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Central bank-issued digital currencies: Once-in-a-lifetime opportunity for next-generation financial system

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Executive Summary

In response to the popularity of virtual currencies such as Bitcoin, central banks around the world are looking into issuing their own digital currencies.

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Central banks' growing interest in digital currencies

Central banks have been researching issuance of digital currencies[1) 2)] since the Bank of England added central bank digital currencies (CBDCs) to its research agenda in 2015[3)].

A CBDC appears on the bank's balance sheet as a liability as other currencies issued by central banks generally do. What's different about CBDC is that it would presumably be a form of electronic payment at the same time.

Central banks' interest in digital currencies is largely a response to the popularity of decentralized virtual currencies such as Bitcoin and their enabling technologies. Decentralized virtual currencies' most salient characteristic is that they can be used as an electronic means of payment outside of the incumbent financial system because they circumvent banks and other such intermediaries. Widespread use of decentralized virtual currencies as a private means of payment unmediated by central banks could undermine the effectiveness of monetary policy and the various other tools central banks deploy in pursuit of price stability and a stable financial system. It is therefore only natural that central banks are not only closely monitoring virtual currencies and their enabling technologies but also looking into issuing their own digital currencies to counter the threat that virtual currencies pose to their policy toolbox.

Pros and cons of digital currency issuance by central banks

According to a Bank of Japan report, CBDCs' general benefits include enhancing user convenience, preserving monetary policy's effectiveness[4)] and preventing loss of seigniorage[5)] (profit accruing from currency issuance). Potential risks include disintermediation of private financial institutions if the general public were to reallocate cash balances en masse from bank deposits to a CBDC in broad circulation. Other issues facing would-be CBDC issuers include how broadly to make digital currency accounts available (e.g., to the general public or financial

NOTE

1) Central banks are also researching other applications of blockchain and distributed ledger technologies, but the discussion herein is limited to CBDCs.

2) For more information on central banks' digital currency initiatives see "Central Banks' New Approach to AI: New Settlement System Applying Blockchain Technology and Issuance of Digital Currency", Institute for International Monetary Affairs, May 2017.

3) Bank of England, "One Bank Research Agenda", February 2015.

4) Monetary policy would lose effectiveness if use of central-bank-issued currency decreased in the wake of growth in virtual currency usage. The Bank of Japan argues that central banks would be able to prevent such dilution of monetary policy's effectiveness by issuing their own digital currencies. It also argues that migration from paper to digital currency would enable more effective negative-interest-rate policies.

5) Seigniorage would decrease if the central-bank-issued share of currency in circulation decreases. The Bank of Japan argues that central banks can prevent such a loss of seigniorage by issuing their own digital currencies.

institutions only?) and how to handle digital-currency payment information. The Bank of England has already published research on CBDCs' prospective macroeconomic impact[6] and a list of questions for further research[7].

Meanwhile, the Bank of Canada has published a framework to guide central banks in deciding whether to issue a digital currency and, if so, how to design it[8]. The framework advises central banks against considering a CBDC unless issuing one is necessary and cost-beneficial. It specifies two necessary conditions for CBDC issuance. The first is an unmet objective, such as improving the payment system's efficiency, that private payment services cannot fulfill. The second is an absence of effective means of achieving the objective other than issuing a CBDC. The final decision on whether to issue a CBDC should of course be based on cost-benefit analysis.

In terms of CBDC design, the framework recommends that CBDCs should circulate broadly, make the payment system more efficient and comply with regulatory requirements, particularly anti-money laundering laws. Specific design features that warrant consideration include anonymity, daily spending limits, transaction fees, user interface, accessibility via a range of devices, distribution channels, transaction verification methods and settlement speed. For example, a digital currency is unlikely to be widely adopted unless it is inexpensive to use, usable through a variety of devices and settles transactions quickly.

An important point is that effectively designing a digital currency entails balancing trade-offs among its attributes. A good case in point is anonymity. The greater the anonymity afforded by a digital currency, the more widely it is likely to be used because users would be less inhibited by privacy concerns. The flipside of greater anonymity is that it can increase social costs in the form of crime and/or tax avoidance.

At the third International Workshop on P2P Financial Systems[9] in July 2017, one of the authors of the Bank of Canada's framework presented hypothetical benchmark CBDCs with specific attributes and discussed their implications. Issuance of a CBDC modeled on cash, for instance, would have little effect on seigniorage, monetary policy and the financial system and would contribute to financial inclusion by making basic financial services more accessible to the unbanked population. The drawback of such a CBDC is that it would facilitate growth in the underground economy. It was concluded that the only worthwhile

6) Barrdear, John and Michael Kumhof, "The macroeconomics of central bank-issued digital currencies", July 2016.

7) http://www.bankofengland.co.uk/research/Documents/onebank/cbdc.pdf

8) Fung, Ben S. C. and Hanna Halaburda, "Central Bank Digital Currencies: A Framework for Assessing Why and How", November 2016.

9) Held annually since 2015, the Workshop features research presentations on and discussions of P2P financial systems. Its attendees include academicians, financial regulators, entrepreneurs and other practitioners. In 2017, its main topics included CBDCs and P2P lending.

reason to issue a CBDC is to make the payment system more efficient or promote competition. In closing, it was suggested that issuing a digital currency is an extremely difficult undertaking that central banks should carefully research through a multi-stage process.

First steps toward a next-generation financial system

As I noted at the outset, central banks' growing interest in digital currencies was sparked by the emergence of virtual currencies, most notably Bitcoin. From a bigger-picture perspective, we can say that two things are happening. First, virtual currency developers are endeavoring to create a new financial system outside of the existing one. In response, central banks are contemplating issuance of CBDCs in the aim of reforming the existing financial system themselves.

Currencies are at the heart of the financial system. Their history is one of successive technological innovations and societal change. Today's currency and financial systems revolving around central banks date back only a few hundred years. The technological innovations and societal changes currently taking place could very well drastically change the currency and financial systems in the near future. If so, we may soon be visited with a once-in-a-lifetime opportunity to design a next-generation financial system however we wish.

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