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

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

cemfi

Motivation

European debt crisis and the **"diabolic loop"**:

Reinforcing negative effects of sovereign risk, financial instability and economic activity on each other

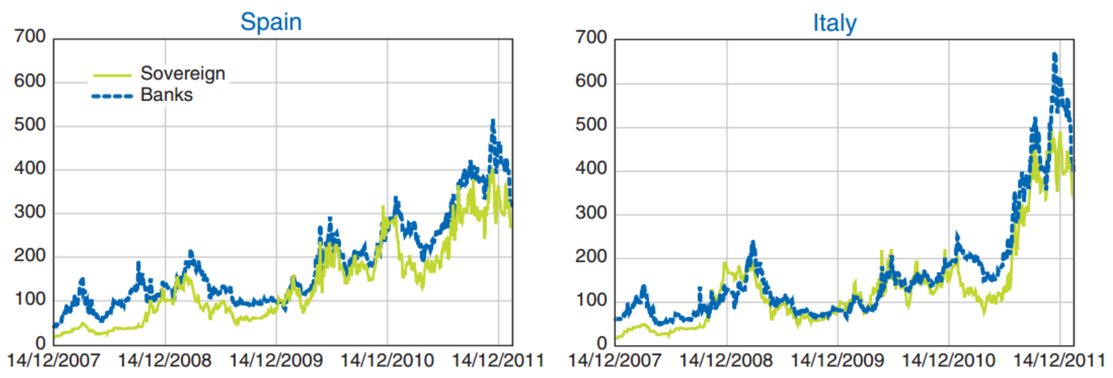


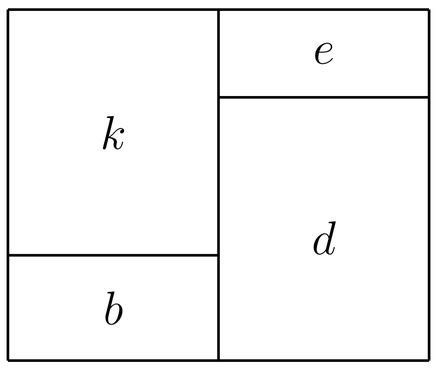
Fig. 1: CDS premia on sovereign and banks. Source: Merler and Pisani-Ferry (2012)

Question: Could bank capital regulation break the diabolic loop?

Current regulatory framework

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

- Banks are subject to **capital requirements** on **risk-weighted assets**
- However, domestic **sovereign bonds** are treated as **riskless**
- Furthermore, they are exempt from **concentration limits**



e: equity
d: deposits
b: sovereign bonds
k: other risky assets

$$e \geq \gamma(k + \iota b)$$

Fig. 2: Bank balance sheet

This paper

DSGE model sheds light on the mechanisms behind:

- Endogenous interdependence between bank and sovereign risk
- Macroprudential implications of regulating banks' sovereign exposures

Model overview:

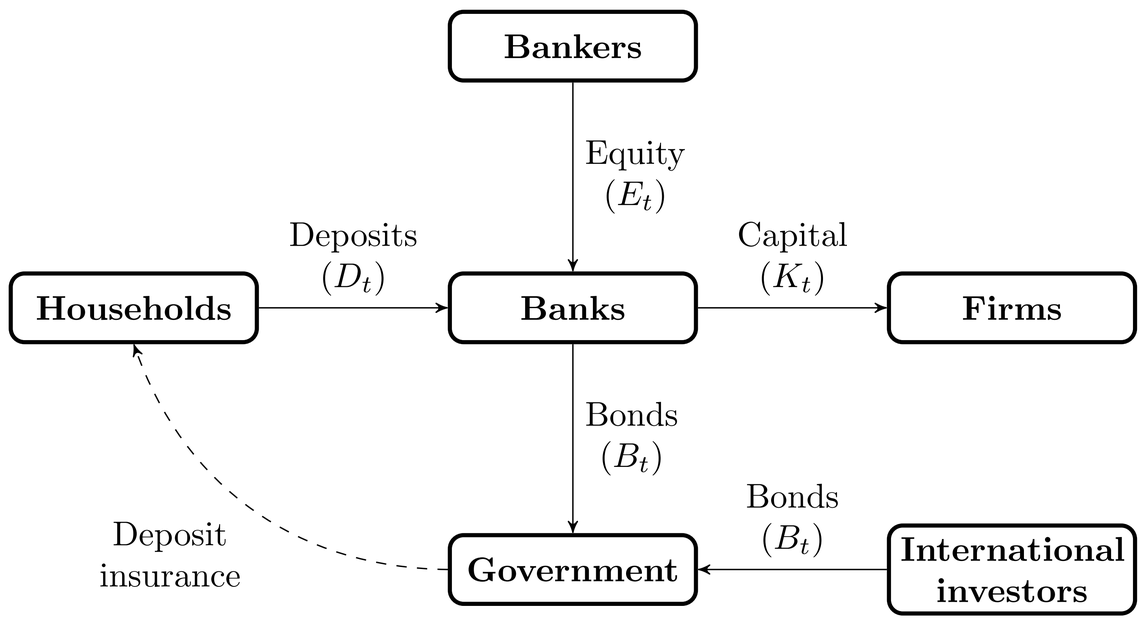


Fig. 3: Overview of the model economy

Key frictions:

- Limited liability (LL) + deposit insurance (DI): risk shifting incentives
- Opaque balance sheets: individual sov. exposures are unobservable
- Socially costly bank failure: motivates capital regulation
- Sovereign risk increasing in the level of debt
- Government fails to guarantee bank debt if it defaults

Mechanisms

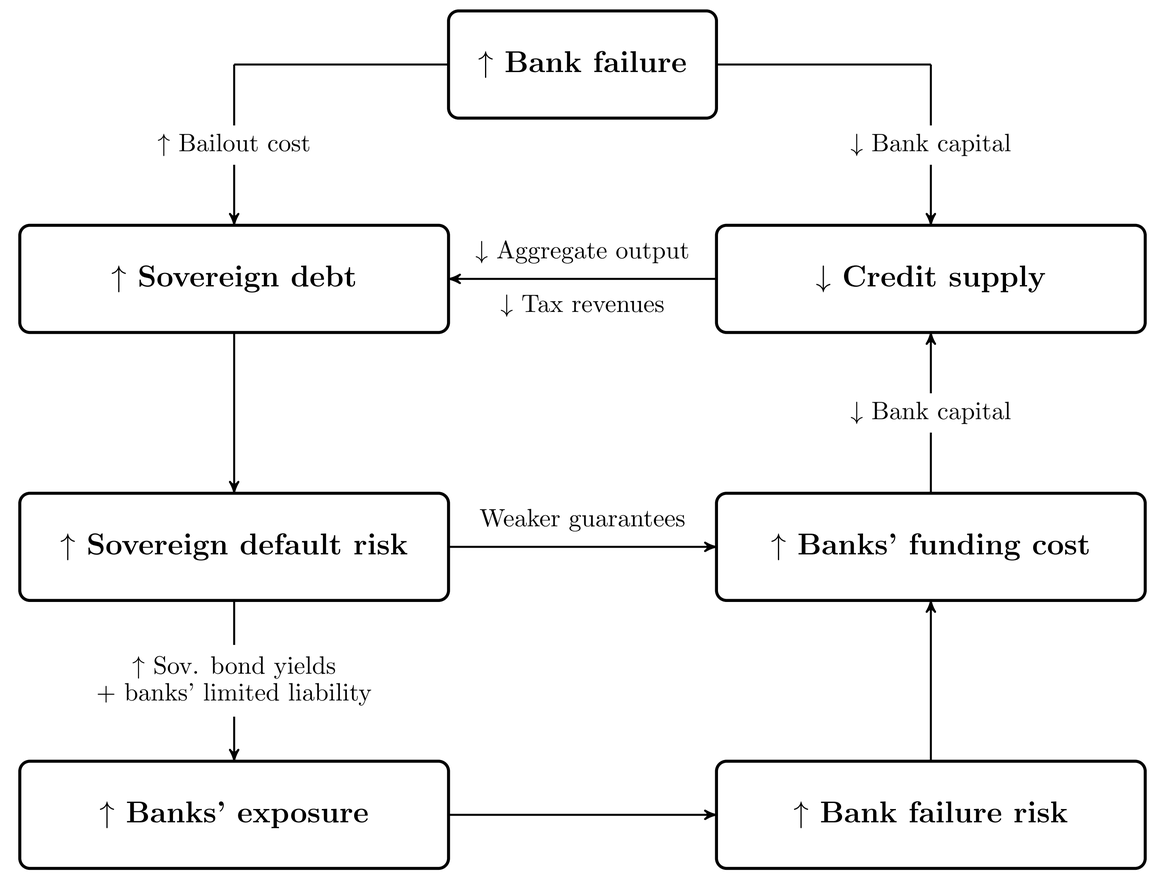


Fig. 4: Main mechanisms behind the feedback loop

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

$\rightarrow$ Initial shock translates into further declines in bank capital, with an associated decrease in aggregate activity

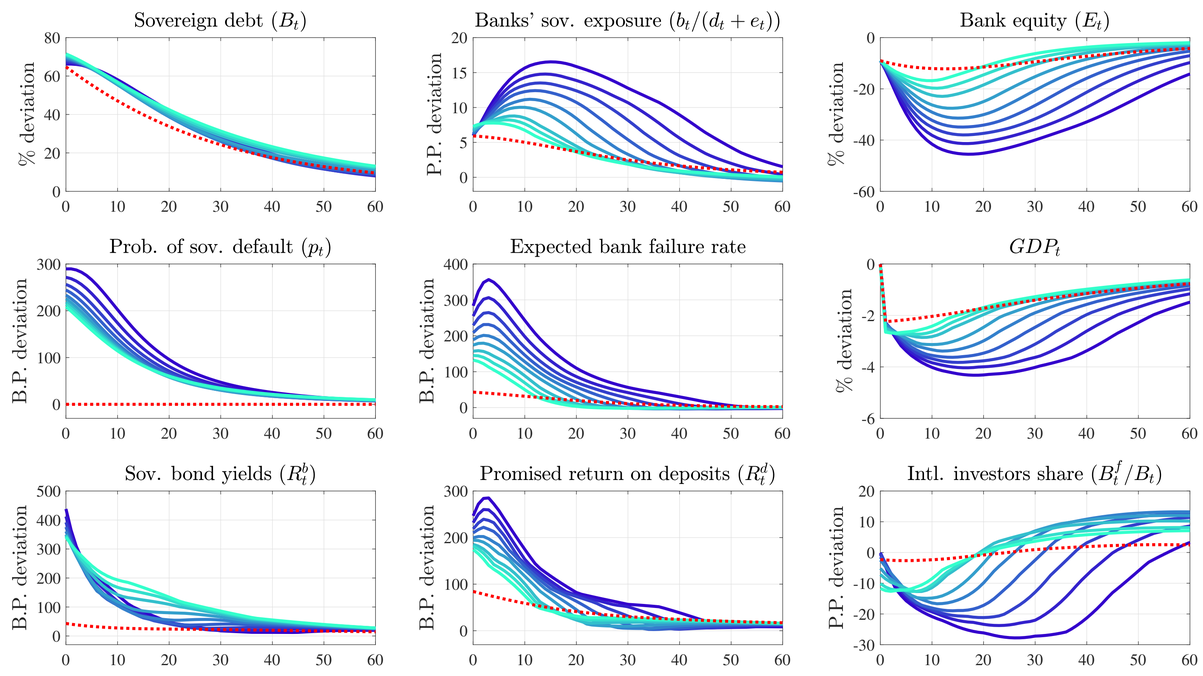


Fig. 5: Response to an aggregate depreciation shock – Key endogenous variables

Red lines: constant sovereign default risk
Blue lines: baseline parameterization with zero risk weights
Lighter blue lines: higher risk weights for sov. debt (from 5% to 40%)

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

1. **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
2. **Opaque balance sheets**: individual banks do not internalize the effect of their risk profile on the funding costs of the banking system

Higher capital requirements:

1. skin in the game $\uparrow \rightarrow$ risk-shifting incentives $\downarrow$
2. capital buffers $\uparrow \rightarrow$ loss-absorbing capacity $\uparrow \rightarrow$ bank failure risk $\downarrow$