Identifying Financially Constrained Firms: Data

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PhD Corporate Finance

Outline

The object of interest

The regression we would want to estimate:

$$Y_{i,t} = \beta \, Frictions_{i,t} + \alpha_i + \delta_t$$

Where $Y_{i,t}$ is employment, investment, patents, etc.

Assume we can measure $Frictions_{i,t}$, what problem remains?

Two broad approaches

1. Find "exogenous shifter" for $Frictions_{i,t}$
   - Δ collateral value, Δ working capital, Δ credit supply, access to foreign capital, Δ cash-flow

2. Time-series shocks interacted with ex-ante measures of financing frictions
   - Leverage, dividend payment, access to bond market, cash, 10-K, credit lines

3. Mix of both

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!! papers often don't report relevant economic elasticities but just "reduced form IV"

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- Collateral
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- "Omnibus" bank credit supply shock + bond credit supply shock (Coppola, 2025)
  - Typical elasticity credit to K or Y $\approx$ 0.3 (0.26 [Cingano, Manaresi, Sette, 2016]; 0.36 [Amiti, Weinstein, 2018]; 0.23 [Pinardon-Touati, 2025]; 0.31 [Duqueroy, Matray, Saidi, 2025])
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- Cash-flow or cash-in-hand shocks
  - Multi-segment firms 0.12 [Lamont, 1997], pension shock? 0.6 [Rauh, 2006; Bakke, Whited, 2012], exchange rate 0.3 [Adams, Verdelhan, 2025]

Brief overview of exogenous shifters: "macro" level

- Bank deregulation across the US
  - First wave (Quincy, Xu, 25), second wave?, third wave?
- Collateral / bankruptcy reform: India (Vig, 13); Brazil (Fonseca, VonDoornik, 22); US (Favara et al., 21); Cross-countries (Haselmann, Pistor, Vig, 10)
- Foreign capital liberalization (Bau, Matray, 23)
- Financial shock transmission (Xu, 22)
- Bank or branch entry (Fonseca, Matray, 24; Quincy, Xu, 25)

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Identifying financing frictions: ex-ante sorting

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Three challenges:

1. Unless $Shock_{i,t}$ is aggregate, eq. is a triple-diff $\rightarrow$ likely wrongly specified

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3. Many proxies of financing frictions potentially measures the absence of financing frictions

Who is financially constrained?

1. High cash or low cash?
2. High leverage or low leverage?
3. With more undrawn credit lines or less undrawn credit lines?
4. Large (productive) exporting firms or small domestic firms?
5. Paying dividends or not paying dividends?

As cash increases, firms are less financially constrained

Begenau and Palazzo (2021). Firm selection and corporate cash holdings. *Journal of Financial Economics*

– Cash holding has increased a lot

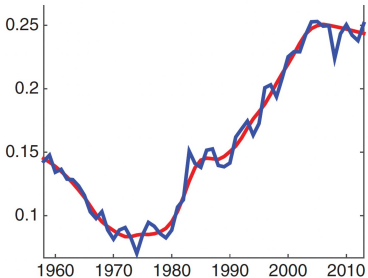

Fig. 1. Average cash-to-assets ratio of US-listed firms. This figure reports the average cash-to-assets ratio of US public companies over the period 1958-2013.

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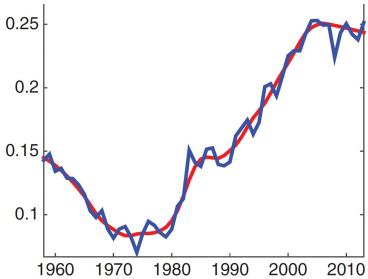
– R&D firms are less financially constrained?



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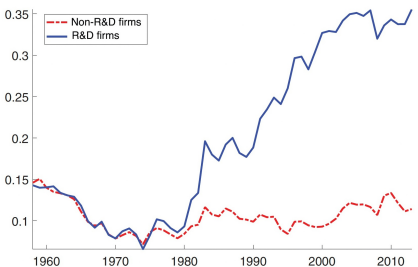

Fig. 3. Average cash-to-assets ratio of US listed firms by sector. This figure reports the average cash-to-assets ratio of R&D-intensive and non-R&D-intensive firms over the period 1958-2013. An R&D-intensive firm belongs to an industry (three-level digit SIC code) whose average R&D investment amounts to at least 2% of assets over the sample period.

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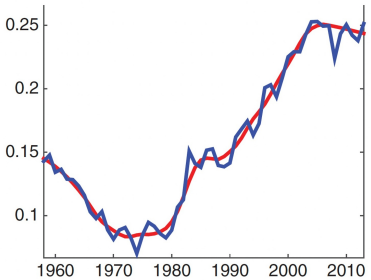
→ Young R&D firms are less financially constrained?



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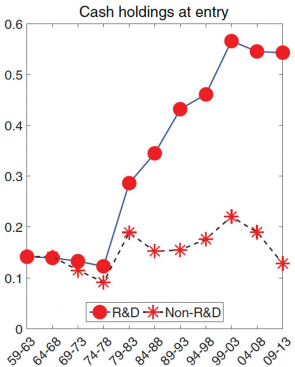
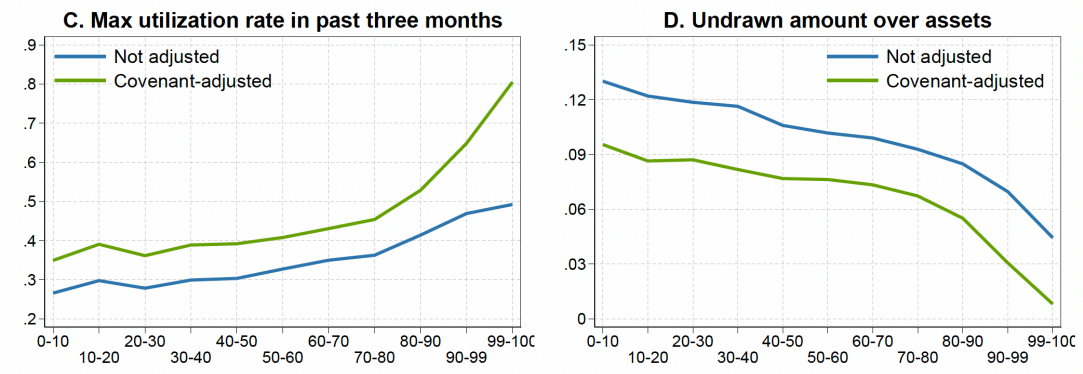


Firms with more slack on their credit lines are less financially constrained

(Amberg, Jacobson, Quadrini, Picco (2023); Aydin, Kim (2026)

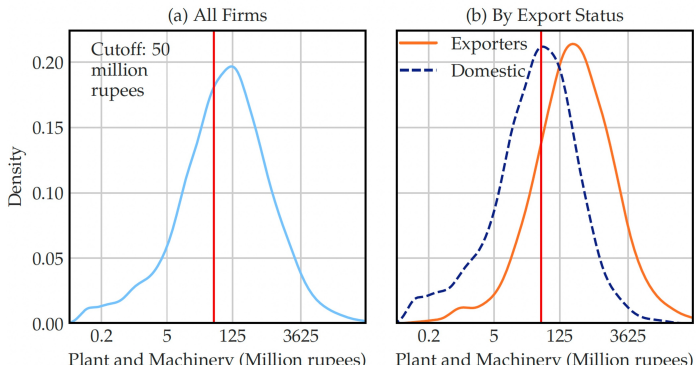
→ Large firms are more constrained?



Exporters are more productive and bigger so should be less constrained

Exporters more productive and bigger ⇒ should be less financially constrained (Finlay, 25)

Figure 1: Plant and Machinery Distribution



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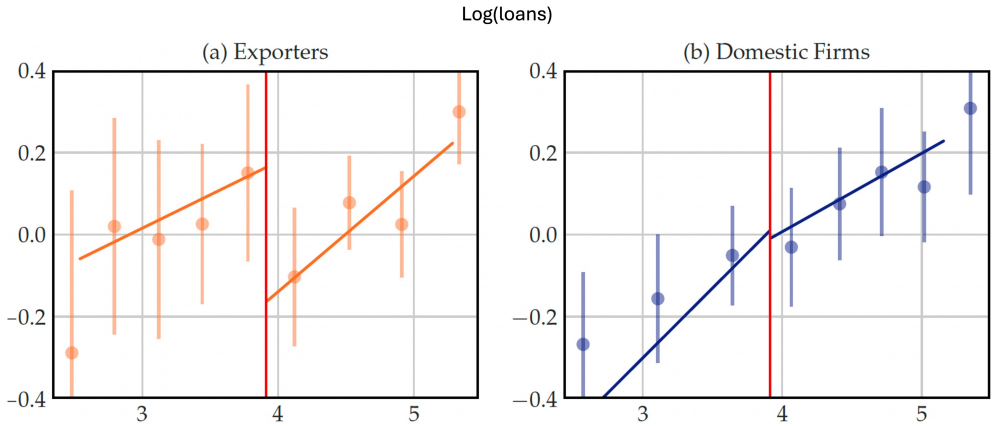
Yet they react more to a credit shock Xu, 2022; Finlay, 2025; Beaumont, Lenoir, 2025; Matray et al., 2025



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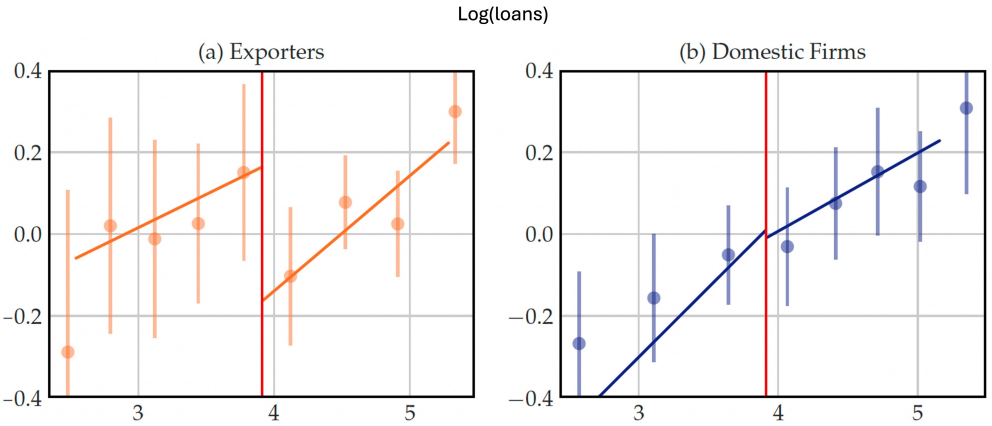
Exporters more productive and bigger ⇒ should be less financially constrained (Finlay, 25)
→ Financing frictions is the gap between productivity and borrowing capacity



Where does that leave us?

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- Sorting firms on their marginal revenue product of capital (Bau-Matray, 2023; Matray-Mueller-Xu-Kabir, 2026)

Using MRPK to identify constrained firms

From Lecture 1 (Financing frictions: Theory):

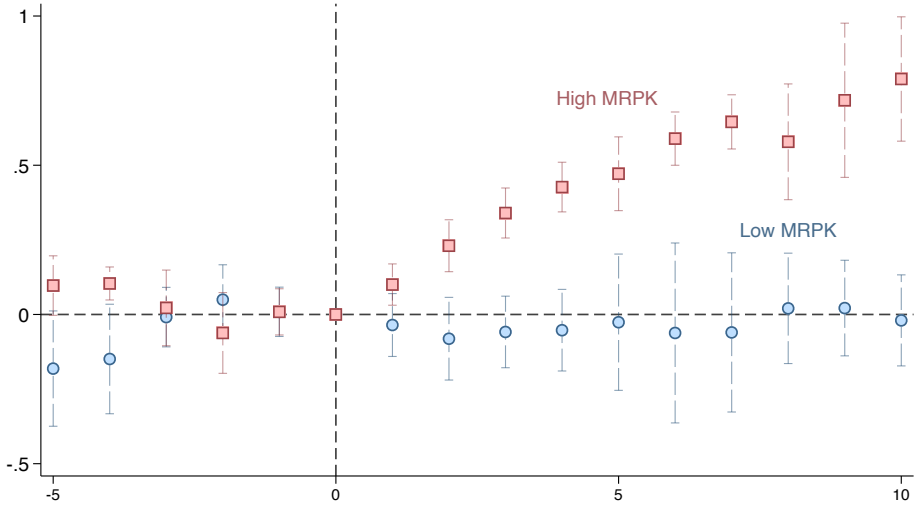
$$MRPK_i = (1 + \tau_i)\, r$$

τ_i: reduced-form input-cost wedge = degree of financing frictions ($\tau_i = 0$ unconstrained, $\tau_i > 0$ constrained).

- Same user cost r across firms $\Rightarrow$ $MRPK_i$ ranks firms by their wedge τ_i
- High $MRPK$ $\Rightarrow$ high τ $\Rightarrow$ more constrained (capital too scarce at that firm)
- Dispersion in $MRPK$ = dispersion in financing frictions

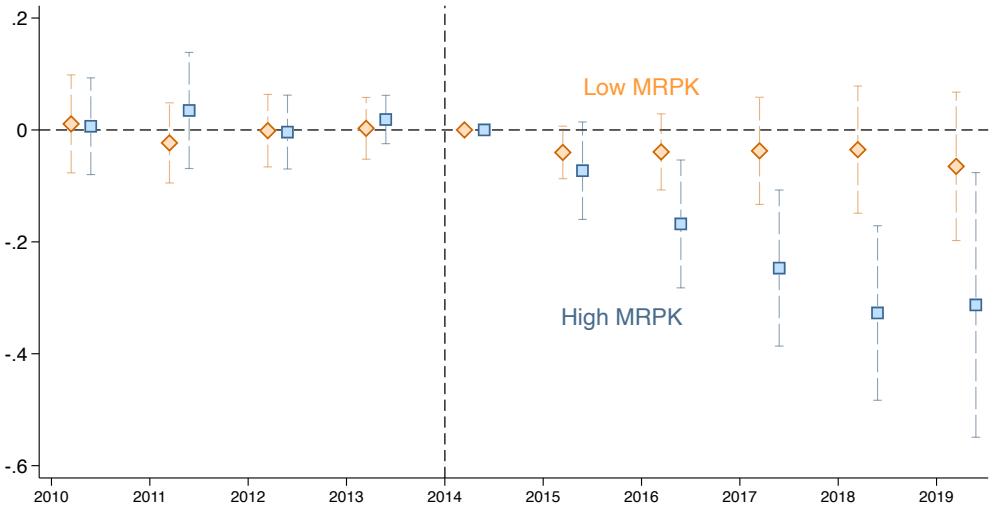
MRPK example: Bau Matray (2023)

Bau Matray (2023): Positive shock



MRPK example: Matray Mueller Xu Kabir (2026)

Matray Mueller Xu Kabir (2026): Negative shock



What to take away

Key takeaway

Financing frictions are the gap between a firm's productivity and its borrowing capacity

- Most single balance-sheet proxies (cash, leverage, size, credit lines) can point the wrong way because they are equilibrium objects $\neq$ primitives

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Financing frictions are the gap between a firm's productivity and its borrowing capacity

- Most single balance-sheet proxies (cash, leverage, size, credit lines) can point the wrong way because they are equilibrium objects $\neq$ primitives
- Best solutions:
  - 10-K text, refinancing needs
  - MRPK dispersion $\rightarrow$ the only one with a clear economic interpretation

Thank you!

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