Who Wins and Who Loses when Firms Stay Private Longer?

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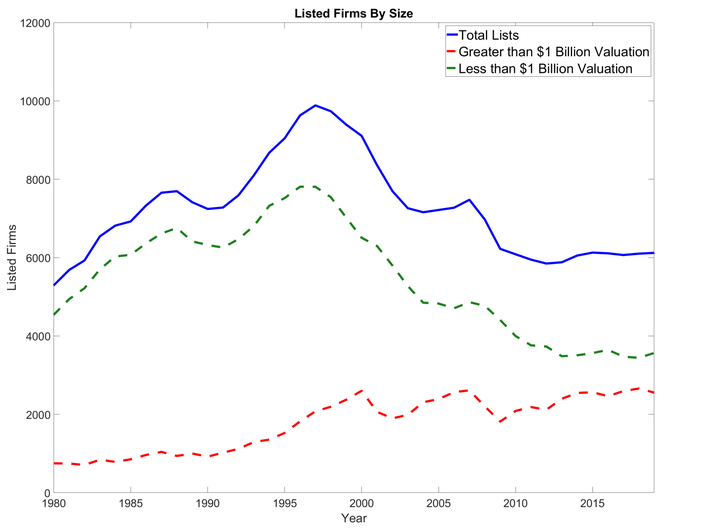
Context

In the past few decades US companies have been going public less, and when they do they are older and larger than they used to be. Some have said that this could lead public investors to miss out on hot new companies and hurt them, or that private firms themselves have been harmed by public markets becoming less attractive.



Causes and Consequences

The causes of the "listing gap" in US public firms that has opened up since the 1990s have been studied by several papers. The consequences of the listing gap are going to depend on what is causing it, be it regulatory burdens increasing or private capital getting cheaper. I find that controlling for public market demand for characteristics doubles the estimated impact of regulatory burdens such as Sarbanes-Oxley on firms' listing choices.

The Model

I develop a dynamic model of the firm's listing choice responding to public market demand shifting. After estimating the demand and supply models I can conduct counterfactual exercises for both firm and investor well-being.

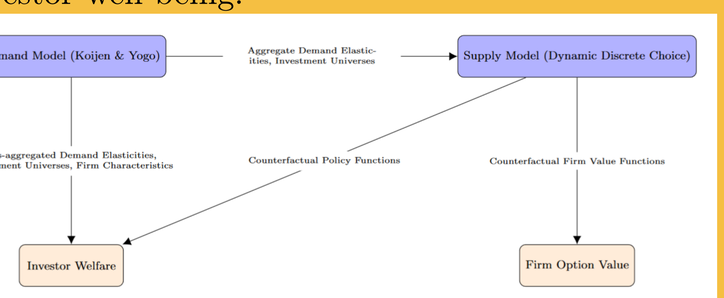


Figure 1: How the Model Elements Interact

Demand System

I use the model of Koijen & Yogo (2019) as the demand side in my model. This provides me with a structural model of demand to be able to do counterfactual inquiries for public investors that has heterogeneous demand across both firms and different investors. By extending this model with a notion of a supply side I can say whether investors are harmed or not by the listing gap.

Firms Are Solving Heterogeneous Timing Problems

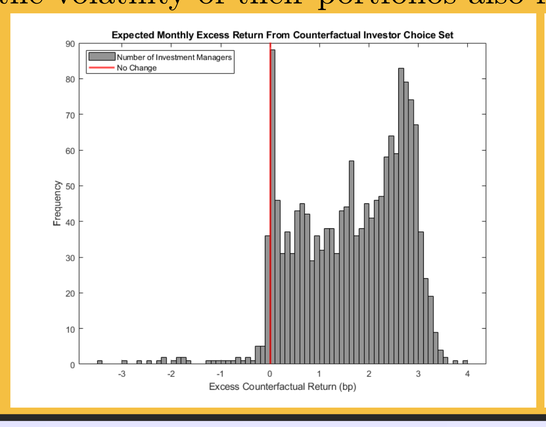
I model firms as solving a dynamic programming problem, where their choice variable is listing on public markets or not. This choice is long-lived due to large sunk costs ξ of going public or private. Here a is the action a firm takes (going public/private or not), $\bar{\beta}$ are the characteristic demand elasticities at the market level, x_j are the firm's characteristics, and θ is a pricing kernel on the characteristic-elasticity interactions and the macro variables in the model.

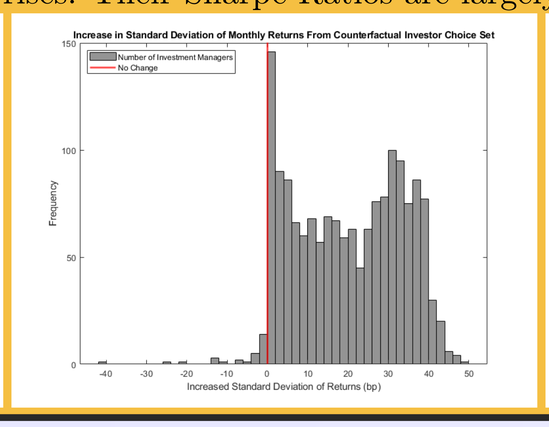
$$V_j(\bar{\beta}, \mathbf{ME}, r_{PE}, s; x_j, \theta) = \max_a \left[\underbrace{v(\bar{\beta}, \mathbf{ME}, r_{PE}, s, a; x_j, \theta)}_{\text{Current Period Cashflow Value}} + \delta \underbrace{\int V(\bar{\beta}', \mathbf{ME}', r'_{PE}, s'; x_j, \theta)}_{\text{Discounted Continuation Value}} \right]$$

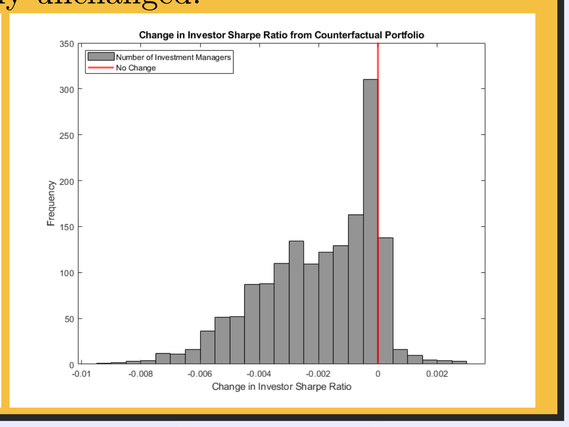
The firms' current period cashflow value is composed of the price of the marginal cashflow of being public over being private for the firm based on its characteristics interacted with the estimated demand elasticity for characteristics in the demand model. Because the demand elasticity follows an autoregressive process the timing of when a firm chooses to go public will vary with the firm's own characteristics.

Public Investors Are Largely Unharmed

Using the estimated firm policy functions in both the pre-Sarbanes and post-Sarbanes periods I estimate the counterfactual set of public securities available to investors if firms behaved the way they did pre-Sarbanes instead of the way they actually did in 2019. Then, using the investors' estimated demand elasticities I compute the counterfactual investor portfolios and compare their return behaviors to the true portfolios. I find that most investors have less than 3 basis points greater excess returns in the counterfactual, and that the volatility of their portfolios also rises. Their Sharpe Ratios are largely unchanged.







Private Firms Have Lost Most Option Value of Going Public

Using the estimated firm value function of being public, with the value of being private normalized to zero, I can compute the option value of being able to go public for various different kinds of firms. All firms have lost some of their option value post-Sarbanes but smaller firms have been hurt the most.