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IN FOCUS

March 20, 2020

Financial Innovation: Central Bank Digital Currencies

Certain observers assert that private digital currencies—such as Bitcoin, Ethereum, and the Facebook-proposed Libra—could become widely accepted forms of payment. In response, some analysts suggest central banks should issue *central bank digital currencies* (CBDCs) to maintain government-issued money's central economic role. Although no major central bank has issued a CBDC to date, this In Focus describes how foreign central banks and the Federal Reserve (Fed) are approaching the issue. It also examines policy issues raised by a CBDC.

Background

Traditional electronic payment systems enable the transfer of fiat currency (i.e., money backed by government decree) and are operated by banks and central banks that record transfers between accounts on private ledgers. Although these systems generally offer fast, convenient, and safe payment options, they involve significant costs, physical infrastructure, and sometimes delays.

In recent years, privately issued digital currencies—that is, money that has no physical form and is not supported by any government authority—have been developed, but have not become widely adopted for payments. These systems generally record transfers on public (or *distributed*), decentralized ledgers protected by *blockchain* technology. Often individuals' accounts are identified with a pseudonym not directly linked to users' real identities. For more information, see CRS In Focus IF10824, *Financial Innovation: "Cryptocurrencies"*, by David W. Perkins.

Proponents of private digital currencies assert they could provide more efficient payments with greater financial privacy than when payments are made with banks. Skeptics, however, doubt that these currencies can effectively serve as money, because they are not legal tender (i.e., no legal requirements to accept them exist) and their value has been very volatile, among other reasons. Observers also warn that these digital currencies could facilitate money laundering and other crimes; expose consumers to poorly understood risks and losses; and hinder the ability of central banks to implement and transmit monetary policy.

Private digital currencies' lack of centralized authority—their main appeal to many of the proponents—is often a cause of their challenges and risks. Some observers suggest that central banks should issue CBDCs to realize the touted benefits of digital currencies in a way that would reduce the obstacles and risks.

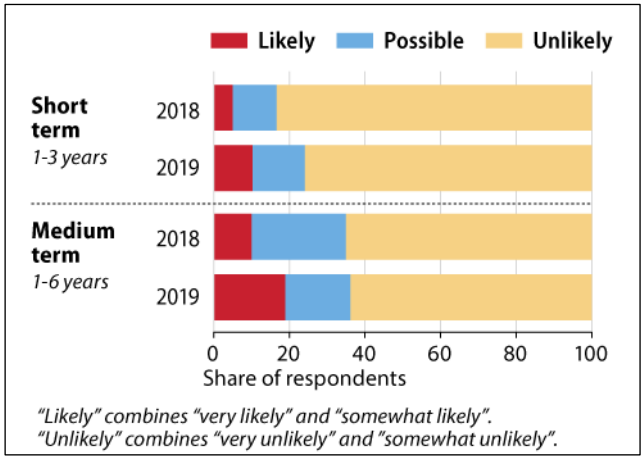
Design Considerations

A CBDC would allow holders to store value and make payments digitally and would be backed by central banks (as is the case for physical currency), but other features are unresolved. Design choices include whether the digital currency would be used for wholesale or retail transactions, the degree of anonymity granted to users, whether it would pay interest, and whether the digital currency would be a digital version of the existing legal tender or a separate parallel legal tender. It is also unclear whether private digital currencies' features, such as decentralized ledgers and blockchain, are needed to make a CBDC succeed. Instead, a CBDC might be built upon existing systems, though presumably that would require several years of significant IT investment. Proposals vary on these design features, and, as a result, CBDCs could range from modestly to fundamentally different from the current financial system, wherein banks store value and make payments digitally from accounts held at the Fed. Proposals that vary fundamentally from the current system are those that allow nonbank firms or individuals to have digital access to money directly from the Fed and, in some cases, open digital accounts at the Fed.

International CBDC Initiatives

Many governments around the world are researching, testing, preparing to launch, or have launched CBDCs. In late 2019, a Bank of International Settlements (BIS) survey found 80% of responding central banks are engaged in research, experiments, or work related to the development and use of CBDCs. Around 40% have progressed from conceptual research to experiments, and another 10% have developed pilot projects. Some have committed to introducing a CBDC—20% of central banks (mostly in emerging markets) indicate they are likely to launch one within the next six years (**Figure 1**).

Figure 1. Likelihood of Central Banks Issuing a CBDC



Source: BIS survey.

Note: Likelihood of a general purpose CBDC.

With international variations in central bank legal structures, economic fundamentals, and CBDC motivations,

central banks are designing and experimenting with CBDCs in a number of different ways. For example, the People's Bank of China has filed more than 80 patents related to its CBDC project, Uruguay has successfully piloted its digital currency (the e-peso), Venezuela's central bank issued a cryptocurrency backed by oil (the petro), and Saudi Arabia and the United Arab Emirates are planning a joint digital currency (Aber). Central banks of several advanced economies (the UK, Canada, Japan, the EU, Sweden, and Switzerland) and the BIS have formed a group to share their assessments of potential CBDCs.

To date, central banks are not following a single CBDC model. Central banks are interested in CBDCs for a number of reasons, including greater control of the economy, stronger surveillance of financial transactions, and reduced reliance on the U.S. dollar (e.g., China); new revenue streams (e.g., the Marshall Islands); and consumer preferences for digital payments (e.g., Sweden). According to the BIS survey, financial stability and payments safety are the strongest drivers for CBDCs among advanced economies, while emerging markets are also driven by the potential for greater financial inclusion and payments efficiency. However, some countries may have more nefarious motivations. Venezuela's government is trying to use the petro to raise money amidst U.S. sanctions; Iran and Russia have also considered CBDCs as a way to circumvent U.S. sanctions.

Federal Reserve Views

In response to congressional inquiries, the Fed stated in November 2019 that it is "not currently developing a [CBDC]," and has only committed to "continue to analyze the potential benefits and costs" in the future. Its rationale is that "it is not yet clear what additional value a general purpose CBDC could provide in the U.S." compared to the existing payment system. According to the Fed, the concept "raise(s) important legal, monetary policy, payments policy, financial stability, supervision and operational questions" that would have to be resolved before moving forward.

The Fed reports that it has been actively researching the issue. The Fed has highlighted legal uncertainty about whether all of the actions needed to successfully issue a CBDC could be taken under existing authority. These include whether a CBDC would be legal tender; whether the Fed could offer accounts or digital wallets to the public; and what legal rights, obligations, and protections CBDC users would have. Currently, the Fed must charge prices that reflect its costs to provide business services and can only pay interest to banks on balances at the Fed. If Congress chooses to facilitate CBDCs, it might pass legislation to remove any identified legal barriers.

Issues for Congress

In the United States, unlike some other countries that are considering CBDCs, the existing payment system features trusted methods for digitally delivering funds. Although real-time payments (i.e., instant settlement) are not yet ubiquitous, they are expected to be in a few years. Whether a CBDC would achieve equivalent or better performance at less cost, and thus justify the cost of developing and issuing one, is uncertain.

A major policy consideration is the extent to which a CBDC would displace private activity. If available to consumers, CBDCs could partially displace private digital currencies and maintain government's central role in issuing money—whether this is desirable depends largely on an individual's view of those currencies. In the more expansive vision for CBDCs, anyone could hold CBDCs in a Fed account for, at a minimum, making payments or storing value. This would mark a fundamental shift in the Fed's role—the Fed does not provide retail services to the public currently—and would have the potential to displace private payment systems and banks. From a typical economic perspective, government provision of private goods and services is only desirable if there is a market failure or the service has the characteristics of a public good. It is unclear whether the U.S. payment or banking systems suffer from market failures that a CBDC could address.

Some proponents believe a CBDC could promote financial inclusion, but that would depend largely on whether the CBDC would be less expensive and easier to access than banking services (under current law, the Fed would have to provide the CBDC at cost). However, a CBDC could also harm underserved populations if it led to reduced acceptance of less costly payment options, such as cash.

Some proponents claim that because bank runs pose systemic risk, a partial shift from private bank accounts to Fed accounts would increase financial stability. In contrast, others assert Fed accounts could increase systemic risk by enabling bank runs by offering an alternative to bank accounts that people could switch to during times of bank distress. Cyberattacks also pose systemic risk, and it is unclear whether a CBDC would make the financial system more or less resilient to them.

A CBDC that provided complete anonymity would seemingly be incompatible with current policies designed to curb money laundering and other illicit activities. Thus, the Fed may be required to track and store information about CBDC users and their transactions. This would reduce individuals' privacy, but might be more effective at preventing illicit activity. Dealing with privacy implications and technical challenges in providing retail services would expose the Fed to reputational risk, potentially bringing into question its political independence, which is viewed as beneficial to monetary policy. However, proponents argue that a CBDC would improve the effectiveness of Fed monetary policy because it could transmit rate changes directly to consumers—including, potentially, negative interest rates if CBDCs displaced cash.

Different proposals vary on what role a CBDC would play in the financial system. As different CBDCs are proposed and developed, Congress may consider the various policy implications and relative costs and benefits of the Fed issuing some type of CBDC in the future.

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