



A SURVIVAL & DIGITALIZATION OF CBDC IN INDIA: A CRITICAL EVALUATION

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Abstract:

This paper provides a complete overview to readers about the topic of Central Bank Digital Currencies (CBDC). And gives idea about that introduction of CBDC would affect the country economy, banking sector, financial stability, Privacy of citizens or users and monetary policy in a developing nation India. In this paper, I have mentioned about CBDC Indian centralized E-rupee and right here I have complete analysed examine approximately that Indian E-Rupee whole operating characteristics and features, studied approximately its benefit and risk.

Following Points giving idea about and the reasons why a Central Bank (CB) may want to introduce a CBDC. The vast majority of countries central banks are exploring CBDC (Digital Currency) Nowadays between countries and people debate is being Popularise about CBDC benefits and risk.

In the chance of Many Central banks issuing digital Currency (CBDC) straight away raises the query of how this new form of money ought to co-exist and engage with existing sorts of money. Will it be capable of compete with already existing online payments Tool? According to this research paper government has launched Digital currency because government intends to reduce the extent use of Cryptocurrency in an economy. This is the completely illusion that CBDC is a Game changer in Payment sector. When the country fails to outlaw crypto currency, questioned if we can't defeat them, should we join them? In this paper it is

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determined that the economy will experience inflation as a result of the introduction of the CBDC using the Fisher Quantity Theory of Money. Further, more use of CBDC may affect financial stability through influencing monetary policy. Additionally, the government is restricting the cash transfer, holding of cash Limited UPI payments in order to strengthen the CBDC and safeguard the Monopoly of central bank currency. Digital e-rupee is having less pros and more cons. The introduction of the CBDC may give the impression that the Government does not only want to monopolize centralized currency is now trying to monopolize medium of exchange of centralised currency also. With Despite ongoing research and sporadic pilots, Central Banks have been reluctant to make a CBDC available to the general public. Would it be advantageous?



Keywords: CBDC (central bank digital currency); cb (central banks); e-rupee (electronic rupee); digital e-rupee; Digitalisation; Velocity of Money

Introduction:

In recent year the environment surrounding India's payment and settlement system has gone through various changes. If we talk from micro economics consumer demanding for more convenient payment and settlement service on the other side; supply side many private agencies and government introducing different kinds of

Mode of payment. A central bank digital currency backed by full faith and credit of the Indian government and colloquially referred to as digital rupee.

CBDC in India:

CBDC would carry the same status as a physical rupee representing "a digital liability of a central bank that is widely available to the general public. On 1st December 2022 RBI has launched its own digital Currency. Digital E-rupee is the digital version of the Indian rupee. Like cash, Digital E-Rupee is issued by the central bank of India. Digital E-rupee allows greater flexibility and accessibility for residents that want to participate in financial services via either a mobile phone application or using a physical payment card to access a digital wallet. A government panel in India recommended banning all private cryptocurrencies in 2019 due to the introduction of cryptocurrency it was urgent for the India to create a new form of digital currency that People are able to trust that. And urged the government to take the launch of an official CBDC into consideration. In February 2021, the Reserve Bank of India (RBI) released a report describing the pros and cons of a CBDC. As the underlying technology is still being developed, RBI Governor

Shri Shaktikanta Das stated in March 2021 that "We are exploring ways for a clear, safe, and legally certain settlement finality, which is most crucial for a secure and efficient payment system. "The RBI declared in July 2021 that it was considering a number of pilot projects for a "phased" rollout of a CBDC in the future. The "Digital Rupee," which will be supported by the RBI, will be introduced by 2022–2023, according to a statement made by India's Finance Minister Nirmala Sitharaman in early 2022. The Reserve Bank of India published a concept note in October 2022 outlining the goals, risks, and features of the Digital Rupee project. On November 1, 2022, the RBI and nine national banks introduced a wholesale CBDC pilot program. On December 1, a retail pilot program was launched. (source: Reserve Bank of India (rbi.org.in))

Decentralized cryptocurrencies pose a threat to the government:

The threat of cryptocurrency to India and other nations can therefore be explained by the fact that governments worldwide want to reduce the market for private decentralized currency and cannot exert monetary control over other decentralized currencies. As we can see, one of the most significant changes in the financial world over the past few years has been the rise in popularity of cryptocurrencies. Even Facebook have launched their own Cryptocurrency Diem (formally known as Libra). Prior to the project being acquired in January 2022, only rudimentary experimental code had been made public; the launch was originally scheduled for 2020. Grant Wilson asserts that the central bank



realized they were in fact under threat. The central banks of numerous nations are concerned that the widespread use of this unregulated cryptocurrency could reduce their ability to regulate the financial system. At first, the government outright forbade cryptocurrencies. Because there is a risk associated with cryptocurrencies, and because they are a decentralized form of money, there is still a great deal of uncertainty surrounding their creation, use, and settlement and this risk is going to be increase more if cryptocurrency is more widely accepted.

The government is also involved in this digital type of currency to protect the monopoly of banknotes; However, this monopoly has been reduced with the introduction of cryptocurrencies and any other private online mode of transfer payments. If it is going to be increased and the majority of people will use this decentralized money for investment purposes, and for making daily transactions so it will reduce the usage of physical case or fiat money. Central banks are looking with CBDC.in a world where more and more consumers and businesses prefer the convenience of electronic payments, to maintain the usability of central bank money. CBDC may serve as a competitive currency in the age of cryptocurrency, online transactions, and digital payments.

According to Atlantic Council's CBDC Tracker as of December 2022:

Atlantic council is a CBDC tracker according to Atlantic council's tracker India is currently operating in pilot mode. Central bank digital currencies have been introduced in 11 nations. Launched signifies that all country residents are now able to use the digital currency.17 nations are currently operating in pilot mode.

CBDC a type of official cryptocurrency four cities in this pilot project Mumbai, Delhi, Bangalore, Bhubaneswar state bank of India, ICICI bank, IDFC first bank, yes bank will be engaged in regulated introduction of digital currency.

Research methodology:

I have noted some unfavourable effects of CBDC implementation in the nation, discovered some room for CBDC function, tried to provide in-depth information about CBDC currency, and attempted to make connection between CBDC and some macroeconomics concepts. The study is supported by secondary data gathered from Books, journals, and articles.

Objectives

The present study is undertaken with the following objectives:

1. To provide an in-depth analysis of digital E-rupee.
2. To explain the connection between CBDC and the inflation.
3. To understand how CBDC will affect the Velocity of money

Review of Literature:

Priyadarshini, D., & Kar, S. (2021). According to this research paper Inadequate CBDC design could result in unfavourable bank disintermediation and crowd out private payment services and applications. There are many arguments and discussions about whether or not banks will become less intermediary as a result of the introduction of CBDC because everyone wants their deposits to be in safe accounts. Since CBDC is backed by the central bank, those who are not risk takers will deposit their money there, which will decrease deposits in commercial banks and cause those banks



to run out of money. According to monetary policy, when banks have insufficient funds, therefore, it will raise borrowing rates for investors and households, which will cause financial instability due to a lack of loans and a reduction in internal investment, which will have a negative impact on the nation's GDP and employment.

In this Paper, I looked over. Banks don't just offer transaction services, though. It facilitates the creation of employment opportunities, offer a facility for demand withdrawals, gold loans, and maintain financial stability in economics. It is also examined whether or not people want their deposits to be held in secure circumstances. So, in order to draw attention to themselves, they also want to earn interest on the money that CBDC hasn't yet said it will pay interest on deposit. Would they'll transfer their funds from their Commercial bank account to their CBDC wallet? Answer is "no". So, it is clear that after the implementation of the CBDC, banks will have a significant role in intermediation. Now, if the government exercises restraint, what will happen? It will offer a nominal interest rate on the CBDC deposit. Paying interest on CBDC might well enhance the competitiveness of the banking system. Depositors in other, less competitive depository institutions would have the option to transfer money into CBDC accounts, while depository institutions that practice customer-focused "relationship banking" would not be impacted. The government can set the price of something by programming digital currencies. For instance, a loan to buy goods and services that the government believes should be purchased will be less expensive because interest rates will be much lower. The central bank will also be able to program

what can be bought with a particular digital currency, allowing it to choose what can be invested in with that currency and what cannot, as well as what can be purchased and what should not.

Central Bank Digital Currency (CBDC): Critical Issues and the Indian Perspective. (2022, August 10). YouTube. Retrieved Jan 29, 2023, from <https://iegindia.org/upload/publication/Workpap/wp444.pdf>

Starting the CBDC is a removal of the citizens' right to privacy.

Bordo, M., & Levin, A. (n.d.). I read about various risks and challenges in this paper, as well as the connection between financial inclusion and CBDC. Although this relationship was discussed, there was no mention of how CBDC's introduction in India will have affect on citizens' right to privacy.

The Right to Privacy is also recognized as a basic human right under article 12 of the universal declaration of Human Rights Act 1948.

Cryptocurrencies are Based on DLT and blockchain technology, any Decentralized cryptocurrencies won't be controlled or regulated by banks or the CBDC. People are investing money and using cryptocurrencies more frequently than they are saving money or keeping bank deposits because of one reason Why should the government control finances or regulated citizens money when the earner own them and why should it be privy to their financial situation? But in essence, CBDC is a cryptocurrency substitute that is introduced by the RBI; however, unlike cryptocurrencies, it lacks consumer privacy because it is a centralized legal tender. As a result, the government will be able to track every transaction made with CBDC, including where a user spends the currency, how much money



they have in their possession, and from where they receive it. This will effectively eliminate or significantly reduce user privacy. Government will have a record of every payment; for instance, if it sends subsidies to customers' digital wallets, it will know exactly where those funds are going because it will have all the relevant information. As a result, fewer people will switch from cryptocurrencies to digital currency because they are risk-averse and value their privacy. Yes, the fact that cryptocurrencies are built on the blockchain technology means that there are fewer opportunities for fraud. However, it also jeopardizes consumer privacy because if the government knows how much people earn, it will base its monetary policy decisions on that information. I believe we are underestimating the amount of privacy we will lose once CBDC is implemented. This is not for or against of CBDC; rather, it is an appeal that if the government is bringing in something novel in the era of digitalization, it should not eliminate the right to privacy of the people.

CBDC in India with reference to Fisher Quantity Theory of Money:

The transaction quantitative theory of money supply was provided by the American economist Irving Fisher in his book – The purchasing power of money (1911) according to him others things remaining unchanged, any change in the quantity of money would change the price level. The relationship has been presented by the following equation, widely known as the Fisher's equation of exchange:

$$MV=PT \quad (1)$$

Which explains the connection between the amount of money supply (M) and the amount of goods and

services produced in the economy (T). The velocity of money circulation is V.

The equation can be derived.

$$P = MV / T \text{ (from the above equation.)} \quad (2)$$

According to the Fisher Equation of Exchange, the amount of money available and the speed at which it is exchanged for the goods and services produced by an economy will determine price the most. where v is also constant and T stays the same because goods and services will increase in long run.

As mentioned earlier, different monetary analysts have different opinions on how the money supply is made up. The traditional approach and the modern approach. After the introduction of CBDC two types of currency will be in the market M1 and M1^ both are legal tender so it will be considered as a traditional approach only. The transition from physical cash payments to digital e-Rupee or CBDC will take time, and in the short term, the country will have two different currencies coexisting, artificially increasing the money supply. People will now have money in their CBDC wallets, physical cash, and bank accounts;

Digital E-Rupee in Urban areas:

Now that we have two forms of legal tender, both of which are backed by the RBI and have the characteristics of ease of transaction, we can see that, as Fisher predicted in his theory, the velocity of the two forms of money will differ. There will be an artificial increase in the supply of money in India's urban and open economies as a result of the introduction of the CBDC.

This will result in the formula becoming.

(M^ is CBDC Digital E-Rupee)

$$(M \times V) + (M^ \times V^) = P \times \bar{T} \quad (3)$$



$$P = [(M \times V) + (M^{\wedge} \times V^{\wedge})] / \bar{T} \quad (4)$$

Prices will rise with an increase in money supply and velocity while T will remain constant. CBDC is based on digital technology has a faster circulation. If the transaction process of the CBDC is convenient and efficient velocity of physical case will reduce and velocity of CBDC currency will increase. (with references to the factor affecting velocity of circulation of money) The greater the frequency of cash transaction in the economy the higher will be the velocity of circulation.

$$(M \uparrow \times V \downarrow) + (M^{\wedge} \uparrow \times V^{\wedge} \uparrow) = P \uparrow \times \bar{T} \quad (5)$$

The Urban and open economy will experience inflation with the introduction of CBDC and because of the higher rate of circulation of CBDC.

Digital E-Rupee in Rural Areas:

After the introduction of CBDC Fisher equation becomes

$$P = [(M \times V) + (M^{\wedge} \times V^{\wedge})] / \bar{T} \quad (6)$$

Because of lack of technology, illiteracy, and access to mobile phones, low network issue, lack of banking habits people in rural areas will find it difficult to switch from physical fiat money to CBDC, so the rate of money circulation will remain constant. The overall percentage of expenditure on social service as percentage to total is 26.6% and from that expenditure on education is 9.7% (source: Reserve bank of India, Budget document a state government)

$$[(M \uparrow \times V + M^{\wedge} \uparrow \times V^{\wedge})] = P \uparrow \times \bar{T} \quad (7)$$

It is possible that residents will be able to convert fiat currency to digital currency after the introduction of CBDC.

Although rural areas are less affected by the CBDC than urban areas are. As a result, other factors stay the same because there are more resources available

for purchase than there are resources that can be purchased, increasing price instability. The amount of money in circulation influences price growth or inflation. The market will experience inflation with the introduction of CBDC, and since the country is already experiencing inflation, this is not the ideal time to do so.

Gap Findings:

1. Effect of CBDC on citizens privacy.
2. Prediction of interaction of CBDC with financial markets.
3. Co-relation between CBDC and inflation in urban and rural areas.

Conclusion:

The Indian government almost spent 5,000 crore rupees just to print currency notes in the years 2020–21, but this expense can be reduced as much as possible by introducing CBDC, demonstrating that CBDC is a type of digital currency. The ongoing pandemic has provided additional motivation for central bankers and decision makers to consider digital payment alternatives to cash. According to the CBDC's features, India has launched both a retail and a pilot cryptocurrency project that is backed by central banks. Digital E-rupee has the advantage of not being susceptible to theft or tearing while also being effective and less expensive. The government has also set a daily transfer cap in order to compete with UPI payments and other forms of digital payment. The NPCI guidelines state that a person may pay up to Rs.1 lakh through UPI per day. Smaller banks like Canara Bank only permit Rs 25,000 in UPI transactions, while larger banks like SBI have set the daily limit at Rs 100,000. And the government also set a limit on UPI transactions. Government officials decided on a daily transfer



limit of Rs.2,00000 for digital currency wallets in comparison to the CBDC payment cap. So, by limiting the transaction, we can see that the government is promoting digital E-rupee ahead of all other digital payment. According to this study, the economy will undergo significant changes if the government decides to legalize CBDC. The growth of CBDC, which is a centralized currency, will have a significant long-term impact on the gold market. It will be very difficult for those who are financially corrupt to keep their black money in the form of cash because CBDC is trackable by nature and has the ability to track all payments and transactions. As a result, with CBDC's assistance, it is simple to track the black money market and reduce money laundering.

Therefore, corrupted people will seek out other means of preserving their illicit funds, and the best form of investment for them to make is gold. Therefore, if the demand for gold as an investment rises, gold market inflation will rise along with it. Before making CBDC available to users in India, the government should add a few more features. Additionally, it needs to be updated to reflect the state of the economy. Wherever the government talks about lowering the cost of printing money and distribution through the introduction and widespread use of CBDC, Cost won't be zero in this case. Electricity consumption is high because computers are needed to run the digital e-rupee payment system around-the-clock. The government must overcome numerous obstacles. The government made the right choice in taking this action to safeguard our centralized currency, but now is not the right time to introduce CBDC because doing so will have a negative impact on the

economy by driving up inflation. Where inflation is already present in society.

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