



## Impact of UPI and CBDC: An Alternative to Swift

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### ABSTRACT

The advent of digital payment technologies has brought about significant changes in the global financial landscape. This study delves into the Impact of Unified Payments Interface (UPI) and Central Bank Digital Currency (CBDC) as Alternatives to the Society for Worldwide Interbank Financial Telecommunication (SWIFT) system.

This study begins by providing an overview of UPI, CBDC, and SWIFT, outlining their respective functionalities, historical backgrounds, and purposes. A comparative analysis is then conducted to highlight the differences and similarities among these systems, focusing on their technological frameworks, advantages, and limitations.

This research delves into the disruptive impact of UPI on traditional payment systems, particularly in regions like India where its adoption has been substantial. It examines the adoption rates among various stakeholders, including consumers, businesses, and financial institutions, shedding light on the factors driving its growth and challenges hindering its widespread adoption.

Furthermore, the study explores the potential of CBDC as an alternative or complementary system to SWIFT for cross-border payments. It evaluates the benefits and challenges associated with CBDC adoption, considering regulatory and legal considerations that may impact its implementation.

Drawing insights from case studies and real-world examples, the research provides valuable lessons and best practices for organizations and policymakers looking to leverage these technologies effectively. It also offers recommendations for the future outlook of UPI, CBDC, and SWIFT, emphasizing the need for strategic integration and regulatory alignment to harness their full potential in the evolving financial ecosystem.

In conclusion, this study contributes to the understanding of how UPI and CBDC are reshaping payment infrastructures and offers valuable insights for stakeholders navigating the dynamic landscape of digital finance.

### 1.1 Rationale for the Study and Motivation

The rapid evolution of digital payment technologies has become a cornerstone of the modern financial landscape, prompting a fundamental shift in how transactions are conducted globally. With the emergence of innovative solutions such as Unified Payments Interface (UPI) and Central Bank Digital Currency (CBDC), the traditional boundaries of banking systems are being redefined. This study is motivated by the pressing need to understand the implications of UPI and CBDC as viable alternatives to the established Society for Worldwide Interbank Financial Telecommunication (SWIFT) system, particularly in the context of cross-border transactions. The inefficiencies and complexities inherent in traditional cross-border payment methods have spurred interest in exploring new avenues that offer greater speed, efficiency, and transparency.

### 1.2 Statement of the Research Problem

The research problem addressed in this study revolves around the transformative impact of Unified Payments Interface (UPI) and Central Bank Digital Currency (CBDC) on cross-border transactions, particularly in comparison to the established Society for Worldwide Interbank Financial Telecommunication (SWIFT) system. The existing literature and industry discourse highlight the inefficiencies, delays, and high costs associated with traditional cross-border payment methods facilitated by SWIFT. These challenges have spurred the exploration of alternative digital payment solutions such as UPI and the potential adoption of CBDC by central banks.

The specific research problem can be outlined as follows:

Assessing the efficiency and effectiveness of UPI in facilitating cross-border transactions compared to SWIFT.

Investigating the potential role of CBDC as a disruptive force in cross-border payments and its compatibility with existing financial infrastructures.

Analysing the regulatory and legal considerations surrounding the adoption of UPI and CBDC for international transactions, including issues related to interoperability, data privacy, and security.

Evaluating the impact of UPI and CBDC on financial inclusion, particularly in regions with limited access to traditional banking services.

Identifying challenges and opportunities for stakeholders, including financial institutions, governments, businesses, and consumers, in transitioning towards UPI and CBDC as alternatives to SWIFT.

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### 1.3 Review of Literature

"Exploring the Impact of UPI on Indian Digital Payment Ecosystem" by Ankit Kumar and Pooja Verma (2021) - This paper discusses the transformative impact of Unified Payments Interface (UPI) on India's digital payment ecosystem, including its role in enhancing financial inclusion and reducing reliance on cash transactions.

"Central Bank Digital Currencies: Drivers, Approaches, and Technologies" by Tomaso Aste et al. (2021) - This study provides an overview of Central Bank Digital Currencies (CBDCs), exploring different drivers for their adoption, various approaches to CBDC design, and the underlying technologies that enable CBDC implementation.

"The Future of Cross-Border Payments: A Policy Framework for Enhancing Speed and Reducing Costs" by the Committee on Payments and Market Infrastructures (CPMI) and the International Monetary Fund (IMF) (2020) - This report discusses the challenges and opportunities in cross-border payments, including the role of new payment technologies like UPI and CBDCs in improving speed, efficiency, and cost-effectiveness.

"The Impact of SWIFT on Global Financial Transactions" by Martin G. Duvall (2019) - This paper provides an in-depth analysis of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) system and its impact on global financial transactions, highlighting both its benefits and limitations.

"Central Bank Digital Currency and Monetary Policy: A Literature Review" by Michael Kumhof and Clare Noone (2021) - This literature review examines the potential implications of Central Bank Digital Currency (CBDC) on monetary policy, financial stability, and the broader economy, drawing insights from various academic studies and research papers.

"Digital Innovation and Central Bank Digital Currencies" by Agustín Carstens (2020) - This paper, authored by the General Manager of the Bank for International Settlements (BIS), discusses the role of digital innovation, including CBDCs, in reshaping the financial landscape and central banking operations.

"Central Bank Digital Currency: Opportunities, Challenges, and Design Principles" by Ben Fung, Scott Hendry, and Warren E. Weber (2021) - This paper discusses the opportunities and challenges associated with Central Bank Digital Currency (CBDC), focusing on design principles and policy considerations for central banks.

"Digital Financial Inclusion: Implications for Central Banks" by Max C. Lacerda and Christiana A. Toso (2020) - This study explores the role of digital financial inclusion in promoting economic development and discusses the implications for central banks, including the potential impact on payment systems and monetary policy.

"The Role of Fintech in Driving Financial Inclusion: A Literature Review" by Anh T. Pham and Raghav Virmani (2021) - This literature review examines the role of financial technology (Fintech) in promoting financial inclusion, highlighting the impact of innovations like UPI and CBDCs on expanding access to financial services.

"Blockchain Technology in Finance: A Review of Potential Use Cases and Challenges" by Gilbert Fridgen et al. (2020) - This paper provides an overview of blockchain technology's potential applications in finance, including its role in enhancing transparency, security, and efficiency in cross-border payments and remittances.

"The Impact of Digital Payments on Economic Growth: A Review of Empirical Studies" by Sumit Agarwal et al. (2021) - This review synthesizes empirical studies examining the impact of digital payments, including UPI and CBDCs, on economic growth, financial inclusion, and consumer welfare.

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### Research methodology

The scope of this study encompasses an in-depth analysis of the impact of Unified Payments Interface (UPI) and Central Bank Digital Currency (CBDC) as alternatives to the Society for Worldwide Interbank Financial Telecommunication (SWIFT) system, specifically focusing on their implications for cross-border transactions and the broader financial ecosystem. The study aims to explore and understand the adoption rates, advantages, limitations, regulatory considerations, and potential challenges associated with UPI and CBDC in comparison to the traditional SWIFT infrastructure.

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### Unified Payment Interface:

#### UPI Transaction over Years:

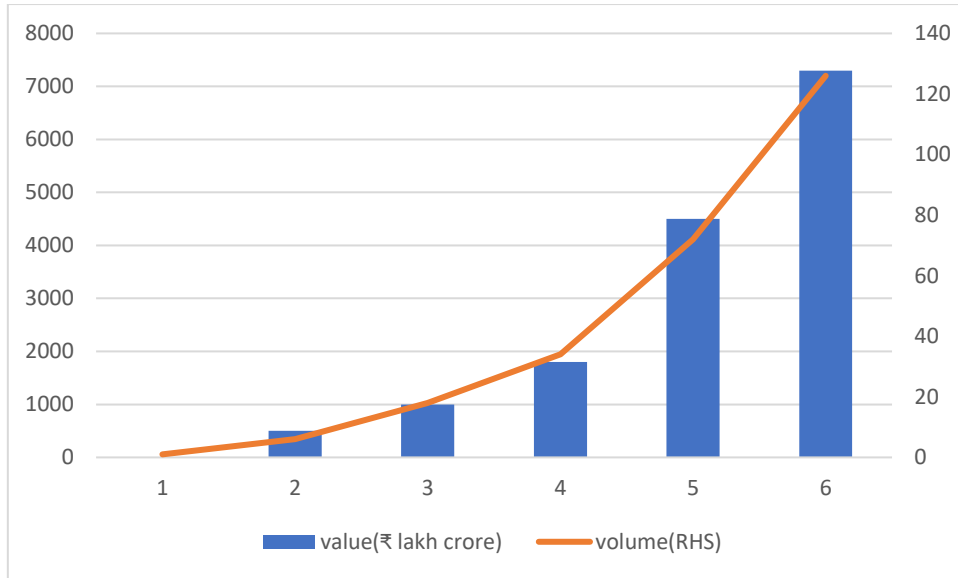


Fig: 3.1

The average growth rate of UPI transactions over the fiscal year 2019–22 was 121 percent for value and 115 percent for volume. UPI reached a record-breaking 782 crore transactions valued Rs 12.8 lakh crore in December 2022. In the first nine months of FY23 (2022–23), UPI processed 2,922 crore contactless merchant transactions with a total value of approximately Rs 21.7 lakh crore.

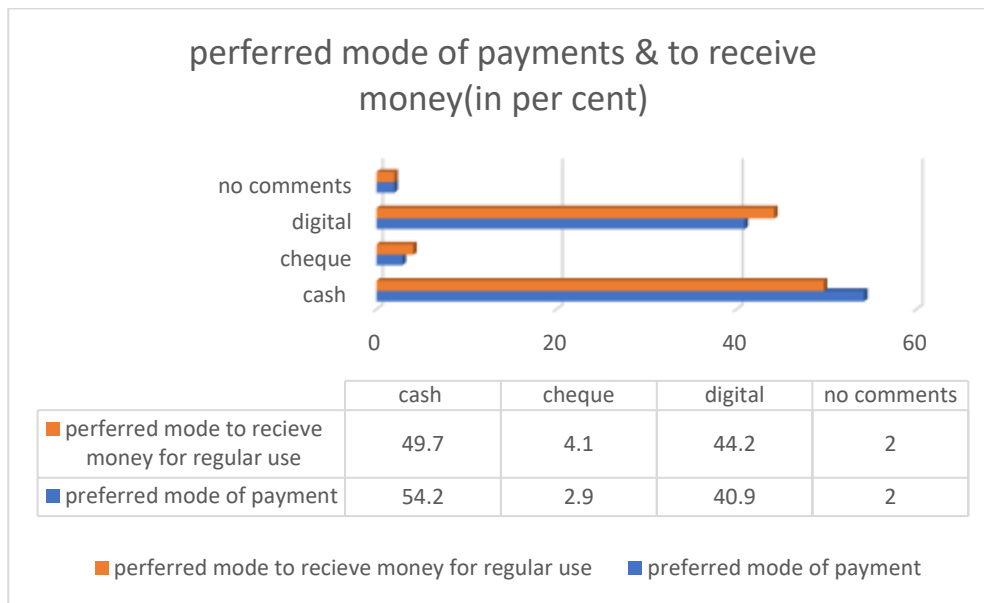


Fig: 3.3

Interpretation: From the above we can clearly see that people are preferring cash after that nowadays people preferring digital payment over cheque for both payment and as well as for receiving.

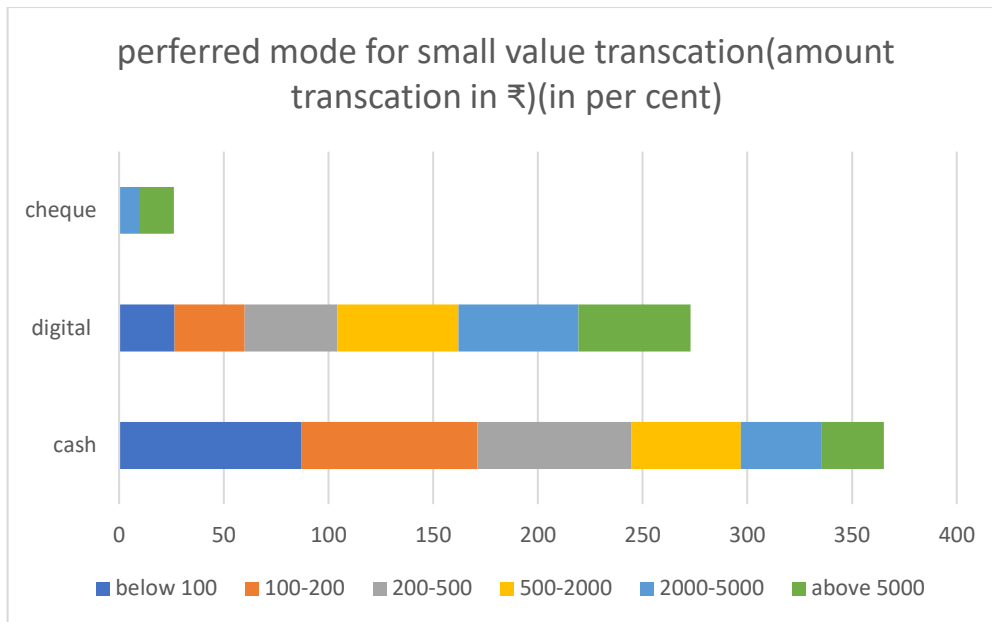


Fig: 3.4

Interpretation: From the above graph we can see that for transferring small value also people preferring cash and digital payment. Nowadays people preferring less for cheque for transferring money

**Growth of UPI:**

Time Period	RBI – DPI Index
March 2018 (Base)	100
March 2019	153.48
September 2019	173.51
March 2020	207.82
September 2020	217.71
March 2021	270.63
September 2021	304.02
March 2022	349.32

Table: 3.1

INTERPRETATION: Since its launch, the Reserve Bank Digital Payment Index (RBDPI) has shown a marked increase in the nationwide acceptance and sophistication of digital payments.

**Central Bank Digital Currency**

Aspect	Direct	Indirect	Hybrid
Liability	Central Bank	Central Bank	Central Bank
Issuer	Central Bank	Central Bank issues and Intermediaries distribute it	Central Bank issues and Intermediaries distribute it for retail use
Operations	Central Bank	Intermediaries	Intermediaries
Ledger	Central Bank	Intermediaries	Intermediaries as well as Central Bank
Settlement Finality	Yes	No	Yes

**Impact of CBDC on Monetary Variables**

Effect on	Non-remunerated CBDC's	Remunerated CBDC's
Reserve Money	Yes/No	Yes
Supply	No	Yes
Velocity	No	Yes
Money Multiplier	Yes/No	Yes
Liquidity Conditions/LAF	Yes/No	Yes
Monetary Policy (Repo Rate)	No	Yes

SWIFT (Society for Worldwide Interbank Financial Telecommunications)

**Number of Transactions using SWIFT:****Conclusion**

In conclusion, the future of digital payments rests on our ability to leverage emerging technologies, forge partnerships, and build trust among stakeholders. UPI, CBDC, and SWIFT stand at the forefront of this transformation, offering immense opportunities for creating a more accessible, resilient, and transparent financial system for all.

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