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Talking Points for ED (AKC) at the Conference on CBDC at CAFRAL

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Central Bank Digital currency (CBDC) – Road Ahead: A Policy Perspective

Good morning and welcome to all the participants for this interaction, organised by CAFRAL. The theme of my today's address is "CBDC- Road Ahead- A Policy Perspective". I would like to express my deep appreciation to the CAFRAL for the invitation to speak on the topic which is quite relevant in the current scenario.

I shall try to keep it simple and attempt to demystify the concept of CBDC per se and the way forward.

Brief information and status of Digital Rupee (CBDC)

Digital Rupee or "e₹" is the digital form of India's currency, the Rupee. It is a legal tender and is issued in digital form by the Reserve Bank of India. It offers features of physical cash like trust, safety and immediate settlement finality in digital mode. It can be held or used to carry out transactions, similar to the manner in which currency notes can be used in physical form.

Now with this understanding that CBDC is digital form of physical currency in India, it should ideally imbibe all the possible features of physical currency to the extent possible, and the design and policy choices should normally ensure that the implication of its introduction on Monetary, payment and financial system should be least disruptive.

The design choices may, inter-alia, include type of CBDCs (Wholesale or Retail), model for issuance, form of CBDCs (account or token based), instrument design (remunerated or not), anonymity. During my address today, we will touch on all these aspects in some details to have a better understanding of our policy and design choices.

As regards the scope of CBDC, different levels of accessibility demarcate two broad types of CBDCs, viz. Wholesale (CBDC-W) and Retail (CBDC-R). While CBDC-W limits access to a pre-defined and select group of users like financial institutions, CBDC-R is a general purpose one and widely accessible without restraint, exhibiting characteristics of cash, albeit in digital form.

The model for retail CBDC issuance in the pilot in India is identical to the arrangement for paper currency i.e., Indirect model- RBI creates CBDC and issues the same to banks. Banks, in turn, distribute CBDC to customers.

Difference between UPI and CBDC

We should understand that CBDC is a form of **Currency**, though in digital form, while UPI is a means of payment. CBDC can be used as a means of payment, but it also has other uses such as a store of value and unit of account. As you are aware, we have one of the best payment systems in the world. If we compare the efficiency of CBDC as means of payment as compared to UPI, it is as efficient as UPI. Therefore, from user perspective, frankly, there may not be any material difference and value add if we look at it as means of payment only, except the feature of anonymity.

In case of CBDCs, like physical currency, you can draw the digital currency and keep it in your CBDC wallet on your mobile phone/ device. When you make a payment at a shop or to another individual, it will move from your wallet to their wallet. There is no intermediation by the bank.

The transaction is settled instantaneously between the two wallets without passing through bank accounts and thus anonymity may be maintained. This is not the case of UPI transaction, which involves intermediation by the bank.

Difference between CBDC and cash

CBDC has distinct advantages as compared to physical cash as there may not be any logistical limitations in carrying the digital currencies, it cannot be torn or mutilated, even if the CBDC wallet is lost, it can be retrieved, and it can be withdrawn and deposited any time from/to bank accounts.

The main use cases for CBDC may, thus, be explored based on the other characteristics of currency, primarily the store of value. I shall discuss few motivations now.

Motivations to Introduce CBDCs

The motivations for exploring and issuing CBDCs are specific to the jurisdiction and may vary from one country to other. For an example, a country with negative interest rates may visualise CBDC as an active monetary policy tool. On the other hand, a country with very high cash usage may be motivated by formalising the economy and cost savings associated with physical currency. Similarly, a country with disaggregated inefficient payment system may look forward to establishing CBDC as a form of unified payment system. I will discuss a few motivations in some more details.

Narrative of Private Currency - We may now have a look at the narrative being set up for Crypto where it is being said that the product itself is new and going to transform the entire financial ecosystem. Globally, it is being termed as either currency (which it can't be as it does not conform to the basic characteristics of a currency as they do not have an issuer (forget to be the trusted issuer), nor they are an instrument of debt, or

commodities nor they have any intrinsic value), or assets (cannot be, as it is neither anyone's liability nor has any underlying cash flows). The deeper scrutiny reveals that primary innovation in crypto is the underlying technology and standards (DLT, Cryptography, Transaction protocol), which facilitates peer-to-peer transfer with the help of a transaction protocol which works in the absence of trusted intermediaries. In case of CBDC, it has the distinct advantage as compared to any private currency as it has features of Fiat Currency and also being digital. It can be used for all legitimate digital transactions/use cases without having associated with any risks which is generally linked to private currencies. However, as we all are aware, private currency (either backed or unbacked), including risk to holders, risk to financial system and risk to policy sovereignty. Therefore, CBDCs has the potential to provide the public with the desired benefits of any digital private currency, while ensuring consumer protection by avoiding the damaging social and economic consequences.

Cross Border Transactions- The biggest advantage what we may get by using CBDC is cross border transactions. Presently, correspondent banking system has two distinct features- (i) Large number of banks are involved in such transactions leading to cost going up (World Bank Assessment- 6% Transaction cost for small value cross border transactions), (ii) For large value cross border transactions, there are handful of banks which carry out such transactions. For international system to be stable, this needs to be spread out.

In this context, we also need to be careful of a narrative being woven around Stable Coin Arrangements (SAs) which claims to solve the problems (concentration of banks through decentralised system, cost, TAT, archaic system) associated with cross border transactions. However, the risks associated with SA arrangement are many and even

some time more than the unbacked private currencies which may inter-alia include compromising the policy sovereignty of individual jurisdictions relating to Monetary Policy (viz. inflation management, policy rate transmissions), Dollarisation of the economy, capital flow regulation, financial stability issues. The stable solutions to the present problem statements of cross border transactions can easily be provided by CBDC arrangement where platform can be developed which can have arrangement to work across CBDCs of different countries. For us in India, cross-border payments assume a huge significance given that we are the largest recipients of cross-border remittances. But for this possibility to materialise, what is needed more than technology and product design, is coordination across countries and coordination between the public and private sectors. Specifically, there must be an increase in adoption of CBDCs across countries. Secondly, we also need to create the global infrastructure to enable interface between various CBDCs. Under India's G20 Presidency, the Reserve Bank of India and the BISIH are soliciting innovative technological solutions to transform global cross-border payments landscape in the fourth edition of the G20 TechSprint.

CBDC as an alternative to Cash - India has a unique case where the use of cash in the economy has consistently seen an uptrend despite rapid digitisation in the payments space. The growing use of electronic medium of payment has not yet resulted in a reduction in the demand for cash in absolute as well as in relative terms. Therefore, in the Indian context, the attempt is to provide a digital alternative to cash by providing a design which has similarities to physical cash to the extent possible.

Offline Feature - The offline functionality forms one of the foundational considerations of physical currency and thus it is the natural design choice for CBDC. In addition to ensuring widespread usage, offline transactions would be beneficial in remote locations and offer resiliency in places

where electrical power or mobile network is not available. We are in the process of exploring the technical feasibility of various available options. Incidentally, the problem statements for HARBINGER 2023 (RBI's Global Hackathon to nurture the financial innovations) also include issues relating to retail CBDC transactions in offline mode. However, it has to be understood that a truly offline feature, will need to touch the frontiers of technical innovation and RBI is actively exploring the same. Without real-time connectivity, transactions' validation and associated security becomes intricate. Ensuring prevention of double-spending, maintaining consistency, and safeguarding against fraud in an offline scenario are complex issues. Addressing these challenges is crucial for the seamless and reliable functioning of digital currencies.

Programmability- The digital form of currency renders a unique possibility in terms of programmability, which physical currency cannot offer. Specific use case of programmability in CBDCs in certain cases may promote efficient, customizable, and responsive financial transactions, driving CBDCs' utility beyond traditional currencies. For example, agriculture credit by banks can be programmed to ensure that it is used only at input store outlets. However, the programmability design feature of CBDC needs to be carefully examined to retain the essential features of a currency.

Other Motivations- The other key motivations in the Indian context may among others include improvement in efficiency in physical cash management by way of reduction in production and operational costs as also difficulties associated with logistics relating to physical cash storage and movement, fostering financial inclusion, bringing resilience, efficiency, and innovation in the way payments are made, adding efficiency to the settlement system, and be future ready in all respect.

CBDC and Financial Inclusion - India's achievements in many areas are such that they can also be useful to other countries of the world. By leveraging this technological progress, financial intermediaries can use CBDCs to develop low-risk and low-cost financial technology products and services and reach out to those financially excluded which can further financial inclusion. The usage of CBDCs can solve the problem of trust deficit in the unbanked/ financially excluded populace.

We also believe that in the future, financial inclusion will no longer be about people being 'banked' or 'unbanked'. Rather, the future of financial inclusion will be about 'access' and 'more access'. The focus will, therefore, be on increasing access to formal financial services for everyone since money can be held in digital form, stored in digital wallets and transacted or deposited/ withdrawn from the bank accounts instantly 24x7.

Challenges from CBDCs

Macro Financial Aspects- One of the main considerations for the CBDCs is that the design features should be the one that is least disruptive. Therefore, the model of CBDC issuance, circulation and exchange and its different design features should be such that it follows the principle of "do no harm" (*this does not mean "have no impact", but rather the new forms of money supplied by the central bank should continue supporting the fulfilment of public policy objectives and should not impede but ideally enhance, a central bank's ability to carry out its mandate for monetary and financial stability*).

The implications of CBDC for monetary policy essentially depends on the way it is designed and its degree of usage. If CBDC is remunerated, the potential scope for substitution of deposits of commercial banks by CBDCs may be higher. Consequently, commercial banks may rely more on central bank liquidity provisions. Further, it may weaken monetary

policy transmission as CBDC will be considered as a leakage. On the other hand, it can also be argued that if CBDCs are remunerated and directly accessible to economic agents, banks may need to compete for deposits and this could translate to higher deposit rates with implicit impact on lending rates. This may lead to more effective monetary policy transmission as the transmission channel shifts directly to deposit rates.

There might also be risks to financial disintermediation and financial stability too. This will again depend upon kind of usage, in addition to degree of usage. Non-remunerated CBDC is likely to significantly minimise potential disruptions to monetary policy and the financial intermediation process.

However, the nature of change in behaviour of public holding of money cannot be gauged in advance given that most of the central banks are still exploring issuance of CBDCs and we need to carefully monitor the developments.

This may be noted that care is being taken so that CBDC is introduced without material disruption to the Banking System. Therefore, we are following the strategy of slow and phased introduction of the CBDC and carefully watching the behaviour. With the introduction of full interoperability feature with UPI, we may expect the volume of transactions to reach around 1 million transactions per day say by December 2023. This will give us enough data points to study various design choices, use cases as also behavioural pattern.

Technical Infrastructure- Implementing CBDCs demands robust technical infrastructure. With the CBDC being a central bank liability, it needs to be the safest form of instrument with high resilience and redundancy. Accordingly, in the current pilot, Hybrid technology (both centralised and decentralised ones) has been used. Going ahead,

different technical architectures comprising different compositions of de-centralised and centralised designs shall continue to be experimented with. Secure encryption, identity management, and data privacy mechanisms are crucial. Scalability, low-latency, and resilience against cyber threats are imperative to ensure a trustworthy and efficient CBDC ecosystem.

Insights on RBI's ongoing CBDC pilots:

RBI has commenced pilots of India's CBDC, for specific use cases in both wholesale and retail segment. The CBDC-Wholesale Pilot was launched on November 1, 2022 with the use case being settlement of secondary market transactions in government securities. The pilot is testing immediate settlements by dealing in central bank currency.

In the 2nd phase of the e₹ Wholesale pilot in addition to settlement of secondary market transactions in government securities, interbank transfers (i.e. borrowing/ lending) will also be tested.

The CBDC-Retail Pilot was launched on December 1, 2022. The retail pilot is covering select locations in closed user group comprising participating customers/ merchants and is covering both use cases of Person to Person (P2P) and Person to Merchant (P2M) transactions. The pilot is testing the robustness of the entire process of digital rupee creation, distribution and retail usage in real time. Starting with 4 banks across 4 cities, the pilot is currently being operationalised by **13 banks across 26 cities. Around 1.45 million users and 0.31 million merchants (as on August 22, 2023)** are currently part of the pilot.

Inter-operability with UPI- While CBDC is a form of currency, its use for digital payments is a major use case. In India, UPI has already established itself as a preferred mode of digital transactions. Inter-operability between digital currency and digital payment system has been a policy goal for RBI.

Based on the learnings and feedback from the pilot, full interoperability is being rolled out.

Conclusion

The basic purpose of CBDC is to allow people to hold an instrument that carries the same features of risk-free central bank money (currently only available in physical form) in digital mode. It has multiple use cases and multiple additional features uniquely attached to digital form of currency and they need to be explored. We need to expand our Digital Rupee pilots with multiple use cases and technical architectures so that we can arrive at a robust infrastructure and design choice framework before launching CBDC for the nation at large.

I would like to conclude by mentioning that CBDC, being a novel innovation, provides us with an opportunity to take a leadership role. The beginning has been made, and the possibilities are immense. Let's all of us come together and make this journey to the future meaningful and memorable. By being a pioneer, we can not only provide solutions for India but also provide services and solutions to the world.
