Systematic Risk to Monetary Policy due to Cryptocurrency. Is CBDC the Answer? The Indian Experience

Presented by-

Dr Manish Sinha, Dean and Professor, Global Business School and Research Centre, Dr. D.Y. Patil Vidyapeeth, Pune, India

Introduction

Context:

- Cryptocurrency market capitalization exceeded $2 trillion in 2021
- RBI launched Digital Rupee (e-₹) pilots in 2022-2023
- Over 9.36 billion UPI transactions processed in October 2023 in India

Key Questions:

- How do cryptocurrencies create systematic risks for monetary policy?
- Can Central Bank Digital Currencies (CBDCs) effectively address these risks?
- What insights can we draw from India's CBDC implementation?

Presentation Objectives:

•Analyze cryptocurrency challenges to monetary sovereignty

•Evaluate CBDC potential as a policy response

•Examine India's implementation approach and early results

•Propose evidence-based policy recommendations

Significance:

•Critical for central bankers, policymakers, financial institutions, and citizens

•Represents the intersection of technological innovation and monetary policy

•May reshape the future of financial systems and inclusion

Understanding Systematic Risks to Monetary Policy

Definition:

- Threats that could impair central banks' ability to implement monetary policy effectively
- Challenges to maintaining price stability, managing inflation, and supporting economic growth
- Risks affecting the entire financial system rather than individual institutions

Traditional Monetary Policy Transmission Mechanisms:

- Interest rate adjustments
- Reserve requirements
- Open market operations
- Currency interventions
- Credit controls and guidance

Key Monetary Policy Functions Under Threat:

•Control over money supply
•Influencing credit conditions
•Managing inflation expectations
•Currency stability
•Lender of last resort functions

Emerging Challenges from Parallel Financial Systems:

•Shadow banking expansion
•Digital currency proliferation
•Cross-border financial flows
•Technological disintermediation

How Cryptocurrencies Challenge Monetary Policy

Fundamental Challenges:

- **Decentralized Design:** Operates outside central bank oversight and control
- **Borderless Nature:** Enables frictionless cross-border value transfer without regulatory checkpoints
- **Fixed or Algorithm-Based Supply:** Contrasts with discretionary central bank money supply management
- **Potential for Mass Adoption:** Could create parallel monetary systems at scale

Specific Threats to Monetary Policy:

1.Currency Substitution Risk:

1. Domestic currency abandoned for cryptocurrencies during high inflation or instability
2. Reduces effectiveness of domestic monetary policy tools
3. Erosion of seigniorage revenue for governments

2.Financial Stability Concerns:

1. Crypto market volatility affecting broader financial markets
2. Potential bank disintermediation if deposits shift to crypto assets
3. Systemic risk from interconnections with traditional financial institutions

3.Monetary Policy Transmission Disruption:

1. Interest rate changes less effective if significant economic activity uses crypto
2. Credit channel impairment if lending occurs through crypto protocols
3. Reduced ability to influence inflation and economic activity

The CBDC Response: Theoretical Framework

CBDC Definition:

- Digital form of central bank money
- Combines innovative technology with sovereign backing
- Represents direct liability of the central bank
- Available to general public and/or financial institutions

CBDC Typology:

- **Wholesale CBDC:** Limited to financial institutions for interbank settlements
- **Retail CBDC:** Available to general public for everyday transactions
- **Direct Model:** Central bank issues and manages CBDC directly
- **Hybrid/Two-tier Model:** Central bank issues CBDC but intermediaries handle distribution

Theoretical Advantages Over Cryptocurrencies:

•Maintains monetary sovereignty and policy effectiveness
•Provides stable value without speculative volatility
•Ensures regulatory compliance and consumer protection
•Combines innovation benefits with institutional credibility

Potential Monetary Policy Enhancements:

•Improved transmission of interest rate changes
•More precise control over money supply
•Enhanced visibility of transaction data for policy formulation
•Potential for programmable money with automatic policy implementation
•Reduced lower bound constraint on interest rates

Balance of Objectives:

•Monetary stability vs. financial innovation
•Privacy protection vs. regulatory oversight
•Centralized control vs. operational resilience
•Domestic efficiency vs. cross-border interoperability

The CBDC Response: Theoretical Framework

CBDC Definition:

- Digital form of central bank money
- Combines innovative technology with sovereign backing
- Represents direct liability of the central bank
- Available to general public and/or financial institutions

CBDC Typology:

- **Wholesale CBDC:** Limited to financial institutions for interbank settlements
- **Retail CBDC:** Available to general public for everyday transactions
- **Direct Model:** Central bank issues and manages CBDC directly
- **Hybrid/Two-tier Model:** Central bank issues CBDC but intermediaries handle distribution

Theoretical Advantages Over Cryptocurrencies:

•Maintains monetary sovereignty and policy effectiveness
•Provides stable value without speculative volatility
•Ensures regulatory compliance and consumer protection
•Combines innovation benefits with institutional credibility

Potential Monetary Policy Enhancements:

•Improved transmission of interest rate changes
•More precise control over money supply
•Enhanced visibility of transaction data for policy formulation
•Potential for programmable money with automatic policy implementation
•Reduced lower bound constraint on interest rates

Balance of Objectives:

•Monetary stability vs. financial innovation
•Privacy protection vs. regulatory oversight
•Centralized control vs. operational resilience
•Domestic efficiency vs. cross-border interoperability

India's Monetary Policy Landscape

Current Monetary Policy Framework:

- Reserve Bank of India (RBI) as the central monetary authority
- Flexible Inflation Targeting (FIT) framework adopted in 2016
- Monetary Policy Committee (MPC) setting policy rates
- Target inflation of 4% with tolerance band of ±2%
- Focus on balancing growth, inflation, and financial stability

Digital Payment Ecosystem:

- Unified Payments Interface (UPI) processing 9.36+ billion transactions monthly (Oct 2023)
- Immediate Payment Service (IMPS) for instant interbank transfers
- Aadhaar-enabled Payment System (AePS) for biometric authentication
- RuPay cards as domestic alternative to international card networks

Cryptocurrency Landscape:

•Significant retail interest despite regulatory uncertainty
•Previous RBI ban (2018) overturned by Supreme Court (2020)
•30% tax on virtual digital asset transfers introduced in 2022
•No legal tender status for cryptocurrencies
•Concerns about illicit financing and investor protection

Unique Challenges in Indian Context:

•Large unbanked and underbanked population (~20%)
•Digital divide with varying internet penetration (urban: ~70%, rural: ~40%)
•High cash usage coexisting with digital payment growth
•Need to support financial inclusion while maintaining stability
•Diverse socioeconomic landscape requiring contextual adaptation

Impact Analysis: Can CBDC Mitigate Systematic Risks?

Maintaining Monetary Control:

- **Money Supply Management:** Enables precise tracking of digital currency circulation
- **Seigniorage Preservation:** Retains revenue from currency issuance in central bank hands
- **Policy Transmission:** Potentially improves speed and effectiveness of monetary policy changes
- **Data Enhancement:** Provides rich transaction data for policy formulation and evaluation

Financial Stability Impacts:

- **Reducing Cryptocurrency Appeal:** Offers sovereign digital alternative with stability guarantees
- **Controlled Implementation:** Two-tier model minimizes disruption to existing banking system
- **Risk Containment:** Design choices limit disintermediation and monetary control risks
- **Potential Vulnerabilities:** Rapid adoption could accelerate bank deposit outflows during stress periods

Impact Analysis: Can CBDC Mitigate Systematic Risks?

Effectiveness Metrics by Risk Category:

Risk Category	Potential Effectiveness	Key Considerations
Currency Substitution	High	Direct sovereign alternative to private cryptocurrencies
Capital Flight	Moderate	Depends on cross-border transaction controls
Monetary Policy Transmission	High	Preserves interest rate channel effectiveness
Financial Stability	Moderate	Balances innovation with system stability

Limitations and Challenges:

- **Adoption Uncertainty:** Success depends on user acceptance across diverse demographics
- **Technological Infrastructure:** Implementation effectiveness limited by digital divide
- **Global Cryptocurrency Pressures:** Cannot fully insulate from international crypto markets
- **Implementation Timing:** Effectiveness dependent on keeping pace with crypto adoption

Financial Inclusion Dimensions

Current Financial Inclusion Landscape in India:

- Account ownership increased but dormant accounts remain widespread
- Only 23% of rural population with bank accounts actively use them daily
- Traditional banking barriers: documentation, accessibility, literacy, trust
- Digital divide: significant urban-rural gap in internet access and digital literacy

Multiple Adoption Pathways found in Rrsearch:

Pathway	Primary Drivers	Most Effective For
Technology-Driven	Performance features, ease of use	Tech-savvy users, urban populations
Social Support	Community networks, peer influence	Rural communities, low digital literacy groups
Infrastructure-Led	Physical access points, support systems	Semi-urban areas, transitional demographics

Financial Inclusion Dimensions

Addressing Demographic Divides:

- **Rural-Urban:** Hybrid physical-digital interfaces for varying infrastructure contexts
- **Gender-Based:** Features supporting household financial management for female users
- **Age-Related:** Simplified interfaces for elderly, cross-generational support mechanisms
- **Socioeconomic:** Zero-fee basic services for low-income segments

Cultural Considerations in Implementation:

- Community trust networks more important than institutional credibility
- Need for alignment with existing financial practices and cultural values
- Importance of local language support and cultural contextuality
- Varying privacy preferences across different cultural contexts

Comparative Perspective

India's CBDC Approach in Global Context

Country/Region	Project Name	Current Status	Key Approach
China	Digital Yuan (e-CNY)	Advanced pilot, millions of users	Retail focus, controlled rollout
Eurozone	Digital Euro	Investigation phase	Privacy-centric design exploration
Bahamas	Sand Dollar	Fully launched (2020)	First nationwide retail CBDC
Sweden	e-Krona	Pilot phase	Testing technical solutions
Nigeria	e-Naira	Live implementation	Adoption incentives approach

Key Takeaways

Systematic Risk Assessment:

•Cryptocurrencies pose genuine challenges to monetary sovereignty and policy effectiveness

•Risks amplify with increased adoption, creating potential for parallel monetary systems

•Impact varies across economic contexts, with emerging economies potentially more vulnerable

•Digital transformations of money are inevitable; the question is how to shape them

CBDC as a Response Mechanism:

•Provides a sovereign digital alternative maintaining central bank monetary control

•Preserves policy transmission channels while offering technological advantages

•Addresses some but not all risks posed by cryptocurrency proliferation

•Effectiveness depends on thoughtful design, implementation, and adoption

Critical Balance Points:

•Innovation vs. stability

•Privacy vs. regulatory oversight

•Centralization vs. distributed resilience

•Standardization vs. contextual adaptation

Looking Forward:

•CBDC represents an important policy tool, but not a complete solution

•Complementary regulatory approaches for private cryptocurrencies remain necessary

•Ongoing adaptation required as both CBDC implementation and crypto markets evolve

•Successful outcomes depend on balancing technological, economic, and social dimensions