Discussion of "Public Equity Markets and Aggregate Productivity"

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IPO is important for macro, but is this the right model?

1. Main empirical result: the effects of the IPO on assets and employment are **massive**.
   - Following IPO asset levels go by 95 log points (approx. by 150%) and employment by 44 log points (approx. by 50%).

2. Quantitative theory. A model with **endogenous** IPO decision.
   - Key trade-off: fixed cost vs. better access to capital.
   - Build upon innovation literature: Aghion and Howitt (1992), Klette and Kortum (2004).

3. Quantify **aggregate importance** of public equity markets.
   - Contribution of public equity markets to output: 6% of GDP in France.
   - IPO costs differences explain 50-75% (!) output per-capita and TFP differences across countries.
   - Severity of financial frictions (public vs. private) firms: increase in output per capita and TFP of between 19% and 35%.

Comments

1. The empirical design.
2. The model design.
3. Disciplining the model and identification.
4. Quantitative results.

The empirical challenge: causal effect vs. selection

The specification:

$$\log\left(y_{j,t}\right) = \sum_{k=-3}^{3} \beta_k D_{j,t}^k + \alpha_j + \alpha_t + \varepsilon_{j,t}$$

The sample:

- treated firms: who undergo an IPO in the year $t - k$
- control firms: private firms that will become public in more than three years

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Concerns:

1. Your specification seems to be mixing IPO effects with **life-cycle dynamics** pre-IPO.
2. Need to control **industry-by-calendar-year** fixed effects. More than 50% of IPO decisions are related to industry trends (Spiegel and Tookes, 2020).
3. Alternative sample: Larrain et al. (2023) use the same data and firms withdrawn from IPOs as control group + IV. **Much more modest results.**

What does it mean to go public ($\kappa = Pub$) in the model?

1. Public productivity feeding into the firm level productivity:

$$\ln z^{\kappa}_{j,t} = \ln a_j + n_{j,t} \ln \lambda + \ln \eta^{\kappa} + v_{j,t}$$

2. Capital wedges:

$$\ln \tau^{\kappa}_{j,t} = \ln \bar{\tau}^{\kappa} + \rho^{\kappa} \ln z^{\kappa}{}_{j,t}$$

These two feed into firms output:

$$y^{\kappa}_{a,n} = \gamma^{\frac{\gamma}{1-\gamma}} \left[\left(\frac{\alpha}{\tau^{\kappa}_{a,n} r} \right)^{\frac{\alpha\gamma}{1-\gamma}} \left(\frac{1-\alpha}{w} \right)^{\frac{(1-\alpha)\gamma}{1-\gamma}} \right] z^{\kappa}_{a,n}$$

and further drive the wedge between the value of the public firm and a private firm.

If the fixed cost and preference shock are low enough the firm goes public. **That's it!**

Not much ”theory” in the quantitative theory part...

1. There is **no equity market** in the model.
   - Nobody makes portfolio decisions between private and public equities.
   - No notion of equity prices in equilibrium.

2. The paper abstracts from financial structure of the firms.
   - **Debt vs. equity** trade-off is a first-order concern for the IPO decision.

3. Financial friction (differential cost of capital) is ”ad hoc”.
   - It may arise endogenously from optimal contract: **asymmetric information**.

4. No private equity **risk premium** in the model.
   - A bulk of empirical evidence shows it is sizeable (Kartashova, 2014).

Three strategies for disciplining the model parameters

1. **Fishing**: picking key parameter values from the literature despite differences in the setup (a.k.a. argument by delegation).
   - The curvature on investment $\zeta = 2$; (Acemoglu et al., 2018).
   - Key parameter controlling elasticity of investment in the model, hence the strength of macro effects.

2. **Guessing**: setting the value of the parameter without any discipline.
   - Smoothing shocks: $\mu = 50$. Country independent.
   - Introduces "noise" into the selection (accounting for unobserved heterogeneity).
   - Needs discipline: e.g. logistic regression on selection (Dyrda and Pugsley, 2022).

3. **Moment matching**: in principle fine, though multiple issues with identification (next slide).

Identification of financial frictions and productivity shifters

Capital-output ratio in the model:

$$\log\left(\frac{y^{\kappa}}{k^{\kappa}}\right) = \underbrace{\log\left(F(\gamma,\alpha,r)\right)}_{\text{The same for all firms}} + \underbrace{\left(\log\bar{\tau}^{\kappa} + \rho^{\kappa}\log\eta^{\kappa}\right)}_{\text{Public/private specific}} + \rho^{\kappa}\underbrace{\left(\log a_j + n_j\log\lambda + v_j\right)}_{\text{Firm specific}}$$

In the data they run:

$$\log\left(\text{Capital Wedge}\right) = \beta_0 + \beta_1\mathbb{I}_{j,t}^{Public} + \beta_2\mathbb{I}_{j,t}^{Public}\log\left(TFP_{j,t}\right) + \beta_3\log\left(TFP_{j,t}\right) + \alpha_s + \alpha_t + \varepsilon_{j,t}$$

The issue:

- How can you separately identify $\bar{\tau}^{\kappa}$ and η^{κ}?
- More broadly: what is a fundamental reason you need these two shifters?

Quantitative results: the effects are (implausibly?) large

1. Are you getting the basic **macroeconomic aggregates** in line with the data?
   - Not reported in the paper.
   - Are consumption/GDP, tangible investment/GDP and technology investment/GDP reasonable?

2. Are the **key elasticities** in the model in line with the empirical evidence?
   - Elasticity of **investment w.r.t. user cost of capital**: huge empirical literature dating back to Hall and Jorgenson (1967).
   - Elasticity of **elasticity of entry with respect to Tobin's Q**: Gutiérrez and Philippon (2019).

3. How large are **GE effects**?
   - Fixed labor supply. Adjustment loaded on wages.

Takeaways

If I were writing this paper I would:

- Abandon the empirical part unless you have a clear contribution over Larrain et al. (2023). Otherwise it's an **uphill battle** against empirical, corporate finance people.
- Drastically change the model design and follow firm dynamics model with endogenous financial structure.

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but I am not, so I suggest to:

- Clarify the contribution of the empirical part.
- Work harder on **identification of the key parameters**.
- Validate the model using elasticities estimated in the empirical literature.
- Convince the reader that French economy can be **30 percent larger** simply by removing differential costs of access to capital between private and public firms.

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