Blockchain Technology and Stablecoins in Traditional Finance

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Discussion by

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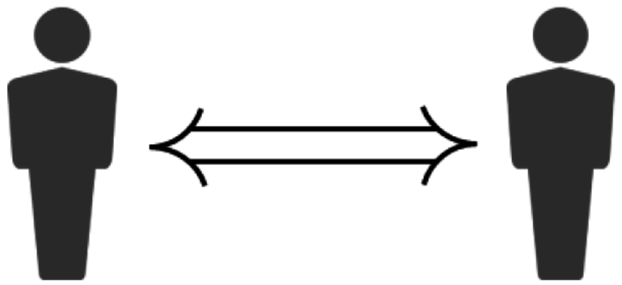
Summary of the Paper

- Efficiency gains from "idealized data structure"

Gains from <u>Existing</u> Transactions

Intensive Margin



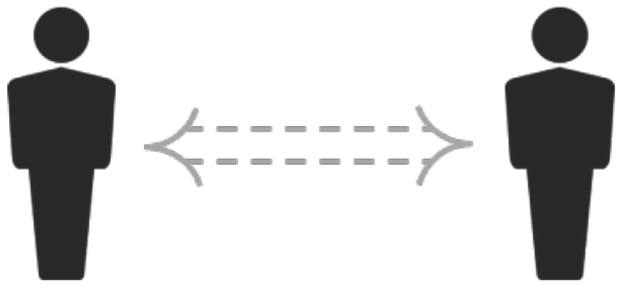
A

Blockchain can reduce the costs of existing transactions by:

- Reducing real resource costs
- Improving balance sheet efficiency/**Netting**
- Reducing intermediation rents

Gains from <u>Newly</u> Enabled Transactions

Extensive Margin



B

Blockchain can enable valuable transactions that are not taking place due to lack of trust by making cheating:

- Technologically difficult
- Detectable (in a static sense)
- Reputationally costly (in a dynamic sense)

Reducing excessive intermediation for existing transactions that currently take place through long intermediation chains falls into both categories.

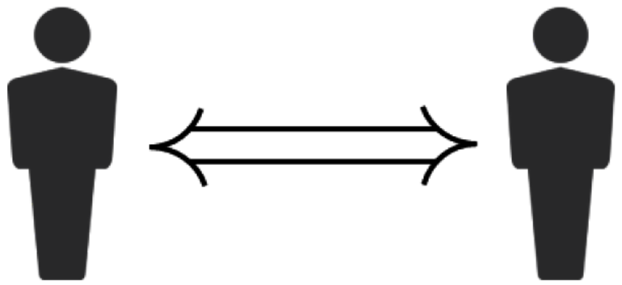
Summary of the Paper

Why is the distinction btw Intensive vs. extensive margin the **Organizing Principle**?

- Efficiency gains from "idealized data structure"

Gains from Existing Transactions

Intensive Margin



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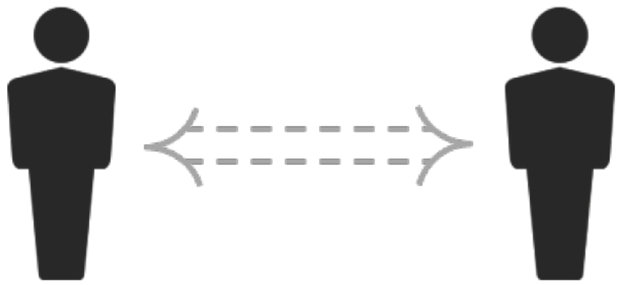

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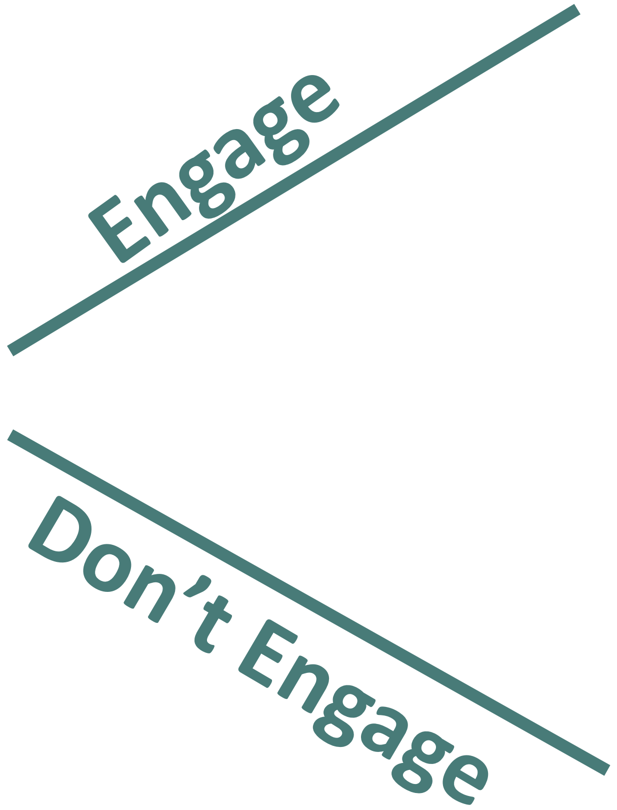
Summary: Repeated Extended Prisoners' Dilemma



Player 1 \ Player 2	Engage, Cooperate	Engage, Cheat
Engage, Cooperate	$+f$, $+f$	$-V$, $+V$
Engage, Cheat	$+V$, $-V$	$-\varepsilon$, $-\varepsilon$

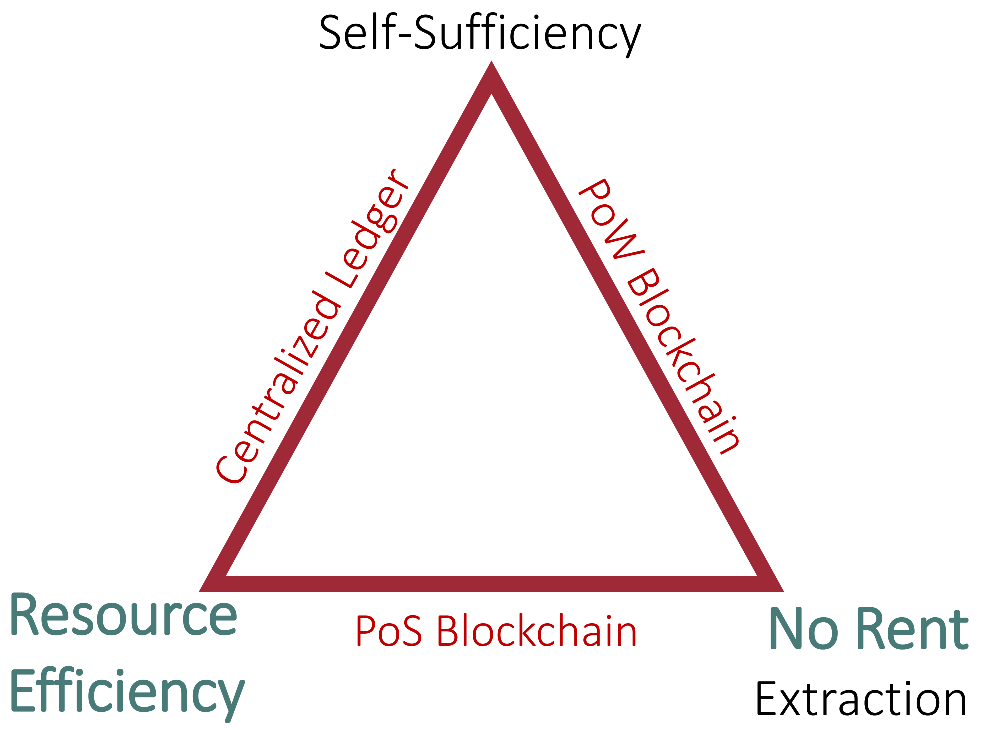
(0 , 0)

Cooperation is sustained with dynamic **punishment** strategy depends on discount factor δ

- Stable coin
  - Increase efficiency (clearing/settlement) – lower market power

Trust in Data

- Legal, reputation (dynamic) vs. PoW, PoS --- or combination



Blockchain Trilemma

Three ways of incentivizing honest behavior

Internal punishment	(lose **rents**)
External punishment	(lose **external trust**)
Proof-of-Work	(pay **resource cost**)

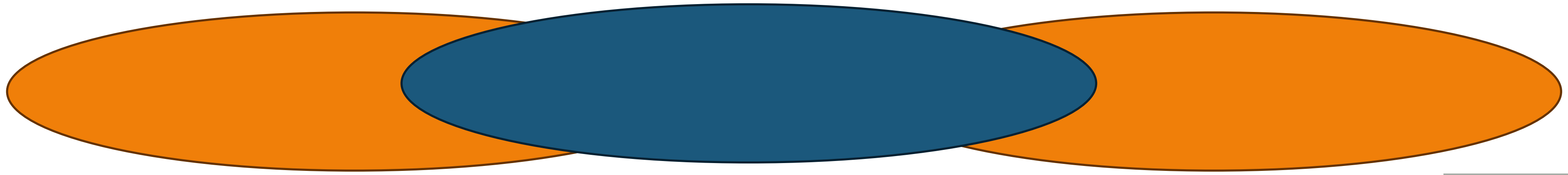
Blockchain innovations

1. Linear list
   + hash function (no ex-post tempering)
2. Reading privileges: decentralized, more open
3. Writing privileges: free entry, lower markups (Bitcoin, PoW)

2. Define "Idealized Data Structure"? Shared Ledger

- Each intermediary has its own ledger + connected ledger

JP Morgan Fed Bank of America



	decentralized	centralized
overlapping		
common		

- One shared/common ledger
  - Different from: Distributed ledger vs. centralized ledger

- Digital money requires digital ledger
- Smart contracts – "the larger, the smarter"

3. Privacy

- Optimal “privacy design” by segmenting/overlap ledgers

- How many ledgers? What grouping?
- What overlaps?
- Hub-spoke design?

- Privacy allows default

4. Smart contracts

Strategic Credit and Money Ledger (with J. Payne)

- Example: how new transactions/credit can emerge with "common" ledger
- "Smart" credit contract on ledger
  - Borrow from bank, promise to repay (with private token) when sales revenue come in
- Default by accepting money in gov. cash – and deposit with other bank
- Ledger controller sees that "other bank" accepts *these* deposits excludes from the ledger (and seize bank's token holdings) - KYC
- Ledger controller "**coordinates**" all banks to the no-default outcome ⇒ credit enforcement ⇒ credit market opens up **(new transactions)**
- Ledger extracts rent
  - Competition with public market place/cash & other private ledgers ⇒ lower rents, larger credit **(existing transactions)**
  - Too fierce, then credit market not sustainable
- Balance: Enforcement vs. market power
  - Interoperability regulation across ledgers/platforms
  - Competition with "smart CBDC"

International Interpretation:
US Dollar/Fed ledger can exclude banks from IMS

5. Stable coin

Shaped by privacy regulation

- US: **Stablecoins** in US $
  - programmable tokens of social networks/industry 4.0
  - Challenge: regulating stablecoins, platform interoperability
- Europe: **Digital Euro** (CBDC)
  - Consumer (not industry 4.0 focused)
  - Challenges:
    - Programmable/Smart contract integration is limited
    - CBDC as legal tender undermines smart contracts further
- China: **AliPay** and **WechatPay** + Digital Yuan
  - Consumer (convenience) + medium of exchange focused

Rent seeking by Stablecoin companies

offensive

- EMDE: Domestic CBDCs to fend off **digital dollarization**
  - Challenges: loss of monetary sovereignty and cheap funding

defensive

In sum

- Make definition of ideal data structure precise
  - Separate/overlapping
  - Unified common

$\neq$ de-, centralized ledger

- Use this as organizing principle instead of intensive/extensive margins
- Privacy protection
- "Smart contracts" and unified ledger
- Extent to cross-boarder transactions and IMS
- Stable coins on common ledger are more programmable (than CBDC)