Discussion of *Congestion and cascades in coupled payment systems* by Bech, Beyeler, Glass, Renault and Soramaki

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Motivation

- Externality to providing liquidity in a payment system …
- … implies role for central bank involvement
- Greater interconnectedness of world payment systems could imply an even greater externality

Motivation

- Three types of interconnectedness
  - System-based
  - Institution-based
  - Environmental-based
- This paper looks at the first two

Modelling Approach

- Model of randomly-generated transactions based on network topology of actual systems
- Standard ‘simulation’ approach cannot do ‘stochastic simulations’ …
- … and requires more data than is available in the case of interdependent systems

Simplifications

- Continuous operation of payment systems
- Two ‘identical’ payment systems
- Equally-sized transactions
- Only ‘large banks’ receive FX payment orders

What did we learn?

- FX trading increases ‘correlation’ between systems if liquidity high
- PvP creates correlated cascades when liquidity is low
- Without PvP, FX settlement risk depends on:
  - Overall liquidity level and its distribution
  - Priority given to FX payments

What did we learn?

- PvP increases queuing when both systems have same level of liquidity (obvious?)
- Queue times in one LVPS now depend on liquidity in the other LVPS (less obvious!)
- This effect increases with level of FX activity and decreases with the priority given to FX trades

Policy implications

- Presence of an ‘international externality’ in liquidity suggests a need for coordination among central banks to encourage optimal levels of liquidity
- So, good for CPSS!
- And central banks should encourage banks to make FX transactions a priority

Caveats

- More realism
  - Calibrate network topology directly in line with real systems (e.g., FedWire and TARGET 2)
  - Do ‘end-of-day’ (timezone) effects matter?
  - Does use of ‘correspondent banking’ matter?
  - Does it matter that FX transactions tend to be larger than average transactions (if indeed they are)?

Caveats

- 'Lucas critique'
  - Level of liquidity imposed …
  - … but this is a decision variable for the banks
  - What does a move to PvP mean for liquidity posting?
  - What does a move to PvP mean for the network topology of the two systems?
- Need for 'agent-based' modelling as a complement to this approach

Some remaining questions

- How exposed are large countries' LVPSs to liquidity problems in small local banks in small countries?
- Effects of a shut down in a large bank/large country's LVPS
- Environmental-based interdependencies
- Additional payment systems
- The move to 24-7