and reduce financial risks. The transparency and immutability of blockchain can ensure the security of financial transaction information, reduce the financial risks caused by information asymmetry, and ensure the economic benefits of financial institutions. Intelligent service can improve the efficiency of financial management. However, at present, there are still some problems in the practical application of the technology house, and it is necessary to constantly improve the corresponding laws and regulations

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and regulatory mechanisms, so as to maintain the order of the financial market and protect the legitimate rights and interests of investors.

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