

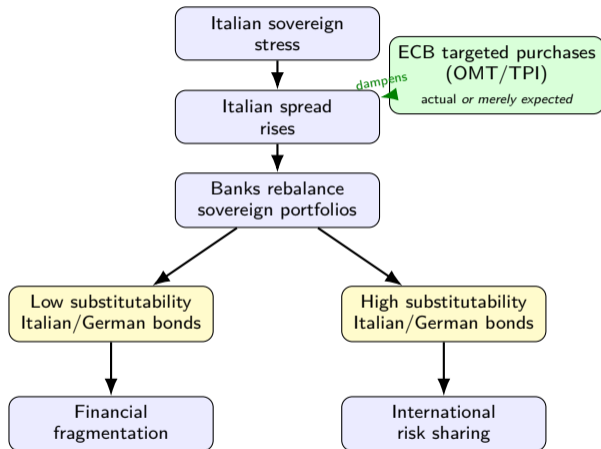
# Asset Purchases in a Monetary Union with Default and Liquidity Risks

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Discussion by

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# What the paper does: crisis, transmission, and targeted purchases



## Three results.

- 1 **Crisis anatomy:** default + liquidity risk impair bank capacity; investment falls.
- 2 **Transmission:** the composite  $m_t^b = \text{CES}_{\sigma_b}(Q_t^b b_t^H, Q_t^{b,*} b_t^F)$  governs spillovers:  

$\sigma_b \downarrow \Rightarrow$ crisis domestic	$\sigma_b \uparrow \Rightarrow$ union-wide
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- 3 **Policy:** purchases of Home govt debt cut the spread by  $\sim 2/3$ ; *expected-but-unused* purchases stabilize too — at the cost of normal-times risk taking by banks.

**Core questions:** country-specific or union-wide stabilization? What does the mere *existence* of OMT/TPI do?

**Purpose in the model.** Provide labor supply, consumption demand, deposits, and the stochastic discount factor.

$$d_t + b_t^i + (1 + \tau^c)c_t = \frac{R_{t-1}^d d_{t-1}}{\pi_t} + \frac{R_{t-1}^i b_{t-1}^i}{\pi_t} + w_t l_t + \Pi_t^f + div_t - x - t_t + T_t^{cb}.$$

## Friction / segmentation

- Households insulated from direct sovereign valuation losses: sovereign debt held *only* by intermediaries (exposure only via bank dividends).
- Households finance directly *only* domestic firms, and *only* partially, through equity.
- Households finance indirectly *only* domestic firms, through deposits  $d$ .

# Intermediaries: convert sovereign risk into credit tightening

**Purpose in the model.** Sovereign stress uses up constrained bank capacity and crowds out private credit.

**Bank balance sheet.**

$$Q_t^b b_t^H + Q_t^f f_t + Q_t^{b,*} b_t^F = d_t + n_t.$$

$n_t$  inherits mark-to-market losses on lagged holdings  $Q_{t-1}^b b_{t-1}^H$ ,  $Q_{t-1}^f f_{t-1}$ .

**Sovereign-bond composite.**

$$m_t^b = \left[ \gamma_b^{1/\sigma_b} (Q_t^b b_t^H)^{\frac{\sigma_b-1}{\sigma_b}} + (1-\gamma_b)^{1/\sigma_b} (Q_t^{b,*} b_t^F)^{\frac{\sigma_b-1}{\sigma_b}} \right]^{\frac{\sigma_b}{\sigma_b-1}}$$

**Friction: constrained bank capacity**

$$V_t \geq \eta_t^v (Q_t^f f_t + \theta^b m_t^b).$$

Home default risk tightens the constraint:

$$\frac{\eta_t^v}{\bar{\eta}^v} = 1 + \phi^\eta [P(s_{t-1}) - P(\bar{s})].$$

**Economic intuition**

Banks cannot expand deposits freely. When Home banks absorb more sovereign debt, private lending is crowded out:

$$Q_t^f f_t \downarrow.$$

$P_t \uparrow \Rightarrow$  Home banks absorb more Italian debt  $\Rightarrow$  balance-sheet capacity tightens  $\Rightarrow Q_t^f f_t \downarrow \Rightarrow Q_t^f \downarrow$ .

# Firms: transmit private-credit prices into investment

**Purpose in the model.** Turn movements in the private-bond price  $Q_t^f$  into investment dynamics.

**Wholesale producer.**

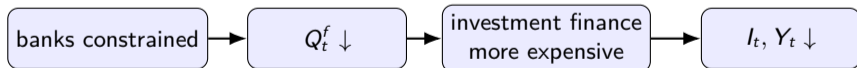
$$y_t^w = I_t^{1-\alpha} K_{t-1}^\alpha, \quad K_t = I_t^w + (1 - \delta)K_{t-1}.$$

- Retailers add nominal rigidity through Rotemberg price adjustment.
- Investment producers aggregate Home and Foreign goods into new capital.

## Friction: loan-in-advance for investment

Firms must finance a fixed fraction of new capital expenditure with long-term private bonds:

$$Q_t^f \left( f_t - \frac{\kappa^f f_{t-1}}{\pi_t} \right) \geq \eta^l p_t^k I_t^w.$$



# Comment 1: two margins that cannot respond — funding prices, cross-border loans

**Asymmetric financial integration: three markets, three degrees.**

Market	Cross-border?	Margin
Household funding ( $d_t, b_t^i$ )	integrated: single riskless rate $R_t^d$	banks <i>always</i> fund at $R_t^d$
Sovereign bonds ( $b_t^H, b_t^F$ )	partial: $m_t^b = \text{CES}_{\sigma_b}(Q_t^b b_t^H, Q_t^{b,*} b_t^F)$	finite elasticity $\sigma_b$ , home bias $\gamma_b$
Private credit ( $f_t$ )	none: Home firms $\leftrightarrow$ Home banks only	$\sigma_{\text{loans}} = 0$

## Two margins cannot respond

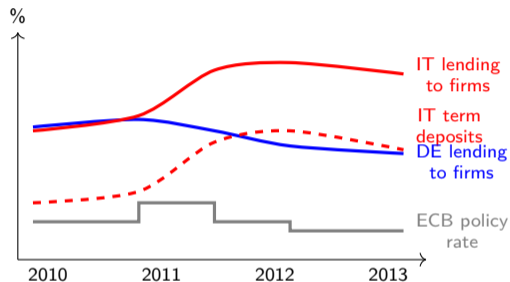
- **Funding price:** deposit supply is perfectly elastic and risk-insensitive at  $R_t^d$  (deposits riskless, households indifferent) — under stress there is no price to bid.
- **Cross-border loans:** Foreign banks cannot step in and lend to Home firms when Home banks are impaired.

⇒ the crisis can only express itself as a *quantity* crunch on the Home bank's asset side.

Would sovereign purchases be less necessary if Foreign banks could lend to Home firms?

# Comment 1 (cont.): in the data, the funding price *did* respond

## Bank rates decoupled from the policy rate



Policy rate cut to 0.75%, yet Italian lending and deposit rates *rose*; IT-DE lending spread reached  $\sim 150$ – $200$  bp.

## Funding stress, 2011–12

- Italian term-deposit rates roughly *doubled* in 2011H2; wholesale funding froze; Eurosystem borrowing  $\sim 270$  bn euros after the LTROs.

## Same tightness, opposite incidence

The deposit-rate spread is the model's shadow price  $\lambda_t^V$  made *visible* — but who gets the wedge?

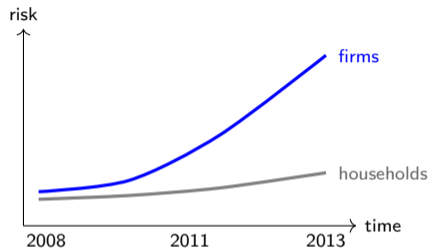
**Model:** retained by banks as excess returns  $\Rightarrow$  *rebuilds* net worth.

**Data:** paid out to depositors on the whole stock  $\Rightarrow$  *drains* net worth.

**Question:** opposite equity dynamics, different policy ranking — LTRO-type support lies outside the model. Would purchases still dominate it?

## Comment 2: private credit is risk-free in the model

### Italian bad-debt risk rose for firms



Banca d'Italia: new bad debts reached 2.9% of loans in 2013Q2; the increase was driven by firms.

### In the model

$$R_t^b = (1 - \Delta_t) \frac{1 + \kappa^b Q_t^b}{Q_{t-1}^b}, \quad R_t^f = \frac{1 + \kappa^f Q_t^f}{Q_{t-1}^f}.$$

### Policy interpretation

Sovereign purchases restore private credit because

$$Q_t^f = \text{bank-capacity price.}$$

With corporate default risk:

$$Q_t^f = \text{bank-capacity price} + \text{borrower-risk price.}$$

### Question

When is a sovereign backstop sufficient, and when are private-credit policies also needed?

Post-OMT: spread fell 5 → 1.5 pp by 2014, yet lending and investment kept falling into 2015.

## Comment 3: which margins can respond to the backstop?

The crisis is a belief shock:

$$P_t = \Lambda \left( \underbrace{s_t}_{\text{endogenous}} + \underbrace{\varepsilon_t^P}_{\text{exogenous AR(1)}} \right), \quad \Delta_t = \delta_b \text{ if } s_{t-1} \geq B_t^* \quad (\text{a fiscal-limit rule, not a choice}).$$

Baseline crisis = exogenous debt  $\uparrow$  +  $\varepsilon^P \uparrow$ ; Table 1:  $\varepsilon^P \approx 5$  of 6.3 pp of the spread.

**Purchases (actual or expected) act through  $s_t$**

A natural complementary channel for OMT — *compressing beliefs* (self-fulfilling crises, redenomination risk) — is kept outside the model.

⇒ announcement effects: a *lower bound*; normal-times risk-taking cost: possibly offset.

**Fiscal policy follows rules:** the backstop lowers borrowing costs, and the deficit path stays unchanged. The paper studies bank risk taking; the *sovereign* counterpart — why OMT/TPI carry conditionality — is a natural next step.

Would beliefs or fiscal incentives responding to the backstop overturn the results?

## Main contribution

- A tractable framework linking sovereign stress, bank balance sheets, and investment.
- Sovereign-bond substitutability is the key determinant of cross-border transmission.
- The analysis of OMT/TPI-style interventions is especially valuable.

## Three questions

- 1 Funding prices and cross-border lending cannot respond in the model: how much of euro-area fragmentation runs through these two margins?
- 2 Would *corporate default risk* weaken the sovereign backstop and amplify the risk-taking distortion?
- 3 Purchases act through  $s_t$ , while *beliefs* ( $\varepsilon^P$ ) and the *deficit path* are held fixed: how much of OMT's power — and moral hazard — runs through those two margins?

## Takeaway

Useful benchmark for sovereign-bank interactions, with scope for richer financial integration, private-credit risk.