1 The framework employed

- **Regulation**: 3 constraints, in terms of liquidity (LCR) and solvency (Leverage and Capital ratios) in the spirit of *Cecchetti and Kashyap*

- **Solvency and liquidity**: shocks and their impacts from / on both sides

- **X-transmission**: liquidity and solvency conditions affect each other

- **Focus on Price effects**: “fire sale” mechanisms (externalities), a valuable and rich extension of *Cont and Schanning*

- **Optimisation-based approach**: derive optimal *deleveraging* strategies, for each individual banks, assess the systemic impacts

- **Experiments**: liquidity and solvency stress, *separately and jointly*
2 Main results

- **Optimisation** – “deleveraging” strategies are ratio-target dependent

2 configurations, hierarchy / “pecking-order”: Leverage vs RWA + LCR

- Shock on Solvency => limited MTM losses (BoE ST scenario)
- Shock on Liquidity => larger MTM losses (LCR outflow scenario)

*Intuition*: Solvency not helped when selling all assets (losses)

- Shocks on Solvency *and* Liquidity => less than sum of the two ("crisis" scenario); “complementarity”

\[ S-Loss + L-Loss > S+L-Loss > \max(S-Loss, L-Loss) \]
3 Looking back – from *Eisenberg and Noe* to now… additional pieces

*From a pure quantity-based cascade of defaults on Interbank loans*

- **Distress vs defaults** - thresholds, hurdle rates
  - IN reg vs market

- **Asset changes** beyond IB
  - IN optimal

- **Liability changes** beyond IB
  - IN exogenous

- **Price channel – fire sales** (MTM impacts)
  - IN

- **Herding behaviour** (dry out, collateral run, sov.)

- **Central Bank regular (non-ELA) facilities**

- **CBC** – collateral use and haircuts

- **Liquidity and Solvency** x-impacts (funding costs, NII)

- **Non-banks shock absorber / generator**
Individual banks CAR vs. Shock to outflow of corporate deposits (pp)

(A) Collateral limits  (B) **Fire-sale** impact  (C) Interbank losses due to cash hoarding

(D) Funding cost shock following $\Delta$CAR  (E) Peers funding cost impacted  (F) Insolvency spread via cross holding of debt

5 Assumptions / mechanisms / robustness

A1 Haircuts endogenous vs. set at a given (initial) market shock?

A2 No “game” – some (larger) banks perhaps can estimate impacts?

A3 Pure market shock no loan responses – short-horizon “crisis” mode OK for liquidity ST; less consistent with solvency ST impacts?


2. Implementation shortfall – impact of the mechanism critical?

Results apparently bank-shock-PF specific – degree of generality?

Robustness: Optimisation criteria – Sequence of moves – Price path post deleveraging – Collateral pool + use – funding costs…
6 Further (broader) considerations

• Systemic Liquidity ST and Systemic Solvency ST - *Jointly or not?*

• Complex endeavour, not necessarily always relevant

**Time dimensions matter** – reactions / channels / frequency / horizon

**Market ST vs extended scope ST**, ie beyond MR – CR, IRR…

**Loans key element of deleveraging** esp from a macro 2\(^{nd}\) round long-lasting point of view, real-financial feedback post-crisis key + protracted…

**Other data sources** – EMIR and also SFTDS

**Other tools** – SWST (BoE-ECB) and Large Exposures CoMap (IMF-ECB)