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CENTRAL BANK DIGITAL CURRENCIES AND THE IMPLICATIONS FOR THE GLOBAL FINANCIAL INFRASTRUCTURE

THE TRANSFORMATIONAL POTENTIAL OF RUSSIA'S DIGITAL ROUBLE AND CHINA'S DIGITAL RENMINBI

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- The launch of Central Bank Digital Currencies (CBDC) not only revolutionizes the international financial system, it also represents an opportunity to minimize the exposure to the US dollar transactions and avoid US oversight.
- China enjoys a first-mover advantage, as it became the first major economy to launch a CBDC. Following in Beijing's footsteps, Russia is at the forefront of advancing its digital currency project. As US-sanctioned countries, Russia's and China's motivation extends beyond transaction costs reduction and financial inclusion: the governments seek to reduce their dependence on the US dollar and mitigate sanctions risks.
- In the short term, the US dollar's international status remains unrivalled. No currency is well-positioned to displace the greenback as a reserve currency.
- In the long term, CBDCs could eliminate the need for third-party intermediaries and allow cross-border transactions that take place outside of the US-led financial system. This would hamper the US's ability to use sanctions as a geoeconomic tool and oversee their extraterritorial enforcement.

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INTRODUCTION

The rapid development of new financial technology has unleashed profound transformations on the international financial system. The arrival of cryptocurrencies launched by private actors has triggered financial stability concerns and raised questions about the role of central banks in the monetary system. There have been fears that national fiat currencies could be rivalled by private alternatives, leading to the disintegration of the financial system. The digitalization of economies, which has only accelerated since the global pandemic, and the growing centrality of personal data have made many central banks in the world rethink their traditional role as an operator and overseer of the financial system, and explore the development of central bank digital currencies (CBDCs).

A CBDC is a digital form of currency backed by a government or, in other words, a cash-like liability of the central bank. With the development of CBDCs, central banks have embraced the cutting edge of innovation, which could lead to more resilient, faster and less expensive payments. Similar to cryptocurrencies, CBDCs are often based on a distributed ledger technology, the technological infrastructure of blockchain. In contrast to decentralized digital currencies, CBDCs lend central banks more authority and oversight over financial flows and personal data.

According to a survey conducted by the Bank of International Settlements, as of July 2021, 86% of global central banks are conducting research on CBDCs.[1] In this way, central banks seek to preserve their pivotal role in the financial system to ensure the safety and integrity of digital payments. While the US and EU are still contemplating digital currencies, Russia is at the forefront of advancing the digital rouble. Moscow is closely following in the footsteps of China, which enjoys a first-mover advantage. China is slated to become the first major economy to launch a national digital currency. The Central Bank of Russia (CBR) approved the introduction of the digital rouble in October 2020 and is going to launch the first prototype in early 2022.

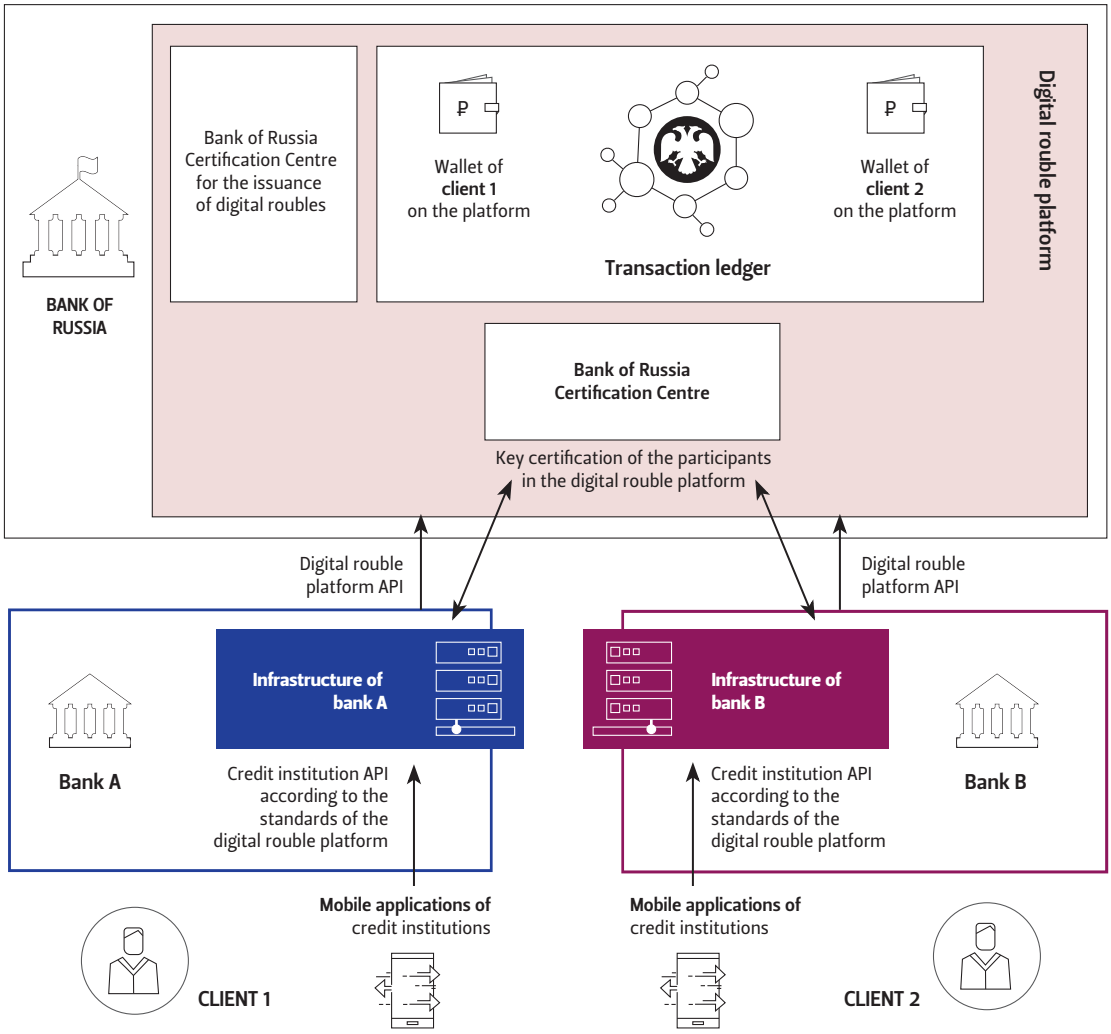
The launch of CBDCs not only revolutionizes the international financial system, but also represents an opportunity to minimize exposure to dollar transactions and avoid US oversight. The US's Treasury Sanctions Review in 2021 cautioned that digital currencies and alternative payment platforms have the potential to reduce the use of the US dollar in cross-border payments, thus harming the efficacy of American sanctions.[2] Targeted by the US, both Russia and China have already set up alternatives to the dollar-dominated financial infrastructure, and the development of digital currencies represents another step in their efforts to circumvent the US financial system. If left unchecked, such arrangements could severely undermine the very foundations of the US financial statecraft. While in the short term the implications of new financial technologies for the US dollar hegemony are negligible, in the long term CBDCs and payments alike have the potential to bypass the US dollar and thus mitigate the effectiveness of sanctions.

This paper will first examine Russia's plans for the development of the digital rouble project by analyzing the digital currency's properties and functions. Next, it will explore ways in which Russia could use its digital currency to minimize US sanctions risks. It will then focus on the potential for Russia-China cooperation through the use of their compatible CBDCs. Finally, the paper will analyze the implications of digital currencies for the US dollar hegemony. It will discuss China's digital renminbi and the role it can play in creating new non-dollar-denominated financial flows.

1 Raphael Auer, Jon Frost, Leonardo Gambacorta, Cyril Monnet, Tara Rice and Hyun Song Shin, 'Central bank digital currencies: motives, economic implications and the research frontier', *Annual Review of Economics*, vol 14, 2022, https://www.bis.org/publ/work976.htm.

2 The Treasury 2021 Sanctions Review, October 2021, https://home.treasury.gov/system/files/136/Treasury-2021-sanctions-review.pdf.

Approaches to the architecture of the prototype of the digital rouble platform



Source: Bank of Russia

THE DIGITAL ROUBLE

Russia's relationship with digital currencies has been a bumpy ride. Due to the risks of financial instability, the CBR argued against cryptocurrencies for years. In Russia, private tokens like Bitcoin are considered to pose a serious risk to the national fiat currency – the rouble – through currency substitution and the weakened transmission mechanism of monetary policy. The CBR first tolerated the mining and trading of cryptocurrencies, but in January 2022 it proposed to ban their use. Instead, Russia embarked on the development of the central bank-controlled digital rouble, viewed as "the proper solution" to allow cheap and reliable payments.[3] Unlike decentralized cryptocurrencies, CBDCs bring control right back where the Russian authorities want it to be: with the state.

Like other emerging powers, Russia's motivation is manifold: it aims to modernize its financial system, reduce costs and speed up transactions, and increase competition in the financial market. As a US-sanctioned country, Moscow views CBDC as a way to reduce dependence on the US dollar, minimize the risks of sanctions, and boost the role of the rouble, if not globally, then at least regionally.

In October 2020, the CBR published its "Strategy of Financial Market Developments Until 2030", where it outlined the launch of a rouble-backed digital currency. The digital currency seeks to complement the already existing forms of the Russian rouble – cash and bank accounts. CBR Governor Elvira Nabuillina announced that "the launch of the digital rouble will help to further develop the payment infrastructure, stimulate competition and procure innovative financial instruments, as well as make financial services cheaper and more easily available to individuals and

3 Lubomir Tassev, 'Digital Ruble to Give Russians What They Need, Bank of Russia Governor Says', *Bitcoin.com*, 11 November 2021, https://news.bitcoin.com/digital-ruble-to-give-russians-what-they-need-bank-of-russia-governor-says/.

businesses". In April 2021, following feedback from Russian financial institutions, the CBR updated the concept, which envisages the launch of a retail CBDC used by the general public. The Bank of Russia will be the operator of the digital rouble platform and the issuer of the digital rouble. The first prototype will be launched in Crimea in early 2022. Isolated by comprehensive sanctions, Crimea represents a perfect testing ground for the Russian digital rouble to mitigate the risk of international restrictions. After that, the necessary regulation will be drafted to integrate the digital rouble into the Russian financial system.

The Bank of Russia opted for a two-tier model operated via a hybrid technological platform – a combination of a distributed ledger and a centralized system. The previous version of the digital rouble project envisaged a more centralized model, where the CBR regulated the entire ecosystem. However, after commercial banks voiced their concerns about banking-sector disintermediation, the model was redesigned with a more pivotal role for the banks. In the two-tier model, commercial banks and other financial intermediaries will become an important part of the CBDC architecture. The traditional division of labour between the public and private sector will be preserved: the banks will act as the main intermediary between the CBR and clients to provide exchange and payment services.[4] Russia's main commercial banks such as Sberbank, VTB and Gazprombank, among others, will begin testing the digital rouble in January 2022.

Following an account-based model, the Bank of Russia will open digital wallets for commercial banks and will provide them with digital roubles. In exchange, the banks will receive funds that they will keep in their corresponding accounts. In turn, commercial banks will open wallets for their clients, which can be accessed via mobile apps in online and offline modes. As opposed to a token-based model, CBDC wallets will be linked to the identity of their holders to avoid the risk of money laundering. However, it will still be possible to tokenize the currency in the account-based wallets. In contrast to standard bank accounts, digital rouble accounts will be conceived as a medium of exchange and not as a store of value. To reduce competition with banks for deposits, the accounts will bear no interest rate. To counter a potential risk of liquidity outflow, caps on funds stored in wallets will be introduced. For offline transactions, technologies like Bluetooth and near-field communication (NFC) will be used.

The launch of the digital rouble will strengthen the Russian government's hand at domestic surveillance. The CBR will have the ability to monitor and control financial transactions in real time, something that no country can currently do.

MITIGATING SANCTIONS RISKS IN CROSS-BORDER PAYMENTS

Avoiding a US nexus – either by bypassing the greenback or US financial intermediaries – is easier said than done in the current globalized economy. Most cross-border payments are made via the Society for Worldwide Interbank Financial Telecommunication (SWIFT), and Russia is one of the most active users of the Brussels-based platform. Heavily dependent on the export of hydrocarbons, Russia's cross-border payments are reliant on the use of Western financial infrastructure like SWIFT, while international transactions are primarily settled in the greenback. Any transaction denominated in US dollars conducted through the US correspondent banking constitutes the US nexus. The latter grants the US Office of Foreign Assets Control (OFAC) the ability to assert American jurisdiction and the right to sanction.

CBDCs could provide an avenue for circumventing the US nexus and thus mitigating sanctions risks. Bilateral payments or multilateral arrangements between countries' central banks could enable cross-border transactions without SWIFT, the US dollar or US correspondent banks.

Technical research on cross-border payment between different CBDCs is still in its infancy and more time is needed to fully grasp the opportunities and challenges of this international dimension. However, compatible design features and interlinkages are conducive to the establishment of multi-currency payment arrangements. Several multi-CBDC arrangements are already underway. A group of seven central banks from Canada, the UK, Sweden, Switzerland, Japan and the EU launched a working group to explore cross-border interoperability of their national CBDC projects. The central banks of China, Thailand, the United Arab Emirates and Hong Kong established the multi-CBDC initiative called mBridge to speed up cross-border foreign currency payments.[5] At the BRICS Business Council, Russia suggested creating a single digital currency for settlements between member countries.

4 Digital Ruble Concept, The Central Bank of Russia, April 2021, http://www.cbr.ru/content/document/file/120239/dr_cocept.pdf.

5 'Central banks of China and United Arab Emirates join digital currency project for cross-border payments', Bank of International Settlements, 23 February 2021, https://www.bis.org/press/p210223.htm.

Collaboration between central banks is essential to ensure compatibility of different CBDC models, which is a prerequisite for successfully mitigating sanctions risks. Russia views the launch of the digital rouble platform as the first step in enhancing cross-border payments through further integration with similar CBDCs of other countries. Compatibility in the CBDC architecture, common standards and joint commitments to interoperability are crucial for advancing cross-border payments through CBDCs. It is highly convenient that the Russian model is strikingly similar to the model of China's digital renminbi – e-CNY. Since 2020, Beijing has been conducting pilot trials in several cities in China, with the objective of launching the project during the 2022 Beijing Winter Olympics.

The Russian and Chinese projects share a number of common properties and functionalities. Both models will operate as a retail two-tier system, whereby commercial banks will be involved as key intermediaries. Both projects are designed as digital cash and are not envisaged to serve as a store of value. The Russian and Chinese CBDCs will be highly centralized systems whereby central banks will have the panopticon ability to oversee payments. In contrast to Russia, China already enjoys a competitive advantage – the ubiquity of cashless payments made via private firms such as WeChat and Alipay. For example, WeChat has over 800 million monthly active users, providing a huge boost to the rollout of the digital renminbi.

The compatibility of the Russian and Chinese CBDC models provides a good start for an international payment arrangement. Under the compatible CBDC model, central banks would separately determine rules, governance and infrastructure, yet as with any cross-border payment, common message standards, cryptographic techniques and data requirements could lower frictions and simplify the transaction monitoring process. Coordinating legal and regulatory frameworks would be an additional step towards smooth cross-border interoperability, yet harmonization in this area traditionally takes a long time. Other forms of multi-CBDC arrangements – interlinking CBDC systems or creating a single system – would require much more substantial coordination between Russia and China, making the last forms of arrangements an unlikely scenario.[6]

In the past, Russia and China's cooperation on the interlinkage of financial infrastructure between the System for Transfer of Financial Messages (SPFS) and the Cross-Border Interbank Payments System (CIPS) did not get off the ground. In 2019, Moscow and Beijing signed a Memorandum of Understanding to lure the Chinese banks to SPFS, but progress remained largely on the level of technical consultations. The asymmetry with SPFS is particularly poignant here: while 23 Russian banks joined the Chinese CIPS, only the Bank of China is currently connected to the Russian SPFS. Whether the coordination on CBDC systems would be a different case remains to be seen. However, the lingering mistrust between Moscow and Beijing, the countries' fixation on preserving their own financial sovereignty, and the reluctance to share information on payments leave little hope of successful coordination.

IMPLICATIONS FOR THE US DOLLAR HEGEMONY

What are the implications of the development of digital currencies for the US dollar hegemony? The dollar has maintained the status of the pre-eminent global reserve currency for a long time. The dollar remains unrivalled, accounting for 40% of global transactions, 88% of global trade invoices, and 62% of foreign exchange reserves.[7] The US dollar hegemony provides Washington with an "exorbitant privilege" to run larger trade deficits and raise costs cheaply, reduce exchange-rate risks, track illicit financial flows and impose sanctions with extraterritorial effects. The overuse of financial sanctions – both in terms of frequency and scope, particularly under the Donald Trump administration – spurred other countries to create alternative financial messaging and payment systems, de-dollarize central bank reserves, and pivot to other currencies in cross-border settlements. Developing digital currencies represents a part of those efforts to diversify away from the dollar system.

Both allies and adversaries affected by US sanctions have been seeking ways to undercut the US nexus and avoid dealing with the US dollar. China and Russia created alternatives to the SWIFT messaging and payment systems – CIPS and SPFS respectively; the European Union developed the Instrument in Support of Trade Exchanges (INSTEX), aimed at facilitating payments with Iran.

6 Raphael Auer, Philipp Haene and Henry Holden, 'Multi-CBDC arrangements and the future of cross-border payments', *BIS Papers* No. 115, March 2021, https://www.bis.org/publ/bppdf/bispap115.htm.

7 Carol Bertaut, Bastian von Beschwitz and Stephanie Curcuru, 'The International Role of the US Dollar', *FEDS Notes*, 6 October 2021, https://www.federalreserve.gov/econres/notes/feds-notes/the-international-role-of-the-u-s-dollar-20211006.htm.

Both Russia and China have taken significant steps to reduce their reliance on the US dollar. In 2013, the Kremlin embarked on a strategy of de-dollarizing the central bank's reserves. Between 2013 and 2020, Russia's central bank cut the share of its reserves denominated in dollars by more than half. In 2018, the Russian government dumped $101 billion in US dollar reserves and diversified it with acquisitions of euro, gold, and yuan. The share of gold in Russia's currency reserves more than tripled, while the country holds one of the world's largest shares of renminbi in its international reserves. In June 2021, the Russian authorities announced that they would ditch the dollar from the National Welfare Fund to minimize the exposure to US sanctions. The share of the US dollar in Russia's cross-border payments also dropped from 80% to 62% between 2013 and 2019, but it was mainly replaced by the euro, thus partially shifting the risk of sanctions from Washington to Brussels. The increase in euro-denominated settlements in Russia's trade structure forces the US to more actively seek coordination with the EU.

China has been pushing for de-dollarization since the 2008 financial crisis. Beijing launched renminbi clearing centres for international trade in the UK and Singapore and signed 33 currency swap agreements for trade with foreign governments, more than any other country. Between 2014 and 2019, the share of the renminbi in cross-border settlements tripled. Beijing also started accepting imports of iron, copper and oil futures in the renminbi – a milestone considering that commodities are traditionally traded in the US dollar.

China is far better positioned to rival the US dollar than other countries. As the world's largest trading nation deeply integrated into the global economy, Beijing has good preconditions for the internationalization of the renminbi. The latter could proceed in several stages, starting the testing within the Greater Bay Area (Hong Kong and Macau traditionally enjoy close financial relations with China). In the next stage, Beijing could promote its new digital currency through the Belt and Road Initiative (BRI). Many BRI countries are already trading in the Chinese currency as Chinese funding is usually conditioned to the use of the renminbi.[8]

The digital renminbi will account for the main increase in the use of the Chinese currency globally. After more than five years of research by the People's Bank of China, Beijing is well-positioned to exploit its first-mover advantage. China enjoys a competitive advantage in shaping the design and technological standards of digital currencies, which could define the international operating environment. A digital component of the BRI could help accelerate the development of digital currency projects in other countries to establish cross-border interoperability.

The success of digital currencies will be determined by whether other countries accept them. Regional emerging markets can be lured by cheaper costs and the desire to hedge their geoeconomic risks.[9] Iran, North Korea and Venezuela, which are currently under the US "maximum pressure" campaign, could use China's digital yuan for cross-border payments.[10] However, achieving a global hegemonic status akin to the dollar would require much more than the use of the digital renminbi in cross-border payments.

Dethroning the US dollar would require significant transformations from China. To internationalize the Chinese digital currency, Beijing would have to conduct several domestic reforms in the regulatory, governance and institutional structure. The Chinese financial markets remain weak, underdeveloped and among the most restricted to foreign participants. Relinquishing capital controls could increase foreign investments in Chinese bonds and stocks. Without those measures, the renminbi's potential in global invoicing and foreign exchange reserves will remain marginal. Turning the renminbi into a market-determined currency, however, would mean Beijing losing control over the exchange rate, risking the destabilization of the financial system. On top of regulatory inefficiencies, there are geopolitical and geo-economic risks linked with Xinjiang and Hong Kong policies, which make foreign investors hesitant to invest.

Getting rid of those self-imposed limitations would provide fertile ground for China's CBDC. Ultimately, the digital nature of money alone does not change the fundamentals of any currency: without trust in the issuing entity, the digital renminbi will be perceived as toxic as the fiat currency.

8 Richard Turrin, *Cashless: China's Digital Currency Revolution*. Gold River, CA: Authority Publishing, 2021.

9 Christian Fjäder, Niklas Helwig and Mikael Wigell, 'Recognizing "geoeconomic risk": Rethinking corporate risk-management for the era of great-power competition', *FIIA Briefing Paper* 314, 17 June 2021, https://www.fiia.fi/en/publication/recognizing-geoeconomic-risk.

10 Aditi Kumar and Erica Rosenbach, 'Could China's Digital Currency Unseat the Dollar?' *Foreign Affairs*, 20 May 2020, https://www.foreignaffairs.com/articles/china/2020-05-20/could-chinas-digital-currency-unseat-dollar.

CONCLUSION

In the short term, challenging the US dollar hegemony will be no mean feat. No currency is well-positioned to displace the greenback as a reserve currency. However, the US's complacency about its exorbitant privilege and the overuse of US sanctions make countries like Russia and China more assertive in their quest to reduce their reliance on the dollar. In the long term, if left unchecked, the dollar's international status can be weakened as challenges mount, and digital currencies are among those challenges. The US is lagging behind with the development of the digital dollar and if delayed further, Washington stands to lose its influence over the international financial flows. The question is not about whether the renminbi or rouble and their digital equivalents can displace the US dollar in the global financial system. It is about whether they will be successful in reducing the share of the US dollar, and CBDCs hold the transformative potential for this.

CBDCs could eliminate the need for third-party intermediaries and allow cross-border transactions that take place outside of the US-led financial system. Without the US nexus, the US's ability to effectively lock other countries out of the global financial system will be jeopardized. This would hamper the US's ability to use sanctions as a geoeconomic tool and oversee their extraterritorial enforcement. /