

Digital currency policy economics

Part 1: Overview of digital currencies and payment system innovation

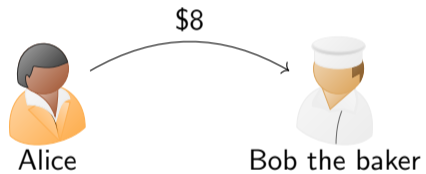
Darrell Duffie
Stanford Graduate School of Business

The Swedish House of Finance
Doctoral Course Program in Finance
June, 2022

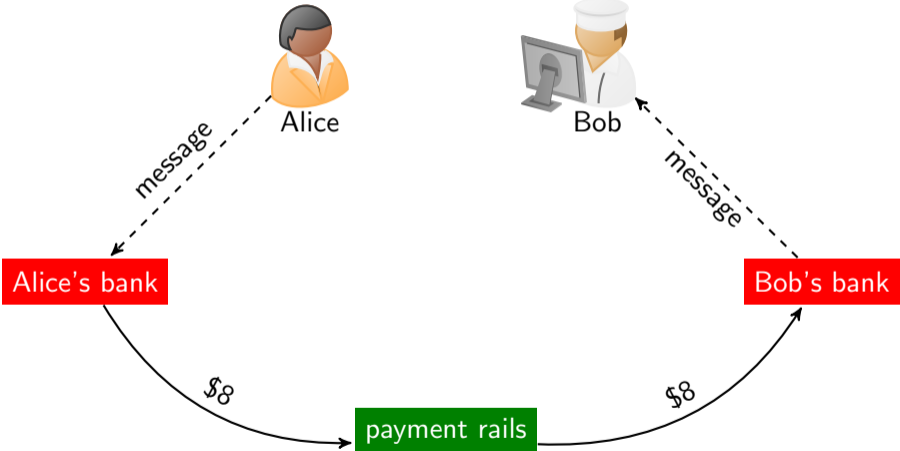
Course outline

1. Overview of digital currencies and payment system innovation
2. The industrial organization of payment markets and fintech entry.
3. The impact of fintech payment market entry on bank credit provision.
4. Implications for currency dominance and financial sanctions.

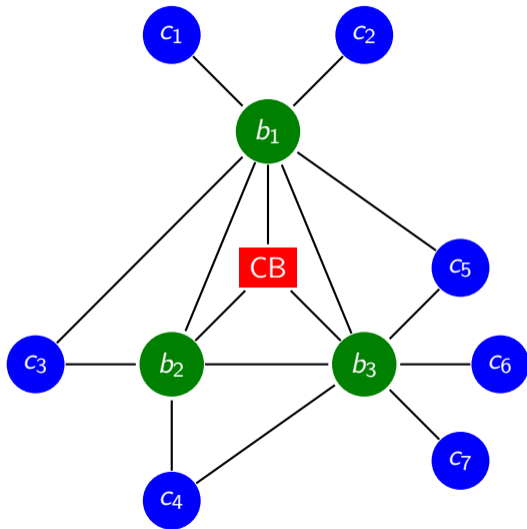
A payment



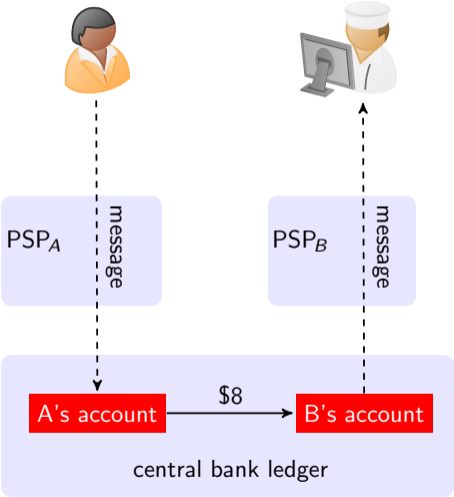
A bank-railed payment



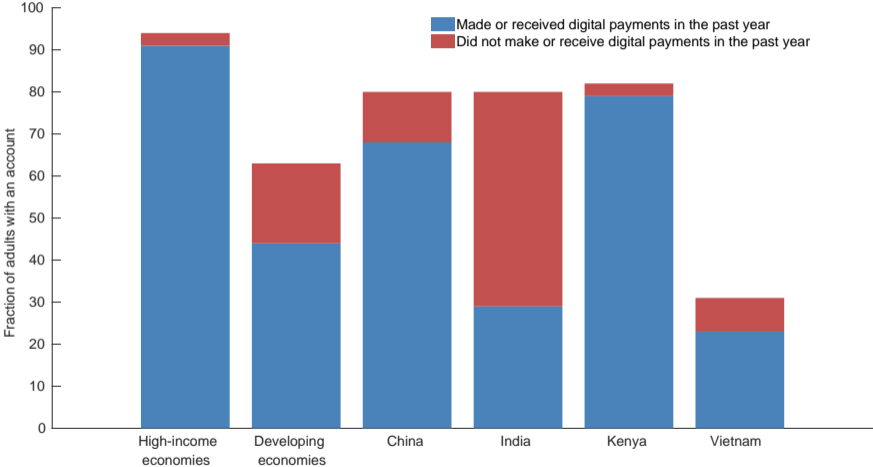
Bank payment rails



A CBDC payment



Financial inclusion and digital payments



Data source: World Bank Global Findex Database.

Bank of England: CBDC Objectives

1. Supporting a resilient payments landscape.
2. Avoiding the risks of new forms of private money creation.
3. Supporting competition, efficiency and innovation in payments.
4. Meeting future payment needs in a digital economy.
5. Improving the availability and usability of central bank money.
6. Addressing the consequences of a decline in cash.
7. An enabler for better cross-border payments.

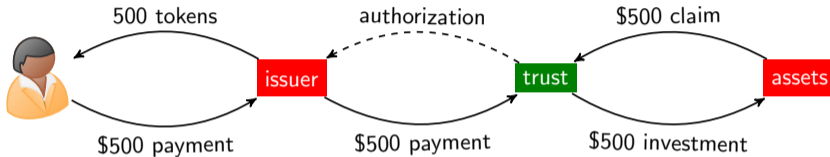
Major CBDC developers

Major CBDC developers include:

- ▶ Peoples Bank of China.
- ▶ Sveriges Riksbank.
- ▶ Bank of Korea.
- ▶ Central Bank of Nigeria.
- ▶ European Central Bank.
- ▶ Reserve Bank of India.

Recommended reading: Adrian and Mancini-Grifoli (2019), Bindseil (2019), Group of Thirty (2020), Auer and Böhme (2020), Bank of Canada, Bank of England, Bank of Japan, European Central Bank, Federal Reserve, Sveriges Riksbank, Swiss National Bank and BIS (2021), Federal Reserve Board (2022), The White House (2022).

Private stablecoins



President's Working Group Report on Stablecoins, November, 2021:

"... legislation should limit stablecoin issuance, and related activities of redemption and maintenance of reserve assets, to entities that are insured depository institutions. The legislation would prohibit other entities from issuing payment stablecoins. Legislation should also ensure that supervisors have authority to implement standards to promote interoperability among stablecoins."

Fast payment systems?

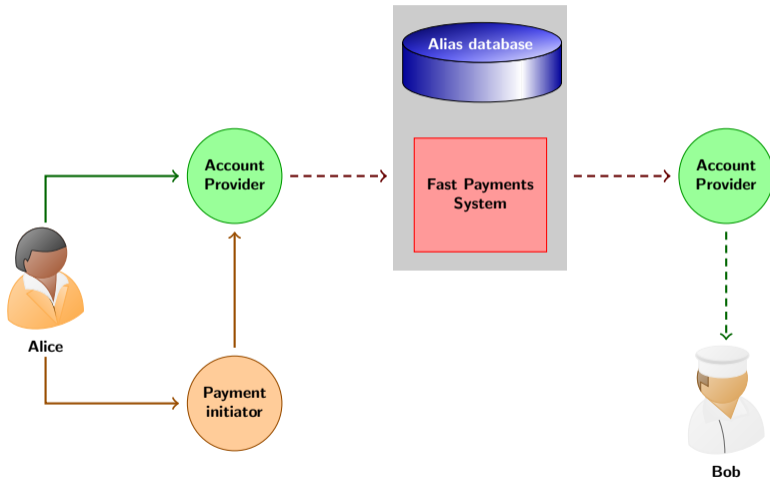
- ▶ Key defining properties:

1. $24 \times 7 \times 365$ availability.
2. Real time gross settlement (RTGS).

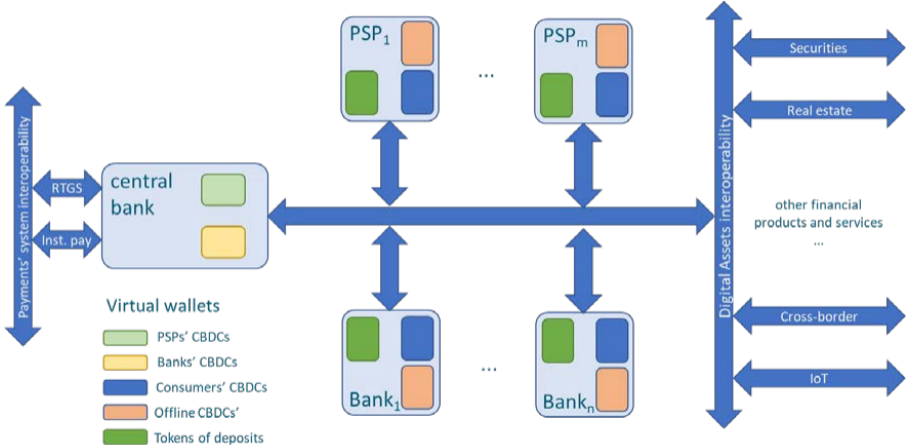
- ▶ Examples:

- ▶ Korean Electronic Banking System, established 2001.
- ▶ Bank of Mexico's Sistema de Pagos Electrónicos Interbancarios.
- ▶ Swish, a private mobile payment system available in Sweden.
- ▶ The United Kingdom's non-profit utility, Faster Payments.
- ▶ Singapore: Fast and Secure Transfers (FAST).
- ▶ The European Central Bank TARGET Instant Payment Settlement (TIPS), based on the SEPA Instant Credit Transfer platform.
- ▶ The US: Real-Time Payments System and Fed RTGS fast payment system, FedNow.
- ▶ Brazil's Pix.

An interoperable fast payment system

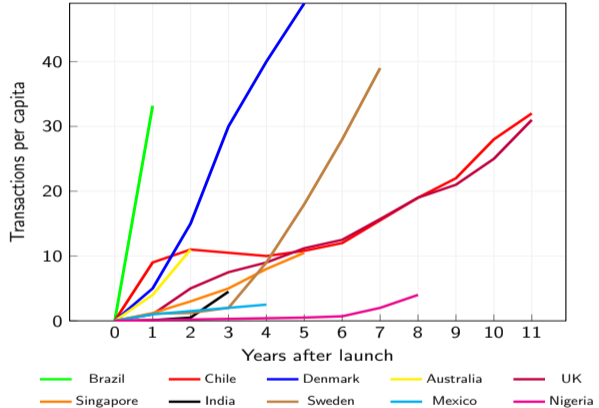


Interoperability of payment tokens and digital assets



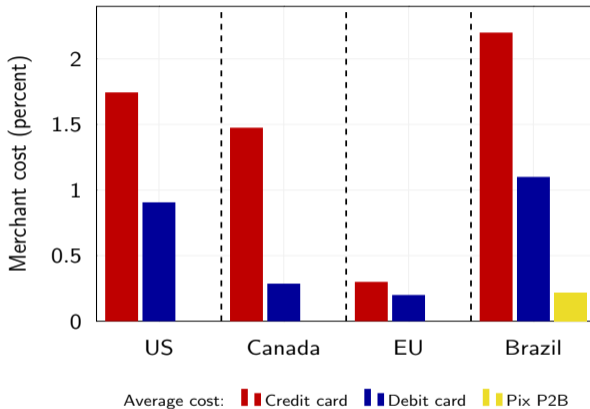
Source: Araujo (2022).

Pix adoption has been rapid



Source: Duarte, Jon Frost, Gambacorta, Koo Wilkens and Shin, Bank for International Settlements, March, 2022.

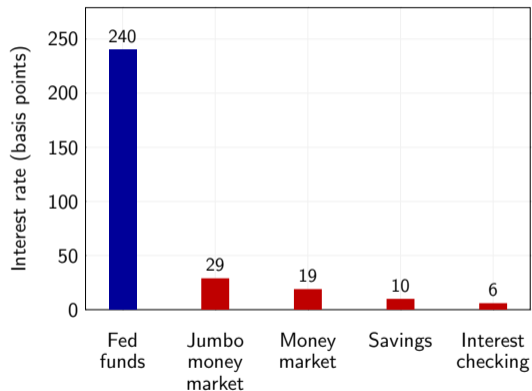
Merchant costs for cards and Pix



Source: Duarte, Jon Frost, Gambacorta, Koo Wilkens and Shin, Bank for International Settlements, March, 2022.

Weak competition for deposits reduces bank funding costs

When wholesale rates last peaked in April 2019



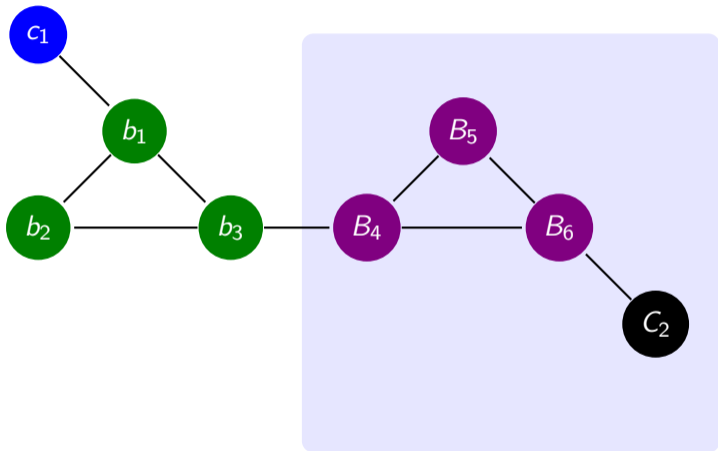
Data sources: FRED and FDIC.

Central banks are worried about credit provision

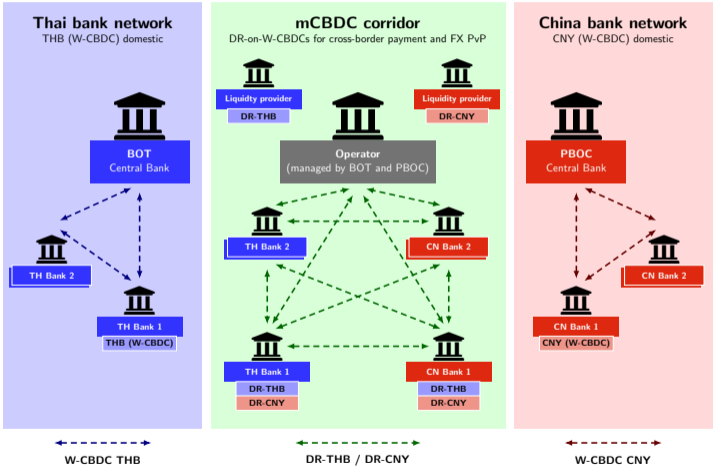
“A widely available CBDC [...] could reduce the aggregate amount of deposits in the banking system, which could in turn increase bank funding expenses, and reduce credit availability or raise credit costs for households and businesses.” *Money and Payments: The U.S. Dollar in the Age of Digital Transformation*, Federal Reserve, 2022.

The BIS and G7 central banks, including the Fed, suggest that “if banks begin to lose deposits to CBDC over time they may come to rely more on wholesale funding, and possibly restrict credit supply in the economy with potential impacts on economic growth.” *Central Bank Digital Currencies: Foundational Principles and Core Features*, BIS, 2020.

What about cross-border payments?



A multi-CBDC exchange corridor



Adapted from: Project Ithanon, Bank of Thailand, 2021.

The U.S. government is concerned

In addition, technological innovations such as digital currencies, alternative payment platforms, and new ways of hiding cross-border transactions all potentially reduce the efficacy of American sanctions. These technologies offer malign actors opportunities to hold and transfer funds outside the traditional dollar-based financial system. They also empower our adversaries seeking to build new financial and payments systems intended to diminish the dollar's global role. We are mindful of the risk that, if left unchecked, these digital assets and payments systems could harm the efficacy of our sanctions.

–The Treasury Sanctions Review, U.S Department of the Treasury, October, 2021.

Policies

1. Use regulations and fast-payment infrastructure to promote a more open, efficient, and competitive bank-railed payment system.
2. Allow entry by private stablecoins and fintech banks, subject to compliance and interoperability standards.
3. Continue developing CBDC technology. Deploy a CBDC when the key technology gaps are closed and the economics warrant a CBDC.
4. Support wholesale CBDCs for settlement systems and cross-border payments.
5. Analyze dollar-dominance risks and benefits carefully.