Discussion: “Risk Management in Financial Institutions”
by A. Rampini, S. Viswanathan, G. Vuillemey

Juliane Begenau (HBS & NBER)

Liquidity & Financial Crises
Wharton, October 14, 2016
• **Important Question:**
  • What are the determinants of bank risk-management?

• **Risk Management in Financial Institutions - Theory**
  • Rampini and Viswanathan theory
    • hedging is costly
    • low net-worth entities hedge less because they are financially constrained
    • trade-off between hedging & investment

• **This Paper: Evidence in U.S. bank sample**
  • high net-worth banks hedge more in the cross-sections and over time
  • house price shock to instrument exogenous drop in net worth
1. Interest Rate Derivative Positions & Exposures

2. What is the key state variable

3. Open Questions/Suggestions
(1) Interest Rate Derivative Positions and Exposures
Measurement of Interest Rate Exposure

- Here: underlying interest rate exposure measured as maturity or duration gap
- Value of entire fixed income portfolio sensitive to rates
- Begenau, Piazzesi, and Schneider (2015)
  - construct replicating portfolio of banks’ balance sheet using call report data
  - credit and interest rate factor
  - interest exposure measured using all interest rate sensitive positions on balance sheet
Interest rate exposures of traditional banks (all others; left panel) and market makers (share of trading assets $\geq 10\%$; right panel)
Factor Exposures and Interest Rate Risk Exposure in the cross-section

Factor exposures, Q1 2009

Int.rate risk exposures, Q1 2009

credit risk

interest rate risk

derivatives

other business

Factor exposures, Q1 2013

Int.rate risk exposures, Q1 2013

credit risk

interest rate risk

derivatives

other business
(2) What is the key state variable?
Net worth is key state variable in model

Measured as

- size $\sim \log(\text{book assets})$
- Market cap
- Market cap/ asset
- net income/ asset
- credit rating
- net worth index = i.e. first principle component of size, market cap/asset, dividend/asset, net-income/asset

Economically, which maps back best to the model?

- Surprising that market cap/asset (i.e. mkt leverage) seem not to work
- Size is important but perhaps less reflective of financial constraints, (e.g. business model)
- What is the state variable constraining banks beyond size?
Net income, gross hedging, maturity gap by size buckets (11 = top 30 banks)
<table>
<thead>
<tr>
<th></th>
<th>Pooled cross-section</th>
<th>OLS panel</th>
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<tbody>
<tr>
<td><strong>Net Income</strong></td>
<td>1.21*** (3.28)</td>
<td>0.02 (0.07)</td>
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<tr>
<td></td>
<td>10.31 (0.3)</td>
<td>-5.29 (-0.22)</td>
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<td><strong>Log Assets</strong></td>
<td></td>
<td>0.02*** (15.65)</td>
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<td></td>
<td></td>
<td>2.13*** (5.49)</td>
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<tr>
<td><strong>Bank &amp; Time FE</strong></td>
<td>73</td>
<td>73</td>
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<tr>
<td><strong>Observations</strong></td>
<td><strong>4329</strong></td>
<td><strong>Yes</strong></td>
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<tr>
<td><strong>Clustered Bank &amp; Time</strong></td>
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(3) Open Questions/Suggestions
Suggestions / Open Questions

- Implication from theory?
  - Choice between hedging and profitable investments
  - Suggestion:
    - Proxy banks investment opportunities by Tobin’s Q
    - If banks are truly financially constrained, may choose to cut hedging in favor of investment
    - Test whether constrained firms with high Tobins’s Q cut hedging more to avoid cutting investment

- Do non-hedging banks tend to be more risk-loving?
  - Study characteristics of non-hedging banks
  - High maturity gap banks (high interest rate exposure) have
    - higher RWA/A
    - higher leverage
    - higher loan growth pre-crisis
    - hedge less
Change over time? (group banks into high and low net-worth bins)
Conclusion

• Very interesting paper!
• Question clearly important
• Evidence for Rampini and Viswanathan risk management theory

• A few suggestions
  • exploit cross-sectional more (already do a lot) to delve deeper into testing the theory
  • what is the state variable that matters for risk-management?
  • study subsample periods
Minor comments

• Distress measure includes exits due to merger and acquisition that occurred extensively over the sample period
• Sample of banks changes
• Understanding the nature of the constraint
  • What is the appropriate state variable
  • Suggestion:
    • Compare banks that IPOed to banks that stay private - see Scharfstein & Falato (2016)
    • Access to public markets potentially loosens constraints
      Financial constraints