Dueling Supply Chains

Quantity versus price competition theory has been studied in economics and marketing since the 1860s, but two Olin professors thought there was more to be discovered about a firm’s incentives for controlling the quantity of a product it sells in the market.

“One of our big findings challenges the traditional wisdom that claims competing firms will always choose to constrain their output because that reduces price competition,” explains Sherif Nasser. “We have identified cases where virtually identical, competing firms will actually choose opposite strategies for output levels.”

Professors Nasser and Turcic designed a model using game theory to analyze different types of firms, their supply chain options, and the choices they make when it comes to controlling output. Firms fall into one of three categories based on product differentiation in their industry: low, intermediate, or high product differentiation. Findings show that competing firms in an industry with low product differentiation choose rigid supply chain regimes, thus reducing the impact of intense price competition. When high product differentiation is present, firms also choose rigid regimes.

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<th>Product differentiation categories</th>
<th>Preferred supply chain option</th>
<th>Bottom line impact</th>
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Rigid regimes involve longer lead-time manufacturing that is most often conducted at offshore factories. Retailers like Gap and Walmart utilize rigid regimes with six-to-nine-month manufacturing lead times, with products earmarked for limited selling periods of two to three months. These firms are using quantity as a key driver for their strategic plan.

By contrast, flexible regimes have very short lead times because manufacturing locations are in close proximity to the point of sale. Finished goods are quickly moved via air transport from factory to store. Though this can be expensive, flexible regimes offer complete flexibility on quantity. An example is Zara, a Spanish clothing manufacturer that uses a flexible regime in order to design, produce, deliver, and display a new garment in its stores within 15 days.

In the category of intermediate product differentiation, Nasser and Turcic found an unexpected and interesting variation. Unlike the uniformity seen among firms in the low- and high-differentiation categories, some firms in the intermediate category will choose rigid regimes and others will choose flexible regimes. Firms in the intermediate category maximize profits through mixed-pricing models.

“In our theoretical model, we assume that every firm has the option of choosing either a flexible or rigid regime,” Nasser says. “The question is which option a firm will choose. Which option is optimal? In the intermediate product differentiation range, we find that it’s optimal for firms not to choose the same strategy. It’s optimal for one firm to be flexible and not to constrain its output and for another firm to be rigid and to constrain its output. That’s the contribution of our research.”

**KEY TAKEAWAYS for Managers**

- Product differentiation plays a key role in determining whether a firm should focus on price or quantity competition. A rigid regime is a better option than a flexible regime for low- and high-differentiation markets or production practices that drive cost down with long lead-time manufacturing.
- When firms are competing within industries of intermediate product differentiation, firms will be split on whether to pursue a flexible regime or a rigid regime.

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**“To Commit or Not to Commit: Revisiting Quantity vs. Price Competition in a Differentiated Industry”**

Sherif Nasser, Assistant Professor of Marketing, Olin Business School, Washington University in St. Louis

Danko Turcic, Assistant Professor of Operations Management, Olin Business School, Washington University in St. Louis

Publication: Under review, Journal of Marketing
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