(properties of asset prices and costs of sticky prices
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operating leverage, the fraction of fixed costs of production in total costs, has recently attracted considerable attention in the asset pricing literature. indeed, the theoretical asset pricing literature often relies on some form of operating leverage to rationalize the value premium, the fact that firms with currently low valuations compared to assets in place have higher subsequent returns than predicted by the capital asset pricing model. empirically, measures of operating leverage have predictive power in the cross-section of stock returns and can explain differences in book to market ratios across industries. these models in general assume perfectly flexible selling prices. in reality, however, firms are often constrained in how much (or even if) they can change their prices in the short run. although this inflexibility has been a point of heated contention in macroeconomics, recent research based on scanner price data and confidential price data collected by the bureau of labor statistics (bls) unambiguously shows that prices could be indeed fixed in the short run. furthermore, the degree of price stickiness varies wildly across sectors and firms. these stylized facts raise further crucial questions: why don't firms change prices? how costly is it to not change a price? is there cross-sectional heterogeneity in price inflexibility which can be linked to expected returns?

relaxing the assumption of perfect price flexibility and allowing for sticky prices has the potential to generate additional heterogeneity in operational leverage. furthermore, incorporating price stickiness into asset pricing models can contribute to our understating of the level of macroeconomic risk and thus help explain cyclical variations in asset prices. finally, this research will not only help to understand the cyclical and cross-sectional variation in asset prices but also shed new light on a key question in macroeconomics and thus bridge finance and macroeconomics.

one way to address these questions is to use calibrated theoretical models. although this is an appealing avenue, the key limitation is that the answers would be model specific. another alternative is to go “inside” a firm and directly document the costs associated with price (re-)setting. while highly informative, this approach is likely to lead to firm-specific estimates and thus may be potentially limited in the degree to which the results could be generalized. in contrast, we propose a simple, model-free, widely applicable approach which utilizes information on the changes of firm valuations in response to nominal shocks. more specifically, this approach utilizes ultra high frequency data on fed fund rate futures to identify nominal shocks and then uses these shocks to establish reactions of asset prices by exploiting firm-level variation in changes in firm valuations, timing of price changes, and the duration of price spells to assess the cost of not changing prices (these are tightly linked in a broad range of price-setting models) as well as implications of these costs for aggregate and cross-sectional predictability of returns.

a key barrier for our strategy is the necessity of linked data on asset prices and product prices at the firm level (e.g., time series of apple's share price and time series of prices for iphone, ipad, ipod, etc.). we have overcome this constraint by securing access to confidential, micro-level data on prices collected by the bls and merging these data with financial series for firms in s&p500 so that we can investigate how properties of asset prices are linked to product prices as well as how one can use asset prices to assess costs for price stickiness.

for example, apple had to compensate angry and revolting consumers who bought iPhones just before a significant cut in the iPhone price to save the image of Apple as a customer oriented company. in light of this and similar experiences, firms typically prefer sequences of small prices changes spread over long periods of time to one-time large price adjustments.)