

Review Of Digital Currency Of India

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ABSTRACT

The burgeoning realm of financial technologies, marked by the emergence of cryptocurrencies, has captured the attention of central banks worldwide. A prominent trend is the exploration of the feasibility, advantages, and potential repercussions of introducing national digital currencies. India, with its unique juxtaposition of a rapidly expanding digital infrastructure and a significant proportion of the population remaining underbanked, presents a compelling case for such an evolution. The Reserve Bank of India's (RBI) proposition of a Central Bank Digital Currency (CBDC) is not merely a response to global digital currency trends but could be a transformative element in India's financial and economic landscape. Historically, the RBI has maintained a stance of caution towards decentralized cryptocurrencies, citing concerns over security, monetary control, and potential facilitation of illicit activities. However, the pivot towards considering a CBDC indicates a nuanced differentiation between decentralized cryptocurrencies and a potential state-backed digital currency. The introduction of an RBI-backed CBDC could democratize financial access, especially for remote and underprivileged segments, by integrating them into the formal economy, enhancing transaction transparency, and potentially offering a more efficient monetary policy tool. Yet, this venture is not without challenges. Technological infrastructural needs, cybersecurity threats, potential effects on traditional banking systems, and broader economic implications need meticulous evaluation. This paper provides an analysis of India's unique financial challenges, recent policy evolutions, and global digital currency precedents.

Keywords: Central Bank Digital Currency (CBDC), Reserve Bank of India (RBI), Financial inclusion, Digital finance, Cryptocurrencies, Indian financial ecosystem

Introduction:

The digitalization of finance is a transformative trend observed globally. Central banks worldwide are exploring the potential of digital currencies as a means to augment their financial ecosystems, improve monetary policy transmission, and ensure more efficient payment systems (Chiu & Koepl, 2017). India, with its rapidly evolving digital infrastructure and a push for financial inclusion, stands at a unique crossroads. The Reserve Bank of India (RBI),

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India's central monetary authority, has historically exhibited caution towards cryptocurrencies (BIS, 2018). However, recognizing the potential benefits and the global shift towards central bank digital currencies (CBDCs), the RBI has shown interest in introducing its own CBDC (Agur, Ari, & Dell'Ariccia, 2020).

The introduction of a CBDC in India could have far-reaching implications. Given the nation's vast population, a significant segment of which remains unbanked or underbanked, the potential for a CBDC to revolutionize financial access is immense (Chapman et al., 2020). Furthermore, India's recent policy changes, including the landmark demonetization in 2016 and the push for a Digital India, indicate a conducive environment for the exploration and potential adoption of a CBDC (Prasad, 2018). However, this venture is not devoid of challenges, including technological infrastructure requirements, security concerns, and potential economic volatilities (Auer, Cornelli, & Frost, 2020). This review seeks to provide a comprehensive understanding of the potential economic implications of the RBI's CBDC initiative set against the backdrop of India's unique financial ecosystem.

Literature Review

The rapid evolution of the financial sector, driven by technological advancements, has spurred significant academic and policy interest in the implications and future of money. The emergence of cryptocurrencies, most notably Bitcoin, has particularly challenged traditional conceptions of currency and the role of central banks in monetary systems (Nakamoto, 2008). At the nexus of this evolution lies the concept of Central Bank Digital Currencies (CBDCs), representing a fusion of conventional monetary policy with digital innovation (Bordo & Levin, 2017).

India, with its diverse financial landscape, has been at the forefront of these discussions, especially given the Reserve Bank of India's (RBI) nuanced stance on cryptocurrencies and digital financial systems. Historically, India has shown robust adaptability to technological advancements in its banking sector, with widespread adoption trends seen in mobile banking, e-wallets, and the revolutionary Unified Payments Interface (UPI) system (Kumar, 2019). However, the realm of cryptocurrencies and CBDCs presents a more complex challenge. The RBI's caution towards cryptocurrencies has been evident, largely grounded in concerns related to financial stability, potential for illicit transactions, and the security of consumers' financial assets (RBI, 2018). This perspective has been influenced by India's unique experiences, notably the 2016 demonetization initiative, underscoring the imperatives of financial stability and trust (Chapman et al., 2020).

A comprehensive analysis by Garg et al. (2019) illuminated the potential of CBDCs in streamlining the financial infrastructure, reducing transaction costs, ensuring more efficient cross-border payments, and enhancing financial inclusion. This last point is particularly salient for India, where a significant portion of the rural population remains unbanked, and financial inclusivity is a policy priority (Patel, 2021).

From an international standpoint, ongoing initiatives, like the People's Bank of China's pilot digital yuan program and the European Central Bank's considerations of a digital euro, offer valuable lessons. While these models vary considerably in their design and implementation strategies, they provide insights into potential risks, benefits, and best practices in CBDC development and deployment (Fan, 2020; Bindseil & Panetta, 2020).

Yet, the Indian context demands a distinctive approach. As Prasad (2018) posits, the unique characteristics of each nation's financial and socio-cultural systems necessitate tailored

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strategies for CBDC development and introduction. Considering India's diverse population, regional economic disparities, and the mix of urban and rural economies, the challenges are manifold.

Additionally, the potential of CBDCs in India extends beyond pure economic considerations. The socio-cultural implications, especially in a country with a rich tapestry of traditions and customs influencing financial behaviors, cannot be overlooked. Varma (2022) underscores this point, suggesting that the introduction of CBDCs must be harmonized with the socio-cultural milieu, ensuring that technology complements rather than disrupts traditional economic practices.

In conclusion, the journey towards understanding and potentially implementing CBDCs in India is multifaceted. While the promise of enhanced efficiency, security, and inclusivity is alluring, the challenges, both economic and socio-cultural, demand thorough research and strategic planning.

RESEARCH QUESTION

Given the extensive literature on the potential and challenges of Central Bank Digital Currencies (CBDCs) globally, an intriguing question arises in the context of India that is How does India's distinctive socio-cultural and economic backdrop shape the conceptualization, receptivity, and execution of CBDCs, and what might be the resulting implications for its financial inclusion, stability, and traditional economic mechanisms? This question is further nuanced by India's unique financial endeavors in the past, such as demonetization and the widespread adoption of the UPI system. These facets offer a multifaceted lens through which the intersection of India's conventional financial behaviors and the prospective inception of a CBDC can be examined. Delving deeper, it is pivotal to understand the challenges and opportunities the CBDC might pose in advancing financial inclusivity across diverse urban and rural terrains in India. Additionally, in an era marked by swift technological progress, the repercussions of CBDCs on the solidity and security of India's financial framework demand rigorous scrutiny.

Evolution of Digital Currencies Globally

The concept of digital currencies is not novel, with its roots traceable to the introduction of Bitcoin in 2009 by the pseudonymous entity, Satoshi Nakamoto (Nakamoto, 2008). Bitcoin emerged as a disruptive force, aiming to offer a decentralized transaction system devoid of central oversight. Since its inception, the landscape of digital currencies has evolved drastically. By 2021, over 4,000 cryptocurrencies were in existence, exemplifying the growing interest and investment in this domain (CoinMarketCap, 2021).

However, beyond decentralized cryptocurrencies, another transformative evolution has been observed in the form of Central Bank Digital Currencies (CBDCs). While Bitcoin and other cryptocurrencies operate without centralized control, CBDCs are the exact opposite, being state-sanctioned and centralized digital representations of a nation's traditional money. The motivation for these CBDCs primarily stems from the need for a stable and secure digital currency, safeguarded by state authority (Chapman et al., 2017).

The global landscape of CBDCs showcases a varied picture. Some nations, such as Sweden, are making rapid strides with projects like the e-krona, reflecting a response to the decreasing usage of cash in the country (Sveriges Riksbank, 2020). On the other end of the spectrum is China, which has already begun real-world trials of its Digital Yuan (Mu, 2020). Such developments underscore the potential and urgency of CBDCs in reshaping the global financial infrastructure.

The Reserve Bank of India (RBI) has maintained a cautious and evolving stance on digital currencies. Historically, the RBI has expressed reservations about decentralized cryptocurrencies. In 2018, it explicitly prohibited financial entities regulated by it from facilitating transactions involving cryptocurrencies (RBI, 2018). The concerns then were manifold: the potential for financial crimes, the absence of an underlying asset, price volatility, and risks to consumer protection (BIS, 2018).

However, as global trends shifted towards the exploration and adoption of CBDCs, the RBI too began its pilot. Recognizing the potential benefits and the changing landscape of digital currencies, recent communications from the RBI indicate an interest in developing an indigenous CBDC (Das, 2020). The motivation here is distinct: while the RBI remains wary of decentralized cryptocurrencies, the potential of a centralized, state-sanctioned digital currency is being seen in a different light, especially as a tool to bolster digital transactions and potentially reduce the costs associated with paper currency (Banerjee, 2020).

The journey of the RBI, from stringent opposition to cautious exploration, mirrors the global evolution of digital currencies. As nations grapple with the challenges and opportunities of this digital financial frontier, central banks, including the RBI, find themselves at the heart of this transformative change.

Potential Impact on India's Financial System

The introduction of a Central Bank Digital Currency (CBDC) by the Reserve Bank of India (RBI) could herald significant transformations within India's financial system. First, it may offer a more streamlined and efficient payment mechanism. A study by Bech et al. (2020) posits that CBDCs can reduce transaction times and costs, particularly in cross-border transactions. This could be crucial for India, which has a burgeoning digital economy and a sizable diaspora sending remittances home.

Moreover, a CBDC might help extend the reach of the formal banking system. India has made significant strides in financial inclusion in recent years, especially with initiatives like the Jan Dhan Yojana. A CBDC, with its potential for easy access and use, could further this agenda, reaching the still unbanked parts of the population (Kumari & Soriya, 2019).

However, it's not without potential challenges. An immediate concern would be the impact on commercial banks. With citizens having direct access to RBI's digital currency, the intermediary role of banks might diminish, potentially affecting their deposit bases and lending capacities (Bindra & Singh, 2021). Furthermore, cybersecurity is another domain that requires robust infrastructure and regulatory oversight, given the risks associated with digital platforms (Chakraborty & Sharma, 2020).

In essence, while the CBDC holds the promise of reshaping India's financial landscape, making it more inclusive and efficient, it also necessitates strong regulatory frameworks, technological infrastructure, and continuous oversight to ensure its successful and safe implementation.

The digitization of currency introduces a fresh set of challenges in the realm of security. Digital platforms, while providing convenience and efficiency, are susceptible to cyber threats, including hacking, phishing, and other malicious activities (Kahn et al., 2018). Given that a CBDC would be state-sanctioned and widely adopted, any potential vulnerability could have systemic implications, affecting trust in the currency and potentially causing economic disruptions.

However, the RBI and other global central banks are well aware of these risks. Solutions are being explored in the form of advanced cryptographic techniques, secure hardware infrastructures, and multi-layered authentication processes to safeguard transactions and user

data (Auer & Böhme, 2020). For India, with its vast user base and diverse digital literacy levels, ensuring ease of use without compromising on security will be a delicate balance to strike (Pandey & Malik, 2021).

Furthermore, continuous monitoring, regular system upgrades, and public awareness campaigns about potential threats and safe practices will be vital. Engaging with global best practices, learning from the experiences of other nations, and fostering collaborations with tech giants could also provide valuable insights and solutions in fortifying the security framework around India's potential CBDC.

Monetary Policy and Financial Stability

The adoption of a Central Bank Digital Currency (CBDC) by the Reserve Bank of India (RBI) could have far-reaching implications on the country's monetary policy and its overarching financial stability. One of the most significant impacts would be on the execution and transmission of monetary policy. CBDCs, being a direct liability of the central bank, might offer the RBI an additional tool for implementing policy decisions, particularly in the realm of interest rates (Meaning et al., 2018). This could potentially enhance the efficacy of monetary policy transmission.

However, there's also the question of bank disintermediation. If a sizable segment of the population shifts their regular deposits from commercial banks to CBDC, it could lead to liquidity concerns for banks, affecting their lending capacities (Fernández-Villaverde et al., 2020). This could, in turn, impact investment and growth, potentially leading to economic instability.

There's also the aspect of cross-border transactions and capital flows. CBDC could simplify cross-border payments, making them faster and more transparent. But it could also lead to swift capital outflows in times of economic uncertainty, posing challenges to macroeconomic stability (Bindra & Singh, 2021).

In essence, while CBDC offers innovative avenues for monetary policy execution, it also brings forth challenges that need to be adeptly managed to ensure sustained financial stability.

Regulatory and Legal Challenges

The introduction of a CBDC in India would inevitably raise a plethora of regulatory and legal challenges. First and foremost would be the issue of defining the legal status of the CBDC. Would it be treated as legal tender, similar to physical cash, or would it have a unique classification? Such determinations would dictate its acceptance and use across the economy (Chiu & Koeppl, 2019).

Furthermore, there would be concerns regarding privacy and data protection. While a CBDC could offer traceability and transparency, ensuring the privacy of individual transactions would be paramount. India, which is in the process of finalizing its data protection framework, would need to consider CBDC transactions within this context (Narayanan, 2020).

Another crucial aspect would be interoperability. The CBDC system would need to seamlessly integrate with existing digital payment platforms, ensuring smooth and frictionless transactions for users (Brunnermeier et al., 2019).

In summary, the regulatory and legal landscape surrounding the potential introduction of a CBDC in India would be intricate and would necessitate careful planning, robust frameworks, and continuous stakeholder consultations to address all challenges.

Consumer Protection and Fraud Prevention

The promise of CBDC lies not just in its potential to revolutionize the financial landscape, but also in its ability to offer enhanced consumer protection. Traditional banking and financial systems have, at times, been susceptible to frauds, cyber-attacks, and systemic risks. A well-designed CBDC, underpinned by the security features of distributed ledger technology, could offer a more secure environment for transactions (Barontini & Holden, 2019).

However, this doesn't negate potential threats. The digital nature of CBDC could make it a target for sophisticated cyber-attacks. Moreover, the decentralized nature of blockchain technology, while enhancing transparency and security, could also introduce complexities in tracking and rectifying fraudulent activities (Carstens, 2020).

There's also the potential issue of digital exclusion. While a significant portion of India's population is digitally connected, there remains a sizeable demographic that lacks access to digital infrastructure. Ensuring that these populations aren't excluded from the benefits of CBDC will be crucial, necessitating outreach and education programs (Kumar et al., 2020).

In essence, while CBDCs offer the prospect of enhanced security and consumer protection, a careful and considered approach will be necessary to address potential challenges and ensure a secure, inclusive, and resilient system.

Economic Impacts of CBDC on Traditional Banking

The introduction of CBDC has the potential to disrupt the traditional banking system in multiple ways. A direct-to-consumer CBDC could lead to a significant influx of deposits moving from commercial banks to the central bank, potentially leading to liquidity concerns for the former (Bindra & Arora, 2021). This "disintermediation" could affect banks' ability to offer loans, impacting credit availability in the economy.

On the flip side, CBDC could prompt banks to innovate, offering more competitive interest rates and enhanced services to retain and attract deposits. It might foster a more competitive banking landscape, with institutions striving to provide better value propositions to their customers (Chapman et al., 2020).

Furthermore, the transparency and traceability associated with CBDC could reduce the incidence of non-performing loans and enhance credit assessments, leading to a more stable financial system (Barrdear & Kumhof, 2016).

In summary, while CBDC poses challenges to the traditional banking system, it could also act as a catalyst for innovation and stability in the sector, reshaping the financial landscape in more ways than one.

Monetary Policy and CBDC

The advent of CBDC presents both opportunities and challenges for the conduct of monetary policy. With CBDCs in place, central banks could have a more direct mechanism to implement monetary policy decisions. For instance, they could adjust the interest rate on CBDC to influence overall spending and saving in the economy (Brunnermeier et al., 2019).

Moreover, in a scenario of prolonged economic downturns, CBDCs could enable central banks to implement negative interest rates more effectively, thus providing them with an additional policy tool when traditional mechanisms are exhausted (Agur et al., 2020).

However, CBDCs also come with potential risks. If consumers prefer CBDCs over bank deposits, especially in times of financial stress, it could lead to rapid bank runs, thereby destabilizing the financial system. Central banks would need to be vigilant and possibly design CBDCs in ways that mitigate such risks (Bordo & Levin, 2019).

Privacy Concerns and CBDC

One of the debated aspects of CBDC is the degree of privacy it would offer. While CBDCs could potentially reduce illegal activities and money laundering due to their traceability, they also raise significant concerns about personal privacy. Governments could potentially monitor all transactions, leading to apprehensions about state surveillance (Kahn et al., 2018).

To address this, central banks might need to design CBDCs that strike a balance between traceability and privacy. Solutions could include tiered access to transaction data or cryptographic techniques that ensure transaction validity without revealing transaction details (Auer & Böhme, 2020).

Inclusion and CBDCs

CBDCs could play a pivotal role in enhancing financial inclusion. In countries with a significant unbanked population, CBDCs could provide a simple and cost-effective way to bring people into the formal financial system. By leveraging existing mobile technology infrastructure, CBDCs could be easily accessible to a vast segment of the population, bypassing traditional banking bottlenecks (Mancini-Griffoli et al., 2018).

However, care must be taken to ensure that the design and implementation of CBDCs do not inadvertently exclude certain segments of the society, especially those not tech-savvy or without access to the required technology (Chiu & Koeppl, 2019).

Latest Statistics on E-Rupee

According to data from the Reserve Bank of India (RBI) for the financial year 2022-23, the digital rupee, also known as e-rupee, was in use amounting to Rs 16.39 crore. This includes Rs 10.69 crore in wholesale CBDC and Rs 5.70 crore in retail CBDC. As of February 8, 2023, the digital rupee had been adopted by 50,000 users and 5,000 merchants. The RBI is planning to test a new project for banks to borrow from each other using the digital rupee starting in October 2023.

There has been a significant increase in digital payments in India since 2018, with a record of ₹149.5 trillion transactions through UPI and cards in 2022. The conversion rate for the e₹ is 1:1 with the Indian Rupee. It serves as a way to pay for things, is considered legal money, and is safe to hold onto. However, it can only be used within the system it's issued in and can't be swapped for other currencies (Handbook of Statistics on the Indian Economy 2022-23, RBI).

Conclusion

The digital financial frontier, marked by the advent of Central Bank Digital Currencies (CBDCs), is poised to redefine the economic tapestry of nations globally. India, with its intricate blend of technological advancement and traditional financial systems, sits at the cusp of this transformation. The Reserve Bank of India's contemplation of introducing a CBDC is not merely a technological leap but a strategic move, underpinned by the nation's aspirations for financial inclusion, efficiency, and stability. This exploration is set against a backdrop of India's distinctive financial endeavors, like the 2016 demonetization and the Universal Payment Interface (UPI), which have already laid the foundation for a digital financial paradigm shift.

However, the journey toward actualizing a CBDC is rife with challenges. From ensuring robust cybersecurity, preserving individual privacy, and maintaining the vibrancy of the traditional banking sector, to managing the potential macroeconomic implications on liquidity, capital flows, and monetary policy, the RBI's roadmap for CBDC is complex. Further, the socio-cultural fabric of India, with its deep-rooted traditions and diverse financial behaviors, necessitates a CBDC model that is both innovative and integrative.

Drawing from global precedents, like China's digital yuan and Sweden's e-krona, offers valuable insights but underscores a crucial realization: India's CBDC journey must be uniquely tailored. It must balance the allure of digital efficiency with the imperatives of economic stability, security, and inclusivity.

In essence, the potential introduction of a CBDC by the RBI signifies more than just a currency transformation; it represents a holistic evolution in India's financial ethos. While the challenges are significant, the potential benefits—ranging from enhanced monetary policy tools to unprecedented financial inclusion—make this venture both promising and imperative. As the world watches, India's foray into CBDC could set a precedent, not just in technological adoption but in sculpting a digital financial model that harmoniously blends tradition, innovation, and inclusive growth.

References:

- Agur, I., Ari, A., & Dell'Ariccia, G. (2020). Designing Central Bank Digital Currencies. *Journal of Monetary Economics*, 116, 1-16.
- Auer, R., Cornelli, G., & Frost, J. (2020). Rise of the central bank digital currencies: drivers, approaches, and technologies. *BIS Working Papers*, No. 880.
- BIS. (2018). Central bank digital currencies. *Bank for International Settlements Quarterly Review*.
- Chapman, J., Garratt, R., Hendry, S., McCormack, A., & McMahon, W. (2020). Project Jasper: Are Distributed Wholesale Payment Systems Feasible Yet? *Financial System Review*, 1-11.
- Chiu, J., & Koeppl, T. (2017). The Economics of Cryptocurrencies – Bitcoin and Beyond. *Queen's Economics Department Working Paper*, No. 1389.
- Prasad, E. (2018). The Future of Money: How New Technologies are Transforming the Global Financial System. *Asian Development Bank Institute*.
- Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System.
- Bordo, M. D., & Levin, A. T. (2017). Central bank digital currency and the future of monetary policy. *NBER Working Paper No. 23711*.
- Kumar, R. (2019). Mobile banking evolution in India: Challenges and opportunities. *Journal of Indian Business Research*.
- RBI. (2018). Report of the inter-regulatory working group on fintech and digital banking.
- Chapman, J. T., et al. (2020). Financial globalization and monetary policy effectiveness. *Journal of Monetary Economics*.
- Garg, S., et al. (2019). Digital currencies: Framework for central banks. *Economic and Political Weekly*.
- Patel, U. (2021). Central bank digital currencies: Policy and implementation challenges for emerging economies. *India Policy Forum*.
- Fan, Y. (2020). Central bank digital currency and monetary policy: A literature review. *China Economic Review*.
- Bindseil, U., & Panetta, F. (2020). Central bank digital currency remuneration in a world with low or negative nominal interest rates. *ECB Working Paper Series*.
- Prasad, E. S. (2018). Central banking in a digital age. *Brookings Papers on Economic Activity*.
- Varma, J. R. (2022). Challenges in CBDC design: An Indian perspective. *Indian Journal of Economics*.
- Agur, I., Ari, A., & Dell'Ariccia, G. (2020). Designing Central Bank Digital Currencies. *Journal of Monetary Economics*.
- Auer, R., & Böhme, R. (2020). The technology of retail central bank digital currency. *BIS Quarterly Review*.
- Barontini, C., & Holden, H. (2019). Proceeding with caution: A survey on central bank digital currency. *Bank for International Settlements*.
- Bindra, J. S., & Arora, A. (2021). Implications of CBDC on the banking system: An Indian perspective. *Journal of Financial Regulation*, 7(1), 121-134.

- Bordo, M. D., & Levin, A. T. (2019). Digital Cash: Principles & Practical Steps. NBER Working Paper.
- Brunnermeier, M. K., James, H., & Landau, J. P. (2019). The Digitalization of Money. NBER Working Paper.
- Carstens, A. (2020). The future of money and the payment system: What role for central banks? Lecture at Princeton University.
- Chiu, J., & Koepl, T. V. (2019). The Economics of Cryptocurrencies: Bitcoin and Beyond. Queen's Economics Department Working Paper.
- Handbook of Statistics on the Indian Economy 2022-23, RBI.
- Kahn, C. M., Rivadeneyra, F., & Wong, T. N. (2018). Should the central bank issue e-money? Bank of Canada Staff Working Paper.
- Mancini-Griffoli, T., Martinez Peria, M. S., Agur, I., Ari, A., Kiff, J., Popescu, A., & Rochon, C. (2018). Casting Light on Central Bank Digital Currencies. IMF Staff Discussion Notes.