Discussion:
Firm Heterogeneity, Credit Spreads, and Monetary Policy by Anderson and Cesa-Bianchi

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What is the paper about?

Research Question

▶ Do financial frictions (i.e., financial accelerator) matter for the transmission of monetary policy
▶ Focus: heterogeneous response of monetary policy shocks

Literature

▶ Conflicting evidence for role in the transmission of monetary policy

Idea

▶ Bond prices allow for better identification of credit supply vs. credit demand effects

  Available at high frequency
  Available for a large cross-section of non-financial firms
  Mappable to firm fundamentals
Transmission of monetary policy

**Surprise increase in interest rates**

**Reduction in credit supply**

- **Mechanisms:**
  - Higher discount on investment’s future payoff

- **Predictions:** Lower Q & **Higher** Price

**Reduction in credit demand**

- **Mechanisms:**
  - Tightening of debt financing constraints
    - Due to borrower
    - E.g., Decrease in collateral values
  - Due to investors’ beliefs/sentiments
  - Due to intermediary health

- **Predictions:** Lower Q & **Lower** Price

**Decrease in credit**
Exercise

- State-of-the-art monetary policy shock identification
- Carefully construct monetary surprise shocks
- Option adjusted credit spreads orthogonalized
  - Firm fundamental credit risk
  - Residual “Excess bond premium” (Gilchrist and Zakrajsek 2012)
- Findings: monetary tightening leads to
  - An overall increase in credit spreads
  - A larger response for high-leveraged firms
  - Response mostly due to excess-bond-premium movements
Comments

Very nice paper: clearly articulates and tackles identification issues

Crowded literature

- Relative to existing literature learned that increases in credit spreads come from highly levered firms

Authors interpret this fact through BGG financial accelerator model

Other work (Crouzet-Mehram and Ottonello-Winberry) find less strong evidence for financial accelerator response

Interpretation of results

- Through which financially constrained economic player does monetary policy operate?

- How important are firm-based financial friction stories?
Interpretation of results

- Most of the credit spread response is due to the response of the “excess bond premium”

- Indicative of non-standard financial frictions
  
  Standard BGG-friction: external finance premium depends on firm fundamentals (i.e., leverage, size)

- Investors’ risk appetite

- Constrained intermediary
Investors risk appetite

- Excess bond premium interpreted as sentiment measure (Lopez-Salido Stein Zakrajsek 2017)

- Pflueger Siriwardane Sunderam 2018
  - When risk-appetite is low investors demand higher compensation for risky stock relative to low-vol stocks
  - Show that risk-appetite measure does not load on monetary policy shocks

- Suggests intermediary channel
Intermediary asset pricing interpretation

Story

- Intermediaries are the constrained agents (Gilchrist-Zakrajsek 2012 interpretation)
- Intermediaries are in the business of maturity transformation
  ⇒ Interest rate risk exposure (Begenau-Piazzesi-Schneider 2015)
- Higher interest rates lower equity valuation for banks - net worth shock
  (English- Van Den Heuvel-Zakrajsek 2018)
- Shock to net-worth lowers intermediaries risk-bearing capacity
  (He-Krishnamurthy 2013 & Brunnermeier-Sannikov 2014)
- Results in higher borrowing costs for firms (Siriwardane 2019)
- Heterogenous (high and low leverage firms) bond response driven by
  Value-at-Risk constraints (Adrian-Shin)

Study subsamples that vary with the slack of the banking sector
Firm-based financial friction stories

- Small role suggested by finding that most of the spread response driven by excess bond premium response (i.e., unrelated to firm fundamentals that could predict default risk)

Table 5 Expected Default and Excess Bond Premium

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
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</thead>
<tbody>
<tr>
<td>Dep. Variable:</td>
<td>Spread ($\Delta s$)</td>
<td>Expected Default ($\Delta \hat{s}$)</td>
<td>Exc. Bond Premium ($\Delta \hat{\nu}$)</td>
</tr>
<tr>
<td>MP surp. ($\epsilon^m$)</td>
<td>25.25***</td>
<td>5.15***</td>
<td>20.10***</td>
</tr>
<tr>
<td></td>
<td>(1.65)</td>
<td>(0.61)</td>
<td>(1.57)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.036</td>
<td>0.041</td>
<td>0.033</td>
</tr>
<tr>
<td>Observations</td>
<td>279,280</td>
<td>279,280</td>
<td>279,280</td>
</tr>
</tbody>
</table>

- But also show (Table 6) that excess bond premia respond more for highly levered firms?
Role of leverage

### Table 6: Expected Default and Excess Bond Premium: Heterogeneity

<table>
<thead>
<tr>
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<th>(4)</th>
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</thead>
<tbody>
<tr>
<td>Dep. Variable:</td>
<td>Expected Default (Δ̂s)</td>
<td>Exc. Bond Premium (Δ̂ν)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leverage continuous</td>
<td>High Leverage</td>
<td>Leverage continuous</td>
<td>High Leverage</td>
</tr>
<tr>
<td>MP surp. x Lev. ($ε^m \times L_j$)</td>
<td>4.12***</td>
<td>9.36***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.93)</td>
<td>(2.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP surp. x High Lev. ($ε^m \times ℓ_j^High$)</td>
<td>2.27***</td>
<td></td>
<td>14.74***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.75)</td>
<td></td>
<td>(3.55)</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.327</td>
<td>0.326</td>
<td>0.318</td>
<td>0.318</td>
</tr>
<tr>
<td>Observations</td>
<td>278,938</td>
<td>278,938</td>
<td>278,938</td>
<td>278,938</td>
</tr>
</tbody>
</table>

- Leverage predictive of losses: expected default response
- Orthogonolization done properly, then (3) and (4) suggestive of sophisticated intermediary constraint story (e.g., working through constraints)
**GZ: Orthogonolization**

- Spreads regressed on distance to default, age, issuance size, duration, coupon (75% $R^2$)
- Distance to default measure uses face value of all short term and half of the long term
- Potentially underestimates leverage of high-levered firms
- I would have expected firm-level “financial frictions” to show up in default risk measure
- Tricky as some of default risk predictors are also correlated with measures of financial constraints (size and leverage)
Definition of financially constrained firms (1)

- Bond sample selects largest firms

  Largest firms tend to be most credit-worthy by traditional measures (size/age/credit rating)

  Standard way of financial constrained status: no credit rating

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Table: Compare size distribution of sample in paper with general sample

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>95%</th>
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</thead>
<tbody>
<tr>
<td>Compustat full sample</td>
<td>9,952</td>
<td>116</td>
<td>554</td>
<td>2,494</td>
<td>26,620</td>
</tr>
<tr>
<td>Compustat avg. leverage</td>
<td>0.23</td>
<td>0.19</td>
<td>0.20</td>
<td>0.24</td>
<td>0.30</td>
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<tr>
<td>Paper low leverage sample</td>
<td>56,427</td>
<td>11,208</td>
<td>30,277</td>
<td>67,243</td>
<td></td>
</tr>
<tr>
<td>Paper high leverage sample</td>
<td>36,432</td>
<td>7,570</td>
<td>19,136</td>
<td>44,033</td>
<td></td>
</tr>
</tbody>
</table>
Definition of financially constrained firms (2)

- **Compustat:** leverage increasing in size

- **Bond sample:** leverage decreasing in size

  Little economic variation in degree of financial constraints (leverage)

  Would not interpret high leverage firms (in the bond sample) as constrained

  They are more risky - or ended up being highly levered after series of bad shocks

  Note: regressions should not pick up higher risk if properly orthogonalized

- Makes it difficult to test firm-level financial friction story

- Arguably large fraction of financially constrained firms are not listed

Discussion of Anderson and Cesa-Bianchi

MFS 13th Workshop
Conclusion

Very interesting paper that takes identification seriously

- Financial frictions matter!
  Financial frictions of investors, intermediaries, and borrowers?

Bond price data have many advantages but also limit sample of firms
⇒ largest and least financial constrained firms

In some sense, the ideal setting to focus on intermediary constraints