Discussion of Boz, D’Erasmo and Durdu
“SOVEREIGN RISK AND BANK BALANCE SHEETS"

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The views expressed herein are those of the author and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.
INTRODUCTION

- Ambitious paper on very important topic

- Banks-sovereign nexus in a quantitative model
  - Predictions for sovereign and private sector rates, bond holdings (domestic vs. foreigners), …
  - Macroeconomic effects of Basel III?

- Nice exercise, many people are thinking about these issues
OUTLINE OF THE DISCUSSION

- Overview: Flow of funds, bank’s problem, policy experiments

- Three remarks:
  - Sovereign and private sector borrowing costs
  - Home bias and risk weights
  - Paper needs more focus

- Conclusion
Flow of Funds

- Households
- Firms
- RoW
- Bank
- Government
FLOW OF FUNDS

Households $W_t$ $h_t$

Firms

RoW $s_t$

Bank $d_t$

Government
Flow of Funds

Households

Firms

RoW

Bank

Government

$W_t$

$h_t$

$l_t$

$p_t(1 + r_t^b)l_t$

$s_t$

$d_t$

$q_t b_{t+1}$

$b_t$
FLOW OF FUNDS

Households

Firms

RoW

Bank

Government

$W_t$

$h_t$

$l_t$

$s_t$

$d_t$ $s_t$ $l_t$

$q_t b_{t+1}$ $q_t b_{t+1}$ $b_t$

$(1 + r_t^d)d_t^f$

$b_t^f$ $b_t^f$ $b_t^f$

$q_t b_{t+1}$ $q_t b_{t+1}$ $q_t b_{t+1}$
BANK’S PROBLEM (NO GOV DEFAULT)

- Choose assets (gov bonds, loans) and liabilities (equity, deposits)
- $z'$ realizes. Successful firms pay back loan
- End of period, distribute payouts to households (no gov bonds)

$$W_{D=0}(b, B, z) = \max_{l, \tilde{s}, b'} \mathbb{E}_z \{ \tilde{R} [ f(x) + W(b', B', z') ] \}$$

$$b - \tilde{s} \geq \varphi (l + \omega qb')$$

$$x = (p \times r^l - r^d)l - (1 + r^d)(qb' - b) - r^d \tilde{s} - \tilde{\phi}(\tilde{s})$$

$$f(x) = x - \phi(x)$$
DEMAND FOR BONDS AND EQUITY ISSUANCE

Bond demand:

$$\mathbb{E}_z \left\{ \tilde{R} \left[ f'(x) \left[ -\left( 1 + r^d \right) q \right] + \frac{\partial W(b', B', z')}{\partial b'} \right] \right\} - \omega \varphi q \mu = 0$$

- Less payouts for households
- Liquidity value: gov bonds relax future capital requirements
- If constraint binds, more costly to finance them

Issuance of equity:

$$\mathbb{E}_z \{ \tilde{R} [f'(x) (r^d - \tilde{\phi}'(\tilde{s}))] \} + \mu = 0$$

- Issuing equity is costly
- Relaxes capital requirement when it binds
**Bank-Sovereign Nexus**

- If government defaults, bank loses $b$
- Bank pays higher issuance costs (finance firms + negative profits)
- Output declines

Output losses + market exclusion shape government’s default incentives

No balance sheet effects in the run-up to a default (debt short term)
Suppose regulators increase $\varphi$. Then:

- Liquidity value of gov bonds increases
- **Gov default less painful** (two opposing effects)
- Bank pays less issuance costs

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<th>Moment</th>
<th>Baseline</th>
<th>$\varphi = 0.06$</th>
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<td>Bank cap. Ratio %</td>
<td>19.59</td>
<td>19.71</td>
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<td>Bank Loans / Assets %</td>
<td>84.23</td>
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<td>$r^\ell$ %</td>
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<td>$\sigma(c)$ %</td>
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<td>1.62</td>
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<tr>
<td>$\alpha(b, B, z)$ %</td>
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<td>0.0342</td>
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</table>
Policy Experiments: $\omega$

Suppose regulators increase $\omega$. Then:

- Bond demand by bank declines
- Gov default less painful (less commitment for the government)

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Summary

- Changes in $\phi$ and $\omega$ affect bank leverage and default risk
- Decline in leverage lowers equity issuance costs
- Default risk typically increase

Model has little to say about equity issuance costs (reduced form)

It could say more about macroeconomic implications of sovereign risk
**Remark 1: Sovereign and Private Sector Rates**

In the model, sovereign risk irrelevant for firms’ financing

![Graph showing dynamics around default: Interest Rates](image)

- Ample empirical evidence supporting the opposite
- Important for policy experiments

Authors need to correct for that (e.g. long term debt?)
Remark 2: Home Bias and Risk Weights

In the model, domestic bonds (only) source of liquidity for bank holdings.

- Risk weighting sovereign debt may re-balance portfolios.
- Default risk in the periphery affected.
- Related to Chari, Dovis and Kehoe (2014).
Remark 3: Need more focus

- At the moment, a mix between positive and normative analysis

- Positive analysis: model rich, but many features are reduced form. What are the empirical targets we aim at matching? Why?

- Normative analysis: mechanisms hard to grasp, too many moving parts

- Challenging to have both parts in one paper
CONCLUSION

• Very interesting paper on very important research question

• Suggestions:
  • Introduce the “obvious” feed-back (sovereign risk → firms’ financing costs)
  • Allow the bank to have another risk free asset in the background
  • Focus more the paper