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Considerations for a Central Bank Digital Currency

Remarks by

Michelle W. Bowman

Member

Board of Governors of the Federal Reserve System

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Psaros Center for Financial Markets and Policy

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It is a pleasure to be with you today to discuss the evolving money and payments landscape in the United States, which is a topic of primary importance to the Federal Reserve. Technological innovation has changed this landscape in recent years, as we have seen the emergence of new financial services entrants offering payments services, new platforms designed to increase the speed of payments, clearing, and settlement, and new forms of digital money. Over the past several years, and as a direct result of these developments, we have seen a significant increase in attention on central bank digital currencies (CBDCs) from central banks around the world in addition to a great deal of international and domestic engagement on CBDC. A number of central banks have taken steps to begin exploring the potential uses of a CBDC in their home countries. A very small number have adopted a CBDC for their local jurisdictions. And of course, discussions of the purpose, design, and potential risks of a U.S. CBDC, and technical research about key design elements, continue here in the United States. While the Federal Reserve plays an important role in these ongoing discussions and technical research, the Fed would not implement a U.S. CBDC without the approval of Congress.

In broad terms, a CBDC is simply a new form of digital liability of a central bank. Because it is issued by a central bank, CBDC is typically thought of as being denominated in the currency of that central bank. One could imagine a digital U.S. dollar, a digital euro, or a digital pound. Beyond this baseline definition though, “what is a CBDC” defies a simple definition. A CBDC built on distributed ledger technology offers a wide range of design and potential use options, as well as potential risks. This variability complicates any discussion of a CBDC simply because we may not be talking about the same thing.

There are two threshold questions that a policymaker needs to ask before any decision to move forward with a CBDC. First, what problem is the policymaker trying to solve, and is a

CBDC a potential solution? Second, what features and considerations—including unintended consequences—may a policymaker want to consider in deciding to design and adopt a CBDC? While it would be impossible for me to provide a comprehensive analysis of every issue surrounding CBDC, my goal today is to offer a perspective on these two threshold questions and to conclude with some thoughts about the imperative for future research on CBDCs and the potential future of CBDCs in the United States.

What Problem Could a CBDC Solve?

In my view, the fundamental question is: what problem could a CBDC solve?

CBDC and the Payment System

One issue being examined is whether a CBDC or even broader forms of digital money could make the payment system more efficient. Do these new technologies present opportunities to increase the speed of payments and/or lower costs and frictions within the payment system?

Of course, this question takes place in the context of the payments infrastructure in each jurisdiction, both for domestic payments and for cross-border payments. Many countries have launched faster payment systems and continue to investigate how central banks can support these payment systems. We have seen a wide range of motivations for this work, including addressing specific inefficiencies in the payment system, providing a CBDC if cash use were to decline, or promoting broader private-sector innovation for future generations of payments.¹

¹ For example, The Bank of England and HM Treasury have stated that they judge that it is likely a digital pound will be needed in the future and that further preparatory work is justified. See Bank of England and HM Treasury, *The Digital Pound: A New Form of Money for Households and Businesses?* Consultation Paper (London: Bank of England, February 2023), <https://www.bankofengland.co.uk/-/media/boe/files/paper/2023/the-digital-pound-consultation-working-paper.pdf?la=en&hash=5CC053D3820DCE2F40656E772D9105FA10C654EC>.

However, the UK parliament has previously expressed skepticism. See House of Lords, UK Parliament, *Central Bank Digital Currencies: A Solution in Search of a Problem?*, HL Paper 131, (London: House of Lords, UK Parliament, January 2022), <https://committees.parliament.uk/committee/175/economic-affairs-committee/news/160221/central-bank-digital-currencies-a-solution-in-search-of-a-problem-report-published/>. Similarly, a government-appointed report in Sweden did not find a current need for a CBDC, though the Riksbank

Improving the speed of payments, particularly retail payments, can be accomplished without the introduction of a CBDC. In the United States, beginning later this year, the Federal Reserve's FedNowSM Service will enable banks in the United States to offer their customers the ability to send and receive payments in real-time.²

Policymakers have also raised other arguments for why a CBDC may be suitable in their home countries. Some have argued that a CBDC would facilitate large-value transactions between financial institutions.³ Others see CBDC as a vehicle to improve upon international payments. And still others view CBDCs as necessary to preserve the role of central bank money as a stabilizing force in the payments system and to safeguard monetary sovereignty,⁴ or to ensure that digital money has a high degree of safety and uniformity to promote innovation and competition.⁵

CBDC and Financial Inclusion

Another issue that some have raised is whether innovation in money and payments, including a potential U.S. CBDC, could improve financial inclusion. We can all agree that

continues to investigate how an e-krona could work if a decision is taken in the future to issue digital central bank money. See Centralbanking.com, "Sweden Does Not Yet Need CBDC, Inquiry Finds," web article, <https://www.centralbanking.com/fintech/cbdc/7957236/sweden-does-not-yet-need-cbdc-inquiry-finds> and Sveriges Riksbank, *E-krona Pilot Phase 3* (Sweden: Riksbank, April 2023), <https://www.riksbank.se/en-gb/payments--cash/e-krona/e-krona-reports/e-krona-pilot-phase-3/>.

² FedNow is expected to be available to financial institutions in July that are early adopters and have completed a program for customer certification and testing. See Board of Governors of the Federal Reserve System, "Federal Reserve Announces July Launch for the FedNow Service," news release, March 15, 2023, <https://www.federalreserve.gov/newsevents/pressreleases/other20230315a.htm>.

³ Agustín Carstens, general manager of the Bank for International Settlements has discussed the idea of a "unified ledger" run by the central bank to fully realize the potential of new technologies developed by the private sector. See Agustín Carstens, "Innovation and the Future of the Monetary System," speech at the Monetary Authority of Singapore, Singapore, February 22, 2023, <https://www.bis.org/speeches/sp230222.htm>.

⁴ Fabio Panetta, "Central Bank Digital Currencies: Defining the Problems, Designing the Solutions," speech at U.S. Monetary Policy Forum, New York, February 18, 2022, <https://www.bis.org/review/r220223o.pdf>.

⁵ Jon Cunliffe, "The Digital Pound," speech at UK Finance, February 7, 2023, <https://www.bankofengland.co.uk/speech/2023/february/jon-cunliffe-speech-at-uk-finance-update-on-central-bank-digital-currency>.

financial inclusion is an important goal when considering improvements in access to financial services, banking, and the payment system. However, in the United States today, over 95 percent of households have a least one member of the household with a banking relationship holding a checking or savings account.⁶ Of the remaining 4.5 percent who are not banked, nearly three-quarters have no interest in having a bank account, and approximately one-third cited a lack of trust in banks as the reason for not having a bank account. I think it is unlikely that this group would find the government somehow more trustworthy than highly regulated banks. Unbanked households are also less likely to own mobile phones or have access to the internet, which would present barriers to CBDC adoption. While there has been important research on these barriers to adoption, including consumer attitudes and technology requirements, policymakers also need to consider whether there are other means to improve financial inclusion, such as alternatives for making the distribution of government benefits more efficient and effective like promoting financial literacy.⁷

CBDC for Implementation of Policy Objectives

Another issue is whether the government should use new technologies, including a potential CBDC, to accomplish a variety of policy objectives beyond those directly related to the operating of an efficient and safe financial system. Imagine a scenario in which fiscal spending, in the form of government benefits or payments, could be transferred via CBDC and could include a limited timeframe in which they could be spent before expiring. Enabling this type of

⁶ 2021 FDIC National Survey of Unbanked and Underbanked Households:
<https://www.fdic.gov/analysis/household-survey/2021report.pdf>

⁷ For additional discussion on CBDC design and financial inclusion, see Maniff, Jesse Leigh, “Inclusion by Design: Crafting a Central Bank Digital Currency to Reach All Americans”
<https://www.kansascityfed.org/research/payments-system-research-briefings/inclusion-by-design-crafting-central-bank-digital-currency/>

limit through a CBDC would stand in stark contrast to the flexibility and freedom embedded in physical currency or bank deposits and could serve to control or even harm consumers and businesses. There is also a risk that this type of control could lead to the politicization of the payments system and at its heart, how money is used. A CBDC that permitted this type of control not only has the potential to allow the government to limit certain types of private spending or limit access to banking accounts, it could also threaten the Federal Reserve's independence.

The Efficiency and Speed of the Payments System

CBDCs are often discussed in the context of providing fast or instant payments for a variety of transactions, whether consumer-to-business or person-to-person transactions. As I previously noted, the introduction of the FedNow Service in the United States and other instant payments platforms globally leads me to ask: What could a CBDC accomplish, if anything, over and above what instant payments platforms alone can accomplish? There are potential use cases in the context of certain interbank transactions in wholesale markets, where some transactions are slow and heavily resource-intensive to clear and settle. Participants in the wholesale financial markets have been considering innovative ways to address these frictions with newer technologies such as distributed ledger technology in which shared information across counterparties could be leveraged to increase speed and reduce back-office costs to reconcile transactions before they settle. In the public debate about CBDC, some have argued that the introduction of a wholesale version of a CBDC could fully unlock the benefits of these newer technologies for these financial market use cases. Similar to the questions noted for a retail level CBDC, policymakers must carefully consider the wholesale use cases, including whether there is

added value of a wholesale version of CBDC in supporting new infrastructure to financial transactions over and above existing methods.

Cross-Border Activities

In the international context, frictions and high costs are pain points often associated with cross-border payments. Many policymakers have discussed whether CBDCs could play a role in streamlining cross-border payments by using new technologies, introducing simplified distribution channels, and creating additional opportunities for cross-jurisdictional collaboration and interoperability. Of course, these opportunities may be limited by the regulatory and legal safeguards in place for payments between countries with different legal structures, including customer identification, customer due diligence, and sanctions screening for compliance with regulations and policies for Bank Secrecy Act/Anti-Money Laundering (BSA/AML). These competing priorities are challenging to reconcile. While cross-border payments are among the slowest and least efficient, they also raise substantial legal and regulatory compliance concerns that would apply equally to CBDCs.

International Role of the U.S. Dollar

Another consideration is whether a CBDC (or lack of it) would affect the role of the U.S. dollar in international trade.⁸ In my view, the dollar serves this role because of the size of the U.S. economy, its deep and liquid financial markets, the strength of U.S. institutions, and its commitment to the rule of law. A CBDC, or lack of it, may not meaningfully change the existing incentives for people, firms, or countries to conduct business in the dollar. Therefore,

⁸ See Christopher J. Waller, “The U.S. Dollar and Central Bank Digital Currencies,” speech at Digital Currencies and National Security Tradeoffs, a symposium presented by the Harvard National Security Journal, Cambridge, Massachusetts, October 14, 2022, <https://www.federalreserve.gov/newsevents/speech/waller20221014a.htm>. (“I don’t think there are implications ...[on the adoption of a U.S. CBDC] for the role of the United States in the global economy and financial system.”)

maintenance of the dollar as a reserve global currency will require broad policies that foster economic growth, liquid markets, and an unwavering commitment to the rule of law. And we should have an imperative to research and experiment with new technological innovation. I will say more on that shortly.

Declining Cash Use and CBDC

In jurisdictions that have not adopted a CBDC, cash is generally the only central bank money available to the public, and it remains an important and popular means of payment.⁹ In some countries, however, digital payments have rapidly supplanted the use of cash. As a result of this trend, many central banks have cited the importance of access to central bank money by the general public as a potential reason to issue a CBDC. For example, Sir Jon Cunliffe of the United Kingdom examined the central role money plays in social and economic stability and concluded that, because private money has been replacing the use of government money over time, at some point “a retail, general purpose digital currency ...will be needed in the U.K.”¹⁰ Because the Federal Reserve is committed to ensuring the continued safety and availability of cash, a CBDC could be considered as a means to *expand* safe payment options, not to reduce or replace them. So, an important issue for us to consider would be whether a CBDC could provide the public with a more attractive alternative to cash in a world that may be shifting away from cash-based payments. In probing this question, we need to also consider the privacy implications, and whether a CBDC would be a better alternative than private-sector solutions.

⁹ See Board of Governors of the Federal Reserve System, *Money and Payments: The U.S. Dollar in the Age of Digital Transformation* (Washington: Board of Governors, January 2022), <https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf>.

¹⁰ Jon Cunliffe, “The Digital Pound,” <https://www.bankofengland.co.uk/speech/2023/february/jon-cunliffe-speech-at-uk-finance-update-on-central-bank-digital-currency>.

Stablecoins and CBDC

Some new private forms of money, often referred to as stablecoins, have emerged mainly to support trading in the crypto-asset ecosystem both as a means of payment and as a store of value. These stablecoins, which purport to have convertibility one-for-one with the dollar, have also been discussed as an alternative to traditional payments. However, stablecoins are less secure, less stable, and less regulated than traditional forms of money. and their structures and frameworks are opaque. To the extent stablecoins become widely used in day-to-day payments, these features could raise significant concerns. Of course, issuing a CBDC has been discussed as a potential alternative to stablecoins that could address some of these shortcomings. It is also possible that Congress could pass legislation to strengthen the regulation and oversight of stablecoins to mitigate some of these issues. I will be following developments in Congress closely on this and other digital assets. Regardless, it is important for us to continue to evaluate the evolving landscape of digital assets and understand whether and how well-regulated stablecoins or a CBDC would interact with each other and with the broader payments system.

Design Features and Policy Considerations

The Fed's ongoing exploratory work helps us to think critically about a future shaped by innovations in payments and the broader economy, including instant payments and new potential forms of money and payment systems like CBDCs and other digital assets that could potentially play a larger role in the economy. While the investigation of CBDC raises many policy questions, for the purposes of today's discussion I will focus on a few key areas that are important from my perspective.

Privacy Considerations

As we consider these potential opportunities for improvements and innovation, we must also note that the introduction of a CBDC could present significant risks, challenges, and tradeoffs. First, in my view safeguarding privacy is a top concern and is also often identified as a top concern of consumers and other stakeholders. As a baseline, we need to think about how to protect the privacy of consumers and businesses, while also establishing an appropriate level of transparency that would deter criminal activity.

We must ensure that consumer data privacy protections embedded in today's payment systems continue and are extended into future systems. In thinking about the implications of CBDC and privacy, we must also consider the central role that money plays in our daily lives, and the risk that a CBDC would provide not only a window into, but potentially an impediment to, the freedom Americans enjoy in choosing how money and resources are used and invested. So, a central consideration must be how a potential U.S. CBDC could incorporate privacy considerations into its design, and what technology and policy options could support a robust privacy framework.

The issue of privacy may be less difficult to address in the case of wholesale use cases, in which a CBDC would only be used by traditional financial institutions to conduct a limited range of financial market transactions. As with many of these considerations, the purpose and intended function of a CBDC has a major impact on its policy and design considerations.

Interoperability and Innovation

Relatedly, one possible way to design a CBDC could be to focus on providing a foundational layer on top of which banks and other eligible institutions could build their own technology. In such an intermediated model, banks and other eligible institutions would build

technology on top of a CBDC that could be offered to retail consumers and others to provide products and services that may not be available today. It would be important to understand how such a layer would connect or interact with existing and new payments infrastructures. It is useful to consider what types of innovations this could encourage. Some of the research on the design and functionality of CBDCs contemplates things like increased programmability—allowing the efficient transfer of money through the use of so-called smart contracts—that could improve upon existing, regulated forms of money and payments. These are important questions worth exploring, but they link back to the identification of “problems” that a CBDC would be designed to solve.

Unintended Effects on the U.S. Banking System

It is also necessary to consider the potential impacts of a CBDC on the banking sector. Today’s banking system delivers important benefits to our economy and, as I noted earlier, is continuing to evolve through innovations, like the improved availability of instant payments already discussed.

There are significant risks in adopting a CBDC that cannibalizes rather than complements the U.S. banking system. The U.S. banking system is a mature, well-functioning, effective and efficient system. Banks provide consumers access to credit and other banking and payments services. Banks also support important public policies, including reporting on suspicious or criminal activity through their BSA/AML compliance and reporting.

More importantly, banks play an essential role in the transmission of monetary policy and supporting a well-functioning economy and financial system. If the Federal Reserve were to be authorized and directed to implement a U.S. CBDC, we would need to carefully consider how an intermediated CBDC, with private-sector service providers, could be designed in a way that

maintains financial institution involvement and minimizes disruptions to the financial system. A CBDC, if not properly designed, could disrupt the banking system and lead to disintermediation, potentially harming consumers and businesses, and could present broader financial stability risks.¹¹ Consider the consequences of a CBDC that pays interest at comparable or better rates than commercial bank deposits and other low-risk assets. It seems likely that such a CBDC would reduce the funds available to lend and increase the cost of capital across the economy. Likewise, we need to consider the effect on bank stability, and the potential of even more rapid bank runs, in a world where there are fewer constraints on the volume and velocity of payments. The ongoing demand for private and public options to facilitate instant payments may exacerbate these concerns.

These are exactly the types of issues that policymakers must confront. It would be irresponsible to undermine the traditional banking system by introducing a CBDC without appropriate guardrails to mitigate these potential impacts on the banking sector and the financial system.

The Imperative of Continuing Research

The Federal Reserve’s work continues to explore an array of CBDC design choices and the challenging consideration of policy tradeoffs that this multitude of choices presents. It is imperative that each of these tradeoffs is carefully evaluated and thoroughly understood. Where opportunities for improvements may exist, we should ask whether a U.S. CBDC is the most

¹¹ For discussion on CBDC implications for bank funding, lending, and resilience, see Bank for International Settlements, “*Central Bank Digital Currencies: Financial Stability Implications* (Basel: BIS, September 2021), https://www.bis.org/publ/othp42_fin_stab.pdf; and Sebastian Infante, Kyungmin Kim, Anna Orlik, André F. Silva, and Robert J. Tetlow, “The Macroeconomic Implications of CBDC: A Review of the Literature,” Finance and Economics Discussion Series 2022-076 (Washington: Board of Governors of the Federal Reserve System, October 2022), <https://www.federalreserve.gov/econres/feds/the-macroeconomic-implications-of-cbdc-a-review-of-the-literature.htm>.

efficient and effective means to make such improvements, or are there better alternatives, such as enhancements to current payment infrastructures? Apart from focusing on payments alone, it is also worth considering whether other policies would more effectively target financial inclusion, including policies that are beyond the remit of the Federal Reserve. And in the absence of a CBDC, some of these risks I noted may still exist as the private sector continues to innovate, including the risk of substitution from commercial bank deposits to digital wallets, and the migration to less regulated digital assets, including stablecoins. With such significant potential opportunities, risks, and tradeoffs, it is essential that the Federal Reserve continue to thoroughly research and engage with stakeholders to further understand these issues. Future decisions about the implementation of technology innovations in money and payments, including a potential U.S. CBDC, must be informed by a deep and thorough understanding of potential intended and unintended consequences, as well as understanding whether a CBDC would be the most effective and efficient means to improve the payment system and address identified problems.

The Federal Reserve has continued its independent research and technical experimentation on digital innovations, including digital assets and CBDC. Specific to CBDC, the Federal Reserve established a program of work that aims to (1) carry out policy analysis to provide perspectives on issues articulated in the Board's January 2022 discussion paper; (2) conduct technology research and experimentation to inform potential CBDC designs; and (3) invest in engagement with the public, industry, academia, and the public sector to bring along stakeholders and obtain needed expertise.

Concluding Thoughts: The Potential Future of CBDC in the United States

Of course, as the evolution of money and payments continues, it is important for the Federal Reserve to continue looking ahead to anticipate potential changes to money and

payments well into the future. With this in mind, our consideration of other potential innovations to money and payments, including a potential U.S. CBDC, must be viewed through the lens of whether and how the payment system would be improved beyond what instant payment services will achieve. We should ask “what current frictions exist or may emerge in the payment system that only a CBDC can solve, or that a CBDC can solve most efficiently?”

In my view, it is important that the Federal Reserve is a part of the ongoing conversations around CBDCs, whether or not a CBDC is ultimately created in the United States. As the Federal Reserve continues to monitor developments in other jurisdictions, we will work closely with international counterparts on payments innovation, CBDC, and other related topics. This includes work with multilateral institutions such as the Bank for International Settlements, the G7, and the Financial Stability Board, as well as bilateral engagements with other central banks.

From my perspective, there could be some promise for wholesale CBDCs in the future for settlement of certain financial market transactions and processing international payments. When it comes to some of the broader design and policy issues, particularly those around consumer privacy and impacts on the banking system, it is difficult to imagine a world where the tradeoffs between benefits and unintended consequences could justify a direct access CBDC for uses beyond interbank and wholesale transactions.

It is important that we thoughtfully examine the evolving money and payments landscape and digital innovations broadly, including a potential U.S. CBDC. In addition to understanding international approaches to these issues, the Federal Reserve’s research, experimentation, and outreach to stakeholders help us to gain important input and perspective on these issues. Apart from these ongoing CBDC-related efforts, the Federal Reserve is committed to the successful implementation of FedNow, which is expected to support the broader adoption of instant

payments in the U.S., meaningfully evolving and upgrading the U.S. payments infrastructure for consumers and businesses.

Thank you for the opportunity to share my thoughts on these important issues.