

China's Approach to Central Bank Digital Currency

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Abstract: China is likely to be the first major economy to issue central bank digital currency (CBDC). China's CBDC is also known as e-CNY, DC/EP or digital yuan. As a moving target, e-CNY has the potential to profoundly affect the international financial system and order. From an international perspective, this article explores the following crucial issues: what are the core features of e-CNY? What is China's approach to CBDC? What is the sustainability of China's CBDC approach?

This article argues that the role of state, the potential cross-border use of e-CNY, and China's proactiveness in international governance are the core features of China's CBDC. These features contribute to China's CBDC approach, a possible selective reshaping of international financial order. The article explores major economic, political economy, legal and regulatory factors which would affect the sustainability of China's CBDC approach and serve as a multifactor framework for a holistic understanding of e-CNY's evolution.

Key Words: central bank digital currency, CBDC, e-CNY, digital yuan, technology, regulation, central banking, China, selective reshaping, governance

1. Introduction.....	2
2. What is China's CBDC?	4
2.1 Two-tier operational system	5
2.2 Loosely coupled with bank accounts	6
2.3 Managed anonymity	7
3. Core features of e-CNY.....	7
3.1 The role of the state	7
3.1.1 The prohibition on cryptocurrencies.....	8
3.1.2 A centralized governance model.....	9
3.2 The possible cross-border use of e-CNY	11
3.2.1 The use of existing and new mechanisms.....	12
3.2.2 Multi-level efforts	13
3.2.3 Taking advantage of technology and network.....	13

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3.3	Proactiveness in international governance	15
4.	China's CBDC approach: Selective reshaping?	17
4.1	What is “selective”?.....	18
4.2	What is “reshaping”?	18
4.3	Conclusion.....	21
5.	The sustainability of China’s CBDC approach.....	22
5.1	Economic factors	22
5.1.1	CBDC-related costs	22
5.1.2	The implications for markets	23
5.1.3	Macro-financial implications	24
5.1.4	Other economic factors	24
5.2	Political economy factors.....	25
5.2.1	The relationship between the state and market.....	25
5.2.2	Currency and payment solution competition	25
5.2.3	Other political economy factors.....	27
5.3	Legal and regulatory factors	27
5.3.1	Resiliency.....	28
5.3.2	Interoperability.....	29
5.3.3	Adaptability.....	30
5.3.4	International coordination.....	31
5.4	Conclusion.....	33
6.	Conclusion	33

1. Introduction

Central bank digital currency (CBDC), also called sovereign digital currency (SDC), is the digital version of sovereign currency issued by an economy’s monetary authority.¹ CBDC is a “digital claim on a central bank”.² An increasing number of central banks are exploring CBDC, including the Bank of England and the Riksbank, the central bank of Sweden. The digital dollar has also been considered, with the Federal Reserve Bank of Boston working with the Massachusetts Institute of Technology to design a CBDC prototype.³ At least 13 states (e.g., Sweden, Singapore, Japan, Switzerland, and South Korea) are testing CBDC

¹ John Kiff, et al., *A Survey of Research on Retail Central Bank Digital Currency*, IMF WORKING PAPER NO. 20/104, 5 (2020).

² Bank of Canada, et al., *Central Bank Digital Currencies: Foundational Principles and Core Features*, 16 (2020).

³ Ajay S. Mookerjee, *What If Central Banks Issued Digital Currency?*(2021), available at <https://hbr.org/2021/10/what-if-central-banks-issued-digital-currency>.

pilots,⁴ with some central banks like the European Central Bank considering such tests.⁵ The Bahamas, Eastern Caribbean and Nigeria have rolled out CBDC. CBDCs will likely affect the development and use of each other. For instance, at the time of writing the Federal Reserve is seeking comments on CBDC, including comments on how the decisions to issue CBDC should be influenced by other large economies' decisions around CBDC.⁶

CBDC involves “the algorithmic hand” beside the “invisible” hand (the market) and the “visible” hand (government).⁷ It is likely to be a critical part of the digital economy that we are entering into, accelerated by the epidemic, while carrying both “policy and legal implications”.⁸ CBDC concerns many issues including digital payment ecology, financial inclusion, data protection and sovereignty, compliance, financial risks, and governance models.⁹

China is expected to be the first major economy to launch CBDC.¹⁰ China's CBDC was previously known as the Digital Currency/Electronic Payment (DC/EP or DCEP),¹¹ and is also variously called e-CNY, digital yuan, eCNY, or e-RMB. The People's Bank of China (PBOC), China's central bank, started CBDC research in 2014¹² and issued a white paper on e-CNY (White Paper) in 2021, with no timetable for the final launch of e-CNY.¹³ For e-CNY, “top-level design, function development, and system testing has been basically completed”.¹⁴ E-CNY pilots have been conducted in ten regions (e.g., Shenzhen) and the Beijing Winter Olympics use cases.¹⁵

E-CNY will probably lead to an economic ecosystem (e.g., financial instruments denominated in e-CNY¹⁶) that is more than just currency or a new “currency infrastructure”.¹⁷ Digital yuan is “an entire ecosystem with connectors to existing and newly developing payment systems and currencies”,¹⁸ with systems ranging from payment to e-

⁴ Id. at.

⁵ Karen Yeung & Andrew Mullen, *China Digital Currency: When Will the E-Yuan Be Launched, and What Will It Be Used For?*(2021), available at <https://www.scmp.com/economy/china-economy/article/3135886/china-digital-currency-when-will-e-yuan-be-launched-and-what>.

⁶ Board of Governors of the Federal Reserve System, *Money and Payments: The U.S. Dollar in the Age of Digital Transformation*, 22 (2022).

⁷ Paradorn Pasuthip & Steve Yang, *Central Bank Digital Currency: Promises and Risks*, WORLDQUANT PERSPECTIVES 1, 5 (2020).

⁸ Yves Mersch, *Yves Mersch: An ECB Digital Currency – a Flight of Fancy?*(2020), available at <https://www.bis.org/review/r200511a.pdf>.

⁹ See, e.g., Ping Xie, *Ping Xie: After CBDC Infrastructure Is Developed, It Could Break Third-Party Payment Monopoly*(2020), available at <https://mp.weixin.qq.com/s/uHQs0mIPEZQIe8R5xz6vfA>.

¹⁰ Bailey Reutzel & Pete Rizzo, *Most Influential in Blockchain 2017 #6: Yao Qian*(2017), available at <https://www.coindesk.com/coindesk-most-influential-2017-6-yao-qian/>.

¹¹ Changchun Mu, *Digital Currency Institute of the People's Bank of China*, in INTHANON-LIONROCK TO MBRIDGE: BUILDING A MULTI CBDC PLATFORM FOR INTERNATIONAL PAYMENTS 13, (BIS Innovation Hub Hong Kong Centre, et al. eds., 2021).

¹² Working Group on E-CNY Research and Development of the People's Bank of China, *Progress of Research & Development of E-CNY in China*, 1, 12 (2021).

¹³ Id. at, 14.

¹⁴ Id. at, 1.

¹⁵ Mu, 13. 2021.

¹⁶ David Olsson, et al., *China's Digital RMB – Is Your Business Ready?*(2021), available at <https://www.kwm.com/en/au/knowledge/insights/chinas-digital-rmb-is-your-business-ready-20210427>.

¹⁷ Id. at.

¹⁸ Vipin Bharathan, *E-CNY Progress Report Reveals Telling Details About The Chinese Retail CBDC Project*(2021), available at <https://www.forbes.com/sites/vipinbharathan/2021/07/19/e-cny-progress-report-reveals-telling-details-about-the-chinese-retail-cbdc-project/?sh=1975aa6b6a59>.

commerce involving, among others, big techs, banking institutions and individuals. International consumer brands, including McDonald's, Starbucks, Subway, have been involved in the e-CNY trial.¹⁹ E-CNY is "likely to become an important feature of China's digital economy and financial system".²⁰

China's CBDC is among "the potential major currency CBDC[s] with global implications".²¹ For CBDC, it is observed that "[w]hatever the Chinese do will affect other national economies".²² It is expected that China's CBDC is likely to be "the powerful disruption that kickstarts a move from the extensive SDC-related research and piloting we have seen in Canada, England and elsewhere, to multiple instances of SDC *issuance*, particularly by major economies".²³

This paper explores China's approach to CBDC, particularly from an international perspective. The international dimension and impact of China's CBDC will be highlighted since it carries profound implications for the future of the international economy while it has received scant attention in current research. This paper will first analyse the key aspects of e-CNY (chapter 2), and then its core features (chapter 3). For its core features, e-CNY is characterised internally by the strengthened role of the state, and externally by possible cross-border use of e-CNY and China's proactiveness in international governance regarding CBDC. These features contribute to China's CBDC approach of selective reshaping of international economic governance (chapter 4). The paper further explores a multifactor framework, engaging with economic, political economy, legal and regulatory factors, to analyse the sustainability of China's CBDC approach (chapter 5). Chapter 6 concludes.

Some carve outs are useful here. This paper is based on publicly available materials and does not claim to contain all information on CBDC. For CBDC-related research, "caution is warranted in any comparative analysis about a subject in which the public-facing statements and trials are only the tip of the iceberg in comparison to the research, knowledge, and trials that are internal to each central bank and government".²⁴ Also, this paper does not focus on the merits of CBDC, which demand a separate analysis.

2. What is China's CBDC?

China's CBDC is "the digital version of fiat currency issued by the PBOC and operated by authorized operators".²⁵ Through account-based interfaces, e-CNY is available to the public and foreign visitors of China.²⁶ E-CNY's functions include "exchange and circulation management, interoperability and [a] wallet ecosystem".²⁷ Several major aspects of e-CNY will be discussed below.

¹⁹ Frank Tang, *China Includes McDonald's, Starbucks, Subway on List of Foreign Firms to Test Digital Currency*(2020), available at <https://sg.news.yahoo.com/mcdonald-starbucks-subway-among-foreign-113523567.html>.

²⁰ Olsson, et al. 2021.

²¹ Dirk A. Zetzsche, et al., *Sovereign Digital Currencies: The Future of Money and Payments?*, UNIVERSITY OF HONG KONG FACULTY OF LAW RESEARCH PAPER NO. 2020/053 1, 11 (2020).

²² Bharathan. 2021.

²³ Zetzsche, et al., UNIVERSITY OF HONG KONG FACULTY OF LAW RESEARCH PAPER NO. 2020/053, 5 (2020).(emphasis in original)

²⁴ Martin Chorzempa, *China, the United States, and Central Bank Digital Currencies: How Important Is It to Be First?*, CHINA ECONOMIC JOURNAL 1, 8 (2021).

²⁵ Working Group on E-CNY Research and Development of the People's Bank of China, 3 (2021).

²⁶ Raphael Auer, et al., *Central Bank Digital Currencies: Motives, Economic Implications and the Research Frontier*, BIS WORKING PAPERS NO 976, 5 (2021).

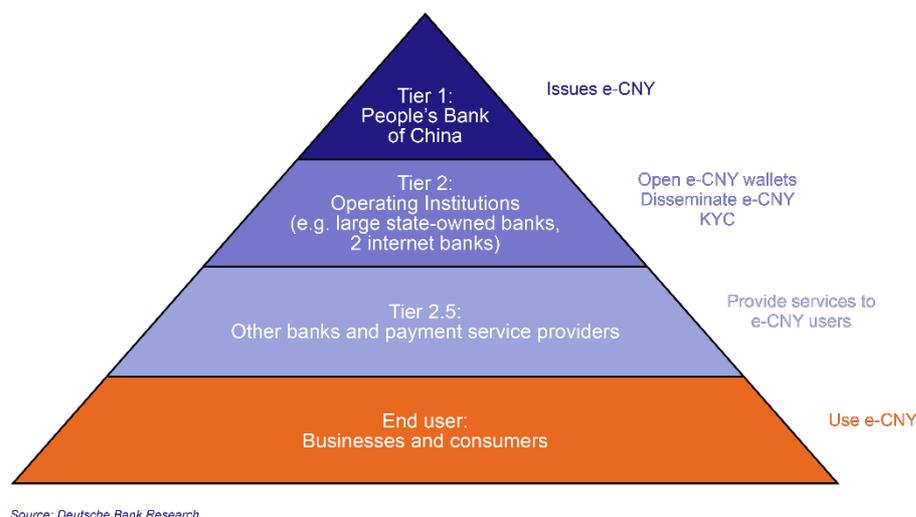
²⁷ Working Group on E-CNY Research and Development of the People's Bank of China, 13 (2021).

2.1 Two-tier operational system

China's CBDC features a hybrid operational system with two layers dealing with issuance and circulation respectively.²⁸ The central bank "distributes CBDC to selected banks or payment platforms (distribution layer), who distribute CBDC to users through their payment system layers".²⁹

The structure of e-CNY is illustrated in the Table 1 (below).

Table 1: The structure of e-CNY



Adapted from Deutsche Bank Research, *Digital Yuan: What Is It and How Does It Work?*(2021), <https://www.db.com/news/detail/20210714-digital-yuan-what-is-it-and-how-does-it-work> (with slight adaptation of the original figure)

In the first layer, the PBOC issues e-CNY to second-tier institutions (currently six major state-owned banks, and two internet banks), also called authorised operators, operating institutions or "Tier 2 institutions".³⁰ Second-tier institutions circulate the e-CNY to retail market actors including the public.³¹ The list of second-tier institutions is likely to grow. They will lead the CBDC exchange services³² (exchanging e-CNY into traditional CNY for the public³³) and circulation services.³⁴ Second-tier institutions are also e-CNY wallet

²⁸ Id. at, 3.

²⁹ Kiff, et al., IMF WORKING PAPER NO. 20/104, 24 (2020).

³⁰ See, e.g., Working Group on E-CNY Research and Development of the People's Bank of China, 3 (2021); Deutsche Bank Research, *Digital Yuan: What Is It and How Does It Work?*(2021), available at <https://www.db.com/news/detail/20210714-digital-yuan-what-is-it-and-how-does-it-work>.

³¹ Mu, 13. 2021.

³² Working Group on E-CNY Research and Development of the People's Bank of China, 8 (2021).

³³ Xiangyu Duan, *Observation / How Will CBDC Affect You and Me*(2020), available at <http://blockchain.people.com.cn/n1/2020/0608/c417685-31739212.html>.

³⁴ Guohui Li & Meiruo Ma, *Positive Progress Has Been Made in the E-CNY Research & Development Pilot: Central Bank Held a Media Briefing on the White Paper on Progress of Research & Development of E-CNY in China*(2021), available at https://www.financialnews.com.cn/jg/dt/202107/t20210719_223623.html.

providers.³⁵ A user needs to go to one of second-tier institutions to open an e-CNY wallet,³⁶ which usually involves an e-CNY wallet app. Three telecommunication operators are also working with major state-owned banks to form joint project teams to participate in e-CNY research and development.³⁷

Other banks and service providers are “Tier 2.5 institutions” (also known as “related commercial institutions”) that supply payment and other services to e-CNY holders but cannot provide e-CNY exchange services.³⁸ They will join the e-CNY system to provide “e-CNY circulation services and retail management, including innovation on payment product design, system development, scenario expansion, marketing, business processing as well as operation and maintenance”.³⁹ Tier 2.5 institutions seemingly could process payments, but not undertake exchange, which can only be undertaken by the Tier 2 institutions. After the e-CNY wallet is opened, the user can access a variety of services provided by both the issuing bank (one of the Tier 2 institutions) and Tier 2.5 institutions.⁴⁰ For instance, ride hailer Didi Chuxing and food delivery business Meituan Dianping are involved in the CBDC trial.⁴¹ Tier 2 and Tier 2.5 institutions can be regarded as e-CNY intermediaries, many of which have been involved in the development of the e-CNY ecosystem’s “payments solutions and functions”.⁴²

End users include businesses and the public. Individual end-users will not be charged by commercial banks for the e-CNY exchange and circulation services.⁴³ It seems that the issue of fees collected by Tiers 2 and 2.5 institutions on businesses is to be decided by the market.⁴⁴

2.2 Loosely coupled with bank accounts

A major feature of e-CNY is it being loosely coupled with bank accounts.⁴⁵ E-CNY is “a value-based, quasi-account-based and account-based hybrid payment instrument”, with “loosely-coupled account linkage”.⁴⁶ In other words, e-CNY is “based on broad accounts, loosely coupled with bank accounts”.⁴⁷ However, there seems to be limited further elaboration of what “loosely-coupled account linkage” means.⁴⁸ E-CNY wallets may be used

³⁵ Mookerjee. 2021.

³⁶ Deutsche Bank Research. 2021.

³⁷ Li & Ma. 2021.

³⁸ Deutsche Bank Research. 2021.

³⁹ Working Group on E-CNY Research and Development of the People's Bank of China, 8 (2021).

⁴⁰ Deutsche Bank Research. 2021.

⁴¹ Alun John, *Explainer: How Does China's Digital Yuan Work?*(2020), available at <https://www.reuters.com/article/us-china-currency-digital-explainer-idUSKBN27411T>.

⁴² Gabriel Soderberg, et al., *Behind the Scenes of Central Bank Digital Currency*, FINTECH NOTES NO 2022/004 1, 16 (2022).

⁴³ Rajesh Bansal & Somya Singh, *China's Digital Yuan: An Alternative to the Dollar-Dominated Financial System*, 5 (2021);CICC Perspective, *CICC: The Potential Impact of the Full Promotion of the Digital Renminbi on the Payment System*(2021), available at <https://finance.sina.com.cn/money/forex/forexinfo/2021-07-29/doc-ikqcfnc9634052.shtml>;Reuters Staff, *China's Central Bank Official: E-CNY Should Adhere to Central Bank Supervision to Prevent Currency Issuance Power from Falling Behind*, (2020).

⁴⁴ Reuters Staff, (2020).\$

⁴⁵ Working Group on E-CNY Research and Development of the People's Bank of China, 13 (2021).

⁴⁶ Id. at, 3.

⁴⁷ Id. at, 6.

⁴⁸ Bharathan. 2021.

without opening or linking to a bank account in certain circumstances:⁴⁹ people without bank accounts may access “basic financial services provided via [an] e-CNY wallet”, and foreign visitors could open an e-CNY wallet “to meet daily payment needs without opening a domestic bank account”.⁵⁰

2.3 Managed anonymity

Managed anonymity is a major feature of e-CNY.⁵¹ According to the PBOC, managed anonymity means that the CBDC system “does not provide information to third parties or other government agencies unless stipulated otherwise in laws and regulations”.⁵² For a digital wallet app where the user’s identity has been verified, the PBOC will know the user’s identity.⁵³ However, transactions conducted through the e-CNY wallet app will only transmit the wallet ID, with neither the transaction parties nor the sub-wallet account bank knowing the user’s identity.⁵⁴ This means that users could “hide their identity from counterparties”, making it “more difficult for online platforms to collect user information”.⁵⁵

The regulation in this regard is yet to be seen. According to the Law of the People’s Bank of China (Amendment Draft for Consultation)(2020 Amendment Draft) of 2020, the PBOC and its branches could ask the regulated entity to provide data and information as required by regulation.⁵⁶ The PBOC would, under the 2020 Amendment Draft, establish a regulatory information sharing mechanism of the member institutions of the Financial Stability and Development Committee under the State Council.⁵⁷ However, it is not clear whether and how evolving rules on the sharing of government information among government agencies (e.g., the Notice of the State Council on Issuing the Interim Measures for the Administration of Sharing of Government Information Resources) will apply to e-CNY.⁵⁸

3. Core features of e-CNY

China’s CBDC approach can be understood in terms of three core features of the e-CNY: the role of the state (including the prohibition of private cryptocurrencies), the possible cross-border use of e-CNY, and China’s proactive efforts in international governance concerning CBDC.

3.1 The role of the state

E-CNY is a state-led initiative, echoing the development of digital currency which is indicated in China’s 14th Five-Year Plan and which is regarded as part of structural reforms on the financial supply side.⁵⁹ The government is proactive in various aspects of CBDC,

⁴⁹ Karen Yeung, *What Is China’s Cryptocurrency Alternative Sovereign Digital Currency and Why Is It Not Like Bitcoin?*(2020), available at <https://www.scmp.com/economy/china-economy/article/3083952/what-chinas-cryptocurrency-sovereign-digital-currency-and-why>.

⁵⁰ Working Group on E-CNY Research and Development of the People’s Bank of China, 5 (2021).

⁵¹ *Id.* at, 13.

⁵² *Id.* at, 7.

⁵³ Olsson, et al. 2021.

⁵⁴ *Id.* at.

⁵⁵ Deutsche Bank Research. 2021.

⁵⁶ People’s Bank of China, Law of the People’s Bank of China (Amendment Draft for Consultation) Article 51 (2020).

⁵⁷ *Id.* at, Article 52.

⁵⁸ Jiaying Jiang & Karman Lucero, *Background and Implications of China’s E-CNY*, 18 (2021).

⁵⁹ www.gov.cn, *Outline of the People’s Republic of China 14th Five-Year Plan for National Economic and Social Development and the Long-Range Objectives Through the Year 2035*(2021), available at http://www.gov.cn/xinwen/2021-03/13/content_5592681.htm.

including local governments reportedly giving away funding to residents to trial the e-CNY.⁶⁰ Major factors of selecting e-CNY pilot areas include “major national development strategies” and “coordinated regional development strategies”.⁶¹

CBDC concerns the “very fundamental relationship between money, the State, and the law”.⁶² Moreover, the legal concept of money is based on the state’s power to regulate the monetary system.⁶³ The following part focuses on the state’s role in CBDC-related regulation: China’s regulation of private cryptocurrencies and the centralized governance model regarding e-CNY.

3.1.1 The prohibition on cryptocurrencies

China’s CBDC approach should be viewed through a functional lens. Its regulation of cryptocurrencies and CBDC is like two sides of a coin, cryptocurrencies being regarded as the opposite of CBDC.⁶⁴ Cryptocurrencies are typically understood to include stablecoins and other cryptocurrencies (e.g., Bitcoin).⁶⁵ Cryptocurrencies consist of “open” cryptocurrencies (e.g., Bitcoin and Ether) that “operate outside the jurisdiction and direct control of the state or any single entity”, and “corporate or consortium-managed digital currencies”.⁶⁶ E-CNY is managed by the PBOC and contrasts with “most other forms of cryptocurrencies that are designed to disperse power away from the government”.⁶⁷ To some extent, e-CNY is driven by the response to cryptocurrencies and, relatedly, the risk of capital flight.⁶⁸

China does not permit the parallel development of decentralized digital currencies and CBDC. In the 2020 Amendment Draft, the PBOC proposed to confirm e-CNY’s legal tender status.⁶⁹ The 2020 Amendment Draft also forbids and imposes fines on the production, circulation, and sale of substitute currencies in digital and physical forms,⁷⁰ which seems to include RMB-pegged digital tokens. More recently, China has prohibited all activities

⁶⁰ See, e.g., Yeung & Mullen. 2021; Coco Feng, *Fintech Giant Ant Group’s Mybank Joins China’s Digital Yuan Platform*(2021), available at https://www.scmp.com/tech/big-tech/article/3133227/fintech-giant-ant-groups-mybank-joins-chinas-digital-yuan-platform?module=perpetual_scroll&pgtype=article&campaign=3133227.

⁶¹ Working Group on E-CNY Research and Development of the People’s Bank of China, 13 (2021).

⁶² Wouter Bossu, et al., *Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations*, IMF WORKING PAPER NO. 2020/254, 5 (2020).

⁶³ Kiff, et al., IMF WORKING PAPER NO. 20/104, 38 (2020).

⁶⁴ James Kyngé & Sun Yu, *Virtual Control: The Agenda behind China’s New Digital Currency*(2021), available at <https://www.ft.com/content/7511809e-827e-4526-81ad-ae83f405f623>.

⁶⁵ See, e.g., moneysmart.gov.au, *Cryptocurrencies and ICOs*(2021), available at <https://moneysmart.gov.au/investment-warnings/cryptocurrencies-and-icos>.

⁶⁶ Ashton de Silva, et al., *Central Bank Digital Currencies (CBDCs): A Comparative Review*, A REPORT PREPARED FOR CPA AUSTRALIA BY RMIT UNIVERSITY, 4 (2021).

⁶⁷ Karen Yeung, *What Is China’s Sovereign Digital Currency?*(2020), available at <https://www.scmp.com/economy/china-economy/article/3083952/what-chinas-cryptocurrency-sovereign-digital-currency-and-why>.

⁶⁸ Karen Yeung, *China Not Among Major Central Banks in Talks on Global Digital Currency Principles*, South China Morning Post(2020), available at https://www.scmp.com/economy/china-economy/article/3104905/china-not-among-major-central-banks-talks-global-digital?utm_medium=email&utm_source=mailchimp&utm_campaign=enlz-scmp_china&utm_content=20201009&tpcc=enlz-scmp_china&MCUID=b2992489b1&MCCampaignID=c2e928c32f&MCAccountID=3775521f5f542047246d9c827&tc=5.

⁶⁹ People’s Bank of China, Article 19.2. 2020; Soderberg, et al., FINTECH NOTES NO 2022/004, 18 (2022).

⁷⁰ People’s Bank of China, Articles 22, 65. 2020; Soderberg, et al., FINTECH NOTES NO 2022/004, 18 (2022).

concerning private virtual currencies through a notice issued by ten agencies including the Supreme People's Court.⁷¹ This would affect not only administrative decisions but also court judgments.

The crackdown on private cryptocurrencies is a distinctive aspect of China's CBDC approach, differing from many economies in which CBDC and private digital currencies could co-exist. This seems to reflect "China's 'state-centric' monetary system".⁷²

3.1.2 A centralized governance model

E-CNY is managed under a centralized model,⁷³ and is observed to be "hypercentralized".⁷⁴ According to a PBOC deputy governor, central governance of e-CNY is meaningful for several reasons: (i) maintaining the role of fiat currency and the authority to issue currency; (ii) enhancing efficiency in payment systems and improving monetary policy transmission (e.g., e-CNY's "settled upon payment" to speed up currency circulation); and (iii) ensuring financial stability (e.g., the use of big data and AI to inhibit illicit activities).⁷⁵ CBDC would strengthen the role of the state, which includes the PBOC, providing it with "tight centralized control over digital money", and other related agencies (e.g., taxation authorities).⁷⁶ The analysis here focuses on the PBOC, which issues e-CNY and manages the whole CBDC life cycle⁷⁷ through the e-CNY systems' operation, regulation, infrastructure and data.

First, the PBOC is at the core of the e-CNY system's operation, including taking care of CBDC "issuance and disposal".⁷⁸ To illustrate, there is the PBOC's central ledger,⁷⁹ the "core" of e-CNY.⁸⁰ E-CNY wallets also provide a prime example. The use of e-CNY usually requires downloading the PBOC's e-CNY app that is the core node of the e-CNY system, and the central bank is to be the core entry and clearing center for e-CNY.⁸¹ Moreover, all cross-institutional transactions need to go through the PBOC for the value transfer to occur.⁸²

⁷¹ Eleanor Olcott & Eva Szalay, *China Expands Crackdown by Declaring All Crypto Activities 'Illegal'* (2021), available at <https://www.ft.com/content/31f7edf7-8e05-46e1-8b13-061532f8db5f>; The People's Bank of China, et al., Notice on Further Preventing and Resolving the Risks of Virtual Currency Trading and Speculation (2021).

⁷² Christopher A. McNally & Julian Gruin, *A Novel Pathway to Power? Contestation and Adaptation in China's Internationalization of the RMB*, 24 REVIEW OF INTERNATIONAL POLITICAL ECONOMY 599, 601 (2017).

⁷³ Working Group on E-CNY Research and Development of the People's Bank of China, 3 (2021).

⁷⁴ Aditi Kumar & Eric Rosenbach, *Could China's Digital Currency Unseat the Dollar?* (2020), available at <https://www.foreignaffairs.com/print/node/1126052>.

⁷⁵ Yifei Fan, *Analysis on the Policy Implications of the M0 Status of E-CNY* (2020), available at https://www.financialnews.com.cn/pl/zj/202009/t20200915_200890.html.

⁷⁶ Narayanan Somasundaram, *Will China's Digital Yuan Vanquish the Dollar?* (2021), available at https://asia.nikkei.com/Spotlight/The-Big-Story/Will-China-s-digital-yuan-vanquish-the-dollar?del_type=1&pub_date=20210811190000&seq_num=2.

⁷⁷ Working Group on E-CNY Research and Development of the People's Bank of China, 3 (2021). (the White Paper does not further explain the meaning of "disposal" in the context of CBDC)

⁷⁸ Id. at, 8.

⁷⁹ Jan Knoerich, *China's New Digital Currency: Implications for Renminbi Internationalization and the US Dollar*, in THE (NEAR) FUTURE OF CENTRAL BANK DIGITAL CURRENCIES: RISKS AND OPPORTUNITIES FOR THE GLOBAL ECONOMY AND SOCIETY 149, (Nicola Bilotta & Fabrizio Botti eds., 2021).

⁸⁰ Soderberg, et al., FINTECH NOTES NO 2022/004, 17 (2022).

⁸¹ Yongli Wang, *Wang Yongli: The Biggest Change That e-CNY May Bring* (2020), available at <https://finance.sina.cn/zl/2020-11-02/zl-iiznctkc8953792.d.html>.

⁸² Li & Ma. 2021.

Second, the PBOC plays the leading role in regulation and setting rules and standards relating to CBDC. The 2020 Amendment Draft provides “the central bank with the broad power to plan, organize, and supervise the payment system and financial infrastructures”, and the central bank is to “have responsibility to coordinate the work on national financial security, with the goal of developing a cyber-resilient CBDC”.⁸³ The PBOC supervises CBDC exchange and circulation⁸⁴ (including anti-money laundering (AML) regulation⁸⁵) and regulates authorised operators and other commercial institutions.⁸⁶ According to a PBOC Deputy Governor, the centralized governance of e-CNY requires the setting of standards (i.e., technical, business, security and operational standards).⁸⁷ Indeed, the PBOC is responsible for setting rules for e-CNY wallets and managing e-CNY wallet ecosystem.⁸⁸ Commercial banks and licensed non-bank payment institutions must obtain the PBOC’s recognition and support, and must meet compliance and regulatory requirements (e.g., AML, risk management) to partake in China’s CBDC payment system.⁸⁹ Furthermore, authorized operators providing exchange services operate under the “quota management of the PBOC”.⁹⁰

Third, the PBOC is at the centre of the system’s infrastructure. Centralized governance of e-CNY involves the development of e-CNY infrastructure (including the connection of different operating institutions).⁹¹ The PBOC is responsible for “inter-institution connect”.⁹² Regarding the monitoring of e-CNY transactions, the PBOC is expected to establish three centers for authentication, registration, and big data analysis respectively.⁹³

Fourth, the PBOC plays a central role in many other aspects like technology and data. The PBOC is observed to be “rel[ying] to a greater extent on internal resources [in acquiring technology] and has different contractors for different areas as necessary”, which provides “more control over the development process”.⁹⁴

Centralized governance of e-CNY also involves the management of e-CNY information.⁹⁵ E-CNY will likely “revolutionise” the regulator’s capacity to “scrutinise the nation’s payment and financial system” with additional powers to track how money is used.⁹⁶ The central bank could have access to CBDC transaction data and data regarding e-CNY digital wallets, but authorized operators can no longer access all transaction information as was the case before the rolling out of e-CNY; if e-CNY wallets of the payer and payee are opened at different authorized operators, each authorized operator would not have all the information of both

⁸³ Soderberg, et al., FINTECH NOTES NO 2022/004, 18 (2022).

⁸⁴ Li & Ma. 2021.

⁸⁵ Working Group on E-CNY Research and Development of the People's Bank of China, 10 (2021).

⁸⁶ Bharathan. 2021.

⁸⁷ Fan. 2020.

⁸⁸ Working Group on E-CNY Research and Development of the People's Bank of China, 8, 9 (2021).

⁸⁹ Id. at, 6.

⁹⁰ Id. at, 8.

⁹¹ Fan. 2020.

⁹² Working Group on E-CNY Research and Development of the People's Bank of China, 8 (2021).

⁹³ Binance Research (Jinze & Etienne), *First Look: China's Central Bank Digital Currency*, (2019); Wei Shen & Liyang Hou, *China's Central Bank Digital Currency and Its Impacts on Monetary Policy and Payment Competition: Game Changer or Regulatory Toolkit?*, 41 COMPUTER LAW & SECURITY REVIEW 1, 6 (2021).

⁹⁴ Soderberg, et al., FINTECH NOTES NO 2022/004, 16 (2022).

⁹⁵ Fan. 2020.

⁹⁶ Yeung, *What Is China's Sovereign Digital Currency?* 2020.

parties to the transaction, reflecting e-CNY's managed anonymity feature.⁹⁷ Under loose coupling of accounts, CBDC operating agencies will "submit transaction data to the central bank via asynchronous transmission", enabling the central bank to "keep track of necessary data".⁹⁸ Conversely, the managed anonymity feature of e-CNY will "make it more difficult for online platforms to collect user information".⁹⁹ E-CNY's "touch and touch" function, enabling two end users to touch their mobile devices to conduct a fund transfer, "leav[es] no payment record with a third party or the banking system".¹⁰⁰ Managed anonymity features aside, e-CNY helps the state secure a central role in the financial system and fintech industry (including a huge e-payments market).¹⁰¹

3.2 The possible cross-border use of e-CNY

E-CNY might be used in both retail and wholesale contexts outside Mainland China. For instance, Hong Kong's forthcoming pilot scheme for e-CNY use will involve retail use in some contexts like shopping and dining for certain individual users in Hong Kong and Hongkongers living in the Greater Bay Area.¹⁰² The PBOC is also involved in the mCBDC Bridge, a wholesale CBDC "co-creation" project that explores the capabilities of DLT and that focuses on cross-currency cross-border payments.¹⁰³

The possible international use of e-CNY is explored through new and existing mechanisms, multi-level efforts, and the technology and networks that China is involved in. The improvement of international payment is one of the three objectives of China's CBDC.¹⁰⁴ The PBOC believes that China's CBDC is "technically ready for cross-border use",¹⁰⁵ and the bank is to "explore the applicability of CBDC in cross-border scenarios" (including "pilot cross-border payment programs").¹⁰⁶ E-CNY may gain international use due to, inter alia, network effects and "shared infrastructure and technical standards".¹⁰⁷ If everything goes smoothly, e-CNY could be used in international contexts including cross-

⁹⁷ Wang. 2020; Karen Yeung, *China's E-Yuan Like 'A Double-Edged Sword', and Mishandling It Carries Considerable Financial Risks*(2021), available at <https://www.scmp.com/economy/china-economy/article/3141435/chinas-e-yuan-double-edged-sword-and-mishandling-it-carries>.

⁹⁸ Yifei Fan, *Some Thoughts on CBDC Operations in China*(2020), available at <https://www.centralbanking.com/fintech/cbdc/7511376/some-thoughts-on-cbdc-operations-in-china>.

⁹⁹ Deutsche Bank Research. 2021.

¹⁰⁰ Yeung, What Is China's Sovereign Digital Currency? 2020.

¹⁰¹ Kyngé & Yu. 2021; Alex He, *Digital RMB: A Possible Way to Reassert Data Control in the Digital Economy*, CIGI POLICY BRIEF NO. 169, 4 (2021).

¹⁰² Enoch Yiu, *Hong Kong Sets Stage for E-CNY Use, to Launch Pilot 'Soon after Spring Festival'* (2022), available at <https://www.scmp.com/print/business/banking-finance/article/3166109/hong-kong-sets-stage-e-cny-use-launch-pilot-soon-after>.

¹⁰³ Bank for International Settlements, *Multiple CBDC (mCBDC) Bridge*(2021), available at https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm.

¹⁰⁴ Working Group on E-CNY Research and Development of the People's Bank of China, 5 (2021).

¹⁰⁵ Id. at.

¹⁰⁶ Id. at.

¹⁰⁷ Diana Choyleva, *China Advances in Challenge to Dollar Hegemony*(2021), available at <https://www.ft.com/content/efa3ec2b-5be8-413f-b23c-cc9b9bff1261>.

border retail payment (e.g., tourism,¹⁰⁸ e-commerce, and business visits¹⁰⁹),¹¹⁰ real-time cross-border foreign exchange payments (as explored in the m-CBDC Bridge initiative), remittance,¹¹¹ and possibly the Belt and Road Initiative (BRI) projects (e.g., RMB loans and investments).¹¹² E-CNY will likely be first used in business-to-consumer (B2C) and then in cross-border flows in the medium-longer term.¹¹³

3.2.1 The use of existing and new mechanisms

China appears to utilize existing and new mechanisms to explore the cross-border use of CBDC. Such efforts often focus on finance and technology and the development of infrastructure.

Concerning finance, China engages with existing financial systems including SWIFT, the global financial messaging system. China established a joint venture with SWIFT in 2021, which is regarded as part of the efforts to explore the international use of China's CBDC and propel RMB internationalization.¹¹⁴ For instance, the joint venture will establish a localized data warehouse to “monitor and analyze cross-border payment messaging”.¹¹⁵ Meanwhile, China's CBDC is observed to “fit[] within a greater context of the country's efforts to create an independent payments system based on its Cross-Border Inter-Bank Payments System (CIPS)”.¹¹⁶

Concerning technology, new mechanisms may be adopted to promote the CBDC. Blockchain provides a good example. The PBOC Digital Currency Institute (DCI) is developing a trade finance blockchain platform.¹¹⁷ China's government-backed initiative, the Blockchain Service Network (BSN), may also help promote the use of CBDC.¹¹⁸ Aiming to

¹⁰⁸ Frank Tang, *China's Digital Yuan Aims to Halt Us 'Dollarisation', Boost Retail Payments, Ex-central Bank Governor Says*(2020), available at https://www.scmp.com/economy/china-economy/article/3107422/chinas-digital-yuan-aims-halt-us-dollarisation-boost-retail?module=perpetual_scroll_0&pgtype=article&campaign=3107422.

¹⁰⁹ Xiaochuan Zhou, *ZHOU Xiaochuan: Clarify the Three Major Misunderstandings of the E-CNY*(2021), available at <https://www.chinathinktank.org.cn/content/detail?id=dk25je58>.

¹¹⁰ CICC Perspective. 2021.

¹¹¹ Bansal & Singh, 15 (2021).

¹¹² Chi Lo, *The Crypto-Renminbi Challenge to the Dollar*, 34 THE INTERNATIONAL ECONOMY 50, 70 (2020).

¹¹³ Jason Ekberg & Michael Ho, *A New Dawn for Digital Currency: Why China's eCNY Will Change the Way Money Flows Forever*, 3 (2021).

¹¹⁴ Reuters Staff, *SWIFT Sets up JV with China's Central Bank*(2021), available at <https://www.reuters.com/article/china-swift-pboc-idUSL1N2KA0AK>; Bansal & Singh, 12 (2021); Karen Yeung, *China's SWIFT Joint Venture Shows Beijing Eyeing Global Digital Currency Use, to Internationalise Yuan*(2021), available at <https://sg.news.yahoo.com/china-swift-joint-venture-shows-123046035.html>.

¹¹⁵ Shanghai Finance, *China Central Bank Says New SWIFT JV Will Set Up Localized Data Warehouse*(2021), available at <http://en.jrj.sh.gov.cn/news/financial-news/3191.shtml>.

¹¹⁶ Nikhil Raghuvveera & David Bray, *Design Choices of Central Bank Digital Currencies Will Transform Digital Payments and Geopolitics*, Atlantic Council(2020), available at <https://www.atlanticcouncil.org/blogs/geotech-cues/design-choices-of-central-bank-digital-currencies-will-transform-digital-payments-and-geopolitics/>.

¹¹⁷ 21st Century Business Herald, *PBOC Digital Currency Research Institute on Blockchain: Technical Decentralization Does Not Mean Decentralization of Management*(2021), available at <https://finance.sina.com.cn/blockchain/roll/2021-09-13/doc-iktzscyx3969921.shtml>.

¹¹⁸ Bansal & Singh, 12 (2021); Michael, *China's Blockchain Service Network (BSN) Guide*(2020), available at <https://boxmining.com/blockchain-service-network-china/>; Ledger Insights, *China's BSN blockchain network plans multinational CBDC pilot this year*(2021), available at

reduce the costs of using blockchains by individuals and SMEs, the BSN reportedly plans to develop an international network that is to support future CBDCs.¹¹⁹ Relatedly, China launched the Global Initiative on Data Security in 2020.¹²⁰

3.2.2 Multi-level efforts

China is exploring the cross-border use of CBDC at different levels. E-CNY trials in China are regarded by the PBOC as a basis for the pilot cross-border payment programs related to e-CNY.¹²¹ For instance, China's Xiongan New Area is planning for the cross-border use of digital yuan.¹²² The 2022 Winter Olympics also involved a CBDC pilot.¹²³ For e-CNY, there is "the possibility that testing is being increasingly used for business and potentially trade".¹²⁴

Outside Mainland China, the DCI has signed a memorandum with the Hong Kong Monetary Authority (HKMA), with e-CNY cross-border payment technical testing having been conducted.¹²⁵ At the time of writing, Hong Kong reportedly plans to soon conduct e-CNY pilots with certain restaurants and shops.¹²⁶ It seems that the Macau government is also to work with the PBOC to "study the feasibility of issuing a digital currency".¹²⁷ As an example of bilateral efforts, the possibility of Chinese tourists using China's CBDC abroad is reportedly being explored by China and Singapore.¹²⁸

Furthermore, the PBOC has collaborated with regulators in Hong Kong, Thailand and the United Arab Emirates (UAE) as well as the Bank for International Settlements (BIS) under the mCBDC Bridge project (mCBDC Bridge).¹²⁹ Multiple CBDC (mCBDC) systems are being explored through the mCBDC Bridge that involves "developing a proof of concept (PoC) prototype to support real-time cross-border foreign exchange PvP [payment versus payment] transactions in multiple jurisdictions, operating 24/7".¹³⁰ The PBOC also engages with international standards development organizations.¹³¹

3.2.3 Taking advantage of technology and network

New technology will help e-CNY lower costs and improve convenience and efficiency in commerce. CBDC frameworks may be leveraged to enhance international payments (e.g., the

<https://www.ledgerinsights.com/china-bsn-blockchain-network-plans-multinational-cbdc-pilot-this-year/>.

¹¹⁹ Ledger Insights. 2021.

¹²⁰ China.org.cn, *Full Text: Global Initiative on Data Security(2020)*, available at http://www.china.org.cn/chinese/2020-09/15/content_76704524.htm.

¹²¹ Working Group on E-CNY Research and Development of the People's Bank of China, 5 (2021).

¹²² Ledger Insights, *Chinese Region Plans Digital Yuan Cross Border Use(2020)*, available at <https://www.ledgerinsights.com/chinese-region-plans-digital-yuan-cross-border-use/>.

¹²³ Jing Yang & AnnaMaria Andriotis, *At the Winter Olympics, Beijing's Digital Yuan Push Puts Visa in a Bind(2022)*, available at <https://www.wsj.com/articles/beijings-digital-currency-push-at-winter-olympics-puts-visa-in-a-bind-11644402602>.

¹²⁴ Ledger Insights, *Do Digital Yuan Trial Figures Signal More Business Usage?*, (2020).

¹²⁵ Mu, 14. 2021.

¹²⁶ Yiu. 2022.

¹²⁷ Yeung & Mullen. 2021.

¹²⁸ Hu Yue & Denise Jia, *China's Didi Teams with Central Bank on Digital Currency Trial(2020)*, available at <https://asia.nikkei.com/Spotlight/Caixin/China-s-Didi-teams-with-central-bank-on-digital-currency-trial>.

¹²⁹ BIS Innovation Hub Hong Kong Centre, et al., *Inthanon-LionRock to mBridge: Building a Multi CBDC Platform for International Payments 7* (2021).

¹³⁰ Raphael Auer, et al., *Multi-CBDC Arrangements and the Future of Cross-Border Payments*, BIS PAPERS NO 115 1, 8 (2021).

¹³¹ Bharathan. 2021.

conversion of CBDCs)¹³² and lower costs (such as e-CNY lowering transaction costs for international users compared with cash¹³³). E-CNY seemingly aims to further the efficiency and reduce the cost of inter-bank settlements, which is linked with the international acceptance of e-CNY.¹³⁴ Relatedly, the m-CBDC Bridge is exploring the use of CBDC and blockchain technology in cross-border foreign currency payments, aiming to make such payments simpler and less expensive.¹³⁵ CBDC may also streamline communication processes. Many problems with international fund transfers are often attributable to “the large number of intermediaries involved in the process”, requiring “updates to multiple ledgers, as well as several communication hops in the payment message to perform due diligence”.¹³⁶ CBDC could reduce the need for multiple and consecutive communication jumps by limiting the number of intermediaries.¹³⁷ CBDCs may also “give countries the ability to transact separately”, which “would lower demand for correspondent banking services and SWIFT international financial messaging and payment systems”.¹³⁸ It is possible that CBDCs could “allow financial institutions to transact directly with each other, instead of using “correspondent banking” arrangements that can result in money flowing through several banks, with fees being charged along the way”.¹³⁹ Moreover, CBDC may reduce the cost of liquidity management.¹⁴⁰ For cross-border payment through traditional money, liquidity management is usually done through prefunding (i.e., keeping balances in relevant accounts), which is costly.¹⁴¹ That said, cross-border use of e-CNY faces similar challenges to existing currencies, such as capital controls.

China would likely take advantage of its network, such as its trade and payment networks, to promote CBDC.¹⁴² E-CNY may continue China’s use of its leading role in trade to increase demand for RMB like that in trade settlement.¹⁴³ For instance, cross-border use of e-CNY and e-HKD could be impactful given “the more than \$500 billion of import/export trade between Hong Kong SAR and the Chinese Mainland”.¹⁴⁴ Notably, BRI-related projects

¹³² Bank of Japan, *The Bank of Japan's Approach to Central Bank Digital Currency*(2020), available at https://www.boj.or.jp/en/announcements/release_2020/data/rel201009e1.pdf.

¹³³ Yeung, What Is China’s Sovereign Digital Currency? 2020.

¹³⁴ ROBIN HUI HUANG, *FINTECH REGULATION IN CHINA: PRINCIPLES, POLICIES AND PRACTICES* 285 (Cambridge University Press. 2021).

¹³⁵ Somasundaram. 2021.

¹³⁶ Bansal & Singh, 7 (2021).

¹³⁷ Id. at.

¹³⁸ Tao Zhang, *New Forms of Digital Money: Implications for Monetary and Financial Stability*(2021), available at <https://www.imf.org/en/News/Articles/2020/10/30/sp103020-new-forms-of-digital-money>.

¹³⁹ Clancy Yeates, *RBA Joins Central Banks Looking at Using Digital Currencies for Global Payments*(2021), available at <https://www.smh.com.au/business/banking-and-finance/rba-joins-central-banks-looking-at-using-digital-currencies-for-global-payments-20210902-p58o8t.html>.

¹⁴⁰ Bansal & Singh, 7 (2021).

¹⁴¹ Morten Linnemann Bech, et al., *Payments without Borders*, *BIS QUARTERLY REVIEW*, 61 (2020).

¹⁴² See, e.g., Zennon Kapron, *China’s Central Bank Digital Currency Will Strengthen Alipay And WeChat Pay, Not Replace Them*, *Forbes*(2020), available at <https://www.forbes.com/sites/zennonkapron/2020/05/24/chinas-central-bank-digital-currency-will-strengthen-alipay-and-wechat-pay-not-replace-them/#418342086b69>.

¹⁴³ Knoerich, 158, 160. 2021.

¹⁴⁴ Ian De Bode, et al., *CBDC and Stablecoins: Early Coexistence on an Uncertain Road*(2021), available at <https://www.mckinsey.com/industries/financial-services/our-insights/cbdc-and-stablecoins-early-coexistence-on-an-uncertain-road#>.

and transactions with China are among “the main promoters of RMB settlement”.¹⁴⁵ CBDC may be used in the BRI projects (e.g., RMB loans and investments).¹⁴⁶ Since many BRI projects are implemented by Chinese businesses, “the contractor payments could be made using the digital yuan, without routing the money through foreign governments”.¹⁴⁷ China could “increasingly bill in yuan” given its large-volume trade with Asian and African states,¹⁴⁸ and e-CNY may be promoted in a network of international trade built through the BRI.¹⁴⁹

China’s outbound tourism could also serve to promote the international use of e-CNY, since China’s tourism is “the biggest tourism sector of any country in the world”.¹⁵⁰ According to an investment strategist, it is possible that a “Chinese tourist [could] settle with e-RMB if the oversea [sic] hotel has an e-RMB machine installed that transacts directly through the PBOC settlement system”.¹⁵¹

Relatedly, China could distribute e-CNY through pre-existing payment platforms (e.g., Alipay wallets) and ride on current acceptance infrastructure and networks to improve the scalability of e-CNY.¹⁵² E-CNY could be used through Alipay,¹⁵³ and is also connected with China UnionPay Merchant Services, which is affiliated with China UnionPay (a leading payment provider).¹⁵⁴ One may argue that, theoretically, e-CNY could be used overseas through Chinese payment apps and services.¹⁵⁵

3.3 Proactiveness in international governance

China is proactive in international governance relating to CBDC. As part of the efforts regarding “the promotion of the construction of a community of common destiny in cyberspace” in China’s recent Five-Year Plan, there is a plan for China to “actively participate in formulating international rules on issues like data security, digital currency, digital tax, and standards on digital technology”.¹⁵⁶

First, China appears to play an active role in affecting emerging standards related to CBDC at various venues and organizations. China has called for the G20 to “discuss developing the standards and principles” for CBDC, and address “all types of risks and challenges while

¹⁴⁵ Cheng-Yun Tsang & Ping-Kuei Chen, *Policy Responses to Cross-border Central Bank Digital Currencies – Assessing the Transborder Effects of Digital Yuan*, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 18 (2021).

¹⁴⁶ Lo, THE INTERNATIONAL ECONOMY, 70 (2020).

¹⁴⁷ Bansal & Singh, 14 (2021).

¹⁴⁸ Somasundaram. 2021.

¹⁴⁹ Martin Farrer, *Currency and Control: Why China Wants To Undermine Bitcoin*(2021), available at <https://www.theguardian.com/world/2021/jul/09/currency-and-control-why-china-wants-to-undermine-bitcoin>.

¹⁵⁰ Francis Shin, *Post-Pandemic Tourism Could Boost China’s New Digital Currency*, (2021).

¹⁵¹ Anthony Chan, *Implications of China’s Sovereign Digital Currency*, (2020).

¹⁵² Bansal & Singh, 8, 14 (2021).

¹⁵³ Ledger Insights, *Digital Yuan Takes Another Step Forward With Alipay Availability*(2021), available at <https://www.ledgerinsights.com/china-digital-yuan-currency-ecny-cbdc-alipay-availability/>.

¹⁵⁴ China UnionPay Merchant Services, *China UnionPay Merchant Services Successfully Accesses the Digital Rmb Interconnection Platform*(2021), available at <https://www.chinaums.com/enums/AboutsUms/AboutUs/CompanyProfile/ChinaUMS/>.

¹⁵⁵ See, e.g., Knoerich, 159. 2021.

¹⁵⁶ www.gov.cn, Chapter 18, Section IV. 2021.

pushing collectively for the development of the international monetary system”.¹⁵⁷ China is represented in the Future of Payments Working Group that derives from the G20 roadmap to improve cross-border payments.¹⁵⁸ The PBOC indicates that it “actively participated in setting standards for digital fiat currency and building an international standard system under the framework” of international organizations.¹⁵⁹ China is participating in CBDC concept- and standard-setting through standard-setting bodies (SSBs, dealing with topics ranging from CBDC definition and categories, issues affecting CBDC and virtual currencies, to regulation).¹⁶⁰ At the International Telecommunication Union (ITU), China appears to lead research and the standardization of the CBDC ecosystem and reference architecture.¹⁶¹ China “was the first to add digital currency-related content to the repository for ISO 20022, a new global standard covering financial information transferred between financial institutions that includes payment transactions, securities trading and settlement information, and credit and debit card information”.¹⁶² Relating to the interoperability of CBDC, ISO 20022 is among notable common data and message standards and would likely play a role in “enabling interoperability with other payment systems”.¹⁶³ The PBOC has discussed cutting-edge issues with not only multinational financial institutions but also regulators of different economies and universities.¹⁶⁴ China has “introduced standards” on CBDC in certain economies involved in the BRI,¹⁶⁵ and it is reported that the Legal Entity Identifier (LEI) will be both used in China’s CBDC ecosystem as part of the BRI.¹⁶⁶

Second, and relatedly, China proposes international principles for CBDC design, addressing various issues including the international use of CBDC and monitoring and information sharing.¹⁶⁷ The PBOC had reportedly “shared the proposals with other central banks and monetary authorities”.¹⁶⁸ China appears to propose the principle of “no detriment”, “compliance”, and “interconnectivity” for CBDC regulation,¹⁶⁹ which involve

¹⁵⁷ Chinese Ministry of Foreign Affairs, *Together, Let Us Fight COVID-19 and Create a Better Future (Remarks by H.E. Xi Jinping President of the People's Republic of China at Session I of the 15th G20 Leaders' Summit)*(2020), available at

https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1834379.shtml.

¹⁵⁸ Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁵⁹ Working Group on E-CNY Research and Development of the People's Bank of China, 14 (2021).

¹⁶⁰ Chen Jia, *China Promotes Global Digital Fiat Currency Standardization*(2018), available at http://english.www.gov.cn/state_council/ministries/2018/12/08/content_281476424565376.htm.

¹⁶¹ Qian Yao, *National Financial Standardization Technical Committee Secretary General Qian Yao: Prioritizing Standards, Promoting Going-Out of Finance*(2018), available at <https://mp.weixin.qq.com/s/EW5asUXbIUHZmvTSyY48Rg>.

¹⁶² Hu Yue, et al., *In Depth: China's Digital Currency Ambitions Lead the World*(2020), available at <https://asia.nikkei.com/Spotlight/Caixin/In-depth-China-s-digital-currency-ambitions-lead-the-world>.

¹⁶³ Bank of Canada, et al., 14 (2020); Central Bank Digital Currencies for Cross-Border Payments. (2021).

¹⁶⁴ Working Group on E-CNY Research and Development of the People's Bank of China, 14 (2021).

¹⁶⁵ Jia. 2018.

¹⁶⁶ Manesh Samtani, *PBOC Publishes Roadmap for Full LEI Adoption in China*(2020), available at [https://www.regulationasia.com/pboc-publishes-roadmap-for-full-lei-adoption-in-china/?ct=t\(21Dec2020-RA\)&goal=0_d30b640721-39debbd537-116648885&mc_cid=39debbd537&mc_eid=f71d230703](https://www.regulationasia.com/pboc-publishes-roadmap-for-full-lei-adoption-in-china/?ct=t(21Dec2020-RA)&goal=0_d30b640721-39debbd537-116648885&mc_cid=39debbd537&mc_eid=f71d230703).

¹⁶⁷ Tom Wilson & Marc Jones, *China Proposes Global Rules for Central Bank Digital Currencies*(2021), available at <https://www.reuters.com/article/us-cenbanks-digital-china-rules-idUSKBN2BH1TA>.

¹⁶⁸ Id. at.

¹⁶⁹ Working Group on E-CNY Research and Development of the People's Bank of China, 5 (2021).

CBDC's cross-border use.¹⁷⁰ The first requirement of “no detriment”, also seemingly called the “do not harm”¹⁷¹ or “no disruption” principle,¹⁷² means that one state's CBDC should not disrupt other states' currency sovereignty and their ability regarding monetary and financial stability, along with consumer protection and fair competition.¹⁷³ This appears to involve avoiding negative spillover effects on the economy of China and that of other jurisdictions (e.g., currency substitution).¹⁷⁴

The second requirement is “compliance”, requiring CBDC cross-border payments system to be compliant with the regulations of all connected jurisdictions (e.g., capital management, foreign exchange regulation).¹⁷⁵ Additionally, information flow and funds flow between jurisdictions may be synchronized to promote trade, bolster the real economy and deter illicit activities (e.g., satisfying AML and countering the financing of terrorism (CTF) requirements (AML/CTF), addressing tax evasion).¹⁷⁶ The synchronisation of information and fund flows serve to “facilitate regulators to monitor the transactions for compliance”.¹⁷⁷

The third requirement is “interconnectivity”: cross-border payments should, instead of a single CBDC being used for transactions on both sides of the border, involve interoperability between different jurisdictions' domestic CBDC systems and that between domestic CBDC systems and existing payment systems.¹⁷⁸ Here the PBOC “prefers a system where domestic CBDCs are converted to other currencies as payments cross borders”.¹⁷⁹ According to Changchun Mu, the Director-General of the DCI, “[w]e also propose a scalable and overseen foreign exchange platform supported by DLT (distributed ledger technology like blockchain) or other technologies”.¹⁸⁰

Third, China works on broader issues related to CBDC, particularly technology. China has been proactive in engaging in international standard setting for new technologies.¹⁸¹ For instance, the BSN reportedly envisages a “standardized digital currency transfer method and payment procedure”.¹⁸² If the BSN manages to develop its network at scale, this may “have a significant role in setting the standards” that would apply outside China.¹⁸³ The DCI is proactive in developing the blockchain standard system, and leads a number of working groups and standardization projects in standardization organizations at home and abroad.¹⁸⁴

4. China's CBDC approach: Selective reshaping?

Based on these features, China may selectively reshape international economic governance through e-CNY, particularly the US dollar-based international financial system and order.

¹⁷⁰ Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁷¹ Mu, 14. 2021.

¹⁷² Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁷³ Working Group on E-CNY Research and Development of the People's Bank of China, 5-6 (2021).

¹⁷⁴ Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁷⁵ Working Group on E-CNY Research and Development of the People's Bank of China, 5-6 (2021).

¹⁷⁶ Id. at; Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁷⁷ Wilson & Jones. 2021.

¹⁷⁸ Working Group on E-CNY Research and Development of the People's Bank of China, 5-6 (2021); Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

¹⁷⁹ Soderberg, et al., FINTECH NOTES NO 2022/004, 15 (2022).

¹⁸⁰ Wilson & Jones. 2021.

¹⁸¹ Global Times, *Chinese Standards Going Global an Unavoidable Trend*(2020), available at <https://www.globaltimes.cn/content/1187060.shtml>.

¹⁸² Ledger Insights, China's BSN blockchain network plans multinational CBDC pilot this year. 2021.

¹⁸³ Id. at.

¹⁸⁴ 21st Century Business Herald. 2021.

4.1 What is “selective”?

CBDC is a selective area in which China has an advantage in technology and standards. Essentially China could utilize its first-mover advantage in usage and technology. For instance, digital yuan may “enable China to internationalize digital currency payments before other countries’ CBDCs emerge”.¹⁸⁵ This is based on China’s strengths in not only CBDC but also related areas of FinTech and e-commerce.¹⁸⁶ Being selective is not uncommon in China’s practice in economic governance, such as China being observed to be selective in deregulation.¹⁸⁷

CBDC largely reflects a new technology, and international standards and design of CBDC are lacking.¹⁸⁸ E-CNY is “at the most advanced stage” within existing CBDC projects,¹⁸⁹ and its retail trial extended its lead over different economies’ efforts in exploring a CBDC.¹⁹⁰ The PBOC, state-owned enterprises (SOEs) and government subsidiaries have reportedly filed over 80 patents relating to CBDC.¹⁹¹

For standards, the PBOC “has built a relatively complete standard system, covering general requirements, business operation, interoperability, wallet, security and regulation”.¹⁹² CBDC is closely linked with digital payment. China’s digital payment development is arguably “setting the standard for the rest of the world, with payment systems even in countries with far wealthier populations, such as the United States, lagging on ease, efficiency, and cost”.¹⁹³

4.2 What is “reshaping”?

E-CNY may lead to multifaced reshaping of the international financial order. Reshaping includes China’s reduced reliance on the US dollar, the impact of China’s technology and standards on bilateral and multilateral frameworks concerning FinTech and CBDC, and other impacts on the international financial order (e.g., the possible emergence of currency “zones”¹⁹⁴).

First, utilising technology and a China-led network, e-CNY would likely reduce the reliance on the US dollar-based international financial system.¹⁹⁵ For technology, CBDC builds on FinTech that has “significant implications for reshaping *inter alia* global production and financial networks”.¹⁹⁶ It is observed that “digitization of the entire monetary base and a

¹⁸⁵ Knoerich, 161. 2021.

¹⁸⁶ Bryan Tan, *The BRI’s Digital Silk Road, in ASEAN AND THE BELT AND ROAD INITIATIVE - CONNECTIVITY THROUGH LAW AND COMMERCE* 289, (Basil C. Bitas ed. 2021).

¹⁸⁷ Christopher A. McNally, *Chaotic Mélange: Neo-Liberalism and Neo-Statism in the Age of Sino-Capitalism*, 27 *REVIEW OF INTERNATIONAL POLITICAL ECONOMY* 281, 287 (2020).

¹⁸⁸ Bansal & Singh, 10 (2021).

¹⁸⁹ Raphael Auer, et al., *Rise of the Central Bank Digital Currencies: Drivers, Approaches and Technologies*, BIS WORKING PAPERS NO 880, 22 (2020).

¹⁹⁰ John. 2020.

¹⁹¹ Hannah Murphy & Yuan Yang, *Patents Reveal Extent of China’s Digital Currency Plans*(2020), available at <https://www.ft.com/content/f10e94cc-4d74-11ea-95a0-43d18ec715f5>.

¹⁹² Working Group on E-CNY Research and Development of the People's Bank of China, 13 (2021).

¹⁹³ ESWAR S. PRASAD, *THE FUTURE OF MONEY: HOW THE DIGITAL REVOLUTION IS TRANSFORMING CURRENCIES AND FINANCE* 15 (Belknap Press. 2021).

¹⁹⁴ Chan, (2020).

¹⁹⁵ Yeung, *China Not Among Major Central Banks in Talks on Global Digital Currency Principles*. 2020.

¹⁹⁶ Karen P.Y. Lai & Michael Samers, *Towards an Economic Geography of FinTech*, 45 *PROGRESS IN HUMAN GEOGRAPHY* 720, 721 (2021).

speedy payments framework” would reduce reliance on the US dollar-based international financial system.¹⁹⁷ New technology provides an opportunity for developing countries such as China to “leapfrog wealthier economies by rapidly adopting new and more efficient ways of conducting banking and financial transactions”.¹⁹⁸ It would be arguably easier for new technologies to take off from a clean slate as opposed to encountering headwinds from vendors and users of pre-existing technologies.¹⁹⁹

In particular, cross-border payment is arguably the area in which China’s CBDC could maximize its effects and help develop a new international settlement system.²⁰⁰ E-CNY has the “potential to shift the world payments system in favour of the RMB”, and may “provide a completely new and different mechanism, entirely removed from these traditional payments systems”.²⁰¹ The currency may be used outside China’s borders, particularly by economies with close links with China. E-CNY It could also enable the direct exchange of currencies “without involving the dollar”, provided that “a more cost-efficient peer-to-peer transfer” method is commonly accepted by international business.²⁰² China’s CBDC would introduce a new payment rail that could arguably reduce the reliance on the US dollar and dollar-dominated payment rails.²⁰³

For the China-led network regarding trade and investment, China would likely build on such a network to reduce reliance on the US dollar. The reach of e-CNY may be expanded along the BRI as a possible dollar alternative.²⁰⁴ If properly managed, e-CNY may serve as “a simplified method for cross-border RMB-denominated settlement”, with lower currency exchange costs by reducing the need of an intermediary currency (particularly the dollar), improved efficiency and convenience.²⁰⁵ As trade with China may be billed in RMB, this has been dubbed by Charles Gave as “Asia’s new monetary order”, claiming that “‘parallel infrastructure’ is now in place” that permits states to “move between currencies”.²⁰⁶ E-CNY may be used by investors for investment relating to China and be popular “in developing countries with underdeveloped financial infrastructures or unstable currencies”.²⁰⁷ E-CNY may also be attractive to some emerging markets if cross-border payments become “easier and cheaper” and if these markets intend to “reduce their dependence on the dollar for geostrategic reasons”.²⁰⁸

Besides trade and investment discussed above, China may utilize its financial network to reduce its reliance on the dollar, such as through payments systems and swap lines. For one, e-CNY is observed to link with the country’s efforts to develop a new payments system based on CIPS.²⁰⁹ CIPS is, to some degree, “an international payment system for RMB”.²¹⁰ The

¹⁹⁷ Daniel Tenengauzer, et al., *An Existential Threat to the US Dollar*(2021), available at <https://www.bnymellon.com/us/en/insights/aerial-view-magazine/an-existential-threat-to-the-us-dollar.html>.

¹⁹⁸ PRASAD, 15. 2021.

¹⁹⁹ Id. at.

²⁰⁰ Yanting Wu, *Why Does the Digital RMB Accelerate?*, OUTLOOK WEEKLY (2021).

²⁰¹ Knoerich, 160. 2021.

²⁰² Somasundaram. 2021.

²⁰³ Bansal & Singh, 10 (2021).

²⁰⁴ Zetzsche, et al., UNIVERSITY OF HONG KONG FACULTY OF LAW RESEARCH PAPER NO. 2020/053, 6 (2020).

²⁰⁵ Knoerich, 158, 160. 2021.

²⁰⁶ Somasundaram. 2021.

²⁰⁷ Knoerich, 158, 159. 2021.

²⁰⁸ Somasundaram. 2021.

²⁰⁹ Raghuvveera & Bray. 2020.

²¹⁰ Kai Guo, et al., *RMB Internationalization*, in THE HANDBOOK OF CHINA'S FINANCIAL SYSTEM 244, (Marlene Amstad, et al. eds., 2021).

greater use of the CIPS would “reduce exposure of China’s global payments data to the United States”.²¹¹ China’s CBDC system may also be integrated with RMB swap lines to promote the use of RMB.²¹² This involves bilateral swap agreements of currencies between China and other states. Over 30 swap lines involving China were established by 2020, which exceeds the number of swap lines of other states (with the US having less than half of this number).²¹³ These RMB swap lines are attributable to China’s role as a major supplier of goods, investment and credit to developing economies, as well as its RMB internationalization effort.²¹⁴ These swap lines would reduce the reliance on the US dollar as they involve the currencies of states to the swap arrangements.

Second, China’s technology, standards and infrastructure may play an important role in bilateral and multilateral frameworks related to FinTech and CBDC. Through the potential issuance of CBDC, central banks would be “increasingly important in reshaping the regulatory and policy landscapes of FinTech”.²¹⁵ The knowledge and information of various actors may influence the emergence and maintenance of international regimes and agenda setting.²¹⁶ For China, the PBOC “has built a relatively complete standard system, covering general requirements, business operation, interoperability, wallet, security and regulation”.²¹⁷ Through e-CNY, China is observed to be “the first country to make a bold statement about the future of global payments and the type of data the government should have access to”.²¹⁸ China’s early push for CBDC helps develop a first-mover advantage in shaping the evolution of the international payments infrastructure that is important for cross-border remittances and trade.²¹⁹ China would likely play an influential role in shaping new rules and standards for CBDC (such as those on cross-currency and cross-border payments),²²⁰ and the way CBDCs are exchanged and traded in the international system.²²¹ China would also likely affect the direction of technological development.²²²

China’s proactive efforts in international governance could affect emerging standards related to CBDC. For instance, China “was the first to add digital currency-related content to the repository for ISO 20022, a new global standard covering financial information transferred between financial institutions that includes payment transactions, securities trading and settlement information, and credit and debit card information”.²²³ Relating to the interoperability of CBDC, ISO 20022 is among notable common data and message standards and would likely play a role in “enabling interoperability with other payment systems”.²²⁴

²¹¹ Reuters Staff, SWIFT Sets up JV with China's Central Bank. 2021.

²¹² Stephen O'Neal, *Global Compatibility Is a Key Factor in the CBDC Race, Says Expert*(2020), available at <https://cointelegraph.com/news/global-compatibility-is-a-key-factor-in-the-cbdc-race-says-expert>.

²¹³ Knoerich, 153. 2021.

²¹⁴ Somasundaram. 2021.

²¹⁵ Lai & Samers, *PROGRESS IN HUMAN GEOGRAPHY*, 722 (2021).

²¹⁶ DERRICK L. COGBURN, *TRANSNATIONAL ADVOCACY NETWORKS IN THE INFORMATION SOCIETY: PARTNERS OR PAWNS?* 28 (Palgrave Macmillan US. 2017).

²¹⁷ Working Group on E-CNY Research and Development of the People's Bank of China, 13 (2021).

²¹⁸ Christian Catalini & Jai Massari, *Stablecoins and the Future of Money*(2021), available at <https://hbr.org/2021/08/stablecoins-and-the-future-of-money>.

²¹⁹ Biswajit Banerjee, *Digital Currencies and Cross-Border Policy Cooperation and Coordination*, 2 G20 DIGEST 23, 30-31 (2020).

²²⁰ He, CIGI POLICY BRIEF NO. 169, 1 (2021).

²²¹ Bansal & Singh, 12 (2021).

²²² Knoerich, 161. 2021.

²²³ Yue, et al. 2020.

²²⁴ Bank of Canada, et al., 14 (2020); Committee on Payments and Market Infrastructures, et al., 14. 2021.

Third, e-CNY could affect international economic order in other ways. China's currency management may affect "the ideational and institutional underpinnings of international monetary relations".²²⁵ Indeed, given various factors including China's economic heft, e-CNY could likely impact the international financial and monetary system as a whole.²²⁶ E-CNY may also affect the design, policy choice and regulatory arrangements of other states concerning CBDC (such as "reshaping domestic finance"²²⁷). BRI states may learn from and develop CBDCs compatible with e-CNY,²²⁸ and e-CNY could contribute to the possible emergence of currency "zones" in the world economy.²²⁹ If connectivity is developed, "[w]hile interests can change, the hard wiring of digital and economic connectivity is far harder to break once established".²³⁰ E-CNY, even if not widely used, may be "geopolitically significant".²³¹

4.3 Conclusion

The three core features of e-CNY (the role of the state, possible cross-border use, and China's proactive efforts in international CBDC governance) contribute to the possibility of selective reshaping. The role of state is the crucial driving force or "engine" behind e-CNY and lays a foundation for e-CNY's possible international use and impact. There are "state-driven incentives" behind the e-CNY that would promote various aspects including the scalability of digital payments.²³² E-CNY enables China to form a state-led design of digital currency, regulation and ecosystem, giving the state the crucial role of shaping the future evolution of these areas such as digital payment. To illustrate, "China is a global leader in many consumer internet applications and DCEP should help the government further accelerate penetration into new customer segments".²³³ China's CBDC appears to echo China's efforts to put forward Chinese initiatives and plans in international economic governance and to enhance its capacity in global financial governance.²³⁴ For instance, CBDC may enable international transactions to be "better controlled".²³⁵

The possible international use of e-CNY and China's proactive efforts in affecting international governance are the main pathways for possible selective reshaping. E-CNY fits with China's major policy initiative to internationalize RMB.²³⁶ It is observed that such international use would promote the role of RMB in international transactions (e.g., pricing

²²⁵ McNally & Gruin, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 601 (2017).

²²⁶ Michael A. Peters, et al., *Cryptocurrencies, China's Sovereign Digital Currency (DCEP) and the US Dollar System*, EDUCATIONAL PHILOSOPHY AND THEORY 1, 5 (2020); Bansal & Singh, 1 (2021).

²²⁷ Eswar Prasad, *China's Digital Yuan—Premiering Globally at the Beijing Olympics—Could Become a Model for Other Countries*, (2022).

²²⁸ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 21 (2021).

²²⁹ Chan, (2020).

²³⁰ Choyleva. 2021.

²³¹ Briana Boland, *China Bulletin: Local and Geopolitical Implications of the Digital Yuan*, DENTONS FLASHPOINT, 16 (2021).

²³² Bansal & Singh, 9 (2021).

²³³ Sundeep Gantori, et al., *Information Technology: Understanding China's Digital Currency and Blockchain Initiatives*(2020), available at https://www.ubs.com/global/en/wealth-management/chief-investment-office/market-insights/regional-outlook/2020/dcep-chinas-digital-currency/_jcr_content/mainpar/toplevelgrid_1403950281/col2/teaser/linklist/actionbutton.0309890075.file/bGluay9wYXR0PS9jb250ZW50L2RhbS9hc3NldHMvd20vZ2xvYmFsL2Npby9tYXJrZXQtaW5zaWdodHMvZG9jL2l0LXVuZGVyc3RhbmRpbmctY2hpbmFzLWRpZ2l0YWwtY3VycmVuY3ktYmMucGRm/it-understanding-chinas-digital-currency-bc.pdf.

²³⁴ www.gov.cn, Chapter LXII, Section I. 2021.

²³⁵ Knoerich, 151. 2021.

²³⁶ Yeung, What Is China's Sovereign Digital Currency? 2020.

and settlement) and the financing of projects in the region, and its acceptance as a reserve currency.²³⁷

E-CNY seems to be China's latest major effort to reshape the international monetary system. It follows efforts such as RMB's inclusion in Special Drawing Rights (an international reserve asset created by the IMF) in 2016.²³⁸ E-CNY is observed to be "a key component of an alternative to the dollar-based order",²³⁹ and "a fundamental reconfiguration of the global monetary system".²⁴⁰

5. The sustainability of China's CBDC approach

CBDC systems, along with innovation,²⁴¹ provide a unique opportunity to reshape the international financial system. CBDC systems, including their cross-border use, start with a clean slate.²⁴² For digital money, "the field is on the cusp of major changes that have the potential to reshape cross-border payments and remittances".²⁴³

From the perspective of possible CBDC international use, the sustainability of China's CBDC approach (selective reshaping) would face economic, political economy, as well as legal and regulatory factors. Multiple factor analysis provides a holistic view of the future of China's CBDC approach. These factors should not be seen as mutually exclusive. Instead, these factors are related. For instance, resilience standards are related to economic factors of costs, and also involve legal considerations. They concern domestic and, more importantly, international aspects, since China's rising role in international governance is "circumscribed by structural and social conditions both domestically and internationally".²⁴⁴ These factors will both affect and be affected by e-CNY.

Given the lack of detailed information and the fast development of e-CNY, this part provides broad and primary examples to illustrate the open issues that deserve attention and works to provide a framework to analyze the future of China's CBDC approach.

5.1 Economic factors

Various economic factors would affect the performance of e-CNY. These factors pertain to economic efficiency and welfare.²⁴⁵ They raise crucial questions including CBDCs' operational arrangements (including operation costs and tasks), the public-private sector relationship, and consumer welfare (e.g., adoption costs concerning CBDC).²⁴⁶

5.1.1 CBDC-related costs

Costs related to CBDC would affect different stakeholders (e.g., businesses and end-users) and e-CNY's operation. On the one hand, CBDC may reduce transaction costs compared to

²³⁷ Banerjee, G20 DIGEST, 31 (2020);Olsson, et al. 2021.

²³⁸ McNally & Gruin, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 600 (2017).

²³⁹ Somasundaram. 2021.

²⁴⁰ Zetzsche, et al., UNIVERSITY OF HONG KONG FACULTY OF LAW RESEARCH PAPER NO. 2020/053, 6 (2020).

²⁴¹ G7, *Public Policy Principles for Retail Central Bank Digital Currencies*, 3 (2021).

²⁴² Committee on Payments and Market Infrastructures, et al., 3, 19. 2021.

²⁴³ Kristalina Georgieva, *Leveraging Digital Money to Facilitate Remittances*(2021), available at <https://www.imf.org/en/News/Articles/2021/04/14/sp041421-leveraging-digital-money-to-facilitate-remittances>.

²⁴⁴ Nana de Graaff, et al., *China's Rise in a Liberal World Order in Transition – Introduction to the FORUM*, 27 REVIEW OF INTERNATIONAL POLITICAL ECONOMY 191, 192 (2020).

²⁴⁵ Alex Cukierman, *Reflections on Welfare and Political Economy Aspects of a Central Bank Digital Currency*, 88 MANCHESTER SCHOOL 114, 117, 118 (2020).

²⁴⁶ Auer, et al., BIS WORKING PAPERS NO 976, 10, 11 (2021).

traditional currency.²⁴⁷ On the other hand, costs arise from different aspects, including the system's operation, regulation, technical design and interconnection with different systems. CBDC issuance "would require capital expenditure and impose running costs (just as for the production of cash today)".²⁴⁸ The regulation of the CBDC, such as data regulation, would also affect costs. Stringent restrictions on data use by businesses may affect potential business models in a CBDC ecosystem, and increase costs to end-users (such as indirect fees).²⁴⁹ Sophisticated technical design (e.g., the CBDC ledger) may work to promote the CBDC adoption but would also raise costs.²⁵⁰ CBDC also involves interconnections with other systems and the apportionment of costs and revenues across the system.²⁵¹

In particular, the costs to businesses are considerable and may, to some extent, be passed to end-users. The fee arrangement of e-CNY is as follows: the PBOC does not charge intermediaries or end-users fees; intermediaries shall not charge individual users; but intermediaries may charge merchants (as an incentive for businesses to enter the market, with fees kept in check).²⁵² While second-tier institutions would invest in equipment and technology,²⁵³ it is to be seen whether and how Tier 2.5 institutions would take these responsibilities. Evidently, firms will require viable business models to recover CBDC-related capital expenditures and running costs.²⁵⁴ CBDC requires higher business continuity and resilience standards for intermediaries, increasing costs for intermediaries who may in turn invest less in this regard than "is systemically optimal".²⁵⁵ These costs would involve Chinese and even foreign entities and largely depend on the CBDC design, which is to be seen.

5.1.2 The implications for markets

E-CNY's implications for markets would affect the sustainability of China's CBDC approach. These implications would affect not only businesses but also users' choice of e-CNY in particularly currency and payment markets. CBDC would likely bring institutional change "against the background of existing and forthcoming adoption of fintech innovations by the private financial system".²⁵⁶ One example is the possible substantial changes to the retail payments system.²⁵⁷ E-CNY has advantages (e.g., lower cost, offline function) compared with third-party mobile payment platforms in China, while these payment platforms have been incorporated into the e-CNY payment system.²⁵⁸ Given the great inertia in retail payment behaviours and the convenience of private payment services,²⁵⁹ it is to be seen whether e-CNY would change user habits. Legal reform may also be relevant to the uptake of e-CNY. Payment platforms (and relatedly, big tech firms) would have much less access to data than before in the e-CNY ecosystem, and this would affect their pre-existing

²⁴⁷

Atlantic Council, *Central Bank Digital Currency Tracker*, (2022).

²⁴⁸ Bank of Canada, et al., 13 (2020).

²⁴⁹ G7, 21 (2021).

²⁵⁰ Bank of Canada, et al., 13 (2020).

²⁵¹ Id. at, 16.

²⁵² Soderberg, et al., FINTECH NOTES NO 2022/004, 11 (2022).

²⁵³ Xiaochuan Zhou, *Understanding China's Central Bank Digital Currency*(2020), available at http://www.cf40.com/en/news_detail/11481.html; Mu, 13. 2021.

²⁵⁴ Bank of Canada, et al., 13 (2020).

²⁵⁵ Bank of Canada, et al., *Central Bank Digital Currencies: System Design and Interoperability*, 6 (2021).

²⁵⁶ Cukierman, MANCHESTER SCHOOL, 117, 118 (2020).

²⁵⁷ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 6 (2021).

²⁵⁸ He, CIGI POLICY BRIEF NO. 169, 3 (2021).

²⁵⁹ Auer, et al., BIS WORKING PAPERS NO 976, 10, 11 (2021).

competitiveness based on data.²⁶⁰ Another issue is that the introduction of authorised operators in e-CNY narrows market players, compared with fiat money distributed by all commercial banks and other actors. It is to be seen whether and how financial disintermediation can be avoided by e-CNY. Time will tell whether CBDC would bring major policy changes and whether it could dislocate the existing industry structure such as that in relation to banking.²⁶¹ Relating to international use of CBDC, it is observed that “depending on its attributes, a domestic CBDC could potentially compete with private digital currencies, foreign CBDCs, private payment platforms, or banks”.²⁶² CBDC could affect markets both in terms of businesses and users.

5.1.3 Macro-financial implications

Macro-financial implications of CBDC pertain to the issuing state and other jurisdictions involved, and would affect the sustainability of China’s CBDC approach. These macro-financial implications include potential financial stability risks, contagion effects, capital flow volatility, currency substitution risk, and the configurations of reserve currency by central banks.²⁶³ Even if a CBDC is solely intended for domestic use, it will have implications going beyond borders.²⁶⁴ This is recognised in a principle stated in the PBOC’s work on cross-border payments for CBDC, which seeks to avoid negative spillover effects on China and other states (e.g., currency substitution).²⁶⁵

5.1.4 Other economic factors

Other economic factors would affect the e-CNY’s possible reshaping of the international financial order. In particular, economic factors (e.g., confidence in the overall stability of a currency’s value, liquidity, the issuing state’s transactional network) would affect the currency’s international position.²⁶⁶

A key feature of e-CNY is China’s utilization of its transaction network to promote the currency (as discussed above). In such a network, the possible contexts of CBDC international use include retail usage (e.g., payments in retail CBDCs across borders²⁶⁷), international remittances, as well as trade in goods and services. The scale of a currency issuing state’s transactional networks in the international economy would affect international use of this currency.²⁶⁸ Trade provides a primary example. The use of a currency in world trade, especially for invoicing, is important for enhancing the currency’s role in international commerce.²⁶⁹

However, e-CNY’s cross-border use mainly hinges on RMB internationalization policy.²⁷⁰ RMB internationalization continues to face challenges, such as the development of the domestic financial markets and convertibility (especially in the capital account, due to capital controls).²⁷¹ For instance, “[d]eep capital markets with a large availability of safe assets and

²⁶⁰ He, CIGI POLICY BRIEF NO. 169, 5 (2021).

²⁶¹ Gantori, et al., 11. 2020.

²⁶² Marc Labonte & Rebecca M. Nelson, *Central Bank Digital Currencies: Policy Issues*, Summary (2022).

²⁶³ Committee on Payments and Market Infrastructures, et al., 1, 2. 2021.

²⁶⁴ Id. at, 19.

²⁶⁵ Soderberg, et al., FINTECH NOTES NO 2022/004, 14 (2022).

²⁶⁶ Hyoung-kyu Chey, *Theories of International Currencies and the Future of the World Monetary Order*, 14 INTERNATIONAL STUDIES REVIEW 51, 58-59 (2012).

²⁶⁷ Committee on Payments and Market Infrastructures, et al., 9. 2021.

²⁶⁸ Chey, INTERNATIONAL STUDIES REVIEW, 58, 59 (2012).

²⁶⁹ Auer, et al., BIS WORKING PAPERS NO 976, 10 (2021).

²⁷⁰ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 18 (2021).

²⁷¹ Chey, INTERNATIONAL STUDIES REVIEW, 61 (2012).

hedging capabilities” are important for an international currency.²⁷² Many economists are sceptical as to whether e-CNY’s impact would significantly spread beyond its borders “without official reforms to relax the yuan’s exchange rate convertibility”.²⁷³ E-CNY is likely to face similar roadblocks in its cross-border use.

5.2 Political economy factors

Political economy issues, including the role of the state, financial liberalization, and international political power, would affect currency, particularly currency internationalization.²⁷⁴ The analysis below focuses on the role of state that is a feature of China’s CBDC practice, and the new landscape of emerging digital currencies particularly other CBDCs which would affect the outcome of China’s proactiveness in international governance.

5.2.1 The relationship between the state and market

The relationship between the state and market in China differs from many other states, where the role of the state may be less prominent. China is observed to develop “CBDC with Chinese characteristics”.²⁷⁵ The centralized governance model of e-CNY is consistent with China’s traditional “state-centric modes of governance”,²⁷⁶ including “centralis[ing] control of the underlying monetary instrument across all payment systems” and “controlling currency inflows and outflows into the RMB area”.²⁷⁷ E-CNY reflects a key structural feature of China’s financial system that differentiates it from other major economies’ counterparts: the more significant role of the state.²⁷⁸ In other words, the role of the state in e-CNY, as discussed above, echoes China’s “unique mode of monetary governance that reflects a different relationship between the state and market” from the West.²⁷⁹ For example, the US could “choose to leave certain functions to the private sector that China aims to have the public sector provide”.²⁸⁰ Essentially, CBDC involves the complex task of defining roles and finding the proper balance between the responsibilities of the private sector, the public sector and the central bank.²⁸¹ Theoretically China’s monetary system may both “conflict and harmonize with the existing liberal system”.²⁸² On the whole, the practice and development of e-CNY and the interaction between the state and the market is to be seen.

5.2.2 Currency and payment solution competition

The international transaction of CBDCs has been explored by different economies. The ECB has reportedly indicated that a digital euro may help enhance the attractiveness and

²⁷² Auer, et al., BIS WORKING PAPERS No 976, 10 (2021).

²⁷³ Yeung, What Is China’s Sovereign Digital Currency? 2020.

²⁷⁴ Chey, INTERNATIONAL STUDIES REVIEW, 73 (2012).

²⁷⁵ Herbert Poenisch, *CBDC With Chinese Characteristics*(2020), available at <https://www.omfif.org/2020/09/cbdc-with-chinese-characteristics/>.

²⁷⁶ McNally, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 296 (2020).

²⁷⁷ Zetzsche, et al., UNIVERSITY OF HONG KONG FACULTY OF LAW RESEARCH PAPER NO. 2020/053, 6 (2020).

²⁷⁸ Darrell Duffie, *Foreword*, in THE HANDBOOK OF CHINA'S FINANCIAL SYSTEM vii, (Marlene Amstad, et al. eds., 2020).

²⁷⁹ McNally & Gruin, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 599 (2017).

²⁸⁰ Chorzempa, CHINA ECONOMIC JOURNAL, 9 (2021).

²⁸¹ Bank of Canada, et al., 11 (2021).

²⁸² McNally & Gruin, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 601 (2017).

international status of the Euro.²⁸³ Cross-border CBDC transactions are being tested by France and Switzerland.²⁸⁴

Other digital currencies and payment rails, including CBDCs possibly issued by other major economies like the US and EU, would likely compete with e-CNY. The emergence of CBDC could intensify the competition between currencies and incentivize central banks to respond (or not) to other states' CBDC decisions.²⁸⁵

On the one hand, technology evolution may affect power structures.²⁸⁶ Different economies may seek competitive advantages in the international economic order.²⁸⁷ As a first mover, e-CNY may enhance the role of RMB, particularly in the region, if everything goes smoothly. For the configuration of reserve currencies, the changes would evolve faster on a regional, rather than a global, level. This is because “[r]egional patterns, where trade connections are tighter, and political pressures stronger, may instead evolve more rapidly”.²⁸⁸ E-CNY would likely affect economies in the region that conduct RMB-denominated transactions with China.²⁸⁹

On the other hand, it is not easy for e-CNY to enhance its role in the international financial system. The RMB is currently of “limited importance” as an international reserve, trade and investment currency, and recent figures show that the reliance on payment infrastructure to promote RMB internationalization faces limits.²⁹⁰ Reduced costs in using foreign currencies through CBDC may “make already established international currencies even more attractive” given these currencies’ significant network effects.²⁹¹ Reserve currencies (e.g., the dollar, euro) may “become even more dominant if available digitally at a lower cost and to a wider user base”.²⁹² The US dollar and the euro are “deeply enmeshed in the international financial architecture”, making it difficult to substantially change the international financial order.²⁹³ Jan Knoerich argues that “[s]ome advanced-economy CBDCs, even if launched belatedly, might draw on their stronger and more internationally integrated financial systems to leapfrog the DCEP”.²⁹⁴

Moreover, payment solutions are among the major competitors of a CBDC.²⁹⁵ For cross-border payments, e-CNY will face competition with the correspondent banking model and dollar-dominated payment rails (e.g., PayPal).²⁹⁶

The future landscape is to be seen. The competition among currencies and payment solutions is likely to affect the promotion of Chinese standards outside China. It is to be seen whether pre-existing path dependence on the dominant international currency and

²⁸³ Francesco Canepa, *Digital Euro Could Boost Single Currency’s International Use*, ECB Says(2021), available at <https://www.reuters.com/business/digital-euro-could-boost-single-currencys-international-use-ecb-says-2021-06-02/>.

²⁸⁴ Labonte & Nelson, 11 (2022).

²⁸⁵ Auer, et al., BIS WORKING PAPERS NO 976, 9 (2021).

²⁸⁶ Marijn Janssen & Haiko van der Voort, *Adaptive Governance: Towards a Stable, Accountable and Responsive Government*, 33 GOVERNMENT INFORMATION QUARTERLY 1, 3 (2016).

²⁸⁷ McNally, REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 283 (2020).

²⁸⁸ Committee on Payments and Market Infrastructures, et al., 18. 2021.

²⁸⁹ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 18 (2021).

²⁹⁰ Knoerich, 155. 2021.

²⁹¹ Committee on Payments and Market Infrastructures, et al., 16. 2021.

²⁹² Id. at, 17.

²⁹³ Knoerich, 155. 2021.

²⁹⁴ Id. at, 162.

²⁹⁵ Shen & Hou, COMPUTER LAW & SECURITY REVIEW, 4 (2021).

²⁹⁶ Bansal & Singh, 9 (2021).

institutional equilibrium would be broken, which happened when the USD became the world's reserve currency.²⁹⁷

5.2.3 Other political economy factors

Other political economy factors (e.g., geo-economic relationships) affect the traditional RMB and its international position.²⁹⁸ This would also apply to e-CNY. The international use of CBDC would involve “complex issues such as sovereign power, interest and global politics” and “how to coordinate a global system”.²⁹⁹ For instance, there seems to be a “shift from a fairly cooperative mindset to a more competitive and conflictual one” that can be found in the US regarding its bilateral relationship with China.³⁰⁰ Uncertainties could exist regarding e-CNY's capability of cross-border payments, given the impact of politics on trade and capital flows.³⁰¹ Moreover, a risk may exist regarding “a widening gap between countries which are able to more quickly adapt to changing circumstances and countries that lack the means to safeguard themselves from potential adverse effects”.³⁰² This would affect the reception of CBDC by different economies.

Many questions beyond the scope of this article remain open. Will a more fragmented international financial order emerge? Or will digital currencies lead to a reorientation of the international financial architecture?³⁰³

5.3 Legal and regulatory factors

CBDC is more demanding of regulation than before, and e-CNY faces risks within and across China's borders. It is observed that “in any CBDC system, the central bank would face additional operational or oversight tasks and accompanying challenges regardless of the division of responsibilities among the various actors”.³⁰⁴ Regulation concerns a broad range of policy concerns and domestic and cross-border implementation practices. CBDC would involve the issues of how to address the protection of individual rights (particularly privacy) and consumer protection, financial integrity, data, and law enforcement. Other issues include cybersecurity, possible disintermediation at the time of financial stress, high technical standards and requirements for the PBOC and the commercial institutions in many aspects ranging from resilience and reliability to scalability and throughput.³⁰⁵ To illustrate, “[d]efending against cyber attacks will be made more difficult as the number of endpoints in a general purpose CBDC system will be significantly larger than those of current wholesale central bank systems”.³⁰⁶ E-CNY also needs to manage risks relating to data (e.g., the treatment of payment data, and data flow).

Several considerations of legal and regulatory aspects deserve attention here. First, cross-border transactions of CBDC would be more complex than existing cross-border transactions.

²⁹⁷ Weitseng Chen, *Size Matters? Renminbi Internationalization and the Beijing Consensus*, in *THE BEIJING CONSENSUS?: HOW CHINA HAS CHANGED WESTERN IDEAS OF LAW AND ECONOMIC DEVELOPMENT* 144, (Weitseng Chen ed. 2017).

²⁹⁸ Chey, *INTERNATIONAL STUDIES REVIEW*, 58-60 (2012).

²⁹⁹ Gantori, et al., 9. 2020.

³⁰⁰ ANTHEA ROBERTS & NICOLAS LAMP, *SIX FACES OF GLOBALIZATION: WHO WINS, WHO LOSES, AND WHY IT MATTERS* 127 (Harvard University Press. 2021).

³⁰¹ Amanda Lee, *Which Central Bank Will Launch World's First Digital Currency?*(2020), available at <https://www.scmp.com/economy/china-economy/article/3105435/which-central-bank-will-launch-worlds-first-digital-currency>.

³⁰² Committee on Payments and Market Infrastructures, et al., 17. 2021.

³⁰³ Knoerich, 149. 2021.

³⁰⁴ Bank of Canada, et al., 2 (2021).

³⁰⁵ Gantori, et al., 8. 2020.

³⁰⁶ Bank of Canada, et al., 5 (2020).

CBDCs generate data and concern digital identity (e.g., those concerning digital wallets). Meanwhile, CBDCs are likely to be first designed for domestic payment systems and users.³⁰⁷ International payments are more complicated than domestic ones due to the involvement of more regulations (like those of foreign exchange settlements), actors, jurisdictions and time zones.³⁰⁸ To enhance cross-border payments may also bring risks and challenges.³⁰⁹ The risks of CBDC international use include operational and cyber risks, as well as micro-financial and macro-financial risks (e.g., financial stability, contagion effects, and volatile capital flows).³¹⁰ All these require substantial effort and adaptability to have CBDC used in an international context involving different governance models, regulations and financial systems. Rules are needed to address issues like the access and use by non-residents to CBDC, and the definition of standards for cross-currency payments.³¹¹

Second, legal and regulatory factors are closely linked and embedded with technologies. Technology brings opportunities and challenges. On the one hand, CBDC operation and policy goals require technologies that likely include a set of complementary technologies to support CBDC's core features.³¹² CBDC designs could strengthen regulation, such as enabling issuing central banks to preclude or limit CBDC use outside the issuing jurisdiction, enabling wallets in recipient states to permit local authorities to impose capital flow regulatory measures, limiting CBDC circulation through programmability, and increasing the effectiveness of capital flow regulation.³¹³ On the other hand, different technologies of CBDC would bring complexity in issues like interoperability.

Third, selective reshaping is likely to encounter China-specific regulatory challenges. These challenges include the potential tension may arise between the need for RMB internationalization (e.g., international circulation through expanding capital outflows, capital account liberalization, and a flexible exchange rate) and China's possible concerns over reduced control over capital flows and increased fluctuation in the exchange rate.³¹⁴ Such tension could also exist in e-CNY.

All these complexities would set high requirements for law and regulation. As reflected in the major and sometimes overlapping issues below, regulatory and legal responses to these risks is crucial for the sustainability of China's CBDC approach.

5.3.1 Resiliency

Resiliency is critical to the success of e-CNY. The CBDC system would need to prove resilient in cases of cyber risks, technical failure and counterfeiting.³¹⁵ Maintaining the system's resilience would not be easy, since technology faces uncertainties in its operation and effects, and requires careful experimentation before its wide adoption. To illustrate, it is observed that "estimating current and future volumes and throughput requirements for a CBDC is complicated and exacerbated by other industry developments (eg payment requests generated by smart devices and the potential for high volume micro transactions)".³¹⁶ Furthermore, if specific resilience specifications for CBDC are onerous and impact a

³⁰⁷ Id. at, 16.

³⁰⁸ Id. at, 6.

³⁰⁹

id. at, 5.

³¹⁰ Committee on Payments and Market Infrastructures, et al., 2, 4. 2021.

³¹¹ G7, 14 (2021).

³¹² Bank of Canada, et al., 13 (2020).

³¹³ Committee on Payments and Market Infrastructures, et al., 15-16. 2021.

³¹⁴ Knoerich, 156, 159. 2021.

³¹⁵ Bank of Canada, et al., 6 (2021).

³¹⁶ Bank of Canada, et al., 14 (2020).

CBDC's performance (e.g., speed), this could reduce the functionality and use of that CBDC.³¹⁷

5.3.2 Interoperability

China's CBDC "would be connected to existing retail and wholesale payment systems".³¹⁸ The interoperability between existing and new systems (including infrastructures) is a complex issue faced by CBDC³¹⁹ and will test e-CNY with both domestic and international challenges. Interoperability means "technical or legal compatibility that enables a system or mechanism to be used in conjunction with other systems or mechanisms" and "permits participants in different systems to conduct clear and settle payments or financial transactions across systems without participating in multiple systems".³²⁰ Interoperability involves issues including lowering the barriers to membership of different systems (such as through common messaging standards and operating times), and possibly developing common business arrangements (such as a designated settlement agent between two systems concerning select payments).³²¹

Internationally, interoperability extends to that between CBDC systems of various economies and between CBDC systems and pre-existing payment systems.³²² Interoperability may need to be enabled at wholesale and retail levels, such as it being possibly "enabled between e-CNY and other retail systems and the conversion of e-CNY and other fiat currencies [that] would be processed at virtual borders between digital wallets".³²³ For instance, compatibility between currencies is crucial for interoperability (i.e., "technical or legal compatibility"³²⁴) by ensuring the efficiency and safety of money transfers.³²⁵ Notably, interoperability between cross-border CBDC systems is likely to encounter more hurdles and considerations than that in domestic CBDC operation.³²⁶ Here interoperability involves challenges like different compliance requirements and consumer protection rules concerning payment.³²⁷ A compatible ID scheme, without requiring an international database regarding CBDC end-users, may be needed to combat illicit finance.³²⁸

It is to be seen if and how e-CNY addresses interoperability issues. Interoperability is at the core of the third principle of interconnectivity that China proposes regarding CBDC cross-border use, which addresses the interlink among financial systems. A key example of China's efforts towards developing interoperability is its involvement in the mCBDC Bridge.³²⁹ This project faces roadblocks in aspects like governance. The mCBDC Bridge's operating model builds on the Inthanon-LionRock concept. Under that concept, international payments are "processed through a jointly operated 'corridor network' linking up" separate national wholesale CBDC networks.³³⁰ The mCBDC Bridge considers establishing a single mCBDC system across jurisdictions, and it follows a model that "would apply the concept of

³¹⁷ G7, 21 (2021).

³¹⁸ Committee on Payments and Market Infrastructures, et al., 8. 2021.

³¹⁹ Id. at, 19.

³²⁰ Id. at, 21.

³²¹ Bank of Canada, et al., 7 (2020).

³²² BIS Innovation Hub Hong Kong Centre, et al., 53. 2021.

³²³ Committee on Payments and Market Infrastructures, et al., 8. 2021.

³²⁴ Id. at, 21.

³²⁵ Bank of Canada, et al., 17 (2020).

³²⁶ Bank of Canada, et al., 9 (2021).

³²⁷ Id. at, 11.

³²⁸ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 36, 38 (2021).

³²⁹ BIS Innovation Hub Hong Kong Centre, et al., 7. 2021.

³³⁰ Committee on Payments and Market Infrastructures, et al., 12. 2021.

creating new multilateral payment platforms” and go beyond basic compatibility.³³¹ This model implies deeper integration and “cooperation of a higher magnitude among central banks”, building on “having a single set of rules, a single technical system, and a single set of participants”.³³² Such a model of deeper integration helps promote operational functionality and efficiency, but increases operational costs and “the governance and control hurdles (eg wider access might allow more efficient settlement but increases other risks) as well as policy issues”.³³³ It is observed that “[a]ny design principles for such multi-CBDC arrangements would need to be coordinated at the global level so that they meet the needs of all countries and are widely adopted to limit arbitrage”.³³⁴ The requirement of global level coordination is challenging regarding CBDC given the different national positions and sensitive issues concerning CBDC (e.g., data and sovereignty). As another example, China has built a blockchain-based e-CNY distributed ledger so that operational institutions could perform tasks like cross-institution reconciliations for the exchange of digital currencies with most commercial banks and the general public.³³⁵ Here, technical standards for blockchain interconnectivity, blockchain scalability, privacy protection, information security, and auditing need to be addressed.³³⁶

Moreover, there are challenges like domestic circumstances and tensions among different considerations. Importantly, “[i]nteroperable system designs would be significantly influenced by idiosyncratic domestic circumstances”.³³⁷ China’s CBDC approach and domestic circumstances are not the same as other states’. For instance, China’s social conditions, the population’s familiarity with digital payment and the scalability of FinTech is helpful for promoting e-CNY,³³⁸ but such conditions do not necessarily exist in other jurisdictions involved in the international use of e-CNY. Moreover, there is a tension between sharing limited information about the CBDC operation to maintain a “lead” and openly sharing the lessons to promote soft power advantages and interoperability.³³⁹ It is to be seen how the e-CNY system would address these issues and interact with the international financial system concerning interoperability.

5.3.3 Adaptability

Adaptability, or flexibility, will test e-CNY. A CBDC ecosystem should “be flexible to accommodate future user demands and interoperate with new and existing systems and arrangements while at the same time safeguarding policy goals and system resilience”.³⁴⁰ Adaptability is also useful to address heterogeneous use cases of CBDC. All these explain why a flexible approach is explored by e-CNY. E-CNY benefits from cryptocurrencies’ low issuance cost and traceability while maintaining the advantages of physical currency (e.g., fiat currency status).³⁴¹ For e-CNY, “the two-tier system gives the commercial institutions the freedom to choose the right technology in the distribution layer”.³⁴² In the e-CNY pilot,

³³¹ Id. at, 9, 10, 11, 19.

³³² Id. at, 9.

³³³ Id. at, 9, 14.

³³⁴ Auer, et al., BIS WORKING PAPERS NO 976, 22 (2021).

³³⁵ Ningwei Qin, *PBOC Has Established an E-CNY Distributed Ledger*(2021), available at <https://forkast.news/headlines/pboc-built-ecny-distributed-ledger/>.

³³⁶ Id. at.

³³⁷ Bank of Canada, et al., 12 (2021).

³³⁸ See, e.g., Knoerich, 162. 2021.

³³⁹ Chorzempa, CHINA ECONOMIC JOURNAL, 11 (2021).

³⁴⁰ Bank of Canada, et al., 11 (2021).

³⁴¹ Gantori, et al., 6. 2020.

³⁴² Id. at.

“[a]ll the authorised operators have formulated an exit plan as part of the pilot programme, similar to a ‘sandbox’ model, to ensure that the process is reversible”.³⁴³

It is to be seen how the adaptability of e-CNY will perform. First, “the governance of the daily operations often requires immediate responses”, but this would likely involve uncertainties (caused by factors like the difficulties in predefining every requirement and changes occurring in the operation) and unexpected behavior.³⁴⁴ Second, flexibility needs to be balanced with stability, important for social and economic systems.³⁴⁵ The changes induced by regulatory measures should not risk outcomes that are irreversible or unacceptable.³⁴⁶ An example of such outcomes could be data leakage. Potential ways of avoiding irreversible harm involve how to establish a strong oversight system to ensure reversibility,³⁴⁷ and how to identify and choose among a range of policy options regarding potential and real problems.

5.3.4 International coordination

The cross-border use of e-CNY needs to address coordination at the international level.³⁴⁸ On the one hand, domestic laws would play a crucial role in international use of the CBDC. The mobility of CBDC concerns monetary autonomy of states. Sovereignty and compliance with domestic law are highlighted in the first two principles (i.e., no detriment, compliance) China proposes regarding CBDC cross-border use.³⁴⁹ They are likely to involve issues ranging from data to foreign exchange. For instance, China may need to satisfy currency exchange regulations of other states for the international use of e-CNY (e.g., the distribution of e-CNY to foreign nationals).³⁵⁰ RMB-invoiced international trade may utilize China’s CBDC, “but this is still subject to consultation with other central banks and entities”.³⁵¹

On the other hand, the coordination of regulation is important to address problems in CBDCs’ cross-border operation that are largely attributable to different national laws. International standards for CBDC-related systems and services (such as digital identity repositories) are needed.³⁵² Important issues for the international use of CBDC include the aligning of regulatory frameworks, consistent technical and regulatory standards (including AML/CTF checks), identity management concerning CBDC users, cross-border access to domestic CBDC, and payment system access.³⁵³ More generally, international coordination is needed regarding capital flow management, treatment of data and privacy, and tax and payments rules.³⁵⁴ Other relevant issues include rules on settlement finality, participation criteria for payment systems, and rules on the conflict of laws.³⁵⁵ Overall, central banks of

³⁴³ Auer, et al., BIS WORKING PAPERS NO 880, 24 (2020).

³⁴⁴ Janssen & van der Voort, GOVERNMENT INFORMATION QUARTERLY, 2 (2016).

³⁴⁵ Barbara A. Cosens, et al., *The Role of Law in Adaptive Governance*, 22 ECOLOGY AND SOCIETY 1, 2 (2017).

³⁴⁶ Rosie Cooney & Andrew T.F. Lang, *Taking Uncertainty Seriously: Adaptive Governance and International Trade*, 18 EUROPEAN JOURNAL OF INTERNATIONAL LAW 523, 536 (2007).

³⁴⁷ Id. at, 537.

³⁴⁸ Gantori, et al., 9. 2020.

³⁴⁹ Please see Section 3.3.

³⁵⁰ Bansal & Singh, 14-15 (2021).

³⁵¹ Committee on Payments and Market Infrastructures, et al., 8. 2021.

³⁵² Bank of Canada, et al., 7 (2020).

³⁵³ Committee on Payments and Market Infrastructures, et al., 1, 3, 4. 2021; Bank of Canada, et al., 7 (2021).

³⁵⁴ Soderberg, et al., FINTECH NOTES NO 2022/004, 15 (2022).

³⁵⁵ Committee on Payments and Market Infrastructures, et al., 5. 2021.

the issuing and recipient states would need to agree on and have insights into aggregate cross-border use of CBDC, in the case of account-based currencies.³⁵⁶

Coordination between institutions like central banks and related public authorities are crucial to understand and manage any unintended effects of CBDC usage (e.g., a CBDC's impact on another jurisdiction's monetary policy or financial stability or use in avoiding rules outside a jurisdiction where sufficient regulation is not in place).³⁵⁷ A cross-border CBDC could generate other challenges that have the potential to "spillover" into other economies.³⁵⁸ Coordination and information exchange among different institutions would help to address these issues.

International coordination is challenging, although there are various projects that are working to promote international collaboration on CBDC. Privacy protection provides a prime example. In the economy and the monetary system, the centrality of data (e.g., personal and business data) is increasing.³⁵⁹ Data brings new challenges for privacy.³⁶⁰ It is argued that other economies using e-CNY "will find it difficult to control or monitor the flow of the Digital Yuan, and will have to take measures to protect the privacy of their domestic users".³⁶¹ States also have divergent standards on privacy. Ideally central banks could reach an agreement on the level of privacy available to users in making or receiving international payments.³⁶² However, an international dialogue on the degree of anonymity in CBDCs would likely encounter obstacles, given different approaches and divergent interests of major economies, such as the US, the EU, and China.³⁶³ Concerning CBDC, the G7 has indicated various general principles regarding data collection and processing such as data minimisation, transparency and accountability.³⁶⁴ It is to be seen whether a consensus by different jurisdictions can be reached. Instead, a group or club of states may adopt common standards and affect other states as they may need to meet these rules to access the group's CBDC network.³⁶⁵

Behind the challenges in international coordination are the complicated policy trade-offs of different considerations such as security and efficiency. These considerations would affect the setting of CBDC regulatory expectations and implementation. To illustrate, the balance between fighting against financial crimes and privacy protection would affect who may access which parts of a transaction's data (such as payments data in the context of evolving data protection law) and under what circumstances.³⁶⁶ On the one hand, the identification of users is useful to promote the payment system's safety and integrity through deterring fraud and combating illicit activities such as money laundering.³⁶⁷ Relatedly this requires close collaboration with regulators like tax authorities.³⁶⁸ On the other hand, challenges exist

³⁵⁶ Auer, et al., BIS WORKING PAPERS NO 976, 9 (2021).

³⁵⁷ Bank of Canada, et al., 17 (2020).

³⁵⁸ Id. at, 7; Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 1-41 (2021).

³⁵⁹ Auer, et al., BIS WORKING PAPERS NO 976, 6 (2021).

³⁶⁰ Id. at.

³⁶¹ Tsang & Chen, ACCEPTED FOR PUBLICATION IN CAPITAL MARKETS LAW JOURNAL, 1 (2021).

³⁶² Committee on Payments and Market Infrastructures, et al., 7. 2021.

³⁶³ Nicola Bilotta, *CBDCs and Stablecoins: The Scramble for (Controllable) Anonymity*, in THE (NEAR) FUTURE OF CENTRAL BANK DIGITAL CURRENCIES: RISKS AND OPPORTUNITIES FOR THE GLOBAL ECONOMY AND SOCIETY 177, (Nicola Bilotta & Fabrizio Botti eds., 2021).

³⁶⁴ G7, 7 (2021).

³⁶⁵ Bilotta, 177. 2021.

³⁶⁶ Bank of Canada, et al., 6 (2020).

³⁶⁷ Committee on Payments and Market Infrastructures, et al., 7. 2021.

³⁶⁸ Bank of Canada, et al., 6 (2020).

regarding how to protect privacy. When a CBDC infrastructure needs to expand its capacity substantially due to increased demand, this could “require compromises on some features that might otherwise be desirable (such as computationally demanding privacy techniques or programmable payments) as additional complexities could increase the processing demand on the system”.³⁶⁹ More broadly speaking, the trade-off may mean that “not all motivations can be realised simultaneously”.³⁷⁰ The balances of motivations and objects of different states regarding CBDC, as well as national circumstances and capacity (including the characteristics of the payment systems, staffing), vary widely.³⁷¹

5.4 Conclusion

The landscape regarding selective reshaping is in flux and remains unclear at this stage. E-CNY is a moving target in terms of its operation and development. On the one hand, a new regional reserve currency may arise due to a new CBDC’s attractive features.³⁷² If properly managed, CBDC would increase the efficiency, reduce the risks and costs of cross-border payments (such as reducing the intermediation chains in the payment processes), improve integration, and enhance safety and technical compatibility.³⁷³ E-CNY might strengthen RMB’s role in the region. The international use of e-CNY would likely start from a payment infrastructure and system, and is more likely to reshape cross-border payment than the investment and reserve currency system due to factors like the need for greater international liquidity of the RMB.³⁷⁴ On the other hand, “the credibility and stability of institutions, degree of financial openness, and the rule of law, as well as geopolitical forces, remain essential ingredients to currency internationalization and tend to move slowly”.³⁷⁵ For instance, adequate accountability and supervisory arrangement are necessary.³⁷⁶ They would likely help increase the confidence in e-CNY. On the whole, the economic, political economy, legal and regulatory factors would affect the trust in e-CNY.

6. Conclusion

E-CNY features the role of the state, the possible extension of e-CNY into cross-border transactions, and China’s proactiveness in international governance. Through this CBDC, China could selectively reshape global finance, which is among the new domains of international relations.³⁷⁷ However, the sustainability of selective reshaping would be profoundly affected by economic, political economy, legal and regulatory factors.

The interaction and impact of e-CNY on international monetary system deserve further research, such as whether and how e-CNY would chart a novel course for the international financial system. Eventually, the trust in the currency is crucial, which is affected by many factors including the governance, the openness of a currency system and economic development of the issuing country.³⁷⁸

³⁶⁹ Id. at, 15.

³⁷⁰ Id. at, 5.

³⁷¹ Committee on Payments and Market Infrastructures, et al., 3, 4. 2021; Soderberg, et al., FINTECH NOTES NO 2022/004, 1, 3 (2022).

³⁷² Committee on Payments and Market Infrastructures, et al., 18. 2021.

³⁷³ Id. at, 2, 4.

³⁷⁴ Knoerich, 160. 2021.

³⁷⁵ Committee on Payments and Market Infrastructures, et al., 17. 2021.

³⁷⁶ Cooney & Lang, EUROPEAN JOURNAL OF INTERNATIONAL LAW, 536 (2007).

³⁷⁷ Thomas Hale, *Transnational Actors and Transnational Governance in Global Environmental Politics*, 23 ANNUAL REVIEW OF POLITICAL SCIENCE 203, 206 (2020).

³⁷⁸ See, e.g., Knoerich, 157, 159. 2021.

John Kiff, et al., *A Survey of Research on Retail Central Bank Digital Currency*, IMF WORKING PAPER NO. 20/104 (2020).

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Martin Chorzempa, *China, the United States, and Central Bank Digital Currencies: How Important Is It to Be First?*, CHINA ECONOMIC JOURNAL 1(2021).

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