EUROPEAN CENTRAL BANK

EUROSYSTEM

Jérôme HENRY
DG-Macroprudential Policy and Financial Stability
European Central Bank

Macroprudential Policy at the ECB – the assessment toolkit

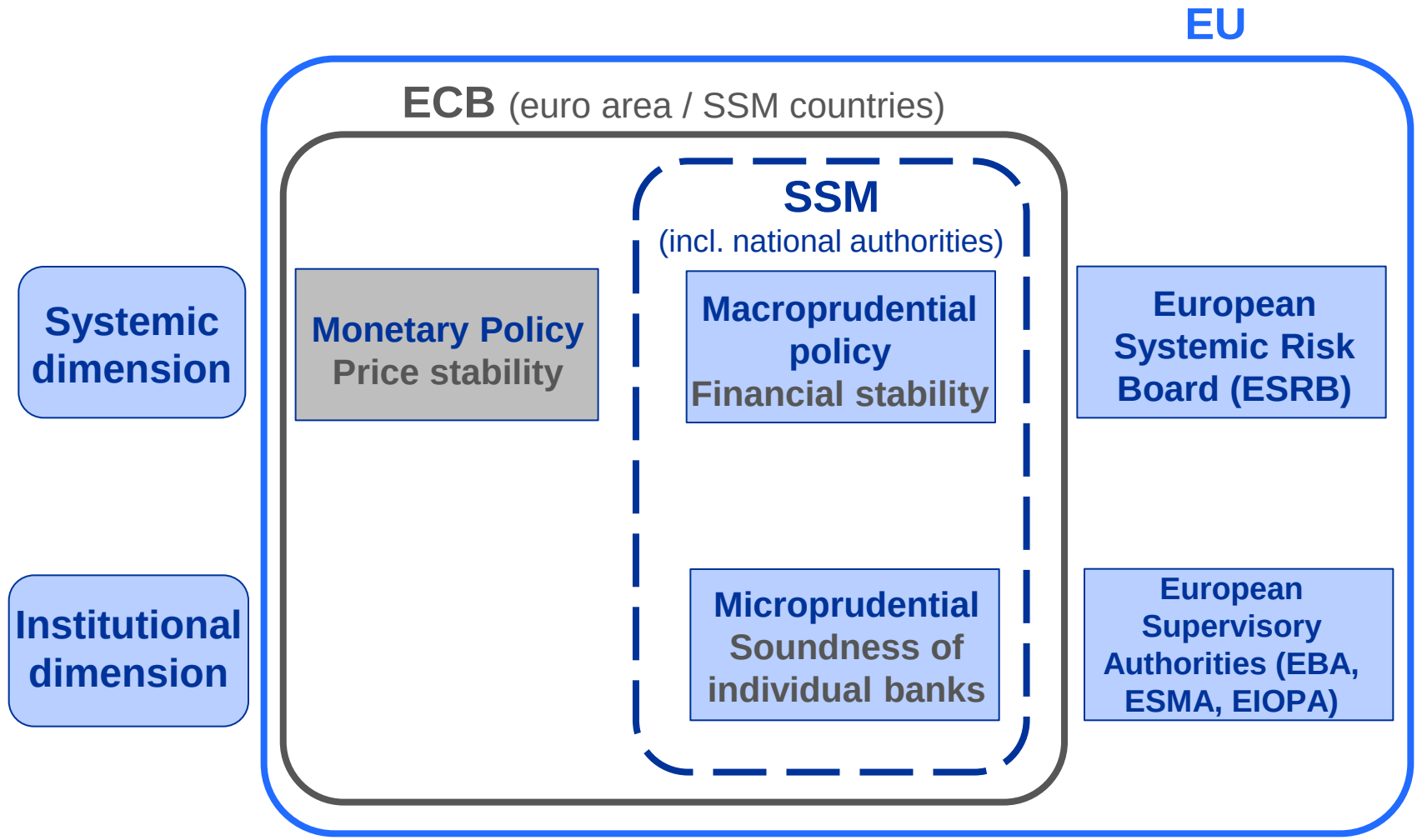
ABFER Annual Conference, Modelling Financial-Macro interaction, Policy Panel

Singapore, 22 May 2018

Overview

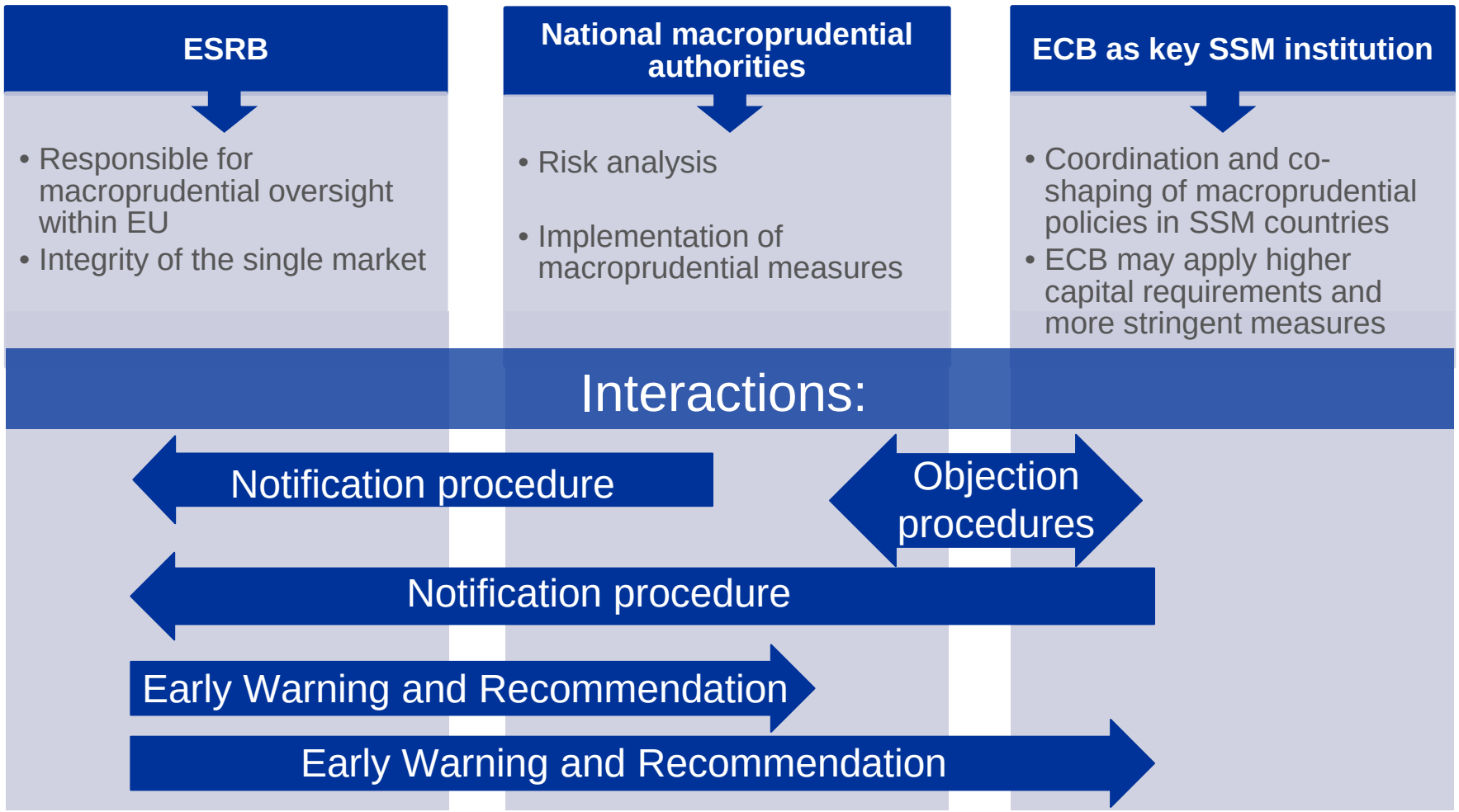
1. Macroprudential policy in the EU – the institutional set-up
2. Stress Test for Macroprudential Purposes in the € area (STAMP€)
3. Policy-relevant simulations – illustrative examples
4. Concluding remarks

Monetary and prudential policies at the ECB and in the EU
The "separation principle"



Source: ECB

Macroprudential policy in the EU

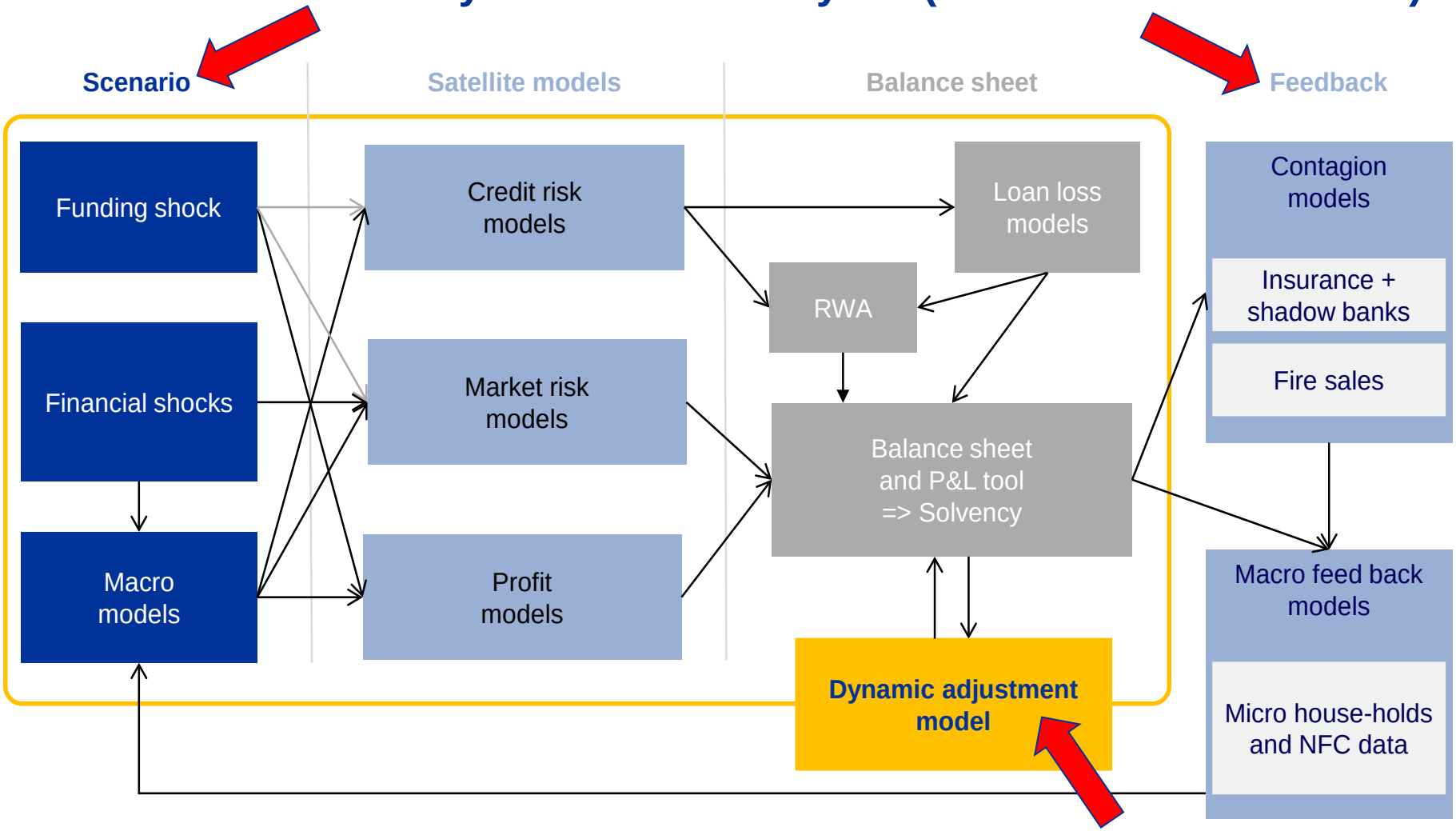


An ECB e-book, staff tools for "macropru ST"

http://www.**ecb**.europa.eu/pub/pdf/other/**stampe**201702.en.pdf

2.2. STAMP€ workhorse – macro <-> micro / banks'reactions / feedbacks

ECB staff toolkit for Systemic Risk analyses (*and* EBA/SSM/NCA STs)



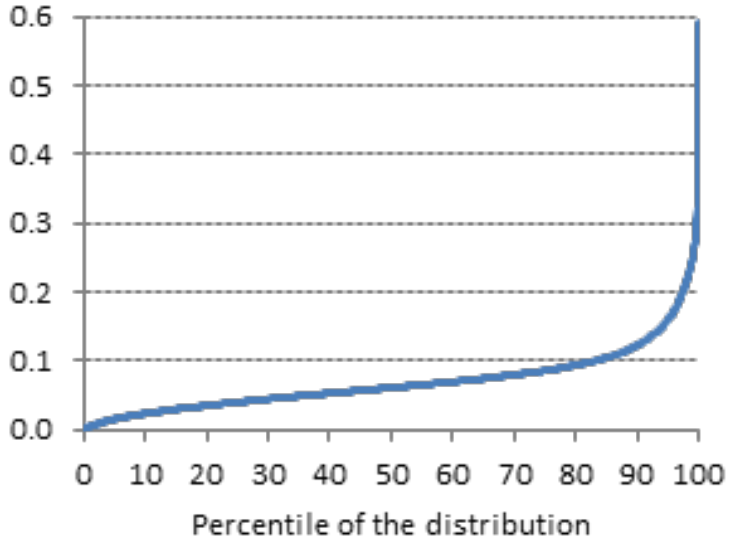
Adapted from Henry J. and C. Kok (Eds.), ECB Occasional Paper 152, **October 2013**

*https://www.**ecb**.europa.eu/pub/pdf/scpops/**ecb**ocp152.pdf*

3.1. The Macroprudential Extension of the 2016 EBA/ECB ST (MPB)

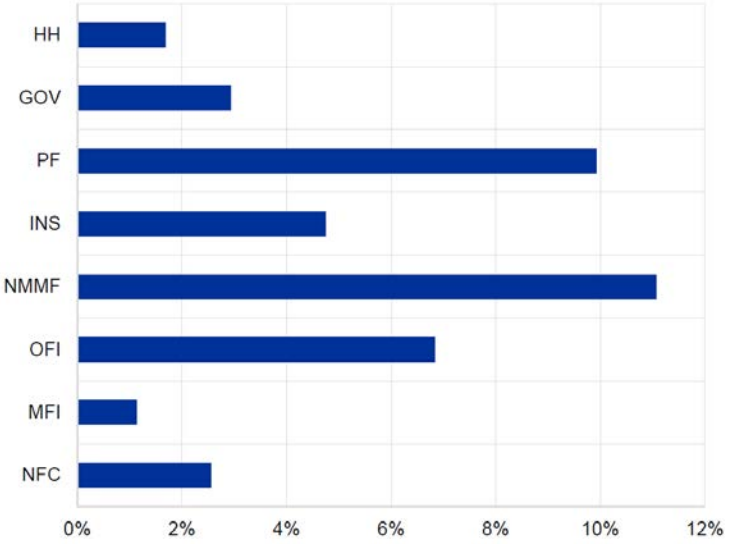
Direct interbank contagion

X-axis: percentile of the distribution; Y-axis: bank losses on interbank exposures to banks falling below 6% CET1



Cross-sector spillovers

Losses triggered by reduction in market value of bank equity in % of total financial assets)

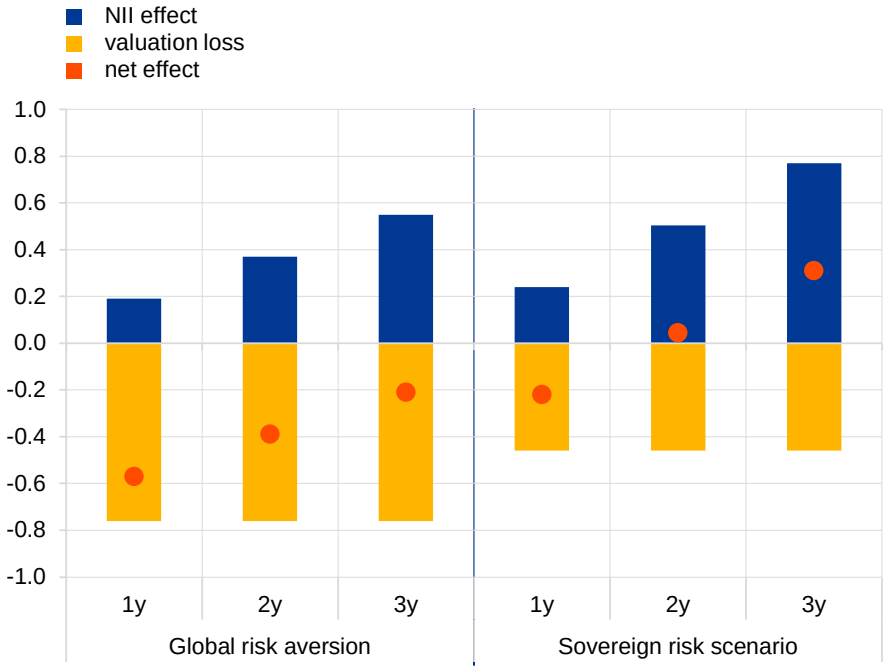


- **Systemic risks arising from interconnectedness usually appear to be contained** further analysis needed on price contagion and funding stresses
- **Interbank contagion** related to direct bilateral exposures remains immaterial, below 10 basis points for most "simulated" interbank networks (unsecured)
- **Investment funds** and **pension funds** most strongly affected by spillovers from reduction in market values of bank stocks via FoF networks (country-specific)

3.2 Impact of higher long-term rates on financial institutions (FSR)

- Impacts of higher long-term interest rates (NII+ valuation losses) on banks' capital varies across risk scenarios.
- The share of bonds in total assets is much more limited for banks than for insurers, pension funds and investment funds.

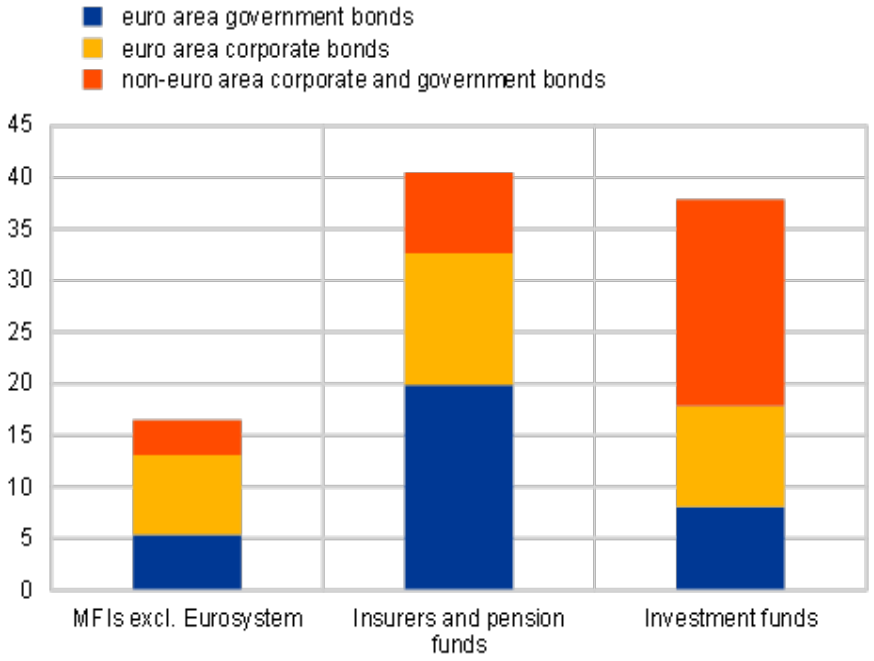
Potential impact of an increase in long-term interest rates on banks' net interest income and MtM valuation losses under two risk scenarios
(net effect; CET1 percentage point)



Source: ECB calculations.

Note: The global risk aversion scenario also includes a funding cost shock which has a -0.25p.p. impact on the CET1 ratio.

Financial institutions' bond holdings
(percentages of total assets)



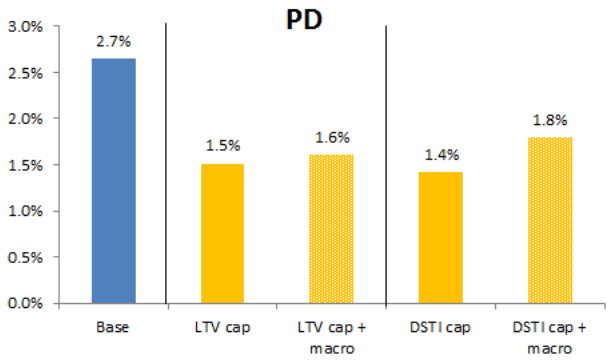
Source: ECB calculations.

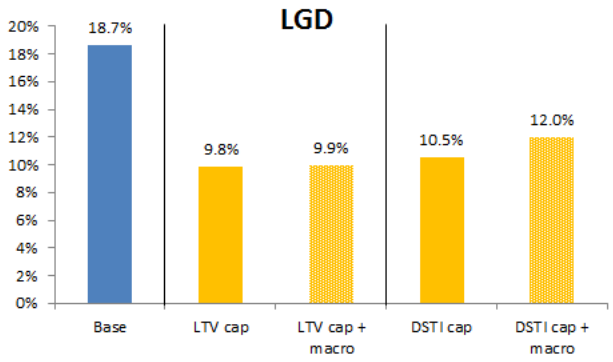
Note: December 2016 data for MFIs and Investment funds and June 2016 data for ICPFs.

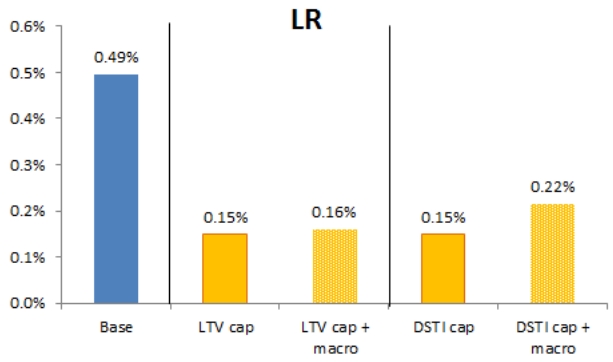
Integrated Dynamic Household Balance Sheet model

- Micro-macro model relating individual households and macro data
- Balance sheet data, cash flow, debt and collateral for 60,000+ households (150,000+ members) from 15 EU countries (HFCS).
  - **Stress testing** / **sensitivity**, conditional on scenarios.
  - **Impacts** of (borrower-based) **macroprudential policy**

Impact on households PDs, LGDs, LRs (1st and 2nd round)







See Gross and Población (2017), "Assessing the efficacy of borrower-based macroprudential policy using an integrated micro-macro model for European households", *Economic Modelling*, Vol. 61.

Conclusions – a lot has been done but further challenges to be faced!

1. STAMP€, ECB e-book reflecting an evolving toolkit

- A **'living' infrastructure** developed for macroprudential analyses
- **Dynamic balance sheets** and other **amplification + feedbacks**

2. Need to go beyond banks and beyond solvency

- **Cooperation with ESAs: ST (Insurers, CCPs) + Repo market data**
- **Solvency and Liquidity ST:** time dimension issue, crisis vs. stress

3. Implementation requirements

- **IT platforms** to handle **complex** models with close to **"big data"**
- **Identify / specify behaviour** of eg funds / asset managers
- Address **data gaps** especially needed for extension to non-banks

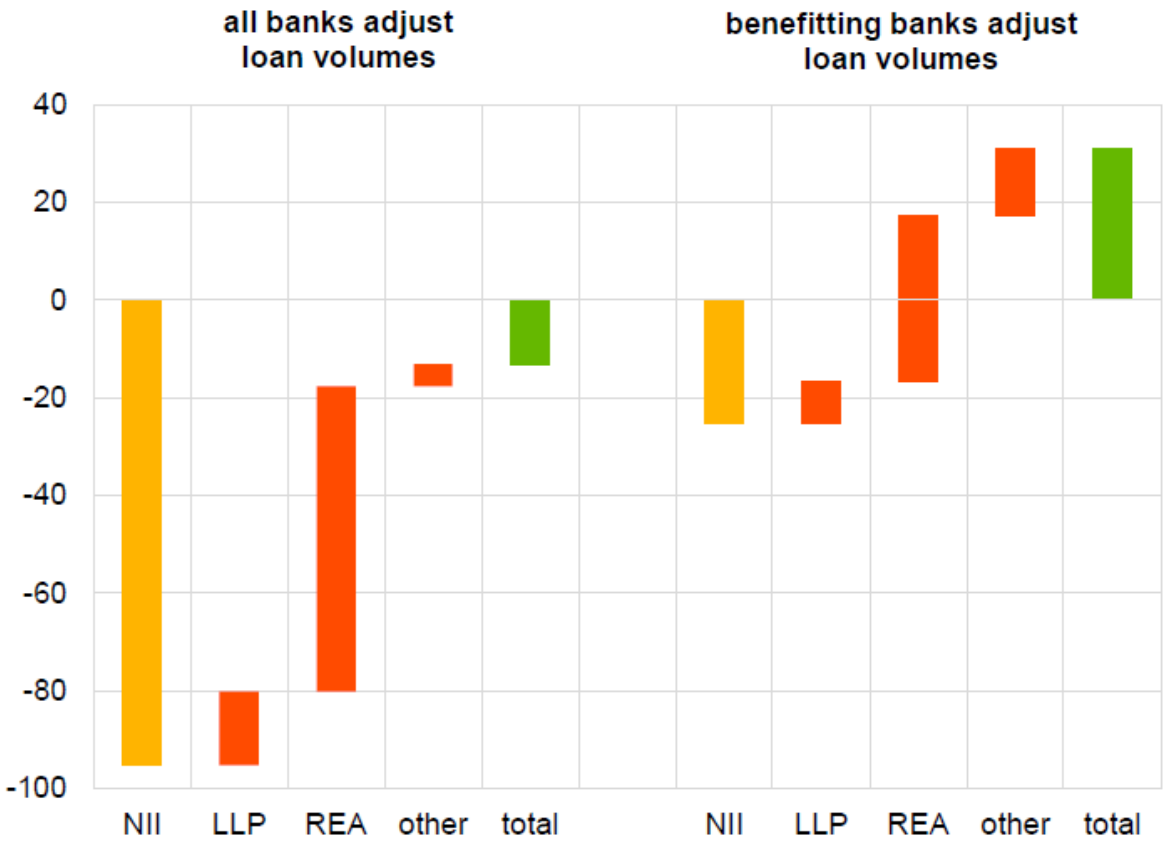
BACKGROUND

Dynamic vs Static Balance Sheets

Micro and Macro-sectoral networks

Contributions to the difference in CET1 ratios between static balance sheet and loan reduction

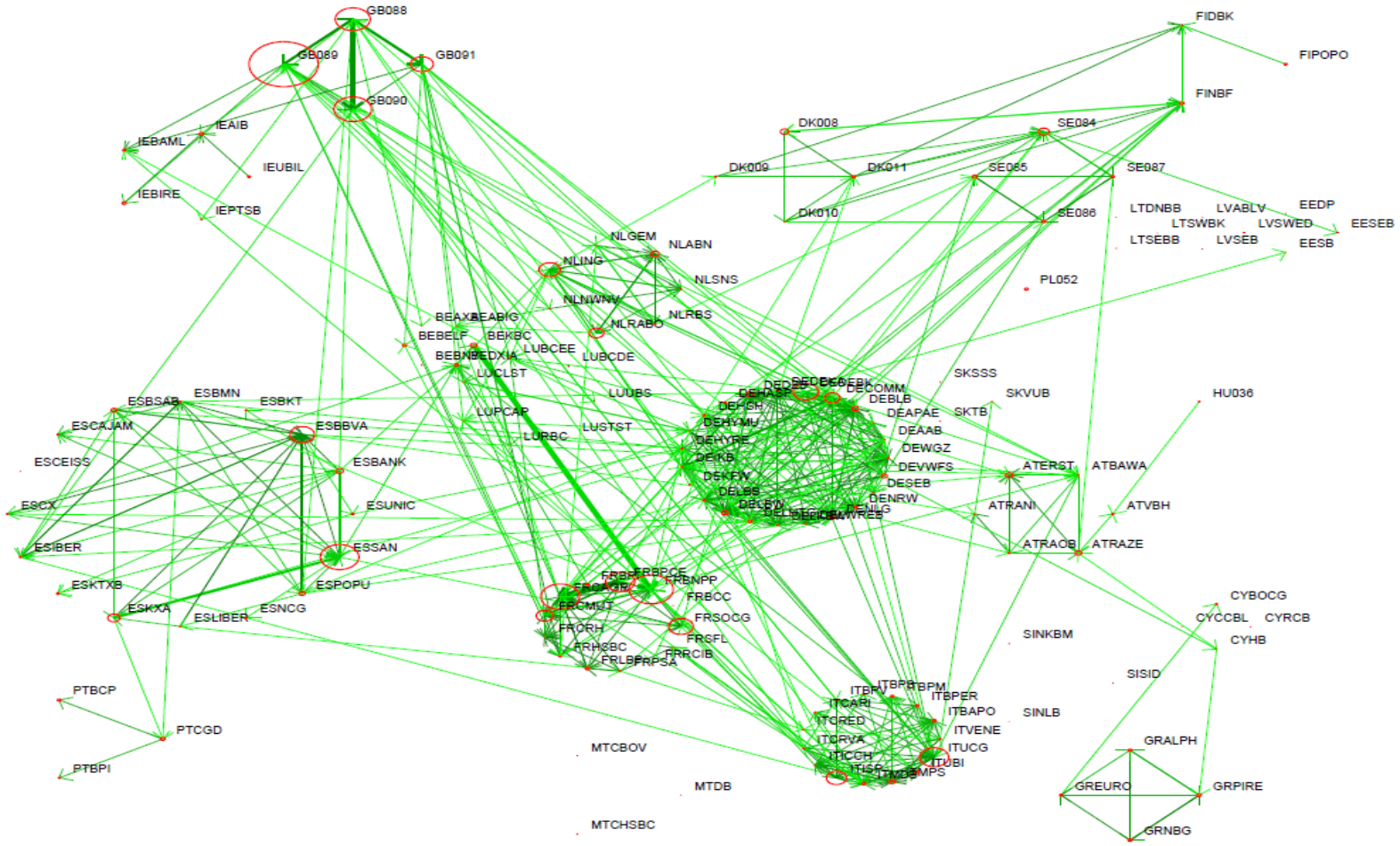
(basis points of the aggregate CET1 capital ratio)



Notes: NII – net interest income, LLP – loan loss provisions, REA – risk exposure amount, other – factors other than NII, LLP and REA.

An EU banking system "topography"

(2-tier structure with domestic (local) and global cores)



See Hałaj G. and C. Kok (2013), "Assessing interbank contagion using simulated networks," *Computational Management Science*, Springer, vol. 10(2).

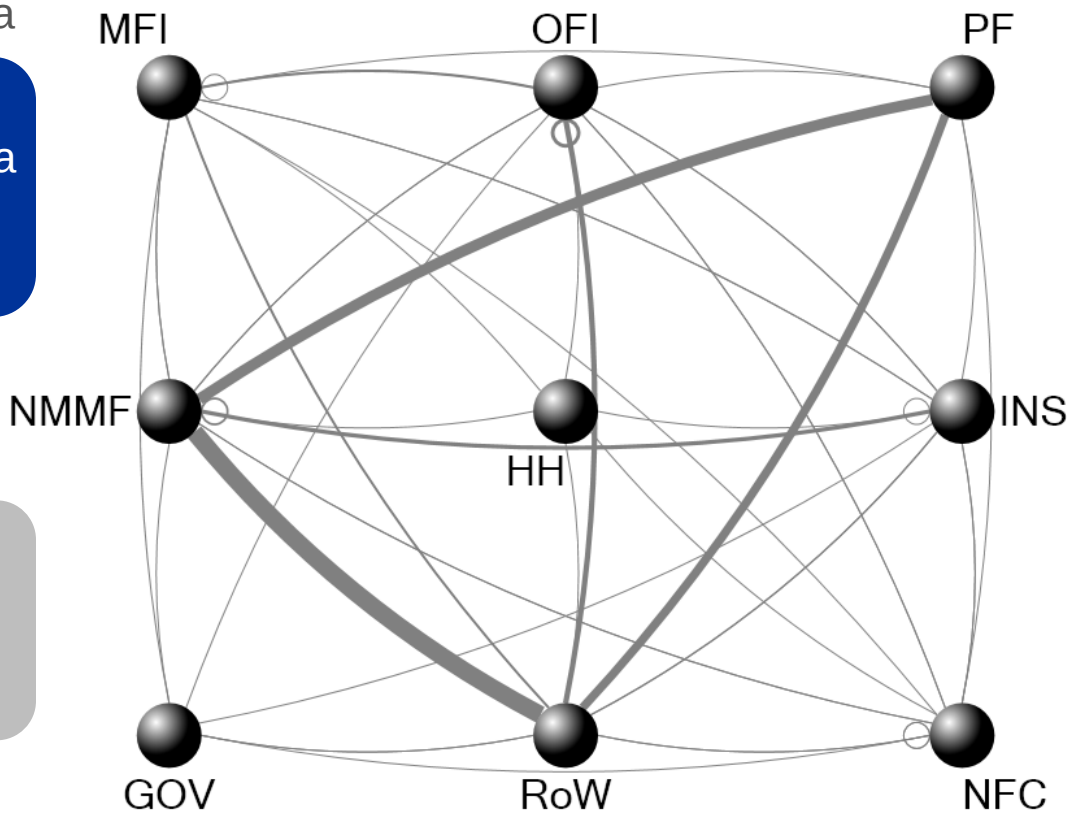
Cross-sectoral interconnections via a FoF network

Flow-of-Funds data

Sectors interconnected via 'Who-to-whom' accounts

Initial shock

Bank capital depletion



Iterative algorithm

1st round: Market value of bank equity decreases

2nd round (iterative): Loss of equity transmitted to sectors holding equity