



FIRST REPUBLIC

# Life science investment outlook: Thinking beyond the pandemic



# Introduction

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As the economy emerges from the series of shocks brought on quickly and unexpectedly when the pandemic hit two and a half years ago, analysts and investors alike are grasping to define what is the “new normal” for financial markets.

This struggle is particularly true for the life science sector, which saw investment stall and then soar during the pandemic's first years. But by the start of 2022, the Nasdaq Biotech Index was continuing its decline from an all-time high posted in August 2021. Private investment followed suit in the second quarter, when venture investment in life science companies tumbled quarter over quarter.

So, what happens next? Some expect the value of life science companies will continue to decline based on numbers in the first half of 2022, but by extending our perspective back to 2015, a different potential scenario emerges.

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While investment is still flowing to early-stage companies, VCs are cautioning startups to prepare for a longer runway between financing rounds as investors are looking more closely at valuations and expected returns.

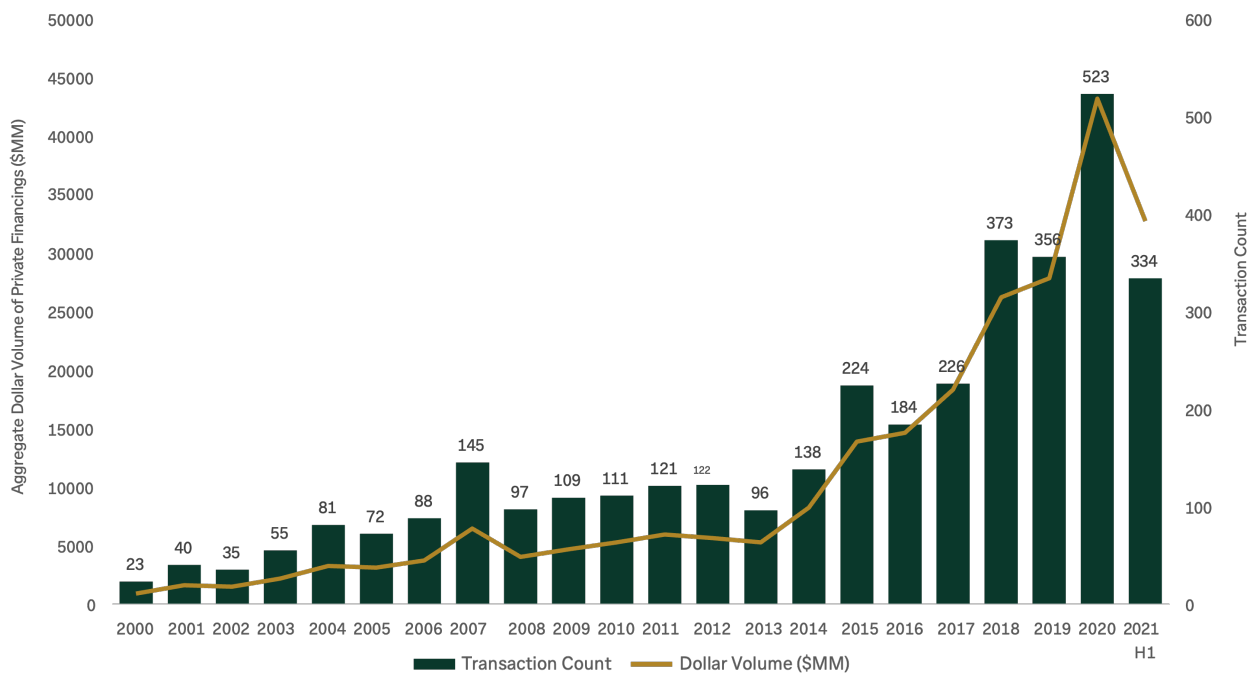


# Where we've been

Going back about 10 years, the life science sector was finally coming of age. With proven science and many successful companies with products on the market, the investment dynamic had changed. Investors were less and less betting on the long-term potential of unproven technologies. Life science companies could increasingly be evaluated by conventional investment metrics and, as a result, attract the attention of generalist investors.

Starting in 2014, venture investment in life sciences climbed consistently. It took off in 2020 and continued to soar in 2021. The first quarter of 2022 showed a modest increase over the final quarter of 2021. At the same time, the IPO window opened wide, creating opportunities for companies with product revenue as well as for some early-stage companies that in less bubbly times would not be considered ready for a public listing.

**Figure 1: Total volume of private biopharma, diagnostics and tools financing rounds by year**  
January 2000–June 2021 (deals over \$25MM, excluding medical devices, worldwide)



Sources: Torrey analysis and records, Capital IQ and Crunchbase



Public and private investment in biotech companies reached an all-time high of \$105 billion in 2020 and 2021 according to a **report** by EY. In 2021, public company revenue surged by 35%. This kind of growth is often driven by market hype that creates a fear-of-missing-out mentality and is never sustainable. Additionally, there were some once-in-a-lifetime forces that helped fuel this particular boom.

**For the past two and a half years:**

- The public has had a crash course in virology via the media and public officials, to the point of making the science that drives life science innovation more accessible to generalist investors.
- The spotlight shone on mRNA vaccines, a technology that has been in the works for 20 years, proving them to be more effective and easier to tweak than vaccines made through conventional means.
- The public sector poured in unprecedented resources and money (all told, more than \$100 billion on vaccines alone in 2020 and 2021).
- Shelter-in-place orders helped turbocharge the emerging space of telehealth and remote health tech, which have proven themselves to be valuable tools to increase access for patients and improve productivity for providers even as the pandemic wanes.

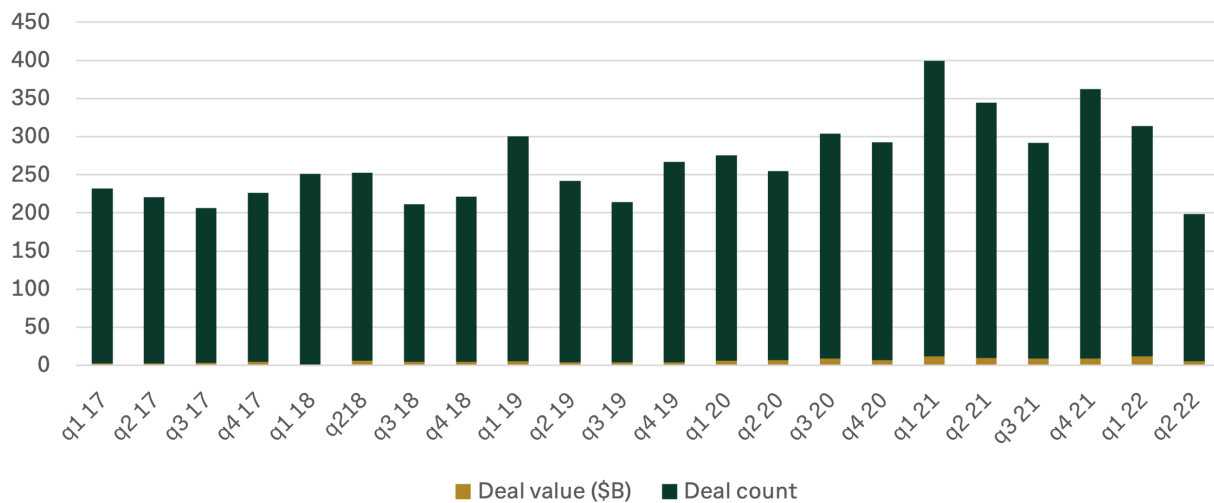
Newfound visibility made investments in life science companies more accessible to generalist investors, but some strong fundamentals were also at play.



# Where we are

When the global economy began to slow at the start of 2022, the value of life science companies took a hit. In addition to the decrease in the value of publicly traded companies, venture investment in the sector dropped dramatically in the second quarter.

Figure 2: U.S. biotech VC activity faces a post-pandemic slowdown



Source: PitchBook | Geography: U.S. As of June 23, 2022.

On the public side, the decline in the number of life science IPOs was equally dramatic, dropping from 82 in 2021 to 25 as of October 2022, according to [Crunchbase](#). The closing of the IPO window has led to a drop in the number of late-stage venture investment and crossover rounds, and the health tech / digital health subsector has all but stopped spawning unicorns.

Many have expressed concerns that these declines are signs of structural weaknesses within the life science sector. But cooler heads, such as Atlas Ventures' [Bruce Booth](#), argue that it is not fair to compare an economic indicator against the pandemic years of 2020 and 2021, when the world was trying to make its way through once-in-a-century upheaval.

Looking back to 2015, and omitting the pandemic years of 2020 and 2021, the growth curve for the life science sector looks steady and sustainable.

There is no shortage of capital to be deployed. [The Economist reports](#) that venture capital firms have raised more than \$100 billion over the past three years to invest in life science companies. Likewise,

pharmaceutical companies have plenty of dry powder to deploy in acquisitions. EY's **Firepower Report** estimates that pharmaceuticals companies could potentially invest \$1.174 trillion in M&A deals, and recent history shows that M&A transactions (by value) drop when the IPO window is open.

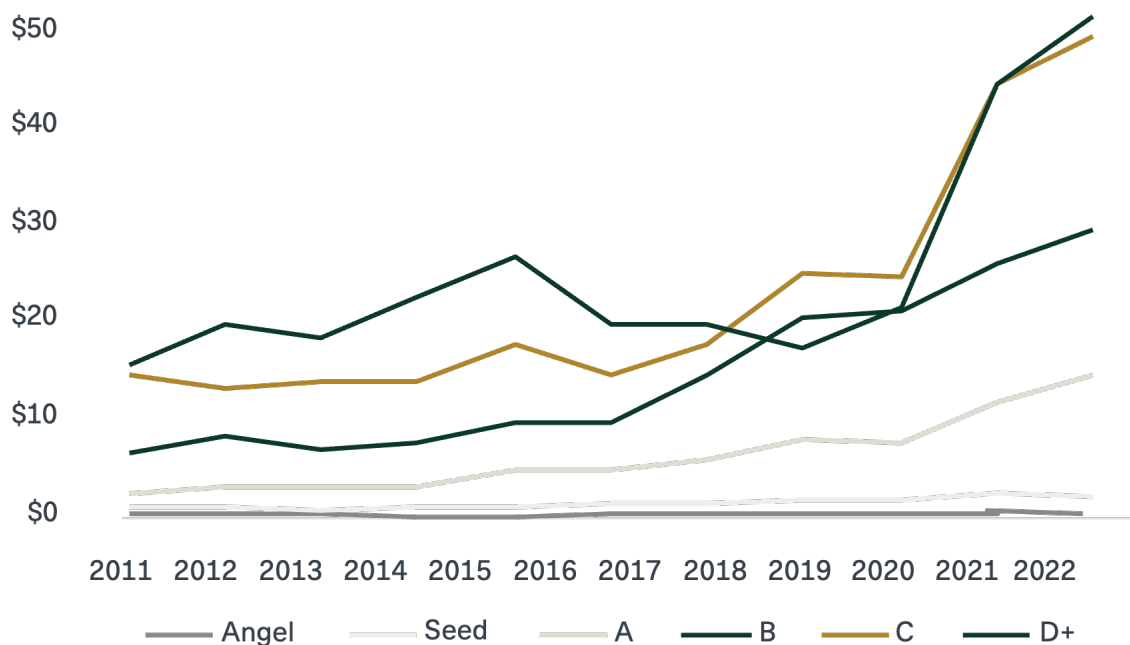
That's not to say that just because the money is there it has to be spent. Venture investors as well as "buyer" companies may bide their time in uncertain markets, and they can certainly afford to be more particular about which targets they pursue.

### Early-stage vs. late-stage outlook: Tale of two stages

Early-stage life sciences are having a better time of it than late-stage companies. The number of rounds valued at \$100 million or less has remained fairly consistent going back to 2015. However, an **analysis** by Orrick shows that valuations for angel and seed deals has dropped by 23% and 8%, respectively, in 2022.

The same report shows pre-money valuations for angel and seed deals have increased by a quarter in 2022, while early-stage VC rounds have jumped by 40% this year.

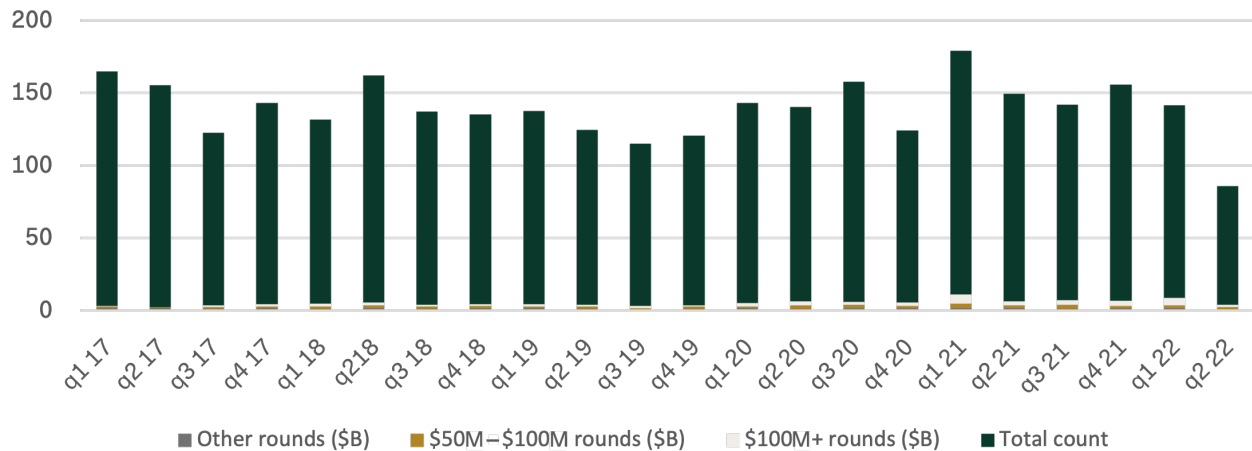
Figure 3: Median life science VC deal value (\$M) by series



Source: PitchBook | Geography: U.S. As of June 30, 2022.



Figure 4: Quarterly biopharm VC rounds



Source: Evaluate

The tap certainly isn't shut off for early-stage companies, but investors are going back to basics, and there's more scrutiny.

Early-stage investors are becoming more particular. They are looking more closely at valuations and expected returns while cautioning their younger companies to prepare for a longer runway between financing rounds.

They are also looking increasingly at technologies developed in academia or other research institutions. As tech transfer offices have become more sophisticated and investor-friendly, VCs are taking advantage of the opportunity to take control of technologies at their early stages in the hopes of giving them a better chance of becoming commercially successful.

On the other hand, the short-term outlook for late-stage companies is more challenging. The bear market for biotech stocks has had a chilling effect on IPOs. The Nasdaq Biotech Index hit a high of 5,459 in August 2021 and is now hovering around the 4,000 mark as of November 10. Many of the biotech IPOs from the class of 2021 are underwater.

It is not surprising that the second quarter of 2022 was the weakest quarter for life science IPOs in five years. The companies that have listed in 2022 have done so at much lower valuations. These realities are reflected in the valuations for later-stage venture rounds, which have remained flat over 2021. Additionally, pre-money valuations for late-stage deals have increased only by 10% in 2022 over 2021.

The lack of exits via IPOs has naturally impacted late-stage private investment. But as with private investment, it's useful to look back beyond 2020. From the last IPO peak in 2015 to 2019, there were

between 40 and 60 biotech IPOs a year. While we are currently not on pace to match that average in 2022, with 25 IPOs as of October, we are also not far off historical patterns.

Greg Yap of Menlo Ventures told **PitchBook** that another reason late-stage deals have decreased is because crossover investors, who often led those rounds, are seeing better opportunities in public markets.

With an inhospitable climate for IPOs, companies in search of an exit may be able to turn to M&A deals. M&A activity has been lackluster so far this year, but as noted above, Big Pharma is sitting on a lot of cash and facing patent expirations. Pfizer has already put some of its pandemic-era profits to work acquiring Global Blood Therapeutics for \$5.4 billion in early August and Biohaven Pharmaceuticals for \$11.6 billion in May.

While new SPACs aren't being created, there are still existing SPACs looking for the right acquisition target. With valuations trending down, it is likely that M&A activity will pick up by the end of the year as buyers gain confidence that they are buying near the bottom.

Late-stage companies are facing a more challenging environment than startups; with an inhospitable climate for IPOs, companies searching for an exit may be able to turn to M&A deals.





# What's next?

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If we agree that 2020 and 2021 were anomalies, then markets should be expected to return to historical norms in 2023. There is no reason to believe that we are facing a burst bubble à la 2000 that will deter investment for several years. Plus, the pandemic has helped identify and create new opportunities that should attract investment.

While many early gains from digital health were realized with the rapid deployment of telehealth during the pandemic, significant potential remains. A new survey by the American Medical Association found that 93% of physicians felt there was some advantage or a definite advantage to using digital health tools.

There is also significant upside potential for diagnostics, a subsector that has not historically received much love from investors. Once seen as workaday tools confined to a Clinical Laboratory Improvement Amendments of 1988 (CLIA)-certified lab, antigen tests have emerged as something akin to a consumer product. With consumers now accustomed to using home antigen tests for COVID-19, the potential exists to create an over-the-counter market for other rapid home tests. At the same time, improvements in miniaturization are reducing the footprint of polymerase chain reaction (PCR) machines, bringing them from the lab to the clinic, and creating the opportunity for test-and-treat one-stop shopping.

Businesses that may have been considered ancillary to the life science sector — such as specialized supply chains, health care data management and clinical trials support — are rapidly becoming more integrated into the sector. These companies, termed “HealthTech,” are attracting generalist investors such as Gaingels, General Catalyst and Andreessen Horowitz to the life science space. By some measures, HealthTech companies ranked right below biopharma for venture investment in recent years, outpacing more conventional subsectors like medical devices and diagnostics.

By diversifying the sector and integrating tech VCs into the life science investment ecosystem, the growth of HealthTech should help the life science sector, as a whole, better weather future market cycles.

Finally, distribution challenges with the mRNA vaccines highlighted opportunities to improve the supply chain for life science products. Opportunities exist to improve cold chain delivery systems, leverage drones to deliver tests and treatments or retrieve samples from patients in remote or underserved areas, and improve telehealth infrastructure.

The years 2020–2021 were anomalies; markets should be expected to begin to return to historical norms in 2023. Plus, the pandemic has helped identify and create new opportunities to attract investment.



In conclusion, the startup space is healthy. Although late-stage companies may appear to be in a holding pattern, the future is bright as the industry evolves into a more mature sector with opportunities to integrate technologies.

Companies at every size can benefit from having a dedicated partner as a sounding board for new ideas, whether they're pursuing grants or venture funding, developing new technology or getting a drug approved. Founded in 1985, First Republic Bank has a long history of working directly with life science companies, from the earliest pre-seed stages to mature businesses at IPO and beyond. Contact us at [lifescience@firstrepublic.com](mailto:lifescience@firstrepublic.com) for personalized support in meeting your company's needs.

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