China Briefing

Digital currency in China: Can China make a Digital RMB be?

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Executive summary

- *The world is becoming more interested in digital currencies; China is way ahead of the pack.*
- *For China, they think this will make their economy easier to manage domestically and show their technological prowess, eliding SWIFT, sanctions, and shrinking sovereign status.*
- *The issues that remain are of coordination — China's reserve bank and economic planner want different things — and of how much of the spoils China's tech giants will be allowed to keep. Both look resolvable.*
- *But this doesn't mean the digital RMB will replace the US dollar. Even should China wish for this mantle, it needs considerable capital market reform and international concordance for default currency status to shift. Neither is likely.*

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In September, China's central bank, the People's Bank of China (PBoC), banned all crypto-currency transactions. "Virtual currency-related business activities are illegal financial activities," PBoC declared, warning that they would endanger the safety of citizens' assets. The price of Bitcoin fell by more than USD 2k in the wake of the Chinese announcement.

Neither was this the first time that China's regulators had spooked crypto markets. In May, Chinese regulators warned there would be no protection for continuing to trade Bitcoin and other currencies online. In June, it told banks and payment platforms to stop facilitating transactions and issued bans on "mining" the currencies. Some cryptocurrency firms even fled Hong Kong. All of this led to China being seen as anti-crypto.

We argue that the case is nearly exactly the opposite. China really wants a digital currency. In this Briefing we will explain how, and why.

What's a digital currency, and will China's be good?

Digital currency is legal tender in electronic form issued by a central bank (usually called a Central Bank Digital Currency, "CBDC"). It is an encrypted string of information that acts like a bill, but also contains metadata such as previous owners, and ways to track. Digital currencies are guaranteed by a central bank, and thus carry very little credit risk. They also can be used as a form of offline payment, taking advantage of using serial numbers when printing the currency, as opposed to E-wallet type products that only work online. It is separate from a "cryptocurrency", which is by an electronic platform and has value derived by users of the platform.

So why are these two things different? Cryptocurrencies have both a store of value and a medium of exchange function. They are designed, in part, to avoid governments. Subverting the system increases the value. Digital currencies on the other hand are a medium of exchange that are subservient to the overall money supply, which forms the store of value. The more that cryptocurrencies are adopted by users the more valuable the currency is to the system. But China wants the latter, and as such it is not a fan of the former.

To make it work as described above, the digital RMB must mimic cash. Each "note" has its own serial number and denomination. It can be shown on your phone offline and then debited upon reconnection to the internet.

There is a two-step process to distribute the digital RMB: China's central bank, the PBoC will issue the currency. Commercial banks and intermediaries such as the tech giants Alibaba and Tencent will use their platforms and customer base to distribute the currency to households and firms — the digital currency's ultimate users. There would not be a digital currency account held directly at the central bank.

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If the private sector can do the rails, the currency train could move very fast indeed. As the money itself is programmable, Beijing has tested expiration dates to encourage users to spend it quickly, for times when the economy needs a jump-start. Anti-counterfeiting measures will be designed to make it impossible for anyone besides the PBoC to create new digital RMB. As with cash, these are unlikely to be failsafe – but at least they will be enforced by the state should one be hacked, as opposed to cryptocurrencies.

Digital currencies are undoubtedly attractive. So much of the world is bankless. Many more people have mobile phones than access to a bank account. Current estimates have it at around 1 billion people with access to mobile phones but no formal banking. Many of these people are in Asia. And for those with bank accounts, they want their cash borderless. A digital currency could save consumers a fortune. The World Bank noted that as of the end of 2020, for every USD 100 cross-border remittance, USD 6.50 goes to intermediaries – and when the transactions are initiated by banks that rises to be USD 11.

The state also receives benefits: handling cash has a cost. In Canada and the European Union, the costs of issuing and managing cash accounts for roughly half a percentage point of GDP, although in developing countries those estimates can be as high as 1.7%.

The leader in mapping this new way forward is China. It recently released a white paper outlining its progress with its digital currency, the digital RMB. Already, it is ahead of schedule.

China not only has pilots, but also support from the very top. China's leader Xi Jinping promoted the internal pilot testing of digital RMB, in his most-officially-quoted public speech of 2020. He also urged further research, development of international cooperation, and application of digital currencies. And China has rolled out several activities. Local governments distribute grants in digital RMB. Poverty alleviation programme funds and household transfers have also tried using it. At present globally, only 10% of central banks surveyed had even commenced a pilot programme.

Why does China want a digital currency? Can Xi do it?

What is in it for Xi? First, it provides a more effective currency. China is clearly focusing on the unit of exchange use case rather than looking at issues with the store of value. PBoC official statements indicate that it will strictly control the digital RMB to elide valuation differences between it and the paper bills and coins. The current financial structure does not change, but rather, banks and fintech platforms get their "physical currency" or equivalent through the PBoC. Currency speculation is therefore illogical. This is different from cryptocurrencies, which were made illegal.

Secondly, there are considerable macroeconomic and financial monitoring advantages. A (centralised) digital currency provides whoever operates it with real-time data on spending patterns, making the entire economy much more legible. The digital RMB could monitor spending in real time, speed funds to the needy, and cut down on fraud.

That is, if it works. China's biggest problem is capacity. With scope also comes fragmentation.

Different parts of the system will be pulling in opposite directions. The PBoC is by far the most active of any actor because it has the greatest incentive. The digital RMB is a monetary policy dream. But China's ruling communist party has already declared that it wants "party-building at all levels of the financial system, building a 'big supervision mechanism', and strengthening financial statistics monitoring and analysis with specific reference to fintech and digital currency." (This Party interaction is behind much of the current speculation and warnings from think tanks of the supervision possibilities of the digital RMB). Macroeconomic policy, on the other hand, will be led by NDRC, China's economic super regulator, which outranks the PBoC. And all these actors will need to be coordinated.

All these different regulators have their own interests and barrows to push. Also, they do not implement policy from the perspective of getting the digital RMB into the hands of citizens. They can be unified solely by local leaders, who are measured on thousands of criteria, and whose concern is unlikely to be whether or not to use a digital currency. This is why the central bank is leading the trials using their own app: because adoption can't easily be pushed down to the provinces and below.

Most transactions in China can already be tracked, but each intervention has a time cost. All payments on Alipay and WeChat can be viewed by regulators only if they can coordinate enough to amass all the permits and data necessary. The fragmentation of the Chinese state makes regulation, issuance, and finally, tracking nearly impossible.

It is tempting to paint the digital RMB as a surveillance tool. Based on how China proposes to distribute digital currency, if it is to be used to monitor citizens, it is unlikely to succeed. The fragmentation makes spying all the time impossible.

Understanding why requires understanding how the information is to flow. The incentive structure for local leaders to buy in and pass data on doesn't exist, and they would be the ones held accountable for surveillance targets, should they exist. Capacity limitations will be a significant check and balance, whether it is built in or not.

> **"The physical RMB will coexist with the digital RMB for a long time."**

This capacity constraint is well understood by China's government; indeed it is already baked into the digital currency. The central bank has already made it clear that "the physical RMB will coexist with the digital RMB for a long time." The bank went even further in arguing that China's vast territory, large population, multi-ethnic integration, regional development differences, social environment and residents' payment habits, age structure, security needs and other factors all make the physical RMB "irreplaceable". Indeed, China's introduction of 'hard wallets', smart visual cards can be used by those unable to access smartphones

Battling with tech

So who will build the digital RMB? China's tech giants. We judge that they are almost certain to drive and lead adoption.

Why? Firstly, they have none of the regulatory and organisational fragmentation of the commercial banks. Alibaba and Tencent take currency directly from the central bank (the PBoC took over all deposits of platforms such as Alipay and WeChat Pay in 2019), and give it directly to customers through their unique ID number. This makes execution far simpler than for retail banks.

Big Tech's advantage is also in "soft information" such as customer reviews of the firm's products and services, and product return rates. Such data — which typically is not available to banks — allows Big Tech to generate high-quality credit scores. Big data also enable Big Tech firms to process credit applications, distribute loans, and collect repayment much more cheaply and quickly than banks.

Regulators within and outside China have become increasingly worried that Big Tech firms could abuse these advantages. Traditional banks, which have been losing market share to the digital giants in both money management and lending, are probably cheering the regulators on as they take a tougher stance. That's because there is an absolute fortune at stake. Retail banks want to sit on top of the rails, as that is where the money is made. And this is a winner-takes-all system. The frontrunner will 'take the whole market', according to the head of digital currency research for the PBoC.

To state the obvious, tech giants are also better at technology. Digital Currency Electronic Payments (DCEP) is at heart a technology problem. If cash is to be on and offline, it needs a trackable distributed blockchain solution that acts as a ledger of the various activities. A flood of patent applications from both Alibaba and Tencent appear to indicate that they appreciate the size of the prize and the need to be swift.

At the moment, officially, the PBoC would need to build its own back-end architecture, meaning that it couldn't simply replicate Alibaba's system. And in this fight, we back 'Baba. Their data-processing power is far superior. According to PBoC statements, the current transaction processing requirement for DC/EP is an average of 300k transactions per second (tps). State-owned bank trials currently project maybe reaching that speed in 2023. Alibaba is already at that level, processing at 544k tps.

So the state will need the tech giants; without that capacity, how can you roll out a digital currency nationwide?

> **The goal for the state is to focus on macro-economic outcomes.**

Rather, the goal for the state is to focus on macro-economic outcomes. Under controlled anonymity for the digital RMB, the PBoC will gain a similar ability to monitor what is otherwise invisible to banks. Although the PBoC would still lack other information such as customer reviews, its data on growth of revenues and expenses would in some ways be better than Big Tech's, because it would include an economy-wide history of transactions. This may allow the PBoC to estimate potential borrowers' creditworthiness and to share these new credit scores with banks at low or no cost, enabling the banks to make uncollateralised loans too, which could reduce or even eliminate Big Tech's information advantage. But that all would assume that Alibaba and Tencent do not keep progressing, and that is very unlikely. A lack of capacity would be the killer, as the previous section showed.

Success factors are largely international

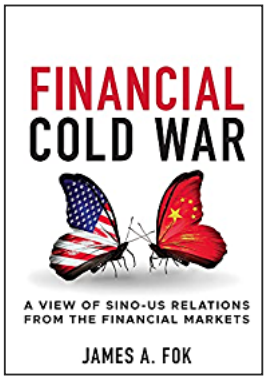
China is a long way ahead in any race for digital reserve currency status. To some, this would be a major rewriting of the international financial order. The Renminbi is currently the sixth most active currency for global payments by value, following the Dollar, Euro, Pound, Yen, and Swiss Franc. Yes, Switzerland, whose economy is 5% the size of China's, has its currency used more to pay for things than China's currency.

Yet, should China have a digital currency, this could change. As China's global trade and financial importance grows, more transactions will be settled in Renminbi. Chinese state-owned firms could insist on settling a portion of their international transactions in Renminbi, while the PBoC could sign more swap agreements involving the currency.

But Chinese capital controls, as well as the relatively small amount of liquid Renminbi-denominated assets that can be bought and sold by international investors, will limit the currency's international uptake. Basically, the issue is that China thinks about currency like cash, rather than as the standard by which the world has created financial instruments. This has historical antecedents. The PBoC wanted to slowly move to IMF special drawing rights as the currency in which securities had their price fixed. But that would mean that the world would have to gradually sell off US dollars, similar to what happened with the UK sterling after the 1940s. Instead, more and more things are denominated in US dollars.

Capital markets will be unlikely to develop enough to absorb the amount of money that would be needed, because the infrastructure of the world remains in US dollars. The only way to do that is to fix its own capital markets and create more financial assets denominated in RMB.

This too is unlikely – in the short-term. 78% of China's wealth remains in real estate, USD 33 trillion is in banks, and only 13 trillion is in capital markets. This problem will only get worse. China's pension needs will require vast amounts of capital be deployed. That will need to happen in capital markets, but China's markets don't seem ready, and digital RMB will not change that. Hence, even China will denominate things in US dollars.



Financial Cold War: A View of Sino-US Relations from the Financial Markets

According to James Fok, 78% of China's wealth remains in real estate, USD 33 trillion is in banks, and only 13 trillion is in capital markets.

Rather, the digital RMB through its macroeconomic advantages can help keep stability and trust for the store of value role within the system. The RMB needs to remain stable (keeping its purchasing power), which is a function of its monetary policy. China retains the only major central bank that is still running an orthodox monetary policy.

In this sense, institutions matter. Chinese regulators like to use markets for macro control of the economy rather than as a simple exchange. For most of its history, the PBoC's primary function was to facilitate China's export-led growth model by artificially suppressing the RMB against the USD. This aided Chinese exports enormously as they could, if desired, ensure a cheaper price for their goods and services when compared to free floating exchange countries. But it was terrible for making the RMB a unit of exchange.

> **Despite comparative economy size, Switzerland's currency is more active in global payments than China's.**

Source: SWIFT

The USD is the international reserve currency because you can take it anywhere in the world and exchange it, largely worry free.

> **The digital RMB is aimed at protecting China's "monetary sovereignty," including by offsetting global use of the Dollar**

On the whole, China has never worried greatly about this. But recently, the PBoC digital currency research head in public comments stated that the digital RMB is aimed at protecting China's "monetary sovereignty," including by offsetting global use of the Dollar.

This gets at one more reason why the digital RMB is attractive: it could give those sanctioned a way around US influence. Why? The SWIFT system (which stands for Society for Worldwide Interbank Financial Telecommunications) is currently used to transfer money across any currency — last year it facilitated the transfer of USD 77 trillion. Although it is owned by its members and not any particular nation state, the US is able to use SWIFT to police international sanctions. Hong Kong's leader, Carrie Lam, for example, is currently paid solely in cash as she is subject to US sanctions. But currency swaps with a digital RMB wouldn't need to use SWIFT. We see them as, at most, aiming at subverting SWIFT sanctions, not supplanting dollar status. What will be the next battleground for this? It will be the role of standards.

The digital RMB can only be accepted and gain credibility if it is seen as having a much better infrastructure; the goal is to make it the operating system of finance. In this sense, the battle is top-down. China's leader Xi Jinping last year called for China to seize opportunities to set international rules for digital currencies. Beijing has joined an initiative to develop protocols for the cross-border use of digital currencies, working with the Bank for International Settlements and the central banks of Hong Kong, Thailand, and the United Arab Emirates. Hence, the most likely outcome is that China gets praise for the technology, but that the international financial system remains much the same – at least for the time being.

"The e-RMB is another piece in the puzzle of what the future of digital currency will look like. And, a first proper solution by a government globally."

— **Mike Imam**, CEO, Silverhorn

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