IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 13, Issue 4 Ser. II (Jul. – Aug. 2022), PP 50-55
www.iosrjournals.org

Decoding Indian Central Bank Digital Currency: A financial system transformer or just another fintech tool

Dr. Vijay Singh Dahima[1],Dr. Nupur Ojha[2], Nilesh Maurya[3]
1 *Deputy Pro Vice-Chancellor, Amity UniversityChattisgarh*
2 *Associate professor, Department of Business Administration, Manipal University Jaipur*
3 *Director, OmegaCapital*
Corresponding author mail id: mailtomaurya2705@gmail.com

Abstract:
The rise of cryptocurrencies and the potential that its underlying technology has shown especially in terms of supercharging the payments systems with transparency and speed has turned a lot of eyeballs towards it. While cryptocurrencies are marred by the fact that they are independent and can be used up by malicious characters for their benefit, their adoption especially by the young generation has forced a lot of governments across the globe to think of having their currencies in digitalized formats built on blockchain calling them as Central Bank DigitalCurrencies
Just like any form of technology does come with itself its own set of boons and banes, CBDC too is a nascent technology, or a form of money and we do not have many case studies in India or internationally as to how the world makes a difference positively and negatively. And if applied in the Indian context which has a vast population with diverse economic and educational dynamics, India could present a very strong case as to how CBDC could be implemented and benefit from. It will also be seen how these Indians "minted" CBDC.
While this new form of money can play a super beneficial role in financial literacy and banking for the unbanked, the demand of the youth for privacy and anonymity could keep them in competition with already existing cryptocurrencies like bitcoin and Ethereum.
The first section of the paper elaborates on the current CBDC landscape and its comparison with cryptocurrencies. In the second section of the paper, the advantages and disadvantages that CBDC would have as compared to the existing fiat currency and other cryptocurrencies like bitcoin and Ethereum are presented.

Date of Submission: 09-07-2022 Date of Acceptance: 25-07-2022

I. Introduction:

With the introduction of Bitcoin, almost a decade back, the central banks were faced with a new level of competition and threat posed by the new electronic cash system. The central bank-backed electronic money appeared to be the natural answer to the emerging competition (Raphael Auer, 2021). With the interest of central banks developing the digitalized fiat money, the cryptocurrency got bifurcated into two segments: the traditional cryptocurrencies based upon blockchain networks and the fiat-backed digital currency which includes central banks-backed digital currency (SERGHEI MĂRGULESCU, 2021). The digitisation of currency has a massive impact on the current economic structures and the concept of money itself will be revamped. Despite a transition from the traditional fiat money architecture, the digitalized currency also poses challenges to competition, security, and integrity. The commercial banks already have access to the central bank's digital money which is a part of the wholesale payment system. Only recently the idea of issuing digital currency to common users has gathered momentum. RBI defines CBDCs as "A CBDC is a legal tender issued by the central bank in digital form. It is the same as a fiat currency and is exchangeable one to one with the fiat currency (RBI 2021)." According to the Federal reserve CBDC is "a digital form of central bank money that is widely available to the general public ." The two pre-dominant considerations for constructing the retail CBDC network are cash-like safety and convenience to use, especially in developing countries like India where the digital financing network is still at its growthstage.

The first section of the paper presents the CBDC landscape and a brief overview of its two variants i.e. wholesale and retail CBDCs. In the second section of the paper, a comparison of CBDCs and cryptocurrencies are presented. In the third section, the advantages of adopting CBDCs in India are discussed. Understanding these aspects regarding CBDC implementation will help in identifying if it is a right fit for the Indian ecosystem and how India can make the best out of this nascenttechnology.

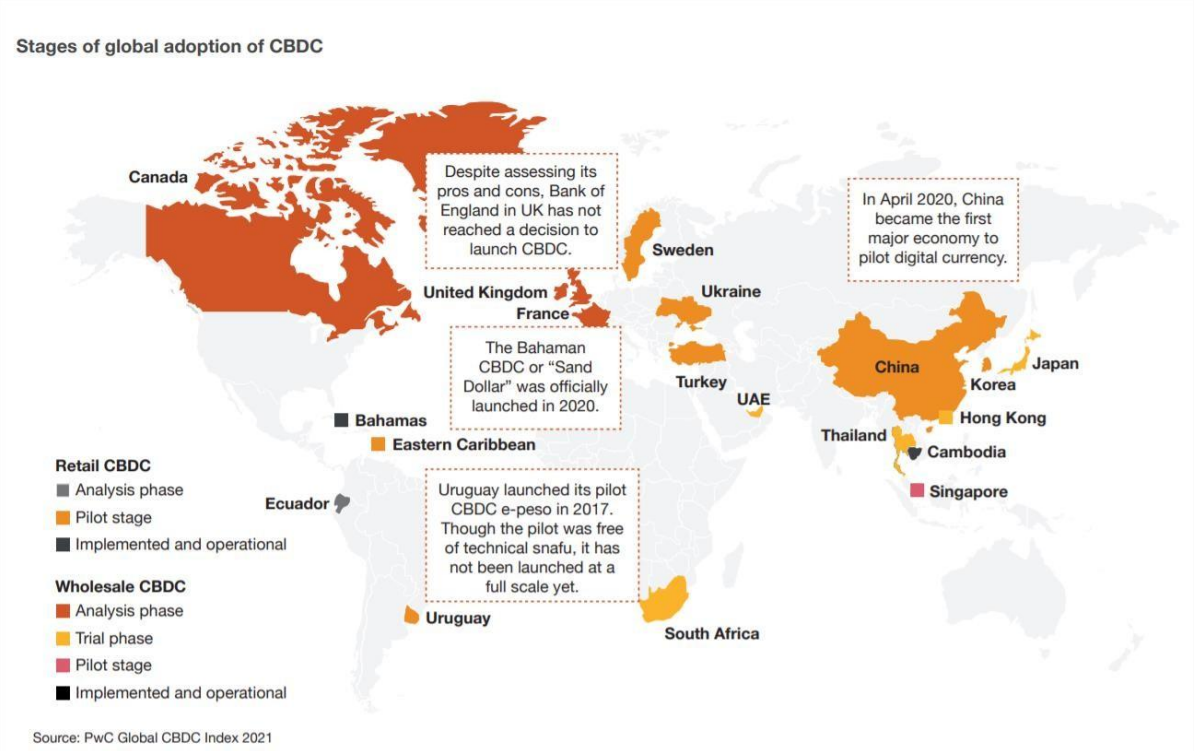
II. Review of Literature

The rapidly growing role of digitalization in the economic systems presented opportunities to reduce cost and develop new forms of money. Instant payments have been recognized as an important innovative avenue (Federal reserve, 2022). The interest of emerging economies in CBDC is more varied as compared to advanced economies (Buckley, 2021). Most of the emerging and developed economies are pursuing research in CBDC projects as an essential growth avenue leading to minimizing costs and ensuring faster settlements and transactions. According to BIS (Bank for International Settlements) around 80% of central banks are currently engaged in CBDC research and development, which exhibits the positive attitude of central banks towards the CBDCs. The less developed economies facing other pressing issues are not actively engaged in CBDC-based research and tend to rely upon the learnings of their developed counterparts for developing CBDCs.Thedecentralizedblockchain-basedcryptocurrencyanddigitalizedfiatmoneyarenotthe same in terms of regulatory backup and stability therefore cryptocurrency is not an alternativetodigitalised fiat money (Tao Zhanga, 2021). It has been realized that although central banks have to maintain monetary and financial stability, they are also required to adapt to the emerging technologies with the reduced usage of banknotes and innovative payment methods (Gürkan Bozma, 2021). It has been stated by the Bank of International settlement (BIS) that around 20% of the world population will be using CBDCs in the coming three years. The emphasis world over is to create "cashless societies". It has been observed that as compared to existing cryptocurrency transactions, the CBDC transactions would be different in terms of accountability and a guaranteed exchange equivalent in real money form (Jeong, 2021). The introduction of CBDCs would augment transferring of wealth from commercial bank deposits to CBDCs (Marc Sanchez-Roger, 2021). Factors like personal characteristics, knowledge, privacy and trust, etc are vital for generating public interest in CBDCs (Michiel Bijlsma, 2021). With the increased level of interest the world over in CBDC-based research projects, the implementation of CBDCs seems to be an obvious outcome. It has been studied that the implementation of CBDCs would be affecting the way central banks implement monetary policies as well as the bank's role in moving and storing value (Katherine Foster, 2021). The introduction of CBDCs would also entail a different kind of regulatory framework owing to CBDCs being digital and completely stored within the central banks. This leads to the creation of a voluminous amount of datawhich is monitored and tracked efficiently can assure improved market stability (Wei-Tek Tsai, 2018). Apart from the commercial and economic benefits that will result from the introduction of CBDCs, they are also seen as a means to improve the social functions of monetary systems. However, apart from all the positive effects of CBDC issuance, it also entails risks like disintermediation and liquidity risks which means that the issuance needs to be weighted appropriately in light of the pros and cons (Thitima Chucherd, 2021). In an environment where digital assets are widely used among people without any involvement of financial intermediaries, design and technology issues for CBDCs have to ensure the stability of currency values across all cross-border transactions and settlements (Nantogmah Danna, 2021). Research have been constantly suggesting to be cautious against the over-optimism regarding CBDC designs and built-in limitations to serve competing goals (Ozili, 2022). Although the existing monetary system has grown organically over some time and was not an outcome of engineered design, the further growth in the system must now be an outcome of apt design choices (Kees VAN HEE, 2021). The CBDC design choices will be basedupon decisions like whether to adopt an aaccount-basedor token-based CBDC, whether to develop a retail or wholesale CBDC and whether the CBDC would be single-tiered or two-tiered. The impact which CBDC will bear upon the economy is influenced by its availability and design choices and both of them are open to a lot of choices (Orla Ward, 2019). CBDCs are considered to fasten the current payment systems and also induce more transparency and security to it, however, its effect on end consumers, entrepreneurs, public authorities and administrators will bevarying

III. CBDCLandscape

Since the advent of cryptocurrencies and their vertical growth in popularity, it has caught the attention of a lot of governments and central banks who believe that if the technology of blockchain and cryptocurrencies can be adopted by them and harnessed under the eyes of the regulator, it could solve a lot of problems that traditional banking is still finding challenging to solve. This concept, termed Central Bank Digital Currency (CBDC), is now being explored and examined by many countries across the globe and is included in the list of key trends of payments modernization for local and cross-borderpayments.

While globally, the concept of CBDC has been under deliberation and discussion, some countries, especially the like Sweden, China, Russia, Bahamas, and even the United Nations, are progressively researching and planning to implement this nascent form of payments. To go by statistics, according to a survey conducted by the Bank of International Settlements (BIS) in 2021, 86% of all the central banks across the globe are at some stage of research on how CBDCs would affect their respective economics whereas 60 % are experimenting with the CBDC and its implementation. The survey also stated that 14% of the central banks deployed pilotprojects.



The way CBDCs are being implemented and their use cases are being developed by various countries, CBDCs could be broadly understood under two categories: Wholesale CBDC and Retail CBDC. Also, if multiple news reports and government updates are referred to, Retail CBDC projects seem to be gaining pace in emerging economies. In contrast, Wholesale CBDC projects seem to be picking up faster in advanced countries. A deep dive into both the categories of CBDC would help in better understanding of the concepts.

i. WholesaleCBDCs

Wholesale CBDCs are the ones that are touted to be used between two central banks or countries or between two financial institutions or banks in the same region. It is well debated and believed that CBDCs could help deal with risk reduction related to counterparty creditworthiness and, more commonly, liquidity. This is a use case that most bankers and regulators believe is the core for introducing CBDCs. If implemented thoughtfully, these CBDCs can make the existing financial system in the country and intercountry quicker, more secure, and more economical.

When the wholesale CBDCs are implemented in cross border trade and transactions between multiple countries, where a transaction bridge is created between the nodes run by various parties in different countries, the cross border settlements across participating banks and parties are at a more incredible speed than the existing Letter of Credit (LC) method.

ii. Retail CBDCs

This is one of the popular categories of CBDC, and the use case is more understandable since it impacts every citizen. These are the digital format of the physical fiat currencies that one uses to undertake financial transactions for day to day activities. With the underlying technology of blockchain and distributed ledger technology (DLT) at play, with CBDC, the government will have total control over the money being issued, eliminating the chances of malicious use of funds or hoarding of black money.

Another school of CBDCs states that there should be two-tiered approaches towards retail CBDCs wherein apart from the central banks, retail CBDC should be issued to intermediaries also, which is public/ private banks who then further issue it to the public in a similar manner like the fiat currencies. Those who believe in this method feel that this method forwards the counterparty risk towards the regulated intermediaries.

While the second method is getting more popular due to its similarity with the existing system, many participants from various countries also advocate a third method which is a kind of hybrid where retail CBDC is issued to intermediaries. However, in the case of the hybrid issue of CBDC, the central bank updates its ledger with the retail balance records in a timelymanner.

1. Comparison withCryptocurrencies

While CBDCs may be built on blockchain technology and use distributed ledger technology, many cryptocurrency experts and enthusiasts do not consider CBDCs as cryptocurrencies. To understand it better, it's necessary to comprehend money flow. One who has read economics or the history of money would know that existing fiat currencies issued by various countries are created by their respective central banks. The assets and liabilities are held on the banks' books and individual clients. Central banks play a pivotal role in this process through the commercial banks' reserves to maintain and manage the flow-through rate adjustments and open market operations. Still, commercial banks create the lion's share of the moneysupply.

With this model in place and only conversation of physical money (papers and metal coins) to digital form, CBDCs are not cryptocurrencies, even though they are built on blockchain. Also, while cryptocurrencies are decentralized, CBDCs would be completely centralized. Cryptocurrencies also offer the anonymous feature which will give every insight to the central banks to know exactly who is the holder of these digital versions of fiat currencies. Also, in some proposals discussed globally, CBDCs would likely run on different technological platforms (although the use of blockchain is not impossible) compared to cryptocurrencies which are generally created using blockchain.

2. Advantages to India by adoptingCBDCs

CBDCs, if planned and implemented well, can be tools that can support public policy objectives that the government lays down as they can provide a safe, secure, and resilient means of payment. CBDCs can give the government and regulators an efficient, inclusive, and innovative mode of payments if the same is monitored correctly and mitigating the risksefficiently.

The report on currency and finance released by the Reserve Bank of India (RBI) also puts a couple of uses cases that the central bank has in mind, which includes but is not limited to, using CBDCs to monitor transactions and also using them as 'helicopter money', so that it can be directly distributed amongst the needful during times of emergencies without beauracratic hurdles, leakages and yes at speed. The report has also stated how CBDCs could be a potential distribution tool when it comes to subsidy and aid, which could strengthen the public distribution systems.

Beyond this, there are general advantages of implementing CBDC, like facilitating the money regulator in aspects like anti-money laundering (AML) and combating financial terrorism (CFT). Also, it would become easy to track and work on high-value transactions as distributed ledger technology would eliminate the need for postreconciliation.

On the basis of current discussions and insights, the following could be stated as the potential advantages of CBDCs:

1. Direct Benefit Transfer- Programmable Payments: Making CBDC fit-for-purpose money and using it for social benefit and other targeted payments could do wonders for a country like India, which is not only large and diverse but also has a vast beuaracratic framework that causes constant delays in approvals. Suppose one takes an example, a farm-level subsidy or LPG subsidy that the government of India currently distributes. In that case, the waits for these basics could be shorted to a large extent. A CBDC that can be pre-programmed and transferred could be an easy way to share and track the payments making it quicker and auditable.

Other departments can also use programmable CBDC payments in the government, especially for their employees' allowances and perquisite payments, including fuel and utility bills. Another use case could be that government may introduce programmable payments in industrial supply chain ecosystems. In this case, digital CBDC, which is pre-programmed, could only be used for specific purposes such as paying interstate taxes again avoiding leakages

End benefit: The misuse and pilferage of social benefits and other aid and subsidies could be reduced, and assurance of correct usage of money transferred could be tracked, traced, and audited

2. International Trade and ForexRemittances

The current International Trade and Foreign remittances are severely time-consuming because of the multiple laws, rules, paperwork, and regulators involved. Hence, a CBDC with an international collaboration or fungibility, especially with countries with significant international trade or remittances, could help speed the process and help check on black money or malicious money movements. This infrastructure would be a game-changer if interportability or conversion is incorporated across jurisdictions and a quick transfer is successfully implemented. In such an environment, CBDC remittances could happen in real- time, rapidly reducing the time required for the payment to be received by the intended recipient.

End Benefit: Almost real-time remittances using CBDCs could make international trade more swift and reduce the time for both retail and corporate cross bordertransactions

3. Retail Payments

CBDCs could play a key role in facilitating retail payment. With the internet now pretty much accessible to everyone, Retail CBDC issued by the central bank (direct method) or commercial banks (indirect method)would be held in digital wallets by the users. This would facilitatequickandtraceablepaymentsbetweenConsumertoConsumer,Businessto Business, and Consumer to business. As CBDCs allows instant transaction settlement, they lower the risk of clearing and settling retail payments, ultimately reducing counterparty risk. CBDC's underlying technology of distributed ledger technology(DLT) and blockchain, along with the currency's digital nature, would place it superior to existing digital payments modes that currently exist. Its undisputable nature combined with ownership record transfers stored on the blockchain and distributed ledgers can provide indisputable proof of ownership.

End Benefit: Alternative secure payments which are quicker and less disputable are instantly settled, and lower risk in the clearing of payments could make the whole payment system robust

4. MSME Lending: Digital CBDC could facilitate Instant lending to micro, small and medium enterprises (MSMEs) in India. . As more MSMEs start using CBDCs in their operations, banks and financial institutions can draw up a more accurate borrower risk profile which could probably strengthen the KYC screening and reduce the change of defaulting. This can be used to swiftly meet MSME's short-term and long-term financing requirements without much paperwork and hassle. CBDC's traceability is another critical feature that can help MSMEs prove their creditworthiness and repayment history. Moreover, it leads to transparency and accountability and can be resilient to malicious activity likeforgery.

End benefit: Accurate risk and repayment profile of borrowers could help banks affirm their decisions leading to faster disbursement of loans and accurate tracking of loan usage.

IV. Conclusion

The rise in interest in cryptocurrencies and the benefits they bring sans the disadvantage has drawn the attention of a lot of Central Banks across the globe to consider CBDCs and especially in terms of a country like India banks and regulators believe that CBDC could play a significant role in public policy objectives, quicker and optimum distribution of aid and subsidy, maintaining economic stability and providing people with a safe and reliable paymentsystem

While each country has its say and opinion on adopting CBDC, few countries are conducting research and testing iterations to set up their technology and issue CBDCs in a timely and phased manner. Others are galloping towards deploying and bringing CBDC to use as early as possible. As far as India is concerned, while a lot still needs to be done, there are ongoing discussions at various levels in the Reserve bank of India and in the finance ministry where efforts are being made to evaluate how and when CBDC can be bough to use and implemented thoroughly. As there is a regulation in place andtheorderisset,thereisasuretythatitwillunlocksignificantopportunitiesfortheecosystem players to come up with a variety of services that make it swifter, more accessible, and appropriate for people to transact and make CBDC based payments for various use cases and requirements.

References

[1]. Buckley, A. N. (2021). CENTRAL BANK DIGITAL CURRENCIES: A POTENTIAL RESPONSE TO THE FINANCIAL INCLUSION CHALLENGES OF THE PACIFIC. ASIAN DEVELOPMENT BANK.
[2]. Gürkan Bozma, M. A. (2021). An Evaluation of Central Bank Digital Currency. The Journal of International Scientific Researches.
[3]. Jeong, H. J. (2021). Blockchain Implementation Method for Interoperability. Future Internet .
[4]. Katherine Foster, S. B. (2021). Digital currencies and CBDC impacts on least developed countries (LDCs). UN Capital develpoment fund.
[5]. Kees VAN HEE, J. W. (2021). A new digital currency system. CENTRAL EUROPEAN REVIEW OF ECONOMICS AND MANAGEMEN.
[6]. Marc Sanchez-Roger, E. P.-A. (2021). Digital Bank Runs: A Deep Neural Network Approach.
[7]. Sustainability .
[8]. Michiel Bijlsma, C. v. (2021). What triggers consumer adoption of CBDC? DNB working paper no. 709
[9]. .
[10]. Nantogmah Danna, S. V. (2021). Central Banks Digital Currencies (CBDCs) in Africa: Why CBDCs could be a 'disaster' for the continent . Reserach Journal of Finance and Accounting .
[11]. Orla Ward, S. R. (2019). Understanding Central Bank Digital Currencies (CBDC). Institute and Faculty of Actuaries .
[12]. Ozili, P. K. (2022). Central bank digital currency research around the World: a review of literature.
[13]. Journal of Money Laundering Control.
[14]. Raphael Auer, J. F. (2021). Central bank digital currencies: motives, economic implications and the research frontier. BIS Workingpapers.
[15]. Reserve, F. (2022). Money and Payments: The U.S.Dollar in the Age of Digital Transformation. BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM.
[16]. SERGHEIMĂRGULESCU,E.M.(2021).TraditionalCryptocurrenciesAndFiat-BackedDigital Currencies. Global EconomicObserver.
[17]. Tao Zhanga, Z. H. (2021). Blockchain and central bank digital currency. Information & Communications Technology Express.

[18]. Thitima Chucherd, C. M. (2021). Monetary and Financial Perspectives on Retail CBDC in the Thai Context Acknowledgements. PUEY UNGPHAKORN Institute for economic research.
[19]. Wei-Tek Tsai, Z. Z. (2018). A Multi-Chain Model for CBDC. 2018 5th International Conference on Dependable Systems and Their Applications (DSA), (pp. 25-34).
[20]. Sankar T (2021). Central Bank Digital Currency – Is This the Future of Money. Retrieved from https://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/CBDC22072021414F2690E7764E13BFD41DF6E50A E0AE.PDF

Dr. Vijay Singh Dahima, et. al. "Decoding Indian Central Bank Digital Currency: A financial system transformer or just another fintech tool." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 13(4), 2022, pp. 50-55.