Discussion:
BigTechs, Credit, and Digital Money

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An Overdue Encounter:

Finance and Computer Science

The topic is dear to my heart!!!

1. what happened when Finance met Computer Science?

2. Computer Science: frontier of Cryptography

3. Finance: evidence of Brazil, *Pix* + Open Banking

FINANCE ALONE ;)

▶ I/O: firms provide multiple complementary products and services
  → bundling to attract consumers

▶ international economics: "credible" threat of exclusion from financial
  markets → contract enforcement to prevent sovereign default

▶ financial crisis: "netting" obligations is a very useful trick to prevent
  cascade of defaults → emergence of CCPs

▶ WW2: it is important to send messages in a way that adversaries cannot decrypt them

▶ rise of personal computers and digital encryption (1970s) → cryptography

▶ using distributed resources allows us to do data collection and computation a lot more precisely and efficiently (1980s)

→ distributed systems

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  - brainchild of CS adopted in financial markets
  - fully decentralized establishment of sequence of verifiable events

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  - information asymmetry
  - contract enforcement
  - ⇒ uncollateralized lending

FINANCE MEETS COMPUTER SCIENCE: TECHNOLOGICAL PROGRESS

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  - contract enforcement

  ⇒ uncollateralized lending

- YES!

  - both borrowing and (re)payments recorded on the ledger ≡ bundling

  - credible threat of exclusion from ledger to transact ≡ contract enforcement

  - ledger can be used for netting payments ≡ CCP

Incorporating Digital Technological Progress in Financial Markets

- ▶ challenges
    1. efficient enforcement
    2. preventing rent seeking
    3. user privacy

- ▶ solutions
    - ▶ BigTech private ledgers → **(+)**: 1, 3; **(-)**: 2
    - ▶ public ledger (CDBC) → **(+)**: 2, 3; **(-)**: 1
    - ▶ *Co-opetition* → **(+)**: 1,2; **(-)**: 3

Decentralized Verification WITHOUT Privacy Violation

- ▶ frontier of cryptography
    - ▶ verify jurisdiction anonymously → without revealing the identity
    - ▶ no need for off-chain verification
    - ▶ verification **commoditized**
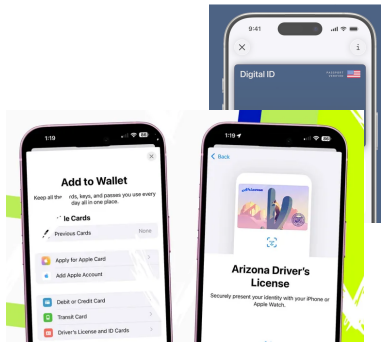
FUTURE OF STABLECOINS

1. integration of anonymous verification of jurisdiction with crypto
2. *GENIUS Act*
   - ▶ Guiding and Establishing National Innovation for U.S. Stablecoins Act
   - ▶ already passed the US senate

- ▶ further **commoditization** of the chain
  - ▶ compatability & interoperability of stablecoins & public blockchain

- ⇒ incentivize third parties to develop a new ecosystem
  - ▶ data collection of retailers/BigTech not commoditized yet
  - ▶ monopoly rents necessary to sustain innovation?

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- ▶ word of warning
   - ▶ there are extensive gains to centalization in crypto
   - ▶ production network of Ethereum blockchain highly concentrated
   - ▶ causal evidence for information rents (Azar, Casillas, Farboodi 2025)

BRAZIL: *Pix* + OPEN BANKING

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- ▶ Brazil: everyone uses *Pix*, largest banks joined Open Banking

- ▶ **preliminary evidence: impact of OB on credit extension**
  (Breza, Skrastins, Farboodi, 2025; very much (!) work in progress)

- ▶ sample: $2017 - 2024$

  - ▶ top 100 lenders
  - ▶ retail borrowers
  - ▶ # observations: $18,075,162$

- ▶ **treatment:** staggered, not all lenders treated

  - ▶ the date when bank gets its API to transmit/receive account information (balances and cash flows), certified by an official certifier
  - ▶ bank can start transferring data

- ▶ **specification**

  - ▶ within bank comparison (bank-municipality-month FEs)
  - ▶ compare unsecured loans (affected) to super-secured loans (unaffected)
  - ▶ super-secure: fiduciary lien, very easy to reposes $\Rightarrow$ unaffected

	all customers		
	# clients	tot credit	# avg loan
treated	0.3888***	0.0227	−0.3384**
	(0.0895)	(0.2198)	(0.1581)

▶ **aggregate impact:** redistribution of credit

Impact of Open Banking on Financial Inclusion

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▶ **redistributional impact:** no evidence for better financial inclusion
▶ word of warning
  ▶ theory: adverse redistributional consequences of data sharing policies
  ▶ main beneficiaries: customers' whose data is already in the financial system
    (Farboodi, Kondor, Kurlat 2025)

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- ▶ unusually rapid pace of innovation!

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- ▶ how should economists/policy makers respond?

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▶ optimal adoption is far from obvious!

▶ how should economists/policy makers respond?

1 be faster in assessing the impact of adoption of this technology

2 stay informed about frontier of innovation

3 provide input to computer scientists to guide the direction of innovation