

# Digital Currencies and Fast Payment Systems

Disruption is coming

Darrell Duffie

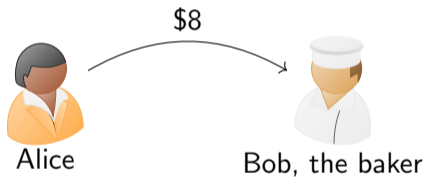
Graduate School of Business, Stanford University

G30 Plenary

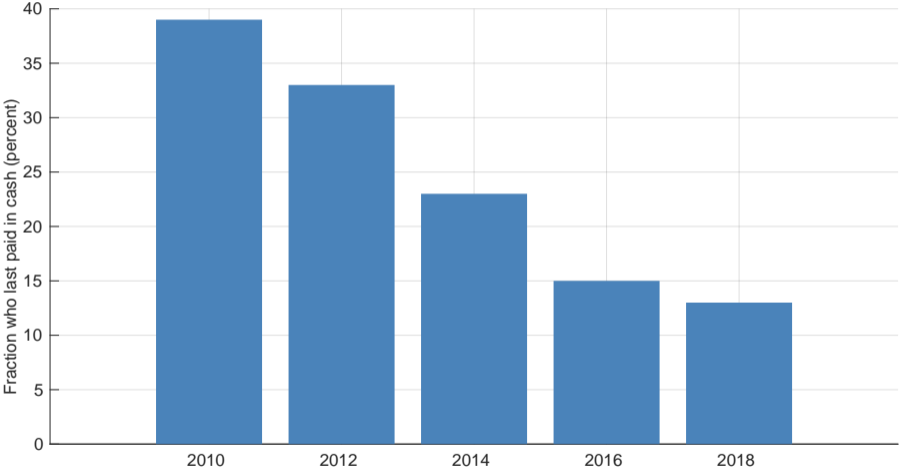
Federal Reserve Bank of New York, November, 2018

With research assistance from Hanna Tian and David Yang

## Token-based payment

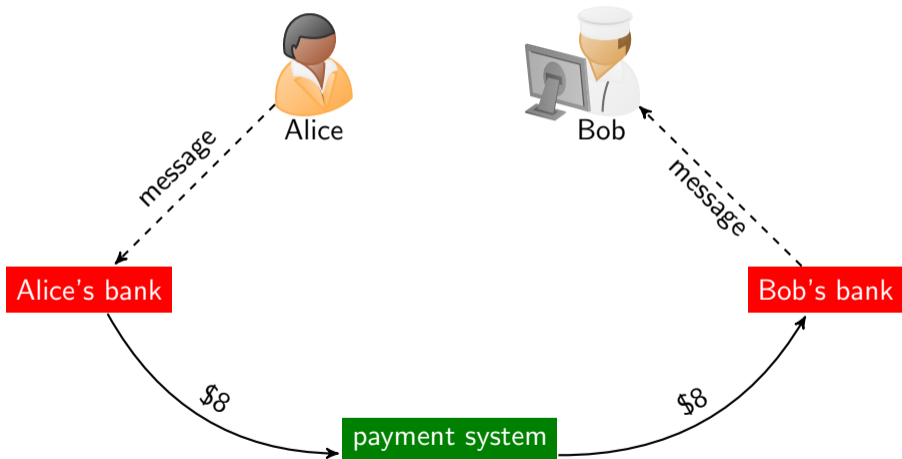


# Swedes now rarely use cash

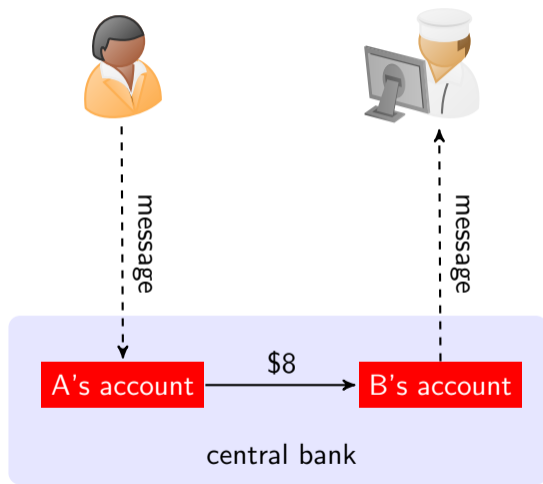


Source: Riksbank eKrona Report (2018).

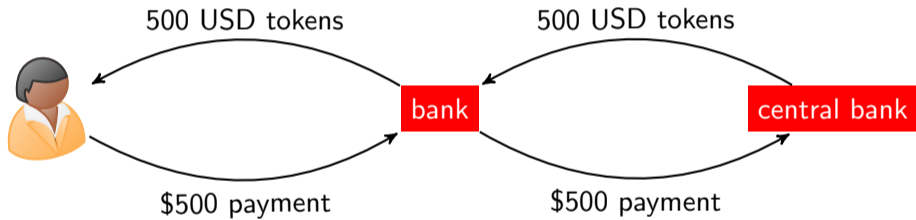
## Bank-account payment



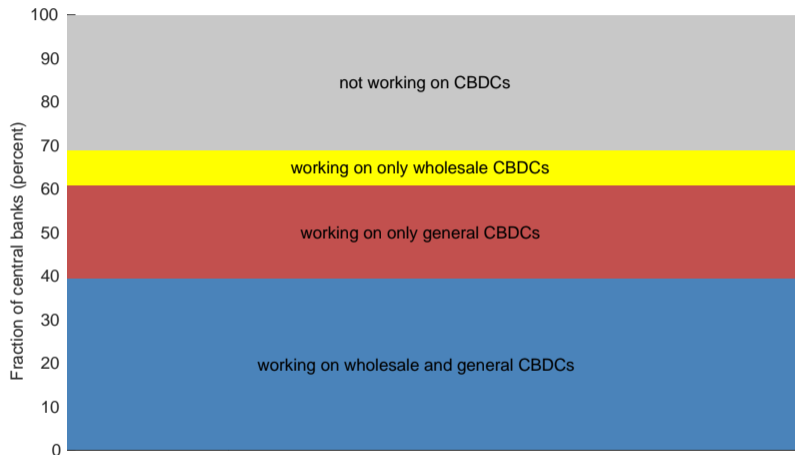
## CBDC account payment



## CBDC token issuance

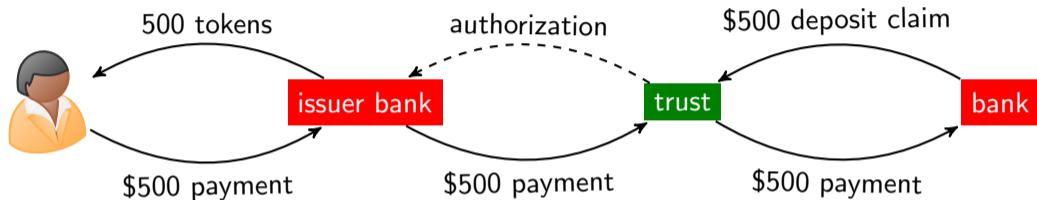


# Most central banks are now working on digital currencies



Data source: CPMI survey of 80 central banks, Coeuré (2018).

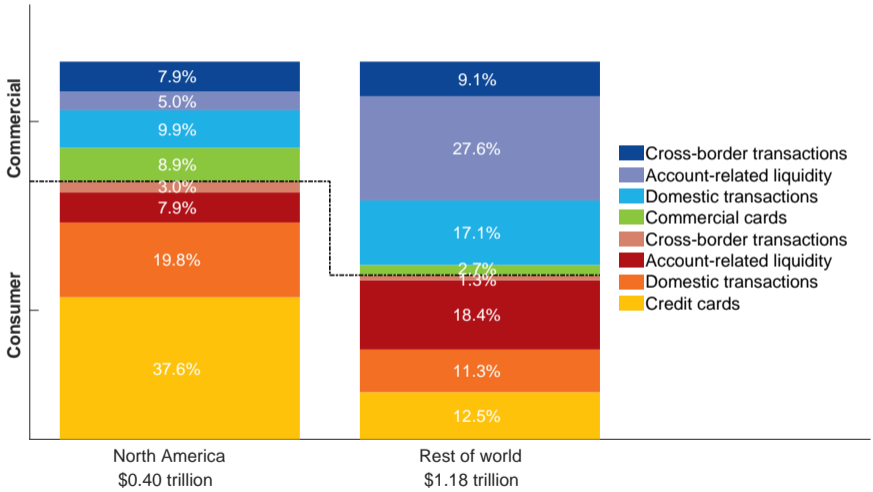
## Private stablecoin issuance



Based on Token X Federated stablecoin.

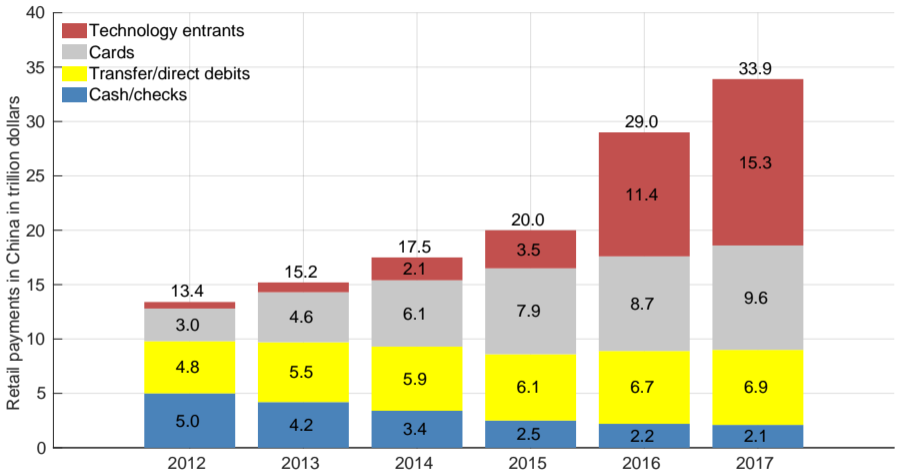


# Payment system revenues



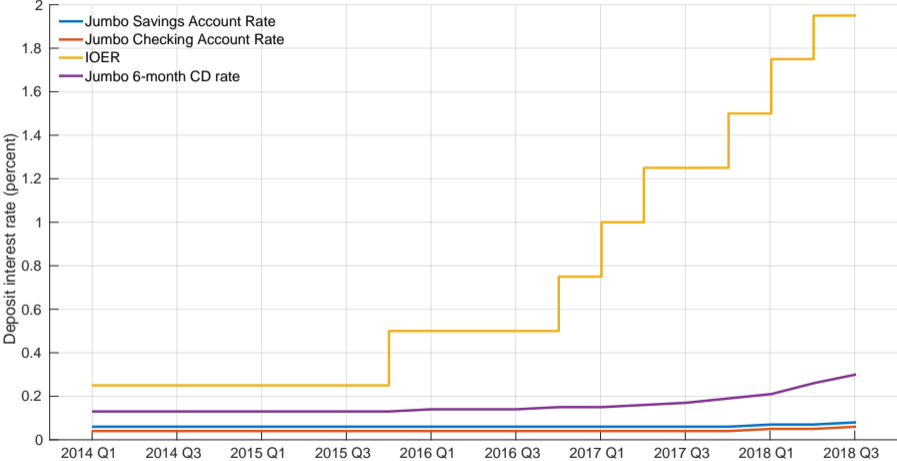
Data: McKinsey Global Payments Map 2017.

# Disruption of China's payment system



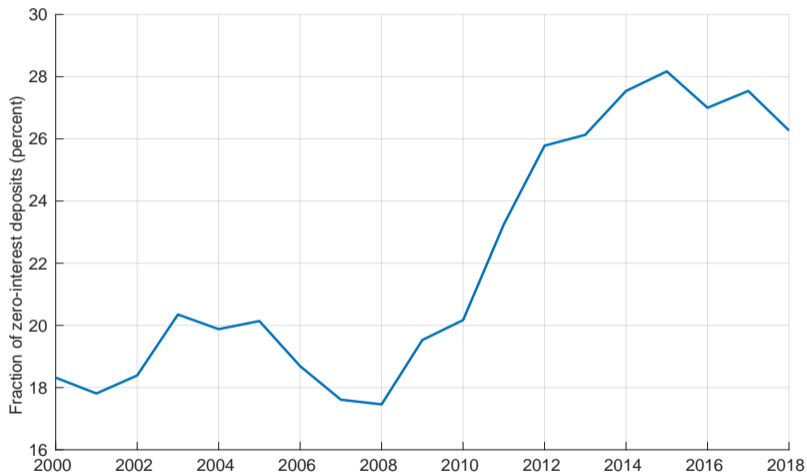
Source: McKinsey Global Banking Annual Review 2018.

# U.S. banks do not offer competitive rates for retail deposits



Data sources: U.S. Federal Reserve and Federal Deposit Insurance Corporation.

## A large fraction of U.S. bank deposits earn no interest

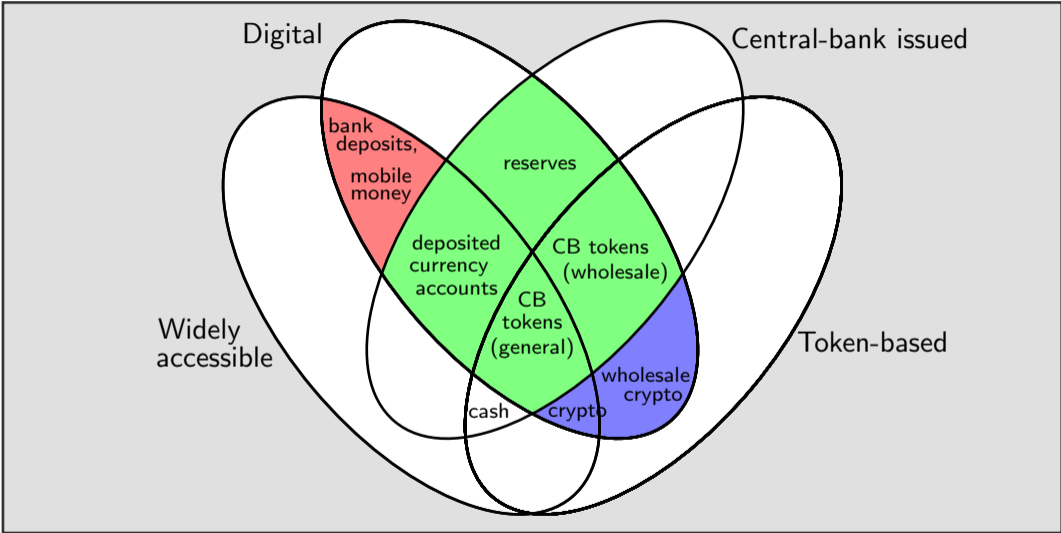


Data source: U.S. Federal Deposit Insurance Corporation.

## A few predictions

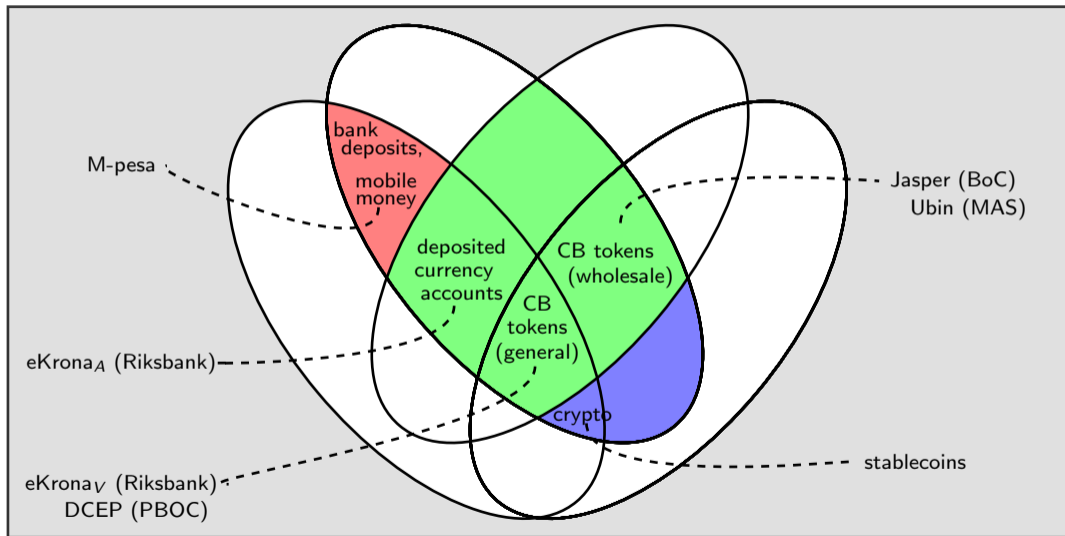
- ▶ Instant payments of some form will dominate within, say, 10 years.
- ▶ Effective forms of instant payment are feasible now or will be within a few years:
  - ▶ instant bank-account payment systems.
  - ▶ central bank digital currencies.
  - ▶ private stablecoins.
- ▶ Large bank business franchises will be disrupted, whether by non-banks or banks.
- ▶ Most developed-market central banks will support the ranking:  
  
instant bank-account payment systems > CBDCs > private stablecoins.

# Appendix: Digital petals of the money flower

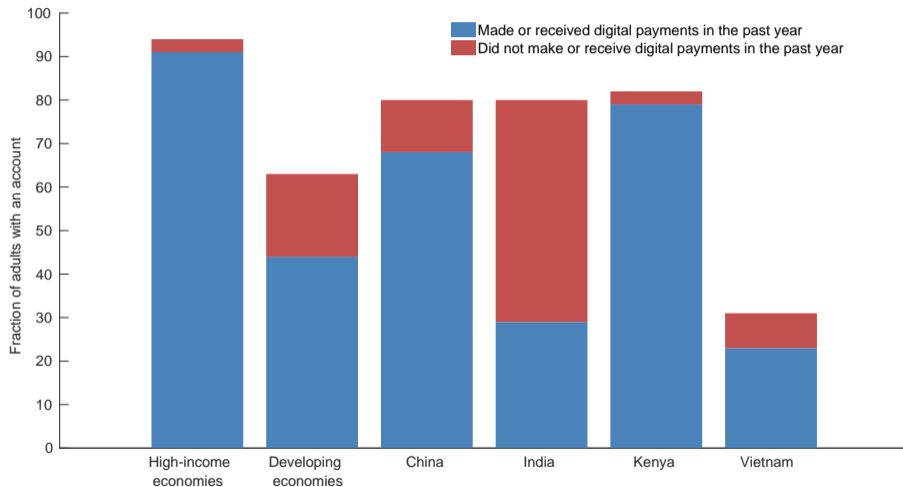


Adapted from the “money flower” of Bech and Garrett (2017).

# Illustrative and emergent digital money



# Emerging-market financial inclusion and digital payments



Data source: World Bank Global Findex Database.