

Breaking the Feedback Loop: Macprudential Regulation of Banks' Sovereign Exposures

Jorge Abad | jorge.abad@cemfi.edu.es

cemfi

Motivation

European debt crisis and the sovereign-bank feedback loop:

- Mutually reinforcing negative effects of sovereign risk, financial instability and depressed economic activity

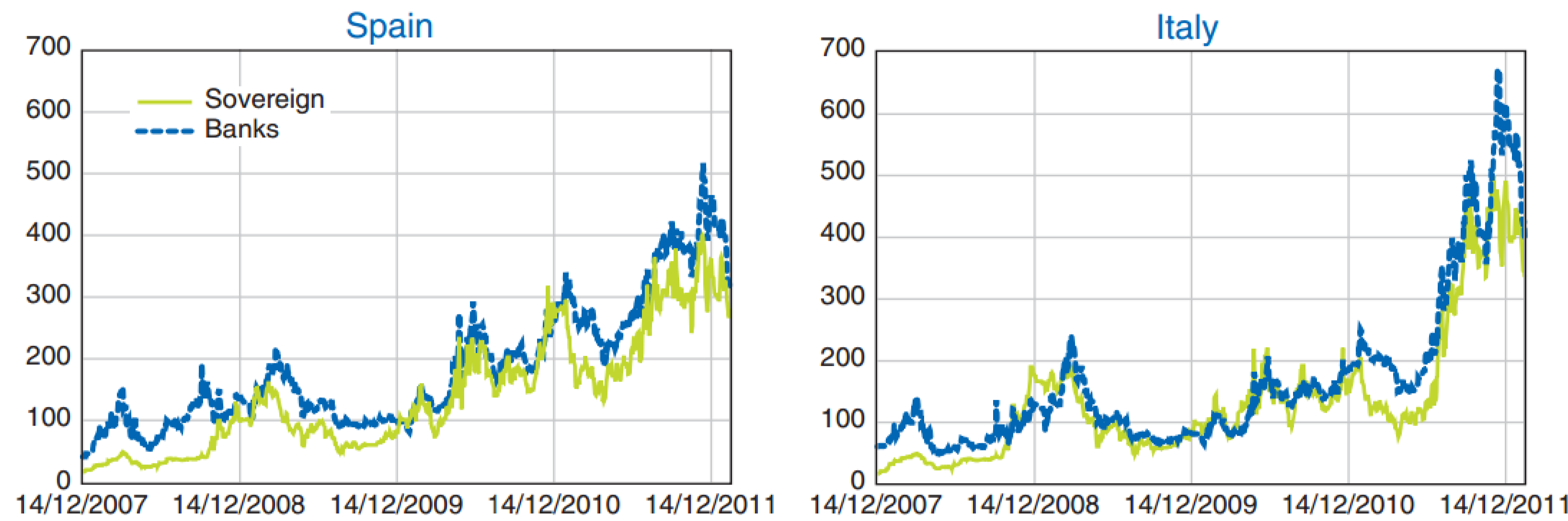


Fig. 1: CDS premia on sovereign and banks. Source: Merler and Pisani-Ferry (2012)

- Current regulatory framework criticized for incentivizing excessive exposure of banks to sovereign risk

Question: Could bank capital regulation break the feedback loop?

Regulatory background

Basel agreements (implemented via CRR/CRD IV in the EU):

- Banks subject to **capital requirements** γ on **risk-weighted assets**
- However, domestic **sovereign bonds** are treated as **riskless** ($\iota = 0$)

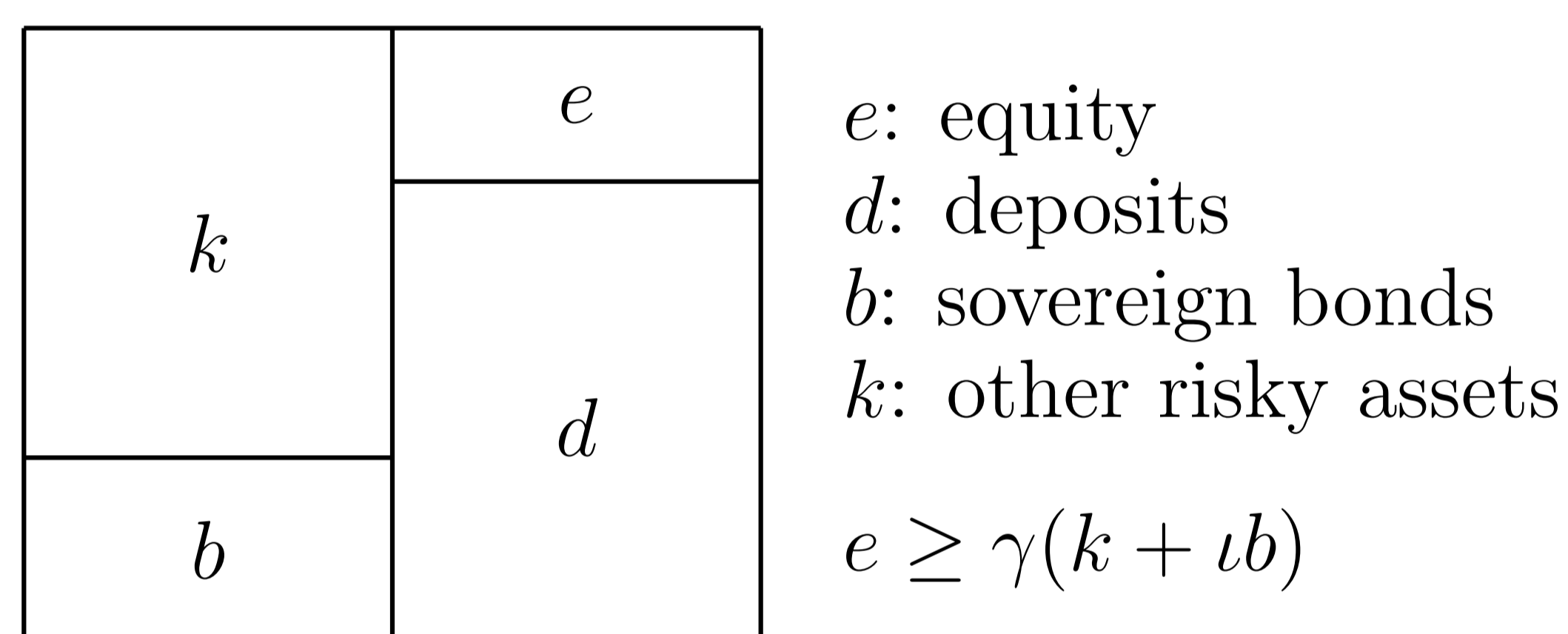


Fig. 2: Simplified bank balance sheet

This paper

Non-linear DSGE model sheds light on the mechanisms behind:

- Endogenous feedback between bank failure and sovereign default risk
- Macprudential implications of regulating banks' sovereign exposures

Model overview:

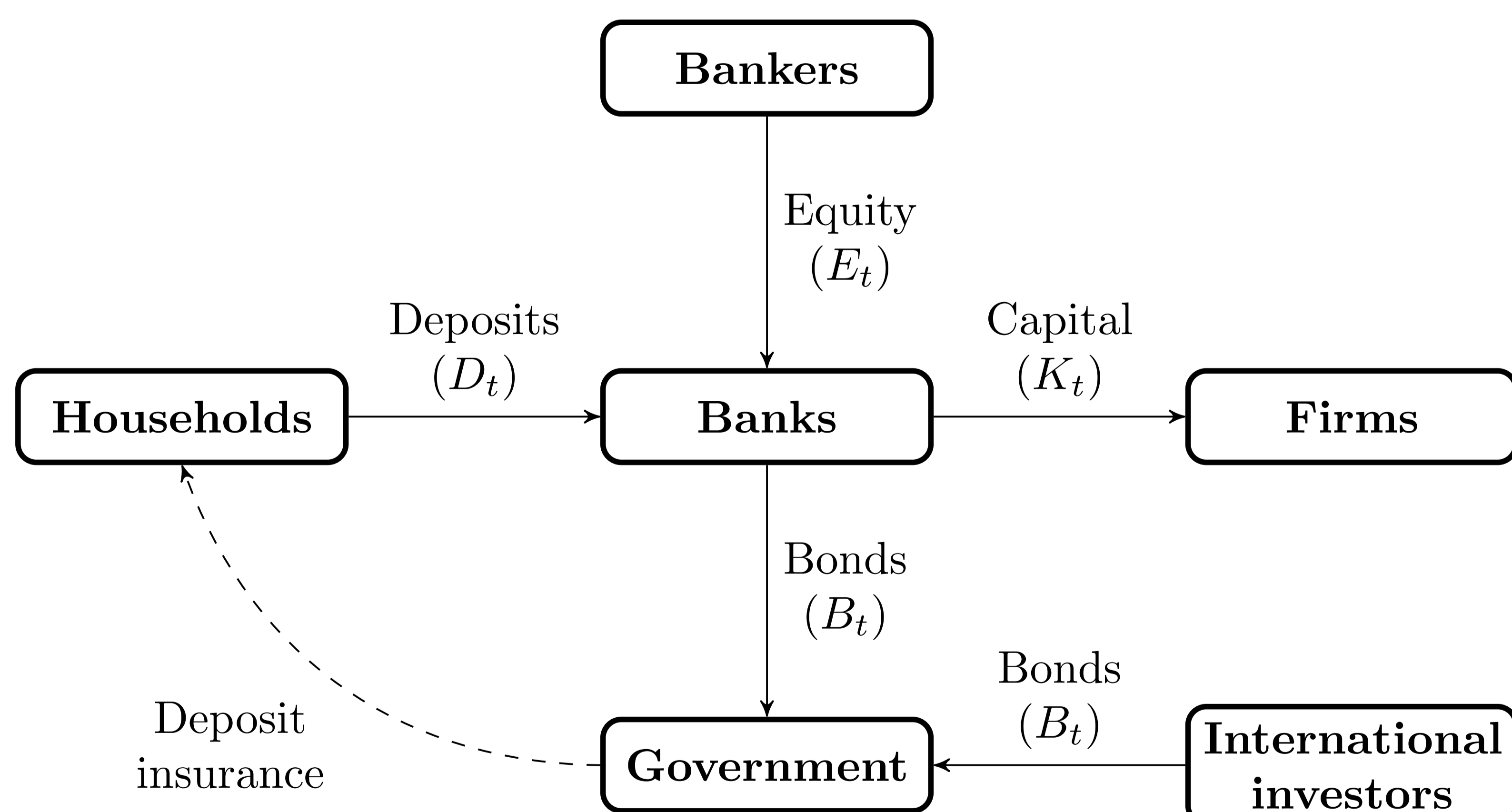


Fig. 3: Overview of the model economy

Key distortions:

- Limited liability + deposit insurance: risk-shifting incentives
- Opaque balance sheets: deposits priced according to avg. bank risk
- Socially costly bank failure: motivates capital regulation
- Limited participation in equity market constrains bank intermediation
- Sovereign risk increasing in the level of public debt
- Government fails to guarantee bank debt if it defaults

Results

The feedback loop has dramatic effects on bank stability and economic activity **even if default does not materialize:**

- Higher sovereign yields make banks increase their sov. exposures (and their leverage), increasing their probability of failure
- Since, in the event of default, deposits cease to be insured, this translates into higher bank funding costs to compensate for potential losses

→ **Sovereign risk** as a source of **systemic spillovers**: initial shock to a small fraction of banks translates into system-wide instability, further declines in bank capital and depressed economic activity

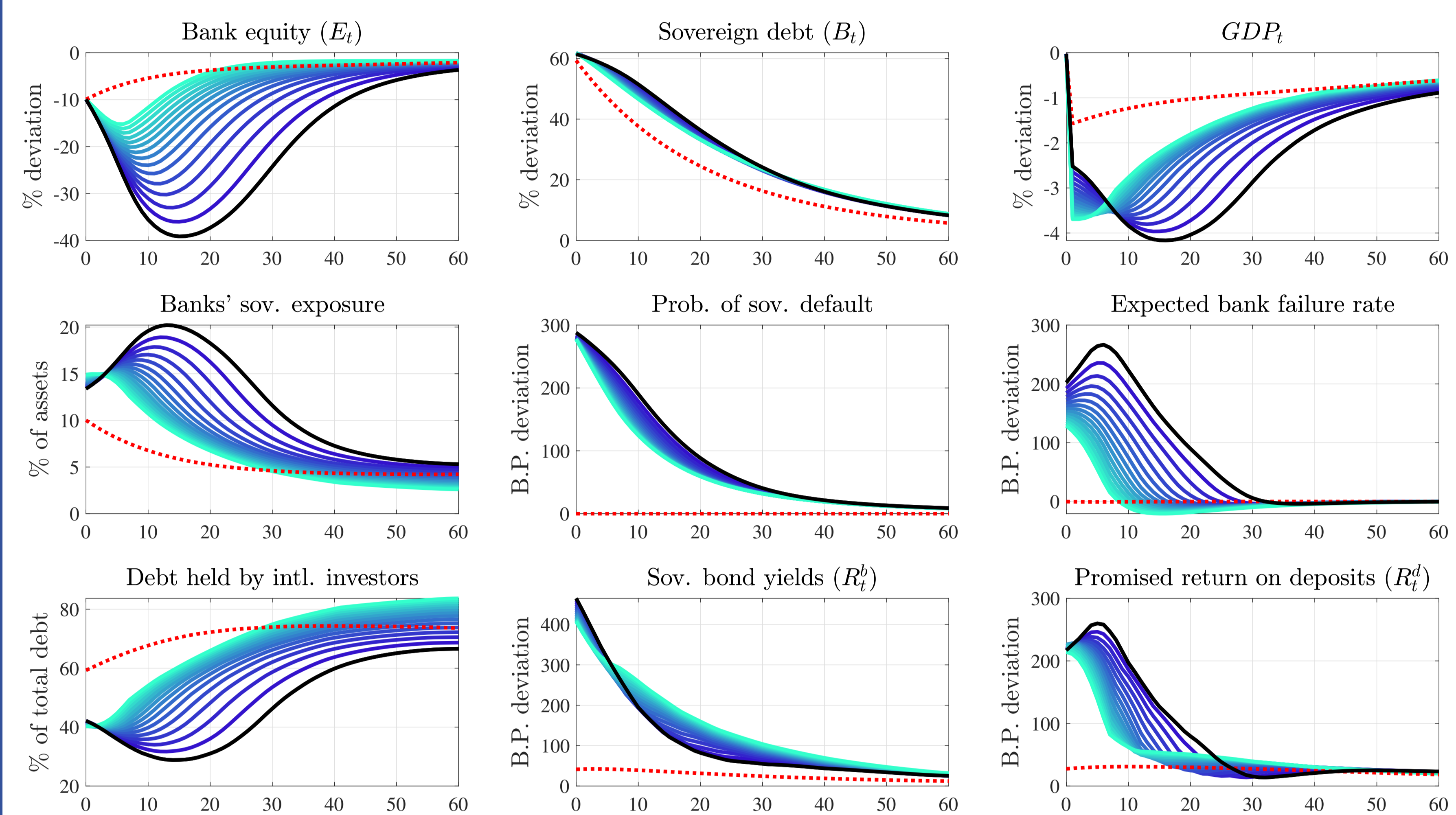


Fig. 4: Response to a bank failure shock – Key endogenous variables

- Red lines:** constant sovereign default risk and zero risk weights ($\iota = 0$)
- Black lines:** endogenous sovereign default risk and zero risk weights ($\iota = 0$)
- Blue lines:** higher risk weights for sov. debt (from $\iota = 5\%$ to $\iota = 70\%$)

Capital requirements for sovereign exposures mitigate the negative externalities associated with the following distortions:

- **Limited liability:** risky sovereign debt may be attractive for banks, which profit from high returns as long as the government does not default and suffer losses limited to their initial equity otherwise
- **Opaque balance sheets:** individual banks do not internalize the effect of their risk profile on the funding costs of the banking system

Welfare trade-offs from increasing sovereign risk weights ($\iota > 0$):

- **skin in the game** $\uparrow \rightarrow$ **risk-shifting incentives** \downarrow
- **leverage** $\downarrow \rightarrow$ **bank failure risk** \downarrow
- **leverage** $\downarrow \rightarrow$ **output** \downarrow
- **banks' bond holdings** $\downarrow \rightarrow$ **govt. borrowing costs** \uparrow

Quantitative exercise: calibration based on a peripheral EU country (Spain 2000-2012)

→ Optimal risk weight: $\iota = 40\%$ (for a given capital requirement $\gamma = 8\%$)

