

# Adopting Digital Currencies

*an IO economist's perspective*

Marianne Verdier (CRED, Université Paris Panthéon Assas, Chaire de Recherche  
Finance Digitale)

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# Banks and payments

- **DEFINITION OF BANKS:** intermediaries offering a **BUNDLE** of deposit-taking and credit activities
- Payments are **ESSENTIAL** for banking
- Banks are **ESSENTIAL** for payments (at least in developed countries)
- Currency: official means of payment of a state/monetary union
  - Retail payments:
    - Currency issued by the Central Bank and distributed by **banks**
    - Transfers between deposit accounts managed by **banks** using various payment instruments (cards, checks, credit transfers)
  - Wholesale payments:
    - **Banks** use Central Bank money to settle payments
- **New entrants in the market:**
  - Banks could be (partially) bypassed for payments (Rochet and Verdier, 2021)

# New entrants in the market

- Private operators offering payments and requiring bank accounts:
  - e.g., Alipay in China, PSPs, possibly in the future entities offering payment services on a private blockchain connected to bank accounts
- Online banks:
  - N26 in France (but allowed to offer credit in Germany - and therefore in France)
- Crypto-assets: No formal entity, decentralized protocol adding transactions to a public ledger (e.g., Bitcoin, Ether...)
- Possibility: Central Bank with Central Bank Digital Currencies

# Competition in the payments industry

- **The retail payments market has several features of a **network industry**, with the same issues as for other network industries (telecommunications industry...)**
  - **Network externalities:**
    - crossed-side network externalities (two-sided market) for adoption and usage of payment services.
    - Same side network externalities for P2P payments.
  - **Cost savings generated by bundling of payment and other services:**
    - **Banks:** credit facilities (economies of scope)
    - **Platforms:** matching services (use of payment information to offer product recommendations)
    - **Public blockchains:** example of smart contracts (automated execution of some services such as insurance)

# Competition in the payments industry

- **Specific issues in the payments industry compared to telecoms:**
  - **Different risks** (liquidity risk, credit risk, cyber risk, systemic risk).
- **Competition between payment instruments depends on:**
  - the pricing schemes available (adoption, use, access fees including interchange fees)
  - non-price variables perceived by users as the quality of the payment system (security, convenience, anonymity, interoperability between payment systems, consumer protection...)

# an IO economist's message

- The presence of new entrants (and especially big techs) in payments poses new challenges.
- The regulatory issues are complex:
  - Who should have access to payments data?
  - Who should have access to payment systems?
  - How to ensure interoperability of competing payment solutions (risk of fragmentation)?

# Why bundle payments and credit?

- **1) Payment information is valuable for credit activities:**
- **Both banks and e-commerce platforms may have access to this information.**
  - Payment information increases the efficiency of:
    - the screening process for credit (e.g., Norden and Weber, 2010, for banks/ Ghosh, Vallée and Zeng, 2021 for fintech lenders)
    - of the monitoring process (e.g., Black, 1975/Huang, 2021)
  - Breaking the complementarity between credit lines and deposits with a CBDC can reduce social welfare (Piazzesi, M., and Schneider, M. 2022).

# Why bundle payments and credit?

- **Outside option: the use of alternative data.**
- **Is it a complement or a substitute to payments data?**
- With the rise of digital consumption, the digital footprint of consumers is a valuable predictor of default (Berg, Brug, Gombović and Puri, 2020).
  - A complement for consumers who already have a bank account
  - A substitute for unbanked consumers (especially in developing countries)
  - => **One of the explanations for the rise of big tech credit in emerging countries (Cornelli et al., 2020).**
- **Policy question: who should have access to which data (open-banking regulations, asymmetries between banks and big techs etc...)?**



# Why new trust mechanisms?

- **2) Banks: information producers for credit AND trust builders for payments:**
- In the classical theory of banking, the decision to grant a credit to a firm seeking access to finance is a signal for markets (Fama, 1985).
- In payments, banks perform also a screening process by allowing (or not) consumers to open a bank account (KYC process):
  - Performing this task is costly and valuable for the society: banks contribute to building trust for exchanges.
  - Many non-banks rely on banks' expertise for deposit accounts because the KYC process is costly.
  - Such a task could be even costly for a Central Bank deciding to allow consumers to open Central Bank accounts for CBDCs.

# Why new trust mechanisms?

- **Outside option: rely on DLTs and decentralized protocols to build trust.**
  - In *public blockchains*, unlike in the banking system, no screening mechanism to be allowed to make transactions.
    - The protocol ensures that the benefits of contributing to the DLT exceed the cost of attacking the ledger.
    - If public blockchains were to compete with traditional banks, trust would matter for convertibility.
  - Public blockchains may be less efficient than *permissioned blockchain* (Bakos, Halaburda and Mueller-Bloch, 2021)
    - Need to define who has the right to validate and audit the transactions performed on the blockchain.
    - => Back to some form of centralisation to build trust.
    - Value of programmable transactions on DLTs with smart contracts.
- **Policy question: which institutions should have access to payment systems?**

# Why new payment instruments?

- **3) Is there a demand for new payment instruments: tokens and CBDCs?**
- **Platform-specific tokens are valuable in some circumstances:**
  - For example, to overcome a common coordination problem in a network adoption (Bakos and Halaburda, 2022).
    - Early adopters share the future gains if the platform succeeds
    - Tokens provide an alternative when traditional financing is too costly.
- **Platforms may not have the incentives to compete with fiat currencies:**
  - Making tokens tradable constrains the ability of a platform to offer richer token price/quantity menus (You and Rogoff, 2022).
- **Policy question: how to ensure interoperability of competing payment solutions (fragmentation risk)?**

# Why new payment instruments?

- **Is there a demand for retail CBDCs?**
- For the moment, the answer to this question is unclear.
- In developed countries, merchants have complained about the costs of electronic payment systems (see the debate about interchange fee regulations, Ref. (3))
- Several researchers try to predict the demand for CBDCs according to the attributes that consumers value in payment systems (anonymity, budgeting etc...) and find very different results.
  - Huynh et al. (2020) find that even with the best features of both cash and debit cards, the usage probability of a new payment instrument in Canada reaches only about 25% of all transactions.
- **Policy question: how to evaluate ex ante the benefits of designing a new payment instrument?**

# Conclusion

- The competitive landscape in banking is evolving fast.
- The design of the regulatory framework will determine the adoption of digital currencies.

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