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MARKET WATCH

Trends in pharmaceutical company R&D spending: 2005–2015

Pharmaceutical industry trade groups commonly claim that growing revenues (supported by premium prices) are required to drive innovative R&D, whereas critics maintain that drug companies' outsized returns mainly support corporate infrastructures, fuel marketing budgets and enrich investors. In fact, both arguments are incompletely supported by available data.

To methodically examine the historical relationship between R&D spending, selling, general and administrative (SG&A) costs, and revenues, we studied a decade's worth of financial data from the 10 public pharmaceutical companies that had the largest R&D budgets in 2015, normalized for inflation (see Supplementary information S1 (box) for details). As a group over the decade, these companies grew their investment in R&D (compound annual growth rate (CAGR) of 1.76%) and cut SG&A (–1.12% CAGR), even as revenues remained essentially flat (–0.01% CAGR) (FIG. 1a). Individually, R&D growth rates exceeded revenue growth rates for 8 out of 10 companies over this 10-year period, and exceeded SG&A growth rates for 9 out of 10 companies (FIG. 1a).

The companies we studied also generally protected their R&D budgets even in the face of acute revenue pressures. Following significant revenue declines (>5% in constant dollars), companies' R&D spending in the subsequent year mostly either increased (9 out of 20) or decreased by a smaller percentage than SG&A (5 out of 20) (FIG. 1b).

So, the positions of both the pharmaceutical industry and its critics regarding the relationship between revenues, R&D and SG&A are somewhat overstated. Our data show that over the past decade, most drug companies have grown R&D spending more quickly than SG&A spending, even as inflation-adjusted revenues have stagnated. They also demonstrate that even in the face of steep revenue declines, some firms continue to invest in R&D, indicating that R&D budgets across the industry are not algorithmically related to revenues, but instead reflect each company's particular strategic priorities and vision.

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Competing interests statement
The authors declare competing interests: see Web version for details.

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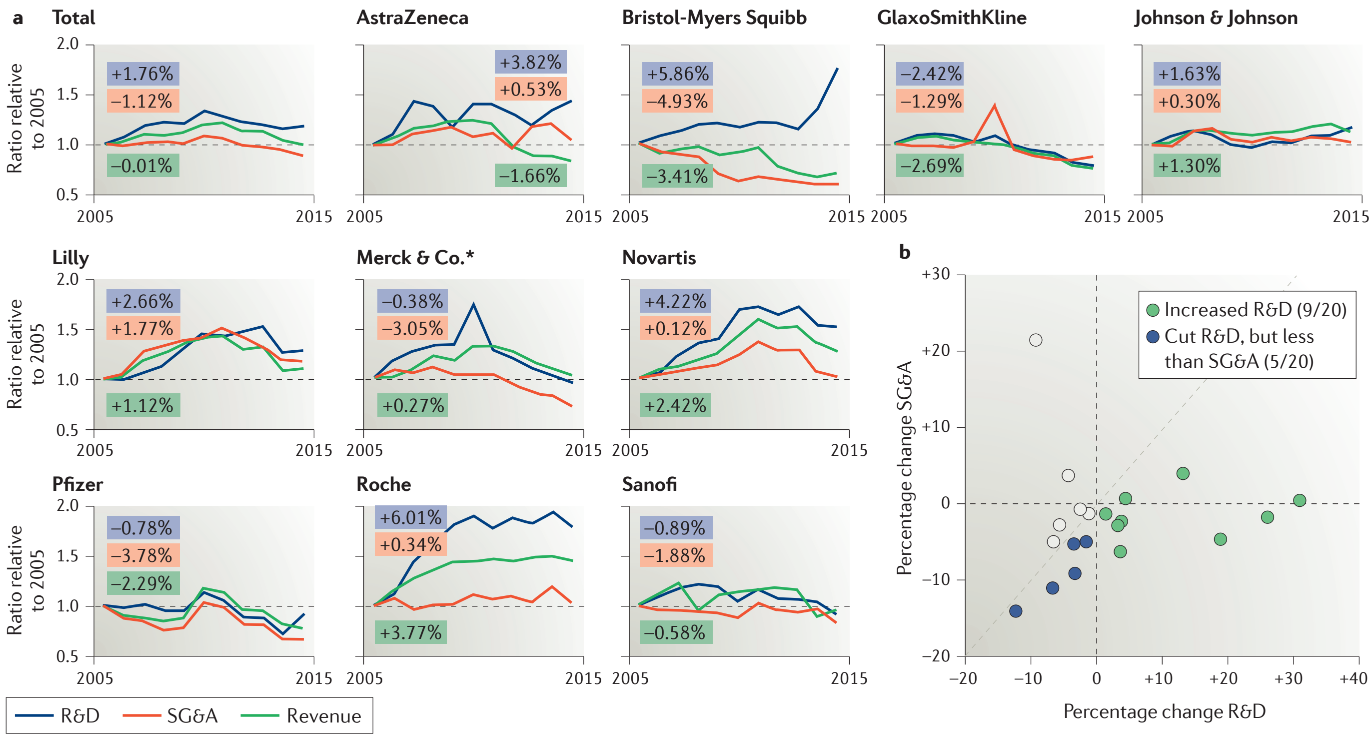

Figure 1 | **Trends in R&D spending for ten major pharmaceutical companies from 2005 to 2015. a** | R&D spending, revenue and selling, general and administrative (SG&A) expenses for each company were converted into US$ as needed, inflation-adjusted (using US inflation rates) and normalized to 2005 values. The compound annual growth rate from 2005 to 2015 for each metric is shown in the coloured boxes for each company. *Merck & Co. data reflect the sum of data for Merck & Co. and Schering-Plough before their merger. **b** | R&D and SG&A spending by companies in response to large revenue declines. Each data point is from a year in which revenues decreased by >5% compared with the previous year, and reflects the change in R&D and SG&A spending from that year to the subsequent year. All revenue, R&D and SG&A percentages reflect inflation adjustments (see Supplementary information S1 (box) for details of the dataset and analysis).