



Discussion of “Platforms, Tokens and Interoperability” by Brunnermeier and Payne

Charles M. Kahn
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- Topics
- Importance of Issue
- Aspects of Payment Interoperability vs Organizational Modes of Interoperability
- Model Assumptions and Interpretation of Results

Interoperability

- The main issue for potential new payments arrangements
- **The** crucial regulatory question
 - e.g. PSD2 in Eurozone
 - Stablecoin access to federal reserve (Singh, Long, Kahn 2021)

Interoperability, CPMI definition

“The technical or legal compatibility that enables a system or mechanism to be used in conjunction with other systems or mechanisms. Interoperability allows participants in different systems to conduct clear and settle payments or financial transactions across systems without participating in multiple systems.”

- Sounds like a good thing
- (barring safety and soundness concerns)
- What stops it?
 - The platform literature says: Market power (without the power for first degree price discrimination) reinforced by network externalities
- Remedies:
 - Regulatory requirements or offering competing public services to destroy advantages of network externality. (Kahn Rivadeneyra 202X)

- Aspects of Payments Interoperability (B&P)
- Exchangeability (No redemption charge)
- Acceptability (Token usable on other platforms)
- Portability (Account transferability)

- Modes of Achieving Interoperability
- Scheme interoperability
- Network interoperability
- System interoperability

- Scheme Interoperability
- Two entities work on the same open-loop system (Checks, EFT)
 - Here: all systems accept CBDC, all systems convertible to CBDC

- Network Interoperability
- One payment scheme negotiates exchange agreements with another.

Cross-border example: payments arrangements allowing consumers to make credit card purchases abroad

Rarer in domestic markets: more likely if schemes are similar sized each with loyal niche

- System Interoperability

“parallel system interoperability” -- service providers act as bridges between two systems, operate on both and connecting agents who only operate on one

- Hawala, traditional financial arrangement transferring money by making credit and debits in separate locales

- The model—basic formulation

Competition between an existing public and private payment service, imperfect substitutes.

Potential competition from a second private, arrangement, perfect substitute.

- The model—basic formulation
- Customers choose platform then search for matches (rules out multihoming at instant of trade)
- Asymmetry built in so that might prefer to switch platforms when status (buyer/seller) changes.

- The model—basic formulation
- A markup assessed on each payment made.
- A distinct charge for withdrawing funds.
- (Could have charge/credit for joining the system)
- Ability to withdraw funds is a valuable right, could be paid for with upfront charge. Whether offsetting depends on details of ability to price discriminate

- The model—basic formulation
- When challenger is perfect substitute, and all customers move at once, perfect competition
- However, incumbent has advantage of current customers locked-in; extra cost to entrant to lure them away (cf Diamond Maskin, 1979)
- Equivalent to mobile phone plans: give away phones up front, lock customers to contracts.

- The model—basic formulation
- Differential charge for exchanging tokens for other tokens. Assumes can determine the exchange has occurred, rather than a sale for goods.
- A hawala would disrupt the arrangement: charge limited to sales markup.

- Extension with Credit and Production
- Basic model: agents obtain tokens from other agents by selling goods.
- Extension: initial cache obtained through loan from payments operator, used to buy raw materials
- Collateral for the loan: inventory.
- Smart contract: as soon as inventory out the door, then part to the creditor.

- Smart contract formulation and Acceptability
- A twist on traditional account of bank's synergy between payment and credit through information,
- But the ability to do so requires the ability to monitor **all** transactions otherwise power evaporates

- Smart contract formulation and Acceptability
- More generally link to Moral Hazard with Side-Contracts literature: If agent can sell to someone else, debt-collection power reduces to the convenience advantage of the monitored payment system over alternative systems.
- Except in extreme cases (“the company store” in a remote mining community) this is unlikely to be significant.

- New entrants and Non-Portability
- The sellers value the payment services; therefore they are willing to maintain the relationship by continuing to repay the initial loan.
- The sellers value the relationship because there is no alternative available.
- The lender will pay to maintain that power over payments; since without it the portfolio of loans is worthless.
- Therefore it will waste money keeping out entrants.

- New Entrants and Non-Portability
- However if the new entrant gains exclusive power, **it** will be able to enforce the loans. So the lender would be happy to sell the portfolio to the entrant.
- Crucially, this means incumbent will not waste resources keeping entrants out.

- Analogy
- Customers of mobile company have borrowed to buy (locked) phones from the company.
- If new mobile company enters, customers will switch and default.
- Deterrence of this is a cost of doing business, reducing incumbent's willingness to provide services.

- Analogy
- Let the incumbent offer to sell its portfolio (loans **and** lock-codes on the phones) to the entrant.
- Eliminates wastage of phones. **May** maintain enforceability of the contracts.
- But only if
 - The entrant in turn is a monopolist and
 - Existing customers can be identified and excluded from new service if loans not paid or
 - The value of the phone to the customer exceeds the loan balance (but then not debtor)

- Summary
- Great framework, important issues
- Basic structure convincing and yields results.
- Link between credit, payments, and smart contracts is insightful and worth exploring
- Results from extension too tied to model specifics to be convincing arguments about real benefits of interoperability



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- Complexity varies with specific payments environment
- One-sided or two-sided market
- Heterogeneity in intensive and extensive margins
- Time consistency, default probability
- Powers for discrimination: tracking identity, observability of activities, resale, borrowing, joining platforms
- Timing of choices of adoption vs use vs meeting trade counterparties

Compare with, e.g. Chiu and Wong (2020)

- Complex environments

Faster Payments domestically (US)

The Clearing House RTP network,

the Same-Day ACH system

the coming FedNow instant settlement process,
Zelle, Venmo, MasterCard Send and Visa Direct

- International payments
- Add in exchange rate issues.
- Regulatory issues of independent jurisdictions

