Firm Heterogeneity and the Capital Market
Tobias König, January 7th-9th, ASSA 2022 Virtual Annual Meeting

Research Question
What is the role of financial constraints for the transmission of both an external equity financing shock and a monetary policy shock on firm investment rates?

Motivation
• Analyze role of financial constraints by looking at transmission of monetary policy shocks and external equity financing shocks.
• Role of financial constraints for components of firms funding:
  – external equity and corporate loans
• Investment explains large share of business cycle fluctuations.

Findings
Role of financial constraints for firm investment:
1. Equity shock: constrained firms w/ high expected profits (Tobin’s Q)
2. Monetary policy shock: constrained firms w/ high debt burden

Sensitivity of firm investment rates relative to the average economy-wide response:

<table>
<thead>
<tr>
<th>Tobin’s Q</th>
<th>EBC</th>
<th>ABC</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>+</td>
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EBC: earning-based constraint
ABC: asset-based constraint

Dataset
• Compustat: publicly-listed firms in the US
• Range: 1982Q1 - 2020Q3 (quarterly)

Equity Shock Identification
Granular Instrumental Variables (GIV)
• Gabaix and Koijen (2020)

The GIV for the external equity financing shock is defined as:

\[ u^EIV_{i,t} = \sum_{i=1}^{N} \tilde{S}_{i,t-1} \epsilon_{i,t} - \frac{1}{N} \sum_{i=1}^{N} \tilde{S}_{i,t-1} \]

\[ \tilde{\epsilon}_{i,t}: \text{estimated innovation to firm's } i \text{ equity growth rate: } \epsilon_{i,t} = \lambda_{i,t} + u_{i,t}. \]

\[ \tilde{S}_{i,t-1}: \text{lagged market val. of firm's } i \text{ out. shares } / \text{ by aggr. market cap.} \]

Interpretation: Investor sentiment shock e.g. increased demand for Googles shares, increasing company's share prices and number of shares.

Method: Local Projections
Role of competing financial constraints
Goal: Understanding the role of up to six financial constraints for firm investment.

The six marginal responses of firms with a one std. dev. higher financial measure \( FC_{i,t-1} \) are simultaneously estimating by:

\[ \Delta y_{i,t} + \gamma_{h} FC_{i,t-1} = \alpha_{h} + \nu_{h} st_{h} + \gamma_{h} \left[ FC_{i,t-1} \times \text{shock}_t \right] + \sum_{k=1}^{N} \Gamma_{h,k} X_{i,t} - k + e_{h,i,t}, \]

with \( \gamma_{h} \) measuring the marginal effects.

\( FC_{i,t-1}: \) earning-based constraints, asset-based constraints, Tobin's Q, firm size, liquidity, dividend dummy.

Results
GIV spill-over effects on SME
• GIV: an idiosyncratic increase in external equity of large companies.
• Positive spill-over effects on number of shares and share prices of small and medium sized companies.

External equity financing and future expected profits
• Investment rates of constrained firms with high expected future profits are more sensitive to equity shocks.

Conclusion
Modelling perspective: Necessary to distinguish between competing measures of financial constraints.

Policy maker: Take into account both monetary policy and access to capital markets to relax firms’ financial constraints.

Marginal IRFs to an 1% equity shock

Marginal IRFs to a 10bp favorable monetary policy shock