

How Did We Get Here? From Observing Private Currencies to Exploring Central Bank Digital Currency

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The emergence of private digital currencies has inspired discussion over the possibility of central bank-issued digital currencies. While privately issued currencies are not new, the rise of digital currencies has highlighted both concerns and opportunities for central banks.

As the world has become more digital, so have payments. Technological advances have led to the emergence of private digital currencies, reigniting discussion as to whether privately issued currencies (“private currencies”) can coexist with central bank-issued currencies as well as whether central banks will ultimately need to issue their own version of a digital currency—a central bank digital currency, or “CBDC.”¹ This *Payments System Research Briefing* gives a historical overview of private currencies in relation to central banks, explains the impetus for the new wave of digital currencies, and explores some of the problems that could be addressed by a CBDC.

Private Currencies: Not a New Phenomenon

Private currencies—often issued by banks and used widely by the public—coexisted with central bank-issued currencies as recently as the twentieth century. In Sweden, for example, private currency was introduced while the central bank-issued currency was already in circulation and the two existed simultaneously until 1903 (Fung, Hendry, and Weber 2018). In the United States, private currencies predated central bank-issued currency and both were in circulation between 1914 and 1935 (Weber 2015). And in Canada, central bank-issued currency and private currency circulated simultaneously until 1950 (Fung, Henry, and Weber 2017).²

Governments began to intervene in the private currency market out of a belief that a central bank needed the sole power to issue currency in its country (Fung, Hendry, and Weber 2018).³ A large quantity of private currency in circulation was considered an impediment to implementing monetary policy. In the United States, some considered private currencies a potential source of bank reserves, which could be a possible threat to the Federal Reserve’s control of reserves (Weber 2015).⁴ Ultimately, these privately issued currencies were phased out with the withdrawal of the government bonds that could serve as security for their issuance.

Privately issued currencies were also a concern for the safety and stability of financial systems (Brunnermeier, James, and Landau 2019). Although privately issued bank notes functioned without major issues in Sweden, political unease about private currencies persisted. The government determined that it had the responsibility to ensure that risks to the monetary and payments systems were minimized (Söderberg 2018). Consequently, the government granted the Riksbank the sole right to issue cash. More broadly, central banks around the world have been the sole issuer of currency for most of the twentieth century.

Private Currencies Redux: Sending Money like an Email

In recent years, as transactions have moved to a digital environment, private currencies have resurfaced. Early private digital currencies were limited. Many existed within their own closed system, such as airline miles or online gaming. None of them functioned like digital cash. This is partly because when payment systems became electronic, how payments were processed did not change significantly from paper-based systems (Ali, Barrdear, Clews, and Southgate 2014). Legacy electronic payment systems are typically operated by a central controlling entity with third-party intermediaries and use centralized ledgers to track credits and debits.

In the last decade, however, new forms of private digital currencies have emerged that operate without a central controlling entity and third-party intermediaries. For example, new cryptocurrencies, a subset of private digital currencies, rely on distributed ledger technology (DLT) to allow for transactions across a single ledger in a manner that intends to emulate a cash transaction (transacting without a third-party intermediary). While cryptography and consensus mechanisms have existed previously, the key technological achievement of DLT is combining them so that a ledger can be shared among parties that may not trust one another (Ali, Barrdear, Clews, and Southgate 2014; Maniff and Marsh 2017). This allows for a transaction that could theoretically occur instantaneously, inexpensively, and globally—from an end user’s perspective, like an email.

Despite the hype, adoption of these new digital currencies for payments purposes has been slow.⁵ Many private digital currencies still have difficulty in scaling rapidly due to a chicken-and-egg problem: an individual consumer or business does not want to adopt a payment product until other consumers and businesses widely use that product.⁶ Since a currency’s utility for payments increases with the size of the network using it, the success of digital currencies will depend on whether they can achieve widespread adoption (Brainard 2019).

More recently, however, large technology companies, known as BigTechs, have considered entering the payments sphere with their own currencies, such as Facebook with its proposed Libra.⁷ Unlike other private digital currencies, BigTechs’ currencies have the potential to scale rapidly to achieve critical mass. Because these companies already have a large user base in their networks, any digital currency built by those networks may be adopted widely and quickly (G7 Working Group on Stablecoins 2019).

CBDCs as a Response to BigTech Digital Currencies

Although central banks have been researching CBDCs for years, monetary sovereignty concerns surrounding the intersection of BigTechs’ networks and private digital currencies have brought CBDCs back into the spotlight. The concerns about today’s private digital currencies are no different from concerns about private money in the 1900s: a large quantity of private digital currencies in circulation may inhibit a central bank in implementing monetary policy.⁸ As a result, a CBDC could be “an appropriate policy response to payment innovations...that might impair the central bank’s ability to achieve its monetary policy goals and to implement policies promoting financial stability” (Fung and Halaburda 2016, p. 3).

However, the calls to issue a CBDC as a response to private digital currency may be premature. A large preexisting network may not be sufficient for BigTech digital currencies to prosper, as much of the proposed technology for these currencies remains theoretical. Additionally, just because a large network offers its own currency does not mean users will flock to use it. Since private digital currencies already in the marketplace are not now being substituted for central bank-issued currency, consumers may recognize some of the benefits of central bank-issued currency. While identifying and preparing for a potential threat is important, sensationalizing it may heighten concerns unnecessarily.

What Other Problems Could Be Addressed by CBDCs?

Competition from private digital currencies is not the only motivation central banks have for investigating CBDCs. A central bank digital currency may address various issues, including the declining use of physical cash, financial inclusion, the resiliency and efficiency of the payments system, consumer privacy, and the transmission of monetary policy.

First, CBDCs could be a new “safe, central bank instrument” in countries that have experienced a sharp decline in cash usage (CPMI and Markets Committee 2018, p. 7). In Sweden, the proportion of cash payments in the retail sector fell from about 40 percent in 2010 to about 15 percent in 2016 due to the proliferation of digital payments (Sveriges Riksbank 2017). While at the time of this publication the Riksbank still has not made a decision about whether or not to issue an e-krona, the bank believes that promoting a safe and efficient payment system may be more difficult if cash is no longer used.

Second, CBDCs may help address the 1.7 billion adults around the world without an account at a financial institution or through a mobile money provider (Demirgüç-Kunt and others 2018). CBDCs may provide these adults with a safe and liquid government-backed payment method (Adrian and Mancini-Griffoli 2019). For those in areas without robust financial sectors, a CBDC could provide a cheaper, more efficient way of transacting. However, marginalized populations may also have difficulty accessing the technologies required for using CBDCs. While 1.1 billion of the 1.7 billion adults without an account have a mobile phone, they may also need a smartphone or a robust internet connection to reap the benefits of CBDCs.

Third, CBDCs could potentially strengthen payment system resiliency by providing a public presence in digital payments. Should private infrastructures experience disruptions, a CBDC could provide an alternative retail payment method in the digital payments ecosystem. Furthermore, a CBDC may assuage concerns that payments systems have become increasingly concentrated, resulting in consumers relying on the rails of a few large providers (Adrian and Mancini-Griffoli 2019).

Fourth, CBDCs may help modernize central banks’ payment systems through new technologies that promise greater efficiency. However, it is unclear whether a CBDC would improve the efficiency of the payments system domestically.⁹ Thus far, experiments have shown that proposed wholesale CBDC implementations are not clearly superior to current infrastructures (CPMI and Markets Committee 2018). A CBDC may not provide material efficiency gains even for retail payments, as current offerings are “convenient, efficient, and reliable, and have earned public trust and confidence over time” (CPMI and Markets Committee 2018, p. 7).¹⁰

Fifth, CBDCs could enhance privacy in digital payments transactions.¹¹ Consumers have legitimate reasons for wanting a certain degree of anonymity in transactions, such as reducing the risk of identity theft and avoiding customer profiling (Bech and Garratt 2017; Lagarde 2018). Ironically, payments made in a digital environment still leave a paper trail. While a central bank is unlikely to offer a fully anonymous digital currency for anti-money laundering and countering financing of terrorism reasons, it is possible that a CBDC could provide more privacy than current payment systems.

Finally, some scholars view CBDCs as a means to enhance the transmission of monetary policy. They argue that an interest-bearing CBDC would increase the economy's response to changes in the policy rate and that a CBDC could be used to set negative interest rates (Adrian and Mancini-Griffoli 2019).¹² Others, however, have highlighted that merely creating a CBDC is not enough to set negative interest rates and materially negative interest rates "would require explicitly abolishing cash, not just introducing an electronic alternative" (Engert and Fung 2017; Broadbent 2016, p. 7).¹³

Although CBDCs have the potential to address several financial and payments issues, they are unlikely to be a panacea. CBDCs can be designed in many different ways, and a CBDC designed to improve one outcome will not necessarily improve all the others.

Box

Can a CBDC Tackle These Problems in the United States?

Some of the potential benefits of CBDCs may not be applicable to the United States. Federal Reserve Governor Lael Brainard has said, "there are compelling advantages to the current system," which include a robust demand for physical cash, the dollar's importance as a reserve currency, a robust banking system, and a variety of digital payments options built on existing institutional frameworks (2019). Thus, a CBDC would not need to compensate for a decline in cash nor would it need to modernize the existing payments infrastructure. Moreover, it is unclear whether a CBDC would be successful in promoting financial inclusion among the 6.5 percent of the population that is unbanked. According to the 2017 FDIC National Survey of Unbanked and Underbanked Households, 45 percent of unbanked households have neither a smartphone nor internet access at home, limiting the efficacy of digital solutions.

Conclusion

Private currencies have coexisted with central bank-issued currencies in the past, and their implications for monetary policy and financial stability in the twentieth century are still relevant today. What is new, however, is the potential ability for private currencies to scale rapidly in a digital environment, especially on large-scale networks that have previously been created for other purposes. While the imminent release of a CBDC as a policy response to private digital currencies may be premature, more research is needed to determine how a CBDC could function, should the need arise.

¹ CBDCs would be liabilities of central banks, unlike current digital payments.

² In Canada, government-issued notes known as Dominion notes existed prior to the establishment of the Bank of Canada.

³ In many countries, currencies issued by a central bank carry greater public trust (Carstens 2019). Historically, private bank note holders in the United States and Canada were not always able to redeem their notes for the promised amount, while holders of central bank-issued currencies never suffered losses (Fung, Hendry, and Weber 2018). Additionally, issuing its own currency may aid a central bank if it has to act as a lender of last resort (Weber 2015).

⁴ The quantity of national bank notes does not appear to have played a large role in the amount of reserves available to the U.S. banking system. However, the introduction of private currency in Sweden decreased the quantity of central bank notes in circulation, with private currencies making up two-thirds of total notes at one point (Fung, Hendry, and Weber 2018).

⁵ Although data on global adoption does not exist, individual countries have conducted their own surveys. A survey of cryptocurrency owners in the United States found that only 5 percent of respondents own or previously owned cryptocurrencies, and their stated reason for ownership suggests they are purchasing cryptocurrencies as an investment vehicle rather than as a payment mechanism (Hundtofte, Lee, Martin, and Orchinik 2019). A similar survey of Bitcoin owners in Canada found that 5.2 percent of respondents owned Bitcoin in 2018 (Henry, Huynh, Nicholls, and Nicholson 2019). More important for digital currency and payments, the same survey found that only 19 percent of respondents used Bitcoin primarily for payments-related purposes.

⁶ Technological limitations may also prevent private digital currencies from scaling.

⁷ In contrast to the aforementioned cryptocurrencies, BigTech proposals often rely on third-party intermediaries.

⁸ This issue may be exacerbated if the private currency is not denominated in U.S. dollars.

⁹ Whether a CBDC would improve cross-border transactions is also unclear.

¹⁰ The problems discussed here are those of a cash-like equivalent or general-purpose CBDC. Other researchers have discussed whether a wholesale CBDC might positively affect the operational costs and use of collateral and liquidity in settlement systems (CPMI and Markets Committee 2018). Early experimentation has not shown significant benefits for wholesale payments thus far, as designs “look similar to the one currently in place in terms of legal, operational, and security requirements” (CPMI and Markets Committee 2018, p. 8).

¹¹ Privacy is a design feature. Therefore, a central bank could choose to issue a CBDC with privacy ranging from cash-like anonymity to “digital cash with extra surveillance” (Huang 2019).

¹² The ability to pay interest on currency is an additional feature of CBDCs (Andalfatto 2015).

¹³ Broadbent argues that “as long as it’s possible to hold something with a guaranteed nominal return of zero there’s a similar lower bound on all other forms of money, whether reserves at the central bank or a more widely available CBDC....[A] purely cash-like version of a CBDC would mainly involve substituting one zero-yielding liability of the central bank for another” (Broadbent 2016, p. 7).

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