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## Chapter 7: China's New Digital Currency: Implications for Renminbi Internationalization and the US Dollar

Central bank digital currencies (CBDCs) are predicted to transform the way ordinary payments will be made in the future, both within countries and across national borders. Several countries have begun the process of developing them, and China is widely recognized as running the world's most advanced programme in this area. As early as 2014, the People's Bank of China (PBoC) had set up an expert research team to explore the technical and regulatory requirements for a CBDC, and in 2017 it established its own Digital Currency Research Institute.<sup>1</sup> The most significant development occurred in April 2020, when China became the first country to launch a pilot programme to test its digital currency. Given the head start China has had over other countries in developing a CBDC, the suitability of a digital currency to what is already a largely cashless society and the determination of the Chinese government to forge ahead with this project, it is reasonable to expect that the first CBDC in the world will be launched by China.

For China, being a first mover in the development of such an important new technology can be of particular geo-strategic significance. Not only would an early introduction of a CBDC place China in an advantageous position for an upcoming battle against other digital currencies and Facebook's Libra, it would also play a role in China's ongoing efforts to internationalize its currency, the renminbi (RMB), aimed at increasing its attractiveness as a global trade, investment and reserve currency. As the second largest economy that is on track to become the world's largest, and as the world's largest exporter, China holds aspirations to unseat the United States as the leading global political and economic power. A strong RMB would enhance China's ability to project its power internationally and challenge the US dollar's preeminent global role. Could a CBDC be a

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1 'Digital Currency Research Institute of the People's Bank of China', in *China Banking News*, 2 October 2018, <https://www.chinabankingnews.com/?p=12050>; Chuan Tian, 'China's Central Bank Opens New Digital Currency Research Institute', in *CoinDesk*, 30 June 2017, <https://www.coindesk.com/chinas-central-bank-opens-new-digital-currency-research-institute>.

game-changer, effectively enabling China to elevate the RMB to a more dominant international position?

This chapter examines China's plans for a CBDC in detail to assess its potential significance for China and the world. It begins by analysing the expected properties of the proposed digital currency and the implications it could have for payments in China and beyond. Next, it will discuss progress made with the internationalization of the RMB and the potential contribution China's digital currency can make in this process of currency internationalization. Finally, the chapter will consider the extent to which China's CBDC could enable the RMB to challenge the US dollar and what the implications are for global currency politics.<sup>2</sup>

## 7.1 China's new central bank digital currency

China's CBDC project runs under the label Digital Currency/Electronic Payments (DCEP). While many details are still subject to final confirmation and may change according to insights obtained from the pilot phase, and much is being kept secret, the current state of knowledge suggests that DCEP will have the following properties and functions.

### *Properties and functions of DCEP*

As the terminology indicates, DCEP's main purpose is to create an electronic mode for payments that is sanctioned as legal tender by the Chinese government.<sup>3</sup> It will be fully backed by the central bank at a 1:1 ratio to RMB fiat currency and effectively constitute a central bank liability. DCEP aims to substitute cash (M0 money supply) without altering the money in circulation and will be non-interest bearing and subject to transaction limits and payments regulations.<sup>4</sup> It is expected to be token-based and is not envisioned to serve as a store of value.

DCEP will operate a two-tiered system. The first tier will involve the PBoC issuing digital currency to intermediaries, which will be China's four major state-owned commercial banks (Bank of China, Industrial and Commercial Bank of China, China Construction Bank and Agricultural Bank of China), and payment

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2 The author would like to thank four experts for the thoughts and insights they provided on the subject.

3 Michael Gu, 'China's National Digital Currency DCEP/CBDC Overview', in *Boxmining*, 13 October 2020, [https://boxmining.com/dcep/#What\\_is\\_DCEP](https://boxmining.com/dcep/#What_is_DCEP).

4 Katie-Ann Wilson, 'China's Next World-First', in *OMFIF Articles*, 3 July 2020, <https://www.omfif.org/2020/07/chinas-next-world-first>.

services such as Alibaba's Alipay, Tencent's WeChat Pay and China UnionPay. Telecommunications companies China Telecom, China Mobile, China Unicom and, potentially, Huawei, will also be involved. As the second tier, the intermediaries will distribute digital currency to individuals and companies in the retail sector. While avenues for distribution might vary, many expect the digital currency will be held in digital wallets, with electronic payments to be made through transfers between these wallets. Using DCEP will not be tied to the possession of a bank account, though bank deposits can be converted into digital currency.<sup>5</sup> It is therefore not intended to substitute demand or savings deposits (M1 or M2), although this could be attempted at a later stage of DCEP's development.<sup>6</sup> The technology is expected to have functionality for near-field communication (NFC), such as Bluetooth, to enable payments even when the devices used at the time of transaction are offline or in areas with low internet coverage. Such offline payments could be accomplished by touching two smartphones.<sup>7</sup>

The technological properties of DCEP have yet to be finalized, and the current approach accommodates various technological solutions to allow for future adjustments in view of technological advances. Technological solutions will have to meet specified requirements in the first tier (such as high scalability, high concurrency, good customer experience and strict technical specifications), while different types of ledger systems (distributed, centralized, blockchain) and payment methods (mobile, internet, offline) could be accommodated in the second tier, depending on the preferences of the intermediaries.<sup>8</sup> It is quite possible that distributed ledger technology (DLT) will play an important role and is likely to involve 'permissioned' DLT or blockchain networks,<sup>9</sup> in which access to the blockchain and ledger updating will be limited to a select group, enabling the

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- 5 Michael Gu, 'China's National Digital Currency DCEP/CBDC Overview', cit.; 'China's Digital Currency to Start Pilots', in *Ledger Insights*, 9 December 2019, <https://www.ledgerinsights.com/?p=10208>.
  - 6 Cissy Zhou, 'China's Digital Currency Edges Closer with Large-Scale Test by Four State-Owned Banks', in *South China Morning Post*, 6 August 2020, <https://www.scmp.com/economy/china-economy/article/3096296/chinas-digital-currency-edges-closer-large-scale-test-four>.
  - 7 Michael Gu, 'China's National Digital Currency DCEP/CBDC Overview', cit.
  - 8 Sundeep Gantori et al., *Information Technology. Understanding China's Digital Currency and Blockchain Initiatives*, UBS, 23 April 2020, <https://docplayer.net/191072050-Information-technology.html>.
  - 9 Yuan Yang and Hudson Lockett, 'What is China's Digital Currency Plan?', in *Financial Times*, 25 November 2019, <https://www.ft.com/content/e3f9c3c2-0aaf-11ea-bb52-34c8d9dc6d84>.

central bank to maintain control over the money supply.<sup>10</sup> China's leaders have been vigorously pushing research into blockchain technologies over the past few years and its State Information Center (SIC) has recently established the Blockchain Service Network (BSN) to expand and better integrate blockchain infrastructure both domestically and internationally.<sup>11</sup> However, the technologies used for DCEP must have the capacity to process a vast number of small-scale transactions, potentially as many as 300,000 transactions per second,<sup>12</sup> which may be difficult to achieve with existing blockchain technologies (Alipay has reported being able to process up to 256,000 payment transactions per second).<sup>13</sup> The PBoC has filed more than 80 patents related to DCEP,<sup>14</sup> and the large Chinese internet giants (e.g. Alibaba and Tencent) are working with the Chinese government on the development of DCEP.<sup>15</sup>

DCEP will probably operate under the principle of 'controllable anonymity'. This means that, while all transactions are recorded, only the PBoC will have the capability to track overall payment behaviour.<sup>16</sup> This could erode privacy,

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- 10 PwC, *The Rise of Central Bank Digital Currencies (CBDCs). What You Need to Know*, November 2019, <https://www.pwc.com/gx/en/financial-services/pdf/the-rise-of-central-bank-digital-currencies.pdf>.
  - 11 Sundeep Gantori et al., *Information Technology...*, cit.; David Pan, 'China's Blockchain Infrastructure to Extend Global Reach', in *CoinDesk*, 21 July 2020, <https://www.coindesk.com/chinas-blockchain-infrastructure-to-extend-global-reach-with-six-public-chains>.
  - 12 Sundeep Gantori et al., *Information Technology...*, cit.
  - 13 See Alipay Twitter post of 11 November 2017: <https://twitter.com/alipay/status/929123909970153472>.
  - 14 Hannah Murphy and Yuan Yang, 'Patents Reveal Extent of China's Digital Currency Plans', in *Financial Times*, 12 February 2020, <https://www.ft.com/content/f10e94cc-4d74-11ea-95a0-43d18ec715f5>.
  - 15 Henny Sender, 'China's New Digital Currency Takes Aim at Alibaba and Tencent', in *Financial Times*, 4 August 2020, <https://www.ft.com/content/fec06de9-ac43-4ab8-81f3-577638bd3c16>; Jonas Gross and Alexander Bechtel, 'China's Digital Currency Project: What Is DC/EP All About?', in *Medium*, 4 June 2020, <https://link.medium.com/IbOTCm63Mab>.
  - 16 Ye Shi and Shucheng Zhou, *Central Bank Digital Currencies: Towards a Chinese Approach. Design Choices of Digital Currency Electronic Payment*, Master Thesis, Jönköping University International Business School, May 2020, <http://urn.kb.se/resolve?urn=urn:nbn:se:hj:diva-48662>; Raymond Zhong, 'China's Cryptocurrency Plan Has A Powerful Partner: Big Brother', in *The New York Times*, 18 October 2019, <https://nyti.ms/32sFMnw>.

and the PBoC will need to offer reassurances that it will use such powers only in circumstances where illicit financial activities are suspected.

The overall operational structure of DCEP is expected to follow a '1,2,3 framework',<sup>17</sup> referring to the digital currency as the one token and the PBoC's central ledger and the data centres of the intermediaries as two separated but connected addresses. There are also three centres – an Identification Centre to identify new users, a Record Centre to record all transactions, issuances and transfers, and an Analytics Centre to conduct big data analysis of customer behaviours, macro-economic implications and illicit activities.<sup>18</sup>

The PBoC has announced that the back-end architecture development for DCEP, including design, standards and functionality, has been completed. DCEP is now being tested and corresponding laws are being drafted.<sup>19</sup> Pilot trials were launched in April 2020 in Shenzhen, Suzhou (Xiangcheng District), Chengdu and Xiong'an near Beijing, in which government and bank employees and public servants have received specified funds such as parts of their transport subsidies in digital currency, and selected catering and retail companies have been involved in testing the digital currency.<sup>20</sup> As part of the trials, state-owned commercial banks have been developing and testing consumer-facing DCEP digital wallets. As the pilot phase continues, new types of trials are being launched, covering various kinds of economic activities. For example, one trial involved giving 50 thousand Shenzhen residents digital coupons worth RMB 200 yuan each, to be spent between 12 and 18 October 2020 in designated shops.<sup>21</sup> How long trials

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- 17 Ryan Todd and Mike Rogers, *A Global Look at Central Bank Digital Currencies. From Iteration to Implementation*, The Block Research for KPMG and Blockset, August 2020, [https://www.tbstat.com/wp/uploads/2020/08/KPMG-CBDC-Report.FINAL\\_.v.1.02.pdf](https://www.tbstat.com/wp/uploads/2020/08/KPMG-CBDC-Report.FINAL_.v.1.02.pdf).
  - 18 Shuyao Kong, 'DCEP: An Inside Look at China's Digital Currency', in *Decrypt*, 28 June 2020, <https://decrypt.co/33866>; Ye Shi and Shucheng Zhou, *Central Bank Digital Currencies: Towards a Chinese Approach*, cit.
  - 19 Mohammad Musharraf, 'Digital Yuan's Backend Development Complete, Says Chinese Official', in *CoinTelegraph*, 22 June 2020, <https://cointelegraph.com/news/digital-yuan-backend-development-complete-says-chinese-official>; Michael Gu, 'China's National Digital Currency DCEP/CBDC Overview', cit.
  - 20 Helen Davidson, 'China Starts Major Trial of State-run Digital Currency', in *The Guardian*, 28 April 2020, <https://gu.com/p/dm3g3>; Sundeep Gantori et al., *Information Technology...*, cit.
  - 21 Hu Yue and Luo Meihan, 'China Gives Away \$1.5 Million to Test Digital Currency', in *Caixin Global*, 9 October 2020, <https://www.caixinglobal.com/2020-10-12/china-gives-away-15-million-to-test-digital-currency-101613663.html>.

will continue until DCEP is ready for a full launch is unclear and no official timetable has been given. The 2022 Beijing Winter Olympics have been suggested as a venue to test DCEP on foreign visitors,<sup>22</sup> an indication that some time might still pass before the digital currency is ready for a full launch.

### ***Implications of a digital currency for China***

There are many reasons why DCEP could be beneficial to China, especially when launched relatively early. These benefits could explain Beijing's ambitions to vigorously push this initiative.

Generally, DCEP could lower the cost of issuing paper money and coins, reduce the friction of bank transfers and make financial transactions more efficient.<sup>23</sup> In pushing DCEP, the government is reacting to the rapidly declining role of cash in Chinese society, where people are exceptionally adept in using their smartphones for all kinds of transactions, large or small.<sup>24</sup> More than 80 per cent of smartphone owners use them for payments in China, which has the largest mobile payment adoption rate globally.<sup>25</sup> Private payment services such as Alipay and WeChat Pay have become powerful and systemically relevant in China and clawing back some of this power into the hands of the state-owned commercial banks and the PBoC could strengthen financial supervision and financial stability.<sup>26</sup> Wrestling back some of this power will also reduce the influence these companies will have on determining the future evolution of digital payments.

DCEP can further advance financial digitization, innovation and productivity.<sup>27</sup> Its functionality with NFC technology is expected to promote financial inclusion by making electronic payments services available to non-banked people in smaller cities and rural areas. Digital money is also more hygienic than cash, an aspect that has gained great relevance with the COVID-19 pandemic.<sup>28</sup>

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22 Ryan Todd and Mike Rogers, *A Global Look at Central Bank Digital Currencies...*, cit.

23 PwC, *The Rise of Central Bank Digital Currencies (CBDCs)...*, cit.; Sundeep Gantori et al., *Information Technology...*, cit.

24 Henry M. Paulson, 'The Future of the Dollar', in *Foreign Affairs*, 19 May 2020, <https://www.foreignaffairs.com/node/1126037>.

25 Sundeep Gantori et al., *Information Technology...*, cit.

26 Henny Sender, 'China's New Digital Currency Takes Aim at Alibaba and Tencent', cit.; Jonas Gross and Alexander Bechtel, 'China's Digital Currency Project: What Is DC/EP All About?', cit.

27 Sundeep Gantori et al., *Information Technology...*, cit.

28 Jonas Gross and Alexander Bechtel, 'China's Digital Currency Project: What Is DC/EP All About?', cit.

The traceability and potential programmability of a digital currency will enhance central bank supervision and the government's control over money flows and financial activities. These two features of DCEP could help combat illicit financial activities, such as corruption, fraud, money laundering, terrorist financing and tax evasion,<sup>29</sup> though they may potentially intensify government monitoring of society.<sup>30</sup> The data obtainable from traceable digital currency could facilitate the monitoring of money flows, offering an improved means for analysis of economic activity and financial stability. Traceability and potential programmability of digital money would provide a new instrument to better control the money supply, make monetary policy smarter and enhance macroprudential regulation.<sup>31</sup> Cross-border transactions might also be better controlled.<sup>32</sup> All this is unlikely to change the money supply itself and there should be no implications for inflation.<sup>33</sup>

At an international level, DCEP could facilitate broader global circulation of the RMB and potentially weaken the US-dominated cross-border payment system.<sup>34</sup> An early launch of DCEP will also defy Facebook's Libra, which the Chinese government considers a threat, and will position China ahead of others should the rise of digital currencies trigger a fundamental reorientation of the global financial architecture.<sup>35</sup> These considerations will be discussed in greater detail in the next sections.

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- 29 PwC, *The Rise of Central Bank Digital Currencies (CBDCs)*..., cit.; Sundeep Gantori et al., *Information Technology*..., cit.; Ye Shi and Shucheng Zhou, *Central Bank Digital Currencies: Towards a Chinese Approach*, cit.
- 30 Roger Huang, 'China Will Use Its Digital Currency to Compete with the USD', in *Forbes*, 25 May 2020, <https://www.forbes.com/sites/rogerhuang/2020/05/25/china-will-use-its-digital-currency-to-compete-with-the-usd>.
- 31 Yao Qian, 'Central Bank Digital Currency: Optimization of the Currency System and Its Issuance Design', in *China Economic Journal*, Vol. 12, No. 1 (2019), p. 1–15; Yao Qian, 'A Systematic Framework to Understand Central Bank Digital Currency', in *Science China Information Sciences*, Vol. 61, Article 033101 (2018).
- 32 Jonas Gross and Alexander Bechtel, 'China's Digital Currency Project: What Is DC/EP All About?', cit.
- 33 Sundeep Gantori et al., *Information Technology*..., cit.; PwC, *The Rise of Central Bank Digital Currencies (CBDCs)*..., cit.
- 34 Michael Gu, 'China's National Digital Currency DCEP/CBDC Overview', cit.
- 35 Raymond Zhong, 'China's Cryptocurrency Plan Has A Powerful Partner: Big Brother', cit.

Despite the potential benefits of DCEP, its introduction will not be without risks. A key concern is that DCEP might erode the role of commercial banks as financial intermediaries and could result in disintermediation.<sup>36</sup> The two-tiered setup and non-interest-bearing nature of the DCEP plan is meant to reduce the likelihood of this occurring.<sup>37</sup> DCEP will be particularly disruptive if not destructive to the business of card companies, and payment services offered by Alipay and WeChat Pay will have to adapt as well.<sup>38</sup> The current Alipay and WeChat Pay systems are not compatible, and DCEP offers an opportunity to decompartmentalize the digital payments system. Despite these systemic shifts, the commercial banks and digital payment service providers should also be able to identify numerous new business opportunities from the introduction of DCEP.<sup>39</sup> Cyber security is another area of concern, especially threat of hacking,<sup>40</sup> and some may also be concerned about the lack of guaranteed privacy and anonymity of DCEP, which could be abused by authorities e.g. to intensify control over the behaviour of citizens.<sup>41</sup>

Finally, other implications not mentioned here can also be expected, and rolling out such a technologically complex project in an area so important for the functioning of the economy and financial system may result in unforeseen and possibly serious consequences.<sup>42</sup> These problems might be particularly acute for the first-mover CBDC. To avoid this, the maintenance of high technical standards and requirements will be important.<sup>43</sup> A pragmatic, stepwise introduction of DCEP could also help forestall unforeseen problems. The fact that China is testing DCEP through pilot projects indicates a cautious approach, in line with the policy experimentation China has traditionally employed to advance its economic reforms.

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36 PwC, *The Rise of Central Bank Digital Currencies (CBDCs)*..., cit.

37 Katie-Ann Wilson, 'China's Next World-First', cit.

38 Richard Turrin, 'China's CBDC', in *PCN Magazine*, Vol. 6, No. 2 (July 2020), p. 6–9, <https://www.teampcn.com/magazine/magazine/china-s-cbdc>.

39 Sundeep Gantori et al., *Information Technology*..., cit.

40 PwC, *The Rise of Central Bank Digital Currencies (CBDCs)*..., cit.; Sundeep Gantori et al., *Information Technology*..., cit.

41 Raymond Zhong, 'China's Cryptocurrency Plan Has A Powerful Partner: Big Brother', cit.; Jonas Gross and Alexander Bechtel, 'China's Digital Currency Project: What Is DC/EP All About?', cit.

42 Committee on Payments and Market Infrastructures, 'Central Bank Digital Currencies', in *CPMI Papers*, No. 174 (March 2018), <https://www.bis.org/cpmi/publ/d174.htm>.

43 Sundeep Gantori et al., *Information Technology*..., cit.

## 7.2 China's renminbi internationalization

Since 2009, in the wake of the financial crisis, China began to actively promote the internationalization of the RMB. There was frustration that US dollar hegemony enabled the country at the source of the crisis – the United States – to use monetary policy to shield itself better from the economic fallout than peripheral countries like China, which incurred considerable damage.<sup>44</sup>

### *Steps taken to internationalize the renminbi*

From the financial crisis onwards, China engaged in a series of activities to advance the internationalization of the RMB. The first step was to create offshore RMB bond markets, starting with so-called *dim sum* bonds in Hong Kong in 2007 and then expanding the issuance of RMB-denominated bonds to other geographical areas.<sup>45</sup> This made possible the purchase of RMB-denominated bonds outside China, where they were subject to fewer restrictions.<sup>46</sup> At this time China also launched the offshore renminbi (CNH) next to its onshore counterpart (CNY). A more direct effort at advancing the internationalization of the RMB soon followed with China's conclusion of a large number of bilateral currency swap arrangements with other countries, providing greater cross-border liquidity and other benefits. By 2020, more than 30 swap lines were established, resulting in China by far exceeding the number of swap lines of other countries – the United States in second place had less than half that number.<sup>47</sup>

An important focus area of RMB internationalization was the promotion of international trade settlement, advanced primarily in the early- to mid-2010s.

44 Di Dongsheng, 'The Economics and Politics of China's Currency Internationalization', in *Global Asia*, Vol. 15, No. 2 (June 2020), p. 58–64, [https://www.globalasia.org/v15no2/cover/the-economics-and-politics-of-chinas-currency-internationalization\\_di-dongsheng](https://www.globalasia.org/v15no2/cover/the-economics-and-politics-of-chinas-currency-internationalization_di-dongsheng); Daniel McDowell, 'The (Ineffective) Financial Statecraft of China's Bilateral Swap Agreements', in *Development and Change*, Vol. 50, No. 1 (January 2019), p. 122–143.

45 Hung-Gay Fung et al., 'The Offshore Renminbi Bonds: The Dim Sum and Formosa Bonds', in *The Chinese Economy*, Vol. 49, No. 4 (2016), p. 287–299.

46 Center for Strategic and International Studies (CSIS), 'Will China's Push to Internationalize the Renminbi Succeed?', in *ChinaPower*, 18 June 2020, <https://wp.me/p8Side-1AP>.

47 Di Dongsheng, 'The Economics and Politics of China's Currency Internationalization', cit.; Daniel McDowell, 'The (Ineffective) Financial Statecraft of China's Bilateral Swap Agreements', cit.

This involved the establishment of a network of offshore RMB clearing hubs in financial centres across the globe to facilitate the cross-border settlement in RMB. Each hub had one of the state-owned commercial banks as the designated clearing bank.<sup>48</sup> This massively expanded cross-border trade settlement in RMB, though much of it remained concentrated in Hong Kong. Clearing of inward and outward foreign direct investment in RMB was also permitted.<sup>49</sup> In 2015, China launched its Cross-border Interbank Payments System (CIPS) to facilitate international clearing and settlement in RMB in parallel to the SWIFT global standard.

China's ambition to internationalize the RMB has been supported by various other domestic and cross-border initiatives and reforms. Participation by foreign institutional investors in China's bond and stock markets has been gradually expanded, and stock-connect programmes were introduced with Hong Kong and London, followed by a bond-connect programme with Hong Kong in 2017. Domestic interest rates have become more market-determined and the RMB exchange rate has been allowed to float more widely in recent years.<sup>50</sup> In 2015, the currency's managed float regime was reset to follow a basket of currencies, whereas previously it had only followed the US dollar. These and other initiatives can be seen as slow steps towards a tentative relaxation of capital account restrictions. The Belt and Road Initiative (BRI), with financing support from China's recently established international development banks – in particular the Asian Infrastructure Investment Bank (AIIB), Silk Road Fund and the New Development Bank – have also been identified as vehicles to promote RMB internationalization.<sup>51</sup>

The growing international role of the RMB was recognized in 2016 by the currency's inclusion into the Special Drawing Rights (SDR) basket, which is an international reserve asset created by the International Monetary Fund (IMF). Primarily of symbolic importance, its inclusion elevated the RMB to a status

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48 Ramon Pacheco Pardo, Jan Knoerich and Yuanfang Li, 'The Role of London and Frankfurt in Supporting the Internationalisation of the Chinese Renminbi', in *New Political Economy*, Vol. 24, No. 4 (2019), p. 530–545.

49 CSIS, 'Will China's Push to Internationalize the Renminbi Succeed?', cit.

50 Di Dongsheng, 'The Economics and Politics of China's Currency Internationalization', cit.

51 Ibid.; SWIFT, *Beyond Borders: China Opens Up to the World*, RMB Tracker special edition, June 2019, <https://www.swift.com/swift-resource/227391/download>; Jan Knoerich and Francisco Urduz, 'Contesting Contested Multilateralism: Why the West Joined the Rest in Founding the Asian Infrastructure Investment Bank', in *The Chinese Journal of International Politics*, Vol. 12, No. 3 (Autumn 2019), p. 333–370.

alongside the US dollar, euro, yen and pound despite its still limited importance as an international investment and reserve currency.

### ***Limitations of renminbi internationalization***

All these initiatives at promoting the internationalization of the RMB had the effect of expanding global use of the currency. But after an initial push during the first half of the 2010s, the crash on China's stock markets in 2015 compelled the government to devalue the RMB. Capital controls were tightened to prevent even greater currency depreciation and capital flight. This reduced international confidence in the RMB and had the effect of slowing down its internationalization, in some areas reversing progress already made.<sup>52</sup>

Table 1 illustrates how, despite China being the world's second largest economy and largest trading nation, the share of the RMB in three important measures of currency internationalization – global payments, activity in the foreign exchange market and foreign exchange reserves – remains well below 5 per cent, ranking behind the other major reserve currencies. Having started at close to zero just a decade earlier, the current level can nevertheless be considered impressive, yet China still has a long way to go until its currency becomes truly international. The US dollar and the euro clearly dominate, and the fact that these two currencies are already deeply enmeshed in the international financial architecture will make it hard to unseat them.

These still comparatively modest figures and the slowing down of RMB internationalization in recent years have exposed the limitations of China's reliance on payment infrastructure programmes and conditional access schemes, aimed at promoting internationalization while maintaining full control and potential reversibility of the process. China's capital account remains among the least open in the world and its financial markets among the most restricted to foreign participants. These self-imposed limitations are keeping the RMB below its true potential.<sup>53</sup>

Achieving further meaningful currency internationalization will require greater trade-offs. To truly internationalize, the RMB needs to circulate globally at a higher rate, but China's persistent current account surplus is hindering an increase in global circulation of the currency. Another option to

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52 CSIS, 'Will China's Push to Internationalize the Renminbi Succeed?', cit.

53 Maximilian Kärfelt, 'China's Currency Push. The Chinese Yuan Expands Its Footprint in Europe', in *China Monitor*, 9 January 2020, <https://merics.org/en/report/chinas-currency-push>.

**Table 7.1:** Global utilization of the RMB is still comparatively limited.

Currency	Share of global payments June 2020, % (Rank)	Share of foreign exchange market turnover April 2019, % (Rank)	Share of allocated foreign exchange reserves 1Q2020, % (Rank)
USD	40.33 (1)	88.3 (1)	61.99 (1)
EUR	34.10 (2)	32.3 (2)	20.05 (2)
GBP	7.08 (3)	12.8 (4)	4.43 (4)
JPY	3.74 (4)	16.8 (3)	5.70 (3)
<b>CNY</b>	<b>1.76 (5)</b>	<b>4.3 (8)</b>	<b>2.02 (5)</b>

Source: (\*) SWIFT, (SWIFT, *RMB Tracker*, July 2020, <https://www.swift.com/swift-resource/249256/download>.) (\*\*) BIS, (The maximum possible is 200 per cent, as two parties are involved in any one transaction. Bank for International Settlements (BIS), *Foreign Exchange Turnover in April 2019*, 16 September 2019, [https://www.bis.org/statistics/rpfx19\\_fx.htm](https://www.bis.org/statistics/rpfx19_fx.htm).) (\*\*\*) IMF. (IMF Data: *Table 1, World Currency Composition of Official Foreign Exchange Reserves*, <https://data.imf.org/regular.aspx?key=41175>.)

increase global circulation is by expanding capital outflows,<sup>54</sup> but this requires greater convertibility on the capital account, removal of restrictions on inward and outward capital flows and continuous opening up of China's financial markets to foreign participation. Removing capital flow restrictions would force China to accept reduced control over capital flows and greater swings in the exchange rate, potentially having to relinquish control over it entirely. But the government is unlikely to accept such loss of control any time soon, out of fear such moves could destabilize China's financial system and facilitate capital flight.

The financial system in China remains weak and underdeveloped, facing many problems including lack of regulation, inefficiency in allocating credit to the most productive investments, excessive speculation and risk-taking, corruption, financial scandals, moral hazard, and soft budget constraints.<sup>55</sup> A major concern are high levels of debt, held primarily by state-owned enterprises, local governments and individual households, and a surging number of non-performing loans. Some estimate China's debt to exceed 300 per cent of GDP, though the true extent of the problem remains unknown.

54 George Magnus, *Red Flags. Why Xi's China is in Jeopardy*, New Haven, Yale University Press, 2018, p. 101–102.

55 *Ibid.*

A considerable amount of financial leverage has emerged in China's obscure shadow-banking sector, which has tolerated opaque financial practices such as the issuance of off-balance sheet loans, peer-to-peer lending and high-risk wealth management products.

Since 2017, the Chinese government has intensified efforts to address some of these problems. It has issued new rules, regulations and guidelines, restructured regulatory institutions, re-organized financial governance, clamped down on illicit behaviour and dubious financial practices, and reigned in shadow-banking activities including peer-to-peer lending and the sale of high-risk wealth management products.<sup>56</sup> But more needs to be done before China can confidently open its financial markets without having to fear major capital flight or other forms of financial instability. Unfortunately, it is likely that the coronavirus pandemic will reduce Beijing's appetite for financial reforms. On the contrary, China appears prepared to allow debt to accumulate further to cushion the economic fallout from the crisis.

For broader international adoption of the RMB, Beijing will need to build international confidence in the regulatory, governance and institutional structures underpinning the currency. This will require greater reliance on market mechanisms and reduction of government intervention, which can be erratic, as the sudden devaluation of the exchange rate after the stock market crisis has shown. Moreover, continuous de-politicization of financial matters will be important, despite the current political instability in Hong Kong and the geo-political environment becoming more antagonistic towards China.

### 7.3 The potential global impact of the digital currency

The introduction of DCEP thus comes at a time when some meaningful progress has been made in internationalizing the RMB, but significant headwinds exist in advancing it further. It remains unclear whether DCEP will be focused on China or become more widely adopted beyond its borders. If its adoption does internationalize, will DCEP then become just another infrastructure programme to facilitate RMB internationalization next to all the others, or will it constitute a larger breakthrough in raising the status of the RMB as an international trade, investment and reserve currency, potentially challenging the dominance of the US dollar?

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56 *Ibid.*, p. 89–93.

### ***Impact on renminbi internationalization***

Given the setup of DCEP primarily as a payments system, if pushed to an international level it can be expected to further facilitate international payments in RMB. DCEP could offer companies importing to or exporting from China a simplified method for cross-border RMB-denominated settlement, with the added advantage of reducing currency exchange costs and risks by eliminating the need for the US dollar as an intermediary currency.<sup>57</sup> The cost-effective nature of DCEP could help break through the entrenched network characteristics of the global currency system, in which it is often still more convenient to use the US dollar as an intermediary currency even when it would be possible to exchange third currencies directly into RMB.<sup>58</sup> DCEP might become even more interesting for traders if it is incorporated into broader programmes for the digitization of trade with China, some of which are already being developed.<sup>59</sup> China has been taking advantage of its leading role in international trade to intensify global demand for its currency,<sup>60</sup> and DCEP provides an important opportunity to further intensify this strategy.

Beyond its adoption in international trade, individuals in other countries could also use DCEP for common payments and transactions, should the technology allow it.<sup>61</sup> An accessible payments system in RMB could be particularly attractive in developing countries with underdeveloped financial infrastructures or unstable currencies. Here, DCEP could even function as an alternative to local currency,<sup>62</sup> and its NFC functionality could provide digital payments to remote areas and unbanked populations in these countries. The global number of unbanked adults is at 1.7 billion, according to the World Bank, though around two thirds of them have access to a mobile phone.<sup>63</sup> Most of them live in developing countries. DCEP might become increasingly popular especially in countries

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57 John Xie, 'China's Digital Currency Takes Shape; Will It Challenge Dollar?', in *Voice of America*, 25 April 2020, <https://www.voanews.com/economy-business/chinas-digital-currency-takes-shape-will-it-challenge-dollar>.

58 Di Dongsheng, 'The Economics and Politics of China's Currency Internationalization', cit.

59 Richard Turrin, 'China's CBDC', cit.

60 Paola Subacchi, *The People's Money. How China is Building a Global Currency*, New York, Columbia University Press, 2017.

61 John Xie, 'China's Digital Currency Takes Shape; Will It Challenge Dollar?', cit.

62 Henry M. Paulson, 'The Future of the Dollar', cit.

63 World Bank, *Financial Inclusion on the Rise, But Gaps Remain, Global Findex Database Shows*, 19 April 2018, <https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows>.

with closer links to China, such as in Asia or along the Belt and Road, and in countries receiving large numbers of Chinese tourists. Cross-border payments traffic with China in RMB is already rising considerably in many Asian and African countries,<sup>64</sup> and Chinese electronic payment companies Ant Financial and Tencent are making inroads into developing country markets in Africa and elsewhere. China UnionPay already has a vast global presence. The expansion of these payment services paves the way for a potential future adoption of DCEP in these countries.

Another way DCEP could have an international dimension is through its potential to circumvent the Society for Worldwide Interbank Financial Telecommunication (SWIFT) payments system used for most international transactions between financial institutions.<sup>65</sup> This system is in many ways archaic and expensive, with transactions needing several days for completion, despite technologies with much shorter transaction times being currently available. DCEP could offer a faster and cheaper alternative to SWIFT.

All these considerations suggest that DCEP is likely to expand global payments in RMB, but how the digital currency could play a role in advancing the RMB as an investment or reserve currency is less obvious. While companies, institutional and retail investors may draw on DCEP to invest into and out of China, the existence of a new method for cross-border transactions is unlikely to significantly affect investment decisions, which will continue to depend on the fundamentals of the Chinese financial system. DCEP will not eliminate the need for financial reforms, capital account liberalization and a more flexible exchange rate. Rather, these may become more necessary to make DCEP effective as a cross-border payments mechanism between China and the rest of the world. As it currently stands, DCEP would need to be subject to the same convertibility restrictions as the RMB.<sup>66</sup>

For similar reasons, DCEP will be less relevant in government choices on the reserve currencies they hold. Major reserve currencies will continue to be those backed by strong economic fundamentals, good financial governance and an open currency system. The adoption of DCEP as a payments system backed by the central bank is not likely to change that.

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64 SWIFT, *Beyond Borders: China Opens Up to the World*, cit.

65 Richard Turrin, 'China's CBDC', cit.

66 Marc Chandler, 'China's Digital Currency', in *Nasdaq*, 15 June 2020, <https://www.nasdaq.com/articles/chinas-digital-currency-2020-06-15>.

### *Implications for the global dominance of the US dollar*

DCEP's most promising strength is its potential to shift the world payments system in favour of the RMB. If it is successful in making RMB payments more convenient in other countries, DCEP could offer a readily available alternative to the US dollar for payment transactions. Many businesses conducting international trade with China would embrace an opportunity to cut transaction costs and enhance payment efficiency. Given that China is the world's largest exporter, international adoption of DCEP for trade settlement could scale up rapidly. In addition, individuals, especially in developing countries, will probably show interest. Gradually, the use of the RMB would rise at the expense of the US dollar.

To accelerate this process, Beijing could proactively encourage China's international economic partners to promote DCEP. Countries with particularly strong ties with China or those more critical of the United States and concerned about the dominance of the US dollar may well be receptive to such initiatives.<sup>67</sup> Any future economic decoupling between the United States and China may create even greater space for DCEP to develop and spread, at least within areas where China has a strong influence, such as in some of the countries along the Belt and Road.

DCEP offers China an opportunity to provide a complete and potentially more efficient alternative to existing global payments systems, such as SWIFT and the Clearing House Interbank Payments System (CHIPS). As the governance of these established systems could be considered Western-centric, China should have an interest in developing alternatives. Its attempt to establish CIPS was one move towards creating such alternatives, but this system still collaborates with SWIFT and its adoption has been relatively modest. DCEP could provide a completely new and different mechanism, entirely removed from these traditional payments systems. It would enable China to circumvent and avoid the current system of international transactions (and become less vulnerable to Western sanctions).<sup>68</sup>

However, although the future of DCEP looks promising in payments transactions, its potential to help the RMB challenge US dollar dominance as an international investment and reserve currency is more limited. Greater prominence of the RMB in these two areas would however be necessary to dethrone the US dollar, and international liquidity of the RMB would need to be higher.

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67 Michael Greenwald, 'Digitizing the Dollar in the Age of COVID-19', in *New Atlanticist*, 22 April 2020, <https://www.atlanticcouncil.org/?p=246767>.

68 Yuan Yang and Hudson Lockett, 'What is China's Digital Currency Plan?', cit.

DCEP cannot be expected to help China challenge the US dollar outright unless China significantly reforms and liberalizes its financial system.

Nevertheless, a strong global rollout and scaling up of DCEP in cross-border payments should offer China an important opportunity to eat into US dollar hegemony by gradually expanding the space for the RMB and slowly building up a viable alternative to the US dollar.<sup>69</sup> Over a longer period of time, these efforts could lay the groundwork for a greater challenge to US dollar hegemony, especially once the time has finally come for China's financial system to undergo more decisive and persistent reforms.

#### 7.4 Conclusions and future outlook

China will, without doubt, have a first-mover advantage in rolling out a CBDC. The large size of its population and extraordinary familiarity of its people with digital payment technologies and cashless transactions through smartphones and QR codes provides its central bank with a unique platform to test and scale up any rollout of DCEP. Alipay or WeChat Pay are standard, ubiquitous forms of payment in China, with mobile payments transactions having reached 41.5 trillion US dollars in 2018.<sup>70</sup> Concerns over privacy are also less of a concern in China,<sup>71</sup> which makes the country a practical testing ground for a DCEP that only promises 'controllable anonymity'.

A first-mover advantage might also enable China to internationalize digital currency payments before other countries' CBDCs emerge. China would then be able to define many relevant technological standards, placing it in a privileged position when it comes to determining the future direction of the technology.<sup>72</sup>

However, it is far from certain that DCEP will also trigger a major overhaul of international digital payments, and there will be challenges and downsides. To successfully internationalize DCEP, China would need to resolve the contradiction of how to rapidly expand international circulation of RMB despite a current account surplus and limited international capital flows. Beijing will also need to

69 Hannah Murphy and Yuan Yang, 'Patents Reveal Extent of China's Digital Currency Plans', cit.

70 Henry M. Paulson, 'The Future of the Dollar', cit.

71 Marion Laboure and Jim Reid, *The Future of Payments - Part III. Digital Currencies: the Ultimate Hard Power Tool*, Deutsche Bank Research, January 2020, [https://www.dbresearch.com/PROD/RPS\\_EN-PROD/PROD000000000504589/The\\_Future\\_of\\_Payments\\_-\\_Part\\_III\\_Digital\\_Currenc.PDF](https://www.dbresearch.com/PROD/RPS_EN-PROD/PROD000000000504589/The_Future_of_Payments_-_Part_III_Digital_Currenc.PDF).

72 Roger Huang, 'China Will Use Its Digital Currency to Compete with the USD', cit.

build confidence among overseas users of DCEP in the strength of the Chinese economy, its institutions, policies and financial system, the governance of the RMB, and the functionalities and security of DCEP. Most importantly, Beijing will need to offer reassurance about what ‘controllable anonymity’ means for overseas users of DCEP, who may be more concerned than the average Chinese citizen about privacy and potential surveillance by the Chinese government.

In being the first country to roll out DCEP, China will also assume the risks should anything go wrong in what is a sensitive area of any national economy. Other countries will learn from China’s roll-out of DCEP and adapt the positives to their circumstances while being able to anticipate and avoid any mistakes China may make. This will help speed up any subsequent development of competing digital currencies, including for the US dollar. Many central banks are already developing competing digital currencies, the IMF has been encouraging their development,<sup>73</sup> and the G7 countries are discussing collaboration on CBDCs in direct response to China’s efforts.<sup>74</sup> Some advanced-economy CBDCs, even if launched belatedly, might draw on their stronger and more internationally integrated financial systems to leapfrog the DCEP.

China does not assume a leadership role in fintech, as its real advantage is scalability. The United States – itself a strong fintech power with a high volume of cashless payments using both mobile phone (e.g. Apple Pay) and card-based technologies – should be able to quickly follow China into the digital currency era, together with other countries. This might reduce the extent to which China will be able to capitalize on its first-mover advantage. The result may be a system of several, possibly quite integrated, digital currencies. But to achieve catch-up with China in digital currencies, the US government must develop greater policy determination to develop its own CBDC. Moreover, to keep the hegemony of its currency in the long run, the US will need to maintain overall confidence in its economic fundamentals, financial system, policies and institutions, and play a constructive leadership role in multilateral economic affairs.

In sum, an early launch of DCEP offers China an additional channel for the internationalization of the RMB and an opportunity to eat away at the US dollar’s dominance in the international financial architecture. Initial focus is likely to be on international payments, but in the medium- to long-term, DCEP could help advance the RMB as an international investment and reserve currency, should

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73 PwC, *The Rise of Central Bank Digital Currencies (CBDCs)*..., cit.

74 Cissy Zhou, ‘China’s Digital Currency Edges Closer with Large-Scale Test by Four State-Owned Banks’, cit.

China's domestic financial system become more favourable to such an objective and should the international liquidity of the currency improve. Although its first-mover advantage in developing DCEP will benefit China, there will be associated challenges as well. The final outcome will depend on how China leads the way into this new CBDC era, how other countries – including the United States – will respond, and how both the Chinese and US economies will evolve in the future. What remains quite certain is that we will soon witness some ground-breaking transformations in the global system for cross-border payments and potentially broader international financial infrastructure, spearheaded by China.

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