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Panel 4: China's Pursuit of Leadership in Digital Currency

A Statement by

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Introduction

Many in Washington are concerned about what China's leadership in fintech and pioneering efforts to launch a new form of the renminbi (RMB), a central bank digital currency (CBDC), could mean for the United States and the role of the US dollar. In her confirmation hearing, multiple senators prodded Treasury Secretary Janet Yellen on China's digital currency and her plans to keep the US dollar and financial system on top. She said the United States "must be a leader" in fintech and digital assets and that, "[s]trategic competition with China is a defining feature of the 21st century." Yet, the US Federal Reserve has not committed to launching its own digital currency to take on the Chinese one currently undergoing trials. Should the United States be worried? My argument is that it should not, and that the Federal Reserve and Treasury have been right to proceed cautiously, with the idea of getting any digital currency plans "right" instead of "first."

China's fintech success has been impressive, but it remains mostly a domestic affair. Its fintech giants Ant Group and Tencent have achieved enormous valuations, but their attempts to gain users internationally other than Chinese tourists abroad have so far made few inroads, and national security concerns in jurisdictions around the world mean that this is not likely to change anytime soon.

Hype has far outpaced the reality in digital currencies, CBDCs, and China's digital RMB in particular. Cryptocurrencies like bitcoin are booming, but these are mostly for speculation, as they are ill-suited to large volumes of payment transactions. We are still at an early stage in which the benefits of CBDCs have not yet been proven in practice, and the risks (cyber, operational, financial) are serious enough that most central banks will be hesitant to issue any until these can be resolved with a high degree of certainty. China's eCNY efforts have similarly yet to prove they will be any cheaper, more efficient, more private, or more convenient than the existing domestic and international payment systems. Therefore, it is unlikely to represent any more a threat to the dollar's international dominance than the current forms of RMB, at

least over the short and medium term. Nothing is certain over the long term, however, so the United States should continue to carefully monitor China's CBDC efforts and other digital currency innovations and incorporate any useful lessons to ensure that dollars and the payments systems that carry them remain competitive long term.

Fintech in China

Financial technology, or "fintech" has propelled Chinese finance from a backward state all the way until 2013 into a world leader in digital finance. While Americans tend to still use plastic cards and billions of paper checks to pay, cash has all but disappeared in Chinese cities as mobile phone based quick response (QR) code payments displaced paper money and cards. The two dominant mobile payments apps, Alipay and WeChat Pay, affiliated with China's most successful e-commerce and social media/gaming companies, respectively, each boast around a billion users. These "super apps" combine immense bundles of financial and non-financial services that would take dozens of applications in the US to approach their functionality.

Chinese e-commerce and fintech companies have become some of the world's most valuable companies. Tencent, a dominant social media, chat, gaming, and fintech company, is worth over $800 billion. Alipay operator Ant Group, a financial technology company spun off from e-commerce giant Alibaba Group, was recently valued at over $300 billion, on par with top US financial companies like JP Morgan Chase and Mastercard before regulatory and political concerns domestically led authorities to cancel its deal.

China's leadership in fintech however, is not just about private firms. The government has joined in the financial innovation game, principally with its plans for a central bank digital currency (CBDC) that would operate both alongside and together with the existing digital wallets that have taken China by storm. China was one of the first countries to set a goal of launching a digital currency, and today it is one of the most advanced in its plans, certainly by far the most advanced of any major economy.

China's Fintech Giants and Its Government

In the early years, starting with Tencent's introduction of its "Q Coin" virtual currency in 2002, and Alipay's emergence a few years later, regulators paid little to no attention to financial technology innovations. China faced much more serious financial issues in the early 2000's, from bailing out and reforming a largely bankrupt banking sector to building China UnionPay, the first national retail payment system for debit cards. The relationship between financial technology and the government was benign neglect, as these challenges left little room for thinking about how to respond to then small-scale innovations in payments.

The capital for those early fintech innovations came not from government plans and subsidies doled out by far-seeing bureaucrats, but foreign investors like Goldman Sachs, Softbank and Naspers, who saw promise in Chinese technology companies. Regulators considered imposing rules for nonbank electronic payments in 2005, but instead waited for the market to develop on its own. The first rules and licenses only came in 2010 and 2011 after a series of scandals

involving money laundering and illegal activity at payments companies pressured regulators to clean up the messy market.

The era from 2013 onward represented an alignment of goals between Chinese technology companies and the government. Reformist leaders like People's Bank of China (PBOC) Governor Zhou Xiaochuan convinced the Party leadership to open areas of finance that were previously reserved for state-owned companies, including banking, lending, and investments, to privately owned companies, including Alibaba and Tencent. Governor Zhou had long believed that introducing new technology to China's banking sector would help it modernize and better support China's transition to a growth model more dependent on efficiency and innovation than state-directed investment and exports. In effect, the government let fintech boom not in spite of, but because of its ability to undermine financial repression that insulated banks from competition, giving financial consumers better service and more choice.

Financial technology companies were particularly well-suited to achieving the Party's goals for financial inclusion, especially lending to small-and medium-sized enterprises and rural people that would have difficulty accessing credit from big state-owned banks. Thus, regulators created an uneven playing field that left financial technology subject to significantly less regulation than the traditional state-backed financial sector (Zhou 2013). This policy decision was a critical ingredient to the boom in fintech that began around 2013 and accelerated in 2015, as big technology firms became financial conglomerates and thousands of fintech startups entered as online P2P lenders.

Starting in 2016, the relationship became more complicated. Fintech grew more quickly than the Chinese government anticipated, and problems emerged like Ponzi schemes in online P2P lending and gray market financing that helped inflate a stock market bubble. Since then, the government has tried to restore financial order and clamp down on risky activities while at the same time trying not to choke off the useful elements of fintech---innovation and competition that results in efficiency and inclusion gains (Chorzempa 2018).

Top fintech companies and their executives gained enormous political power, in some cases even blocking or neutering government regulations that would have stood in the way of expanding their business. In other cases, such as the government's attempt to combine credit data into a single repository, Ant and Tencent have refused to comply with requests to share valuable information (Yu 2021). In others, they have exploited regulatory arbitrage to avoid regulations. These cases make clear that the relationship of China's tech giants with the government are complex and evolving. They are not simply tools of the Party, rather they are enterprises with their own interests and allies at high levels of China's political system.

The future of these relationships is uncertain. Big technology firms have become so large and important that they are in the political crosshairs over issues of privacy, competition, and more across the world. China is no exception, and these issues are more urgent there because big technology companies play such a key role in finance, in addition to all the roles they play in the

West. In effect, big tech companies like Ant became so large and systemically important that they were operating financial infrastructure, the kind of business that is often heavily regulated like a utility. Even before Alibaba founder Jack Ma's November 2020 speech criticizing excessive regulation hit a nerve that contributed to the government cancelling Ant Group's IPO, stricter regulations around privacy, anti-monopoly, and financial risk were all in the works—justifiably so.

The context in China is also working towards more government oversight and less space for disruptive innovation for big fintech. General Secretary Xi Jinping has favored state-owned firms, like the banks that compete in some cases with fintech companies, and he has reined in many of China's powerful business tycoons with his campaigns against financial risk and corruption. I expect to see a realignment of political power away from big tech and policies that advantage state-owned banks, and after the government's assertion of power over Ant with a forced reorganization and delayed IPO, the space for Ant to refuse requests from agencies like the PBOC to share data have likely shrunk considerably.

Disappointing Expansion Abroad

Even in areas of fintech in which China is a world leader, such as mobile payments, an impressive domestic record has not extended to anything resembling global dominance. Payments is a two-sided market in which consumers and merchants both must be signed up to use a new payment method if it is to catch on. So far, Alipay and WeChat Pay have only succeeded on one side abroad: merchant acceptance. Before the pandemic at least, payment providers and retailers around the world clamored to accept Chinese digital wallets, primarily to facilitate spending from Chinese tourists on their networks and in their stores. Alipay is accepted in at least 56 markets, including many retail stores like Walgreens in the United States that allow you to scan a QR code to pay (Jing 2019).

On the other side of the payments market, use by consumers outside China, both Alipay and WeChat Pay have made limited efforts and achieved even less success. This reduces the concern that Chinese digital payments are expanding at the expense of the dollar or of US-based payments companies. Those using Chinese digital wallets abroad tend to be only Chinese tourists or some Chinese living abroad who were already users of those digital wallets in China, and there is no sign that this is changing anytime soon. It does not yet appear to be a route to displace the US dollar. I therefore view this kind of expansion as mostly internationalization to serve the domestic market of domestic users. Alipay or WeChat want to keep Chinese tourists on their apps outside the country, not their domestic rival's.

WeChat's attempts to catch on with users abroad have been a failure. It launched with great fanfare as a messaging service in India starting in 2012, which could have given it a user base for payments and other services, but the push failed and was wound down in 2018 (Shaikh 2018). Instead, US-Based WhatsApp has taken over as the dominant chat service all around the world. WeChat's attempts to launch a mobile wallet in South Africa starting in 2015 similarly failed and were shut down last year (Vermeulen 2020). It is, however, able to connect with

digital wallets from local providers abroad, including with Kenya's M-PESA to facilitate small merchant payments for Chinese goods more easily than today's expensive and slow remittance services. Kenyan users, however, pay or receive local currency (Dahir 2018).

Alipay has mostly avoided trying directly to gain users abroad. Instead, Ant Group partners with promising fintech wallets in other countries, supplying capital, technology, and expertise. As of 2019, it had done so with e-wallets in 10 markets, including PayTM in India and Kakaopay in Korea. Except for WorldFirst, a UK-based money transfer company it acquired in 2019, Ant is only a minority shareholder in the local digital wallets, which must comply with often strict local laws around data protection and localization. Therefore, it is unlikely that Ant can directly access sensitive data on individual users of these partner apps. Outside its investment in e-wallets, however, there have been cases in which Ant's international expansion would have led to the ability to collect data on Americans. The highest profile has been its attempted acquisition of MoneyGram, a US-based money transfer company often used by US military personnel abroad, which the Committee on Foreign Investment in the United States (CFIUS) blocked on national security grounds.

For now, despite long-term global ambitions, Chinese fintech companies are overwhelmingly domestically focused. Only .5% of Alipay's payments were international in the 12 months from June 2019-2020 (Ant Group 2020). National security concerns around sensitive data are likely to keep both Ant Group and WeChat Pay from receiving approval from many regulators abroad to serve retail users outside China outside businesses importing or exporting from China, and even if they did, security concerns can scare off many potential adopters—Indonesia, for example, has limited them to serving Chinese tourists, and one reason WeChat failed in India were concerns about Chinese firms snooping on private chats (Jakarta Post 2018). The authoritarian turn in China and increased data sharing that the government is demanding of Chinese fintech companies will only exacerbate these concerns, making it more difficult for them to expand abroad and compete more with US payment companies.

Of course, the future could be different. Chinese fintech giants could have learned useful lessons from earlier challenges that lead to more success in building an international user base and linking together mobile wallets to make global payments faster and cheaper, but US policymakers should keep in mind that despite immense scale at home, capital, and advanced technology, they have had less international success than one might expect.

What is "New" in Digital Currency

Turning now to China's sovereign digital currency, understanding how the PBOC's world-leading efforts would affect the domestic and international financial landscape requires acknowledging one key fact: that digital currency and digital payments are already dominant in the United States, China, and most of the world. The only currency that is stuck in the analog world is cash, and the importance of providing a digital form of cash in every country is not self-evident. Even though they appear to be using plastic or paper, credit card payments are digital (magnetic strips and chips store and communicate data to POS machines), as are the systems in the

United States that turn checks into digital instructions that order digital money to move between bank accounts. Therefore, what is new about what are commonly called “digital currencies” today, from cryptocurrencies like bitcoin and ethereum to “stablecoin” arrangements like Facebook-linked Libra[1] and proposed CBDCs is not that they are digital per se.

In the case of cryptocurrencies, the novel feature is use of blockchain technology to enable decentralized issuance, management, and payments. They use distributed ledger technology (DLT) to allow a large network to track and validate account balances and transactions, instead of relying on a centralized, trusted intermediary like a bank to verify that a consumer has the funds needed to make a payment. Central banks are concerned primarily with price stability, which requires them to guard against the kind of enormous volatility in value that is common to cryptocurrencies without central intermediaries.

The trade-offs of decentralization may make sense in some applications of blockchain, but for trusted central banks they make little sense. Blockchain-based cryptocurrencies have caught on as speculative investments, but they have so far had limited appeal as payment instruments or for central bank applications. One reason is that decentralization comes at a cost in terms of slow speed and the enormous electricity demands to secure the network. Bitcoin currently handles around three transactions per second, while Visa can handle at least 65,000 (Blockchain.com 2021 and Visa 2018), and bitcoin miners currently use more electricity to secure the network and process transactions than some entire countries. Chinese Central Bank officials have publicly rejected the use of blockchain as a basis for DC/EP because it cannot handle the transaction volume they anticipate (Mu 2019).[2]

If currency and payments are already digital, and central banks are not embracing technologies like blockchain, it begs the question of what, if anything, is truly new in CBDCs. The answer is somewhat technical and considerably less exciting than the hype may seem to suggest: expanding access to digital central bank money beyond wholesale payments, often referred to as sort of digital cash (Bech and Garratt 2017).

Figure 1: Where CBDC Fits in the Currency Space

Central bank money, like cash, is a liability of the central bank, issued by the central bank. A deposit at one’s local bank, even if it is in the same unit (dollar, euro, RMB), is by contrast commercial bank money, a claim on the commercial bank that provided the account. Retail payment instruments are universally accessible, available to normal consumers and businesses, while wholesale payments moving money between large institutions (generally banks) are mostly behind the scenes.

[1] Now called ”Diem”

[2] Some central banks are exploring the possibility of CBDCs operating on so-called “permissioned blockchains” that are more centralized than cryptocurrencies but still use blockchain.

Currently, digital retail payment tools like credit cards, app- or online-based payments are based on commercial bank money, while wholesale institutions paying each other tend to pay in digital central bank money in the form of reserves that commercial banks keep in accounts at the central bank. When banks pay each other, they use those central bank reserves, a liability of the central bank in digital form that can be considered CBDC (Carstens 2021b). These, however, are only available to a limited set of intermediaries, generally banks (Sanford and Bufithis-Hurie 2018).[3] Central banks can always print money, so they cannot fail and are thus safer for settling payments, unlike private institutions, which could go bust while a payment is pending (CPMI 2003).

Central banks around the world are considering a wide variety of CBDC designs, but they tend to have in common creation of a somewhat cash-like digital payment instrument, called "retail" CBDC that would give wide access to hold and transact central bank money in digital form.[4] How impactful this will be is up for debate. In terms of safety compared to existing payment systems there would seem to be little difference for countries like the United States and China that have robust regulation and government backstops for banks that ensure people do not lose funds if their financial institution fails, so the distinction for consumers may make little difference.

It is possible that CBDCs could be designed to support adding functions to money that would make the initiatives more promising, such as allowing programmable money to ensure, for example, that stimulus money is spent rather than saved or give new tools for monetary policy, but these do not necessarily require a new form of currency.[5]

Overview of China's Central Bank Digital Currency Plans

The People's Bank of China's first step towards its own new digital currency was in 2014, soon after a bitcoin boom driven by Chinese demand for the cryptocurrency. Chinese policymakers, most notably pro-fintech PBOC governor Zhou Xiaochuan, hoped to control any risks that new cryptocurrencies could pose to China's financial system, like capital flight, cyber risks, and excessive speculation. They feared that if bitcoin caught on in China, the government could lose control over the monetary system. They also hoped to leverage advances in payments technology for their own purposes, which led the PBOC to come out two years later with a "strategic goal" of launching a central bank digital currency "soon," though there was no timetable (Chorzempa 2021). Its stated motivations then included a mix of political goals, like

[3] Rules in the US limit such accounts to banks, while countries like the UK have expanded payments system access to nonbanks.

[4] There are also discussions about "wholesale" CBDC that would make central bank money available to a wider variety of institutions than current central bank accounts, but interest in such systems has flagged in recent years.

[5] One example of quasi "programmable money" that already exists in the US are Electronic Benefits Transfer (EBT) cards for recipients of government benefits, which can only be used in certain stores (National Conference of State Legislators 2019).

reducing tax evasion and money laundering, with economic goals, like better management of money supply, financial inclusion, and cheaper and more efficient payments.

The project, soon dubbed "digital currency/electronic payments" or DC/EP, accelerated upon Facebook's announcement in 2019 that it would launch a global digital currency called Libra. Chinese officials and firms feared that an American firm with Facebook's global network could box China in and erode its monetary sovereignty, finding itself either isolated or forced to adopt a globally dominant digital currency linked to the USD. Wang Xin, head of research for the PBOC, made it clear that the PBOC sees itself in a race with the United States on digital currency. He said, "We had an early start…but lots of work is needed to consolidate our lead." He warned that a successful Libra could reinforce a monetary system with "one boss, the Dollar, America," (Wang 2019). PBOC Digital Currency Research Head Mu Changchun said that as "a manifestation of our response to Libra," PBOC staff developing DC/EP project would be forced to work "996" (9am-9pm, six days per week) schedule to speed up the effort (Mu 2019), a sign of the seriousness with which it approached the task.

The PBOC took a major step forward when retail trials were announced in April 2020, which took the digital RMB to four major Chinese cities. Chinese residents of those areas could register for a lottery, whose winners received new so-called "eCNY" in a special test wallet they could use at select retailers. Since then, the pilot has expanded to many cities and thousands more retailers. It has also begun testing offline payment functionality, and it is cooperating with the Hong Kong Monetary Authority to trial cross-border uses. The PBOC has yet to announce any timetable for a national launch of eCNY, though at least a limited rollout before the Beijing Winter Olympics later this year is likely.

Domestic Implications of DC/EP

Predicting the implications of China's DC/EP project is a highly speculative endeavor because of the sheer number of unknowns that remain in the currency's design and interaction with the existing financial system. The PBOC has never issued a comprehensive white paper on the currency's design, which does not appear to be finalized. Therefore, what is known about the project outside the PBOC is what can be cobbled together from speeches from current and former PBOC officials, some of which are contradictory or vague on crucial details.

What is known is that the digital Yuan will have the same value as a regular digital or paper RMB. Like other central banks considering a CBDC, the central bank will not have individuals open accounts directly at the PBOC, even if eCNY ends up being a PBOC liability. Like with cash, it aims for a "two tiered" system in which the PBOC authorizes and supervises intermediaries, starting with banks, that enable people and businesses to buy, sell, and transact the eCNY (Chorzempa 2018). Unlike bank accounts, but like cash, it will not pay any interest on money

held in eCNY wallets. There is debate in China as to whether the eCNY will be a liability of the central bank, and thus a CBDC at all.[6]

The PBOC is presenting its digital currency as having better privacy protections for users than the current systems run both by China UnionPay and the duopoly of Alipay and WeChat Pay, and there is some merit to its arguments. Officials have said the eCNY will have "controllable anonymity," which may seem to be a misnomer but gets at a tension in financial privacy that all central banks will have to deal with when designing a CBDC. It would be untenable for central banks to create fully anonymous digital money, which would violate know your customer (KYC) and anti-money laundering laws (AML).[7] Financial privacy around the world is limited by the desire for law enforcement agencies to track the flow of funds in criminal investigations, often requiring financial institutions to proactively report suspicious transactions to government authorities. Even bitcoin is neither fully anonymous nor very private.

In China's case, the central bank will store the ledger of all account balances within the eCNY system and a record of all transactions that update that ledger, which might seem like a privacy nightmare. Yet, such a CBDC may not actually be that different from the status quo pre-eCNY, because transactions privacy from the government is already not likely very high. Payments firms must report a great deal of data to the PBOC, and they must also comply with law enforcement requests for data related to criminal investigations. Therefore, the privacy implications of this new currency may not be as important as some predict.

For any large transactions, there will be no privacy from the government, as users will have to link their bank account to the wallet, information that will be shared with the PBOC. There will, however, be a way to sign up for eCNY wallets with what may be a surprising amount of privacy. The PBOC says it will allow wallets with relatively low transaction and balance limits sufficient for day to day transactions without providing a bank account or real name, only a phone number. Only the telecom companies would know what individual is linked to that number, and they would be prohibited by law from sharing that with the PBOC, which would only be able to see money flows associated with a pseudonymous account number (Mu 2021). For such payments, eCNY's privacy is thus not as far off from bitcoin as it may appear, as anyone can see every payment on the blockchain, just not the identity of the entity associated with it. If an account is flagged for criminal activity, law enforcement would have to request the user's identity information from the telecom company (Mu 2021).

[6] Former PBOC Governor Zhou Xiaochuan said in a presentation at Peking University in December 2020 that eCNY would not be a liability of the PBOC and thus not a CBDC, which contradicted previous statements by Mu Changchun and Fan Yifei. It does not appear that this issue has been decided, as making it a central bank liability could risk people putting their money into the safer central bank money, leading to outflows from banks.

[7] Cash is of course mostly anonymous and often used for criminal activity, but it has in effect been grandfathered in, and its physical nature imposes frictions, like the need for armored cars to move large amounts and transacting in person, that would not exist for digital money.

Where the eCNY is designed to provide even more privacy is in dealing with merchants, including e-commerce companies. With the current payments system based on Alipay and WeChat, these firms harvest data on every transaction that occurs, which they can use for virtually any purpose, from credit scoring to targeted marketing. Such transactions can also reveal a user's personal information to the party they are paying. The disappearance of cash, which allows one to pay without providing any identification to a counterparty, has made financial privacy elusive. Mu Changchun says that eCNY will change that, using encryption that allows transactions without revealing identifying information to merchants (Mu 2021), similar to what Apple Pay does in the United States.

Most consumers may not notice much of a difference in how they pay once the eCNY is rolled out, scanning the same type of QR codes as they have for years, possibly with the same digital wallets. Officials will be careful to ensure that the eCNY does not disintermediate the banking sector and threaten the interests of largely state-owned banks, and banks have emerged as the key agents intermediating the system between the central bank and retail payments. The tech companies and their payment methods are likely to be the most affected. One of the key motivators for the PBOC in developing the digital currency is to introduce a more public option alongside the private payment providers that puts pressure on them to lower fees, to open up what are currently walled gardens that do not interoperate, and to do better on privacy. eCNY wallets provided by banks, telecom companies, and others will compete more with Alipay and WeChat Pay, but both Alipay and WeChat will surely also support eCNY payments within their apps. They will, however, have to comply with stricter rules than they do today, such as limiting the use of the data gathered by the digital wallet for other purposes like lending or marketing.

A crucial remaining question is to what extent the eCNY will be successful in generating demand from consumers and merchants, which is not a given. It could prove a market flop, forcing the government to decide whether to let the system play a minor role, or to compel merchants to take it and pressuring Alipay and WeChat Pay to use it for their transactions. There are reasons to be skeptical that it will be a hit. Trading government monitoring for tech company monitoring will not in itself draw many users away from the digital wallets they have used for years or from much more anonymous cash, and the assurances of privacy may not be fully convincing to the Chinese public. The government will have a hard time equaling the convenience of well-established ecosystems of merchants and users that super apps have built and tied in with myriad other services. The benefits to inclusion of groups not currently able or willing to use digital financial services may be substantial if eCNY can be used with physical cards, no internet access, or non-smartphones. Nevertheless, the relatively small portion of people in China who are currently unbanked, non-users of Alipay and WeChat--primarily elderly individuals in remote areas often without internet access--will be difficult to integrate into a new digital system.

How will the eCNY affect the dollar?

As China's economy, its trade, and its financial markets grow, the RMB will inevitably play a greater role in the global financial system, and some of its gains will naturally come at the dollar's expense. The question today, however, is not whether the RMB will ever play an important role as a global currency, but whether a CBDC form of the currency will significantly change its competitive position in global finance and commerce. It is too early to tell, but I am skeptical.

So far, years of Chinese efforts to internationalize the RMB have borne limited fruit. Beijing has prioritized domestic financial stability, protected with capital controls, over making its currency freely usable in a way that would boost its use abroad. China appeared poised to make large gains when it made reforms to gain acceptance into the IMF's Special Drawing Rights (SDR) basket, but soon after, its currency underwent a surprise depreciation and tightening of capital controls that undermined its reputation. According to IMF data, the RMB has risen as a share of global foreign exchange reserves since 2016, but it has stagnated around 2% for the past few years. SWIFT data from the past few years do not suggest that the RMB is gaining as a share of global payments. The RMB is not gaining ground against the US dollar as of now.

Figure 2: RMB as a Share of Global Reserves

Those capital controls are not going away anytime soon. Since May of last year, abundant capital has flowed into China and caused its currency to appreciate, which theoretically would be an ideal opportunity to loosen capital controls. Influential Chinese economists like Huang Yiping, a former member of the PBOC's Monetary Policy Committee have made such suggestions in the past, but controls remained in place, and Huang has revised his views, saying late last year that "there may not be a best time to open up," (Huang 2020).

Even if the capital account remains closed, some argue that China will successfully use its leverage over countries dependent on Chinese Belt and Road (BRI) related lending to boost the RMB at the dollar's expense. Yet, Chinese sovereign lending is on the decline after many of its borrowers ran into financial problems (Acker and Brautigam 2021). Less promise of future lending reduces Beijing's leverage over other countries to dictate what currencies they use. In fact, China does not appear to have used its leverage to boost the RMB in the past, because the majority of BRI loans have been denominated in USD, not in RMB (Dollar 2020).

It is extremely difficult to gain ground on a currency as dominant as the US dollar. The IMF's Chief Economist Gita Gopinath and former Federal Reserve Governor Jeremy Stein recently found that at least over the medium term, "the renminbi would have a hard time gaining much traction in international banking and finance" compared to the dollar. Yet, in the long term, they warn that "if the gap between Chinese and U.S. shares in world exports widens far enough, we could eventually get to a point where a renminbi-dominant equilibrium becomes inevitable." (Gopinath and Stein 2020).

However, this is the landscape pre eCNY, and there is no doubt that Chinese policymakers aim to use a possible global transition to some new form of digital currency to internationalize the RMB sooner. If the eCNY is successful and catches on in China, should the United States be worried about it overtaking the US dollar in international commerce and reserves, eroding advantages that the United States gains from having the world's dominant currency?

Commentators in China and the United States often link the digital RMB to internationalization (Fan 2018), but I have yet to see a comprehensive, convincing argument of how it will do so. Claims abound that the eCNY will be cheaper, faster, or have other advantages over the US dollar, which is possible, but we simply have too little information about the eCNY to know how well it will work domestically, let alone how it would function in a much more complicated cross-border payment market that deals with multiple currencies, jurisdictions, regulations, and financial infrastructures.

BIS Managing Director Agustin Carstens, one of the world's foremost authorities on central banks and payments, does not believe that CBDCs will create a first mover advantage for reserve currency competition or geopolitics. He cautioned that "much of this rhetoric is overblown" and argued "It is unlikely that a digital currency will take off as a global reserve currency *owing to its digital nature alone*." [emphasis added] (Carstens 2021b). His remarks make sense when considering the context laid out earlier: digital money per se is not new, so it is not a game changer or even an advantage. The eCNY will need to have other advantages to do better than the already digital RMB against the already digital USD, Euro, Pound, and Yen. All these currencies are used more for global payments than the RMB, which currently has a share of 2.2% of global cross-border payments (SWIFT 2021).

Advocates of CBDC list a wide variety of benefits, from financial inclusion and cost savings to increased resilience and speed, but these and CBDCs in general remain largely theoretical ideas not yet proven in the real world. Unless they truly realize these benefits in practice, they will not live up to the hype and justify the cost and risk of launching them. There is good reason to tread cautiously, as one error in the code could be catastrophic, undermining faith in the currency by, for example, permitting users to spend the same digital money twice.

86% of central banks in the most recent BIS survey are exploring CBDC, but the Bahamas is the only country that has launched one (Boar and Wehrli 2021).[8] Central banks are increasingly open to the idea of launching a CBDC, but the share of central banks that told the BIS they were "likely" to launch a CBDC in the next six years barely increased in 2020 over 2019. It is an important leading indicator that hype has outpaced reality when a further year of serious global research with strong political pressure not to "fall behind" has not convinced more central banks that they should follow in China's footsteps with a commitment to launch a new form of digital money soon.

[8] The BIS study also mentions initiatives sometimes called CBDCs by Cambodia, the Marshall Islands, some West African countries, or Lithuania, but these do not fit the BIS definition of CBDC.

Cross-border payments could certainly use improvements, and many central banks have done proofs of concept and other experiments with hypothetical payments between CBDCs using distributed ledger technology that is so hyped up today. While they show some promise, a recent IMF review of these experiments warned about "immaturity and lack of interoperability. Very few projects have explicitly and rigorously assessed risks against international standards for large-value payments and securities settlement systems. Almost none of the projects involved a cost-benefit analysis, and no conclusions could be reached on whether DLT-based or improved legacy systems could be the more efficient alternative in the future," (Ghiath et al 2020).

The latest mCBDC Bridge initiative between the PBOC, Hong Kong Monetary Authority, Bank of Thailand, and the Central Bank of the United Arab Emirates could show promise in linking together interoperable CBDCs to make payments better than current systems, but it is similarly at an early proof of concept stage among countries that do not yet have even domestic CBDCs. It is nowhere near the development of a functional payment arrangement on new payment rails, and in any case the lessons from the initiative will be shared among the membership of the BIS, which is managing the initiative through its Innovation Hub. Simply put, it is far too early to tell whether the eCNY will enjoy any advantages over the dollar based on its technology, or which technological direction will be the right one.

Two ways the eCNY will certainly internationalize are in retail payments, as former PBOC governor Zhou Xiaochuan has suggested (Zhou 2020). That would mean allowing users of eCNY wallets to make payments both while they are abroad and for purchases from foreign merchants, but how they would do so is not clear. It could involve wallet operators like Alipay and state banks signing deals abroad or have the PBOC make the connection.

China could also let foreigners visiting China open up eCNY wallets, just foreigners have for a few years been able to use Alipay and WeChat Pay with foreign credit cards. Such functionality with the eCNY will likely be at least available experimentally at the Winter Olympics in Beijing in 2022, but it is an open question whether those visitors will be able to keep their eCNY on their phones when they leave the country or use them anywhere outside of China. eCNY pilots thus far have used smart contracts to automatically return any unspent digital money upon the pilot's conclusion, and the same could be set to occur when a foreigner leaves China.

If it chooses to allow foreigners to use eCNY abroad or even go further and promote eCNY wallet use among foreigners, that would mean operating as a payment provider in foreign jurisdictions, requiring licenses and compliance with a host of local rules in a highly regulated space. If the eCNY is as good at enabling surveillance as its detractors suggest, foreign regulators are sure to resist letting their populaces adopt it even if it is cheaper or more efficient (Chorzempa 2021).

Contrary to the current worries in Washington, at least for the short and medium term, China may find it *harder* to internationalize the eCNY than the current form of the RMB. Payments

and currency exhibit strong network effects, in which the value of a network is directly related to the number of other players involved in the network. Today, different areas of dominance for the dollar reinforce each other (Gopinath and Stein 2020). There is often a more liquid market to get funding or trade between any third currency and the USD than any other, meaning it is often cheaper and easier to trade RMB to USD and then USD into a third currency than it is to trade directly.[9]

This liquidity in turn helps make low-cost hedging instruments available for that currency versus the USD that allow a firm to reduce currency risk by locking in a future exchange rate in today. This factor explains why so many BRI loans are in dollars—it is cheaper, less risky, and more convenient for both the Chinese lender and the overseas borrower to use USD. A digital RMB would have no existing network of CBDCs to plug into, except for the Bahamas, and therefore no network effects like those that exist with existing financial infrastructure. Any new trading venues or mechanisms for the digital RMB would need to start from scratch in building liquidity, availability of hedging instruments, and myriad other key financial infrastructures that would take many years to establish, solving problems far beyond technology. Decentralized finance (DeFi) is experimenting with replicating these types of mechanisms for the cryptocurrency world, but it is also in the early stages. For the near future, a country asked to use the digital RMB would be less likely to adopt it than the regular RMB.

The US Response to the Digital RMB

Despite all the headwinds and uncertainties just outlined, over the long term one cannot rule out domestic and international success for the eCNY, for example if many other countries end up adopting CBDCs in the coming decades, and if those end up being more efficiently interoperable with the eCNY than the forms of USD that exist at that point. Nevertheless, the United States is not currently on a path of letting that happen passively.

The Federal Reserve has been more skeptical about CBDC than China, but it has long been paying close attention to China's efforts and their implications for the United States. Federal Reserve Governor Brainard, the governor most specialized in fintech, noted last February that China was "moving ahead rapidly" on CBDC and that, "Given the dollar's important role, it is essential that we remain on the frontier of research and policy development regarding CBDC," (Brainard 2020a). When she announced in August 2020 that the Federal Reserve Bank of Boston and the Massachusetts Institute of Technology (MIT) Digital Currency Initiative (DCI) would collaborate on building and testing a "hypothetical digital currency," (Brainard 2020b) she also mentioned China, implicitly making the point that these US initiatives were linked to ensuring the United States will maintain leadership in the next round of innovations in currency and payments. The initiative with MIT will give Fed policymakers deep insights into the trade-offs involved in designing and launching a CBDC. Still, US policymakers should be aware that China's further stage of development, piloting digital currency in regular citizens' digital wallets

[9] This is called using the USD as a "vehicle currency."

in real-world scenarios, will teach lessons that can only be learned in practice. It must therefore maintain exchanges with Chinese officials to learn from China's experience and encourage China to share its lessons with the broader financial community.

It is possible that a first mover like China could set standards in the CBDC space, which could lead future CBDC adopters to ensure theirs are interoperable with the eCNY or adopt Chinese standards when developing their own. However, US policymakers and those in other advanced economies are aware of this issue and have already taken action to move eventual standards in directions compatible with the values and interests of the United States and its allies. Last October, seven central banks and the BIS issued "foundational principles and core features" of central bank digital currencies aimed to shape how global CBDC efforts develop (Group of Central Banks and BIS 2020). Conspicuously, the People's Bank of China was not part of the group. Thus, the United States has already taken a multilateral, coordinated approach with allies and is not ceding global standard setting to China by proceeding cautiously in its own CBDC research.

Another reason for Washington not to panic is that movement to new cross-border payments standards is a time-consuming process. The latest standard for data banks exchange to make cross-border payments, ISO 20022, was drafted by SWIFT in 2000, but it is due to be fully adopted at the end of next year—over 20 years later (Auer et al 2021). As the eCNY comes out in the next year or two, banks around the world will have just completed a costly and complex process to migrate their systems to the new standard, so it is hard to imagine that the appetite for switching to a new Chinese one would be high. SWIFT has also been improving other elements of the existing payments infrastructure to improve the experience of cross-border payments, which should make it less vulnerable to disruption.

Such a long process of new standard formation and implementation would give the United States ample time to respond to any Chinese proposals for new standards that, for example, eschew SWIFT. China has worked to develop its own payment systems, such as its cross-border interbank payments system (CIPS), but even these have adopted SWIFT's standards for messaging instead of championing their own (SWIFT 2016), and the PBOC continues to work with SWIFT, including through a new joint venture. Despite talk of a SWIFT alternative in China, including with Russia, there is no Chinese initiative I am aware of that has gained any ground.

Recommendations

Firstly, independent of any considerations of competition with China, Congress should push the Federal Reserve and government agencies to improve our domestic payments environment in terms of cost, speed, and reliability. American retail payments cost many times more than they do in China, and the back end infrastructure that moves many of those payments here can take as long to move money as it did in 19th century London, when clerks had to physically deliver slips of paper to settle payments (Birch 2017). The Fed itself admits that "the U.S. retail payment system lags behind systems in other countries," (Federal Reserve 2021). Most central

banks thinking about CBDCs, including China, are primarily focused on achieving domestic policy goals.

Nevertheless, it is premature for the Federal Reserve to commit to launching some new form of the dollar. Both digital dollars for retail and dollar CBDCs for wholesale payments already exist today, and there are ways to improve our payments systems and the dollar's competitiveness internationally by upgrading existing payment systems in ways that are far less risky. Congress should, however, put pressure on the Fed to catch up to global standards of instant payments for retail, such as accelerating its FedNow initiative.

To spur payments innovation and the dollar's competitiveness, Congress should also consider legislation that would allow the Fed to expand access to payment accounts, as the Bank of England has done since 2017, which would allow more innovative payments companies access to the payment rails that underly the movement of money. Nonbank payment companies, including those that could make it easier to use the Dollar for cross-border payments than the cumbersome and expensive status quo of correspondent banking, could use such access to bring more competition that make payments with US dollars cheaper and faster, reducing the relative attractiveness of any new RMB systems.

Finally, Congress should discourage overuse of financial sanctions in a way that might convince not only pariah states like Venezuela and North Korea, but US allies like the European Union, to undergo the massive international effort, cost, and inefficiency involved in creating an alternative, sanctions-proof set of financial infrastructure and currency arrangements. My colleagues have found that US sanctions have historically only had even partial success at achieving the United States' foreign policy goals (Hufbauer et al 2009). Overuse of sanctions would "weaken the international role of the dollar" (Schott 2021) and likely represent a much greater risk to the dollar's dominance than any new form of the already digital RMB.

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Figures and Tables

Figure 1

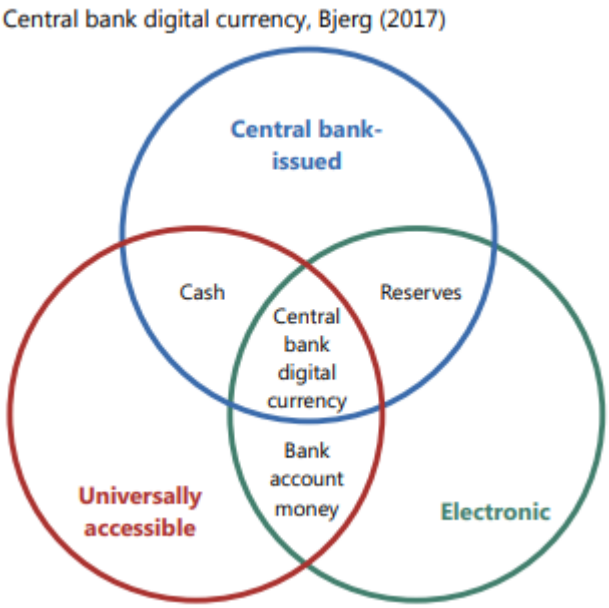
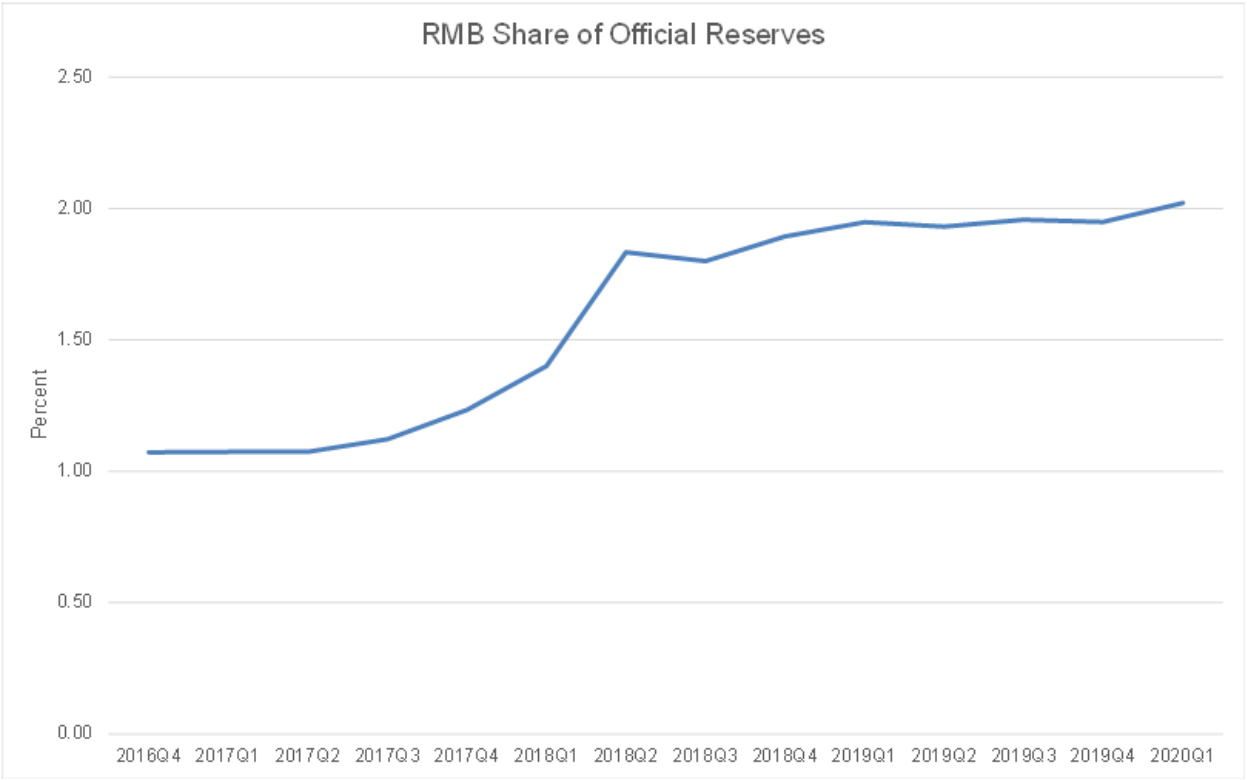


Figure 1

Source: Bech and Garratt 2017.

Figure 2: RMB as a Share of Global Reserves has Stagnated



Source: IMF COFER Database