

Strategic Implementation Significance of the Digital Renminbi (e-CNY)

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Abstract: Amid the flourishing landscape of network technologies and digital economy, the contemporary world is ushering into an era delineated by digital economy, wherein the emergence and burgeoning utility scope of digital currency duly epitomize an inexorable historical progression towards digitization for humanity. Consequently, the digital currency framework stands as the third revolutionary evolution in the domain of monetary systems following commodity currency and credit currency frameworks. The advocacy for the implementation of digital Renminbi (e-CNY) has unequivocally transcended into a pivotal national strategic initiative within the realm of Chinese finance, bearing substantial significance and profound research value.

Keywords: Monetary Systems; Finance; National Strategy; Circulation

1. Introduction

The *Decision on Further Comprehensive Deepening of Reforms and Advancing Chinese-style Modernization* explicitly advocates for the cautious progression of research and implementation of Digital Renminbi (e-CNY) ^[1]. In the midst of flourishing network technologies and the digital economy, the contemporary world is transitioning into the era of digital economy. The emergence and widening application scope of digital currency signify an inevitable historical shift as humanity strides into the digitized era. One could assert that the digital currency framework marks the third revolution in the human monetary system, succeeding the commodity currency and credit currency frameworks. Hence, the rollout of e-CNY has emerged as a pivotal national strategic pursuit within the Chinese financial landscape.

2. Overview of e-CNY

In response to the trends in the digital economy

development, the People's Bank of China has been systematically advancing the research and development of legal digital currency. In July 2021, the release of the *Development Progress White Paper of China's Digital Currency Electronic Payment* marked a significant milestone, signaling the accelerated growth phase of the e-CNY. By 2024, an analysis conducted by the Bank for International Settlements surveyed the attitudes of central banks from 130 countries towards central bank digital currencies. It was revealed that over 94% of central banks had engaged in discussions regarding central bank digital currencies, with over 80% of countries or economies expressing a desire to achieve interoperability between central bank digital currency payment systems and existing payment systems^[2].

2.1 Fundamental Significance

The e-CNY is a digital form of legal tender issued by the People's Bank of China, operated by designated operating entities (primarily commercial banks), and built on a broad account system. It supports loosely coupled functions with bank accounts and is equivalent to physical currencies such as banknotes and coins^[3]. Both digital and physical currencies represent liabilities of the central bank to the public and are supported by national credit. The People's Bank of China utilizes digital minting machines to transform cash or account balances into a string of coded characters, which are stored in digital wallets for circulation. In essence, the e-CNY can be simply understood as the digital manifestation of cash.

2.2 Key Features

The e-CNY balances the dual advantages of physical Renminbi and electronic payment tools, primarily manifested in the following ways: 1. Convenient Usage: The e-CNY is seamlessly integrated with bank accounts, eliminating the need for dedicated bank account openings. Payment can be completed by simply bringing

two terminals equipped with digital wallets into offline proximity. 2. Transaction Traceability: It ensures comprehensive, authentic, and real-time recording of each fund transaction, facilitating regulatory authorities in retrospective management. 3. Cost-Effectiveness: The e-CNY incurs no interest payments and the People's Bank of China does not levy exchange circulation service fees on designated operating entities. These entities, in turn, do not charge users for exchange services. 4. Programmability: By developing auxiliary programs, the e-CNY can limit the scope of circulation, transaction partners, settlement times, and other payment conditions. 5. Controlled Anonymity: Transaction data derived from e-CNY ecosystem is exclusively accessible to and disclosable by the People's Bank of China. Adhering to the principle of 'anonymity for small-value transactions, traceability for high-value transactions as legally mandated', such data shall not be provided to third parties—including commercial banks—or other government agencies, except where explicitly required by laws and regulations^[4].

2.3 Vision and Goals

The development of the e-CNY system in China aims to create a new form of Renminbi that meets the cash requirements of the public in the digital economy era. This initiative involves the construction of financial infrastructure in the retail payment sector to enhance the efficiency of the payment system and elevate the level of inclusive financial development. The long-term goals can be summarized in three main aspects: 1. Diversified Cash Offerings: Enriching the forms of cash available to the public aims to further reduce barriers to accessing financial services and ensure the continued supply of legal tender to a wide range of individuals and scenarios. 2. Fair, Efficient, and Secure Retail Payments: Maintaining fairness, efficiency, and security in the retail payment sector, the e-CNY serves as a beneficial complement to conventional electronic payment tools. This advancement encourages the coordinated development of various payment methods. 3. Promotion of Renminbi Internationalization: Actively responding to international initiatives, the goal is to advance the internationalization of the Renminbi and facilitate cross-border payments with the Digital Currency Electronic Payment. This progress respects the sovereignty

of currencies on both sides and operates within the framework of legal compliance.

3. Promoting the Adoption of e-CNY

Since 2014, the People's Bank of China has established specialized entities to oversee the development and design of the e-CNY. Efforts have been focused on continuous enhancement of underlying technologies, expansion of application scenarios, and bolstering public awareness. Presently, the initiative has progressed into the phase of open pilot projects.

3.1 Operating Mechanism

The e-CNY operates under a centrally-managed, two-tiered operational structure. The People's Bank of China retains authority over currency issuance and retirement, cross-institutional clearing interoperability, and digital wallet ecosystem oversight, while appointing qualified commercial banks as designated operating institutions to co-deliver circulation services. Together, they provide circulation services. Operating within the limits set by the People's Bank, these designated entities are tasked with establishing e-CNY wallets for clients, facilitating exchange services, and jointly managing circulation services and retail segments in collaboration with relevant commercial institutions^[5]. Individuals and organizations utilize digital wallets as carriers and mediums for storing and transacting with e-CNY. This involves categorization based on identity verification intensity: Various permission levels such as anonymous wallets that don't require identity information, weak pseudonymous wallets carrying partial identity details, and strong fully identifiable wallets. Based on the entity establishing the wallet – individual wallets for natural persons, and corporate wallets for legal and non-legal entities. Differentiated by the medium used – software wallets provided through mobile payment apps, software development kits (SDKs), application programming interfaces (APIs), and hardware wallets based on secure chip technology utilizing IC cards, mobile terminals, wearable devices, IoT devices, etc. Segmented according to permission ownership – encompassing parent wallets and subsidiary wallets.

3.2 Current Application Status

Between 2014 and 2016, the People's Bank of China successively established the Legal Digital

Currency (e-CNY) research group and the Digital Currency Research Institute, culminating in the construction of the first-generation conceptual prototype for legal digital currency^[6]. Towards the end of 2017, with the approval of relevant authorities, the People's Bank commenced the development of the Digital Renminbi, crafting the e-CNY app and incorporating the core functionalities of exchange management, interconnectivity, and wallet ecosystem. Since 2019, pilot tests for the e-CNY have been conducted in various locations such as Shenzhen, Suzhou, Xiong'an, and Chengdu. By July 2024, the pilot scope had expanded to cover 26 regions across 17 provinces and municipalities nationwide^[7]. The applications span across areas including daily consumer activities, transportation, hospitality, digital governance, and more. There have been 180 million individual digital wallets established, around 800,000 corporate wallets, over 3.5 million pilot application scenarios, and more than 23 million merchants equipped for digital currency transactions. The total transaction volume has reached 7.3 trillion yuan, with a circulating stock of e-CNY amounting to 20 billion yuan^[8].

3.3 Promotion Plan

Since the initiation of pilot projects in 2019, the refinement of e-CNY functionality, the continuous enrichment of application scenarios, and the ongoing enhancement of user experience have laid a solid foundation for its promising future. Moving forward, there is a need to continually improve core functionalities and expand market potential. With the widespread adoption of digital payments, the systemic advantages, technological advancements, and security features of the e-CNY will be further highlighted. It is imperative to bolster advocacy efforts, broaden the scope of application, and enhance the trust and acceptance levels among users^[9]. Moreover, amid China's rapid economic growth and the gradual elevation of the Renminbi's international status, the e-CNY stands poised to emerge as a crucial mode of international payment and settlement. Strengthening international collaborations and establishing conducive conditions for cross-border transactions are vital^[10]. Additionally, given the rapid evolution of blockchain technology and the proliferation of digital currencies globally,

the e-CNY will face both competition and cooperation dynamics with other digital currencies. Active engagement in setting international standards and continuous enhancement of technological proficiency are necessary^[11]. Finally, with the continual expansion of the digital economy, governments worldwide are imposing stricter regulations concerning digital currencies. To align with evolving regulatory requirements, the e-CNY must consistently refine its operational mechanisms and reinforce risk management and control protocols^[12].

4. Significance of e-CNY Application

The e-CNY, introduced by the People's Bank of China as a statutory digital currency, serves as a beneficial complement to other electronic payment tools. Its application holds critical importance as a cornerstone of the financial infrastructure, enriching the societal financial system significantly.

First, it facilitates gaining strategic advantage in the technology-driven leadership race among major currencies. The rapid strategic planning and implementation of digital currencies by major nations worldwide signify not only a profound transformation within the global financial system but also herald the pivotal role that digital currencies will play in the future economic landscape. Since 2017, the People's Bank of China has established the Digital Currency Research Institute, focusing on delineating the positioning, distribution models, management frameworks, key technologies, and related issues concerning the e-CNY, achieving significant milestones. A 2020 report by the Bank for International Settlements highlighted the e-CNY as a frontrunner in the realm of digital currencies. Central bank digital currencies, being legal tender issued by a country, are poised to catalyze significant transformations in the international monetary settlement system with the rapid evolution of digitization. Engaging in the development and application of the e-CNY can enhance China's influence in shaping international regulations and technological standards for digital currencies, paving the way for solidifying the international status of the e-CNY and disrupting the dominance of the USD-centric international payment settlement system^[13].

Another crucial aspect lies in safeguarding the state's authority over currency issuance.

Presently, there exist over 1,400 privately minted digital currencies such as Bitcoin, Libra, and others, boasting a plethora of monikers and mingling in a diverse landscape. Each aspect of their issuance, circulation, and exchange occurs solely between private entities, detached from the supervision and oversight of the People's Bank of China. Particularly, operating independently of the Renminbi, they circulate on emerging payment and social platforms, challenging the Renminbi's legal tender status. This essentially expands the societal currency circulation, undermining the authority and stability of the People's Bank of China in currency issuance. This development hampers the precise control and regulation of the money supply by the People's Bank of China, impeding the effective implementation of monetary policies^[14]. As the sovereign currency of China, issuing e-CNY can curb the public's demand for private digital currencies, fortifying resilience against the erosion of the legal tender status by private digital currencies. This measure safeguards against the sidelining of national currency issuance authority in the era of digital economy, ensuring that currency issuance consistently aligns with the broader national development and reform objectives. Furthermore, an essential advantage pertains to the mitigation of financial market risks. The majority of private digital currencies are highly speculative with pronounced price volatility. Service providers and users operate under the veil of anonymity, obscuring the origins and destinations of funds, thereby facilitating illicit transactions, terrorism financing, and evading sanctions. Moreover, these currencies have low entry barriers. Consequently, in cases of integrity or operational issues, individual risks readily escalate into systemic risks, potentially destabilizing financial stability. Supported by national credit, e-CNY stands equivalent to physical currency, possessing unlimited legal tender status. It enables comprehensive record-keeping of ownership information and transaction details, centralized and managed by the People's Bank of China. This capability effectively prevents the misuse of user identities and transaction information, robustly combating money laundering, terrorism financing, tax evasion, and other illicit activities. By maintaining meticulous records and oversight, e-CNY plays a pivotal role in upholding financial market stability^[15].

5. Conclusion

The e-CNY embodies a novel entity characterized by a high degree of complexity and broad implications. Particularly within the vast expanse of China, the monetary landscape is diverse, exhibiting uneven development across regions, varying levels of educational attainment among the populace, and differing degrees of acceptance. Historically, central banks and commercial banks have jointly shouldered the responsibility of currency payment operations. The mechanism for e-CNY can adhere to this model, leveraging market forces to jointly develop and operate, ensuring the optimal design and performance of the solution.

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