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Highlights

- The push to launch a digital currency by the People's Bank of China (PBOC) appears to be a defensive move to protect the shrinking profitability of its currency-issuing monopoly.
- Other central banks should follow China's example in coming years as their vast profits from currency issuance are threatened by the mobile payments revolution and cryptocurrencies.
- An unintended consequence of Central Bank Digital Currencies (CBDCs) may well be an increase in the demand for cryptocurrencies as users of cash seek to preserve their anonymity.

Why the Rush for an "e-CNY"?

The People's Bank of China (PBOC) is widely anticipated to issue a digital yuan in the near future, perhaps in time for next year's Winter Olympics. Trials are currently underway in cities like Beijing and Suzhou where authorities gave away tens of millions of "e-CNY" as New Year "red packets" that can be downloaded on to a smartphone. **(Exhibit 1)**

Exhibit 1: An Example of an "e-CNY" Wallet App



Apps like this provided by commercial banks soon are expected to give Chinese consumers access to "e-CNY", a new digital currency backed by the People's Bank of China.

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Source: Hecaijing.com

If these trials are successful, the PBOC is likely to be the first major central bank to introduce a “central bank digital currency” (CBDC), which in some ways is the opposite of cryptocurrencies like Bitcoin. In contrast to cryptocurrencies, which are decentralized and not backed by governments, CBDCs are issued and regulated by central banks to serve as legal tender. The e-CNY will be of top-down design by technocrats at the PBOC in consultation with commercial banks who will provide digital wallets for the new currency.

There has been a great deal of speculation about why China is racing to introduce the e-CNY. Much of the speculation focuses on how this project dovetails with China’s broader ambition to promote international use of its currency. While the initial focus will be on use of the e-CNY domestically, it is widely assumed that it will be used for trade settlement in a number of years. By gaining a first-mover advantage in digital currency innovation, China may well be able to convince many of its neighbors and trading partners to embrace the e-CNY as a new and convenient standard of payment.

Also, the e-CNY will complement—and most likely bolster—Beijing’s goal of using artificial intelligence and big data for domestic surveillance and economic analysis. That’s because it will give Chinese authorities unparalleled access into real-time transaction data.

A Simpler Explanation: Protecting the PBOC’s Profitability

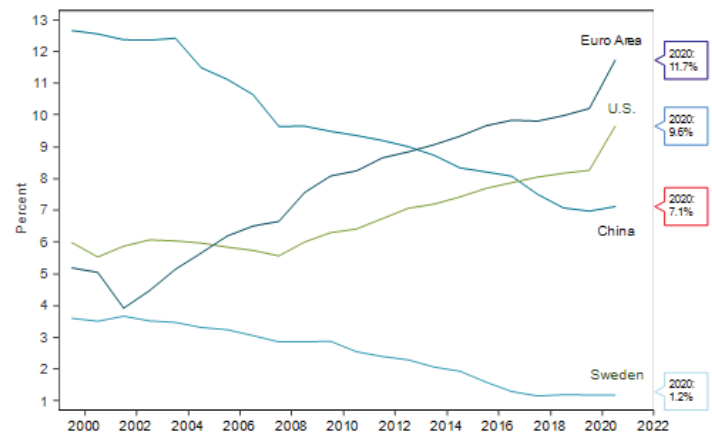
While not dismissing such longer-term motives for China’s launch of a digital currency, we would point to a simpler and more urgent motive: protecting the PBOC’s highly profitable position as the monopoly issuer of currency. Issuing paper currency routinely earns vast profits for almost every central bank. That is because it costs next to nothing to print, can be spent by governments at face value, and historically has expanded steadily with GDP growth. Economist Kenneth Rogoff estimated in 2016 that the PBOC generated about 0.50% of GDP of so-called “seigniorage” profits each year by issuing paper currency, in line at the time with similar rates of profits reported by other major central banks.¹

However, those profits in China have been under intense pressure compared to those in other major nations. Innovations in mobile payments by China’s tech giants Alibaba and Tencent increasingly have made cash payments obsolete for Chinese consumers. This is reflected in currency in circulation (“Mo”) in China sliding from 13% of GDP in 2000 to 7% in 2020 (Chart 1). That decline can be considered a rough proxy for how rapidly the profitability of the PBOC’s currency-issuing franchise has been shrinking.

From this perspective, the PBOC’s move to launch a CBDC can be viewed as a defensive one to avoid a further erosion of its profitable currency-issuing franchise. They are very clearly telling the tech giants and commercial banks: you can create digital wallets for consumers but we alone will issue the digital yuan that go into those wallets.

As Chart 1 indicates, other major central banks like the Fed or the European Central Bank (ECB) have not yet seen comparable declines in the demand for currency. But China’s launch of the e-CNY may push the Fed and ECB to launch their own digital currencies within a few years. Alternatively, the pressure could come from further innovation in digital payments pushed by western tech giants like Facebook with its controversial “Diem” project (formerly “Libra”). Or it might come from the next generation of more energy-efficient cryptocurrencies like Ethereum 2.0.

Chart 1: Diverging Trends in Cash Demand: Cash in Circulation (M0) as Percent of GDP



Source: GW&K Investment Management and Macrobond

Thanks to the mobile payments revolution, the use of cash in China has steadily declined relative to GDP. That has not happened yet in the U.S. or the Eurozone, although Sweden is now largely cashless.

A cautionary tale for all central banks can be seen in Sweden, where currency in circulation has fallen to little more than 1% of GDP. This makes Sweden one of the few countries where issuance of currency has become a money-losing activity. It also explains why Sweden’s central bank, the Riksbank, seems likely to be the first European central bank to issue a CBDC.

Against this backdrop, we expect most major central banks to introduce digital currencies over the next few years. By the end of this decade, we expect the vast majority of the world’s population to have access to CBDCs.

Why CBDCs May Boost the Demand for Cryptocurrencies

An unintended consequence of the widespread adoption of CBDCs is likely to be an increase in the demand for cryptocurrencies. That’s because CBDCs lack a very important feature of cash: anonymity. For those in search of privacy, paper currency has great utility as an anonymous zero-interest rate bearer bond. Of critical importance to many users, cash has no name or history attached to it and is valid no matter who holds it.

¹ Kenneth Rogoff, *The Curse of Cash*, Princeton University Press (2016).

In his book, *The Curse of Cash*, economist Ken Rogoff makes a strong case that most of the demand for paper currency appears to be for illicit activities. These include tax evasion, bribery, drug smuggling, and other forms of criminal activity. Anonymity's broad appeal is reflected in the fact that nearly 80% of U.S. currency in circulation is in \$100 bills. In many other countries as well, 80%-to-90% of paper currency is held in the largest denomination bills. Also, economic activity associated with so-called "shadow economies" exceeds one-quarter of GDP in many economies around the world (**Table 1**).²

Table 1: Shadow Economy as Percent of GDP (Selected Economies, Ranked Low to High in 2015)

	1991	2000	2010	2015
Switzerland	8	7	7	7
U.S.	10	8	9	7
Germany	13	13	11	8
Japan	10	11	10	8
U.K.	14	11	10	8
Austria	9	9	9	9
Czech Rep.	18	17	13	10
China	17	17	12	12
France	15	14	13	12
Chile	20	19	14	13
Norway	16	13	14	15
India	28	27	21	18
Mexico	33	30	31	28
Russia	40	42	34	34
Tanzania	60	58	47	39
Azerbaijan	55	61	44	44
Bolivia	68	67	55	46
Georgia	61	67	65	53
Zimbabwe	57	69	66	67
Avg. 158 nations	35	33	29	28

Source: "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" IMF Working Papers, WP 18/17, January 2018.

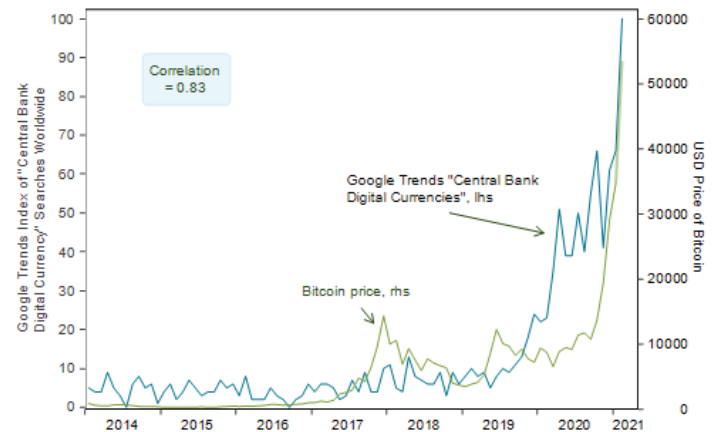
From such evidence, Rogoff reasons that most of the world's central banks are in the "reverse money laundering" business. It works like this: central banks issue large-denomination notes and ship them out to banks. After a series of transactions by intermediaries, cash – and especially big notes – end up as dirty money in the underground economy. This represents the reverse of traditional money laundering, which takes revenues from illicit activities, "launders" them through ostensibly legitimate businesses, and produces clean money.

PBOC officials and other central bankers have discussed preserving some degree of anonymity to CBDC transactions. But for current heavy users of cash, we doubt that any assurances of digital currency anonymity by government officials will be taken seriously. Therefore, the rise of CBDCs seems likely to increase the demand for cryptocurrencies as more private conduits for illicit activity. From this perspective, perhaps it is no coincidence that a surge in Google searches about the once-obscure topic of CBDCs has accompanied the sharp rise in the price of Bitcoin over the past year (**see Chart 2**).

² Leandro Medina and Friedrich Schneider, "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" IMF Working Papers, WP 18/17, January 2018.

³ Willem H. Buiter, "Central Banks as Fiscal Players: The Drivers of Fiscal and Monetary Space", willembuiter.com, February 20, 2021

Chart 2: Interest in Central Bank Digital Currencies (CBDCs) Has Spiked Along with the Price of Bitcoin



Source: GW&K Investment Management, Google Trends, Bloomberg, and Macrobond

A surge of interest in CBDCs has coincided with a meteoric rise in the value of Bitcoin. Coincidence or not, the adoption of CBDCs could well increase the demand for cryptocurrencies.

To be sure, Anti-Money Laundering (AML) and Know Your Customer (KYC) rules apply to major cryptocurrency exchanges like Coinbase, which provide "on ramps" and "off ramps" between cryptocurrencies and fiat currencies like the dollar or the euro. But just as Virtual Private Networks (VPNs) can provide internet users with high (but not perfect) communications security, something similar may be evolving in the cryptocurrency field. In particular, the decentralized nature of cryptocurrencies is well suited to support a complex web of intermediaries operating across international legal jurisdictions to provide higher transaction privacy than central banks can possibly guarantee.

Conclusion: China's Digital Currency Plans Are a Wakeup Call for Other Central Banks

At a time when government finances around the world are stretched due to pandemic expenses, few governments will want to see their central banks' highly profitable currency-issuing activities come under pressure. This is especially true because the stakes are much larger than commonly perceived.

For example, economist Willem Buiter reckons that the Fed alone has an off-balance sheet asset value ranging anywhere from \$6 trillion to \$17 trillion based on reasonable assumptions about the present discounted value of its paper currency-issuance revenues.³ With the U.S. representing about 25% of world GDP, scaling up the U.S. figures suggests the implied asset value for global governments of paper currency issuance could be on the order of \$24 trillion to \$68 trillion. That compares to the current market value of \$62 trillion for the MSCI All-Country World Index. It might be thought of as a tempting "total addressable market" (TAM) for tech giants or cryptocurrency entrepreneurs seeking to disrupt the status quo.



Against this backdrop, it would not be surprising to see governments be quite heavy handed in protecting their turf as has recently been the case with China and its tech giants. In that light, China's race to introduce the digital yuan should be viewed as a giant wakeup call to all central banks as to what is at stake.

And if they are tempted to hit the snooze alarm, they may wish to keep in mind (1) Facebook's push to launch a new digital currency to its global user base of nearly 3 billion consumers, and (2) the meteoric rise of Bitcoin's market value to the \$1 trillion level.

We cannot pretend to know how this will play out, but our impression is that central banks, tech giants, and cryptocurrency entrepreneurs have entered what biologists call a "Red Queen race," whereby "species must constantly adapt, evolve, and proliferate in order to survive while pitted against ever-evolving opposing species."⁴

As the Red Queen told Alice in *Through the Looking Glass*, "Now, here, you see, it takes all the running you can do, to keep in the same place."

Welcome to the next phase of the digital finance revolution.

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⁴ Red Queen hypothesis. (2021, March 2). In Wikipedia. https://en.wikipedia.org/w/index.php?title=Red_Queen_hypothesis&oldid=1009856323

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