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Digital RMB: Legal and Regulatory Issues

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NZAI working paper
2022/03



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New Zealand Asia Institute

Enhancing New Zealand's understanding of and engagement with Asia

The New Zealand Asia Institute (NZAI) undertakes research focusing on engagement with Asia, provides a forum for informed debate, and offers a bridge to Asia-related expertise and research within the University of Auckland.

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About this report

This report is the third in a series of working papers that report on a research project 'Understanding China's Digital Yuan.' Since the concept of Bitcoin was proposed in 2008, there have been three major rounds of discussions on the topic of digital currency in China's academic, policy and interested public circles. The first round focused on Bitcoin's potential to grow into a new generation of legal tender, the second on Libra's capability to become a 'super-sovereign' currency for cross-border settlements, and the third on central bank-issued digital currencies (CBDC). These discussions have inspired the People's Bank of China (PBC) to begin digital yuan research in 2014, establish the China Digital Currency Research Institute in 2016, complete the R&D and system testing in 2019, launch in 2020 the e-CNY (Chinese yuan), also commonly referred to as digital RMB or the Digital Currency/Electronic Payment (DCEP), and to lately conduct on-the-ground trials.

This working paper series examines these developments and the issues they present for regulators and users, as viewed by Chinese commentators and others.

The research team deeply appreciates

- The guidance, advice and support from Professors Nigel Haworth, Rob Scollay and Gerald Chan at the University of Auckland, and Professor Alan Bollard from Victoria University of Wellington;
- The comments and suggestions from staff members at the New Zealand Ministry of Foreign Affairs and Trade, the New Zealand Reserve Bank, and the New Zealand Department of the Prime Minister and Cabinet.

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To cite this report: Liu, B., Chen, X., Zhang, H. and Wang, X. (2022), 'Digital RMB: Legal and Regulatory Issues.' NZAI Working Paper, 2022/03. Auckland: New Zealand Asia Institute.

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Highlights

- Under Chinese law, the digital RMB will be recognised as a new form of legal tender with the same legal status as banknotes and coins.
- The digital yuan is an account-based central bank digital currency, but anything capable of forming a unique personal identity can become an account.
- The digital RMB may offer less anonymity compared to physical cash but will provide enhanced protection compared to non-bank money transfers.
- The digital RMB will enhance the capabilities of the central bank and law enforcement departments to prevent and capture illegal financial activities.
- Building a comprehensive regulatory and data/privacy management system remains a critical issue for the operation of the digital yuan in reducing fraud and preventing societal pushback to perceived over-surveillance.

Introduction

The digital RMB is expected to ensure higher-dimensional financial stability, payment services, and currency competition. For it to deliver on the expectations, the digital RMB is included in the 2020 draft amendment of the People's Bank of China Law as a new form of legal tender, enjoying the same legal status as banknotes and coins. In terms of its legal nature, the digital *yuan* is an account-based central bank digital currency. Yet anything capable of forming a unique personal identity can become an account. In other words, the ownership is established by the account-holder's identity, rather than possession. Moreover, payments between two e-CNY wallets are settled upon communication between the two wallets, whether they are connected to the same e-CNY servers. In this regard, the digital *yuan* functions more like the physical RMB than typical bank account transfers. In regards to privacy, while the digital RMB offers less anonymity compared to physical cash, it provides enhanced protection compared to non-bank money transfers through third-party online and mobile payment service providers, such as AliPay and WeChat Pay. Furthermore, the digital RMB will provide the central bank and law enforcement departments enhanced capabilities to prevent and capture illegal financial activities, such as money laundering and terrorist funding. Yet building a comprehensive regulatory and data/privacy management system remains a critical issue for the operation of the digital yuan domestically and in cross-border e-commerce and digital economic activities and scenarios.

Legal Issues

Legal status of the digital RMB

Legal tender and money are two related but separate concepts. Legal tender is anything recognised by law as a proper discharge of debt liability, and no one is entitled to refuse to accept it as a payment method. In contrast, money is not a legal term.¹ It refers to a generally accepted medium of exchange in an economy. Thus, while legal tender is a type of money, not all types of money are legal tenders. Broadly speaking, there are three forms of money: central bank money, commercial bank money, and nonbank money. Central bank money is a liability of the central bank in the form of physical currency (i.e., cash) issued by the central bank and account balances held there by commercial banks. Commercial bank money is the account balances held by the public at commercial banks. Nonbank money is digital money held as balances at nonbank financial service providers, such as AliPay and WeChat Pay. In most countries, only the central bank money is a legal tender.²

Under Article 16 of the *People's Bank of China Law (PBC Law)*, the legal tender of the People's Republic of China is the *renminbi*, and all public and private debts within the territory of China shall be paid in *renminbi*. Article 2 of the *Regulations of the People's Republic of China on the Administration of RMB* provides that the form of the RMB includes banknotes and coins. Therefore, strictly speaking, the digital RMB is not legal tender under the current Chinese law.

To grant the digital RMB the status of legal tender, in October 2020 the PBC published a draft amendment of *PBC Law*. Article 19 of the draft states that the RMB includes both physical and digital forms. Once the draft amendment is passed, the digital RMB will be recognised as legal tender in China, having the same legal position and protection as banknotes and coins.

One potential area of uncertainty relates to the restrictions imposed on the use of the digital RMB. As stated in a white paper recently issued by the PBC,

E-CNY obtains programmability from deploying smart contracts that do not impair its monetary functions. Under the premise of security and compliance, this feature enables self-executing

payments according to predefined conditions or terms agreed between two sides, so as to facilitate business model innovation.³

In practice, the programmability feature also enables the PBC and other authorised entities to impose various restrictions on how the digital RMB can be used (e.g., a specific category may be used only to pay tax or purchase food).⁴ Obviously, such restrictions cannot be imposed on banknotes and coins. Also, it is not clear, at this stage, whether such restrictions are imposed on the wallet or on specific digital RMB units. Furthermore, if the restrictions are attached to specific digital RMB units, it is not clear whether they will expire once they are transferred into a new wallet.

The fact that the use of some digital RMB units can be restricted gives rise to the question as to whether the legal tender status of the digital RMB is compromised due to the restrictions. Specifically, a key feature of legal tender is that no one is entitled to refuse to accept it as a payment method. With ‘restricted’ digital RMB, however, a payee may not be able to accept payment due to the restrictions attached. As mentioned above, once the draft amendment of the PBC Law is passed, the digital RMB will be recognised as legal tender in China. Yet the draft amendment does not distinguish between restricted digital RMB units and those without restrictions. Therefore, from a Chinese law perspective, it seems clear that restricted Digital RMB is still legal tender.

Digital RMB as account-based currency

From a legal perspective, CBDCs can be divided into two types: account-based and token-based.⁵ Account-based CBDC is represented by the balance in digital currency accounts in the books of the central bank. Similar to conventional bank transfer, an account-based CBDC transaction is effected by crediting it to the payee’s digital currency account with the central bank.

In contrast, a token-based CBDC is represented by digital ‘tokens’ issued by the central bank and stored in corresponding devices. The digital token is not connected to an account relationship between the central bank and the holder. A transfer of token-based CBDC involves the transferor producing a digital ‘signature’ that verifies the transfer of the token ownership to the transferee.⁶

There is a fundamental legal distinction between an account-based and a token-based CBDC. In the case of the former, its ownership is proven by identity. As long as a person can provide identification documents that are satisfactory to the central bank, s/he will be recognised as the owner of the CBDC. In contrast, the ownership of a token-based CBDC is proven by the possession of the knowledge of a password (often referred to as ‘private key’) that allows the holder to transfer the CBDC to a payee. In other words, whoever knows the private key is the owner of the CBDC. If the holder loses the knowledge of the private key, it loses the ownership of the CBDC.

According to the current public information, the PBC has developed five types of digital RMB wallets. Types 1 to 3 are linked to the wallet holder’s ID, whereas types 4 and 5 are linked to wallet holders’ mobile numbers. The data of every transaction would be sent to the central bank through the wallet. A tentative conclusion is that the digital RMB held in all five types of wallets are account-based, rather than token-based. As noted in a recently released digital RMB industry report,⁷ all transactions of the digital *yuan* are conducted at the PBC level, indicating that transactions are effected through a book-keeping process, similar to that of commercial bank money. Furthermore, each digital RMB wallet has a ‘Report Loss’ function button on its login page. If a person loses the hosting device of a wallet (e.g., a mobile phone), s/he can find another device with a wallet installed and use the ‘Report Loss’ function to register the lost wallet. Presumably, once the loss is recorded, the balance in the lost wallet will be frozen and later transferred to a new wallet upon verification of ID, or, in the case of types 4 and 5 wallets, to the owner of the relevant mobile number. Again, the very existence of the ‘Report Loss’ function suggests that the digital RMB is account-based.

Settlement finality

Settlement finality refers to the irreversibility of the payment process. This occurs regardless of the payer or payee being insolvent, or having entered into bankruptcy—the payer/payee loses the proprietary rights to recover a mistaken payment.⁸ With respect to cash (i.e., banknotes and coins), settlement finality occurs once the possession is transferred to the payee (or his/her/its agent). As to commercial bank money, a transfer usually consists of three steps: the payer tells the payer’s bank to make the payment; the payer’s bank transfers the money through an interbank system; and the payee’s bank credits the money to the payee’s account and irrevocably accepts its liability to the payee. Settlement finality occurs upon the completion of the final step.

The July 2021 PBC whitepaper further states that settlement finality of the digital RMB also occurs upon ‘payment’, even though payments are effected through direct communication between the payer’s and payee’s wallets.⁹ A payment can still occur even if the hosting devices of both wallets do not have an internet connection.¹⁰ This feature suggests that, while the digital RMB is account-based currency, from a settlement finality perspective, it is more similar to Central Bank money than commercial bank money.

Regulatory Issues

The design of the e-CNY system is meant to strictly comply with regulations for privacy and data protection, for anti-money laundering, and to counter financing of terrorism (AML/CFT). There are strong arguments in China that broad adoption of the digital RMB has great potential to enhance the government’s effectiveness in enforcing these rules.

Privacy and data protection

Historically, and unlike their Western counterparts, the Chinese public did not perceive ‘privacy’ as being a cardinal rule. This perception has, however, changed dramatically in recent years due to the prevalence of personal data breaches and widespread financial fraud. To address the public’s concerns about privacy and data protection, China passed the Cybersecurity Law in 2017, then the Data Security Law (DSL), then the Personal Information Protection Law (PIPL) in 2021. Under these laws, the processing and storage of personal information needs to comply with the principles of lawfulness, legitimacy, necessity, good faith, clear and reasonable purpose, minimum impact and scope, and openness and transparency.¹¹

According to the latest survey conducted by the European Central Bank in 2021, people are most concerned about the digital Euro in terms of user privacy. This means a comprehensive regulatory and data/privacy management system is crucial for the operation of the digital RMB in China. It is also important for trust-building so the e-CNY can be used in bilateral, regional, and multilateral digital economic and trading activities. Indeed, as confirmed by MU Changchun, Director of the PBC’s Digital Currency Research Institute in early 2021, China’s central bank has been engaging in the effort to establish a personal information protection system and an internal control management mechanism so as to ensure the security of personal information.¹²

In the process, the PBC has adopted and put into effect the principle of ‘controllable anonymity’ for the e-CNY under which users of the digital RMB are provided with enhanced privacy protection in three ways. First, Type 4 and 5 wallet holders are identified by their respective mobile numbers, rather than by their ID card numbers or any other forms of identification. While telecom operators do hold mobile users’ identification data, they do not have access to the data of digital RMB transactions. Second, holders of the digital e-CNY can safely make online payments to other parties without having to disclose any essential information regarding their digital RMB wallets. Users’ payment information is encrypted, and third-party payment processors (e.g., AliPay and WeChat Pay) are cut off from their users’ personal information data, which they were formerly able to see. For example, when a wallet holder uses the e-CNY to pay for online purchases, there is no need for the person or organisation to disclose any wallet-related information to the

online payment platform or the seller. In contrast, if buyers use their credit cards or bank transfers to pay for items bought through online shopping, they will have to disclose their credit card or bank account details to the payment platform or the seller directly. Third, the authorised financial institutions can only see a portion of the digital footprints of e-CNY users, for example, when they deposit or withdraw funds through their wallets. The authorised service providers do not have access to transaction data when a wallet holder transfers the digital RMB to a third party. This is because the transfer is effected by direct communications between the two wallets, and is then recorded on the central register kept by the PBC, instead of being kept by commercial banks as in the case of conventional bank transfers.

Therefore, the anonymity afforded by the digital RMB is 'controllable'. First, in the matter of Types 4 and 5 wallets, as and when needed, law enforcement departments can obtain identification information from telecom operators. Second, the PBC has access to all transaction data and is able to trace the entire history of the movement of a specific digital RMB unit. Such capabilities will enable the central bank to exert a greater degree of monitoring and control over the operation of China's financial systems.

While compliance with the privacy laws is unlikely to be a contentious issue in China, the fact that the PBC will have unprecedented access to the transaction data of the digital RMB may give rise to potential problems under foreign laws where they are applicable, for example, if and when the wallet holder resides in another country. At this stage, only residents in 23 selected Chinese cities, or one-fifth of the country's total population, can access the digital *yuan*.¹³ However, it is likely that in the not-too-distant future the e-CNY wallet may be obtained by Chinese citizens residing overseas. In addition, foreigners currently living in China may download the wallet app for the digital RMB and later move back to their home countries. The processing and storage of their payment and transaction data may then need to be governed by local privacy laws.¹⁴ In such situations, potential issues could arise if, for example, transaction data are required by law to be kept on local servers.

AML/CFT compliance

Many governments require that their financial institutions gatekeep consumers through 'Know-Your-Customer' checks and monitor all financial transactions for anti-money laundering (AML), counter-terrorist financing (CTF), and other regulatory compliances, including flagging transactions in excess of certain sizes. Compared with cash, commercial bank money and nonbank tokens, the e-CNY has two unique advantages. First, each digital RMB unit has a corresponding cryptocurrency string. Consequently, its movement is traceable at every step. Second, the PBC, as the central book-keeping entity, has access to all the transaction data. These features enable it to take a proactive approach in enforcing AML/CFT regulations.

Currently, commercial banks have the burden of monitoring and reporting suspicious funds. However, they operate on a solo basis and do not share transaction data with each other. This leaves loopholes for criminals to explore. For example, in accordance with Article 5(1) of the *Administrative Measures for the Reporting of Large-value Transactions and Suspicious Transactions by Financial Institutions*, if more than RMB50,000 cash is withdrawn in a single day, the bank needs to report such transaction to the regulator.¹⁵ A criminal can easily circumvent this requirement by withdrawing smaller amounts from multiple banks, and the total cash of the withdrawals may easily exceed RMB50,000. This kind of manoeuvre will not work with the digital RMB because the PBC will have access to all transaction data and can thus easily spot such operations.

In short, with the issuance of China's CBDC, all digital *yuan* transactions will be processed through the PBC system, the entire transfer data will be transmitted to the central bank in a centralised manner, and the transaction information cannot be manipulated or changed. Machine learning, artificial intelligence, and other technologies will be required for systematically analysing transaction data, tracking flows of funds, and making hidden money laundering activities visible. All this will strengthen the ability of the PBC and other law enforcement departments to access and control transaction information, identify the source,

origin, and ownership of illegal funds in a timely manner, improve the accuracy of anti-money laundering work, and effectively prevent and combat money laundering, terrorist financing and other illegal activities.¹⁶

As for enforcement procedures, when the PBC spots suspicious transactions, it may require related designated banks to suspend or close the wallets.¹⁷ It may be even able to take further actions on the relevant digital RMB units by freezing or cancelling them. It is not yet clear from the publicly available information whether the current structural design of the digital RMB already contains the freezing/cancellation function. Nevertheless, from a technological perspective, there is little doubt that such a function can be added to the digital RMB should it become necessary or desirable.

Notes

¹ In *Moss v Hancock* [1899] 2 QB 111, the court described money as 'that which passes freely from hand to hand throughout the community in final discharge of debts and full payment for commodities, being accepted equally without reference to the character or credit of the person who offers it and without the intention of the person who receives it to consume it or apply it to any other use than in turn to tender it to others in discharge of debts or payment for commodities.'

² Commercial bank money and nonbank money are also called 'private money'.

³ PBC, Progress of Research & Development of E-CNY in China, Beijing: PBC, July 2021, p 8, online at <http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf>.

⁴ Such restriction is possible as each digital RMB has a face value, and the value transfer is encoded into a cryptocurrency string. For further information, see Note 2, p. 7. At this stage, it is not clear whether such restrictions are imposed on the wallet or on specific digital RMB units. Furthermore, if the restrictions are attached to specific digital RMB units, it is not clear whether they will expire once they are transferred into a new wallet.

⁵ 'Token-based' is also called 'value-based'.

⁶ Steven L. Schwarcz, 'Designing and Regulating Retail Digital Currencies', Centre for International Governance Innovation Policy Brief No. 168, September 2021, online at <https://www.cigionline.org/publications/designing-and-regulating-retail-digital-currencies/>.

⁷ XIA Yingtao, Shuzi renminbi: dingwei, tedian he zhanwang [Digital RMB: positioning, characteristics and prospects], Essence Securities Co., Ltd, 24 January 2022, online at https://pdf.dfcfw.com/pdf/H3_AP202201241542340110_1.pdf?1643035041000.pdf.

⁸ Benjamin Geva, 'Payment Finality and Discharge in Funds Transfers', *Chicago-Kent Law Review*, Vol. 83, Iss.2, 2008, pp. 633-634.

⁹ PBC, July 2021, op. cit., p. 7.

¹⁰ Yet once internet connection is established, each wallet will communicate with its digital RMB servers and its central register maintained at the PBC will be updated.

¹¹ China Briefing, 'The PRC Personal Information Protection Law (Final): A Full Translation', China Briefing, 24 August 2021, online at <https://www.china-briefing.com/news/the-prc-personal-information-protection-law-final-a-full-translation/>.

¹² HU Ling, 'Shuzi renminbi keyi wanquan niming ma? Yanghang ke tongguo shoujihao huoqu yonghu xinxi? MU Changchun huiying!' [Can the digital yuan be completely anonymous? Can the central bank obtain user information through mobile phone numbers? MU Changchun responded!], *nbd.com.cn*, 20 March 2021, online at <http://www.nbd.com.cn/articles/2021-03-20/1663440.html>.

¹³ XIA Zixuan and Ali Mire, 'Ni rongshang shuzi renminbi le ma? Shidian chengshi da 23ge, fugai quanguo ji wufeizhiyi renkou' [Are you able to use the digital yuan now? There are 23 pilot cities, covering nearly one-fifth of the country's population], *time-weekly.com*, 4 April 2022, online at <https://www.time-weekly.com/post/290898>.

¹⁴ While it is true that many of them are already using payment systems controlled by Chinese entities, such as Alipay or WeChat Pay, there is a crucial difference between the current RMB online payment system and the digital RMB. The former is developed and monitored by a private company, whilst the latter is developed by the government.

¹⁵ The English version of the Measures may be found online at <http://www.lawinfochina.com/display.aspx?id=23203&lib=law>.

¹⁶ XIAO Sa, 'Fan xiqian! Jinfang shuzi renminbi bei bufa fenzi liyong' [Anti money laundering! Beware of digital RMB being used by criminals], *finance.sina.com*, 16 December 2021, online at <http://finance.sina.com.cn/zl/bank/2021-12-16/zl-ikyarmy9315131.shtm>.

¹⁷ See, eg. Industrial and Commercial Bank of China Digital RMB Wallet Terms of Service, clause 5 ([http://www.icbc.com.cn/ICBCDynamicSite2/FILE/AGREEMENTFILE/ICBC\[%E6%80%BB\]13026202101.html](http://www.icbc.com.cn/ICBCDynamicSite2/FILE/AGREEMENTFILE/ICBC[%E6%80%BB]13026202101.html)).