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"For innovation success," wrote MIT researcher Michael Schrage, "do not follow the money." He argued that while we can easily measure inputs such as research and development (R&D) spending, outputs and outcomes, such as R&D productivity or customers won or retained, tell us much more about the ability to innovate successfully.

He's right, of course. In 2007, European aerospace and defence companies spent relatively more on research and development and invested relatively more in capital equipment, according to a recent European study. But this spending does

not assure that future innovations will come from Europe. Higher R&D spending does not guarantee more creativity, higher profit or a greater market share.

The data

The recent study, published as part of the EU's ongoing Industrial Research & Innovation initiative, compares R&D spending in 2006-07 across EU countries and the rest of the world. It covers the top 1,000 EU companies and the top 1,000 non-EU companies in many industrial sectors, including aerospace and defence. The data is based on public financial statements and shows cash investment on R&D funded by the companies themselves, excluding contract work and shares of disclosed JVs and associated companies. The study allocates R&D by the country of the company doing it, not by where the R&D is performed.

Observations

On the surface, the results paint a rosy picture for the EU. Compared to companies elsewhere, on average European aerospace and defence companies spent more on R&D as a percent of sales in 2007 and had lower operating margins. They also spent invested more as a percent of sales and had higher R&D spending per employee.

However, a more in-depth analysis reveals that while European firms as a group made about €16 in sales per €1 spent on R&D, US companies made about €30 in sales per €1 spent on R&D, companies elsewhere made €44 in sales per €1 spent, and the industry as a whole made €23 in sales per €1 spent on R&D. Not surprisingly, therefore, while European companies are over-represented among the top 10 companies in R&D as a percentage of sales and capital expenditures as a percentage of sales, European and American companies are almost equally well-represented among aerospace and defence companies with more than €1 billion in annual sales.

Conclusions

European companies appear willing to sacrifice profitability in favour of higher R&D spending, compared to companies elsewhere. This implies one or more of the following:

• European companies believe that more R&D spending will result in greater long-run returns;

• They face tax codes and / or capital markets that favour R&D spending rather than profit maximization;

• They face less pressure to earn a return on capital;

• They believe that higher R&D spending will enable them to catch up to (or extend a lead on) companies elsewhere.

They spend a lot on R&D, but much of what they develop is not commercially useful. This would explain relatively high R&D expenses per employee, but low conversion of R&D spending into sales.

US companies, on the other hand, commercialize their R&D more effectively, getting more sales out of a given level of research investment. This is consistent with relatively larger defence procurements; for US companies, investment in a new product is more likely to result in relatively larger sales. It is also consistent with the pressure to perform the capital markets place on US public companies. European companies may spend more seeking innovation, but American companies seem more likely to find and commercialize it.