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Discussion of

Huixin Bi, Eric Leeper, and Campbell Leith Financial Intermediation and Government Debt Default

Peter Karadi

European Central Bank

ECB, Dec. 12, 2014

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Overview

Motivation

- ▶ Address quantitatively the sovereign-bank nexus
- ▶ By introducing endogenous sovereign default, and
- ▶ Idiosyncratic bank runs/bank default
- ► To a model with balance sheet constrained financial intermediaries

Comments 00000 Conclusion 0

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- ▶ Address quantitatively the sovereign-bank nexus
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- ► To a model with balance sheet constrained financial intermediaries
- Methodology
 - ▶ DSGE model
 - Solved globally with occasionally binding constraints

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Model

- Households
 - ▶ Bankers and workers with perfect consumption insurance
- Capital producing firms
 - Capital adjustment costs
- Intermediate good producing firms
 - ▶ Borrow to buy capital,
 - ▶ Rotemberg price adjustment costs
- Monetary policy
 - ▶ Taylor-type rule

Comments 00000 Conclusion 0

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Model, cont.

Sovereign

- Finances expenditures and services debt with distortionary taxes
- ▶ Issues long-term nominal debt
- ▶ Defaults stochastically as debt approaches 'fiscal limit'

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Model, cont.

Sovereign

- Finances expenditures and services debt with distortionary taxes
- ▶ Issues long-term nominal debt
- ▶ Defaults stochastically as debt approaches 'fiscal limit'
- Financial intermediaries
 - ▶ Hold long-term private and public debt
 - ▶ Face occasionally binding skin-in-the-game constraint
 - ▶ Can not issue equity
 - ▶ Can default with endogenous probability

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Results

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 - ▶ Sovereign default has large and persistent effects
 - W/o idiosyncratic bank default, sovereign risk has small impact
 - With idiosyncratic bank default, sovereign risk has large effect and is deflationary

Overview 000• Comments 00000 Conclusion 0

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Results

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 - ▶ Sovereign default has large and persistent effects
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- Praise
 - ▶ Highly policy relevant question
 - Very ambitious project
 - State-of-the-art methodology

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Role of sovereign haircut (Δ)

▶ Small role for sovereign risk (w/o bank default)

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Role of sovereign haircut (Δ)

- ▶ Small role for sovereign risk (w/o bank default)
- ▶ In contrast to Bocola (2014). What explains the difference?
 - ▶ Haircut: 8%, in Bocola: 55% (based on Greek default)
 - ▶ Default probability: 20-30%, in Bocola, 2%
 - Expected loss is higher here, but in Bocola larger crisis.

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Role of haircut (Δ) , cont

• Optimal bank leverage $(f_t, \text{ special case } \eta = 1)$

$$f_t = \frac{E_t \{ \hat{\Lambda}_{t,t+1} R_{jt+1} \} - \lambda \mu_t}{1 - \mu_t}$$

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Depends on two key factors

- Tightness of the funding constraint (μ)
- Correlation of the banks' valuation $(\hat{\Lambda}_{t,t+1})$ with the returns

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- ▶ Large haircut
 - ▶ In crisis: valuation very high, when returns are low
 - ▶ Non-linear effect on the optimal leverage
 - Sovereign risk induces deleveraging

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Role of haircut (Δ) , cont

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 - Sovereign risk induces deleveraging
- ▶ Low haircut: Would not a linearized model suffice?

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Fiscal limit and outlook

▶ Currently: invariant logistic distribution

$$p_t^d = P(D_{t-1} \ge D_t^*) = \frac{exp(\eta_1^d + \eta_2^d D_{t-1})}{1 + exp(\eta_1^d + \eta_2^d D_{t-1})}$$

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- Fiscal limit (Bi, 2012): "Sum of the discounted maximum fiscal surplus in all future periods."
 - ▶ Economic outlook influences maximum fiscal surplus
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- Fiscal limit (Bi, 2012): "Sum of the discounted maximum fiscal surplus in all future periods."
 - ▶ Economic outlook influences maximum fiscal surplus
 - Discounted: depends on borrowing rates
- ► Alternatives:
 - Parameters of the distribution (η) are state dependent
 - ▶ Fiscal limit in terms of debt over GDP
 - ► Roll-over-crisis: fiscal limit depends on current fiscal surplus

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Bank-run

- ▶ Idiosyncratic bank run/bank default
 - Assets are partly illiquid within period
 - High deposit withdrawals (liquidity shock) can lead to bankruptcy
 - ▶ Banks' assets are liquidated at fire-sale prices
 - ▶ High leverage (deposit) banks are more exposed
 - ▶ Depositors face potential losses, require compensation

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- Terminology
 - ▶ Bank run or bank default?
 - comp. Gertler-Kiyotaki, 2013: systematic bank run, multiple equilibria

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- ► Two components
 - Higher deposit rate with high deposits: might slow down rebuilding of net worth after a shock
 - Shorter expected life-span: leads to deterioration of aggregate net worth, and limits leverage

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- ▶ Why deposit and not leverage
 - ▶ Should be more relevant for bank default

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- What matters more?
 - ▶ Shorter expected time span: deteriorates net worth?
 - ▶ Higher deposit rates?

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- What matters more?
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- ▶ Would not a linear solution deliver?

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Conclusion

▶ Very policy relevant and innovative paper



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 - ▶ Needs to justify empirically a realistic haircut measure
- ▶ Would be nice if fiscal limit depended on outlook.
- ▶ What determines the impact of bank default?
- ▶ How important are the non-linearities quantitatively?