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Major countries, seeing China leap ahead, are pondering issuing digital national currencies

Is a watershed reengineering of money underway?

Around 600 BC, the Chinese were among the first to invent money when they used coins worth the metal within to overcome the hassle of bartering.[1] Around the first century AD, the Chinese invented paper and in the following centuries devised printing presses.[2] These inventions plus the heaviness of coins – the standard unit was 1,000 bronze coins on a string and weighing at least three kilos, even heavier in Sichuan where only iron was in abundance – fostered the next monetary innovation. In 995, a merchant in the Sichuan capital of Chengdu let people leave their coins with him. In return, he gave them standardised receipts for reclaiming the coins. People used the receipts as a means of exchange and paper money backed by assets was born. Other merchants copied the idea. So did counterfeiters. China's government took control of printing money to ensure it was trusted.

The next innovation came after 1250. Genghis Khan's grandson Kublai introduced an 'inaugural treasure exchange voucher' redeemable for silver or bronze for mandatory use throughout the world's then-biggest empire. In 1287, Kublai, low on treasure after two failed invasions of Japan, issued paper notes backed by nothing. And the Chinese trusted the world's first fiat currency, as Italian explorer Marco Polo reported.

Europe hosted the next advance in money. In the 1600s, UK goldsmiths, having long issued receipts Chinese-style for people's coins, started to lend people receipts on the proviso that the sum was repaid with interest. Thus was born fractional-reserve banking whereby banks create money. This banking system persists to this day, as does the risk of fatal runs on banks should too many depositors seek their money at once.[3]

The most recent monetary innovation is the rise of cryptocurrencies after Bitcoin appeared in 2009. The ability to pay over the internet by computer code (rather than moving money electronically in bank-to-bank wire transfers) has prompted governments to investigate what would be the next leap in money. They are thinking of issuing digital national currencies.

The Bank of International Settlements says that close to 60 central banks are studying how app-based money could co-exist with cash, a piece of paper that is a claim on the government, and bank deposits, a traceable claim on the bank.[4] Sweden's Riksbank is the western central bank most advanced in testing e-money, a paperless form of cash on a digital ledger held by the central bank. The Riksbank this year released inconclusive results from a pilot project and postponed any e-krona launch until at least 2026.[5] The result typified how western governments have seen e-currencies as a niche quest of no urgency.

The apathy, however, vanished in March when China unexpectedly became the first major country to unveil a digital national currency.[6] (The Bahamas launched a digital 'Sand Dollar' in 2020[7] though others say Finland's failed chip-based Avant Card of 1992 was the first central-bank digital money.)[8] Beijing's motivations for trialling an e-yuan in selected cities include reining in the country's payments companies and gaining even more control and visibility of transactions for political-control purposes. Another incentive is to create a yuan-based international payments system, to escape the reach of the US-controlled financial system and help the yuan approach the US dollar's reserve status.

In response to China's efforts, the eurozone,[9] UK,[10] the US[11] and elsewhere[12] are intensifying research into 'govcoins'. Apart from catching up to China, they see that a cyber currency would allow for instant payments, lower transaction costs and better crime detection, and help government budgets by boosting 'seigniorage profits' – an issuer's profit from the nominal value of money exceeding the cost of creation (almost nil). Online accounts with central banks would help authorities reach the unbanked, micro-target fiscal stimulus, impose negative interest rates, spur innovation and enable 'programmable money'.[13] Digital money, as well, would give non-banks greater access to the central-bank balance sheets and instant settlement systems, check the data-gathering of payments companies and counter the use of unsafe private cryptocurrencies or foreign digital national money.

But don't expect the mass use of an e-dollar or e-pound soon. While cash makes for untraceable transactions, e-money is traceable and thus raises privacy concerns. Hurdles include

cyber-security risks and how to enable offline use and the threat to payments companies.[14] The core drawback of central-bank money under capitalist systems, however, is the soundness of such money. The (implicit) government guarantee undermines a financial system based on private banks and fractional-reserve lending. That people would prefer to hold e-money deposits at the central bank means private banks might struggle to attract and retain deposits. The trust mismatch would boost the risk of bank runs. Commercial banks might be forced to turn to costlier and unstable sources of funding. One solution would be to shift to full-reserve banking but that would be another experiment. Another would be to limit the amount of govcoin that could be issued but that curbs its benefits.

An e-yuan is bound to inspire greater use of China's currency outside China and help a country with a state banking system (where lending is based on collateral) insulate itself from US sanctions. But, as 'hot money' flows could boost the yuan and make exports uncompetitive, Beijing is wary of the yuan approaching the US dollar's pre-eminence. While e-money will appear in coming years, central-bank money is likely to remain peripheral while its mass use comes with systemic threats.

It must be stressed that state e-money would be little like stateless cryptocurrencies (or 'stable coins', ones that are backed by financial assets such as Facebook's proposed Diem).[15] Private cryptos are easy-to-outlaw, peer-to-peer code that are an inconvenient means of payment. Unlike speculation-prone cryptos, government e-money would trade in line with the physical currency. So what if China launches an eCNY in 2022. Chinese multinationals would still rely on the US-dollar-based financial system and an e-yuan's arrival wouldn't do much to overcome how China's currency manipulation, closed capital account and limited capital markets retard the currency's ascent to proper reserve status. Beijing would be wary of issuing too much (government-guaranteed) eCNY so as not to undermine the deposit-taking of commercial banks.

The foreseeable future of central-bank money harks of one where, done prudently, government e-money, especially the Chinese version, will be a catalyst for some change but not enough to match the hype.

NOT YET RESERVED

From 1979 to 1994, China banned visitors from using the yuan and forced them to transact in foreign-exchange certificates that were accepted only in tourist spots. The political aim of this two-track currency system was to prevent foreigners wandering about China. The economic motive was to prevent the yuan's conversion into other currencies.[16] How times change. For some years now, Beijing has campaigned to make the yuan a reserve currency like major western currencies, which are widely used around the world as a store of value.

Just as China's forex certificates had a political and an economic purpose, so too does China's pursuit to make the yuan a reserve currency. Politically, a reserve currency would grant China more global power. Economically, reserve status would lower trade and financing costs for Chinese companies. To the benefit of Chinese savers, a yuan of reserve standing would promote the development of financial markets and risk-management instruments. The feat would encourage better macroeconomic management of China's economy because policymakers would need to consider how foreign investors might react to decisions.

Beijing's biggest success in its quest for yuan reserve status occurred in 2016. That year, the IMF deemed the yuan "freely usable" – even though it's not – and included the currency that features portraits of Mao Zedong in its special drawing rights.[17] This is the term for a basket of reserve currencies that includes the US dollar, euro, yen and sterling that IMF members can access in emergencies.

But apart from the IMF push, the yuan has fallen well short of attaining genuine reserve status. China has only 'internationalised' the currency since it was first used to settle trading on Hong Kong's border in 2009. This term means that people outside China accept payment in yuan, the proper name of which is the renminbi or 'the people's currency'. (The yuan is the biggest unit of account, like pound is for sterling.) In January this year, cross-border payments in yuan reached a five-year high of 2.4% of global transactions compared with 38% in US dollars.[18] The US dollar's dominance is similar in forex markets, trade finance and among official reserves.

To attain a reserve glow akin to the US dollar's, the yuan needs to be market set, China's capital account needs to be fully opened and China's capital markets deepened and widened. The problem is that these goals clash with China's illiberal political system. Dictatorships favour stability. Beijing is thus reluctant to open its capital account so much that its interest rates and currency – and hence its economy – are vulnerable to movements of capital under the control of foreigners.

China's promotion of an e-yuan can be viewed in the context that China is the only major world economy to lack a haven currency, a drawback that leaves the country vulnerable to US sanctions and at a disadvantage in attracting capital. The e-yuan's mission is to help create a parallel yuan-based international payments system that overcomes these problems. Beijing wants the digital money to be used by countries in Africa, Asia Pacific and Latin America that are part of its Belt and Road Initiative and expects it to appeal to allies such as Iran, North Korea and Russia that too are vulnerable to US financial sanctions.[19] Being first might allow China to gain the 'first-mover advantage' in setting global standards for digital currencies. But there is no network effect to attain because other countries have their currencies.

As Washington's deteriorating finances cast doubt on the US dollar's long-term value (as shown by how the US dollar's share of global forex reserves has dropped to a 25-year low of 59%),[20] China is bound to improve the yuan's use in global trade and finance. But genuine reserve status and immunity to US sanctions are chimeras while China is a semi-closed economy, even if tourists can use the yuan nowadays.

A FRACTION-LESS WORLD?

In 2018, the Swiss government was forced to hold a referendum (or 'federal popular initiative') on the 'Sovereign Money Initiative' that, by neutering the ability of banks to create money, sought to prevent another financial crisis.[21] The proposal decreed that only the central Swiss National Bank should have the authority to create money. By calling for 'full-reserve' banking, the initiative sought to end five centuries of private banks creating money when they lend amounts not fully backed by assets.[22]

As 76% of Swiss voted against the proposal, fractional-reserve banking survived in Switzerland, as it has elsewhere.[23] During the Great Depression, for example, famous economists in the US including Irwin Fisher called for bank loans to be fully backed by

deposits, as did Milton Friedman in the 1970s.[24] Such critics saw fractional-reserve banking as the source of instability in capitalist financial systems because it comes with the spectre of bank runs. And they happen – the IMF in 2008 identified 124 bank runs (or "systemic banking crises") from 1970 to 2007.[25]

A financial system based on private banks and fractional-reserve banking is inherently unstable because it cannot cope when too many depositors want their money at the same time. To limit the risk that bank runs might crash the financial system, governments create safeguards around banks.

In a world of full-reserve banking, private banks as we know them might disappear. Bank-lites might accept deposits but the volume of loans would be restricted to the amount of deposits. In the absence of the lending (money creation) that is the lifeblood of capitalism, the system would operate almost as did the Soviet banking system under its only bank, Gosbank.[26]

This is a likely prospect of life under govcoins unless people devise a system whereby retail deposits at private banks are regarded as secure as those held at central banks. As people need only log on to switch their money from a private to a central bank (rather than line up at a bank), giving people the option of e-deposits at the central bank would probably risk such bigger and quicker bank panics that a digital national currency could never be made available for unlimited mass use.[27]

The US government (and Microsoft and others) first tested using e-money in the 1990s when it investigated the thoughts of US computer scientist David Chaum. He foresaw that the disappearance of cash would lead to a world of traceable transactions and devised a digital money that would be harder to track.[28] Chaum's paper of 1985, 'Security without identification. Card computers to make Big Brother obsolete,'[29] inspired the crypto-anarchist Tim May to form the cypherpunks who sought to write the code to enable digital money.[30] UK professor Adam Back then devised the computation called a 'hash' that became the 'hashcash' that prevents computers creating infinite amounts of money. The next advance was when US coder and cypherpunk Wei Dai invented public ledgers that gave digital money its anonymity.[31] These developments helped whomever used the pseudonym Satoshi Nakamoto to invent Bitcoin.[32]

Central bankers, however, have no radical anarchistic bent. These 'first do no harm' types might take a while to formulate central-bank money that doesn't threaten fractional-reserve banking. That might mean limiting the amount of money individuals can hold in central-bank e-accounts to a few thousand dollars. It might mean e-currency could be held in mandated banking institutions rather than with central banks. It could mean making explicit the lender-of-last-resort benefit that central banks offer private banks. Or it could mean that central banks will deposit the e-currency it issues with the banking system or create facilities where central banks compensate banks for the loss of deposits during a crisis . Or policymakers could allow the banking sector to shrink in favour of a shift towards lending via capital markets or by super funds.[33]

These suggestions, however, come with problems that beg the question: Why bother with the experiment of e-money? The reality is that in the 500 years of fractional-reserve banking, no one has devised a better money-creating system for driving economic growth that is immune to panic.

While official e-money will appear at some minimum level and have its uses, especially for China's global aspirations and perhaps widening the types of institutions that have access to central banks to improve wholesale markets and international transactions, govcoins are unlikely make redundant 2,600-year-old cash and other traditional money.

By Michael Collins, Investment Specialist

[1] The Chinese started using coins about the same time as people did in the kingdom of Lydia in modern-day Turkey.

[2] By the first century AD, China had become a unified empire but one that was bureaucratic. Officials faced a shortage of silk for record keeping. In 105 AD, one of the emperor's eunuchs placed ground-up mulberry bark, rags and fish on a screen and invented paper. Sometime over the following centuries, Buddhist monks tired of repeatedly writing the same sacred text. Their solution was to transfer the text to a wood block, cover the block with ink and printing was born.

[3] The above history comes from Jacob Goldstein. 'Money. The true story of a made-up thing.' Atlantic Books. 2021. Chapters 1 to 3. It should be noted that historian Niall Ferguson in his 'The ascent of money: A financial history of the world', says fractional-reserve banking was invented by Stockholm's Banco in Sweden in 1657. Penguin. 2008. Page 50.

[4] Bank of International Settlements. BIS Papers No 114. 'Ready, steady go? – Results of the third BIS survey on central bank digital currency.' January 2021. bis.org/publ/bppdf/bispap114.pdf

[5] Sveriges Riksbank. 'A solution for the e-krona based on blockchain technology has been tested.' 6 April 2021. Riksbank.se/en-gb/press-and-published/notices-and-press-releases/press-releases/2021/a-solution-for-the-e-krone-based-on-blockchain-technology-has-been-tested

6 The New York Times. 'China charges ahead with a national digital currency.' 1 March 2021. nytimes.com/2021/03/01/technology/china-national-digital-currency.html

[7] IMF. Financial and Development. 'Digital dollars for online tea.' Spring 2021. imf.org/external/pubs/ft/fandd/2021/03/fighting-pandemic-disruption-with-innovation-dorst.htm

[8] Bank of Finland. 'Central bank digital currency.' May 2017. Page 8. The Avant Card was launched by a company owned by Finland's central bank. It had only a limited acceptance as a form of payment and came with transaction costs. web.archive.org/web/20200225192907/https://pdfs.semanticscholar.org/9fa6/e095fa409d199e7aec8b50b657a7075fbe9e.pdf

[9] See European Central Bank. 'Report on a digital euro'. October 2020. ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf

[10] Twitter account Rishi Sunak, UK Chancellor of the Exchequer. 19 April 2021. 'Central bank digital currency taskforce.' Twitter.com/hashtag/UKFW21. See also HM Treasury. 'Ambitious plans to boost UK fintech and financial services set out by chancellor.' 19 April 2021. gov.uk/government/news/ambitious-plan-to-boost-uk-fintech-and-financial-services-set-out-by-chancellor

[11] See Federal Reserve Bank of Boston. 'The Federal Reserve Bank of Boston announces collaboration with MIT to research digital currency.' 13 August 2020. bostonfed.org/news-and-events/press-releases/2020/the-federal-reserve-bank-of-boston-announces-collaboration-with-mit-to-research-digital-currency.aspx

[12] See joint project between the central banks of Canada, England, European Union, Japan, Sweden, Switzerland, the US and the Bank of International Settlements. 'CBDC. Central bank digital currencies. Foundation principles and core features.' Undated. bis.org/publ/othp33_summary.pdf

[13] Even the Bundesbank is excited. See the Bundesbank study, 'Money in programmable applications. Cross-sector perspectives from the German economy.' 21 December 2020. bundesbank.de/resource/blob/855148/ebaab681009124d4331e8e327cfaf97c/mL/2020-12-21-programmierbare-zahlung-anlage-data.pdf

[14] Other issues to be settled include devising an ability for offline payments, whether foreigners will be allowed to use an e-money and the question of whether e-money will pay interest.

[15] See American Institute for Economic Research. 'China's digital currency has nothing to do with Bitcoin.' 6 April 2021. aier.org/article/chinas-digital-currency-has-nothing-to-do-with-bitcoin/

[16] Nonetheless, a black market arose so tourists could obtain yuan to transact anywhere and Chinese could shop in those certificate-only stores.

[17] IMF. "Review of special drawing rights (SDR) currency basket." 30 September 2016. imf.org/en/About/Factsheets/Sheets/2016/08/02/19/35/Review-of-the-Special-Drawing-Rights-SDR-Currency-Basket

[18] Bloomberg News. 'Yuan's popularity for global payments hits five-year high.' 18 February 2021. bloomberg.com/news/articles/2021-02-18/yuan-s-popularity-for-cross-border-payments-hits-five-year-high. Data comes from the Society for Worldwide Interbank Financial Telecommunication or SWIFT. 'Keep up with RMB internationalisation.' swift.com/our-solutions/compliance-and-shared-services/business-intelligence/renminbi/rmb-tracker

[19] Russian Foreign Minister Sergey Lavrov in March said China and Russia must break away from the western-controlled payments system. See ANI report on yahoo!news on 22 March 2021: in.news.yahoo.com/russia-china-must-move-away-000142777.html

[20] IMF. 'US dollar share of global foreign exchange reserves drops to 25-year low.' 5 May 2021. blogs.imf.org/2021/05/05/us-dollar-share-of-global-foreign-exchange-reserves-drops-to-25-year-low/

[21] The Swiss government. 'Popular initiative 'For crisis-safe money: Money creation by the National Bank only! (Sovereign Money Initiative)'. 5 June 2018. The proposal gained the required 100,000 signatures within 18 months to enforce a popular vote. admin.ch/gov/en/start/documentation/votes/20180610/Sovereign-Money-Initiative.html

[22] A bank receives a deposit. It makes a loan many times bigger than that deposit. The bank thus has added to the supply of money in the economy. The total increase in the money supply is generally many times bigger than the loan. This happens because the borrower spends the money and the purchaser deposits the money in a bank to renew the process.

[23] To see official results in Germany, go to: bk.admin.ch/ch/d/pore/va/20180610/det618.html. The result was no surprise because the Swiss government and parliament opposed the proposal.

[24] Goldstein. Op cit. Page 218.

[25] IMF Working Paper. WP/08/224. 'Systemic banking crises: A new database.' November 2008. Page 5. imf.org/external/pubs/ft/wp/2008/wp08224.pdf

[26] To learn more, see Financial Times. Alphaville. 'Cbank digital currencies and the path to Gosbankification.' 30 July 2016. ftalphaville.ft.com/2016/07/29/2171233/cbank-digital-currencies-and-the-path-to-gosbankification/

[27] The only way a wide take-up of digital national currencies could possibly happen would be a world envisaged by adherents of 'Modern Monetary Theory'. This is one where the government hands out money until everyone has a job.

[28] See 'The birth of digital cash.' 13 October 2018. Medium.com. medium.com/block-what/82-the-birth-of-digital-cash-ea08b53379d8

[29] David Chaum. 'Security without identification. Card computers to make Big Brother obsolete'. 1985. chaum.com/publications/Security_Wthout_Identification.html

[30] See 'Timothy C May, early advocate of internet privacy, dies at 66.' The New York Times. 21 December 2018. chaum.com/publications/Security_Wthout_Identification.html

[31] Wei Dai wrote 'b-money, an anonymous, distributed electronic cash system' in 1998. weidai.com/bmoney.txt

[32] Goldstein. Op cit. Chapter 15. The radical invention of digital cash. Pages 187 to 212.

[33] See The Economist. Free exchange. 'Will central-bank currencies break the banking system?' (Perhaps. But that might not be so bad.) 3 December 2020. economist.com/finance-and-economics/2020/12/05/will-central-bank-digital-currencies-break-the-banking-system

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