

Exploring the Development of Digital RMB in Cross-Border Payment Under the Background of "The Belt and Road" Initiative

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Abstract: Since the central bank digital currency started to appear in the international market, China has also started to research on the central bank digital RMB. Nowadays, the digital RMB has been piloted in several regions in China and has gradually started to develop into an international cross-border payment. This paper mainly studies the feasibility analysis of the application of digital RMB in cross-border payment between China and countries and regions along the Belt and Road under the policy of the Belt and Road Initiative. Based on literature research and analogical reasoning, the paper investigates the advantages and development direction of digital currency development and makes suggestions for the future development of cross-border payment.

1 Introduction

The Internet has developed to date, productivity has developed tremendously and people's way of production and life has changed. Internet finance has developed even more rapidly. Given the various factors such as demand, supply and to cope with the impact of digital currencies on financial currencies, our country has also started to explore its own digital currency. Since 2014, China has been researching CBDC and started piloting China's digital currency in several provinces one after another in 2019 [3]. Since the digital RMB is interest-free and freely convertible with bank deposits, it is well positioned to overcome constraints within and outside of the country during cross-border payments, overcoming time and space difficulties and enhancing the efficiency of transactions [6]. Jonas Schachtschneider [4] mentioned that China has taken great efforts to enhance the international status of the RMB since the financial crisis in 2008. With globalization becoming more and more common, China is trading more closely with other countries and using RMB as a payment medium can greatly improve the efficiency of payments. And the emergence of the digital renminbi certainly offers great possibilities for this vision. Since the opening of the Belt and Road Economic Zone in 2015, China has signed more than 200 points of literature with 150 countries and 32 international organizations to build a Belt and Road together, making the digital RMB's commitment to cross-border payments of great significance [5]. In HONG SHEN's research, he also mentioned that in order to better promote the implementation of the Belt and Road policy, the country needs to build a digital Silk Road and increase the role of the Internet.

However, there are relatively few studies on digital RMB to facilitate cross-border payment, and most of them focus on the advantages and disadvantages of digital RMB.

Therefore, this paper mainly explores through literature research method, analogical reasoning method, and graphical analysis method. The article takes the Belt and Road as the background, analyzes the transaction pattern and scale between China and other countries in the Belt and Road, and makes certain assumptions in the context of China's existing cross-border payment experience and the SWIFT system, the largest international cross-border payment system, to explore the feasibility and challenges of digital RMB in cross-border payment and make certain suggestions for a more comprehensive analysis.

2 Methods

2.1 Literature research method

Through the study of fintech, cryptocurrency, cross-border transactions and other topics, this paper has an in-depth understanding of blockchain technology, cryptocurrency principles and cross-border payment methods and other relevant knowledge, which lays a theoretical foundation for this paper.

2.2 Case study method

By reading the literature of SWIFT system, this paper understands the principle of traditional cross-border payment, and compares the SWIFT system with the cross-border transaction method based on blockchain technology through analogical reasoning method, so as to summarize the shortcomings of traditional cross-border payment.

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3 Traditional payment system in "One Belt, One Road"

At present, the maritime and land Silk Roads are steadily advancing, and upholding the principles of mutual benefit, harmony and tolerance, China has strengthened good relations with partner countries in economic trade. Countries along the route rely on the support of the central cities to develop rapidly, so that countries and regions along the "Belt and Road" has become the world's second largest trading economy after the European Union. According to the latest data released by the Ministry of Commerce, from January to May, China's total trade in goods with countries along the "Belt and Road" exceeded US\$500 billion. With such a huge amount of trade, it is worthwhile to discuss and study in depth how to conduct rapid transactions with countries along the Belt and Road.

3.1 RMB Cross-border Payment System

At present, global payment settlement is the main trade basis of "One Belt, One Road", and international cross-border payment settlement mainly adopts the correspondent bank and clearing bank model. In the

process of RMB cross-border settlement, several important systems are usually involved: SWIFT (Society for Worldwide Interbank Financial telecommunication), which acts as an international telecommunication system, RMB cross-border payment system (CIPS for short, a payment system specifically for RMB cross-border payment clearing), and CNAPS (China National Advanced Payment System), a modern payment system in China. (China National Advanced Payment System), which provides a variety of services for the final settlement of funds between financial institutions, including the Large Value Real Time Payment System (HVPS).

In the process of "One Belt, One Road", the main process of RMB cross-border payment in the countries and regions along the route is: SWIFT mainly plays the role of information transfer and payment instruction exchange in the whole payment system. The settlement is done by CIPS first and then by HVPS under China Modernized Payment System (CNAPS) to realize the overseas transaction process of RMB.

Figure 1 illustrates the flow chart of the three main pathways of the current RMB cross-border payment system.

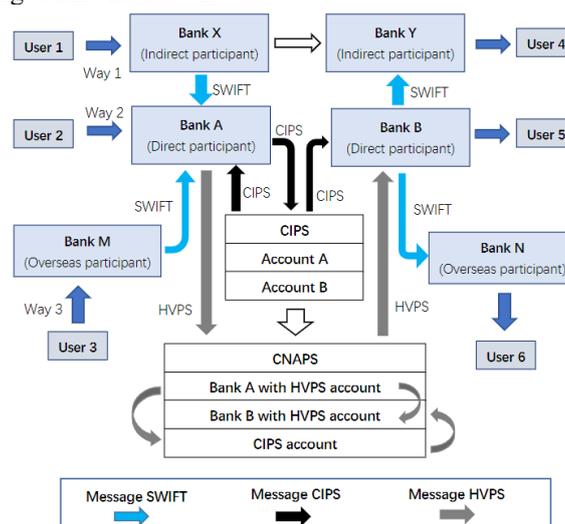


Figure 1 Current RMB Cross-border Payment System [7]

3.2 RMB Direct Exchange Transactions

In addition to the main cross-border payment systems, countries along the Belt and Road also carry out direct RMB exchange transactions, i.e. direct exchange of RMB with other currencies other than USD. At present, 26 countries have conducted direct exchange transactions with Chinese banks, including the currencies of 16 countries along the Belt and Road, including Malaysia, Thailand, Turkey, Kazakhstan, Cambodia and many other countries [2].

3.3 Disadvantages of traditional payment methods

In traditional cross-border payment, from consumer payment to settlement, it needs to go through institutions

such as account opening bank, central bank, foreign bank, correspondent bank and clearing bank. Each institution has its own system for determining accounts and has to establish agency relationships with each other. Some intermediate financial institutions do not transmit information in a timely manner or take too long to confirm payment information, and there are delays in the conversion time of different currencies, which can greatly reduce the efficiency of the transaction. In addition, the intermediary financial institutions will also obtain certain fees, resulting in a significant increase in the cost of cross-border transactions. The traditional cross-border payment system also has certain transaction security risks. Because the traditional cross-border payment system is a centralized management system, if the central information system supporting the main business fails, it will bring huge security risks to the whole transaction and cannot

complete the payment within a short time. And for traditional databases, hackers with administrator privileges can easily tamper with transaction records, which is also a major security risk. Information from different organizations may not be shared openly, making regulation and control more difficult. And cross-border payments rely heavily on accounts, so consumers who want to make cross-border transactions need to open accounts at various organizations to complete the transactions.

For RMB direct exchange transactions, although there has been some development of RMB direct exchange transactions between China and countries along the route, most countries are not yet perfect in terms of financial infrastructure and regulation. RMB transactions are in the initial stage, so it is difficult for these countries to establish RMB direct exchange transactions with China in the short term.

4 Digital RMB Helps Cross-Border Transactions

4.1 Digital Currency Trading Model

For the drawbacks of traditional cross-border transactions, the emergence of digital RMB can be a good solution to these problems. The digital RMB is based on blockchain technology and differs from the digital currency of public blockchain. The transactions of digital RMB use distributed bookkeeping network system, which can monitor each transaction step well. The distributed bookkeeping technology creates blocks for each transaction data, and the blocks are tightly linked by

algorithms, providing a high level of privacy and security. The decentralized nature of cryptocurrency makes the circulation of digital currency not dependent on the central institution, and the transaction process is simple without paying fees. Secondly, digital RMB is a national legal tender and is regulated by the state, which greatly increases its credit. Therefore, digital currency to a certain extent makes up for the shortcomings of traditional monetary forms, and greatly solves the drawbacks of traditional cross-border payments. From a practical point of view, China is promoting the international circulation of digital RMB. the establishment of Financial Gateway Information Services Limited in January 2021 indicates SWIFT's intention to cooperate with digital RMB to explore future cross-border payment and liquidity solutions for digital currency. Hong Kong and Macao have begun to explore and pilot cross-border payments in renminbi, and have carried out technical tests.

Figure 2 shows the transaction volume between China and the countries along the Belt and Road in recent years. Since 2015, China's import and export volume with some countries along the Belt and Road has been increasing, and the volume of cross-border transactions has been increasing. If digital RMB transactions are introduced into China's trade with other countries, it will greatly improve the efficiency of transactions and reduce the cost of transaction time and money. The "One Belt and One Road" upholds the "good neighbor, safe neighbor, and rich neighbor" and "pro, sincere, favorable, and tolerant" neighboring diplomatic philosophy and goal to establish harmonious and friendly diplomatic relations with neighboring countries, which is also It is also conducive to promoting the establishment of good relations between China and other countries, and laying a good foundation for the promotion of digital currency.

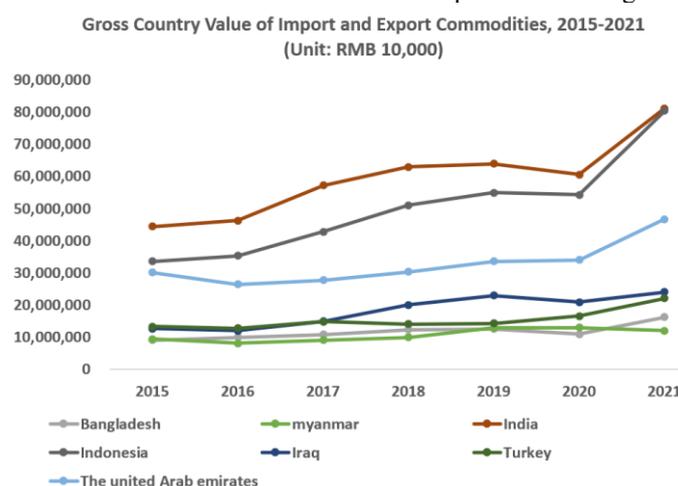


Figure 2 Gross Country Value of Import and Export Commodities between 2015 and 2021 (Owner-drawing)

Although digital currencies based on blockchain technology have not yet been practically put into use, some cross-border payment systems based on blockchain technology, such as Ripple, provide us with experience.

The Ripple network is a transaction system that builds a peer-to-peer payment method through blockchain technology to make payments directly between customers and merchants. The user on both the receiving and paying

sides accesses the ripple network portal and opens an account through the gateway, then I can directly conduct a flow of funds. Since the entire process is protected by encryption algorithms and is a peer-to-peer exchange, secure storage and transfer of data is achieved, and payments and settlements can be made without a third-party central authority [1].

The idea of digital RMB transaction is not much

different from the ripple system mentioned above. Figure 3 shows the process idea of the central bank's digital currency cross-border payment.

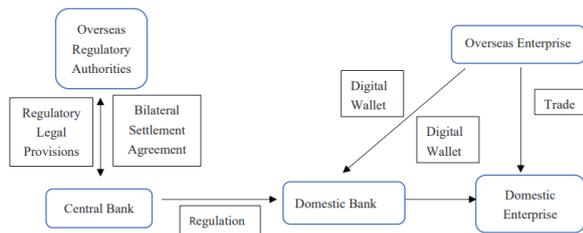


Figure 3 Central bank digital currency cross-border payment path scheme^[7]

Under the foreign institutional domestic foreign exchange account model, instead of opening an account with an offshore bank, an offshore user can open an offshore institutional domestic foreign exchange account directly with a domestic bank and clear with the help of that account. The entire transaction process requires joint supervision by the Chinese central bank and the foreign authorities. As you can see from the diagram, digital RMB-based cross-border payments greatly reduce the number of transaction steps and make the whole process fast and efficient.

4.2 Digital RMB Cross-Border Payment Development Dilemma

4.2.1 Resistance from other countries

The development of digital RMB is essentially a driving process of internationalization of the upper RMB. And the process of RMB internationalization can be obstructed by a variety of factors. The U.S. is concerned about the hegemony of the U.S. dollar and is bound to suppress the RMB. Changes in the international environment will also bring more obstacles to the opening of China's capital environment. The RMB is now only accepted in Southeast Asia and ASEAN, and its international status has yet to be improved.

4.2.2 The status of Swift system is difficult to be shaken

At present, SWIFT has become the main channel for information transmission among international financial institutions, the infrastructure of international finance, and the main support system for cross-border payment. The digital RMB is in the emerging stage, and the mass base and trust are still insufficient, so it is difficult to break out of the obstacle of traditional cross-border payment and become people's first choice for cross-border payment.

4.2.3 Inadequate infrastructure in the neighboring countries and regions along the Belt and Road

Some countries and regions along the "Belt and Road" are relatively backward in economic level and their infrastructure is not perfect, which makes them unable to

provide technical support for the digital RMB. As a result, it is difficult to implement digital RMB in these countries and regions smoothly. Most of the countries do not know enough about the digital RMB to carry out reasonable and effective supervision.

5 Development Direction and Recommendations

Digital forms of money are bound to evolve in the future and accelerate the advancement of digital currencies by global central banks. The launch of China's digital renminbi and its development in cross-border payments will largely challenge the global hegemony of the U.S. dollar. The future development of digital renminbi in China will enrich the public's cash, improve the convenience of transactions, contribute to financial inclusion, and help support fair efficiency and security in retail payments. Actively promoting cross-border payments with digital currency in the "One Belt, One Road" policy is also a positive response to the international community's initiative, which will improve the transaction experience of countries and promote further cooperation between China and neighboring countries.

The continued development of China's digital RMB requires China to increase its financial support in technology, accelerate the process of digital renminbi, strengthen the regulation of financial markets, actively strengthen trade and financial cooperation with neighboring countries, and improve the international status of the RMB.

6 Conclusion

China's trade with the neighboring countries of "One Belt, One Road" is increasing year by year. Nowadays, most of the cross-border transactions between China and other countries are based on SWIFT system. The successful implementation of Ripple cross-border payment system provides a good reference for us. The goal of China's digital RMB development is "first within the country and then outside", "first simple closed scenarios and then complex open scenarios", "first retail payment scenarios and then large wholesale payment scenarios". The next step is to focus on the development of digital RMB outside China, mainly on the application of cross-border payments. The implementation of the "One Belt, One Road" policy has facilitated economic exchanges and good relations between our country and the neighboring regions. The best option is to use the digital RMB first for Belt and Road transactions. However, the hegemonic position of the U.S. dollar and the technical regulatory challenges still need to be overcome, and the future of the digital renminbi will be long and difficult.

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