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FinTech: Is This Time Different?

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FinTech: risk and opportunities for policymakers

"We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run"

Roy C. Amara

- **Analysis of FinTech developments to assess risk and opportunities for the mandates of central banks and regulators**

E-money: should central banks issue a *new* form of e-money?

Central banks offer some payments media: high value payments systems (restricted access) and cash (universal access)

- **Have the new technologies like DLT and mobile computing changed the tradeoffs in the public provision of payments media?**

Plan of my remarks

1. Discuss potential effects of FinTech on banking

2. Explain Distributed Ledger Technologies (DLT)

3. Discuss the regulation challenge of policy makers

Potential effects of FinTech on banking

Potential effects of FinTech

- What are the channels by which FinTech may affect the mandates of central banks and regulators?
  1. Changes in money demand
  2. Changes to the industrial organization (I.O.) of banking

- Money demand: we expect central bank money to be quite resilient

- Changes to the I.O. of banking are less clear. We need to ask:
  1. How will entrants be accommodated in the marketplace?
  2. Will incumbents redraw their organizational boundaries (firm structure)?

What do banks do?

1. Payments
   - Deposit accounts (and payments media) provide convenience to customers
   - Area of intense competition: race to develop new platforms or interfaces to the current infrastructures
2. Asset transformation (denomination, maturity, liquidity, risk)
   - Deposit-taking and loans (strong economies of scope)
3. Information-intensive lending
   - Screening and monitoring borrowers (information asymmetries)
   - P2P, I2P models; machine learning for predicting risk and speeding approval
4. Account custodianship
   - Record keeping and identity verification

Determinants

- Supply side:
  - Banks response: predatory pricing, acquisition of entrants or lobbying
  - New platforms and interfaces (payments, P2P, credit info) gaining strength
  - New firms with scale and scope economies
- Demand side:
  - Changed customer attitudes towards banking (experience across markets)
  - Mobile computing has reduced switching costs
  - Customers may be willing to put up with multiple banking relationships

I.O. of banking: accommodation of new entrants

1. Banks will integrate FinTech technology
   - FinTech business models (and some of the tech) are not proprietary
   - Example: direct banking model (ally bank, ING Direct)
2. FinTechs will become bank-like
   - Attempt to exploit traditional economies of scope
   - Example: start-ups seeking financial licenses (N24, Facebook)
3. New financial intermediation applications will be developed
   - Finding new economies of scope
   - Example: analytics of small firm's accounting data and loans (Square)

I.O. of banking: reorganization of financial firms

- **Unbundling hypothesis:** FinTech will make market transactions cheaper than within the firm
- Reports of the death of the universal bank are greatly exaggerated
  - Economies of scope are pervasive in intermediation
  - Regulation and the access to the wholesale payments infrastructure provides incumbents with a large advantage
- Three “flavours” of FinTech:
  - Adopted at established financial firms
  - New financial firms centered around technology
  - Input providers (BaaS)

Distributed Ledger Technologies

Distributed Ledger Technologies: it's all about the cost of trust

DLT is a **record-keeping** technology that allows participants to share and update a record of events in a distributed manner

Can DLT applications replace cash or other current financial systems?

- Any DLT system stores and transfers value using digital tokens
- DLT replaces the trust in individuals (or central party) with trust in tokens
- The determinant of adoption is if DLT can reduce the cost of trust

What determines the cost of trust?

Record-keeping has two dimensions: access to the records and the protocol to update the records

Updating \ Access	Centralized	Decentralized
Centralized	Account-based systems (Fedwire, CCPs, etc.)	Ongoing research
Decentralized	Cannot exist	Token based-systems (Bitcoin, cash)

What determines the cost of trust?

Traditional systems keep track of **individuals**

- Cost of trust is the cost of verifying identity, monitoring individuals and their collateral

DLT systems keep track of **tokens**

- With pseudo and anonymous transactions the cost of trust is the cost of issuance of tokens and the cost of verifying transactions
- Verification costs mostly likely increase with decentralization

Tiering and the role of the central bank

Tiering is likely to emerge in equilibrium

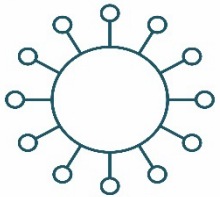
- Due to returns to scale in verifying identities, monitoring individuals or managing tokens complete decentralization is socially inefficient

Role of the central bank

- Tiering will involve central banks because some trades require certainty of settlement and stable value of tokens
- Central banks can commit to both

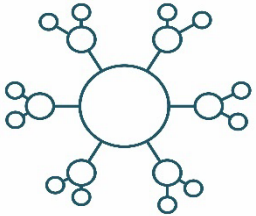
Tiering and the role of the central bank

Centralized trust network

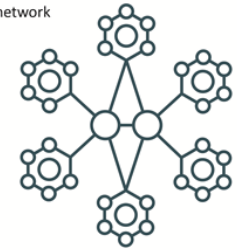


Core-periphery: high cost of identifying and monitoring individuals

Trust tiered network with centralized trust

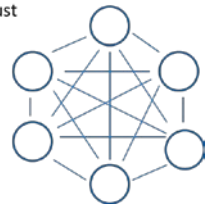


Hybrid network



Tiered networks

Distributed trust



Complete decentralization: high cost of verifying tokens

- Central bank settlement infrastructure will remain essential
- Access to this infrastructure will be determinant to the outcomes

Regulation challenges

Regulation

- Today regulation is largely based on institutions and not activities
- New applications of financial intermediation and new organizational forms of intermediaries will pose challenges to regulators
  - Should requirements for financial services licences be lowered?
  - Should access to the payments infrastructure be varied?

Thank you

References

- Kahn, Rivadeneyra & Wong (2018) “E-money and Payments Policy” (forthcoming)
- Aaron, Rivadeneyra & Sohal (2017) “FinTech: Is This Time Different?”, Bank of Canada discussion paper 2017-10