Blockchain Technology Helps China's Cross-border Trade Business Environment

-- Based on the Perspective of Optimizing the Cross-border Trade Business Environment

Xin Pang

Beijing Wuzi University, Beijing 101149, China

Abstract

The improvement of Cross-border trade business environment is extremely important to improve the level of China's international business environment, and it is an urgent need to deeply understand and implement the spirit of the Fifth Plenary Session of the 19th CPC Central Committee- -to create a world-class business environment. However, how to improve the business environment of Cross-border trade is a difficult problem, and the emergence of blockchain technology and its integration with Cross-border trade give new ideas to optimize the business environment of Cross-border trade. This paper in the world bank (the bank) released the 2020 business environment report, systematically combed the pain points in China, blocking problems, and the technical characteristics of block chain and create a good Cross-border trade business environment, then further analyzed the role of block chain in Cross-border trade, finally gave several modules to optimize Cross-border trade business environment, hope to provide some reference and reference for improvement of Cross-border trade business environment.

Keywords

Blockchain; Cross-border Trade and Business Environment; Transaction Credit; Transaction Supervision.

1. Introduction

The Fifth Plenary Session of the 19th CPC Central Committee clearly put forward to "continuously optimize the market-based and law-based international business environment". In recent years, China has been striving to create an international first-class business environment, and the World Bank also pointed out in the latest global Business Environment report that China has ranked the global business environment from 46 place in 2018 to 31 place, achieving further improvement. In addition, China's Cross-border trade index ranking also rose from 65th in 2018 to 56th today. Although China has made some progress in the ranking of Cross-border trade indicators, and China has gradually shifted to high-quality development, Cross-border trade is far from enough for the economic globalization we pursue and the need to build a community with a shared future for mankind. in particular, among the ten first-level indicators to evaluate the business environment, China's Cross-border trade index only ranked seventh. Compared with other indicators, China is at a relatively weak position in China's business environment. Therefore, it is very urgent to optimize China's Cross-border trade business environment. In this context, China actively explores the "blockchain + Cross-border trade" model, hoping to rely on information technology to help improve the efficiency and management level of Cross-border trade. In a new generation of information technology, block chain technology with its own decentralized, smart contract mechanism, traceability and other

significant features stand out, became the best choice to improve our Cross-border trade business environment, it can also highly fit optimize Cross-border trade business environment, and to improve Cross-border trade environment, create first-class Cross-border trade business environment to provide new ideas.

2. Current Situation of China's Cross-border Trade and Business Environment

The "Cross-border trade" index (Table 1 ranks the bank's 10 business environment indicators) mainly includes document compliance and boundary compliance.

From Table 1, we can see that in the World Bank's 10 business environment indicators, Cross-border trade indicators rank seventh, which is at a disadvantage compared with other indicators.But at the same time, it also shows that China's Cross-border trade indicators still have a lot of room for improvement, and there is still a lot of room for improvement in the Cross-border trade and business environment.

Table 1. World Bank 10 Business environment indicators

Different indicators	2020 Ranking
execute a contract	5
Get electricity	12
Start an enterprise	27
Registration of property	28
Protect a few investors	28
Apply for the construction permit	33
For bankruptcy	51
Cross-border trade	56
Get credit	80
pay taxes	105

Data source: The World Bank database

Figure 1. Ranking of China's Cross-border trade indicators

Source: The World Bank Business Environment Report

According to the analysis of the World Bank Business Environment Report, China's Cross-border trade indicators ranking has been greatly improved since 2018 (see Figure 1).In the four years from 2014 to 2017, China ranked around 96th in Cross-border trade indicators, but jumped to 65th in 2018, and the momentum continued until 2019.

According to the World Bank Business Environment Report 2020, China's international ranking of Cross-border trade indicators (such as Table 2) has risen to 56th, and the score of Cross-border trade facilitation points has increased from 83.4% in 2019 to 86.5%. All these all show that China's Cross-border trade business environment has been greatly improved.

Table 2. Convenience scores of Cross-border trade indicators

metric	D B2020 ranking	The D B2020 convenience score	The D B 2019 convenience score	D B convenience score change
Cross-border trade	56	86.5	83.4	+3.1

Source: The World Bank Business Environment Report

It is precisely because of the Chinese government's great importance to the business environment that China's Cross-border trade indicators have achieved such a significant increase for two consecutive years.In addition, a number of reform methods promoted by China's customs also provide a lot of convenience for improving China's Cross-border trade convenience. The substantial improvement of China's Cross-border trade indicators is inseparable from the efforts of customs at all levels.

3. Problems Existing in China's Cross-border Trade and Business Environment

3.1. Customs Clearance Process is Cumbersome and the Customs Clearance Cost is High

The diversification of Cross-border trade participants is remarkable, which is both an advantage and a disadvantage. Too many participants lead to the increasing number of intermediate links in the sales process, which directly affects consumer satisfaction. [1] Participants in Cross-border trade include enterprises, domestic and foreign logistics enterprises and customs departments, including third-party payment platforms and e-commerce platforms, etc. Due to the diversification of Cross-border trade participants, the whole Cross-border trade process involves more and more links, which also makes Cross-border trade transactions quite complicated.If there are problems in any one of them, it may affect the normal operation of the whole Cross-border trade transaction process, further increasing the cost of Cross-border trade, especially the verification of the customs authorities that are most prone to problems in Cross-border trade.In the customs clearance, to go through layers of inspection and examination, virtually increased a lot of time cost.The cumbersome transaction links of Cross-border trade will inevitably lead to high trade costs, and high costs will inevitably lead to the compression of enterprise profit space. At the same time, Cross-border trade also involves overseas logistics, which will make the transportation cycle longer compared with domestic transactions, reduce the distribution efficiency and increase the trade cost.

3.2. Low Information Sharing Degree of Cross-border Trade Transactions

Since the transaction process of Cross-border trade is relatively complex, and there are many participants and the links involved are also very complex, then these different participants located in different links will produce their own transaction data.But these data are not well used in the existing Cross-border trade environment.Because these transaction data are scattered and complicated, but there is a certain connection between them, which brings some difficulties to checking and proofreading the data.In addition, due to the particularity of Cross-border trade transaction data, all participants are unwilling to share their transaction data with third parties, resulting in the situation of scattered transaction data.The data fragmentation and data dispersion will make the data sharing degree of the participants in Cross-border trade low, and increase the transaction time. In addition, the existing information sharing mechanism is unable to well protect the security of Cross-border trade transaction information, which restricts the sharing of transaction information to a certain extent.

3.3. The Credit Environment for Cross-border Trade Transactions Needs to be Improved

In Cross-border trade transactions, the cost of customs inspection is relatively high due to the asymmetry of transaction information. In addition, information asymmetry will also lead to the cost of Cross-border trade participants paying far less than the negative effects brought by this behavior for other parties and society.This situation will seriously damage the fairness of the Cross-border trade business environment, but also affect the normal operation of the Cross-border trade business environment.In Cross-border trade, the symmetry of transaction information, the credibility of transaction data and the openness and transparency of transaction data are all essential for a good Cross-border trade business environment, and China is far from enough in the openness and transparency of transaction data and the symmetry of transaction information.Further efforts are needed to ensure the credit fairness of Cross-border trade transactions.

3.4. Relevant Supervision of Cross-border Trade is Insufficient

In recent years in the national policy to support of Cross-border trade, China's Cross-border trade development is very fast, however, in the process of Cross-border trade in our country, trading time is too long, high transaction costs, and due to the customs and other relevant departments supervision backward, insufficient regulation, plus the relevant professional legal regulations is not clear, make the quality of Cross-border trade goods is not guaranteed, sometimes there are Cross-border trade interests not guaranteed.China's Cross-border trade related departments also need to continue to strengthen supervision and innovate the supervision mode, so as to ensure the good operation of China's Cross-border trade business environment.

4. Feasibility Analysis of Blockchain Technology to Help Optimize the Cross-border Trade and Business Environment

4.1. Integration of Blockchain Technology and Cross-border Trade

The blockchain industry not only includes technical facilities and industrial applications, but also includes comprehensive services. Moreover, the blockchain is gradually deeply integrating with various industries from the digital currency field, and the Cross-border trade field is also actively integrating with the blockchain.This paper starts from the characteristics of decentralization, smart contract and traceability of blockchain technology, and analyzes the specific application of blockchain technology and Cross-border trade integration and the feasibility of Cross-border trade and blockchain integration.

The decentralization of blockchain technology refers to the joint decision of the parties involved in the transaction, rather than simply having one party dominating everything.In the distributed system of blockchain, everyone has their own database copy, and no one or organization can independently maintain the database independently, thus realizing the distributed storage of data and decentralization of blockchain governance. [2] The data blocks in the blockchain system are jointly maintained by multiple nodes, rather than centrally managed by a centralized management agency. Even if there is a problem in one of the nodes, the whole system will not be paralyzed. It is precisely because this can protect the information security of the transaction data involved in Cross-border trade.The peer-to-peer distributed peer network built by blockchain automatically compares all the key information related to transactions in Cross-border trade transactions. Then the information distribution on the transaction is stored on all nodes after the comparison is successful and the consensus is formed.And once the data is on the chain, it is difficult to be tampered with, unless all parties in the chain agree to modify it and know the secret key.Through this consensus effect and imtamable nature of blockchain, the transaction data involved in Cross-border trade can be guaranteed their authenticity on the chain, and the credibility of the data will not be reduced due to hierarchical transmission.If there are problems in the middle, it can also be traceable but accountable, which will promote a good Cross-border trade environment.A smart contract is a digital protocol, once the input meets its code requirements, it automatically follows the obligations of the executing parties, it is programmed to run the contract in a digital form.[11] The emergence of smart contracts not only makes transactions more transparent, but also makes transaction costs greatly reduced and without external interference.Will Cross-border trade transaction process and trigger conditions into the smart contract, then through the smart contract and the chain of data authorization, can automatically trigger and execute the relevant standardization instructions, it can effectively save labor costs, improve the degree of automation and transaction efficiency, also can avoid some credit fraud risk and operational risk.In addition, the most important thing is to increase the convenience of Cross-border trade parties, comprehensively enhance the satisfaction of Cross-border trade parties in the trading process, and is conducive to creating a good business environment for Cross-border trade.The traceability of blockchain means that some data and information generated by people in their daily life can be recorded through the blockchain. Every node and every link are clearly recorded on the chain, and these data and information cannot be easily tampered with.In such cases, the Cross-border trade parties in the process of transaction data information can be traced and query, convenient government agencies to better management, and can ensure the integrity of Cross-border trade related data chain, also facilitate the customs department to the Cross-border trade transaction information verification, prevent transaction fraud.The openness and transparency of blockchain refers to that the program of blockchain is the open source program, which ensures that the transaction data on the chain in Cross-border trade can be reviewed by everyone, which is conducive to creating an open and transparent Cross-border trade credit environment, increasing the participation of all parties in Cross-border trade, and realizing the supervision of the transaction process by all parties in Cross-border trade.Difficult tampering of blockchain refers to the fact that modifying the data on the chain needs to control more than 51% of the nodes in the system, so as to ensure the reliability and difficult tampering of the transaction data. Although it does not mean that 100% will not be tampered with, it also increases the difficulty of modifying the data to a certain extent.For the electronic information of ordinary transactions, these information is very easy to be modified, and the traces of the modification are difficult to be found out, with great security risks.The tamper-proof nature of blockchain can be applied to the "digital ID card" and transaction information of Cross-border trade parties, so as to ensure that these information cannot be tampered with and

misappropriated, thus ensuring the security and effectiveness of Cross-border trade transactions.

4.2. The Role Path of Blockchain Technology to Optimize the Business Environment of Cross-border Trade

According to the application of block chain technology in the field of Cross-border trade concept and Cross-border trade business environment of some existing problems to be solved, this paper for these pain points, difficulties proposed the block chain technology to optimize the role of Cross-border trade business environment path, and the analysis is obtained through the optimization of block chain technology may be results.

First of all, the traditional Cross-border trade transaction links are complex, and the coordination of the departments is difficult in the transaction process, which increases the transaction time and transaction costs, and reduces the transaction feelings of the Cross-border trade parties in the transaction process.The introduction of smart contract mechanism can accurately sort out and analyze all links of the Cross-border trade process.Smart contracts can also improve the trust among the participants in Cross-border trade and the transmission of transaction process data, greatly improve transaction efficiency, shorten transaction time and reduce transaction costs, thus improving the transaction service experience. [12] Since the whole Cross-border trade transaction process can be directly on the chain, the traceability and imtamability characteristics of blockchain can ensure the authenticity of transaction information and transaction process.By tracing the data of the whole transaction process, the responsibilities can be clearly divided to reduce the disputes among the parties to Cross-border trade transactions when the transaction goes wrong.

Secondly, the transaction data of Cross-border trade is relatively scattered, and the phenomenon of data fragmentation and data island is serious.As the degree of information sharing and business coordination among various departments regulating Cross-border trade is not high, it brings some difficulty to the coordination among various departments at all levels.Moreover, the existing information sharing mechanism has no way to guarantee the security of Cross-border trade transaction information, which also seriously restricts the information sharing.The general deployment of customs should be implemented as soon as possible, and the contact with railway departments should be strengthened to realize information sharing, and the paper clearance procedure of railway transport goods clearance should be banned to realize paper-free verification.Smart contract technology can create a corresponding incentive mechanism by creating a credible credit data sharing mechanism. It can also automatically manage and realize the shared open rules of relevant institutions, so as to realize the real-time and efficient extraction of Cross-border trade transaction data and further improve the efficiency of Cross-border trade transactions.When exchanging and exchanging information between the nodes of the alliance chain, we must know the private key of the other party node, which can effectively avoid the problems of privacy leakage and transaction data leakage, and also ensure the mutual circulation of information.The data blocks in the blockchain decentralized system are jointly maintained by multiple nodes, thus protecting the information security of transaction data in Cross-border trade. [13]

Thirdly, the lack of transaction credit also destroys the fairness of the Cross-border trade and business environment to some extent.A good Cross-border trade credit environment cannot be separated from the symmetry of transaction information, credible transaction credit data and the disclosure of transaction credit data.The transaction information asymmetry increases the cost of customs verification, and also provides operational space for Cross-border trade traders to engage in trust-breaking behavior.The traceability of blockchain can reduce the cost of verification, which can trace and query the transaction data information generated by people.In addition, the imtamability of blockchain ensures the reliable storage of transaction data. The

openness and transparency improves the characteristics of transaction credit recognition and the transparency of transaction data, and ensures the fairness of Cross-border trade transaction credit.

Finally, there are problems in the current Cross-border trade, such as too long trading time, too high costs and insufficient supervision.Blockchain distributed network ensures the consistency of the data of the transaction parties in Cross-border trade, improves the authenticity of the transaction information, avoids the inconsistency of the transaction data and information, and improves the recognition of the parties to the transaction.The recording method of traceable time stamp information is also conducive to the customs authorities to check the Cross-border trade-related transactions and monitor the transaction time points, so as to prevent disputes and transaction numbers in the transaction process.

According to the loss, improve the convenience of Cross-border trade, so as to continuously optimize the Cross-border trade business environment.

5. Major Modules to Optimize the Business Environment for Cross-border Trade

5.1. Reduce Customs Clearance Time and Cost based on Smart Contracts

Due to the COVID-19 outbreak in 2020, Cross-border trade reform has faced new challenges.In order to continue to promote the normal conduct of Cross-border trade and do a good job in epidemic prevention and control, it is necessary to simplify customs clearance procedures and reduce customs clearance time. In addition, quarantine charges should be reduced, which greatly increases the difficulty of all parties.At this point, the block chain smart contract to solve this problem provides a new idea, using its open and transparent characteristics, trading parties only need to upload transaction information to the platform, as long as meet the transaction conditions in the program, will automatically clinch a deal and record in the chain, can greatly simplify the customs clearance procedures, but also can save customs clearance time. The Cross-border trade process based on smart contracts simplifies the transaction process and makes the transaction information open and transparent, and on the other hand, it also facilitates the relevant departments to record the inspection and review by the customs department and the supervision of the relevant departments.

5.2. Transaction Information Sharing based on the Alliance Chain

Alliance chain is different from blockchain, blockchain in a sense can be said to be a public chain, that is, the information on the chain can be seen by everyone, which may cause the leakage of transaction information, but the alliance chain is different, it is more like a chain between the public chain and the private chain.In the alliance chain, only the nodes on the parties to see the trading information, can effectively realize information sharing between the parties, also can avoid trading information leakage, improve the security of the transaction, in addition, even the information on the chain is not completely not modified, as long as meet certain conditions, the information on the chain can be modified.For example, if the number of transactions of a certain party needs to be changed, as long as each party involved in the transaction agrees, the number of transactions can be modified on the chain, and the modified information can only be accessed and viewed by each node on the chain, while others have no permission to access it. To share transaction information between the nodes on the alliance chain, we need to know the secret key of each node, and the secret key of each node is only the node. If you want to trade, you need to share the secret key, which greatly protects the transaction information, improves the security of information and also realizes the sharing of transaction information.

5.3.   Cross-border Trade Credit Management based on Blockchain

At present, China is speeding up the construction of social credit system, and is committed to building a new credit-based supervision mechanism. Cross-border trade transaction credit is a very important part of the construction of social credit system, and also has a positive role in improving China's Cross-border trade business environment.

Since the public chain, alliance chain and private chain all have their own characteristics, we can divert different transaction credit information to different chains.First of all, the customs department is oriented to the public chain, and can publish the credit rating of Cross-border trade transactions on the public chain.For Cross-border trade traders, good trading credit can help them to better complete the subsequent transactions, and also help to improve their credit in the industry. Secondly, in terms of privacy, the alliance chain can play a good role in the protection, and can also realize the data extraction and data sharing of the transaction information. Finally, and most importantly, the introduction of a private chain can prevent the leakage of transaction information, thus improving the security of transactions.Blockchain smart contract technology can establish a data sharing mechanism, create an open sharing and extremely credible transaction data sharing mechanism, can help establish a database of dishonest or illegal transactions, and establish a transaction blacklist.In addition, the private chain can also prevent other institutions or individual individuals from invading the system and stealing transaction information, providing new ideas for improving the Cross-border trade business environment.

5.4.   Information Supervision based on Blockchain Traceability

At present, the supervision adopted in China is mainly the supervision of government departments and some laws and regulations. In addition, credit supervision is also being vigorously promoted, and the traceability of blockchain also provides a new method for regulating market transactions, and it is more safe and reliable.

In Cross-border trade, with the traceability of blockchain, it is easy to know which link is the problem. For example, after receiving fake and shoddy products, using the information on the chain can quickly find out which node is wrong, and give the corresponding punishment, so as to eliminate the possibility of counterfeiting in the future.Of course, the payment and settlement, product testing and other links can be applied to the blockchain, so as to monitor the relevant transaction data about Cross-border trade transactions, so as to achieve the purpose of information supervision.

6. Conclusion

The emergence of blockchain has brought a profound impact on modern society, but also brought infinite possibilities for creating a good Cross-border trade and business environment. For all participants in Cross-border trade, based on blockchain technology can realize information sharing among parties, shorten transaction time, reduce transaction costs and secure Cross-border trade, improve customs clearance efficiency and save customs clearance time and realize paperless office; for society, introducing blockchain technology can create a good Cross-border trade business environment. This article is based on the World Bank's Business Report 2020, This paper expounds the complicated customs clearance links in China's Cross-border trade and business environment, High customs clearance cost, insufficient degree of transaction data sharing, transaction credit environment needs to be improved, and insufficient supervision of relevant departments, the four pain points and blockage points that affect the Cross-border trade business environment, At the same time, it has introduced the blockchain technology, Through an in-depth analysis of the advantages of blockchain technology and the problems encountered in the process of Cross-border trade, Further

proposed the role path of blockchain technology to optimize the Cross-border trade business environment, And proposed several modules to optimize the business environment of Cross-border trade, Building technologies such as blockchain and alliance chains build a Cross-border trade business environment, Thus help China's Cross-border trade business environment. However, the application of blockchain involved in this paper in the Cross-border trade business environment is only stuck at the theoretical level, which needs further exploration to be applied in practice.

References

[1] Zheng Jie.-- takes Sichuan Province as an example [J].Business Economic Research, 2020 (18): 158-161.

[2] Yang Yang, Du Jian, Luo Xiangdan. Analysis of the influence of blockchain technology on both sides of tax collection [J]. Tax Research, 2019 (02): 114-118.

[3] Bi Rongrong, car biography. Summary of the Application of artificial intelligence technology in Government Services [J].Digital Technology and Application, 2019,37 (07): 232-233.

[4] Qiu Jin.Exploration on the improvement path of Cross-border trade facilitation based on optimizing the business environment [J].China market, 2020 (32): 129 + 133.

[5] Cui Jun. Advantages, risks and countermeasures of Cross-border trade financial blockchain platform application [J]. Foreign economic and trade practice, 2020 (12): 53-56.

[6] Wu Yan. Optimize the business environment at ports to promote Cross-border trade facilitation [J]. Fujian Light Textile, 2018 (12): 3.

[7] Lin Shan, Lin Fabin.--takes Fujian Pilot Free Trade Zone as an example [J]. Asia-Pacific economy, 2017 (05): 130-136.

[8] Wang Yu. Status quo and Development Strategy of Trade facilitation in Jiangsu Province [J]. Economic and trade practice, 2017 (18): 68 + 70.

[9] Junina, graphite han. Analysis on the Impact of Cross-border E-commerce on trade facilitation in China [J].Foreign trade, 2016 (12): 80-84 + 93.

[10] Xie Xiaoqiao. Research on Cross-border E-commerce Development in China under the background of "Internet +" [J]. Shopping mall modernization, 2016 (18): 34-35.

[11] Liu Lei, Yang Jiayu.--is based on the Angle of optimizing the tax business environment [J].Friends of Accounting, 2020 (22): 154-160.

[12] Bi Rongrong, Che Chuan Wen. Summary of the Application of artificial intelligence technology in Government Services [J]. Digital Technology and Application, 2019,37 (07): 232-233.

[13] Song Pengjie. Research on Cross-border E-commerce E-Payment Model based on Blockchain [D]. Zhengzhou Institute of Aviation Industry Management, 2018.