Operating Leverage and Price Dispersion

Antje Berndt, Nhan Le, and Ha Nguyen
Australian National University

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Fundamental changes in the U.S economy

Over the past few decades, the US economy has experienced a number of fundamental changes in its market structure (Autor et al., 2020; De Loecker et al., 2020):

- A sharp increase in market concentration
- A steady rise of markup ratios
- A rising number of star firms that invest **substantial fixed cost (FC)** to create barriers against new market entrants and solidify market power and protect abnormal rents

Pros and cons of FC investment

- Pro: helps firms maintain or gain a competitive advantage and accelerate profitability during normal times.
- Con: limits firm exibility to scale down operations in response to adverse demand shocks.

Negative shocks in airline industry

Airline industry is very prone to negative shocks including both demand and supply shocks. For example:

- September 11, 2001 terrorist attacks
- Global Financial Crisis
- Oil shocks
- 2020 COVID-10 pandemic.

Given the frequency of negative demand shocks, it is vitally important to understand the role of firms' internal cost structure on corporate policy and performance.

Research question

- Theoretically identify the effect of FC structure on firm's pricing strategy
- Determine the optimal pricing strategy of firms with high FCs that aim to maximize operating performance
- Empirically test the model's predictions and investigate the interplay between fixed cost structure or operating leverage with financial leverage and market competition

Theoretical framework

- Adopt the framework of heterogenous multiple-product firms proposed by (Bernard et al., 2010, 2011)
- Simplify the model of Bernard et al. (2010) for global market with multi-countries in International trade to a model for one domestic market.
- To incorporate the role of fixed costs on pricing strategy, we set fixed costs endogenous and dependent on firm's ability
- Firms supply a continuum of horizontally differentiated products and decide the scope of products that they produce, corresponding to the range of price distribution in their selling strategy.

Main findings

- To maximize profits, firms with high fixed cost offer larger product space or generate a wider price dispersion
- Using the rich pricing data in airline industry from the US Bureau of Transportation Statistics database TranStats, we empirically confirm the model's prediction
- To address the endogeneity issue pertaining to operating leverage and ticket pricing, we employ a quasi-natural experiment using oil price shocks to strengthen the causality of our findings.
- Interplay with market competition: the extent of price dispersion by high fixed cost firms strengthens when markets are competitive.
- Interplay with financial leverage and cash holdings: high financial leverage intensifies the fixed cost effect on price distribution while large cash reserve can help high fixed cost firms to lower their ticket prices.

Conclusion

- Shed light on how firms with high operating leverage set prices to capture market share and promote earnings.
- In times with rising business uncertainty around the world triggered by political instability, economic crisis and natural disaster, it is important to understand how fixed cost structure affect corporate policy, performance and stability during economic cycles.