Bank of Finland's Seventh Seminar on Payment Systems Simulation
Helsinki, August 2009

Discussion of *"An Evaluation of the First Six Months of New BOJ-Net with Queuing and Offsetting Mechanism"* by Kazuteru Tao, Bank of Japan

- ***Description of a change in the Japanese Payment system and assessment of its consequences by the measurement of the performance of the system in normal operation***
- ***Assessment of the benefits brought by the change in terms of resilience of the system by simulation of the default of a large participant***

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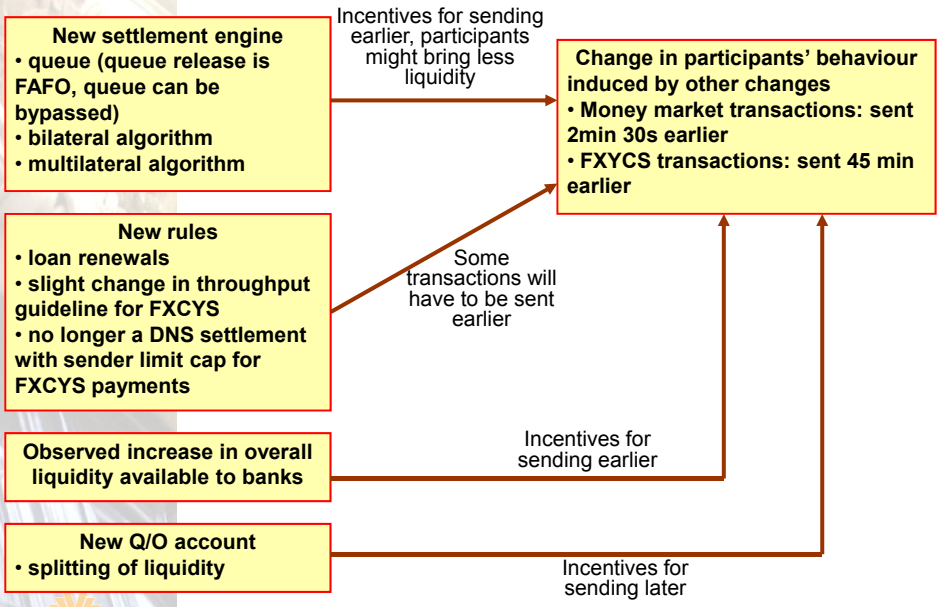
Fabien Renault
Banque de France

What has changed on 14 October 2008?



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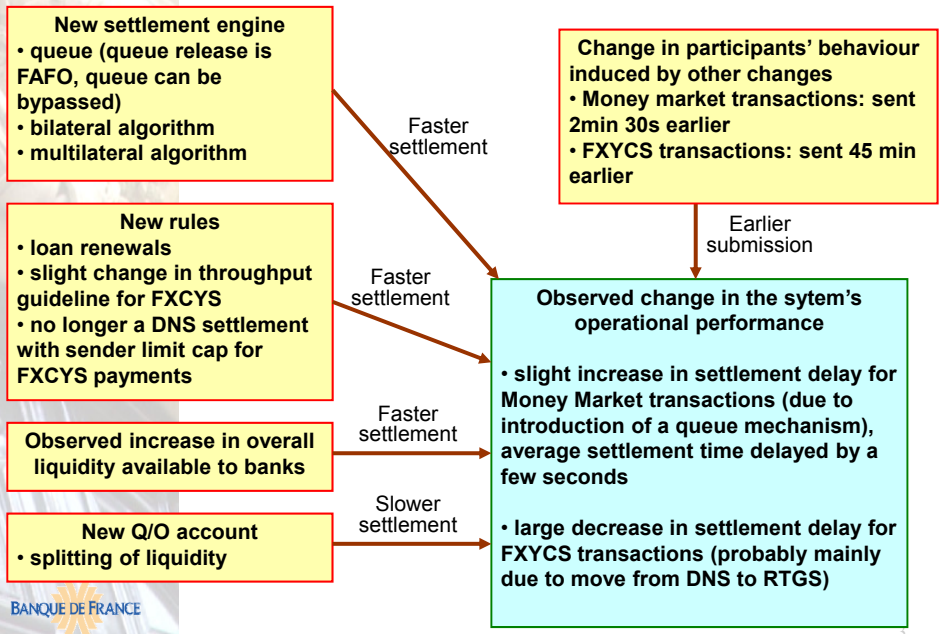

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Is the new system more resilient?

- Resilience is assessed by simulating the (technical) default of the most critical participant
  - *"standard test"*, hypothetical situation but useful for comparisons
  - simulations based on an average from 14 October 2008 to 31 March 2009
- *"Old system with new data"* compared to *"New system with new data"*
  - this approach singles out the benefits of the new engine
  - as the "old system" does not have a queue, a simple FIFO queue is added to the "old system" for the simulations
- Results:
  - The new engine improves a lot for low levels of liquidity
    - ✓ (at these liquidity levels, there are many queued payments between non-defaulters, and optimisation helps a lot there)
  - The new engine is more helpful in terms of volume than value
    - ✓ Old engine: simulated using a FIFO queue
    - ✓ New engine: FAFO queue release and queue by-passing.

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Conclusions and ideas for further work

- Nice work and interesting results
  - It is important to show top management how critical algorithms are, and why we should travel to Helsinki every year
  - Clearly illustrates queue by-passing / FAFO release
- Further work could improve our understanding of the different effects
  - *"Old system with old data"* and *"new system with new data"* simulations might be of interest to single out the effect of the change in participants' behaviour
  - Simulations with a single "liquidity pot" instead of two
- An "all-day default" scenario does not illustrate the benefits brought by early submission and queuing.
  - Cf *"Queues are good"* work from Martina Glaser and Philipp Haene, SNB, BoF seminar 2007.

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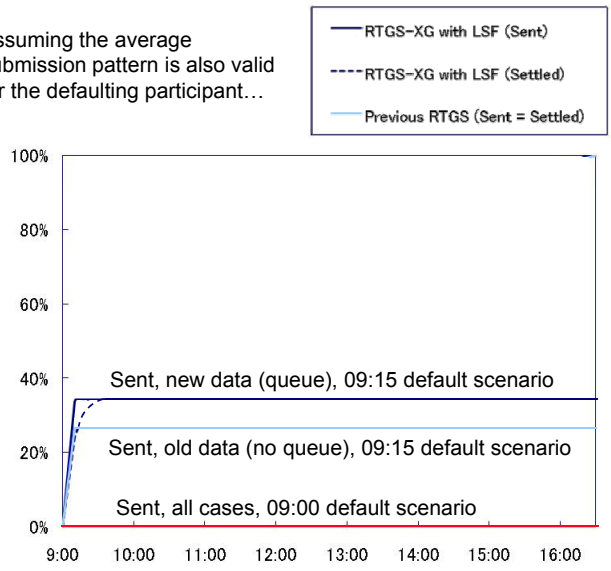
Conclusions and ideas for further work

Assuming the average submission pattern is also valid for the defaulting participant…



Could the impact of algorithms be stronger on the behaviour of the participants than on the settlement process itself ?

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