Discussion of

Analysing the impact of operational incidents in LVPS

by

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The paper in short

- Proposes a framework for quantification of operational failure impacts in LVPS
  - Generally aplicable
  - Straightforward
  - Few limiting assumptions
- CHAPS-analysis
  - Normal levels of liquidity tolerate even 3-participant operational failures.

My viewpoints

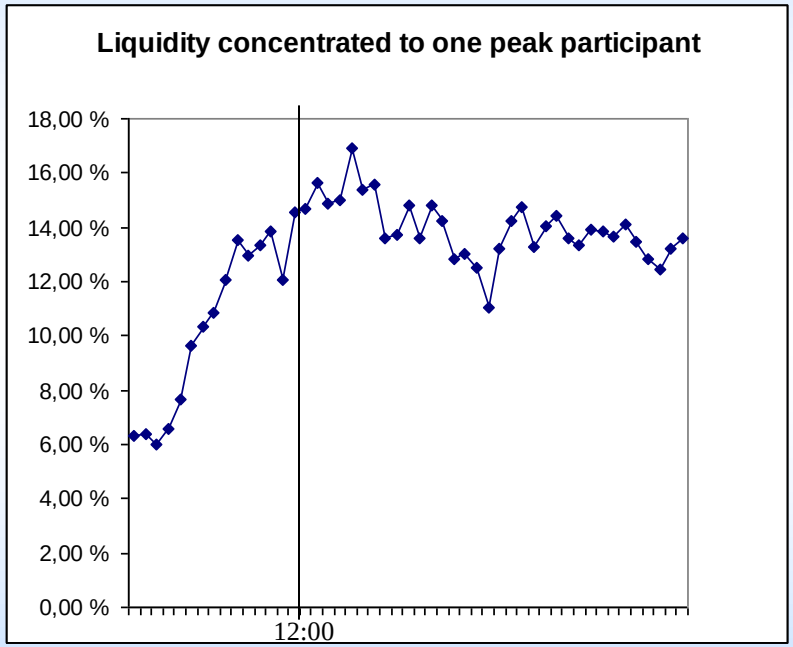
1. Stress testing the ”how to choose the worst case” –method
2. Emphasise the good ideas for avoiding point tests
3. One question about the results

Worst-case moment for operational failure

- **Defined as**: ”point of time when operational incident entails largest potential impact”
- **Identified as**: Moment before noon when one (three) participant(s) hold largest proportion of total liquidity.
- Chosen from data of one month

Possible weaknesses of the criteria

1. The critical liquidity consentration peak can take place after 12:00
2. The participant reaching the peak value can (?) as well remain at high level of liquidity for the rest of the day
3. The volume of remaining transactions has no effect

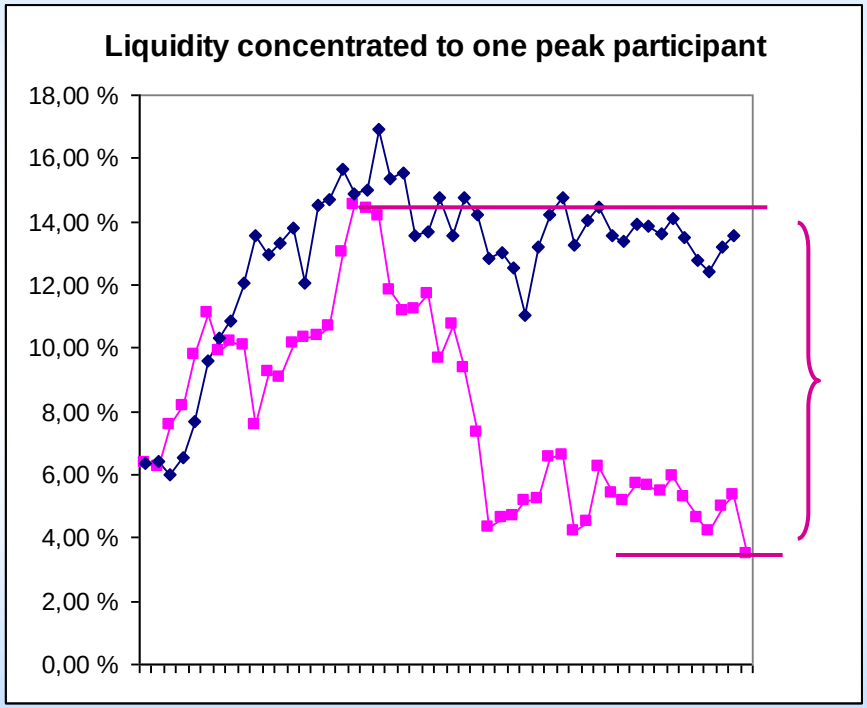


Solution proposal

Consider momentary concentrated liquidity compared to EOD-value

⇒Catches the largest amounth of such liquidity that is actually needed elsewhere later on

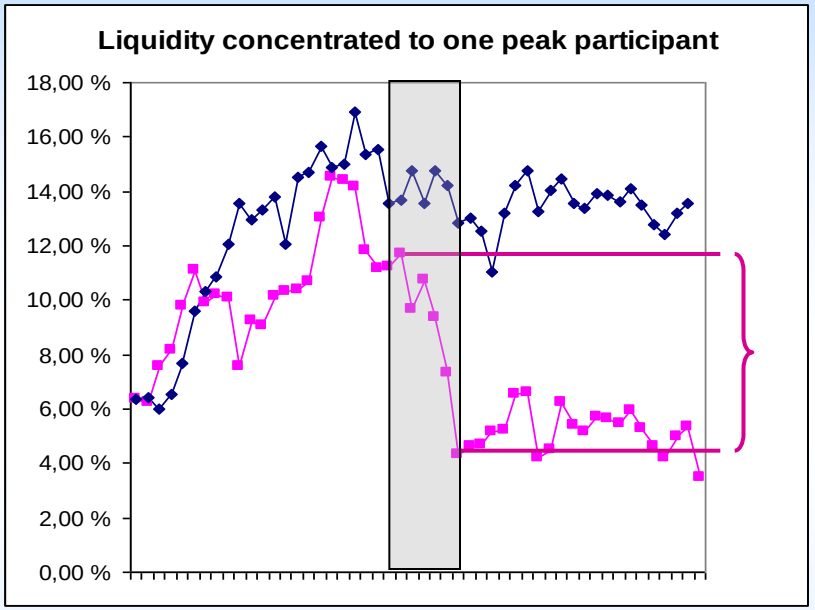
⇒No need for artificial ”before noon” constraint



Alternative options

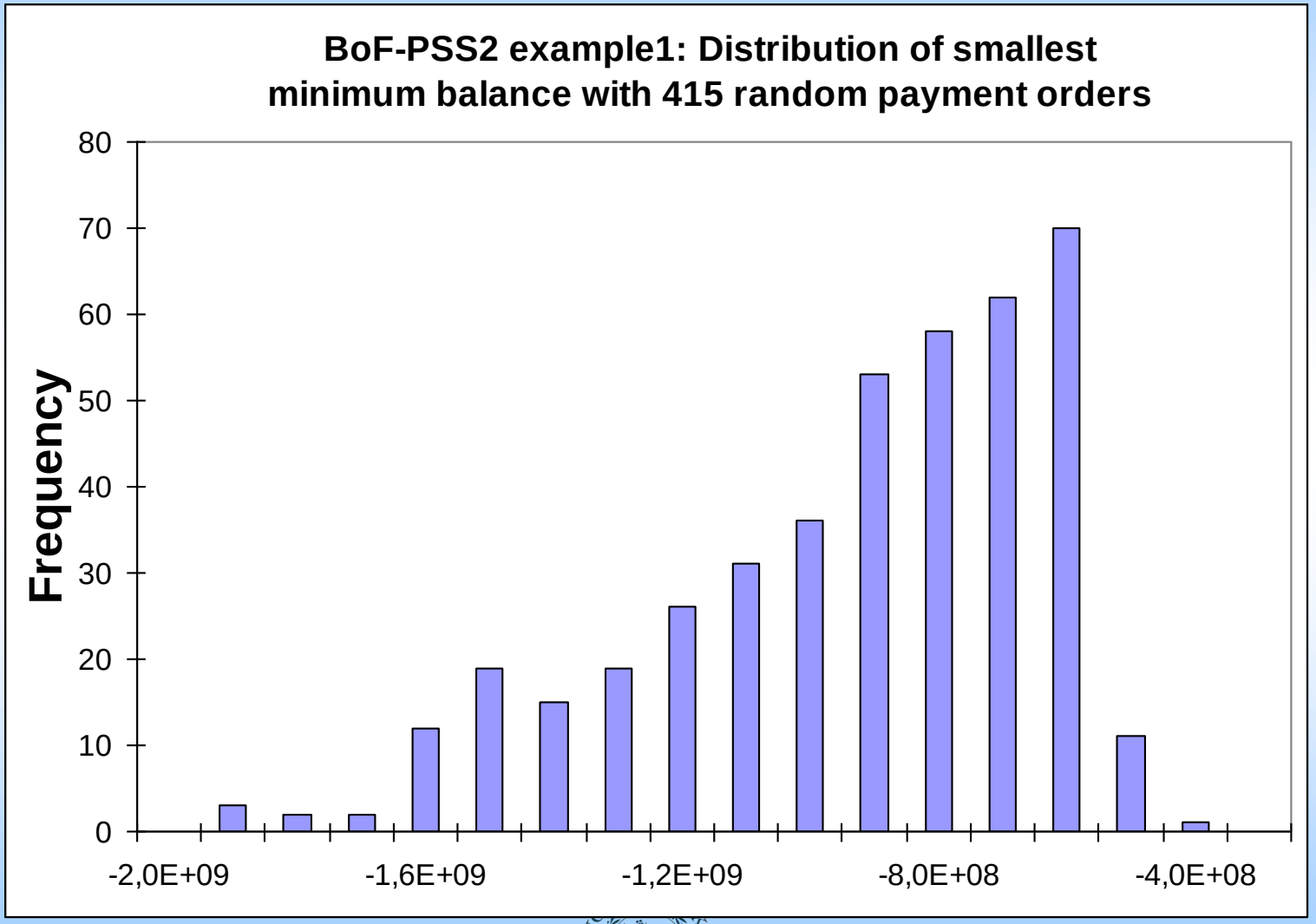
- Fix some time window
- Find the largest drop in concentrated liquidity inside the window

⇒ Can contingency start up time after op. failure possibly distrupt time critical payments



- Theorethical worst cases could perhaps be reached by changing the order of transactions…

… small Monte Carlo example about the effect of payment orders



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Confidence intervals of estimates

- …by implementing the proposed method of uncovering empirical distribution of impacts.
- Way to go!
- Some notes: To ensure simple results
  - Dataset must be stationary or
  - in case periodic fluctuations exist in data one whole period needs to be included in all time intervals.

What do I mean with stationary data

- Consider system with equal activity on every day exept doubled volume on fridays

$\Rightarrow$Different days would have different distribution for failure impacts

$\Rightarrow$Time dependent results

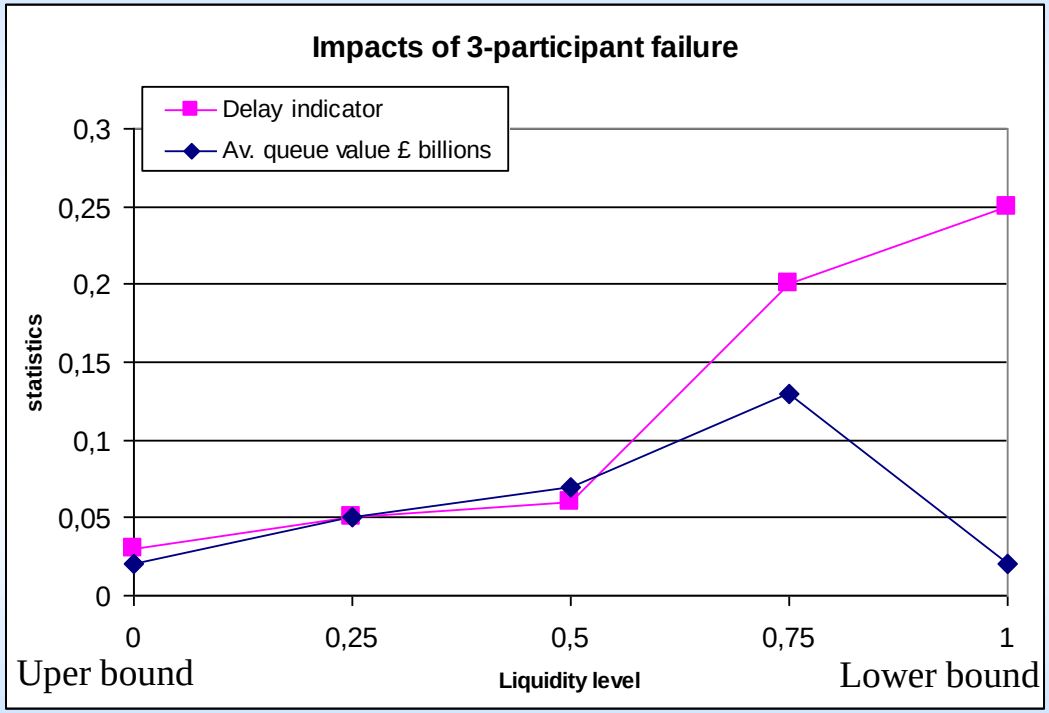
- Using week-periods each sample will include also Friday and thus have the same distribution for impacts.

Still on my viewpoints

1. Stress testing the ”how to choose the worst case” –method
2. Emphasize the good ideas for avoiding point tests
3. One question about the results

About the results

- What means the nonmonotonic change in queue value?
  - Absolute values could make it more clear
  - Is this data spesific or general phenomenon?
  - Why isn't the delay indicator doing the same?



Thank you!

-time for the questions of the audience-