

A Study on the Application and Public Policy Challenges of Blockchain Technology in the Silicon Valley Bank Balance Sheet Authenticity Assurance Mechanism

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Abstract: Silicon Valley Bank has entered a stage of high-quality development in the digital era. Due to customer-centered innovative thinking, proposing a proposition that better meets customers' needs for financial services is necessary. Based on the dynamic development of Silicon Valley Bank, the theoretical, analytical framework to design the mechanism to ensure the authenticity of the balance sheets of Silicon Valley Bank is built according to logic inside of blockchain technology, which can explain the development mechanism of Silicon Valley Bank created by the fiduciary mechanism and the value cycle mechanism involving bank and customers. In addition, from the perspective of the changing and practice deduction of the development of Silicon Valley Bank, the possibility of moving towards the high-quality development goal of blockchain is explored. Blockchain development aims to provide customers with financial services that meet the expected standards and is committed to improving the quality of financial services and customer satisfaction. Therefore, we should adopt a series of measures, such as strengthening the balance sheet control based on the internal cycle of blockchain quality, interaction and feedback between blockchain and customer perception, and establishing an evaluation system of blockchain and regulation, to achieve high-quality development of blockchain, increase the competition of Silicon Valley Bank, and meet customer needs.

1. Introduction

The balance sheet is one of the primary responsibilities of a bank business. It can be divided into basic and non-basic balance sheets, composed of monetary assets and liabilities and non-monetary assets and liabilities, respectively. To improve the efficiency and security of the balance sheet, banks entrust third-party institutions to audit and disclose the balance sheet. Since the financial crisis in 2008, the authenticity of the balance sheet has become the key to the growth of a bank, and the importance of balance sheet management has become even more critical [1]. Unlike previous balance sheet management, Silicon Valley Bank emphasizes innovation, flexibility, and transparency more. Therefore, we put forward the issue of designing the authenticity assurance mechanism for Silicon Valley Bank's balance sheet, and blockchain technology provides a new solution for Silicon Valley Bank.

Blockchain technology originated from the digital currency with Bitcoin as the core. It contains trust, consensus, and value and is also a tool for financial services. From the structure perspective, blockchain pursues safety, efficiency, and traceability and realizes the modernization of financial services through encryption algorithms and consensus mechanisms. Today, blockchain technology has implemented a diversified path. Significant advances in blockchain technology have changed the nature of financial services and reflected the value of financial services. Moreover, it has improved the competitive advantage of Silicon Valley Bank and contributed to its development. Therefore, it is necessary to be forward-looking and innovative to discuss the application of blockchain technology in designing the authenticity assurance mechanism of Silicon Valley Bank's balance sheet. We put forward the research proposition of blockchain in the digital age [2].

In summary, blockchain technology is the necessary condition and guarantee for the high-quality development of Silicon Valley Bank. From a practical point of view, blockchain technology has made

progress in the financial field, but it also has areas for improvement. Experts need to fully identify an effective path in designing the Silicon Valley Bank balance sheet authenticity assurance mechanism and are still working hard. Therefore, the application of blockchain technology in the design of Silicon Valley Bank's balance sheet authenticity assurance mechanism needs to be further investigated, which is conducive to Silicon Valley Bank's competitiveness and conforms to the trend of the digital era.

Based on the above background, this paper proposes a design scheme for the Silicon Valley Bank balance sheet authenticity assurance mechanism based on blockchain technology, aiming at improving the authenticity, transparency, and credibility of the Silicon Valley Bank balance sheet. This paper uses literature review and case analysis methods to study the authenticity of Silicon Valley Bank's balance sheet. The main contents include blockchain technology's role, advantages, implementation steps, and conditions in designing Silicon Valley Bank's balance sheet authenticity assurance mechanism, effectively reducing the risk of market competition and regulation. This research has theoretical and practical significance.

2. Features and Issues of Silicon Valley Bank

2.1 The Definition and Development of Silicon Valley Bank

In the research for Silicon Valley Bank, the previous survey mainly considered the innovation and flexibility of Silicon Valley Bank, ignoring the balance sheet of Silicon Valley Bank. So, the research on Silicon Valley Bank development risks must be more accurate. Based on the above, we conducted an in-depth study on the authenticity of Silicon Valley Bank's balance sheet. Based on the features and issues of Silicon Valley Bank, this paper analyzes the balance sheet structure, management, and disclosure of Silicon Valley Bank to make the balance sheet authenticity of Silicon Valley Bank more comprehensive. Firstly, this paper reviews the definition and development of Silicon Valley Bank and introduces the origin, features, and evolution of Silicon Valley Bank. Secondly, this paper briefly describes the main business and customer groups of Silicon Valley Bank and analyzes the market positioning and service mode. Thirdly, we discuss the market competition and regulatory pressures facing Silicon Valley Bank and evaluate its strengths and weaknesses. Finally, this paper analyzes the authenticity of the balance sheet and reveals the risk points and improvement space [3].

Considering the above indicators, this section conducts a detailed study of the features of Silicon Valley Bank. The results show that Silicon Valley Bank is an innovative and flexible financial institution. At the same time, the problem of low balance sheet authenticity problem significantly impacts Silicon Valley Bank's development.

2.2 Silicon Valley Bank's Main Business and Customer Groups

Silicon Valley Bank is developed with the Silicon Valley innovation ecosystem. It reflects the concept of innovation and entrepreneurship and highlights the customer status in financial services. Moreover, it contains the transformation strategy of financial institutions. However, it is still difficult to deal with when we construct the definition and nature of Silicon Valley Bank using traditional standards. Silicon Valley Bank's leading business and customer groups have the following features:

First, the main business of Silicon Valley Bank is to provide financial support and services for innovative enterprises and individuals, including loans, investments, consulting, payments, etc. Silicon Valley Bank's business scope is not limited to one region but covers global innovation hotspots and potential markets.

Second, Silicon Valley Bank's major customer groups are innovative enterprises and individuals, including start-ups, growth enterprises, unicorn enterprises, technology giants, angel investors, venture capitalists, etc. Silicon Valley Bank's customer groups are highly diverse and dynamic and need to constantly adapt to market changes and customer needs.

Third, Silicon Valley Bank's main competitive advantage is its in-depth understanding and professional services for innovative companies and individuals. It can provide customized financial solutions to meet customers' individual needs at different stages and scenarios. In addition, Silicon Valley Bank can use its innovation ability and flexibility to respond quickly to the changing market

and satisfy customer needs, as a result improving customer satisfaction and loyalty [4].

3. Concept and Classification of Blockchain Technology

3.1 The Definition and Characteristics of Blockchain Technology

Blockchain technology is an important standard of digital currency and a technical expression of digital currency. Nakamoto and Vitalik Butlin give different definitions of blockchain technology from the perspectives of cryptography and distributed systems. Some scholars believe that blockchain technology represents a decentralized or trust mechanism. Because blockchain technology is more innovative, it is an applied science to solve practical problems. The development history of blockchain can be traced back to the 1970s. The main activities include encryption algorithms, consensus mechanisms, smart contracts, etc. Moreover, the concept and classification of blockchain technology are closely related to the development of digital currency. The digital currency has become an essential means of financial services through blockchain technology. In the early 21st century, the main contribution to the theory of blockchain technology was Bitcoin [5]. Therefore, the concept of blockchain technology initially focused on digital currency indicators based on standard cryptographic attributes. The application map of blockchain technology in the banking field is shown in Figure 1.

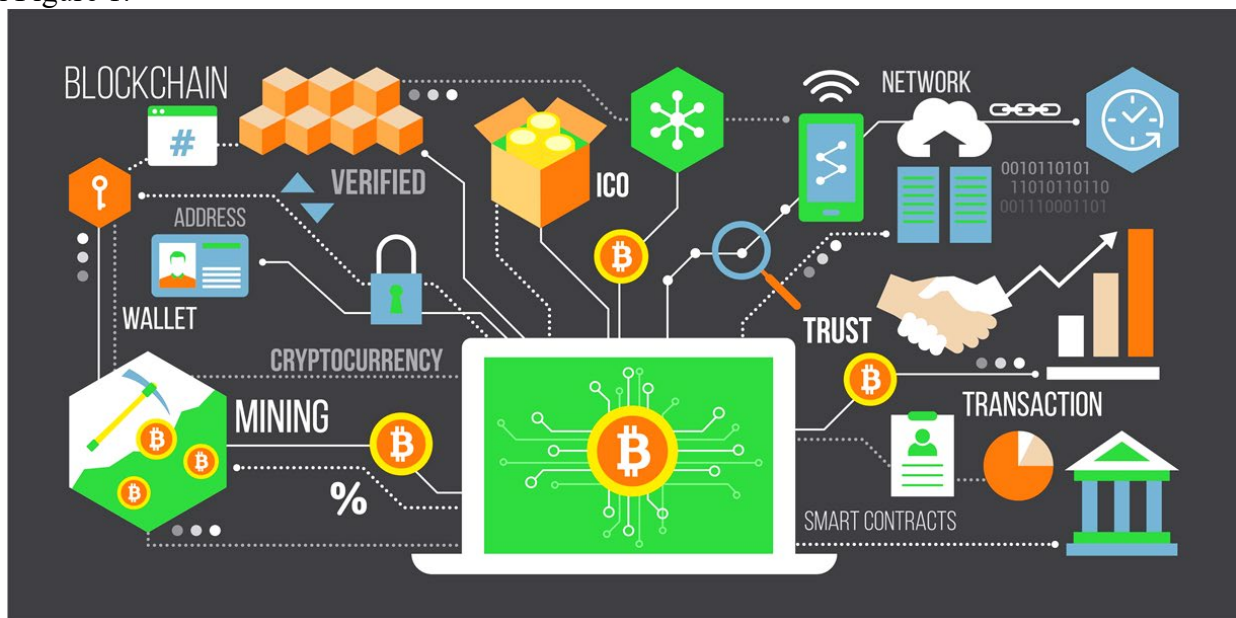


Figure 1 The application map of blockchain technology in the banking field

3.2 Classification and Comparison of Blockchain Technology

Compared with digital currency, blockchain technology emphasizes the relationship between data and nodes and has the feature of decentralization. Although some scholars have questioned that blockchain technology may not be directly related to digital currency, most scholars advocate that blockchain technology can provide security for digital currency. Famous experts proposed a data structure model of blockchain that includes time stamps, hash values, and transaction records. Since then, the model has become a typical tool for blockchain technology and has derivative concepts such as public chain, private chain, and alliance chain. These scholars believe that blockchain technology is immutable and is a "trusted machine"; when a consensus is reached between nodes, the blockchain will be updated. Therefore, the consensus mechanism is the core of blockchain technology. In addition, some scholars summarize blockchain technology as a two-layer model, including the underlying model based on cryptography and the application layer model based on smart contracts. The former focuses on data security, while the latter focuses on value transfer. Although blockchain technology has experienced some practical difficulties, it can provide practical financial service solutions with innovation. Therefore, blockchain technology has gradually become the focus of financial service

research [6].

3.3 Stages and Trends of Blockchain Technology

The essence of the concept of blockchain technology focuses on trust. Trust is the primary demand of human society in collaboration. Trust has entered the research field as a new decentralized framework to overcome the shortcomings of centralization. The basic concepts of this framework include the need for blockchain technology to ensure data security and traceability; set consensus standards for issuing digital currencies; detect data modification through high-tech such as encryption algorithms; realize data functionality using smart contracts. Decentralization emphasizes enhancing customer participation and financial services' efficiency, transparency, flexibility, and innovation. The stages and trends of blockchain technology show the following characteristics:

(1) The first generation of blockchain technology is a public chain represented by Bitcoin. Its main goal is to achieve point-to-point value transfer. The challenges are capacity expansion and privacy protection.

(2) The second generation of blockchain technology is an intelligent contract platform represented by Ethereum. The primary purpose is to achieve a variety of application scenarios, and the main challenges are security and scalability.

(3) The third generation of blockchain technology is a high-performance public chain represented by EOS, Cardano, etc. The purpose is to get large-scale users and complete transactions, and its main challenge is decentralization and governance.

(4) The future trend of blockchain technology is to become the cutting-edge technology of cross-chain interoperability, privacy protection, and zero-knowledge proof. In addition, people expect to integrate innovation with artificial intelligence and the Internet of Things.

4. The Application and Monitoring of Blockchain Technology in the Financial Sector

4.1 Application Scenarios and Cases of Blockchain Technology in the Financial Sector

The application scenarios and cases of blockchain technology in the financial sector are the primary demonstration of blockchain technology, which focuses on the innovation and value of blockchain technology. The relationship between data and nodes directly reflects the optimization for the security and efficiency of financial services. Some elements of blockchain technology are gradually taking shape, and blockchain technology, financial standards, and regulatory systems are receiving attention. However, the application of some technologies is still in the experimental stage, contrary to the demand and mechanism of financial services, which raises the topic of the application and monitoring of blockchain technology in the financial sector [7].

4.2 The Advantages and Disadvantages of Blockchain Technology in the Financial Sector

From the technical dimension, blockchain technology is the fundamental link of digital currency and the core embodiment of financial services. Blockchain technology uses data and nodes as the primary generation logic. Data is the main content of blockchain technology and the subject of financial services. At this stage, blockchain technology strengthens data control from security and efficiency. There are three main forms: encryption algorithms, consensus mechanisms, and smart contracts.

Simply put, it is clear that data is encrypted and decrypted during generation and transmission. The consistent control of data is realized by formulating rules and consensus processes and publicizing consensus results to all nodes. The internal process of reengineering smart contracts also played a significant role. In recent years, Ethereum has enhanced data functionality and value transfer with smart contracts. However, in the advancement of financial services, the scalability of current blockchain technology has yet to be improved.

5. The Application of Blockchain Technology in Designing Silicon Valley Bank Balance Sheet Authenticity Assurance Mechanism

5.1 Blockchain Technology in Mechanism Design

The fundamental difference between blockchain technology and Silicon Valley Bank lies in data. The balance sheet and accounting standards of Silicon Valley Bank aim at authenticity, and Silicon Valley Bank mainly shows innovation and flexibility. For the decentralization of blockchain technology, accurate recording, transmission, sharing, and data verification is the focus and highest criterion of technological development. Currently, the diversity of Silicon Valley Bank's business and the difference in customer demand leads to a complex condition. Although Silicon Valley Bank is audited and disclosed through third-party institutions, the regulatory system is still not perfect, and Silicon Valley Bank lacks effective internal control mechanisms. As a result, it leads to a weakness in the authenticity of the balance sheet, undermining the competitive advantage and growth potential of Silicon Valley Bank.

5.2 The Advantages of Blockchain Technology in the Authenticity Assurance Mechanism of Silicon Valley Bank's Balance Sheet

From a data perspective, Silicon Valley Bank cannot accurately guarantee the balance sheet authenticity that regulators and customers need. The regulator's review of Silicon Valley Bank is mainly in the form of a compliance review. Still, the regulator needs more relevant information and a mechanism to supervise Silicon Valley Bank, and the core of the problem may be trust. In financial services, trust is often described as "credit," mostly about reputation and rating. However, there needs more comprehensive information on the authenticity of the balance sheet. Usually, the authenticity of the balance sheet is difficult to obtain. Information asymmetry and imperfect audit and disclosure directly lead to obstacles.

6. Public Policies and Recommendations of Blockchain Technology in the Design of Silicon Valley Bank's Balance Sheet Authenticity Assurance Mechanism

6.1 Public Policy Challenges of Blockchain Technology in the Design of Silicon Valley Bank's Balance Sheet Authenticity Assurance Mechanism

As for regulation, asymmetric information has long limited the extent of oversight by regulators. Since the 21st century, intelligent, networked, and digital financial services have reshaped financial markets through innovation, but the weaknesses of the old regulatory system have limited their regulatory effect. Affected by the diversity and dynamism of Silicon Valley Bank, regulatory standards and rules need to be improved due to the lack of information and advanced technology. Under the premise of maintaining financial stability and consumer interests, blockchain technology is regarded as a direct way to improve regulatory efficiency and effectiveness. However, the actual effect of blockchain technology-based regulation on Silicon Valley Bank is open to debate. In addition, difficulties in laws and regulations lead to the need for formal procedures for blockchain technology. Therefore, blockchain technology only sometimes achieves regulatory goals. It is evident that blockchain technology is a technical problem, and it is connected with public policy.

6.2 Suggestions on Public Policy of Blockchain Technology in Mechanism Design

Blockchain technology cannot avoid being a "double-edged sword" for financial services. In the decentralization mechanism, blockchain technology is an effective tool for credit and plays a vital role in financial services. Therefore, blockchain technology is not only a technology but also needs policy support. Therefore, the supervision represented by "sandbox" has become an adaptive mechanism for blockchain technology. In general, blockchain technology is a path gradually formed based on innovation, which contains risks and challenges. From Bitcoin to Ethereum, blockchain technology is closely linked to financial services. However, in the digital age, the problem occurs with regulatory lag. In summary, blockchain technology has room for improvement in regulatory standards, rules, systems, and legitimacy, and compliance need to be further improved, which is also

an essential task of public policy. Blockchain technology is committed to improving the quality and efficiency of financial services to meet the requirements of the market and customers.

7. Conclusion

Financial services have become digital, networked, and intelligent, which poses challenges and requirements for financial and regulatory agencies. Blockchain technology innovation is not only a symbol of financial service innovation, an essential means of financial services, but also an urgent need to realize the safety and efficiency of financial services and maintain financial stability and consumer interests. It embodies the requirements of financial services. Under the guidance of blockchain technology, Silicon Valley Bank constructs the theoretical analysis framework and practical mechanism of the balance sheet authenticity assurance mechanism. In recent years, modern information technology, such as blockchain, has promoted the growth of Silicon Valley Bank. Data and nodes enable innovation and flexibility, as well as the accuracy of balance sheet authenticity, and fit the connotation of Silicon Valley Bank. Therefore, technology based on blockchain also provides a new way for Silicon Valley Bank. In short, the improvement and sustainable development of blockchain technology will help better serve Silicon Valley Bank and promote the modernization of financial services.

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