



ESRB

European Systemic Risk Board

European System of Financial Supervision

Regulating the doom loop

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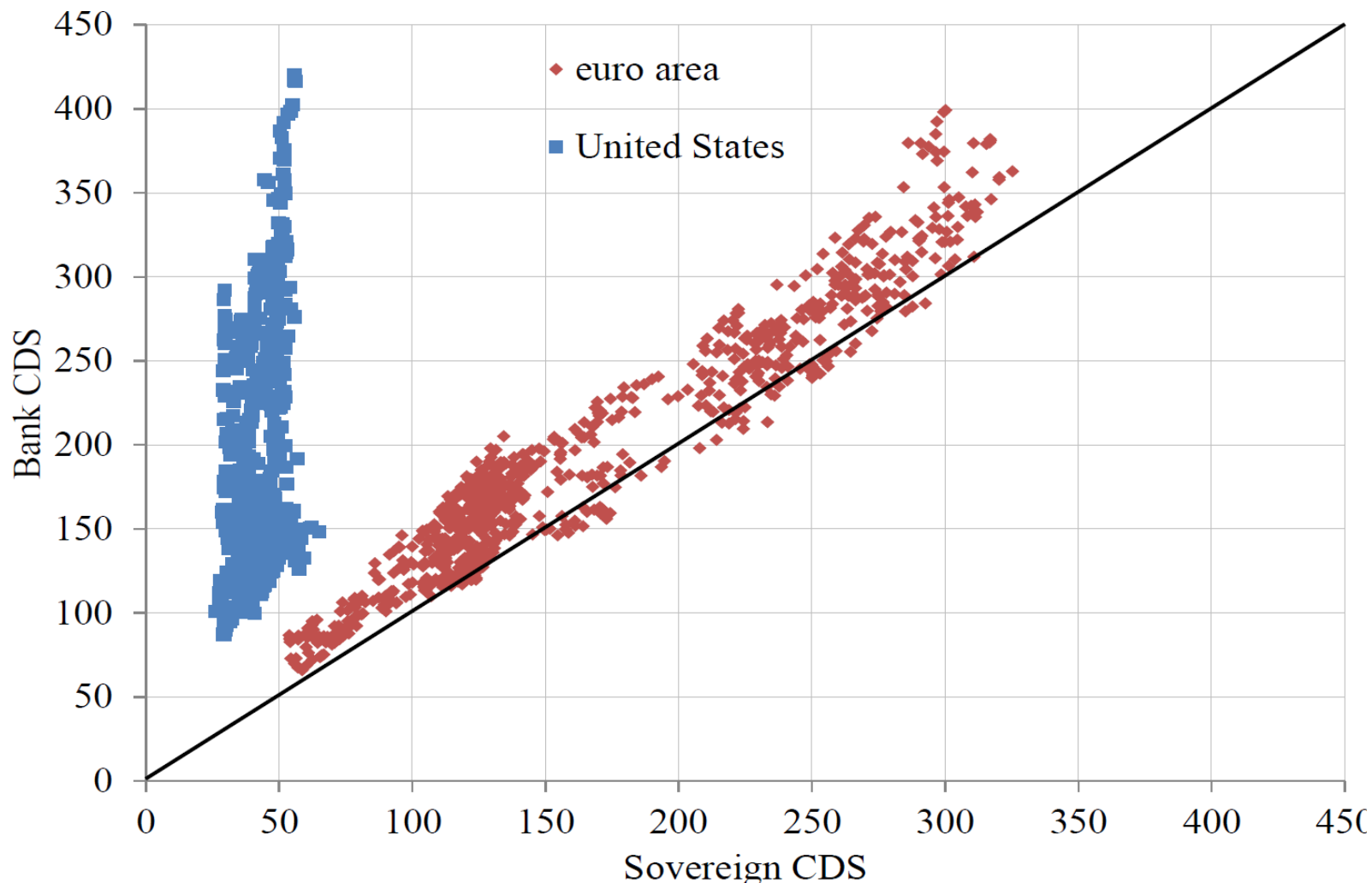
EBA Research Workshop
29 November 2018

Roadmap

- Empirical context
- Simulation model
- Policy implications



Bank-sovereign doom loop



Source: ECB. Note: Observations refer to the average CDS spreads of large banks over 2010-13.



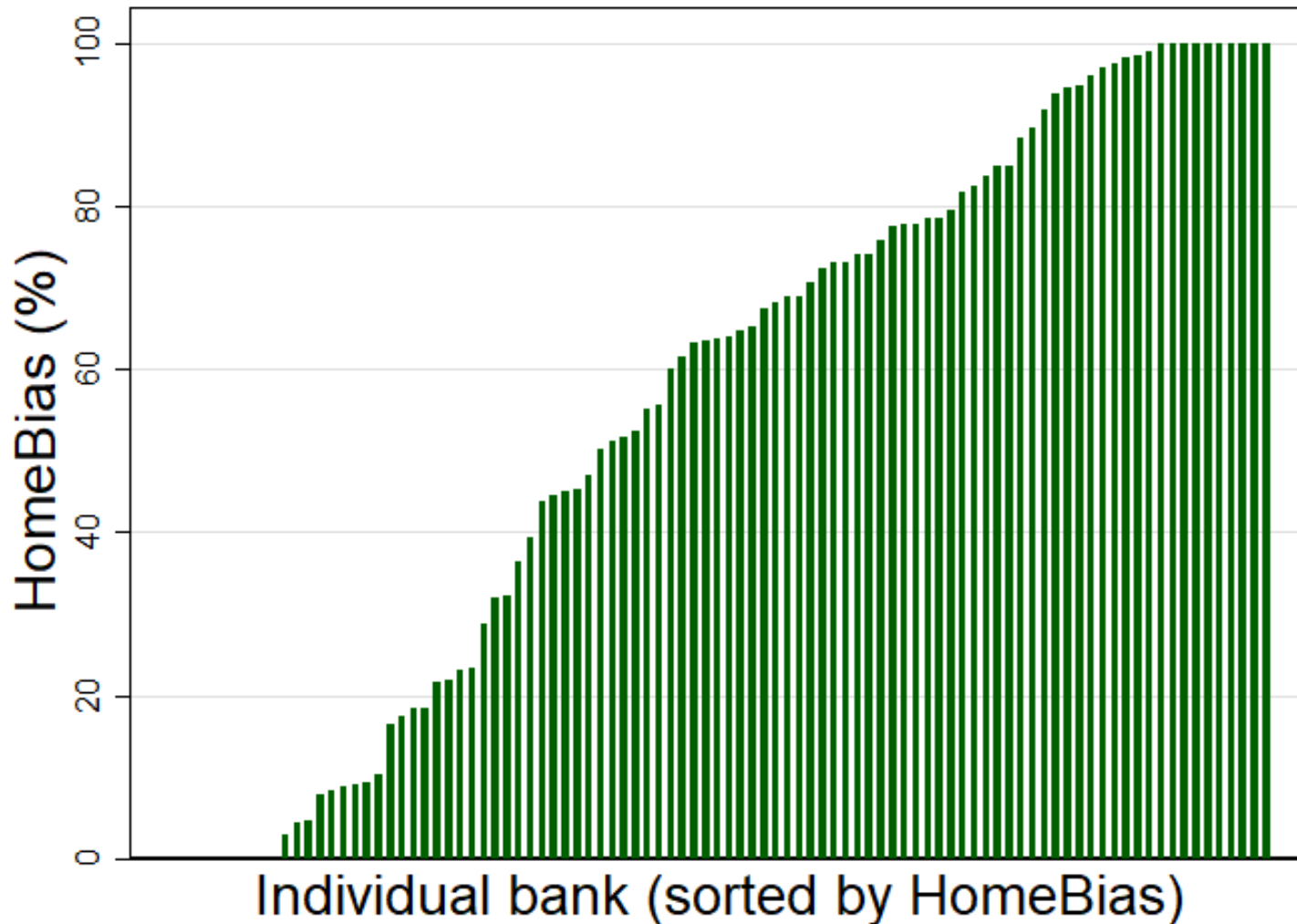
Policy pledge

“it is imperative to break the vicious circle between banks and sovereigns”

Euro area summit statement, 29 June 2012

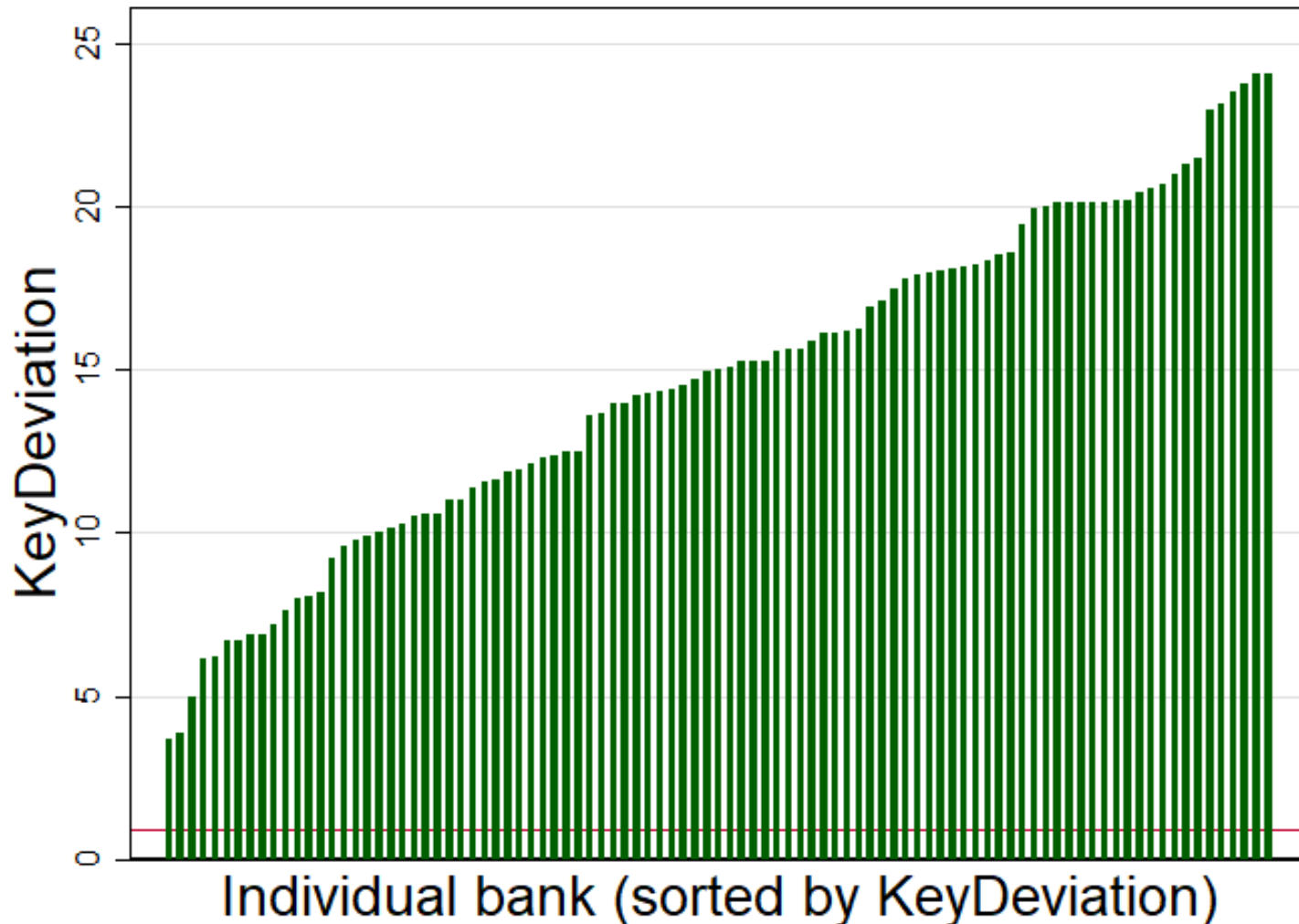


Home bias in sovereign exposures (mid-2017)



Source: EBA. Note: Observations refer to the sovereign portfolios of 95 banks as of mid-2017.

Deviation from ECB capital key (mid-2017)

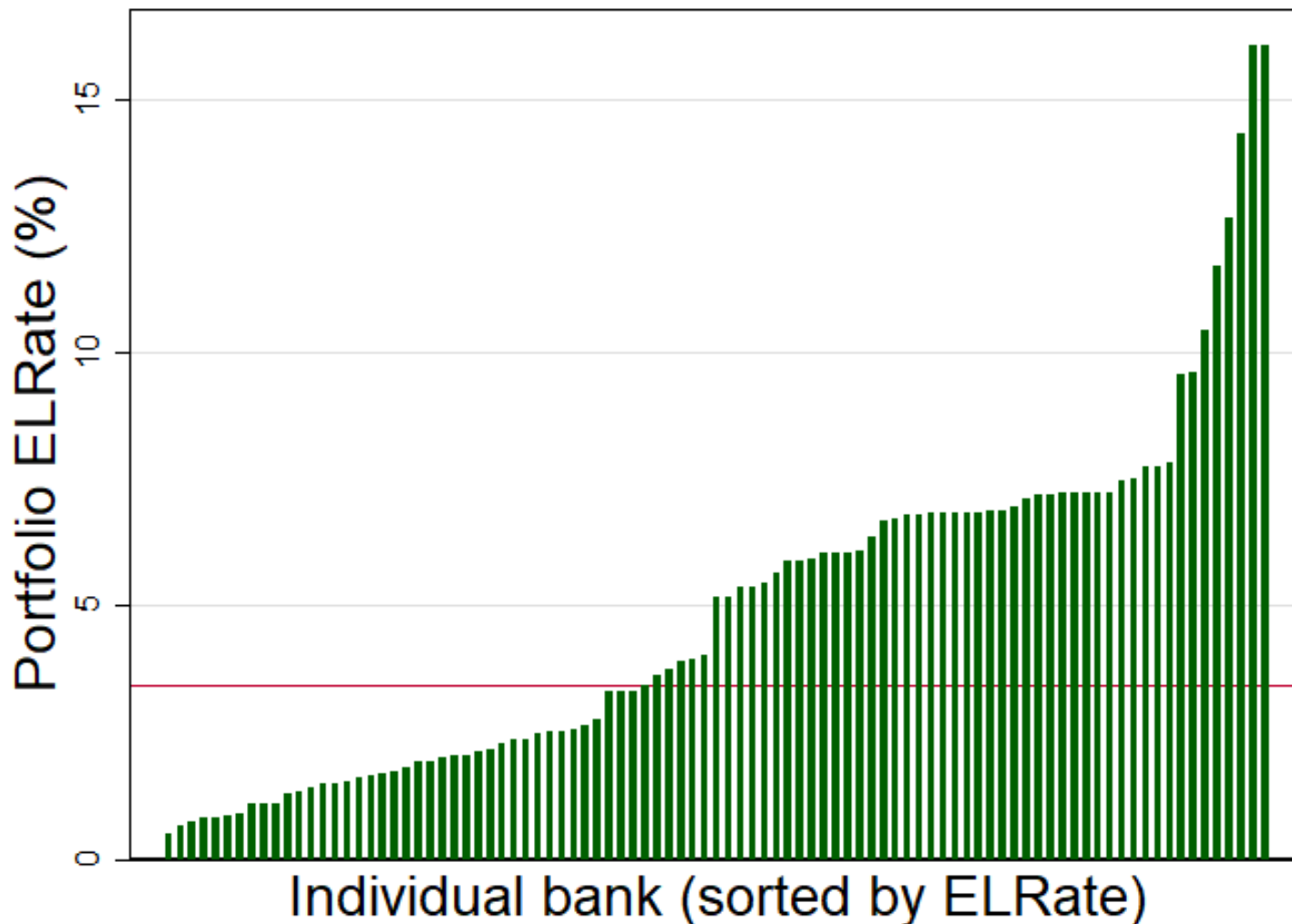


Source: EBA. Note: Observations refer to the sovereign portfolios of 95 banks as of mid-2017. As a benchmark, the red line marks the KeyDeviation of the Eurosystem's PSPP portfolio (as of October 2018).



Expected loss rate (mid-2017)

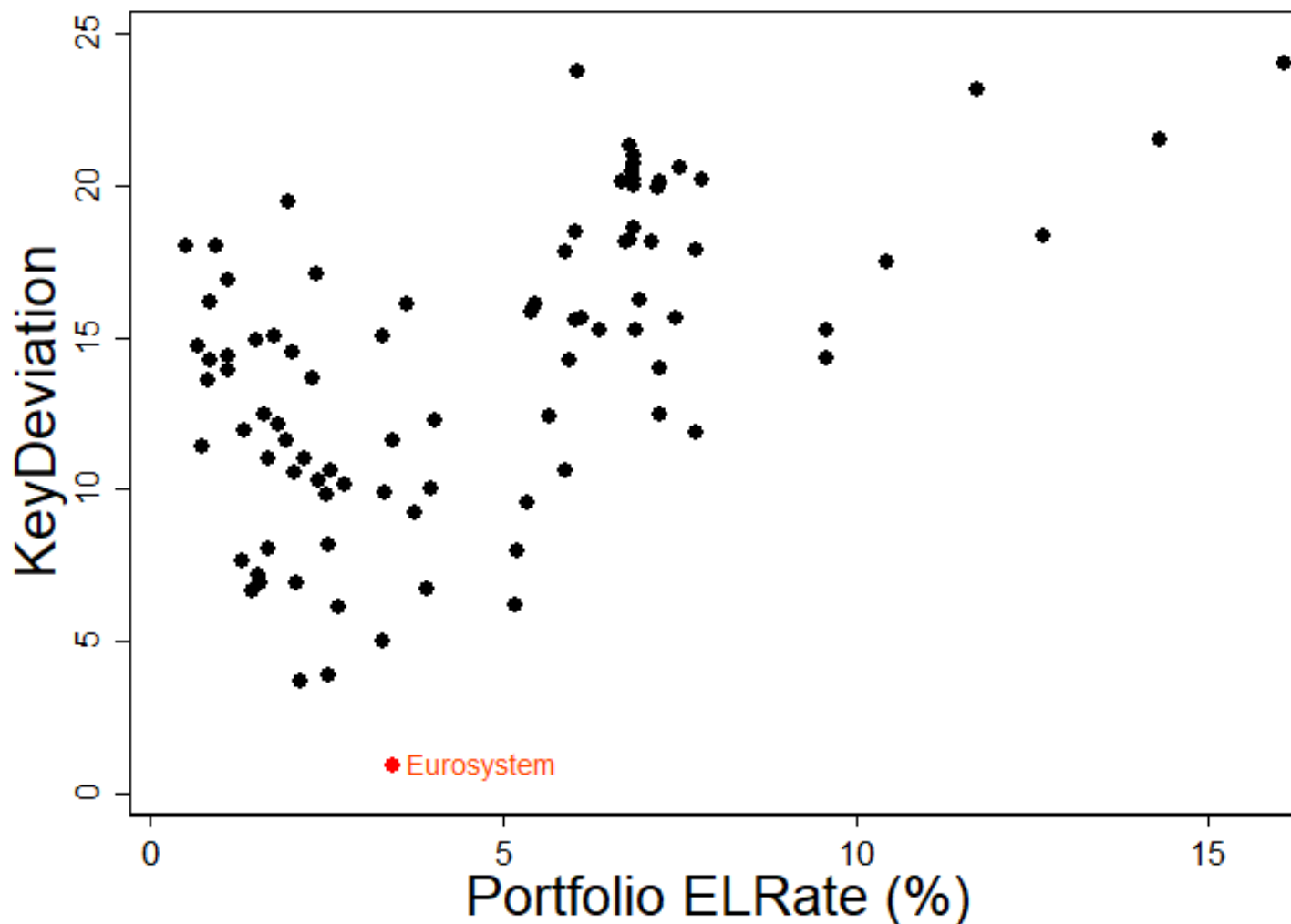
Brunnermeier et al
(2017)



Source: EBA. Note: Observations refer to the sovereign portfolios of 95 banks as of mid-2017. As a benchmark, the red line marks the ELRate of the Eurosystem's PSPP portfolio (as of October 2018).

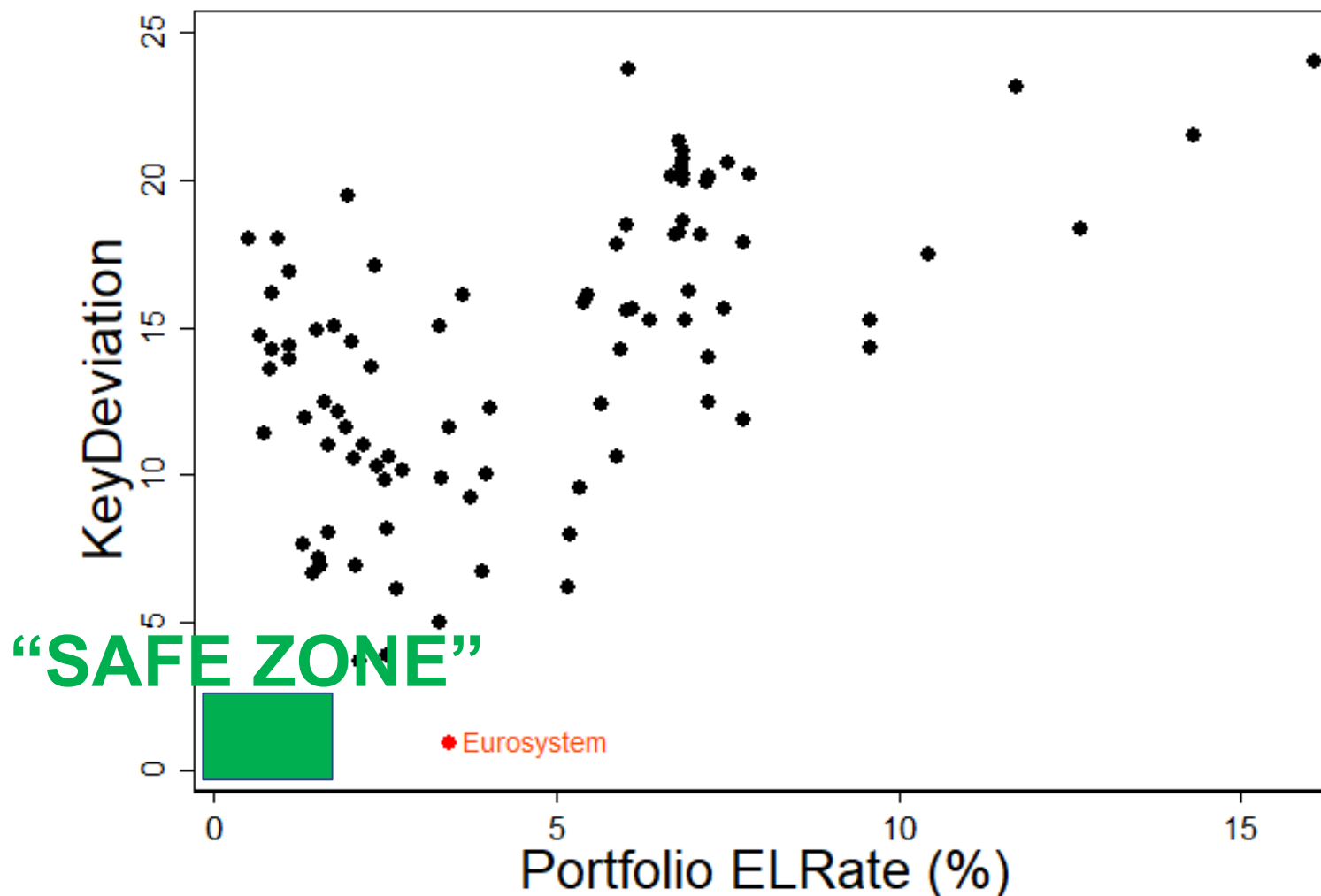


Concentration versus credit risk



Source: EBA. Note: Observations refer to the sovereign portfolios of 95 banks as of mid-2017. As a benchmark, the red dot shows the characteristics of the Eurosystem's PSPP portfolio (as of October 2018).

Concentration versus credit risk

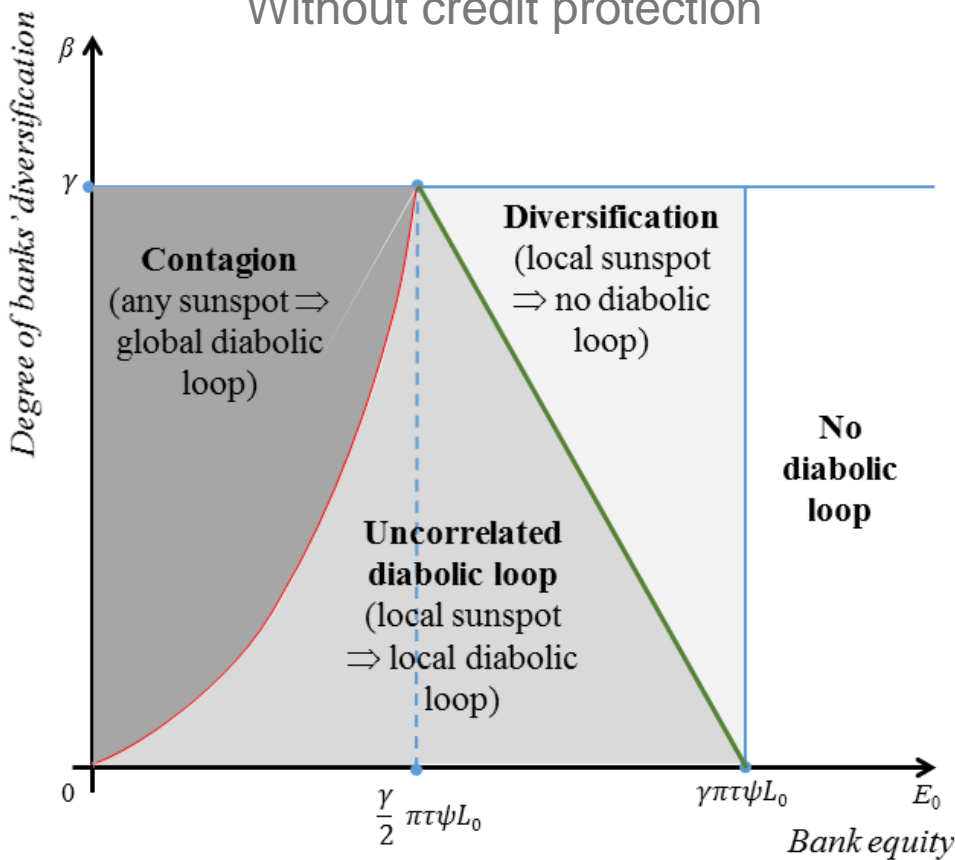


Source: EBA. Note: Observations refer to the sovereign portfolios of 95 banks as of mid-2017. As a benchmark, the red dot shows the characteristics of the Eurosystem's PSPP portfolio (as of October 2018).

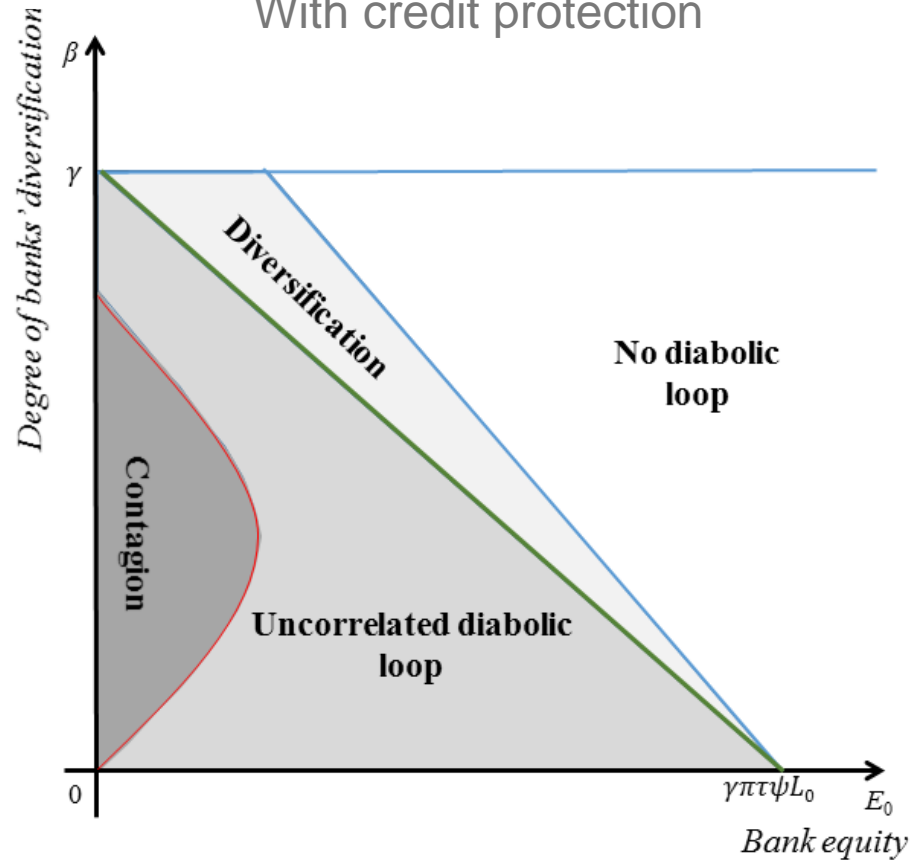
Theoretical grounding

Brunnermeier et al
(2017)

Without credit protection



With credit protection



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Roadmap

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- **Simulation model**
- Policy implications



Regulatory treatment of sovereign exposures

| | Price-based | Quantity-based |
|---------------|---------------------------|-----------------------|
| Concentration | Marginal risk-weights | Large exposure limits |
| Credit risk | Standardized risk-weights | Risky exposure limits |

Policy calibration

**BCBS (2017)
and
GCEE (2015)**

Panel A: Price-based reform to target concentration

| Exposure as % of Tier 1 capital | <100% | 100-150% | 150-200% | 200-250% | 250-300% | >300% |
|---------------------------------|-------|----------|----------|----------|----------|-------|
| Marginal risk weight add-on | 0% | 5% | 6% | 9% | 15% | 30% |

Panel B: Price-based reform to target credit risk

| External credit rating | AAA to A- | BBB+ to BBB- | BBB- to D |
|-----------------------------|-----------|--------------|-----------|
| Domestic-currency exposures | 0% | 4% | 7% |

Panel C: Quantity-based reform to target concentration

| | |
|---------------------------------------|----------|
| Sovereign credit rating | AAA to D |
| Exposure limit as % of Tier 1 capital | 25% |

Panel D: Quantity-based reform to target credit risk

| Sovereign credit rating | AAA to AA- | A+ to A- | BBB+ to BBB- | BB+ to B- | CCC+ to D |
|---------------------------------------|------------|----------|--------------|-----------|-----------|
| Exposure limit as % of Tier 1 capital | 100% | 90% | 75% | 50% | 25% |



Simulation model of portfolio allocation

- **Banks optimize over one of three objectives:**
 - Prudent case: minimize risk
 - Base case: replicate initial portfolio properties
 - Imprudent case: maximize return
- **Subject to common constraints:**
 - Total portfolio value kept fixed
 - Prefer initial portfolio allocation
 - Only reallocate to lower regulatory burden
 - Extent of reallocation depends on elasticities (assumption-free)



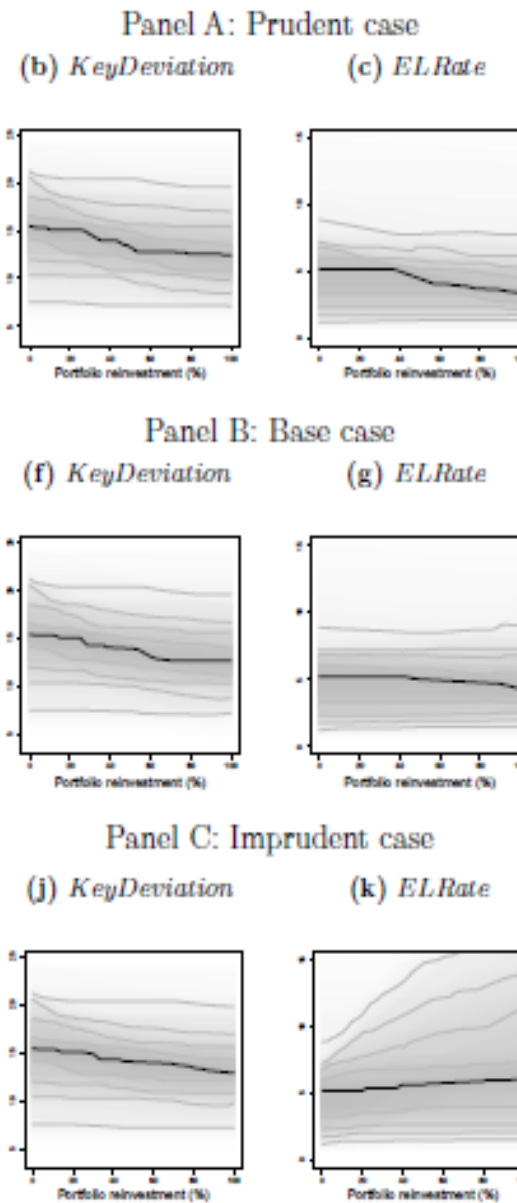
Simulation results (1/4)

Price-based reform to target concentration

Clear reduction in concentration.

Ambiguous effect on credit risk:

- The expected loss rate of the median bank (black line) is reduced in the prudent case, increased in the imprudent case and remains fairly constant in the base case



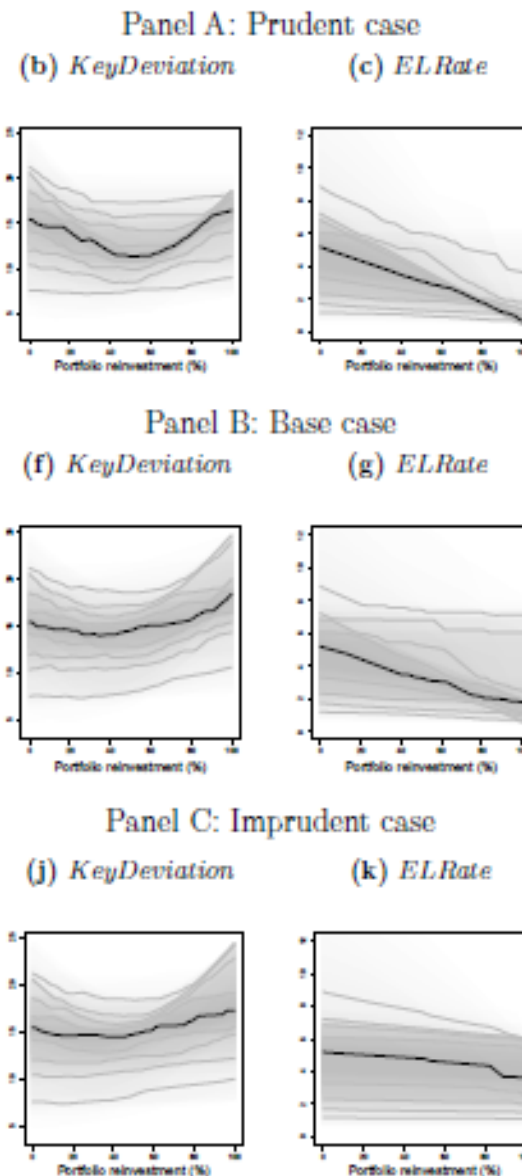
Simulation results (2/4)

Price-based reform to target credit risk

Clear reduction in credit risk.

Ambiguous effect on concentration:

- HomeBias decreases significantly, but only for the countries that are exposed to positive credit risk weights.
- KeyDeviation increases significantly in all three cases



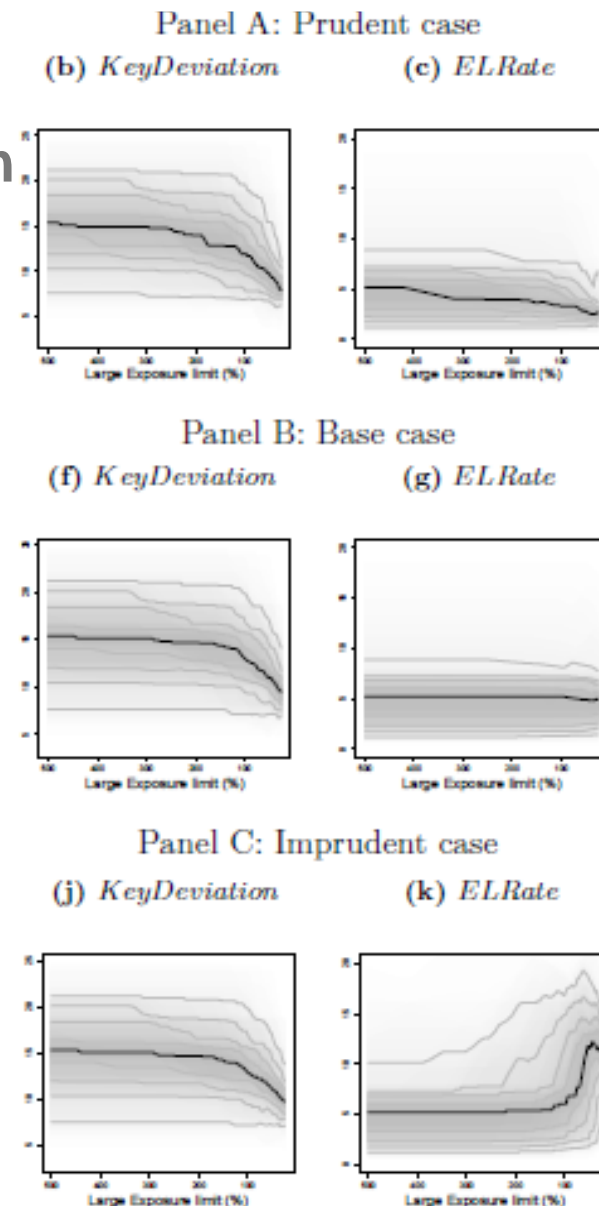
Simulation results (3/4)

Quantity-based reform to target concentration

Strong reduction in concentration as LE limits get tighter (from 500% to 25%).

However, **results on credit risk ambiguous**: range from a small improvement to a large deterioration.

- ELRate for the median bank remains fairly constant under the Prudent and Base cases.
- But the median bank could see its ELRate double under the Imprudent case



Simulation results (4/4)

Quantity-based reform to target credit risk

Clear reduction in concentration.

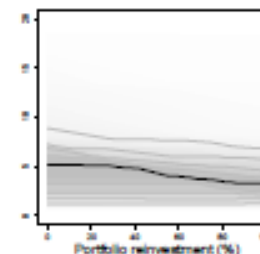
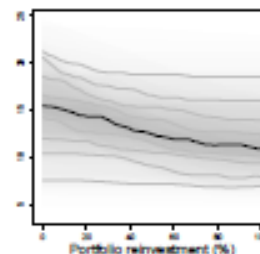
However, credit risk does not significantly improve, and can even worsen.

- ELRate for the median bank shows a small improvement and a moderate deterioration under the Prudent and Imprudent cases respectively.
- Under the Base case, ELRate remains fairly constant.

Panel A: Prudent case

(b) *KeyDeviation*

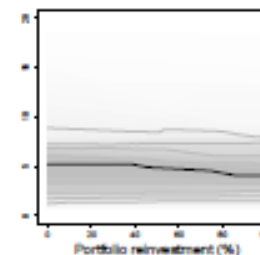
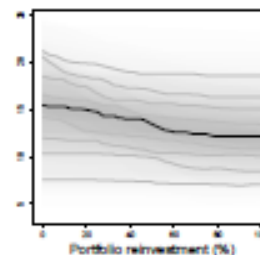
(c) *ELRate*



Panel B: Base case

(f) *KeyDeviation*

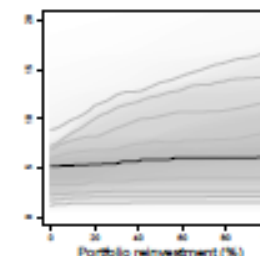
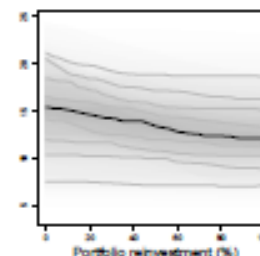
(g) *ELRate*



Panel C: Imprudent case

(j) *KeyDeviation*

(k) *ELRate*



Roadmap

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Insights from simulation results

- Wide range of possible portfolio reallocations
- No regulatory reform can unambiguously achieve both de-risking and diversification

| | Change in concentration relative to mid-2017 | Change in credit risk relative to mid-2017 |
|--|---|---|
| Price-based tools for credit risk | ? | ↓ |
| Price-based tools for concentration | ↓ | ? |
| Quantity-based tools for credit risk | ↓ | ? |
| Quantity-based tools for concentration | ↓ | ? |
| Area-wide low-risk asset | ∥ | ∥ |

- **Missing ingredient: area-wide low-risk asset**
 - Government-led joint guarantees (Eurobonds)
 - Market-led pooling and tranching (e.g. SBBS)

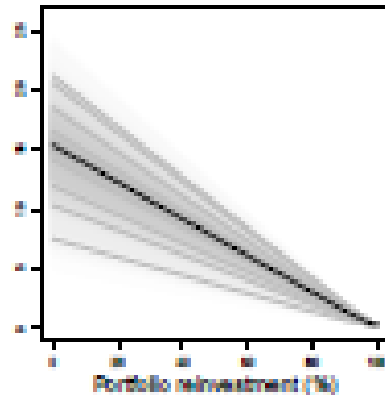
*Leandro & Zettelmeyer
(2018)*

Exogenous reallocation into Senior SBBS

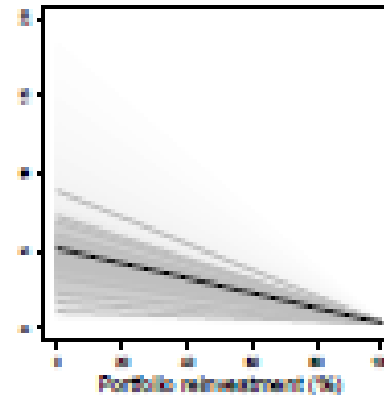
ESRB HLTF
(2018)

- Assume portfolio adjustment into Senior SBBS
- With Senior SBBS, all bank portfolios less risky:
 - ELRate drops to less than 1%
- They also become less concentrated
 - KeyDeviation tends to 0

(b) *KeyDeviation*



(c) *ELRate*

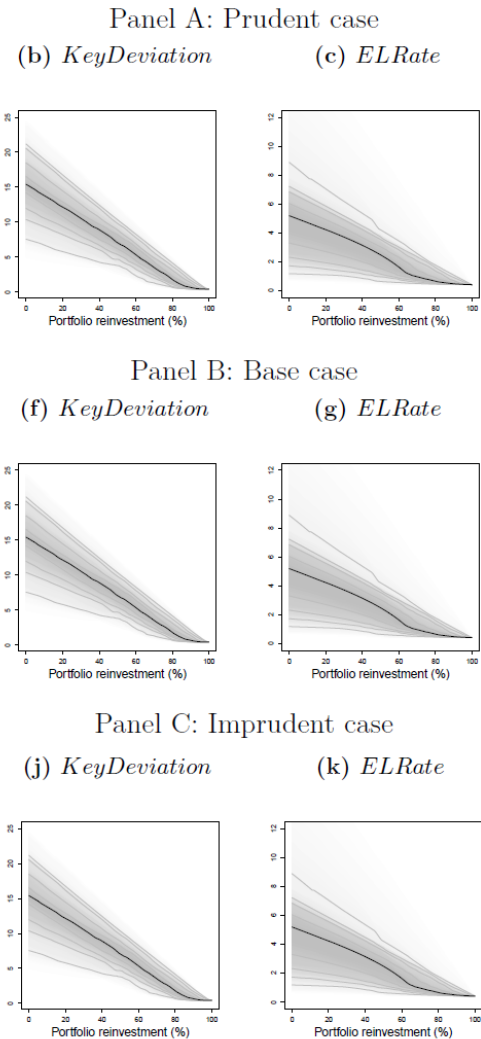


Endogenous reallocation into Senior SBBS

Example: marginal risk weights with
(i) an area-wide low-risk asset and
(ii) a positive risk-weight floor.

Under these conditions, bank
portfolio reallocation unambiguously
lowers both

(i) concentration and
(ii) credit risk.



Conclusion

- To break doom loop, bank portfolios must occupy the **“SAFE ZONE”**: low concentration and low credit risk
- **Regulatory reform on its own is insufficient**
- Need to expand the portfolio opportunity set to include an **area-wide low-risk asset** (e.g. SBBS)
- Simulation results indicate that the area-wide low-risk asset should be **complemented by regulatory reform with a positive risk-weight floor** on sovereign exposures (or tight LE limits)

