



FEDERAL RESERVE BANK *of* NEW YORK

Discussion of Economics of Blockchain, Payments and Tokens session

Antoine Martin
Federal Reserve Bank of New York

The views expressed herein are my own and may not reflect the views of the Federal Reserve Bank of New York or the Federal Reserve System

Overview

- Three papers:
 - “Accounts, Tokens and E-Money”
 - By Kahn, Rivadeneyra, and Wong
 - “Proof-of-Work’s Limited Adoption Problem”
 - By Hinzen, John, and Saleh
 - Shocks and Technology Adoption: Evidence from Electronic Payment Systems
 - By Crouzet, Gupta, and Mezzanotti
- Very interesting papers that provide important insights on blockchain, payments, and tokens



Key messages from the papers

- Accounts, Tokens, and E-Money: New technologies make issuance of CB tokens feasible (and perhaps desirable)
 - Trade-off between safety and convenience
 - Who should be responsible when problems arise?
- Proof-of-Work's Limited Adoption Problem: Limitations of permissionless systems
 - Permissionless systems may have to remain small for technological reasons
 - Permissioned alternatives may not suffer from that problem
- Shocks and Technology adoption: Importance of network effects in payment arrangements
 - It may be difficult to move from one arrangement to another
 - Shocks (or public policy) can facilitate a transition



FinTech in payments

- There are arguably two revolutions occurring in the world of retail payments:
 - Cryptocurrencies
 - Faster/mobile payments
- While generating less attention than cryptocurrencies, faster payments have had profound effects
- The papers in this session touch on both of these developments



Cryptocurrencies and payments

- Cryptocurrencies, like Bitcoin, allow the transfer of value even absent trusted intermediaries
 - That is amazing
 - But is it useful?
- Two papers in this session help us understand some limitations of cryptocurrencies
 - Paper on PoW makes it clear that technological constraints limit the network's size
 - This is a problem given the role of network effects, as noted in paper on demonetization
- Other issues have been noted in the economics literature; this one seems particularly relevant



What about permissioned ledgers?

- Paper on PoW argues that consensus on permissioned ledgers can overcome limited adoption problem
- What the paper doesn't address is why Blockchain is a good payment solution when a trusted intermediary exists
- The paper on Accounts and Tokens may provide a rationale for permissioned Blockchain
 - Central bank is trusted, so PoW is unnecessary
 - Tokens may be useful protection from bad actors
- More research would be useful to understand the benefits of permissioned ledger in payments



What if the future is not cryptocurrencies?

- Faster/mobile payments have profound effects on the payment landscape
 - Example: Swish and the decline of cash usage in Sweden

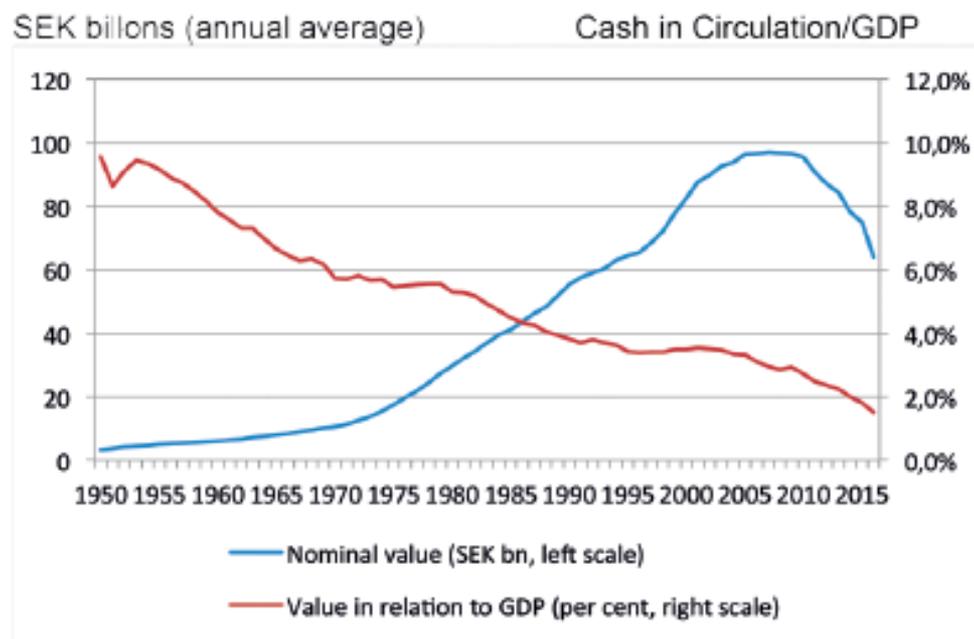


Illustration 1 : Value of banknotes and coins in circulation.

Note: Banks' holdings are excluded.

Sources: Statistics Sweden and Sveriges Riksbank.



Network effects and public policy

- Network effects seem to play an important role in the case of Sweden
 - As they did in the paper on demonetization
- If switching from one arrangement to another is difficult, official sector institutions may have a role to play
 - Demonetization in India may be an example
- An important question to consider is:
 - Should the private sector or the official sector issue e-money?



Token vs accounts

- The distinction between tokens and account has been a useful device to organize our thoughts about payment systems
- The emergence of cryptocurrencies challenges this classification
 - A private key looks a lot like an account
- New payment methods give us an opportunity to rethink existing classifications and perhaps discover a better one



To sum up

- Very interesting set of papers that provide important insights about the evolution of the payment landscape
- My personal takeaways:
 - Cryptocurrencies are probably not the future of payments
 - Network effects in payments give public policy an important role in a changing payment landscape
- Topics for future research:
 - We need to better understand what permissioned Blockchains can add to payments (if anything)
 - We may need to rethink how we categorize payment systems

