Houlihan Lokey

A TALE OF TWO MARKETS:

Bridging the Gap Between Public and Private Life Sciences Valuations

INTRODUCTION

The Nasdaq Biotechnology Index saw a 20% decline and significant volatility between January 1 and September 30, 2022. As in any period of uncertainty, transparency around valuations has been top of mind for limited partners in private equity and venture capital firms. As a result, we have received increased inquiries from our fund clients around the implications of this market shift on the value of their private investment portfolios. In this paper, we will:

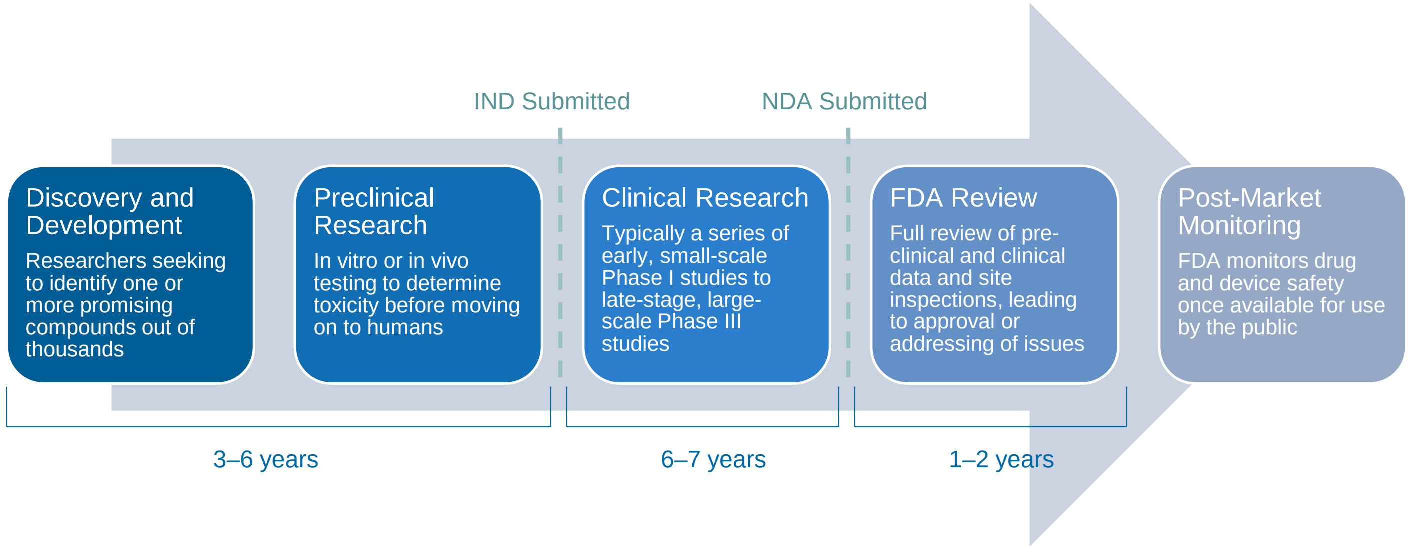
1. Explore the ever-evolving landscape of investments in the life sciences sector;
2. Review key trends expected to impact the sector;
3. Discuss methodologies and unique considerations for the valuation of biotech companies; and
4. Discuss how Houlihan Lokey helps its fund clients navigate private market valuations amid the public market volatility.

MARKET BACKDROP: EVOLUTION OF INVESTING IN LIFE SCIENCES

Over the past several decades, innovation and technology within the life sciences sector have driven meaningful advances, particularly in terms of therapeutics.

Given the structured development process associated with a new therapeutic, the path to the first dollar of revenue can take 15 years (if the product makes it to market at all). Refer to Exhibit 1.

Exhibit 1



Relative to companies in other industries, a life sciences company developing a new therapeutic has the unique requisite spend of up to $1 billion or more to get a single drug to market prior to achieving any revenues.

It is no suprise, then, that the pronounced growth in the life sciences sector in recent years has translated into increased investment from private equity and venture capital. According to PitchBook, in 2016 biotech companies raised approximately $2.4 billion from private equity and venture capital firms. Fast-forward to 2021, and companies in the sector raised approximately $25.0 billion in private capital. The growth in private fundraising has been driven by a number of trends:

1. Organic industry growth as waves of innovation and the convergence of biological and technological advances have led to a larger proportion of products transitioning to clinical phases. The FDA approved more than 50 new molecular entities and new therapeutic biologics in each of 2020 and 2021, almost doubling the numbers observed a decade ago.

2. Increase in demand for biotech investment opportunities versus medtech or other sectors, driven in part by the global interest in developing therapies to remedy the COVID-19 pandemic since 2020.

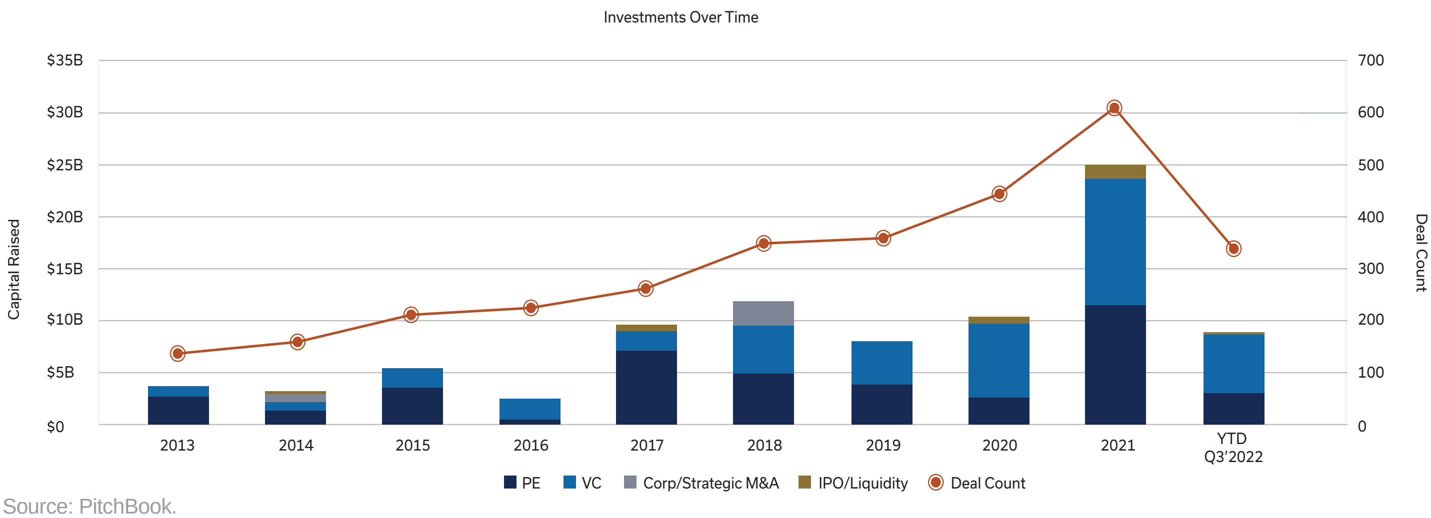
3. Rise in non-traditional investor participation (e.g., corporate venture arms, SPACs, cross-over investors).

4. Importance of platform technologies (i.e., base or infrastructure on which other therapies can be developed), which have garnered significantly higher demand in recent years. From 2019 to 2021, PitchBook estimates that approximately two-thirds of the total growth capital injected into biotech firms was with companies with platform technology.

5. Investor sentiment that biotech has matured as a business given the above-noted advances, resulting in lower inherent sector risk than in earlier decades.

The graph below illustrates the shifting trends in fundraising over the past several years.

Exhibit 2



Source: PitchBook.

While valuations within the life sciences sector have not been immune to the volatile public markets in 2022, expansion-stage deal-making has remained relatively healthy. Currently sitting at $8.7 billion through September 30 according to PitchBook, private capital investment into biotech companies in FY 2022 is expected to meet or exceed 2020 levels after an exceptional year in 2021. Stephen Wise, Head of Global Healthcare at Carlyle, recently noted the following when announcing the company's acquisition of life sciences investment firm Abingworth: "The COVID-19 pandemic shed light on the increased need for expertise and access to capital to fund the development and commercialization of innovative healthcare and life sciences solutions in the years to come."

Venture-backed biotech companies also often gain access to public markets earlier in their lifecycle versus companies in other sectors. Notably, approximately 85% of the companies currently underlying the Nasdaq Biotechnology Index (by number) generated losses for the latest 12-month period ended September 30. Access to public and private markets remains critical for drug and device development, leading to multibillion-dollar valuations for these pre-revenue companies.

Looking forward, the life sciences sector is expected to benefit from the convergence of a number of long-term macro drivers, summarized below in Exhibit 3. This has allowed for a less prominent market "correction" than the broader startup world, as evidenced by the more extreme 33% year-to-date decline through September 30 experienced by the Nasdaq Composite Index (vs. 20% for the Nasdaq Biotechnology Index noted previously).

Exhibit 3

- Aging global demographics, driving demand for new and differentiated therapeutics
- Realization of key platform innovations (e.g., gene editing, vaccine delivery and formation)
- Significant dry powder at both investment firms and large pharmaceutical players, particularly those with COVID-19 or ancillary treatments in their portfolios
- Correction of historically high valuations, which may allow for pharma companies to pick up earlier-stage companies to fill pipeline gaps that are expected to begin in FY 2023 and 2024
- Passage of time toward the patent cliffs, with top drug companies expected to lose more than $200 billion from loss of exclusivity between 2022 and 2032

Biotech fundamentals remain strong, with innovation in this space projected to remain a major driver of pharma revenues in the coming years. “Down the road, we continue to see M&A as an important source of building our pipeline and also fortifying our current portfolio,” Joaquin Duato, CEO of Johnson & Johnson, noted on the company’s Q2 2022 earnings call. Notably, there have been a number of take-private transactions in recent months at significant premiums to prior trading prices, as illustrated below.

Exhibit 4

Close Date:	July 1, 2022	Close Date:	Aug. 10, 2022	Close Date:	Aug. 15, 2022	Close Date:	Oct. 3, 2022
Acquirer:	GSK	Acquirer:	Gurnet Point Capital	Acquirer:	Bristol Myers Squibb	Acquirer:	Pfizer
Target:	Sierra Oncology	Target:	Radius	Target:	Turning Point Therapeutics	Target:	biohaven pharmaceuticals
Deal Size:	$1.9 billion	Deal Size:	$4.0 billion	Deal Size:	$4.0 billion	Deal Size:	$12.2 billion
Premium:	39%	Premium:	23%	Premium:	122%	Premium:	79%

Source: S&P Capital IQ.
Note: Premium estimated over the trading price the day prior to the transaction announcement.

We have also seen a number of venture capital investments completed in recent months at implied valuations above those from prior rounds, as shown below:

Exhibit 5

Close Date:	June 6, 2022	Close Date:	Aug. 23, 2022	Close Date:	Sep. 6, 2022	Close Date:	Sep. 13, 2022
Prior Round:	Jan. 28, 2022	Prior Round:	Aug. 9, 2021	Prior Round:	Oct. 17, 2019	Prior Round:	May 13, 2022
Company:	RESILIENCE	Company:	Rivus	Company:	ArsenalBio	Company:	ACELYRIN
New Round:	Series D	New Round:	Series B	New Round:	Series B	New Round:	Series C
Deal Size:	$625.0 million	Deal Size:	$132.0 million	Deal Size:	$220.8 million	Deal Size:	$300.0 million
Post-Money:	$9.0 billion	Post-Money:	$432.0 million	Post-Money:	$870.8 million	Post-Money:	$800.0 million
Step-Up:	1.4x	Step-Up:	6.0x	Step-Up:	3.5x	Step-Up:	1.4x

Source: PitchBook.

Strategic transactions such as those presented above support the premise that not all private investments have seen the same level of correction as the public markets in terms of valuations. This is particularly true for pre-clinical or clinical-stage companies that have years of development before going to market (i.e., lack of exit or inflection point in the near term).

Amid current market volatility, we note that private biotech investors have highlighted a waning risk appetite and desire for more near-term valuation upside. This has led to a shift in investment toward portfolio companies with products that are closer to market (i.e., already in clinical trials).

UNIQUE VALUATION CONSIDERATIONS FOR BIOTECH INVESTMENTS

There are a number of unique issues and considerations that make the valuation of an investment in a biotech company more challenging versus traditional operating company valuations, including the following:

1. The outcome of each stage of development for a given therapeutic will typically be binary, requiring the possibility of failure at each step highlighted in Exhibit 1 to be considered. The valuation framework implemented should consider the various scenario outcomes on a risk-adjusted basis (i.e., probability of success). Additionally, particularly in the current volatile market, one must consider if the company has sufficient liquidity through the next inflection point.

2. Underlying projections for the revenue stream will be conditional on the therapeutic treatment (e.g., some may require recurring patient use, while others are curing). Forecasting must therefore consider epidemiology and addressable market, patient access, competition and market share, and dosing compliance and persistence. Once revenue projections are created, profit will be impacted by reimbursements, gross-to-net dynamics, and the in-place or yet-to-be acquired sales force.

3. As noted previously, the cost can be extremely high before the first dollar of revenue is achieved, which may limit the appropriateness of an income-based approach in certain circumstances (depending on lifecycle stage). Similarly, public and M&A comparables for a pre-revenue company will not trade on observable revenue or earnings. Alternative comparative analyses may therefore be required.

The table below outlines valuation considerations by stage in the subject company's lifecycle:

Exhibit 6

	Key Considerations

Income Approach	▪ For a profitable company, a typical discounted cash flow (DCF) analysis may be appropriate.
	▪ For a development-stage company, a DCF analysis may be appropriate, but it should consider:
	    ▪ Length of forecast captures full ramp-up to peak sales
	    ▪ The cumulative probability of success from the current stage (e.g., pre-IND, pre-clinical, or Phase I–III) through market acceptance
	▪ Discount rate utilized should consider nature of cash flows (i.e., if a probability adjustment has been applied to the cash flows, discount rate should not double-penalize the company).
	▪ Terminal value typically considers:
	    ▪ Viability of long-term revenues (e.g., relevant patent cliff, single product vs. portfolio)
	    ▪ Strategic vs. financial exit, which may impact type of exit valuation utilized (e.g., revenue vs. earnings vs. long-term growth rate)

Market Approach	▪ For a revenue-generating/profitable company, a typical guideline public company (GPC) analysis utilizing revenue or earnings multiples may be appropriate.
	▪ For a pre-revenue company, multiples typically will not be applicable. Instead, the following metrics may be appropriate alongside a benchmarking to both publicly traded pre-revenue companies and targets of disclosed transactions:
	    ▪ Total market capitalization, considering targets of similar risk (e.g., clinical phase) and therapeutic area (e.g., cardiovascular or oncology)
	    ▪ Multiple of total market capitalization to number of products by stage, again ideally within the same therapeutic area
	▪ For pre-revenue companies, a review of the upfront vs. earn-out components of a comparable transaction consideration may be appropriate. Often, the upfront component may be utilized as the benchmark given the risk of achieving contingent payments.

Last Round of Financing	▪ In light of current market volatility, special consideration to the following may be warranted:
	    ▪ Length of time since the prior round in light of any changes in public markets and company-specific risk
	    ▪ Benchmarking of subject company to the public comparables in terms of stage of product development, liquidity, growth, etc.
	    ▪ Recent secondary transactions or any pending investor interest
	▪ Valuation shifts in the private markets may follow the public markets directionally, but typically not on a 1:1 basis. Benchmarking can be particularly important to gauge the appropriate adjustment to the last round of financing.

Once a level of total equity value has been estimated, the rights and preferences of the subject investment must be considered. Private valuation methods for the allocation of total equity include:

1. Common stock equivalent approach, which is the typical basis for post-money valuations quoted in public press releases; and
2. Waterfall approach, which may incorporate option pricing methodology depending on the complexity of the capital structure.

Understanding the various terms and features attached to each security class in a company's capital structure is essential to security valuation, particularly in the current volatile market environment. Seniority, liquidation preferences, dividends, ratchets, conversion ratios, and other variables are highly impactful economic features that provide downside protection. Below are some key considerations for these two aforementioned equity value allocation approaches:

Exhibit 7

	Exit Assumption	Valuation Considerations
Common Stock Equivalent Analysis	▪ IPO, which assumes all classes of equity typically convert to common	▪ Certain classes of preferred may have dilutive impact on other securities (e.g., conversion ratio > 1:1) ▪ Given the current slowdown in the IPO market, the weighting toward this exit assumption may be *lower* than in prior quarters and years
Waterfall/ Option Pricing Analysis	▪ M&A, which assumes contractual rights and preferences of preferred classes are respected	▪ If the company has underperformed since the last round of financing, a waterfall will often reflect higher security values for senior classes of equity given contractual downside protections (e.g., liquidation preference) ▪ Given the current slowdown in the IPO market, the weighting toward this exit assumption may be *higher* than in prior quarters and years

HOULIHAN LOKEY'S UNIQUE EXPERTISE

In recent years, private security valuation at the fund level has become increasingly important to LPs seeking transparency around NAV and fees. On this topic, the SEC adopted Rule 2a-5 in December 2020 setting forth detailed requirements for the GP to determine fair value in good faith. Fair value in "good faith" is dependent upon the selection and application of methodologies in a consistent manner, including specific key inputs and assumptions. Rule 2a-5 provides that a board may designate the fund's third-party valuation advisor to perform fair value determinations, subject to ongoing board oversight and compliance with certain conditions.

Houlihan Lokey has a successful track record and robust experience in assisting its clients—including private equity, venture capital, hedge fund, sovereign wealth fund, and family office—with ongoing portfolio valuation work and fund-related transactions.

Importantly for Rule 2a-5, Houlihan Lokey has a dedicated team of professionals with expertise in the valuation of biotech and other life sciences investments (in addition to more traditional healthcare sectors) that ensures fair value determination in good faith.

Our expertise in the sector uniquely allows us to be able to "speak the language" with deal teams and finance professionals at our fund clients (as well as their auditors), alleviating information asymmetries and streamlining the valuation process. Additionally, live insights from our leading Healthcare M&A practice allow our team to have a pulse on the market and deeper understanding of private deal dynamics.

RELATED HOULIHAN LOKEY HEALTHCARE AND LIFE SCIENCES SERVICES

Thus far, we have focused on the valuation of fund investments for financial reporting purposes. Houlihan Lokey also provides independent financial, tax, and strategic advice throughout the deal continuum, from the earliest stages of market and target evaluation through deal exit.

Below is a summary of how we can help at each stage of a fund's investment lifecycle.

Exhibit 8

Identification → Evaluation → Execution → Post-Close → Realization

Sourcing

- Coordinate with Financial Sponsors Group and Corporate Finance to identify potential opportunities
- Provide insights on key industry- and sector-specific risk areas

Pre-LOI

- Provide thoughts on EBITDA, working capital, and cash flows
- Identify potential tax exposures
- Review dataroom
- Develop high-level view of profitability and other trends
- Provide guidance on optimal deal structure
- Flexible fee arrangement to "roll" any fees and expenses to next phase or opportunity
- Provide fair market value and other pre-deal valuation advisory services

Exclusivity

- Evaluate quality of earnings, working capital, and cash flows
- Identify potential risks and opportunities associated with the transaction
- Identify debt-like commitments and any off-balance-sheet liabilities
- Assist deal team and other advisors by sharing information and providing support where needed
- Review audit work papers to ensure validity of financial data
- Assist with providing lenders access to our report and relevant supporting documentation

Closing Support

- Review and provide comments on purchase agreement
- Evaluate and assist in establishing appropriate working capital metrics
- Review closing schedules and closing balance sheet accounts
- Assist with purchase price allocation and opening balance sheet accounting
- Provide assistance with post-merger integration and accounting support as needed
- Provide annual goodwill and intangible asset impairment testing

Realization

- Provide seller due diligence services
- Identify tax structuring opportunities and post-close structure tax efficiencies
- Identify and preserve existing valuable tax attributes

CONTACT

To receive further information or discuss Houlihan Lokey's Healthcare and Life Sciences Services, please contact our Portfolio Valuation team member listed below.

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