Central Bank Digital Currency – An Introduction

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Introduction:

Fintech has ushered in an era of technology-driven financial innovation that has direct implications for various aspects in an economy including payment systems, financial intermediation, and financial regulations. One of the biggest discernible impacts of fintech has arguably been on the payment system whereby market participants can settle transactions using plethora of digital mechanisms including online payments, mobile wallets, QR codes, etc. Due to the convenience afforded by digital mechanisms towards settlement of transactions, use of cash as a means of settlement has been declining across countries. For example, a survey by the Federal Reserve of the United States (US) in 2019 found that consumers used cash only for 26% of all payments and this usage figure was similar to the year prior but down by 5 percentage point compared to 2017. Due to the restrictions introduced in the wake of Covid-19 and resulting changes in behavioural practices, the usage of cash has likely gone further down more recently. At any rate, use of cash constitutes only a small part of daily transactions and this can be expected to further decline across countries. As more and more people rely on digital payment system, there are concerns that cash usage may be a thing of the past.

Ostensibly against this backdrop of declining usage of cash coupled with the advent of cryptocurrencies (like Bitcoin, Ethereum etc), a vast majority of central banks around the world are either developing or studying the concept of central bank digital currency (CBDC). Bank of England (BoE), for example, states that the reason it is contemplating CBDC is "because the way people are choosing to pay for things is changing". However, at this stage, it should be noted that CBDC is still a conceptual issue and most central banks are yet to decide on whether or not to fully adopt it.

1. What is and is not CBDC?

As the name suggests, CBDC is considered to be a currency in digital form (rather than having physical form like paper notes and coins). This could be considered as Euro being created and transferred in digital format instead of printing of physical notes.

Considering that CBDC is going to be digital in nature and has been, in part, inspired by the rise of digital payment platforms along with cryptocurrencies, there is an inevitable tendency to draw comparisons between CBDC with cryptocurrencies. But just like physical currency, CBDC is expected to be issued and backed by the central bank of that country. This is in stark contrast to the idea of cryptocurrencies that rely on the distributed ledger technology (also known as blockchain) which means that cryptocurrencies are very much decentralised in nature. As such, CBDC will be diametrically opposed to crypto assets in that CBDC will be issued and backed by an authority.

Further, just like cash (physical money), CBDC is expected to derive its underlying value from the guarantee of a governing body with tax-collecting power. This again is in sharp contrast with cryptocurrencies that do not enjoy such privilege. Hence, though we may want to compare CBDC and crypto currencies for the benefit of understanding their respective characteristics, their similarities end rather abruptly with their digital form. It is safe to say that any CBDC issued by most of the governments will simply not be comparable to the crypto currencies that rely on distributed ledger technology and that are not backed by direct or indirect claims on products and services.

2. Wholesale CBDC or retail CBDC?

But commercial banks also create money. Suppose EUR100 in cash is deposited in a commercial bank by Individual A; and that the bank issues a loan of EUR90 to Individual B who in turn pays the entire EUR90 to Individual C using a cheque. If Individual C deposits that cheque with the bank, the bank deposit increases from EUR100 to EUR190 and loan amount increases from 0 to EUR90. This cycle can repeat leading to much higher amount of total deposit (and lending) than the amount of paper notes in circulation. A critical distinction relevant to note here is that though paper money (issued by the central bank) is backed by the central bank, all deposits are not necessarily backed or guaranteed by the central bank or the government. Retail deposits, nevertheless, may be backed or guaranteed to a certain extent depending on banks and/or jurisdiction by way of deposit insurance or other means of government guarantees. This further complicates matters in terms of CBDC and raises a question: are such digital currencies being contemplated just for wholesale purpose or for retail (general) purpose as well? Wholesale CBDCs, if implemented, will be used for wholesale settlements (for example interbank payments) while general purpose retail CBDC would be mainly aimed towards retail transactions.

We can imagine a host but not exhaustive set of questions that could follow including what this means for the money-creation capability of commercial banks along with their intermediation role if central banks were to adopt not just wholesale but also retail CBDC. If household deposits were to be held at central banks in the form of digital currency, what does this mean for individual privacy and government control? Further deeper and complex questions are bound to follow once a closer look is taken into this issue.

3. Why CBDC?

Before delving into why central banks are contemplating the use of CBDC, it is worthwhile to examine the role of central banks in general. Central banks have specific goals mainly related to price stability and financial stability. Regardless of whether CBDC is adopted or not, central banks would aim to continue delivering on their objective.

So a central question is how does CBDC, either by itself or in conjunction with existing physical money, allow central banks to carry out their goals more effectively? Any steps central banks take towards adopting CBDC would be influenced by the potential of CBDC, in whatever form it is adopted, to help central banks achieve their goals related to price stability and financial stability.

A survey in the year 2019 examining the reasons for central banks on their potential issuance of CBDC revealed that the motivations, with varying degree of importance, revolved around the issues of payment efficiency (both domestic and cross-border), financial stability, safe payment systems, and implementation of monetary policies. According to this study which was conducted across developed and emerging markets, these motivations applied to both wholesale and retail CBDC. Emerging markets also valued the issue of financial inclusion slightly more as a motivating factor, an issue that is presumably less of a problem in advanced economies.

So, essentially, central banks are deliberating on the issue of CBDC from the perspective of their main stated goals of financial stability and price stability, along with some other complementary tasks of ensuring financial inclusion and safe payment system.

A sceptical person at this point may be forgiven for questioning the very purpose of retail CBDC when we already have a digital system in place. Imagine for a minute that everyone in a given economy stops using paper money and coins, i.e. they only use digital payment systems like using bank cards, online transfers, QR codes, cheques, etc for settling transactions. Though it is unlikely that everyone would stop using physical money at once, it is not too far-fetched of an idea for this to happen if people really wanted to do it. This means that we are already in a position to use digital currency without any major change in the way currencies are issued by central banks. The same idea can be extended to the case of wholesale CBDC. After all, commercial banks' deposits with the central banks can surely be digitalized? So, when central banks engage in discussions about CBDC, the focus should be on the additional costs and benefits that the new system brings compared to the infrastructure that is already in place.

In terms of financial stability and price stability, many central banks over the past few years are engaging – as discussed in more detail later - in a thought exercise trying to establish the overall impact of CBDC on these important goals. Though Bank for International Settlements (BIS), along with various central banks, have taken a leading role towards examining these issues and have frequently published reports identifying key issues and findings, much remain to be explored and understood.

To take a slightly critical view towards impact of CBDC towards financial inclusion, as valued by emerging economies, it should be noted that advancements in digital and mobile payments, even in the absence of CBDC, have provided financially marginalized people with unprecedented access to the payment system now as compared to a few decades ago. Though there is much to be done to make financial system more inclusive, especially in emerging markets, central banks need to present a strong case on how the existing system is not efficient and how CBDC brings additional value towards attaining higher inclusivity.

Similarly, in terms of cross-border payments, we can question whether the inefficiency of cross border payment is a real issue or if it is borne out of government control of capital flows. Such capital controls may have been implemented for various economic and political reasons. Whether the introduction of CBDC would simply remove this obstacle is unclear. Some cross-border payments are already quite efficient than other cross-border payments. For example, a UK-based retail customer can currently send payments to Ireland-based seller with relative ease within a matter of minutes; however, if an India-based customer tries to replicate the transaction with a European partner, this is bound to be a much more costly and time-consuming task. Hence, ease of cross-border payment is not just a function of efficiency but also of policy choice. There are various economic and political reasons why governments impose financial/capital controls (e.g. for maintaining foreign currency reserves, preventing terrorism and human trafficking, stable exchange rate, etc). Where such controls are the result of political and economic choice, it is unclear how CBDC alone could be useful in enhancing efficiency of such cross-border payments. Another question remains, however, as to whether wholesale CBDC could be more beneficial for cross-border payments.

Countries have also been interested in CBDC from the viewpoint of safer and more robust payment system. While robust and safe payment system is something most would agree with, possible issues related to privacy of individuals and political weaponization also need to be taken into account. The idea of some central banks that existing cash system will be complemented and not replaced by CBDC provides some assurances that consumers will still be able to enjoy anonymity in transactions should they choose to do so.

So, taking a very broad perspective on this issue, if and when, and in whatever shape or form CBDC is adopted by an economy, it should not pose an obstacle to central banks from pursuing their objectives of attaining financial and price stability. Additionally, such CBDC, if adopted, should be conducive towards financial inclusion, efficient cross-border payments and robust/safe payment systems. An important element in the debate process should include a strong focus on the overall cost-benefit of such a new system.

4. What is being done?

As noted earlier, BIS has remained at the forefront of evaluating the case for CBDC in collaboration with various other central banks including the BoE, and European Central Bank (ECB). BIS along with these central banks had already begun to assess the potential cases for CBDC in January 2020. In October 2020, this working group presented its first report on CBDC and laid out the key requirements for such a currency. This report basically laid out the principles and core features of CBDC but refrained from recommending whether or not to issue such digital currency; this still remains the case. The core issues identified by the working group included convenience and cost effectiveness along with requirement of a clear legal framework for such currency that could be adopted at a future date. The report also noted the challenges of cross-border payment and the need for collaboration across central banks for engagement on key issues that could arise. By the end of 2021, the working group had envisioned that for CBDC to be successful, a close collaboration between public and private institutions would be a prerequisite, with public trust, innovation, privacy and financial stability remaining at the heart of the entire process.

Some central banks have taken further steps beyond mere conceptualization of CBDC. For example, China is one of the major countries to launch CBDC in limited form in 2021. Reserve Bank of India in October 2022 stated its intention of commencing limited pilot launches of both retail and wholesale version of CBDC for specific use cases. The aim of the launch is not to replace but rather complement existing payment systems with the aim of providing an additional payment method to users. Though the claim is that this will further strengthen India's digital economy and make the payment system more efficient and also contribute towards financial inclusion, it is yet to be seen how much of these expectations will materialize.

In May 2022, the governor of the French central bank stated that ECB will have a prototype of CBDC by the end of 2023 and argued that the main benefits of CBDC for central banks are likely to be accrued from wholesale markets as opposed to retail markets. Central banks of other countries like Jamaica, Nigeria, etc are also known to have launched CBDC in some form.

5. Concluding remarks

Vast majority of central banks in the world are evaluating arguments for adoption of CBDC, cautiously trying to anticipate resulting benefits and challenges. Some major central banks like those of India and China have even moved into limited implementation phase. The evaluation and limited adoption of CBDC has been necessitated by the change in payment methods by consumers combined with recent fast-paced innovations in digital payment systems.

At this stage, it is not even clear if CBDC would bring additional value to central banks. On the face of this uncertainty, perhaps it is a good sign that central banks are proactively scanning the environment, being cognizant of what is happening now and trying to suss out the complexities that lie ahead. The act of doing nothing, although an option, would be considered harmful by many. But this also does not mean that adoption of CBDC by central banks is a foregone conclusion. Just because one financial innovation is beneficial to one set of market participants does not necessarily mean that it is going to be beneficial to another set of market participants. Recent turmoil in the financial markets have taught us not just about the benefits of financial innovation but also of the dangers that lurk beneath.

Vested with the responsibility of maintaining price and financial stability in their respective economies, central banks need to be reasonably sure regarding net positive gains brought about by CDBC, not just in terms of price and financial stability but also in terms of efficient payment systems and financial inclusivity. Before this determination can take place, a long and arduous process of examination and experimentation is in order. The benefits so accrued by CBDC should be over and above what is currently afforded by the current system in place.

Considering that CBDC is mostly in consultation phase, further complexities, costs and benefits associated with it can be expected to come to the fore as central banks move deeper into the consultation and possible implementation phase. Lessons learnt from the experiences of all of the central banks that have adopted pilot versions of CBDC will no doubt be of interest to other central banks and market participants.

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