R&D exploration or exploitation? How firms respond to import competition

June 2 2021

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Do firms respond to tougher competition by searching for completely new technological solutions (exploration), or do they work to defend their position by improving current technologies (exploitation)?

Competition from increased import penetration generally results in tight profit margins, low prices, and strong efficiency pressures, immediately affecting firms' bottom lines in the form of reduced profits and increased bankruptcy risk.

A firm's R&D strategy is one of the fundamental determinants of success or failure when responding to competitive threats. To ensure both short-term performance and long-term survival, firms have two basic R&D options: Explore new knowledge or exploit existing knowledge bases.

A new study published in the *Strategic Management Journal* (*SMJ*) examines how firms change the knowledge sources used in their R&D efforts in response to substantial increases in import penetration in their domestic market. The study was conducted by Raffale Morandi Stagni, Universidad Carlos III de Madrid, Spain, Andrea Fosfuri, Bocconi University, Milan, Italy and Juan Santaló, IE University, Madrid, Spain. They studied a sample of U.S. manufacturing firms over the years 1989-2006.

"Our focus on technology reflects both its increasing importance for firm survival and competitive advantage," write the authors. "Specifically, we study competition created by import penetration, which has increased steadily in recent years to become a central concern for companies, for example, dealing with imports from China.

"We find that in the years that immediately follow an increase in import penetration, firms tend to rely more on familiar knowledge in the development of innovations and less on knowledge sources that were not previously used. This switch in R&D strategy also appears to be temporary (reversed in later years), and it is positively associated with an increased likelihood of survival."

The researchers argue that while exploration is riskier and costlier than exploitation, it also requires a longer time horizon to produce results due to its slower learning pattern.

They also tested the effects of import penetration according to the type of competition and the type of industry affected. They separated imports from low-technology countries from imports from high-technology countries.

"If technological competition has a different effect on search strategies than price-based competition, we might expect the results to differ," write the researchers. "Instead, the effects of the two types of import penetration are qualitatively similar.

"We also performed a sample split of industries in which the primary customers are other businesses (B2B) or those in which the primary customers are final consumers (B2C). Consistent with the intuition that import penetration issues a greater threat to firm survival in B2B industries, we find that the effect of import penetration on technological exploration and exploitation is stronger for that group than for B2C industries."

The final variable they researched was whether technology search strategies are moderated by factors that might alleviate or increase concerns about firm survival.

"The findings show that the negative relationship between competition and exploration is magnified for firms that are relatively more vulnerable, because they have greater degrees of operating leverage and lower degrees of product diversification," the researchers write.

More information: Raffaele Morandi Stagni et al, A bird in the hand is worth two in the bush: Technology search strategies and competition

due to import penetration, *Strategic Management Journal* (2021). DOI: 10.1002/smj.3277

Provided by Strategic Management Society