Fire sales, indirect contagion and systemic stress testing

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Disclaimer

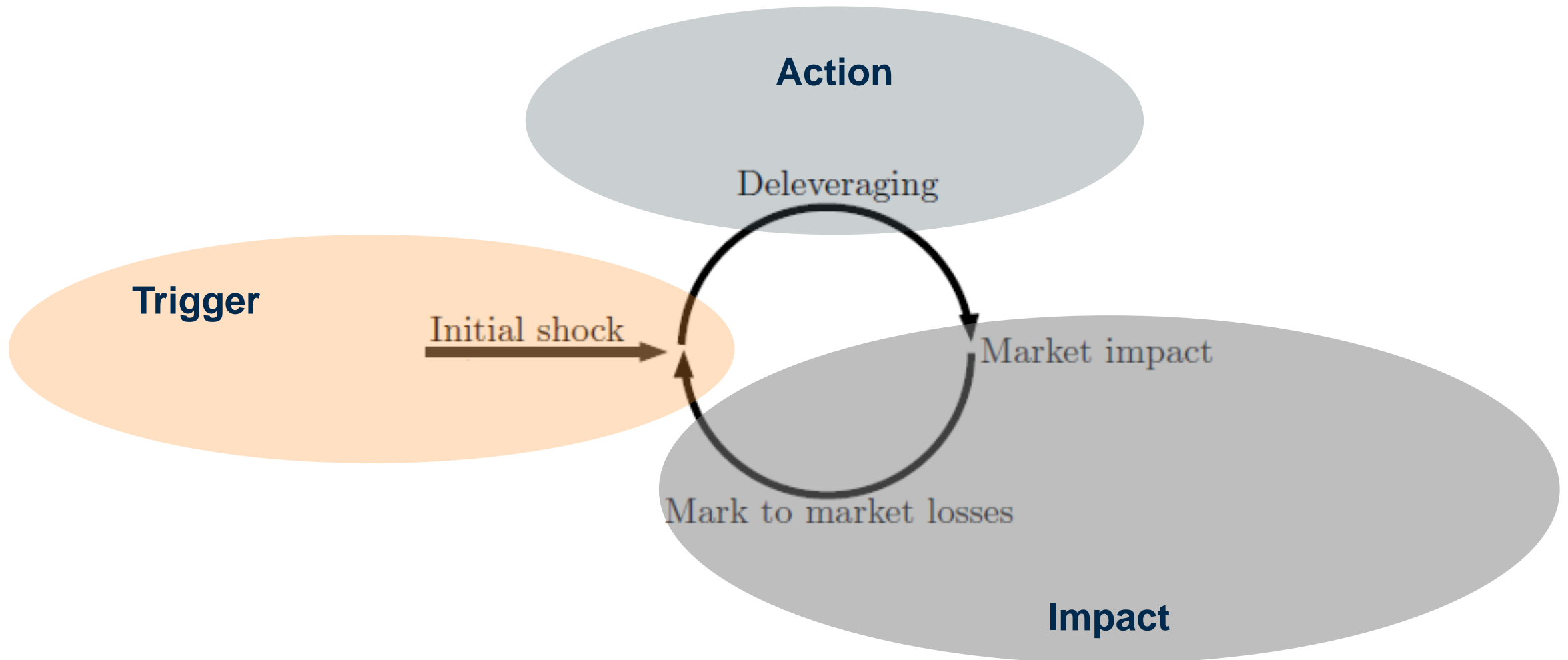The views expressed do not necessarily reflect those of the Bank of England.

Why is this important?

- Global financial crisis
- Macroprudential stress testing

$\Rightarrow$Quantitative framework to study fire sales risks

$\Rightarrow$Simple and versatile to be taken to data and used in stress tests

Model overview

Important contribution to the literature

Extension of Greenwood et al. (2014)

- From *leverage-targeting* to *leverage threshold*
- Heterogeneous asset classes (market depth)

Generating more realistic and interesting results:

- Existence of tipping points and non linearities
- Hetereogeneous losses, scenario dependency
- Finite fire sales cascade
- Distinction between failures due to insolvency and illiquidity

Policy implications for stress testing

- **Indirect exposures matter and cannot be reproduced by imposing a more severe stress scenario**

- Even if the total loss is the same, the distribution is different

- Need for macroprudential regulators to model this contagion channel:

  - Relaxing balance sheet constraints in stress tests

  - What-if analysis

  - Risk indicators (Cont and Schaanning (2019), Duarte and Eisenbach (2018))

Trigger and liquidation strategies

- Banks' sales are driven by solvency shocks and the leverage constraint
- Banks delever their marketable assets proportionally

- **Coen, Lepore and Schaanning (2019)** studies optimal liquidation strategies when banks are subject to both solvency and liquidity constraints:
  - Risk-based capital requirements and the LCR incentivise banks to sell larger amounts of illiquid assets relative to the leverage ratio
  - Funding shocks tend to generate larger fire sales losses than solvency shocks
  - Combined funding and solvency shocks generate loss distributions that cannot be reproduced by focussing on either shock in isolation

Comparison between proportional and optimal deleveraging

- Proportional deleveraging generates larger fire sales losses
  - Under a proportional deleveraging the assets banks sell are significantly less liquid, while when banks optimise they avoid selling assets that will cause them large losses

- With optimal deleveraging the vast majority of fire-sale losses are incurred in the most liquid asset classes
  - Under proportional deleveraging banks do not avoid selling illiquid assets and the losses are spread out more evenly across different assets

Other comments

- Market depth calibration is highly uncertain
- Partial adjustment model (Duarte and Eisenbach (2018))
- Strategic sales (Braouezec and Wagalath (2019))

Conclusions

- Great paper
- Important academic contribution
- Versatile tool for stress testing

Thank you