GLOBAL BANKS AND SYSTEMIC DEBT CRISSES
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General Principles

(i) Asset pricing challenge: **theory of discount factors**

(ii) Crisis: **theory away from consumption-based to intermediation-based**

(iii) Paper: **sovereign debt market no exception**
General Principles

(i) Asset pricing challenge: **theory of discount factors**
(ii) Crisis: **theory away from consumption-based to intermediation-based**
(iii) Paper: **sovereign debt market no exception**

Paper

(i) Theory

★ Arellano economy + interest-rate risk
★ **Endogenous** interest risk: Gertler-Karadi-He-Krishnamurthy banks
**Big Picture**

**General Principles**
1. Asset pricing challenge: **theory of discount factors**
2. Crisis: **theory away from consumption-based to intermediation-based**
3. Paper: **sovereign debt market no exception**

**Paper**
1. Theory
   - Arellano economy + interest-rate risk
   - **Endogenous** interest risk: Gertler-Karadi-He-Krishnamurthy banks
2. Evidence
   - fantastic data: CUSIP - FIID match
   - Ivashina-Sharfstein-Chodorow-Reich identification
3. Headline Decomposition
   - turn off DM shocks and 66% of SB spreads vanishes
   - constant discount factor: 33% reduction in spread
Evidence of Channel - ISCR Approach

Diagram:

- Bank A
- Bank B
- Firm 1
- Firm 2

Chodorow-Reich (2014)
Evidence - ISCR Approach

Bank A → Firm 1
Bank B → Firm 2
Shock → Firm 1, Firm 2
Evidence - ISCR Approach

(⋆) Caution: Firm #2 not shocked deferentially
(⋆) Concern: Lehman exposure correlated with sovereign exposure
MAIN ESTIMATE - EVIDENCE OF NET WORTH EFFECT

Figure 5. The Effect of Global Financial Intermediaries’ Net Worth on EM-Bond Yields

Notes: This figure shows the estimated elasticity of bonds’ yields to maturity, $\beta_h$, to changes in the holder’s net worth at horizon $h$ from estimating the regression 18. Solid lines represent the point estimates of the regression at each horizon, and dotted lines are the 90%-confidence intervals.

(*) Subjec to caution, great evidence!
Sketch to Understand Model
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\[ \left( R^b (1+k) - R^d K \right) n = \text{ROE}(N) \]

\[ \text{ROE}(N) = \frac{n}{\beta} + \phi \left( \frac{n}{\eta} \right) \]
Spill-Over Effect - reduction in n
SPILL-OVER EFFECT - REDUCTION IN n
Effect of Credit Risk - akin to "distortionary tax"
SKETCH TO UNDERSTAND MODEL

Debt Demand

Supply of Funds

perceived Credit Risk

greater spreads
(heretic) Comment I - Banks Problem

Off-Shelf Macro Finance Model

(i) Authors take bank model from literature
   • fine, but I want to make a big picture discussion
   • btw, I write the same type of models

(ii) I contend that models are inconsistent with some basic facts

(iii) Authors should embrace model in Appendix B2 (starts at p. 46!)
C1: Standard Formulations

Banks constraint set:

1. Regulatory constraints (this paper)
   Fraction of risk-weighted measure of book assets \( \leq \) Book equity

2. Or...market value constraints
   Fraction of market value assets \( \leq \) Market equity

• Is this actually in line with data?
  • Some observations from work with Begenau, Majerovitz and Vieyra
Fact 1: Book vs. Market
Fact 3: Market leverage constraints binding?
FACT 3: REGULATORY CONSTRAINTS BINDING?

Distribution of Tier 1 Capital Ratio

- Regulatory Minimum 4%
- Under 4% to Under 8%
- 2000q1 to 2015q1
HOW DO BANKS REACT?

• We want to know how banks respond to net worth shocks

\[ \Delta \log(y_{i,t}) = \alpha_t + \sum_{h=0}^{20} (\beta_h \cdot \varepsilon_{i,t-h} + \gamma_h \cdot \text{Post}_t \varepsilon_{i,t-h}) + \varepsilon_{i,t} \]

• But we only observe returns: mixes discount factor and idiosyncratic

\[
\text{Raw Return} - r_f^t = \alpha_i + \beta_i \times (r_m^t - r_f^t) + \varepsilon_{it}
\]

• Solution: Estimate Fama-French factor model, and use \( \hat{\varepsilon}_{it} \) as instrument
  
  • Assumption: returns unpredictable ex-ante (EMH)
  
  \( \Rightarrow \) cross-sectional return variation \( \approx \) idiosyncratic shocks
FACT 4: NET WORTH SHOCKS
WITH LEVERAGE TARGET IRF RETURN TO INITIAL LEVEL

- baseline model: leverage flat
**Fact 5: Balance Sheet Adjustment**

Via Balance Sheet Adjustments pre-crisis

- baseline macro models: liabilities drop and bounce
- post Lehman, liabilities are stickier...
**Fact 5: Equity Adjustments post-crisis (2/2)**

VIA ISSUANCES AND RETAINED EARNINGS POST-CRISIS

- baseline macro models: should have consistent pattern
Taking Stock

* Of the shelf model doesn’t fit this pattern
* Data suggests strong adjustment costs
* Post Lehman, more difficult to sell assets?
* Amazing data to test if model dynamics of banks after shocks!

- Why? Does that matter
**Comment II - Bonds Illiquidity**

- Data suggests that bonds stay within asset class holders
  - super puzzling!
  - Koijen-Yogo type of model

- Does this matter?
  - portfolio illiquidity is form of risk
  - Model in appendix, but no counterfactuals with that version
  - not sure story is that different. Is it?
COMMENT III - FLIGHT TO QUALITY

Backbone
  • Data: Lehman associated with flight to quality
  • Actually suggests not lack of capital, but increased risk aversion!
Reduction in safe asset holdings after equity loss
FLIGHT TO QUALITY - INCREASE IN SAFE ASSETS

- increase in safe asset holdings after flight to quality episode
- Lehman coincided with flight-to-quality: easy to test for authors!
Summary

• International Finance: important flank of intermediary asset pricing

• Paper: important step to import intermediary pricing to international finance

• Comments: more for the intermediary asset pricing program than for authors