Central bank digital currencies (CBDCs) in emerging market economies (EMEs) – India

Central banks the world over have been providing trusted money to the public for centuries as part of their key roles and responsibilities. Trusted money issued by the central bank is a vital public good that underpins the modern financial system. Other than currency notes, most aspects of this financial system have been replaced or supplemented with digital and electronic versions of their paper counterparts. Evidence also suggests that the use of physical cash has declined in recent years – a trend that has been further reinforced by the Covid-19 pandemic. With rapid and profound changes taking place in payment systems, most central banks have started considering the benefits and challenges of issuing a digital version of fiat currency (ie a central bank digital currency (CBDC)).

Main objectives and key considerations

Before delving into the potential benefits of CBDCs, it is worthwhile to clarify the definition and nature of modern money and currency. Money has, historically, taken the form of either commodities with intrinsic value or debt instruments. When money does not have intrinsic value, it must represent title to commodities that have intrinsic value or title to other debt instruments. Paper currency is such a representative money, and it is essentially a debt instrument. The owner of the currency knows who owes them or who has the underlying liability. There is always an "issuer" of representative money. Typically, in modern economies, this "issuer" is the sovereign. While private issuance of money did exist in the past, it has given way over time to sovereign issuance for two reasons. First, being a debt issuance, private money is only as good as the credit of the issuer. With multiple issuers in the system, private currency therefore entails some intrinsic instability. Understanding currency as defined here, it is important to note that private virtual currencies are at substantial odds to the historical concept of money. They are not commodities or claims on commodities as they have no intrinsic value, and neither do they represent any person/institution's debt or liabilities. In the absence of fundamental intrinsic worth or trust, private currencies carry substantial risks, and financial stability risks from private digital currencies are likely to pose significant regulatory and supervisory challenges. We also note that if private digital currencies were given regulatory mandates, competitive forces could engender fragmentation in the payments ecosystem resulting in excessive market power and eventual deposit disintermediation. Currency backed by the sovereign, on the other hand, is more stable since the issuer in this case has better credit standing. Second, paper currency involves *seignorage* – the difference between the intrinsic value and the representative value which accrues to the issuer. If currency is to serve the role of a public good, this seignorage should ideally not accrue to any private individual to avoid problems of adverse selection.

Therefore, in modern economies, currency is a form of money that is issued exclusively by the sovereign (or a central bank as its representative). It is a liability of the issuing central bank (and sovereign) and an asset of the holding public. Currency

issued by the sovereign is fiat money. Hence, fiat money is government-issued currency that is not backed by a physical commodity such as gold or silver, but rather by the government that issued it. It is legal tender. Currency is usually issued in paper (or polymer) form. In the case of CBDC, it will be issued in digital form. Thus, a CBDC is simply legal tender issued by a central bank in digital form. It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency.

There is now widespread interest in CBDCs for various reasons. In countries with high physical cash usage, CBDCs may provide a more efficient issuance channel. There also appears to be substantial public demand for digital currency that has manifested in the mushrooming of an array of private digital currencies. Issuing a CBDC may help provide a more stable alternative to such private currencies. Other potential benefits of CBDCs include better financial inclusion, and tackling money laundering and tax avoidance.

India is leading the world in terms of digital payments innovations. Our payment systems are available 24/7, to both retail and wholesale customers, they are largely real-time, the cost of transactions is low, users have a large menu of options for making transactions and digital payments have grown at an impressive compound annual growth rate (CAGR) of 55% (over the last five years).[1] However, a pilot survey conducted by the Reserve Bank of India (RBI) on retail payment habits of individuals in six cities between December 2018 and January 2019 indicates that cash remains the preferred mode of payment and for receiving money for regular expenses, particularly for small-value transactions.[2] CBDC could target digitisation of these cash preferences. But preference for cash, for instance for its anonymity, can be redirected to acceptance of CBDC as long as anonymity is assured. India's high currency-to-GDP ratio holds another motivation for introducing CBDC. To the extent large cash usage can be replaced by CBDCs, the cost of printing, transporting, storing and distributing currency can be reduced. Another important consideration is related to satiating the public demand for virtual currency while preserving financial stability. CBDCs could provide the public with some of the uses that private virtual currencies provide – such as greater security and viability of holding currency. At the same time, it could also protect the public from the abnormal level of volatility some of these virtual currencies experience.

The RBI is currently working towards a phased implementation strategy and examining use cases which could be implemented with little or no disruption. Some key issues under examination include, inter alia: (i) the scope of CBDCs – whether they should be used only in retail payments or also in wholesale payments; (ii) the underlying technology – whether it should be a distributed or centralised ledger, for instance, and whether the choice of technology should vary according to use cases; (iii) the validation mechanism – whether token-based or account-based; (iv) the distribution architecture – whether direct issuance by the RBI or through banks; and (v) the degree of anonymity. The RBI has been considering pilot projects in CBDC in the wholesale as well as retail segments. Across both segments, the introduction of CBDC has the potential to provide significant benefits, such as reduced dependency on cash, higher seigniorage due to lower transaction costs and reduced settlement

[1] See RBI (2021a).

[2] See RBI (2021b).

risk. Going forward, CBDCs would also potentially enable a more real-time and cost-effective globalisation of payment systems.

Guiding principles of CBDC design and data governance

Various design choices for introduction of CBDCs are under active consideration at the RBI. The direct CBDC model would comprise accounts managed by the central bank, and the central bank itself would be responsible for managing all the payment services. The indirect model is identical to the arrangement for paper currency – the central bank issues CBDC through intermediaries, ie banks whose details are maintained in the central bank, and the public obtains CBDCs from the banks, as required. It is also possible to have a hybrid architecture with two components, ie central bank and intermediaries. It is understood that the direct model is attractive for its simplicity as it eliminates the need for an intermediary. However, this architecture is considered to require massive technological capabilities and may compromise the reliability, speed and efficiency of payment systems as the central bank would be the only entity handling payment services. It is the RBI's objective to work towards a phased implementation strategy for introduction of CBDCs and the related architecture shall be chosen accordingly. While designing CBDCs, aspects of consumer protection and data privacy need to be of prime importance as robust privacy safeguards would be necessary for ensuring high acceptance. To this end, legislative as well as technological protections need to be put in place and continuously adapted alongside the introduction of CBDCs. Ensuring adequate internet infrastructure and improving digital literacy of the large populace would also be key. Other important considerations relate to the country's large geographical expanse and the reach of the banking system. Ensuring high standards of cyber security and parallel efforts on financial literacy is, therefore, essential for any country dealing with CBDC.

Further, CBDCs are expected to coexist with other forms of currency and payment systems. Ensuring interoperability across different systems would be necessary for enhanced consumer experience and ease of transactions. Each jurisdiction will have to take a view on the model that is relevant and that can facilitate integration of CBDCs into its economy in a smooth and non-disruptive manner. A nuanced and balanced view has to be taken and a careful sequencing and learning from proofs of concept, pilots and other modalities are essential for this purpose.

Challenges of CBDCs for monetary policy, financial intermediation and financial stability

CBDCs may bring about a change in the behaviour of the holding public. The nature of that change cannot be gauged a priori given that there is little real-world evidence of CBDC use as of now. If there is overwhelming demand for CBDCs, and these are issued largely through the banking system, as is likely, more liquidity may need to be injected to offset the currency leakage from the banking system. The impact of CBDC on monetary transmission would clearly depend on the design and the degree of use. Further, CBDCs shall provide the public with the option to hold a sovereign-backed

and secure instrument as compared to privately issued digital currencies that operate outside the purview of authorities. By making available a risk-free and stable alternative to the public, some central banks expect to tap into the increased interest in privately issued currencies, which are often associated with huge risks at multiple levels. Substitution of private currencies with CBDCs is expected to also make monetary policy more effective.

CBDCs could be non-interest bearing like cash or they may carry positive interest rates, depending on the design choice of the issuing central bank. Even if they are non-interest yielding, still they are risk-free on account of being a central bank liability. Theoretically, a remunerated CBDC could pass on policy rate changes immediately to CBDC holders. However, beyond the theory, there are challenges and risks. To be effective in transmitting policy rates, a remunerated CBDC would need to pay competitive rates and allow the public to hold significant amounts. This could exacerbate financial stability risks associated with disintermediating banks and making fund flows more volatile.[3] Also, if banks were to lose a significant volume of transaction deposits, which are typically low-cost sources of funds, their interest margin might come under stress leading to an increase in cost of credit. Availability of CBDC provides depositors with an easily accessible choice that can be quickly mobilised at a very low cost. If a bank comes under stress, flight of deposits could be much faster compared to cash withdrawal. A prospective flight of deposits would impact the financial system and possibly the wider economy. On the other hand, the simple availability of low-risk CBDCs might reduce panic "runs" since depositors would possess the assurance that they could withdraw their money quickly. However, in many jurisdictions, credible deposit insurance should continue to dissuade runs.

Finally, securing monetary sovereignty is also one of the motivations behind introduction of CBDC in many countries. A risk of "cryptocurrencies" and foreign CBDCs is that domestic users adopt them in significant numbers and the use of the domestic sovereign currency dwindles, eventually compromising the domestic central bank's control over monetary matters ((Brunnermeier et al (2019); G7 Working Group on Stablecoins (2019)). By offering an efficient and convenient CBDC itself, a central bank may reduce the risk of domination by alternative units of account.

CBDCs and financial inclusion

Despite various measures that have been undertaken to strengthen financial inclusion in India, there are still certain gaps in the usage of financial services that require attention from policymakers through necessary coordination and effective monitoring.

With suitable design choice, CBDC may provide a safe and liquid government-backed means of payment to the public Some central banks view this as essential in a digital world in which cash use is progressively diminishing, especially in developing countries with low banking penetration. Since CBDC is a digital form of fiat currency, the government, and central banks, shall facilitate and strive to ensure its universal access and shall reach out to those customer segments that cannot be reached by existing private sector-led solutions.

[3] See Group of central banks (2020).

In a nutshell, the introduction of CBDCs has the potential to provide significant benefits, such as reduced dependency on cash, higher seigniorage due to lower transaction costs and reduced settlement risk. Introduction of CBDC is expected to lead to a more robust, efficient, trusted, regulated and legal tender-based payments option. There are associated risks, no doubt, but they need to be carefully evaluated against the potential benefits. It would be RBI's endeavour to take the necessary steps which would reiterate the leadership position of India in payment systems. It is important to acknowledge that the introduction of CBDCs is neither a compulsion nor a "business as usual" decision. However, CBDC is likely to be in the arsenal of every central bank going forward. Whatever the decision taken or the model of CBDC adopted, it has to be well calibrated, properly structured, and nuanced in implementation, if the concomitant benefits are to be realised.

References

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