

# A Promising Application Prospect of Blockchain in Banking Industry from the Perspective of Stakeholder Theory

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## ABSTRACT

Due to the information asymmetry between the bank and the customers, the customers are faced with the information security risk of personal information disclosure. Meanwhile, the bank is also being challenged with the credit risk that may appear at any time. Thus, it would lead to increased operation cost and loss of the business efficiency as well as commercial value. Under the use of blockchain, this paper introduces the application of blockchain technology principle and analyzes the reasons why blockchain technology is widely concerned and applied in the banking industry by using the relevant theories of business ethics. Through theoretical analysis, the author makes a reasonable prospect for future development of blockchain in banking industry, and highlights the importance of blockchain application in banking business.

**Keywords:** Blockchain, Banking, Stakeholder theory, Business ethics.

## 1. INTRODUCTION

In March 2020, China CITIC Bank provided transaction records of a personal bank account to a third party for more than once, without the authorization of the client, which aroused heated debate among society. After the news was released, China's banking regulator investigated China CITIC Bank for the leakage of customers' confidential information in May 2020, and the direct person in charge was punished seriously. This event exposed an underground market of trading clients' account information, followed by the debate of trust crisis spreading in banking industry. From the bank's perspective, the lack of client information is also a conspicuous problem in banks' credit related information system. For this lacking of information limits the business expansion of commercial banks; moreover, it is difficult for commercial banks to track, monitor and control loan quality. Credit is well known as the cornerstone of various financial activities, the banking industry now has difficulty in creating credit without getting enough client information.

Blockchain is an important breakthrough technology in data encryption, storage and

transmission. Currently, it is a concept that has attracted significant attention in financial sector and fintech field. Blockchain combines several computer and internet technologies, including distributed data storage, point-to-point information transmission, consensus mechanism, and encryption algorithms [1]. There has been rising popularity with the application of blockchain technology in banking industry, and this technology is predicted to be potential to bring the fundamental transformation to the existing operating mechanisms of the economy. As financial sector being seen as pioneering the blockchain application, this paper aims at analyzing blockchain around the the reasons for a promising application prospects of blockchain technology in banking industry by using the stakeholder theory of business ethics as theoretical support.

## 2. OVERVIEW OF BLOCKCHAIN AND STAKEHOLDER THEORY

### 2.1 Blockchain

Blockchain, in essence, describes a distributed ledger that is kept and governed in the virtual space

in an autonomous manner without any central and public authority [2]. The term blockchain refers to a distributed digital database that is shared within a peer-to-peer network and contains a sequence of interconnected blocks. These blocks consist of unchangeable, encrypted, and tamper-free information and records of transactions that are verified and proved through a decentralized collaboration mechanism within the distributed network [3]. Blockchain and its application have aroused strong interest since its coming out, and researchers from various disciplines start to study and explore the features and practical applicability of this technology across industries, especially in financial sector, which can be seen as pioneering the blockchain idea among practitioners.

## **2.2 Stakeholder Theory**

Stakeholder theory comes as a major concept in the field of business ethics. This theory postulates that the basic idea of business primarily lies in building relationships with and creating value for all its stakeholders [4]. As most of the literature on stakeholder theory posits, paying attention to stakeholders, especially serving them well and caring for their interests, makes a firm create value in multiple dimensions, which is ultimately beneficial for the firm's performance. A firm's performance is often measured by its financial returns, which is the closest measure of the value creation, but not the only important value to its stakeholders. It is Freeman's basic and core idea that a firm should serve multiple stakeholders, and a firm's performance could be evaluated by the total value created by the firm through all its business activities, that is, the collection of the utility created for each of the firm's stakeholder [5]. A firm's stakeholders include anyone affected by the firm and its workings. Even though the composition of stakeholders might differ in different kinds of industries, as well as a firm's business structure and models, each stakeholder is equally important for the firm and any trade-off among the stakeholders should be avoided [4].

Stakeholder theory has been seen as the basis and operational principle of business development for many firms, who have provided examples of how managers perceive the ideas and insights of stakeholder theory and run successful businesses [6].

## **3. ANALYSIS OF THE REASONS FOR ADOPTING BLOCKCHAIN**

All parties of a transaction are stakeholders who are on the same value-chain, and each stakeholder in this "block" has the equal status transferring information and sharing processes, thus making businesses in a more secured way and gaining profits [7].

### **3.1 Information Security**

Almost every financial transaction requires intensive manual processing and involves expensive intermediaries. It is time consuming to validate all transactions by various participants at various point, causing low efficiency. Besides efficiency bottleneck, the processes of banking services are fraught with other problems such as transaction lag, fraud and operation and credit risks. Based on features of blockchain technology, a new form of credit mechanism could be established in a situation where mutual trust is not necessary, thereby the high costs of centralization, especially caused by the non-technical aspects, could be solved. While in essence, blockchain makes the digital world as real as the physical world by enabling a decentralized, open and transparent system of trust [8], which is a key driver of technology application among users for e-commerce including online banking. This is a credit establishment paradigm that does not require trust accumulation.

In scenarios in banking industry, a transaction can be represented online as a "block", which is broadcast to every party of the network, and the validity of the block is approved by these relevant parties, then the block can be added to the chain that keeps a transparent record of the transactions that cannot be tampered. The consensus among all parties ensures that transaction data, once agreed upon, cannot be affected. In this sense, data stored on blockchain could be seen as a single version of truth for all transactions and for all parties involved to reduce the risk of counterfeits or frauds. Therefore, personal information of customers is more secured.

### **3.2 Efficiency**

The ultimate goal of technological innovation for banking industry is to create more value and financial profits. In the decentralized mode of a transaction by using blockchains, the point-to-point transmission allows any two parties to transact

directly with each other, which means that any individual (stakeholder) who does not know each other can reach a credit consensus through a certain contract mechanism and no longer needs an intermediate party. This sharply increases the processing efficiency of not only the transactions but also the efficiency of business processes like clearing and settlement of financial assets in later processes, thus reducing costs and leading to enhanced customer satisfaction. Consequently, all stakeholders are beneficiaries.

The project of Targeted Poverty Alleviation Platform has been created by the Industrial and Commercial Bank of China since 2017. The platform was designed for solving problem in government poverty alleviation management in Guizhou province of China. With the application of blockchain technology, the Industrial and Commercial Bank of China cooperate with local people through the integration of the bank's financial service chain and the administrative examination and approval chain of government's poverty alleviation funds as well as mutual trust, and achieve the transparent use on and efficient management for poverty relief funds with the support of the "source-traceable and tamper-resistant" features of blockchain [9].

Firstly, the cost of regulation is reduced. Distributed ledger of the poverty alleviation funds contains complete account records on the blockchain, and information can be shared in a real-time manner to all parties, which are automatically added to the regulatory agencies list related to poverty alleviation, thus effectively reducing the difficulty of the regulator and cost. Government can monitor the specific use of poverty alleviation fund, and ensure that each link will not be intercepted or embezzled. Secondly, based on the consensus mechanism of the blockchain, the information of the poor households is accurately added to the blockchain system, and the system automatically records the information such as the time of addition and the operator, and the information is permanently stored, which is conducive to rapid review and tracking, so as to realize the penetrating supervision of each poverty alleviation program, thus improving the supervision efficiency.

In addition, when the project meets the conditions of fund allocation, the smart contract based on blockchain mechanism will automatically allocate funds to achieve real-time payment, reducing the link of manual intervention and simplifying the process. While reducing the rate of

manual error, the efficiency of poverty alleviation funds allocation is greatly improved. This is first project that uses blockchain technology in banking industry.

### **3.3 Value Creation**

Blockchain technology has laid the foundation for the innovation of financial products and services of commercial banks in terms of data processing. For individual customers, a closer and more transparent transaction mode between banks and customers enables banks to comprehensively and accurately understand customers' needs, divides customers into groups, provides them with more matching products and services, and thus attracts more customers and makes profits. For enterprises, in the application environment of block chain technology, enterprises only need to establish a chain between banks to obtain relevant information. Banks can evaluate the credit of small and medium-sized enterprises with help of information, so as to develop targeted products suitable for financing needs of small and medium-sized enterprises. For cross-border banks, information shared among different banks between countries is transparent and efficient, and the most of the approving procedures and transactions can be monitored by all participants, who are stakeholders for each cooperation. Therefore, business activities and value created will be increased.

As of November 2019, there are eleven leading banks and four technology companies jointly participate in launching the cross-bank Forfeiting business function module through China Trade Finance Interbank Transaction Blockchain Platform. By February 2020, the scope of users on the Cross-border Financial Blockchain Service Platform had been expanded to 22 provinces and autonomous regions, with more than 170 banks voluntarily joined [10]. A total of 15.9 billion dollars of financing loans were completed, the platform nearly serves 2500 enterprises, of which 75% are small and medium-sized enterprises. There are more than 30 banks, including Bank of China, Construction Bank of China, China Merchants Bank, Bank of Communications, and Standard Chartered Bank get access to the Central Bank Trade and Finance Blockchain Platform of China. More than 30,000 business on-chain transactions have been realized, and more than 6,100 transactions have completed. The volume of business is about 76 billion yuan [10]. The application of blockchain technology is conducive

to banks to obtain more information and resources in a relatively short time, expand their business scope, increase profits and create more value for enterprises.

#### **4. FUTURE IMPROVEMENT FOR BLOCKCHAIN IN BANKING INDUSTRY**

##### ***4.1 Decentralization and Self-governance of Blockchain***

It is no wonder that the decentralization and self-governance of blockchains weakens the concept of regulation, and it has a crucial impact on current financial regulatory system. Block chain technology has brought innovation, reform and development to banking industry, and also increased the competition between peers. Under a more transparent market environment, the barrier between banking and non-banking industries has gradually reduced, so has the threshold of banking business. Banks are required to increase independent innovation on the basis of blockchain technology to expand the business scope and create more business models. For example, banks can develop and research innovative scenarios in daily life for making businesses with customers or enterprises by using blockchain technology, breaking the limitation of traditional banking businesses.

##### ***4.2 Regulation***

Meanwhile, no advantageous technology comes for free, and the other side of the coin is the potential risk. Currently, blockchain applications lack unified technical standards and industry consensus. The development of blockchain business presents a trend of fragmentation, and the underlying platform and technology of blockchain adopted by various commercial banks are also different, which also leads to poor compatibility between bank blockchain platforms. Blockchain research and exploration among commercial banks are independent, which is not conducive to the integration and healthy development of the banking blockchain business. Therefore, regulation and supervision on blockchain is necessary, and the technical standards need to be formulated. At the same time, the specifications for banks still need to be further developed.

Banks can cooperate with each other and even with the regulator to help discover and set up code of standard in the field.

#### **5. CONCLUSION**

This paper analyzed the reasons to adopt blockchain technology in banking industry from the viewpoint of business ethics. Blockchain is the promising technology that could revolutionize the banking industry. By adopting blockchain technology, banks can build a new form of trust mechanism with customers under a secured and open network, which enhances information security and increase trading volume. With this technology, transactions and following steps in banking business can save cost and improve efficiency. Furthermore, the blockchain application can achieve a win-win situation for all parties of a transaction, making all stakeholders satisfied, so as to achieve greater profits. It is believed that the blockchain will become the core technology of financial sector, with further financial regulations formulated.

#### **AUTHORS' CONTRIBUTIONS**

This paper is independently completed by Ya Gao.

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