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DIGITAL RUPEE (₹) IN INDIA: OPPORTUNITIES, CHALLENGES AND FUTURE PROSPECTS

***Manish Kumar**

Lecturer, Lucknow University.

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*Corresponding Author: Manish Kumar

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Lecturer, Lucknow University.

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ABSTRACT

Central Bank Digital Currency (CBDC) represents a digital form of central bank money and has emerged as an important area of monetary and financial research. Unlike commercial-bank deposits and privately issued electronic money, a CBDC is a direct liability of the central bank. India's Digital Rupee (₹), issued by the Reserve Bank of India (RBI), provides an important case for examining how sovereign digital money can coexist with cash, bank deposits and existing digital payment systems. This paper examines the concept, characteristics, forms, objectives, potential benefits, risks and economic implications of CBDCs, with particular emphasis on India. It discusses retail and wholesale CBDC, the role of intermediaries, programmability, offline functionality, privacy, cybersecurity, interoperability, financial inclusion, monetary policy, banking-sector effects and cross-border payments. The paper adopts a descriptive and analytical research approach based on secondary sources, including publications of the Reserve Bank of India and the Bank for International Settlements. The analysis suggests that CBDC should be understood not simply as another digital payment application, but as a new form of central bank money whose economic impact depends substantially on design, adoption, interoperability, privacy safeguards and its relationship with commercial banks.

KEYWORDS: *CBDC; Digital Rupee; ₹; Reserve Bank of India; digital money; retail CBDC; wholesale CBDC; financial inclusion; monetary policy; digital payments; financial stability.*

1. INTRODUCTION

Technological change has transformed the way households, firms and governments make payments. Mobile banking, instant payment systems, cards and electronic wallets have reduced dependence on physical cash. At the same time, central banks have been examining whether sovereign money should also evolve into a digital form accessible to the wider public. A Central Bank Digital Currency is generally defined as a digital payment instrument denominated in the national unit of account and representing a direct liability of the central bank. The Bank for International Settlements (BIS) distinguishes CBDC from commercial-bank deposits because CBDC is a claim on the central bank rather than a liability of a private financial institution. India is an important case because it already possesses a large-scale digital payments ecosystem. The Digital Rupee, or e₹, introduces another form of digital money while raising questions about payment efficiency, privacy, financial inclusion, banking intermediation and monetary policy.

2. Objectives of the Study

1. To explain the concept and characteristics of Central Bank Digital Currency.
2. To examine the meaning and role of India's Digital Rupee (e₹).
3. To distinguish CBDC from cash, commercial-bank deposits, UPI-based payments and cryptocurrencies.
4. To analyse the potential economic benefits of CBDC adoption.
5. To examine risks relating to privacy, cybersecurity, financial stability and bank intermediation.
6. To study the implications of CBDC for monetary policy and the Indian financial system.
7. To identify major implementation challenges and areas for future research.

3. Research Questions

1. What is CBDC and how is it different from existing forms of digital money?
2. What are the major characteristics and possible uses of India's Digital Rupee?
3. What benefits can CBDC provide to consumers, businesses, banks and governments?
4. What risks can CBDC create for privacy, cybersecurity, financial stability and bank deposits?
5. How can CBDC influence monetary policy and the payment system?
6. What policy and design considerations are important for the future of the Digital Rupee?

4. Research Methodology

The study follows a descriptive and analytical research design. It is based on secondary information from institutional publications and research literature. Major reference material includes publications of the Reserve Bank of India and the Bank for International Settlements. The study does not use a primary survey; therefore, its conclusions are conceptual and analytical rather than estimates of individual consumer behaviour.

5. Concept of Central Bank Digital Currency

CBDC is digital central bank money intended for specific users and payment purposes. CBDCs can broadly be divided into retail and wholesale forms. Retail CBDC is intended for households and businesses for everyday transactions, while wholesale CBDC is designed primarily for financial institutions and wholesale settlement. BIS notes that CBDCs are a direct liability of the central bank.

Feature	CBDC	Commercial Bank Deposit	Cash	Crypto currency
Issuer	Central bank	Commercial bank	Central bank	Usually private/decentralized network
Form	Digital	Digital	Physical	Digital
Liability of	Central bank	Commercial bank	Central bank	Generally no sovereign issuer
Legal/monetary unit	National currency	National currency	National currency	Varies
Typical use	Digital payments/settlement	Payments and savings	Payments/store of value	Digital asset/payment in some systems
Price stability	Linked to national currency	Linked to national currency	Linked to national currency	Often highly variable

6. India's Digital Rupee (₹)

The Digital Rupee is India's implementation of a central bank digital currency. It is designed as digital central bank money and is distinct from a bank account balance merely accessed through a mobile application. The economic significance of ₹ lies in its status as sovereign digital money and in its potential to operate alongside existing payment instruments.

The design of a retail CBDC requires decisions about privacy, cybersecurity, offline functionality, point-of-sale use and the role of intermediaries. BIS research identifies these as central design issues for retail CBDC systems.

6.1 Retail Digital Rupee

Retail e₹ is intended for transactions involving the public. Its potential applications include person-to-person payments, merchant payments and selected government or institutional disbursements. A key feature is that the underlying monetary claim is on the central bank.

6.2 Wholesale Digital Rupee

Wholesale CBDC is intended for financial-market participants and institutional settlement. It can support more efficient settlement of securities and other financial transactions and may contribute to innovation in financial-market infrastructure.

7. CBDC and Other Digital Payment Instruments

Dimension	Digital Rupee (CBDC)	UPI Payment	Bank Deposit	Crypto Asset
Underlying money	Central bank money	Usually bank deposit	Commercial bank money	Private/decentralised digital asset
Issuer/liability	Central bank	Payment interface over participating institutions	Commercial bank	Not normally a central-bank liability
Main function	Digital sovereign money	Payment rail/interface	Money holding and payments	Asset/payment depending on design
Price denomination	Indian rupee	Indian rupee	Indian rupee	Depends on asset
Central-bank claim	Yes	Not directly through UPI itself	No	No
Technology/design	CBDC infrastructure	Interoperable payment system	Banking infrastructure	Often blockchain/DLT

8. Major Features of CBDC

- **Sovereign digital money:** CBDC represents a digital claim on the central bank.
- **Digital transferability:** It can be used to transfer value electronically.
- **Retail and wholesale forms:** CBDC can be designed for the general public or financial institutions.
- **Interoperability:** Integration with existing payment systems can reduce fragmentation.
- **Potential programmability:** Subject to design and safeguards, payment conditions can support targeted use cases.
- **Offline capability:** Offline functionality can support resilience and access where connectivity is limited.

- **Privacy by design:** A CBDC system must establish clear rules for transaction-data access and protection.
- **Cyber resilience:** Security and operational resilience are essential because CBDC would be critical financial infrastructure.

9. Potential Benefits of CBDC

1. **Payment efficiency:** A well-designed CBDC can provide an additional digital payment instrument and potentially improve settlement efficiency.
2. **Financial inclusion:** CBDC may expand access to digital payments where conventional banking access is limited, particularly if supported by suitable offline and low-cost functionality.
3. **Reduced dependence on cash:** CBDC can provide a digital sovereign-money alternative while retaining the monetary unit of account.
4. **Innovation:** CBDC infrastructure may support new payment and financial applications.
5. **Government payments:** Digital sovereign money could potentially be used in carefully designed government-transfer and payment systems.
6. **Cross-border payments:** Interoperable CBDC arrangements could contribute to faster or more efficient international settlement, although legal and policy barriers remain.
7. **Settlement and tokenisation:** Wholesale CBDC can potentially improve settlement processes for tokenised financial assets.
8. **BIS research highlights financial inclusion, payment efficiency, innovation and the changing role of cash among possible motivations for retail CBDC, while also emphasising the importance of jurisdiction-specific design.**

10. Risks and Challenges

- **Privacy and data governance:** A digital payment system generates transaction data. Rules are needed to determine who can access data, for what purpose and under what legal safeguards.
- **Cybersecurity:** CBDC infrastructure would be a critical financial system and therefore requires strong protection against cyberattacks, fraud and operational disruption.
- **Bank disintermediation:** If users shift large amounts of funds from bank deposits into CBDC, banks could face changes in their funding structure. Research also considers the possibility of faster deposit outflows during banking stress.

- **Financial stability:** CBDC design can affect liquidity, bank funding and payment behaviour, so holding limits, remuneration and other design choices may matter.
- **Digital divide:** People without smartphones, connectivity, digital literacy or reliable access to financial services may face barriers unless inclusion measures are built into the system.
- **Operational resilience:** The system must continue to function reliably during technical failures, connectivity problems and other disruptions.
- **Legal and regulatory issues:** Consumer protection, data protection, AML/CFT requirements and liability rules must be clearly defined.

11. CBDC and Monetary Policy

CBDC does not automatically change the objectives of monetary policy, but it can change the monetary and financial environment in which policy operates. A CBDC can alter the composition of money held by the public, affect the demand for bank deposits and potentially influence the transmission of policy through financial markets.

Academic and policy research identifies monetary-policy transmission, central-bank balance sheets, bank intermediation and financial stability as important areas for analysis.

The actual effect depends on design. A CBDC that is primarily used as a payment medium may have different effects from one that becomes a major savings asset. Therefore, issues such as remuneration, holding limits and access arrangements can have significant macroeconomic implications.

12. CBDC and Financial Inclusion in India

India's large digital-payment ecosystem creates an important context for CBDC. Financial inclusion should not be measured only by the number of digital transactions; accessibility, affordability, usability, consumer protection and digital literacy are also important. CBDC could complement existing systems if it is accessible to people who are underserved by conventional digital finance.

13. CBDC and Cross-Border Payments

Cross-border CBDC payments could potentially reduce some settlement frictions, but interoperability between different national systems requires agreement on technical standards, regulation, foreign-exchange processes, privacy, cybersecurity and legal responsibility. BIS research notes that cross-border dimensions remain an important area requiring further work.

14. Economic Implications: Stakeholder Perspective

Stakeholder	Potential Opportunity	Key Concern
Consumers	Convenient sovereign digital money	Privacy, usability, fraud and digital access
Businesses	Digital settlement and new payment use cases	Integration costs and compliance
Commercial banks	New payment services and intermediary roles	Deposit substitution and funding pressure
Central Bank	Modernised public money and payment infrastructure	Cyber risk, operational complexity and policy transmission
Government	Potentially efficient digital disbursement/payment channels	Data governance and implementation costs
Financial markets	Potentially improved wholesale settlement and tokenisation	Interoperability and legal certainty

15. Review of Selected Literature

BIS and central-bank research generally treats CBDC as a new form of central bank money rather than simply another payment application. A joint central-bank report emphasised that a CBDC should not compromise monetary or financial stability and should coexist with existing forms of money.

The 2024 BIS survey reported that 85 of 93 surveyed central banks were exploring either retail CBDC, wholesale CBDC or both, indicating the continuing international importance of the subject. The same survey found that wholesale CBDC work was, in aggregate, at a more advanced stage than retail CBDC work.

Research on system design highlights privacy, cybersecurity, offline functionality and point-of-sale considerations as important design dimensions.

16. Major Findings of the Study

1. CBDC is fundamentally different from a commercial-bank deposit because it is a direct liability of the central bank.
2. The Digital Rupee represents a sovereign digital-money innovation within India's broader digital-payment ecosystem.
3. The distinction between a CBDC and a payment interface is important: a payment system can transfer bank money, whereas CBDC represents a new form of central bank money.
4. The economic effects of CBDC depend heavily on design, adoption and its relationship with commercial banks.
5. Privacy, cybersecurity, interoperability and operational resilience are central to public confidence.

6. CBDC may create opportunities for payment innovation and financial inclusion, but these benefits are not automatic.
7. CBDC can affect bank funding and financial stability if users substantially substitute CBDC for deposits, especially under stress.
8. Wholesale CBDC may have significant applications in financial-market settlement and tokenised assets.

17. Policy and Design Considerations

Maintain clear separation between central-bank monetary responsibilities and private-sector service delivery where appropriate.

Develop strong privacy and data-governance standards before large-scale adoption.

Use robust cybersecurity, contingency planning and operational-resilience standards.

Promote interoperability with existing payment systems rather than creating unnecessary fragmentation.

Design accessibility features for users with limited connectivity or digital capabilities.

Monitor effects on bank deposits, liquidity and financial stability as adoption develops.

Continue experimentation and evidence-based evaluation before expanding features or use cases.

Strengthen international cooperation on cross-border CBDC interoperability and regulatory standards.

18. CONCLUSION

Central Bank Digital Currency represents an important evolution in the form of sovereign money. The Digital Rupee provides India with an opportunity to examine how central bank money can operate in an increasingly digital economy. Its significance extends beyond faster payments: CBDC design can influence the structure of the monetary system, the role of commercial banks, financial inclusion, data governance and financial stability.

The long-term contribution of the Digital Rupee will depend on adoption, usability, interoperability, privacy protection, cybersecurity and the way it complements existing forms of money and payment systems. CBDC should therefore be evaluated as part of the wider monetary and financial architecture rather than as an isolated technological product.

REFERENCES

1. Bank for International Settlements (2025). Advancing in tandem – results of the 2024 BIS survey on central bank digital currencies and crypto.

2. Bank for International Settlements (2024). Central bank digital currencies: System design.
3. Bank for International Settlements (2023). Central bank digital currencies – Executive Summary.
4. Bank for International Settlements (2021). Central bank digital currencies: An opportunity for the monetary system.
5. Bank for International Settlements (2021). Central bank digital currencies: Motives, economic implications and the research frontier.
6. Bank for International Settlements (2020). Central bank digital currencies: Foundational principles and core features.
7. Bank for International Settlements (2021). Central bank digital currency: The quest for minimally invasive technology.
8. Reserve Bank of India. Publications and official materials relating to Central Bank Digital Currency and the Digital Rupee (₹).