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Stress testing central bank balance sheets

Risk management for central banks, Lisbon, 25-26 September 2017

Andrew Hauser

Executive Director for Banking, Payments & Financial Resilience,
Bank of England

The Bank of England and financial risk: what's new?

- Risk has always been integral to our mission
- But renewed focus post-crisis reflects three key developments:

  1. BoE balance sheet much **bigger and more complex**
  2. Much greater **public scrutiny** of our actions
  3. Massive extension in scope of supervision means we are expected to **'do unto ourselves as we would unto others'**

- Other speakers covering issues posed by QE and FX
- Focus here is on **stress testing liquidity support tools**

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UK tools for liquidity support: some recent history

- UK financial system is large

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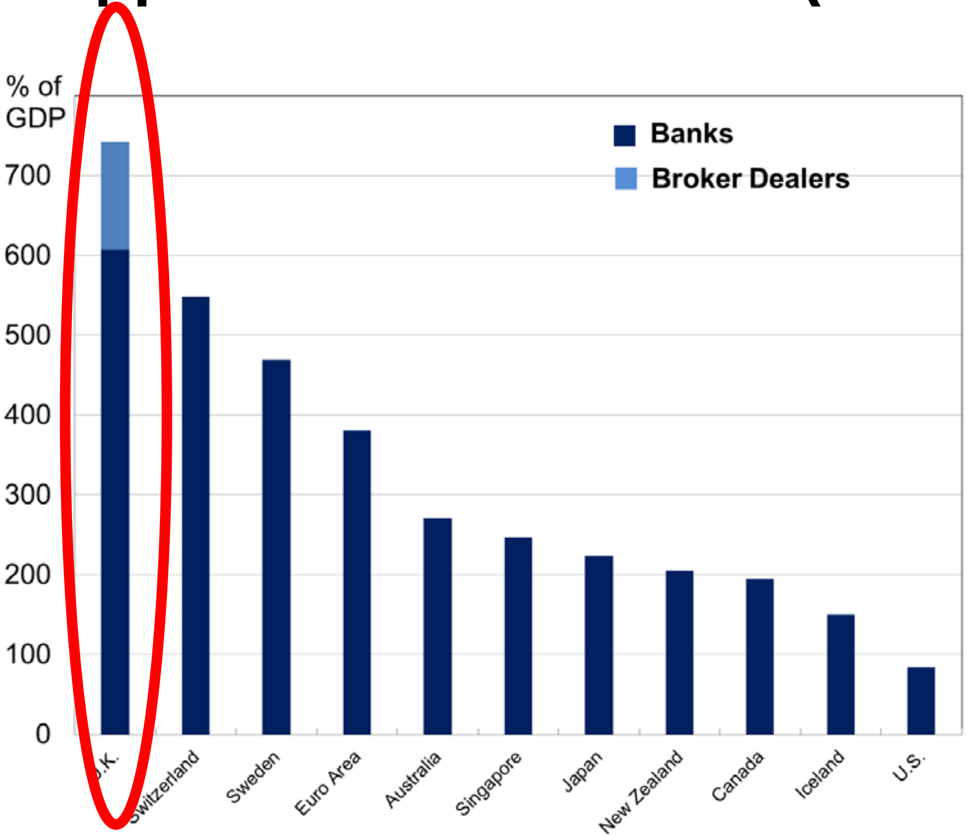
Size of supported financial firms (as % GDP)



* Total Sector Assets to GDP (2011)

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UK tools for liquidity support: some recent history

- BoE’s pre-crisis risk management approach: constructive ambiguity, narrow collateral, big haircuts, penal pricing
- But we still ended up lending heavily – eg Northern Rock, HBOS, RBS, Special Liquidity Scheme
- Post-crisis policy response combines:
  - Much more detailed micro liquidity regulation to tackle moral hazard;
  - Much clearer, public liquidity support toolkit (‘Sterling Monetary Framework’) combining wide, pre-positioned collateral with specific pricing and access terms and ‘open for business’ presumption
- More than £1/2 trillion collateral now pre-positioned

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How does stress testing come in?

- Big contingent risks for BoE mean we must look ahead
- Stress testing our own balance sheet against a range of severe but plausible shocks allows us to:
  - Model the potential use of the BoE’s liquidity facilities
  - Define the BoE’s risk tolerance
  - Identify the policy actions available to BoE and borrowing firms
  - Ensure the BoE has sufficient financial resources

Example stress test: UK house price shock

House prices fall sharply

Liquidity outflows from banks as severe (or worse) than assumed by the LCR

BoE balance sheet expands across a range of facilities
Stressed banks tap BoE facilities for GBP (and maybe FX) against residential mortgage collateral; other banks hoard reserves.

Default by one or more counterparties. E.g. a small bank without a bail-in resolution strategy, or a large bank where bail-in fails to stabilise the firm

Losses absorbed by haircuts / capital
Collateral comes on balance sheet at stressed values and is retained/ liquidated to recover value.

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Evaluation of stress involves many parts of BoE…

Financial stability; macro models; supervisory stress tests

Firm-level liquidity returns

War-gaming of policy responses by markets staff/seniors

Counterparty credit assessments; impact of supervisory stress-tests on firms

Supervisory stress-tests applied to collateral

…requires us to articulate our risk tolerance…

What’s a severe but plausible residential house price drop?

What level of liquidity shock should the Bank be ready to sustain?

How many bank defaults should the Bank be ready to sustain?

What level of post-default market severity should the Bank be able to absorb?

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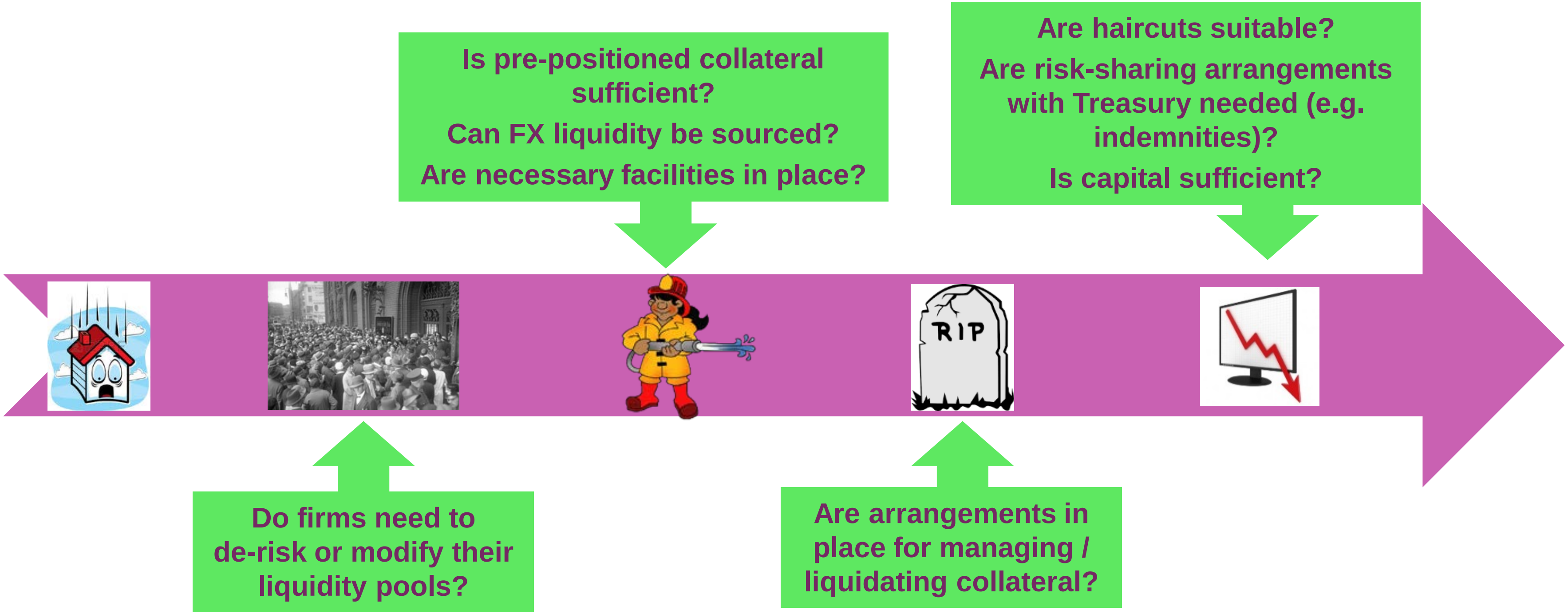
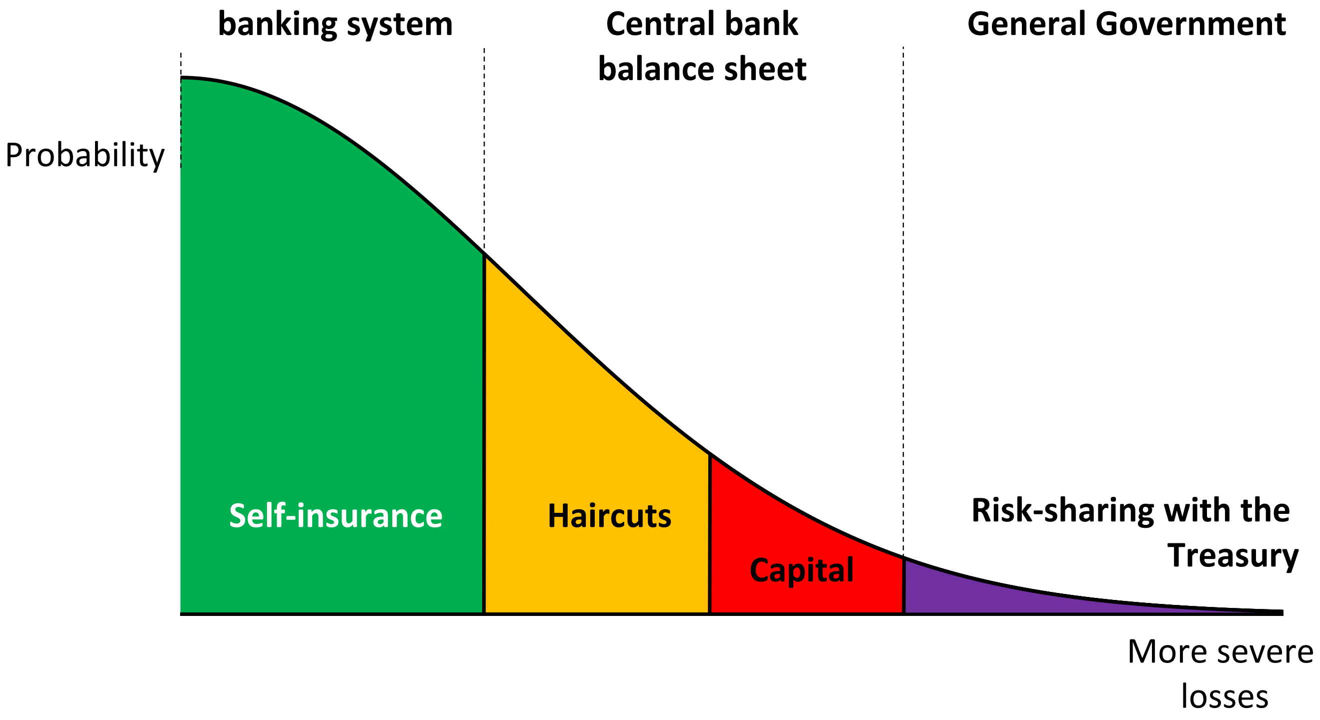
…and identify the possible policy options



Who bears the risk of a liquidity shock? The central bank capital waterfall



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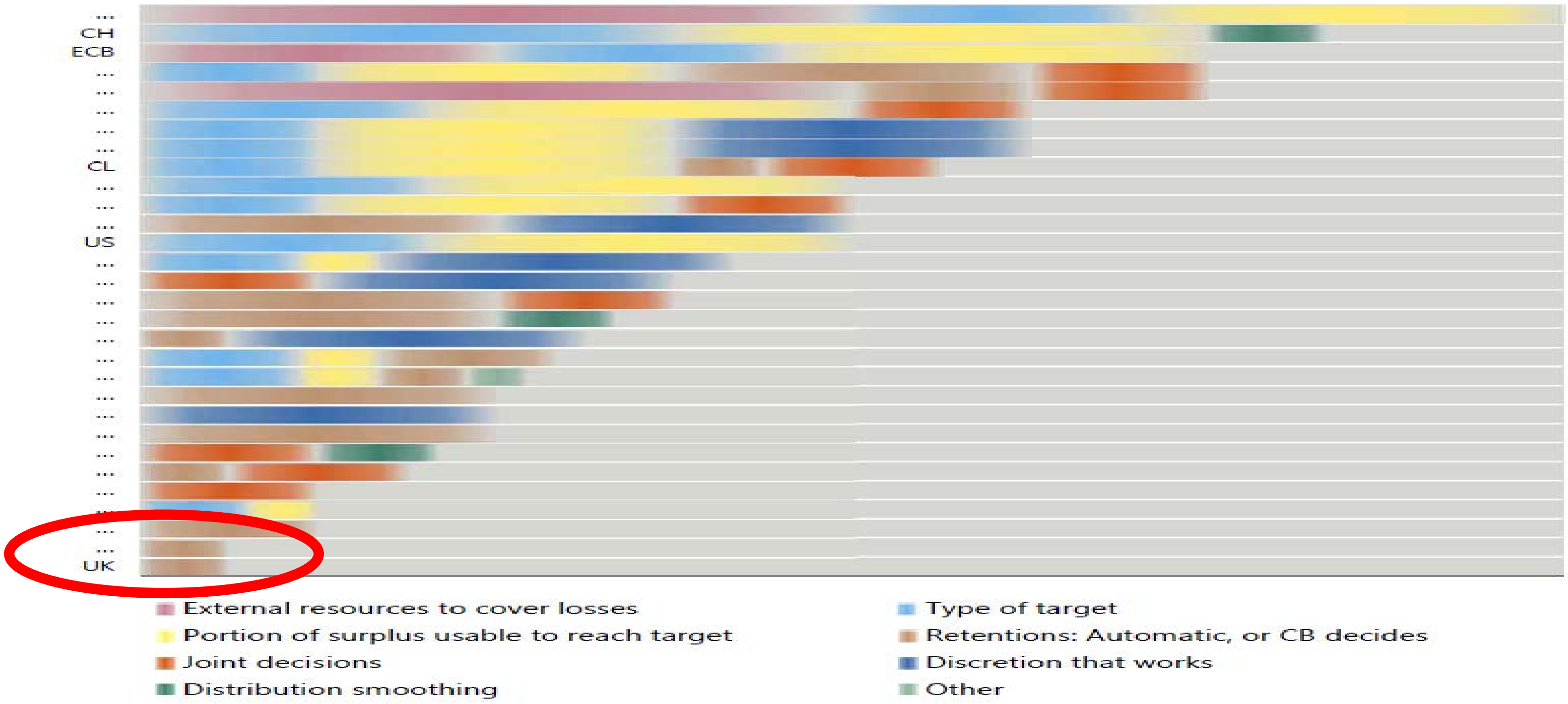
Depth of capital-recovery mechanisms (BIS Papers 71)



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