

11<sup>th</sup> IMF Statistical Forum  
**MEASURING MONEY IN THE  
DIGITAL AGE**

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#StatsForum



**STATISTICS**

# Monetary Aggregates in Digital Era

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Kartikey Bhargav

Department of Economic and Policy Research

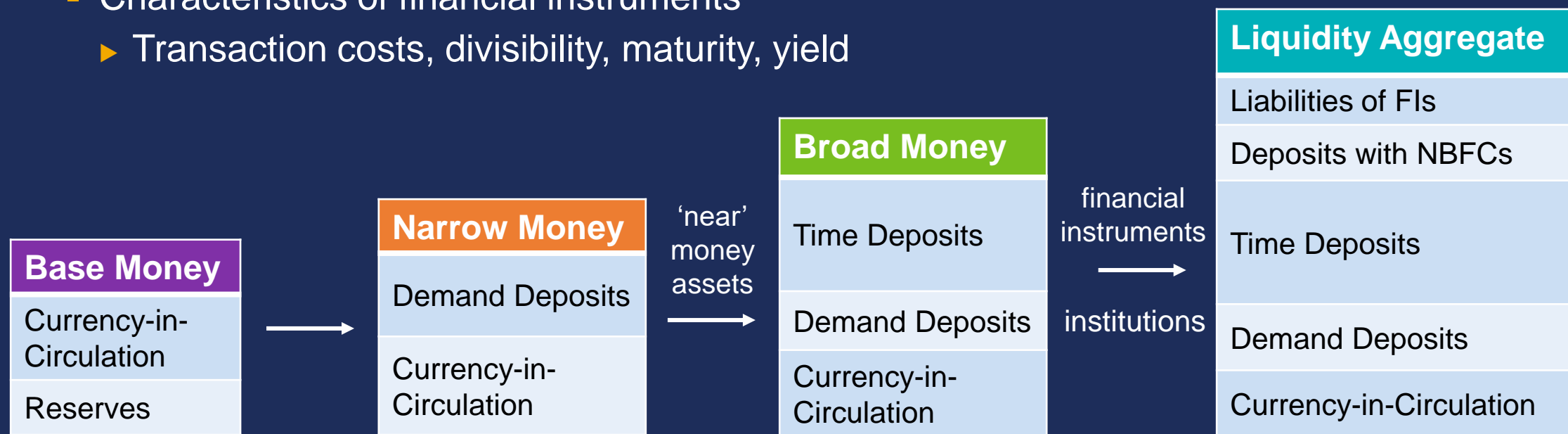
Reserve Bank of India

# Introduction - Money

- Social construct – co-evolving with socio-economic, financial and technological developments
- No unique definition
- Medium of exchange
- Store of value
- Unit of account
- Standard of deferred payment
- Need to account for changes brought by digitalisation

# Measuring Money – Monetary Aggregates

- IMF Manual (MFSMCG) - principles and guidelines
- Institutional framework
  - ▶ Money-creating, money-holding, money-neutral sectors
- Characteristics of financial instruments
  - ▶ Transaction costs, divisibility, maturity, yield

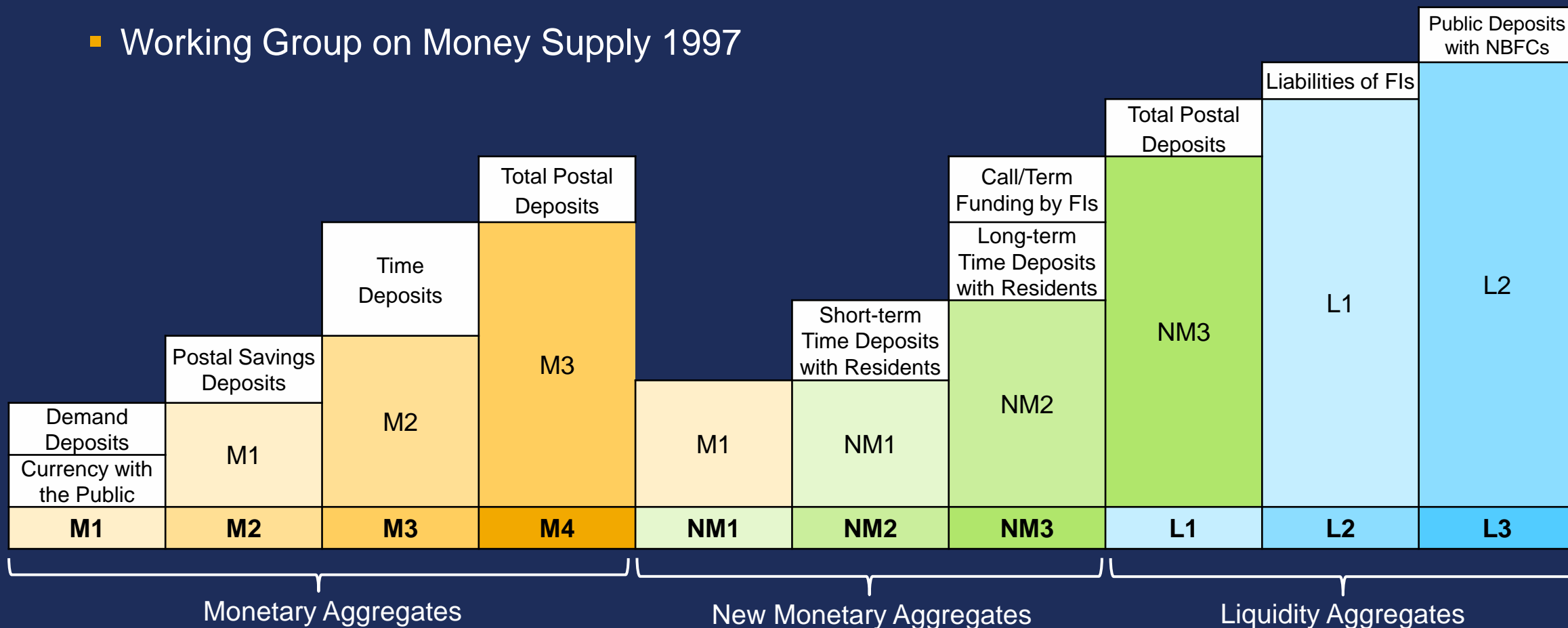


# Monetary Statistics Compilation in India

- First Working Group 1961: Treatment of Time Deposits
  - ▶ Money Supply with the Public
  - ▶ Aggregate Monetary Resources
- Second Working Group 1977: Analytical Approaches to Theoretical Concept of Money
  - ▶ Medium of exchange
  - ▶ Temporary abode of purchasing power
  - ▶ Whole structure of liquidity
  - ▶ Non-monetary financial intermediaries
- Disaggregated view- Four distinct measures of money stock: M1, M2, M3, M4

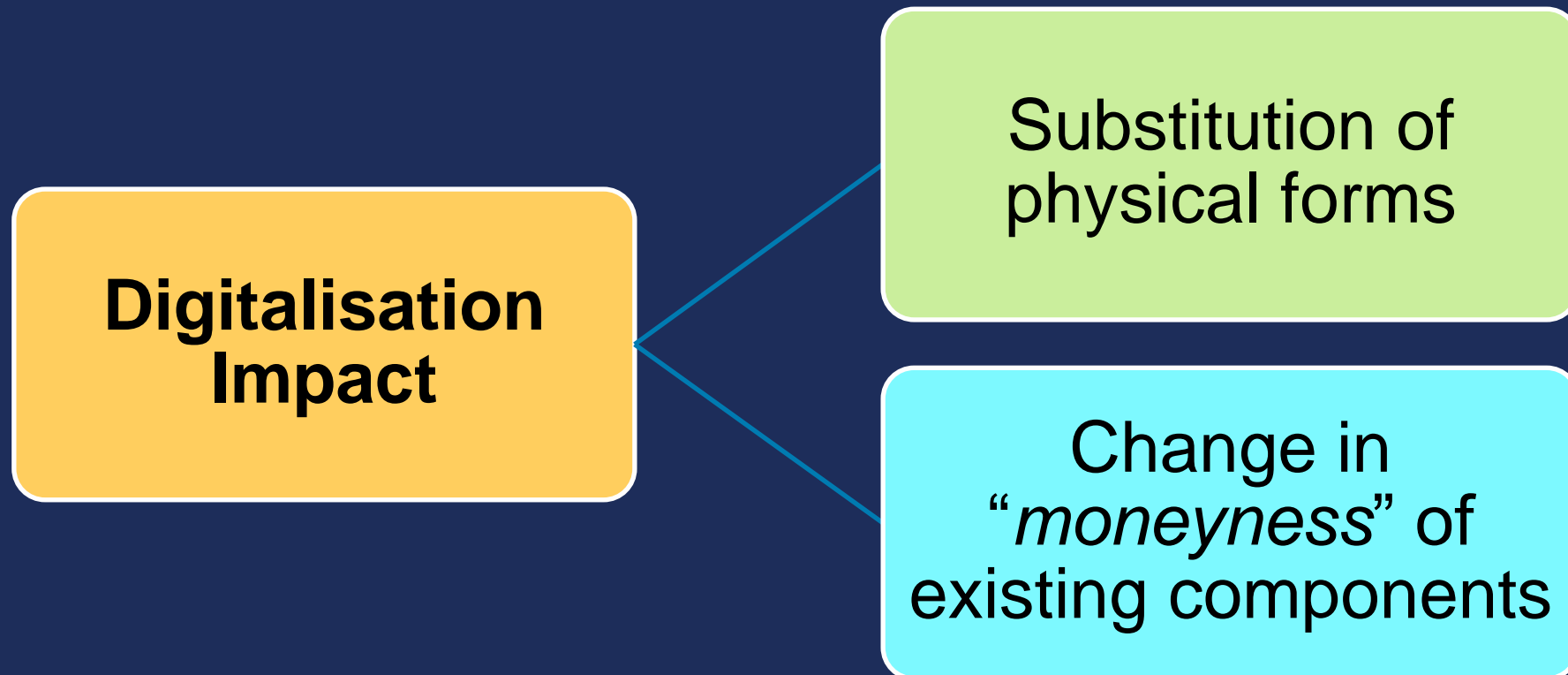
# Monetary Statistics Compilation in India

- Working Group on Money Supply 1997



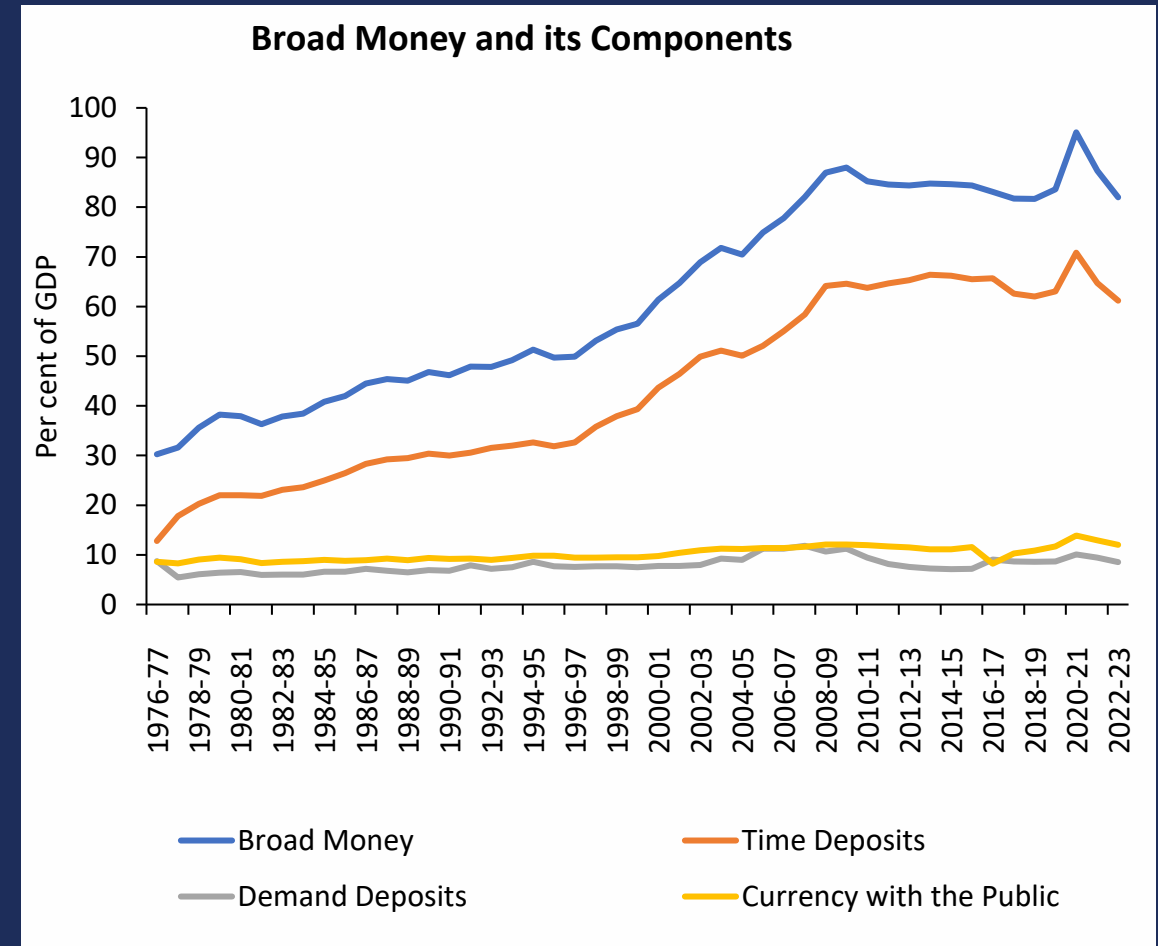
- ▶ Newer payment systems - statistical definitions, classification systems, reporting procedures

# Digitalisation and Monetary Aggregates – Two Impact Channels



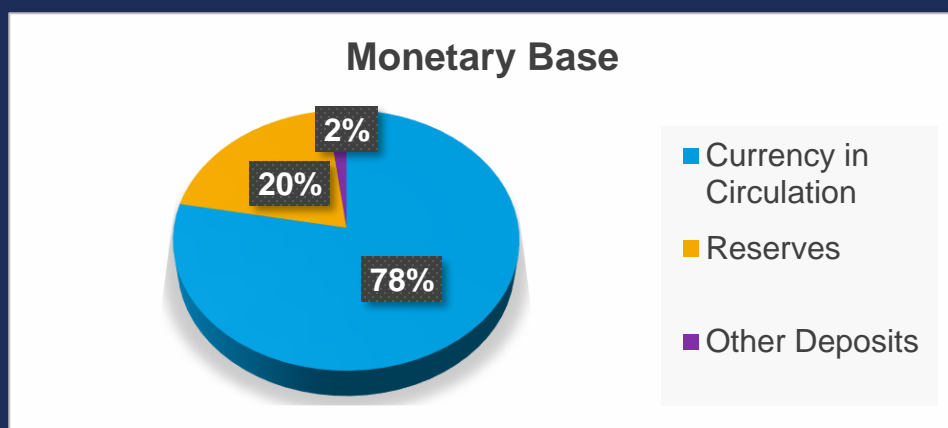
# First Channel – Currency Substitution

- Transition from Central Bank Money to Commercial Bank Money
- Payment innovations encourage use of bank deposits (inside money), while limiting the use of outside money
- Demand for cash- Precautionary and Store-of-value role

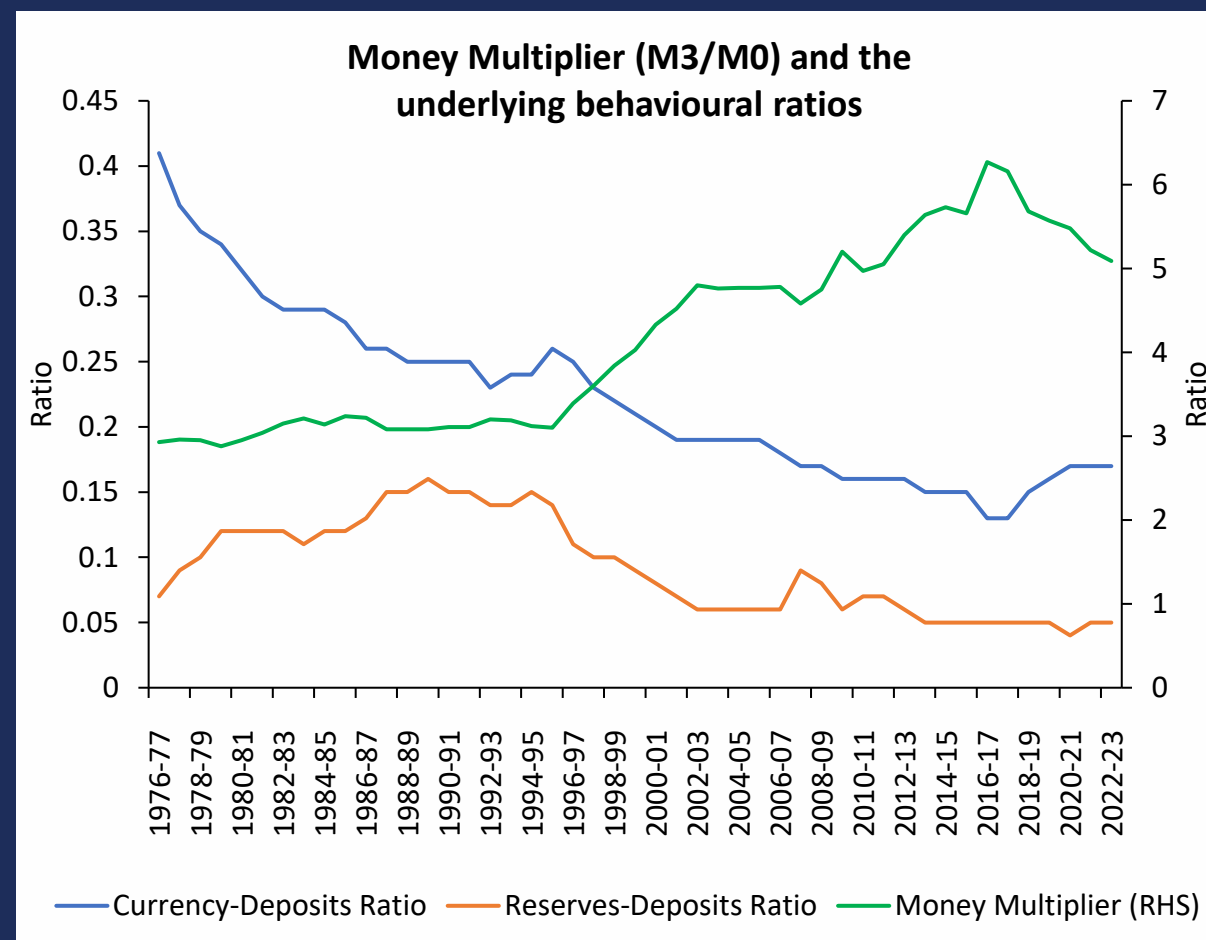


# First Channel – Currency Substitution

- Commercial bank deposits and central bank reserve requirements



- Monetary base and money supply-behavioral relationship
- Money multiplier:  $m = \frac{M3}{H} = \frac{C+D}{C+R} = \left( \frac{1+c}{c+r} \right)$
- Net effect depends on currency contraction vis-a-vis deposit accretion



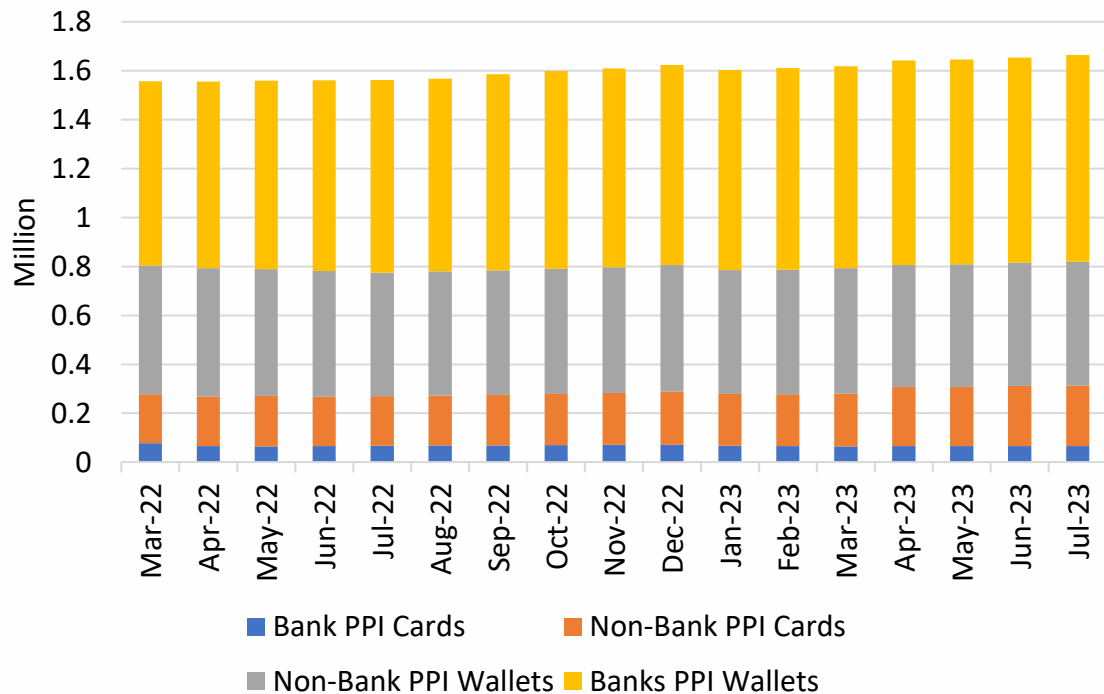


# Second Channel - Prepaid Payment Instruments

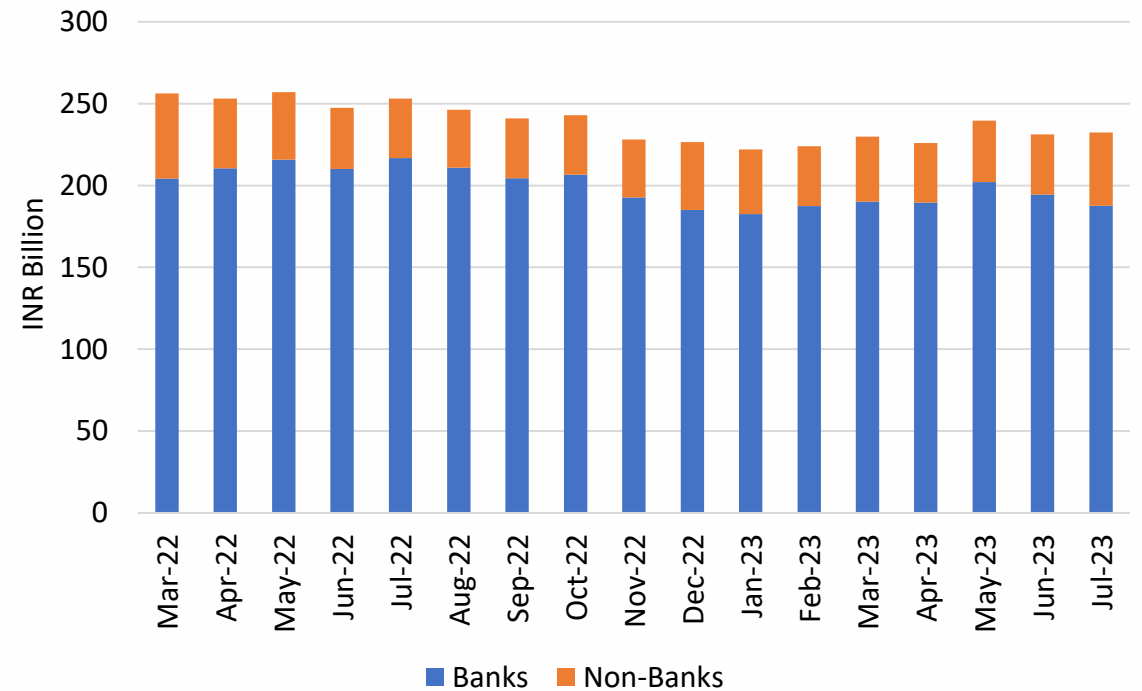
- Digital wallets, smart cards issued by both banks and non-banking entities
- Financial services against value stored

- 45 per cent of PPIs issued by non-banks, accounting for 20 per cent of transactions

Outstanding Number of PPI Cards & Wallets



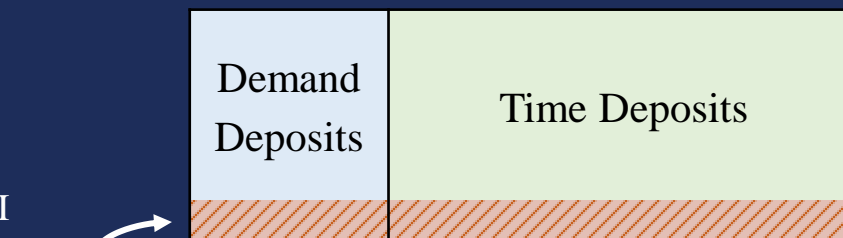
Total PPI Transactions - Banks vs Non-Banks



# Treatment of Prepaid Payment Instruments in Monetary Aggregates

- PPIs in India
  - ▶ Small PPIs
    - ◆ Purchase of goods and services
  - ▶ Full-KYC PPIs
    - ◆ Fund transfer
    - ◆ Cash withdrawal
  - ▶ Closed System PPIs
    - ◆ Not regulated by the RBI
    - ◆ Not used for payment or settlement for third party services
- E-money stored in PPIs = transferable deposit to be included in broad money
- Banks
  - ▶ Outstanding balance forms part of NDTL- reflected in calculation of broad money
- Non-banks
  - ▶ Escrow account with commercial bank, part of commercial bank's NDTL

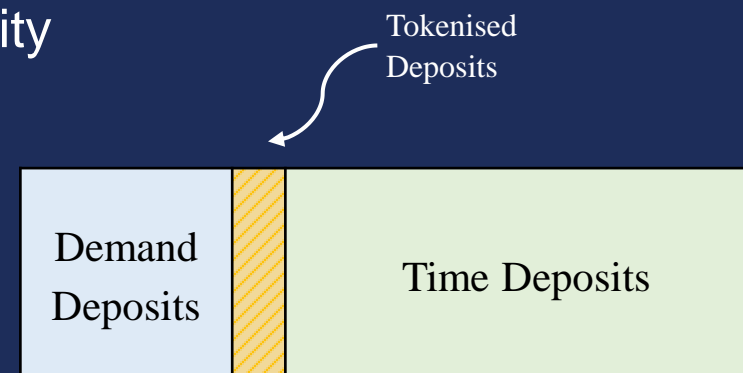
Outstanding PPI  
balances in the  
escrow account



# Second Channel - Tokenisation of Commercial Bank Deposits

- DLT-based economic equivalents of traditional deposits
- Medium of exchange and store of value – “*singleness*” of money
- Non-bearer (burn/issue) model within the current two-tier fractional reserve system
- Part of broader ecosystem of tokenised assets

- Liquidity



- ◆ Transferability
- ◆ Divisibility
- ◆ Programmability
  - Smart-contracts

# Conclusion

- Competition- degree of substitution between physical and digital forms of money
- Degree of moneyness/liquidity of existing constituents
- Comprehensive accounting within the orbit of regulated banking system
- Regulatory and supervisory frameworks overseeing digital payment systems
- Disaggregating constituents for analytical and policy purposes
- Other issues:
  - ▶ Concept of residency- center of economic interest
  - ▶ Sources side: FinTech and BigTech credit, venture capital, peer-to-peer lending

## References

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**Thank You**

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