Data page

Public biotech in 2021 – the numbers

Laura DeFrancesco and Riku Lähteenmäki

The 154 R&D-driven biotech companies that went public last year represent the largest number ever – even higher than 2020's bonanza of 131. The total amount raised per company ($167 million) in initial public offerings (IPOs) was also on a par with the previous year's (Fig. 1). This contrasts starkly with the first eight months of 2022, which have seen only 17 biotech IPOs in the United States and Europe; by the same time last year, a staggering 118 companies had already floated on stock exchanges, according to *BioCentury*. All was not roses in 2021, however: the stock market nose-dived (Fig. 2), with plummeting market capitalizations resulting in a contraction in the number of large- and mid-cap companies and many firms falling back into the small- and micro-cap categories (Fig. 3).

Last year, the entire phalanx of 955 companies comprising the public biotech sector generated $242 billion in revenue. To put this in perspective, the largest multinational pharmaceutical company, Pfizer, made $81 billion in 2021. Even so, biotech's $242 billion still represents a 51% increase over 2020 (Fig. 4). Much of that increase arose from the influx of a large contingent of biotech companies from Asia. The gains also arose from COVID-19–related programs, with the coffers of small- and mid-cap companies swelling with revenue from a burgeoning number of partnerships or government contracts.

The increasing receptiveness of public markets to IPOs from early-stage biotech companies also drove a spike in firms with preclinical cell- and gene-therapy programs. Among these, gene-editing companies in particular hit their stride: Beam Therapeutics and CRISPR Therapeutics both posted large gains in revenues flowing in from partnerships with deep-pocketed companies that offered deals with large up-front payments, not wanting to be left out of gene therapy's clinical promise.

Although 2022 has witnessed belt-tightening across the sector, with markets freezing over and funding drying up, last year's IPO glut brought a cascade of cash into biotech; little surprise then that R&D spending as a whole rose by 35% (Fig. 4). The biotech endeavor continues to be a research-funding turbo, with its 955 firms spending collectively a whopping $94.4 billion on R&D in 2021. (Pfizer spent $13.8 billion on R&D in 2021.)

As has been true for decades, the lion's share of profitable biotech companies are in the large-cap category, with approved product franchises and sizeable revenues that can offset sizeable R&D expenses. For a detailed breakdown of the 2021 cadre of public biotech companies, readers are directed to Supplementary Table 1; further discussion of the methodology used in this Data Page can be found in the Supplementary Information.

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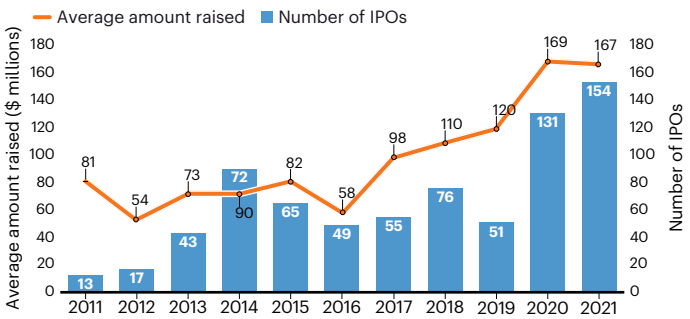

Fig. 1 | Biotech IPO activity since 2011, showing the amount raised ($ millions) and the number of companies going public. Source: BioCentury BCIQ.

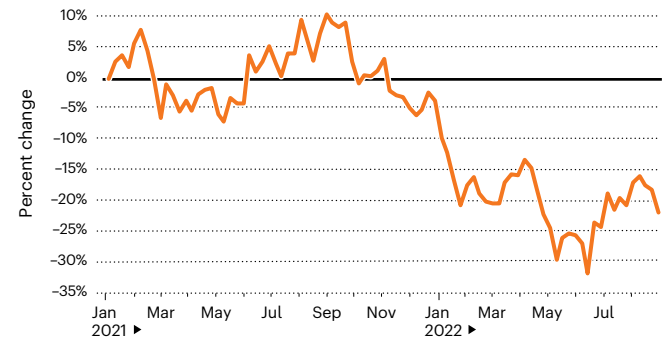

Fig. 2 | NASDAQ biotech index over time. The beginnings of what became a long downward spiral in the public biotech index were evident by the end of 2021.

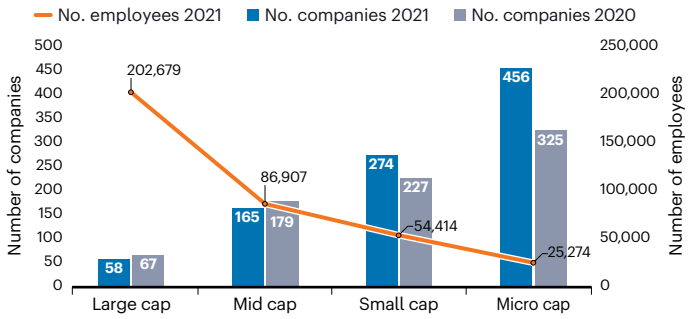

Fig. 3 | Number of biotech companies and employees by market cap. Large cap, >$5 billion; mid-cap, $1 billion to $5 billion; small cap, $250 million to $1 billion; microcap, <$250 million.

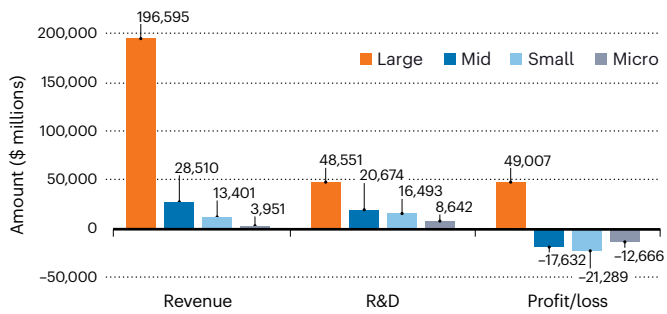

Fig. 4 | Public biotech company revenue, R&D spending and net profit or loss by market cap. This year's data show a large increase in R&D spending. Market cap as in Fig. 3.