An Equilibrium Model of Institutional Demand and Asset Prices

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Overview

While demand curves are an important part of economic theory, they have not played a large role in empirical asset pricing which has focused directly on prices and returns. Due largely to the empirical difficulty in estimating demand for financial securities, the finance literature has instead abstracted from the demands that drive prices. In this paper, the authors take up this ambitious and challenging task using a well-crafted model to tie price movements to demanded quantities (shares) in order to better understand asset market movements, volatility, and predictability. The authors develop a framework used extensively in industrial organization to model demand for U.S. stocks across different investors. They then use this model to back out expected return estimates that can help explain the role institutions play in driving asset price changes.

Investigation

Traditional asset pricing models make restrictive assumptions about investors' demand. All investors have essentially the same preferences, beliefs, and constraints. Also, they are all price takers and as such have no price impact. The authors' contribution is to develop a new factor-based asset pricing model that allows for investor heterogeneity and that matches asset prices with institutional holdings.

Merging data from quarterly SEC Form 13F institutional filings with CRSP-Compustat from 1980 to 2015, the authors model portfolio choice across six investor types (banks, investment advisors, pension funds, insurance companies, mutual funds, and households) as a function of five stock characteristics or factors identified in prior research (market beta, book equity, profitability, investment, and dividends to book equity) plus a structural error (latent demand). The authors illustrate estimating the demand system through several asset pricing applications:

- Estimate the price impact of demand shocks for all institutions and stocks. They find that the price impact for typical institutions has meaningfully decreased from 1980 to 2014. For example, for a typical investment advisor with a 10 percent demand shock for illiquid stocks, their impact has decreased by 30% (from 0.87 percent in 1980 to 0.25 percent in 2014).

- Separately estimate supply-side (i.e., changes in shares outstanding, changes in characteristics) and demand-side (i.e., changes in assets under management, loadings on characteristics) effects. The authors find that stock returns are mostly explained by latent demand shocks, not by changes in shares outstanding or changes in stock characteristics.

- Examine to what extent large institutions explain the stock market volatility experienced in 2008. They discover that the largest 25 institutions, which together account for one-third of the stock market, explain only 6 percent of the cross sectional volatility of stock returns. Smaller institutions, which also account for one-third of the market, however, explain 42 percent of cross sectional volatility. Interestingly, households which account for the remaining one-third of the market, explain 48 percent of volatility. The relatively low contribution of large institutional investors likely reflects their long-term, diversified holdings of more liquid stocks.

- Use the factor-based model to estimate expected returns for individual stocks. Results here are largely consistent with extant research — high expected-return stocks tend to be small-cap value stocks.

The model the authors develop could be used to answer additional important questions related to the role of institutions in asset markets, yet would be difficult to answer with traditional regression, or event-based approaches. They suggest such applications could include answering regulatory questions like: How would a regulatory proposal, say bank reform, affect asset prices and real investment, or how might quantitative easing impact fixed income markets? It could also be used to answer questions about asset pricing such as: Which investor groups drive anomalous stock returns identified in academic research?

Conclusions

The authors develop a new empirical asset pricing framework that models demand across a variety of investor types. They show how their approach can be used to address important issues relevant to finance regulators and practitioners such as examining the contribution of

large institutions to market volatility as well as their impact on prices and liquidity. They also use it to estimate the cross section of stock returns and what factors or characteristics contribute to (and to what degree) returns and volatility. Finally, the authors discuss additional important questions that the model could help answer for both financial regulators and practitioners.

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