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The Impact of the Digital Renminbi Pilot Policy (2020-2025) on the Financing of Urban Small and Micro Enterprises

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Abstract. Small and micro enterprises are important market entities to stabilize employment and maintain the operation of the industrial supply chain. However, due to factors such as information asymmetry, insufficient pledges, and high risk control costs of financial institutions, it has been troubled by financing difficulties, expensive financing and slow financing for a long time. From 2020 to 2025, China's digital RMB will gradually be promoted from a local pilot to a multi-provincial area. As a legal digital cash, its traceability, real-time settlement, smart contract and other technical characteristics provide new financial infrastructure support for solving the financing pain points of small and micro enterprises. This paper adopts the research method of literature review. Systematically sort out the existing relevant research results on digital RMB, digital finance and financing of small and micro enterprises. From the three logics of information asymmetry mitigation, financial service cost optimization, and enterprise financial availability improvement, analyze the inherent transmission mechanism of digital RMB in the financing of small and micro enterprises. At the same time, by sorting out the limitations of existing research, this article enriches the comprehensive research on the microeconomic effect of digital RMB and provides a theoretical reference for subsequent empirical research and small and micro subjects of digital RMB policy landing services.

Keywords: Digital RMB, Small and Micro Enterprises, Financing Constraints, Information Asymmetry, Inclusive finance

1. Introduction

1.1. Realistic research background

Small and micro enterprises play an irreplaceable role in absorbing social employment, activating market competition, and improving industrial support. However, their financing difficulties have always been a pressing issue in China's inclusive finance sector. Under the traditional credit system, most small and micro enterprises lack robust internal financial systems and the required fixed-asset collateral for banks, leading to a significant information gap between banks and enterprises. Financial institutions bear high labor and time costs when conducting credit investigations and risk identification, and credit resources naturally favor large enterprises, resulting in narrow external

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financing channels and high overall financing costs for small and micro enterprises. Despite the introduction of policy documents such as the "Plan for Promoting Inclusive Finance Development (2016-2020)" [1] by the state, which directs financial resources towards small and micro enterprises, most relevant policies still rely on traditional bank accounts, paper vouchers, and third-party payment systems. These policies have not fundamentally addressed the core contradiction of information asymmetry, and the financing difficulties faced by small and micro enterprises have not been fundamentally resolved.

In line with the trend of digital economy development, the People's Bank of China initiated the research and development of digital RMB since the end of 2017, positioning it as legal tender M0. By the end of 2019, digital RMB began its pilot work in different regions, with Shenzhen, Suzhou, Xiong'an, and Chengdu being the first batch of pilot cities in 2020. In 2021, the pilot scope expanded to include Shanghai, Changsha, Xi'an, and other cities. In 2022, it further covered regions such as Beijing, Guangzhou, and Chongqing. By 2023 and 2025, aim to achieve comprehensive expansion across multiple provinces, with continuously enriched pilot scenarios covering various fields such as retail consumption, supply chain settlement, and government payments [2]. At the end of 2025, the central bank will introduce relevant action plans, proposing to build a supply chain finance system based on digital RMB smart contracts. The gradual pilot of digital RMB aims to create a realistic policy scenario for examining how legal digital currency can affect micro enterprise financing.

Based on existing research, it has been found that small and micro enterprises are often classified as part of the overall enterprise for analysis, and the research sample is biased towards large and medium-sized enterprises, with insufficient attention paid to the characteristics of small and micro enterprises themselves, resulting in limitations in the research. Therefore, this article decides to separately and meticulously analyze the micro impact pathways and influencing factors of digital RMB on financing for small and micro enterprises.

1.2. Research objectives and significance

This article takes the 2020-2025 digital RMB pilot period as the interval, integrates existing research results in the field of digital RMB and financing constraints for small and micro enterprises, clarifies the logical chain of the role of legal digital currency in micro enterprise financing, and fills the gap in the special review research on small and micro enterprises. The practical research significance of this article is to summarize the internal pathways through which digital RMB affects the financing of small and micro enterprises. Summarize the existing research consensus and differences and points out the shortcomings of current research.

It provides a theoretical basis for follow-up empirical research and policy optimization, provides a reference for policymakers to optimize the pilot scenario of digital RMB, promote the implementation of inclusive finance, and help alleviate the financing difficulties of small and micro enterprises.

1.3. Article framework

The first part of this article is an introduction, explaining the research background, goals and significance; the second part is to sort out the relevant literature, which is divided into two major sections: the impact of digital RMB on enterprise operations, digital finance and financing constraints of small and micro enterprises; the third part sorts out the three inherent mechanisms of digital RMB affecting the financing of small and micro enterprises; the fourth part is divided into a

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full-text summary, generalization of research consensus, analysis of the limitations of existing literature, and put forward future research directions and policy implications.

2. Relevant research on the impact of digital RMB on corporate financing

2.1. Impact of digital RMB on corporate business activities

As a new financial infrastructure, digital RMB is different from ordinary third-party payment tools. It has the characteristics of legal currency attributes, transaction traceability, clearing that does not rely on intermediate institutions, and supports smart contracts. It will change the business model of the enterprise in multiple dimensions of payment efficiency, transaction credit precipitation and financial resource allocation [3].

In terms of improving the payment efficiency of enterprises, digital RMB can be liquidated point-to-point in real time. The multi-layer intermediate links of the traditional payment model are omitted, the payment handling fee is reduced, the fund settlement cycle is shortened, and the payment experience and liquidity of the enterprise are improved. For small and micro enterprises, the traditional settlement model has a long refund cycle and great cash flow pressure. The use of digital RMB accelerates the flow of funds, and the cash flow situation of the daily operation of enterprises is improved.

From the perspective of enterprise transaction credit, digital RMB transactions can leave traces throughout the whole process, so that all actions of upstream and downstream transactions and payments of enterprises will form a standardized digital record [4]. This kind of business flow is independent of the financial statements prepared by the enterprise itself with high credibility, which can objectively reflect the real business situation of the enterprise, which is convenient for the external world to conduct an objective credit assessment of the enterprise. With the continuous promotion of the digital RMB pilot, more small and medium-sized enterprises have begun to access the digital settlement system. Small and micro enterprises that lack standardized financial reports can gradually accumulate credible business data and make up for their own credit information shortcomings.

At the level of enterprise financial resource allocation, digital RMB can not only reduce the information collection cost of financial institutions through data empowerment, but also guide credit resources to tilt toward small and micro subjects that have been neglected in the past [4]. By relying on smart contracts to realize the innovation of the financial scenario of the supply chain, the credit of the core enterprise is transmitted along the industrial chain to the upstream and downstream small and micro merchants, and the allocation of financial resources within the industrial chain is optimized. However, some studies suggest that the actual improvement effect of digital RMB on enterprise management depends on the degree of implementation of regional pilot scenarios. In areas with weak financial foundation, the release of technology dividends will be limited to a certain extent [5].

2.2. The impact of digital finance on corporate financing

Digital finance is defined as a financial digital service model in a broad sense. It covers all kinds of digital financial services such as digital payment, online credit, big data risk control, etc., relying on the theories of financial deepening and inclusive finance. The digital RMB is the digital form of legal currency, focusing on the relevant contents of the official monetary system such as currency circulation, payment and settlement, and monetary policy transmission, with outstanding policy and

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special characteristics. Digital finance is a kind of financial activity carried out by digital technology in a broad sense, and digital RMB, as a legal digital currency, is an important part of digital finance. The difference is that the focus of the two is different, but it does not affect the conclusion that digital finance provides a reference for the research in this article.

After clarifying the theoretical boundary between the two, it is clear that digital finance-related research can provide important theoretical reference and support for this article. Because digital finance has formed a mature research system and theoretical paradigm, it can make up for the shortcomings of the single research dimension and insufficient theoretical support of digital RMB. Moreover, the inclusive and scenario-oriented service characteristics of digital finance are adapted to the financing and operation characteristics of small and micro enterprises. Its research results on financial empowerment of the real economy and alleviating the financing constraints of enterprises can provide an effective reference for this article to explore the empowering role of digital finance and digital RMB on small and micro enterprises.

Digital RMB belongs to the legal digital currency branch of the digital financial system. The research conclusions related to digital finance can provide theoretical reference for understanding the small and micro financing effect of digital RMB. The existing literature on digital finance and enterprise financing mainly revolves around the three perspectives of financing availability, financing cost and financing constraints.

In terms of financing availability, digital finance relies on big data and digital transaction records to reconstruct the credit assessment logic [6]. Weaken the dependence of credit approval on fixed asset collateral, so that small and micro enterprises that lack mortgage assets have the opportunity to obtain credit, broaden the external financing channels of small and micro enterprises, and improve credit access. Analyzing the digital credit transformation of commercial banks, it is found that digital information can enrich the dimension of bank credit assessment [7]. Help banks identify the real business risks of small and micro enterprises and improves the willingness of banks to grant credit to small and micro enterprises.

In terms of financing costs, digital financial technology reduces the human cost of information collection and due diligence of financial institutions, and reduces the cost of credit risk control [8]. The decline in cost will be transmitted to the enterprise end, reducing the comprehensive financing cost of small and micro enterprises. However, some literature also reminds that if the degree of digitalization of the enterprise itself is low and it cannot produce effective digital business information, it will be difficult to play the role of digital finance in reducing financing costs.

The core cause of the financing constraints of enterprises is information asymmetry. By alleviating information asymmetry, digital finance helps enterprises obtain external funds and reduces the external financing pressure of enterprises [9]. However, many small and micro enterprises can still only obtain short-term revolving loans. The "short-term loan" model will bring the hidden danger of capital chain breakage. Even if the availability of financing is improved, enterprises still face the real problem of unreasonable financing structure [10].

Overall, the field of digital finance has witnessed abundant research, with a general recognition that digital tools can alleviate financing constraints for enterprises. However, most research focuses on generalized digital finance or internet finance, and research specifically targeting the digital RMB, a legal digital currency, is still in its developmental stage. In particular, there is room for further expansion in specialized discussions for small and micro enterprises.

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3. The mechanism of digital RMB affecting the financing of small and micro enterprises

Based on a review of existing literature, it is concluded that the digital yuan primarily impacts small and micro enterprise financing through three pathways: alleviating information asymmetry, reducing financial service costs, and enhancing financial accessibility.

3.1. Mechanism for mitigating information asymmetry

Asymmetric information between banks and enterprises is the most fundamental source of financing difficulties for small and micro enterprises. Small and micro enterprises generally have incomplete financial systems, limited credibility of financial statements, and a lack of fixed assets that can be pledged. In the traditional credit model, banks find it difficult to identify the true operating level of small and micro enterprises at low cost. Due to risk considerations, they often compress the supply of credit to small and micro enterprises, which raises the financing threshold and cost for small and micro enterprises.

At the same time, existing literature suggests that the mechanism has a prerequisite for its effectiveness: enterprises need to actually use digital RMB for business settlement [11]. If a company is only nominally located in a pilot city but has not generated sufficient scale digital RMB transactions, it will be difficult to accumulate effective credit data, and the effectiveness of information improvement will be greatly reduced.

Digital RMB trading has the technical features of full traceability and immutability. Therefore, when small and micro enterprises use digital RMB to complete payments and receipts, upstream and downstream transactions, and daily business settlements, all transactions will form objective and standardized digital records. This set of transaction records is independent of the financial statements prepared by the enterprise itself, and can objectively restore the true revenue and supply chain transactions of the enterprise. Financial institutions can rely on the operational data accumulated by digital RMB to construct credit evaluation criteria that are different from traditional financial statements, and weaken the dependence of credit approval on fixed asset collateral.

With the help of trustworthy digital transaction information, banks can more accurately identify the operational risks of small and micro enterprises, reduce information barriers between banks and enterprises, and alleviate financing constraints caused by information asymmetry.

3.2. Financial service cost optimization mechanism

The traditional credit business targeting small and micro enterprises requires a large amount of manpower to conduct offline due diligence for risk control review, resulting in high costs for information collection and risk identification. However, the single household credit limit for small and micro enterprises is generally low, resulting in a low input-output ratio for banks to carry out small and micro credit business, and insufficient endogenous motivation for banks to carry out business. And digital RMB can bring new channels for data acquisition, helping financial institutions to obtain and use enterprise digital RMB transaction-related data under compliance. Reducing the manpower and time investment in offline research and material verification directly lowers the cost of bank credit risk control and business operation. After enriching the dimensions of risk control information, the accuracy of bank risk identification can be improved, and the potential bad debt risk of credit business can also be reduced. After the dual reduction of business costs and risk levels, the enthusiasm of commercial banks to carry out small and micro credit business has been enhanced, and the credit supply for small and micro enterprises has increased.

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At the same time, digital RMB smart contracts provide tools for innovation in supply chain finance. By relying on smart contracts, the credit of core enterprises can be transmitted along the industrial chain to upstream and downstream small and micro merchants, automatically completing the confirmation, splitting, and circulation of accounts, and reducing the cost of confirmation in supply chain business. Assist small and micro enterprises within the industrial chain in obtaining financing through supply chain credit, and alleviate the practical difficulties of small and micro enterprises relying only on short-term revolving loans and fragile capital chains.

3.3. Mechanism for enhancing corporate financial accessibility

In addition to indirectly improving the supply of bank credit, digital RMB can also directly improve the cash flow of small and micro enterprises, thereby enhancing their financing accessibility. The digital RMB adopts a peer-to-peer clearing mode, which does not require third-party intermediaries to participate in the clearing process. Transactions can be completed in real time and have the advantage of low transaction fees. Small and micro enterprises using digital RMB for sales collection can significantly shorten the collection cycle, accelerate fund recovery, improve internal cash flow, and reduce the rigid demand for external financing.

On the other hand, the continuous improvement of corporate cash flow will also send a signal of stable business operations to financial institutions, further enhancing their lending confidence and helping small and micro enterprises strive for higher credit limits. However, existing literature also points out the heterogeneity of this mechanism: the effectiveness of digital RMB in improving financing is particularly prominent in scenarios where private enterprises and regional financial development levels are relatively high; state-owned enterprises themselves have sufficient financing channels, but the marginal improvement brought by digital RMB is limited; Regions with underdeveloped financial development and insufficient digital transformation of financial institutions will also limit the release of digital RMB dividends.

4. Conclusion

After comprehensively reviewing the relevant literature on financing for small and micro enterprises in the context of the 2020-2025 digital RMB pilot projects, it was found that digital RMB relies on its technical characteristics as a legal digital currency. It can have a positive impact on financing for small and micro enterprises in three aspects: information asymmetry, financial service costs, and enterprise capital turnover. The traceable nature of digital RMB transactions can generate objective and reliable business data, filling the gap in financial information for small and micro enterprises and alleviating the information gap between banks and enterprises. Reduce the cost and risk of credit risk control for financial institutions and incentivizes banks to expand the supply of small and micro loans. In addition, the payment advantage of real-time clearing accelerates the recovery of enterprise funds, ensures the cash flow of the enterprise itself, and jointly alleviates the financing constraints faced by small and micro enterprises. However, the empowering effect of digital RMB is not unconditional and will be constrained by practical conditions such as the nature of enterprise property rights, regional financial development level, and actual use of digital RMB by enterprises. The effect may vary in different scenarios.

There are certain limitations in the current research on digital RMB and financing for small and micro enterprises. Firstly, most existing research focuses on A-share listed companies as analysis objects, with relatively standardized management of listed small and micro enterprises. However, a large number of smaller non-listed small and micro enterprises lack public data, and relevant

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research lacks sufficient discussion on the large number of non-listed small and micro entities. Secondly, most literature focuses on verifying the overall financing improvement effect of digital RMB, and the segmentation and decomposition of the internal transmission path still need to be deepened for the differentiated role of small and micro enterprises in different pilot scenarios and industries. Thirdly, the pilot of digital RMB is still in the stage of continuous promotion, and some mechanisms are mostly at the level of theoretical deduction, with relatively little empirical evidence from on-site research of micro enterprises. At the policy practice level, should continue to expand the implementation of digital RMB in supply chain and small and micro merchant settlement scenarios, promote small and micro enterprises to truly use digital RMB for transactions, and truly accumulate business credit data. Targeting areas with relatively weak financial development, will simultaneously promote the digital capacity building of financial institutions and unleash the inclusive value of digital RMB. Fully leverage the role of smart contracts in supply chain finance, helping small and micro merchants upstream and downstream of the industry chain to obtain financing through supply chain credit.

Future research can further include samples of non-listed small and micro enterprises and New Third Board companies, and enrich research materials through field research. Segmenting industries and regional scenarios, exploring the boundary conditions of the effectiveness of digital RMB, focusing on smart contracts for digital RMB and innovative practice cases in supply chain finance, and exploring deeper transmission logic. Track the long-term dynamic effects of digital RMB and provide more theoretical support for policy iteration and optimization.

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