DELANCEY STREET PARTNERS

Outsourced Pharmaceutical Services
2024 Year in Review

Executive Summary

Delancey Street Partners is pleased to present our Outsourced Pharmaceutical Services Sector Review for the year ended 2024. While the sector experienced modest improvements in 2024, it faced persistent challenges throughout the year. Key headwinds included reductions in R&D spending, regulatory changes, constrained biotech funding, and challenges in addressing the impending patent cliff. These factors collectively impacted public stock performance in 2024. In addition, public companies and sponsor-backed strategics primarily adopted a measured approach to acquisitions, focusing on expanding capabilities and client bases through targeted bolt-on acquisitions. Meanwhile, privately held companies continued to attract interest from private equity acquirors. Despite challenges in 2024, the sector is supported by strong long-term fundamentals, and analysts are anticipating a recovery in 2025.

Topics of Discussion

- DSP Spotlight Trend: Managing the Pending Patent Cliff
- Current Industry Trends
- Review of Public Company Stock Performance
- Notable M&A activity

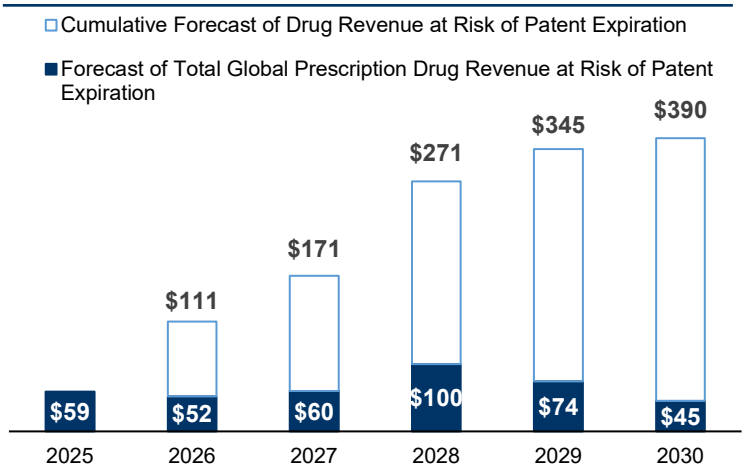
DSP Spotlight Trend: Managing the Pending Patent Cliff

The impending patent cliff in the pharmaceutical industry presents both significant challenges and potential opportunities for the outsourced pharmaceutical services sector. Through 2030, more than 190 patented products are expected to lose exclusivity, putting an estimated $390 billion in revenue at risk due to patent expirations.[1][2] The industry has navigated patent cliffs before, most recently in 2016, when approximately $100 billion in revenue was at risk due to loss of exclusivity ("LOE").[2]

A key distinction between the current patent cliff and previous ones stems from the number of biologic drugs losing patent protection. While earlier waves of patent expirations primarily affected small-molecule medicines, the higher proportion of biologics in this instance could alter the pace and extent of sales declines, as biosimilars tend to capture market share more slowly than traditional generics. Unlike small molecule drugs, which are less costly to develop and easier to manufacture as low-cost generics, biologics are larger, more complex structures which present challenges when developing and manufacturing lower cost biosimilar alternatives.[2] Consequently, biologics face less intense competition after patent expiration, compared to small molecules and generics.

Facing the impending patent cliff, pharmaceutical companies have adopted various strategies to mitigate potential revenue declines, including reprioritizing R&D spending to focus on later stage drug candidates, pursuing M&A, and entering licensing agreements.

Global Revenue at Risk from LOE *($ in billions)*[2]



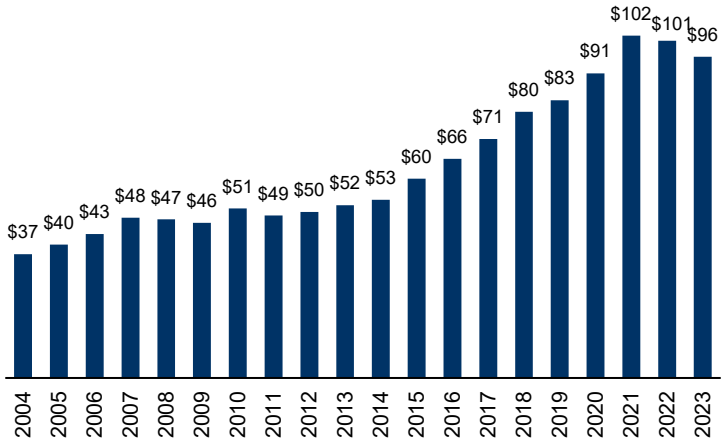
Select U.S. Patent Expirations[3]

Brand Name	Company	U.S. LOE	2023 Sales *($ in billions)*
KEYTRUDA (pembrolizumab)	MERCK	2028	$25.0
EYLEA (aflibercept) Injection	REGENERON / BAYER	2024	$12.7
Eliquis apixaban	Pfizer / Bristol Myers Squibb	2028	$12.2
Stelara (ustekinumab)	Johnson&Johnson	2025	$10.9
Revlimid (lenalidomide)	Bristol Myers Squibb	2025	$6.1
Total			**$66.9**

DSP Spotlight Trend: Managing the Pending Patent Cliff *(cont'd)*

As key players in the pharmaceutical supply chain, outsourced service providers—including Clinical Research Organizations ("CROs"), Contract Development & Manufacturing Organizations ("CDMOs"), and Commercialization Services companies—stand to benefit from the strategies drug developers adopt in response to the patent cliff. However, the impact will vary; while some service providers may see increased demand, particularly those focused on late-stage development and commercialization, others specializing in early-stage research could face shifting priorities. As pharmaceutical companies emphasize late-stage assets to offset revenue declines, service providers aligned with these areas will be best positioned to capture growth opportunities.

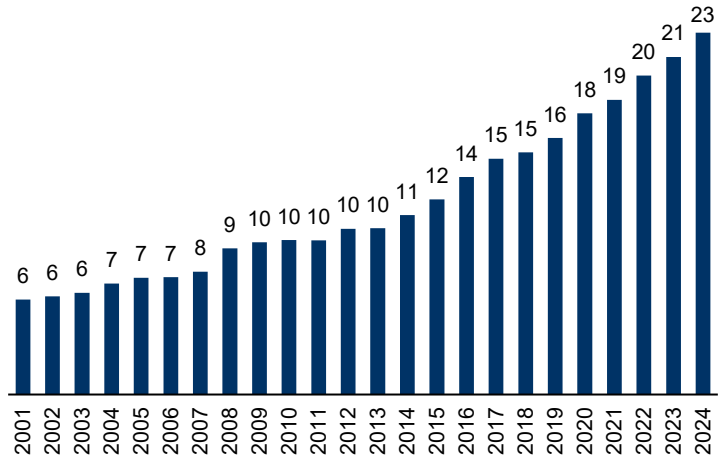
R&D Spend by U.S. Pharma Companies *($ in billions)*[6]



Clinical Research Organizations

As pharmaceutical companies prioritize late-stage assets and lifecycle management to offset the patent cliff, demand for certain CROs with specialized expertise is expected to grow. Expiring patents are pushing drug developers to accelerate late-stage pipeline development, optimize existing portfolios, and expand into specialized and complex therapies. With the high costs of in-house development and reductions in R&D budgets, companies are increasingly turning to CROs with specific expertise in late-stage clinical trials, regulatory submissions, and commercialization support—particularly in high-value areas such as rare diseases, orphan drugs, and complex biologics. CROs that can demonstrate strength in these areas, along with capabilities in real-world evidence generation and market access strategies, will be best positioned to capture this growing demand.[4]

Total R&D Pipeline by Drug Count *(in 000s)*[7]



In addition, revenue pressures from patent expirations are prompting pharmaceutical companies to rethink their broader R&D strategies. While total R&D spending declined in 2023, the number of drugs in development has steadily increased, reflecting a shift toward high-value, specialized therapies that can sustain pricing power and mitigate losses from generic and biosimilar competition.[4] Moreover, companies are leveraging AI and data analytics to streamline drug discovery, accelerate clinical development, and optimize trial design—allowing them to bring differentiated therapies to market more efficiently despite financial constraints.

As pharmaceutical companies adjust their portfolios and seek to maximize the value of late-stage assets, their reliance on select CROs is growing. The need for expertise in complex trials, regulatory navigation, and commercialization support has intensified, particularly for CROs that can help drug developers bring high-value therapies to market faster and more efficiently. These emerging technologies, coupled with the industry's strategic pivot toward innovation and lifecycle management, are reinforcing demand for CROs that can support these evolving priorities in the face of the patent cliff.[5]

Contract Development & Manufacturing Organizations

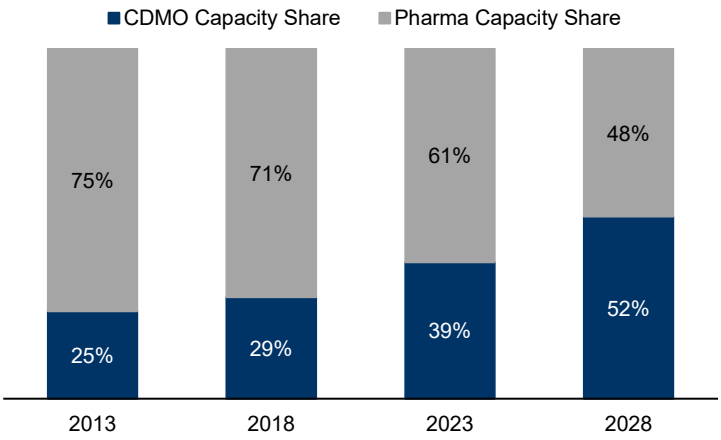
As pharmaceutical companies navigate the patent cliff, the need to rapidly scale production of late-stage and commercialized assets to offset revenue losses from expiring patents is driving increased reliance on CDMOs with specialized capabilities. In particular, CDMOs with expertise in biologic drug manufacturing, sterile injectables, and complex formulation technologies are well-positioned to benefit, as biologics account for a growing share of drugs losing exclusivity. Additionally, demand is rising for CDMOs with end-to-end capabilities—including late-stage process development, commercial-scale production, and regulatory compliance support—to help pharmaceutical companies bring new therapies to market faster and more efficiently.

DSP Spotlight Trend: Managing the Pending Patent Cliff *(cont'd)*

At the same time, as biosimilars emerge to compete with off-patent biologics, CDMOs with advanced cell culture, protein expression, and purification technologies are gaining market share. By 2028, CDMOs are projected to increase their share of total mammalian pharmaceutical manufacturing capacity to 52%, up from 25% in 2013, underscoring their expanding role in both innovative and follow-on biologic drug production.[8]

As pharmaceutical companies face revenue pressures from loss of exclusivity, they are increasingly relying on CDMOs that offer flexible, scalable manufacturing solutions to support late-stage and commercialized assets. The ability to rapidly pivot production, meet regulatory requirements, and optimize costs has become essential in the post-patent landscape. As a result, CDMOs that have expanded capacity and invested in advanced biomanufacturing and specialized formulation technologies—such as Lonza and Thermo Fisher Scientific, both of which acquired or opened new facilities in 2024—are emerging as key strategic partners in helping pharmaceutical companies navigate biosimilar competition and sustain long-term growth.

Market Share of Mammalian Manufacturing Capacity[8]



Commercialization Services

The impending patent cliff offers significant opportunities for commercialization services firms, as pharmaceutical developers work to quickly scale marketing efforts to launch new products and offset revenue declines from off-patent drugs. These firms play a pivotal role in executing successful product launches by engaging salesforces, patients, healthcare providers, payers, and pharmacies to drive effective market penetration.

As pharmaceutical companies increasingly focus on specialized therapeutic areas, commercialization firms provide essential expertise to reach smaller, more targeted patient populations. These specialized drugs often require tailored strategies to engage healthcare providers, who may need advanced scientific information to fully understand complex treatments. This growing demand for expertise highlights the critical role of commercialization firms in connecting innovative therapies with the patients who need them most.[9]

M&A and Licensing Activity

To mitigate potential revenue losses from the patent cliff, pharmaceutical companies are increasingly acquiring firms with promising late-stage assets to accelerate the development of specialized pipelines. Notably, in 2023, Pfizer acquired Seagen for $43.0 billion to enhance its oncology portfolio, while Amgen completed a $27.8 billion acquisition of Horizon Therapeutics to strengthen its focus on rare inflammatory diseases. In parallel, companies are turning to strategic licensing agreements to expand their pipelines without the high costs and integration challenges of full acquisitions. Licensing deals provide access to differentiated therapies that can sustain pricing power and offset losses from generic and biosimilar competition, particularly in high-value areas like oncology, rare diseases, and biologics. As companies integrate complex drugs into their portfolios—whether through acquisitions or licensing—they are increasingly relying on the expertise of outsourced pharmaceutical service providers. Developers are seeking partners that offer specialized knowledge and a comprehensive, integrated 'one-stop-shop' approach spanning research, development, manufacturing, and commercialization.[10]

In response, outsourced pharmaceutical services providers are pursuing acquisitions to enhance their infrastructure and technical capabilities required to support the development and commercialization of next-generation drugs. Key strategic priorities include expanding laboratory and manufacturing capacity, as well as deepening expertise in specialized areas.[9] M&A activity has also extended to pharmaceutical companies acquiring outsourced service providers directly to secure critical research expertise and manufacturing capacity for high-demand segments.

DSP Spotlight Trend: Managing the Pending Patent Cliff *(cont'd)*

One example of this is the $16.5 billion take-private acquisition of Catalent by Novo Holdings. As part of this transaction, Novo Holdings intends to sell three Catalent fill-finish sites and related assets to Novo Nordisk (CPH:NOVO), in which it holds a controlling interest. This acquisition enhances Novo Nordisk's in-house manufacturing capabilities and provides greater control over critical development and production processes in the rapidly growing GLP-1 market.

What This Means

The impending patent cliff presents both challenges and opportunities for the outsourced pharmaceutical services sector. While pharmaceutical companies are temporarily cutting discretionary R&D and marketing budgets, sustained investment in R&D to expand pipelines remains essential for offsetting revenue losses from drugs nearing patent expiration. Additionally, the ongoing development of complex biologic drugs continues to drive demand for the specialized expertise of outsourced service providers.

Pharmaceutical companies are increasingly expected to rely on outsourced providers to accelerate time-to-market for new drugs, enabling faster customer access and mitigating revenue declines. This dynamic highlights the critical role of outsourced services in supporting strategic goals, with demand projected to grow steadily through 2025 and 2026.

Select 2024 M&A Transactions

Date	Target	Acquiror	Value *($ in millions)*
Dec-24	Catalent	novo holdings	$16,500
Oct-24	Vacaville, CA Manufacturing Site	Lonza	$1,200
Sept-24	Mapi Research Trust	ICON	Undisclosed
Sept-24	Infinity Laboratories	eurofins	Undisclosed
Jul-24	4CLINICS	P95 Ampersand	Undisclosed
Jun-24	AESCULAP, TETEC	OCTANE Lonza	Undisclosed
May-24	Algorics	PRECISION for medicine	Undisclosed
May-24	OCT CLINICAL	palleos healthcare	Undisclosed
Apr-24	SCANBUR Research Models	charles river	Undisclosed
Feb-24	ClinicalRM	ICON	Undisclosed

Service providers with global reach, specialized expertise, and integrated end-to-end offerings are poised to lead the sector. Industry consolidation is also expected, as providers work to establish fully integrated pharmaceutical service platforms that can adapt to the evolving needs of pharmaceutical clients in an increasingly competitive and complex market landscape.

Current Industry Trends

In 2024, the pharmaceutical and biotech industry continued to face headwinds stemming from economic uncertainty and changes in the regulatory environment, which posed obstacles for both drug developers and outsourced pharma services companies. Despite a positive long-term sector outlook, the industry faced distinctive challenges in 2024:

Reductions in R&D Spending

Major pharmaceutical companies have reduced discretionary R&D expenditures in response to negative pricing pressures, upcoming patent expirations, and the challenges introduced by the Inflation Reduction Act. In 2020 and 2021, R&D spending increased by 9.8% and 12.3%, respectively, driven by heightened demand for COVID-related products. However, as the pandemic has subsided, demand for COVID drugs has plateaued, leaving pharmaceutical companies with excess manufacturing capacity and inflated R&D and marketing budgets.[6] Reflecting this shift, R&D spending declined by 4.8% from 2022 to 2023.

Additionally, the reduction in revenue from Medicare Part B and D price negotiations, which were implemented following the passage of the Inflation Reduction Act in 2022, has further pressured pharmaceutical companies to scale back expenses.

Biotech Funding Challenges

As highlighted in the *2023 Year-in-Review*, the biotech funding environment faced challenges due to higher interest rates, recessionary concerns, and an unfavorable capital market environment. While this downturn stabilized in 2024, aggregate deal values remained lower. In response to these subdued capital market conditions, many small-to-mid-sized biotech companies have prioritized spending on high-probability-of-success drugs and reduced outsourcing to minimize cash burn.[11] As a result, CROs and CDMOs that heavily rely on smaller biotech clients have seen a decline in project volumes.

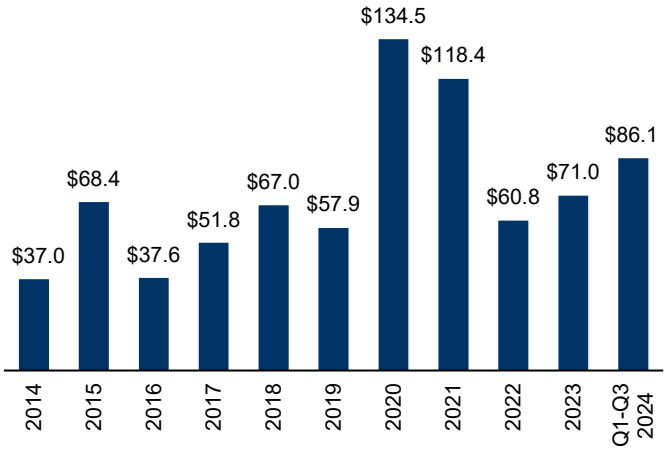
Adaptation and Opportunities

Despite ongoing challenges, significant growth opportunities remain in highly-specialized segments, including biologics, advanced therapeutics, and niche segments such as orphan drugs. Companies that emphasize flexibility, innovation, and robust regulatory compliance are better positioned to navigate these challenges. Furthermore, pharmaceutical companies are increasingly partnering with outsourced service providers that offer end-to-end, tech-enabled solutions to streamline R&D and manufacturing processes, thereby improving drug development efficiency.[12]

Pharma Services M&A Activity

Although M&A activity in the outsourced pharmaceutical services sector declined in 2023 and 2024, it is expected to rebound in 2025. Strategic and sponsor-backed strategic buyers are increasingly focused on acquiring specialized capabilities in niche segments to accelerate time-to-market.[10] Moreover, many private equity buyers who established platforms between 2019 and 2021 are expected to explore exit opportunities to return capital to limited partners, contributing to increased deal volumes in the coming years.

Biopharma Funding Environment *($ in billions)*[3]



Recent Market Commentary[3]

> We're seeing across every pharmaceutical company in the world a pullback in R&D spending, reordering of their pipelines, and softer demand than we had anticipated, and what we had seen previously. That seems to have stabilized, but we don't see any indications that's going to improve anytime soon. We're assuming that paradigm will persist into 2025.
>
> charles river — **– James Foster, CEO**
>
> ***JPMorgan Healthcare Conference, 1/14/2025***

> The FDA is playing their part. I think about 50 drugs got approved last year, and 55 in the years before. So, there is a pull through on drugs and innovation, and companies are willing to spend, given the patent cliffs that they see coming through. Companies are prioritizing late-stage development and late-stage trials to our benefit. We are seeing increased innovation and development in the technology that's able to be applied to trials now.
>
> In terms of clinical trial starts, we're seeing some uptick in that space, particularly around Phase II, which we think bodes well for progress into Phase III over subsequent years.
>
> ICON — **– Steve Cutler, CEO**
>
> ***JPMorgan Healthcare Conference, 1/14/2025***

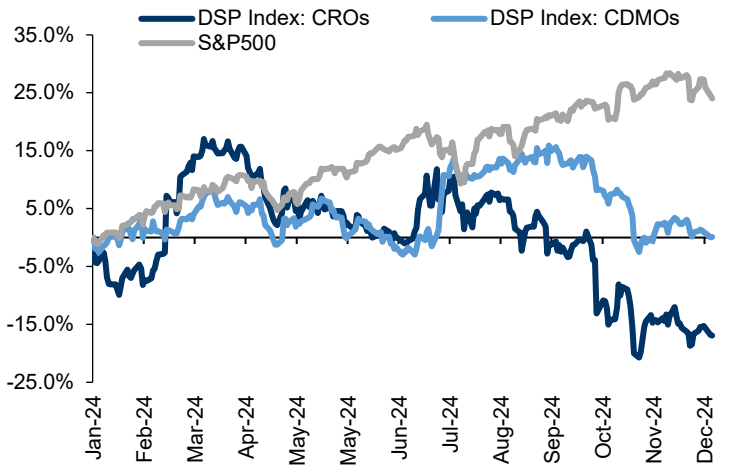
Review of Public Company Stock Performance

In this year's report, we have removed Catalent from our CDMO compset due to their take-private transaction and their subsequent delisting.

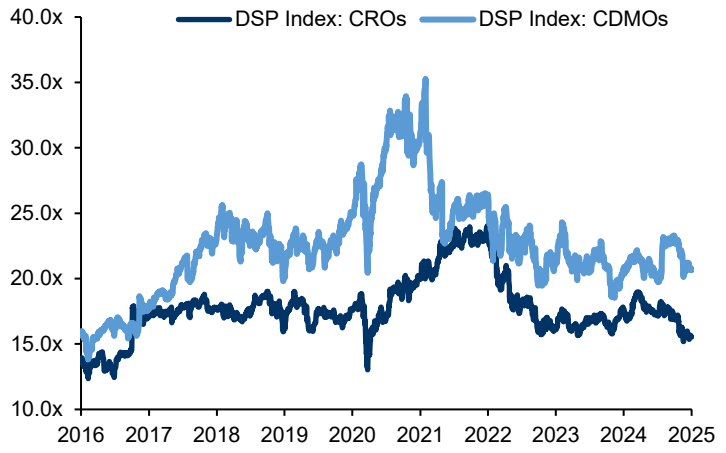
In 2024, CDMO stocks outperformed CROs, with an average annual return of -4.2% compared to -20.2%. Both CDMOs and CROs unperformed the S&P 500, which had an annual return of 28.4%. Key factors influencing performance of the sector included: (i) decreases in pharma R&D budgets; (ii) reduced demand from biotech clients due to funding constraints; and (iii) an uncertain economic environment, highlighted by a continued high-interest rate environment.

EV / EBITDA multiples for CDMOs experienced fluctuations throughout the year but finished the year in line with 2023. CRO's valuations declined slightly in 2024, primarily due to their financial underperformance. Valuations for both subsectors have returned to trading at near pre-pandemic levels after receding from valuation peaks in 2020 and 2021. Despite valuation headwinds that have persisted since 2023, investors remain confident in the favorable long-term industry fundamentals and anticipate positive market growth, which is expected to lead to a recovery in 2025.

One Year Stock Performance[13][14][15]



Historical EV / LTM EBITDA Multiple[13][14][15]



Comparable Company Analysis: Outsourced Pharma Services[13]

Company	Price 12/31/2024	30 Day % Change	YTD % Change	Market Value ($mm)	Enterprise Value ($mm)	2024E Gross % Margin	2024E EBITDA % Margin	EV / Revenue LTM	EV / Revenue 2024E	EV / Revenue 2025P	EV / EBITDA LTM	EV / EBITDA 2024E	EV / EBITDA 2025P	P / E 2024P
CROs														
Charles River Laboratories (NYSE:CRL)	$184.6	(7.3%)	(21.9%)	$9,439.7	$12,037.7	34.4%	24.6%	3.0x	3.0x	3.0x	10.4x	12.1x	12.2x	18.1x
Fortrea (NASDAQ:FTRE)	18.7	(11.4%)	(46.6%)	1,672.9	2,774.4	20.4%	8.2%	0.9x	1.0x	1.0x	49.2x	12.5x	9.8x	35.8x
ICON (NASDAQ:ICLR)	209.7	(0.3%)	(25.9%)	17,313.5	20,234.4	29.7%	20.9%	2.4x	2.4x	2.4x	11.7x	11.7x	11.3x	15.0x
IQVIA (NYSE:IQV)	196.5	(2.2%)	(15.1%)	35,666.6	47,906.6	35.3%	24.0%	3.1x	3.1x	3.0x	16.1x	13.0x	12.4x	17.7x
Medpace (NASDAQ:MEDP)	332.2	(2.5%)	8.4%	10,303.0	9,798.0	30.4%	21.9%	4.7x	4.7x	4.4x	20.4x	21.3x	20.6x	27.3x
Overall Group Mean		**(4.7%)**	**(20.2%)**	**$14,879.1**	**$18,550.2**	**30.0%**	**19.9%**	**2.8x**	**2.8x**	**2.8x**	**21.6x**	**14.1x**	**13.3x**	**22.8x**
Overall Group Median		**(2.5%)**	**(21.9%)**	**10,303.0**	**12,037.7**	**30.4%**	**21.9%**	**3.0x**	**3.0x**	**3.0x**	**16.1x**	**12.5x**	**12.2x**	**18.1x**
Overall Group Max		**(0.3%)**	**8.4%**	**35,666.6**	**47,906.6**	**35.3%**	**24.6%**	**4.7x**	**4.7x**	**4.4x**	**49.2x**	**21.3x**	**20.6x**	**35.8x**
Overall Group Min		**(11.4%)**	**(46.6%)**	**$1,672.9**	**$2,774.4**	**20.4%**	**8.2%**	**0.9x**	**1.0x**	**1.0x**	**10.4x**	**11.7x**	**9.8x**	**15.0x**
CDMOs														
EUROAPI (EPA:EAPI)	$3.0	(31.2%)	(52.9%)	$284.0	$479.5	18.3%	6.0%	0.5x	0.5x	0.5x	1.6x	8.0x	6.4x	N.M.
Lonza Group (SWX:LONN)	591.3	(1.0%)	40.8%	42,705.4	44,695.6	35.8%	28.2%	5.9x	5.9x	5.3x	21.0x	21.0x	18.4x	36.8x
Samsung Biologics (KRX:207940)	642.4	(7.9%)	8.8%	45,722.9	45,809.7	48.0%	41.2%	14.1x	13.8x	13.0x	31.8x	33.6x	30.8x	61.3x
Siegfried Holding (SWX:SFZN)	1,088.1	(13.9%)	6.6%	4,667.2	5,065.2	25.6%	21.8%	3.5x	3.4x	3.3x	16.9x	15.6x	14.4x	27.0x
Thermo Fisher Scientific (NYSE:TMO)	520.2	(1.8%)	(2.0%)	198,988.1	227,963.1	42.0%	25.3%	5.4x	5.3x	5.1x	20.8x	21.1x	19.8x	24.0x
WuXi AppTec (SHSE:603259)	7.5	8.9%	(26.5%)	21,777.4	20,776.5	40.6%	35.1%	3.9x	3.8x	3.5x	11.7x	10.8x	9.6x	15.5x
Overall Group Mean		**(7.8%)**	**(4.2%)**	**$52,357.5**	**$57,464.9**	**35.0%**	**26.3%**	**5.5x**	**5.5x**	**5.1x**	**17.3x**	**18.3x**	**16.6x**	**32.9x**
Overall Group Median		**(4.8%)**	**2.3%**	**32,241.4**	**32,736.0**	**38.2%**	**26.7%**	**4.6x**	**4.6x**	**4.3x**	**18.8x**	**18.3x**	**16.4x**	**27.0x**
Overall Group Max		**8.9%**	**40.8%**	**198,988.1**	**227,963.1**	**48.0%**	**41.2%**	**14.1x**	**13.8x**	**13.0x**	**31.8x**	**33.6x**	**30.8x**	**61.3x**
Overall Group Min		**(31.2%)**	**(52.9%)**	**$284.0**	**$479.5**	**18.3%**	**6.0%**	**0.5x**	**0.5x**	**0.5x**	**1.6x**	**8.0x**	**6.4x**	**15.5x**

Stock Performance Commentary: CROs

charles river

Stats

2024E Sales:	$4,033mm
2024E EBITDA:	$993mm
EBITDA %:	24.6%

- **Stock return of -21.9%**
- Charles River Laboratories reported a revenue decline of 1.6% YoY in Q3 2024; the company reported YoY revenue growth of 12.0% and 5.9% in the Manufacturing and Research Models and Services segments, respectively, offset by a 7.4% decline in the Discovery and Safety Assessment ("DSA") segment
- Management notes ongoing headwinds are expected to persist into 2025, particularly in the DSA segment, until the pricing environment and global biopharma demand improves
- Management indicated biotech funding improved in 2024, and demand from biopharma clients was showing signs of stabilization in Q3 2024

Fortrea

Stats

2024E Sales:	$2,702mm
2024E EBITDA:	$221mm
EBITDA %:	8.2%

- **Stock return of -46.6%**
- Fortrea reported a revenue decline of 5.4% YoY in Q3 2024; Management cited the decline in revenue is attributable to lower new business awards in the early-stage development period and a mix of later stage and longer duration studies in the company's portfolio
- Fotrea's backlog increased to $7.6 billion, a 6.2% YoY increase; Additionally, the book-to-bill ratio has improved to 1.23x for Q3, indicating strong future prospects and an improving pipeline moving into 2025
- Management underscored the potential for margin enhancement as the company exits the vast majority of the transition service agreement services related to the spin-off from LabCorp by year-end

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ICON

Stats

2024E Sales:	$8,280mm
2024E EBITDA:	$1,734mm
EBITDA %:	20.9%

- **Stock return of -25.9%**
- ICON reported a revenue decline of 1.2% YoY in Q3 2024; Management cited a decline in revenue from its two top customers and slow decision-making in the biotech segment, which resulted in award delays
- Total backlog increased by 9.4% YoY; Management attributed this to strength in new awards from laboratory and early-phase services
- ICON has implemented plans to improve processes and reduce costs across the organization that will yield results in Q4 2024 and more fully materialize in 2025; Additionally, Management expects revenue growth in the low to mid-single-digit range for the full-year 2025

IQVIA

Stats

2024E Sales:	$15,377mm
2024E EBITDA:	$3,685mm
EBITDA %:	24.0%

- **Stock return of -15.1%**
- IQVIA reported revenue growth of 4.3% YoY in Q3 2024; Management notes accelerated growth of 8.0% YoY in Q3 2024 for all Technology & Analytics Solutions sub-segments, the R&D solutions segment was up 1.9% YoY
- IQVIA reduced its full-year revenue and EBITDA guidance due to delays in two separate fast-burning mega-trials; Management expects these projects to resume in 2025
- Adjusted EBITDA increased 5.7% YoY in Q3 2024; Management attributed this to growth in revenue and ongoing cost management practices, resulting in a 30bps margin expansion
- IQVIA's backlog reached a new record of $31.1 billion in Q3 2024, an 8.0% increase YoY

MEDPACE

Stats

2024E Sales:	$2,107mm
2024E EBITDA:	$461mm
EBITDA %:	21.9%

- **Stock return of 8.4%**
- Medpace reported revenue growth of 8.3% YoY in Q3 2024; Management cited net new business awards were $533.3 million, representing a 12.7% YoY decrease, and an ending backlog of $2.9 billion, an 8.8% increase YoY
- 96.0% of Medpace's customers were small to mid-sized pharma as of Q3 2024; This customer mix minimized exposure to R&D cost-cutting conducted by large pharma in 2024; Additionally, the company specializes in therapeutics trials which are often complex, specialized, and command premium pricing
- On a constant currency basis in Q3 2024, EBITDA rose 31.7% to $118.8 million (22.3% of revenue), compared to $90.2 million (18.3% of revenue) in Q3 2023
- Medpace updated full-year 2024 guidance, estimating a 10.8% to 12.9% increase in revenue and a 24.1% to 29.7% increase in EBITDA compared to the full-year 2023
- Medpace stated that it is poised to convert $1.6 billion of the current backlog into revenue within the next twelve months, equating to a 55.8% conversion rate

Stock Performance Commentary: CDMOs

EUROAPI

Stats

2024E Sales:	$995mm
2024E EBITDA:	$60mm
EBITDA %:	6.0%

- **Stock return of -52.9%**
- EUROAPI reported a revenue decline of 9.6% YoY in H1 2024; Management attributed the revenue decline to a significant reduction in the demand for the manufacturing services of Sanofi, further amplified by the suspension of shipments and production at the Brindisi site in March; CDMO sales decreased 13.3% YoY in H1 2024
- The company implemented a restructuring plan including discontinuing 13 unprofitable APIs, divesting in two sites, reducing headcount by 550 employees, and investing $367.0 to $420.0 million in capex to growth initiatives
- Management expects full-year net sales to decrease 8.0% to 11.0% and EBITDA to decrease 4.0% to 7.0% from 2023; Management attributed the reduction in EBITDA to transformation and restructuring costs

Lonza

Stats

2024E Sales:	$7,555mm
2024E EBITDA:	$2,127mm
EBITDA %:	28.2%

- **Stock return of 40.8%**
- Lonza reported revenue growth of 1.8% YoY for H1 2024; Management noted revenue growth of 7.3% YoY for H1 2024 in the Biosciences segment, 10.0% YoY revenue growth for H1 in the Cell and Gene segment excluding the termination of the Codiak contract, which offset challenges in the Hard Empty Capsules segment
- Lonza invested $653.0 million in capex primarily in the Biologics division in H1 2024; 65.0% of the capex has been allocated for large growth projects
- Management expects the acquisition of the Genetech site in Vacaville from Roche, executed in March, to double Lonza's global mammalian network and increase the company's presence in the United States

SAMSUNG BIOLOGICS

Stats

2024E Sales:	$3,309mm
2024E EBITDA:	$1,365mm
EBITDA %:	41.2%

- **Stock return of 8.8%**
- Samsung Biologics reported consolidated revenue growth of 15.0% YoY for Q3 2024; Management cited strong performance across all business segments
- Samsung Biologics signed a company record mega-deal of $1.2 billion, and secured 17 of the top 20 major pharmaceutical companies as clients as of Q3 2024
- Samsung Biologics raised annual revenue guidance to 15.0% to 20.0% growth, attributable to the successful ramp-up of Plant 4 and a favorable FX environment

Siegfried

Stats

2024E Sales:	$1,486mm
2024E EBITDA:	$324mm
EBITDA %:	21.8%

- **Stock return of 6.6%**
- Siegfried reported revenue growth of 3.5% YoY for 1H 2024; Management noted the Drug Substances division grew 4.3% YoY for H1 2024, and the Drug Products division grew by 2.0% YoY for H1 2024
- Siegfried reported EBITDA margins increasing by 60 bps YoY to 21.3% for 1H 2024
- Management estimates low-single-digit percentage sales growth for 2024, with a core EBITDA margin at or above the level of 2023

ThermoFisher SCIENTIFIC

Stats

2024E Sales:	$42,790mm
2024E EBITDA:	$10,822mm
EBITDA %:	25.3%

- **Stock return of -2.0%**
- Thermo Fisher Scientific reported a revenue increase of 0.2% YoY for Q3 2024; Management noted growth was inhibited by headwinds from pandemic-related revenue and a difficult macro environment
- Thermo Fisher Scientific reported a margin decrease of 20bps compared to Q3 2023; Management attributed this to an unfavorable product mix that was offset slightly by cost management strategies
- Management reiterated full-year 2024 revenue guidance of a 3.0% decline from 2023

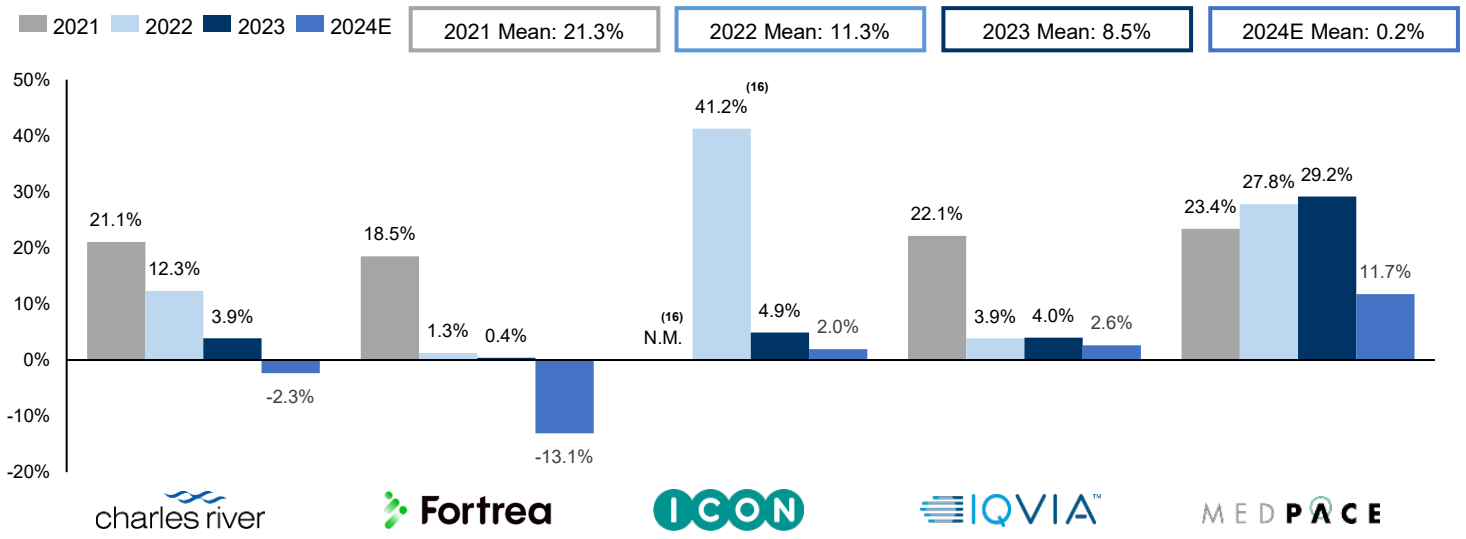
药明康德 WuXi AppTec

Stats

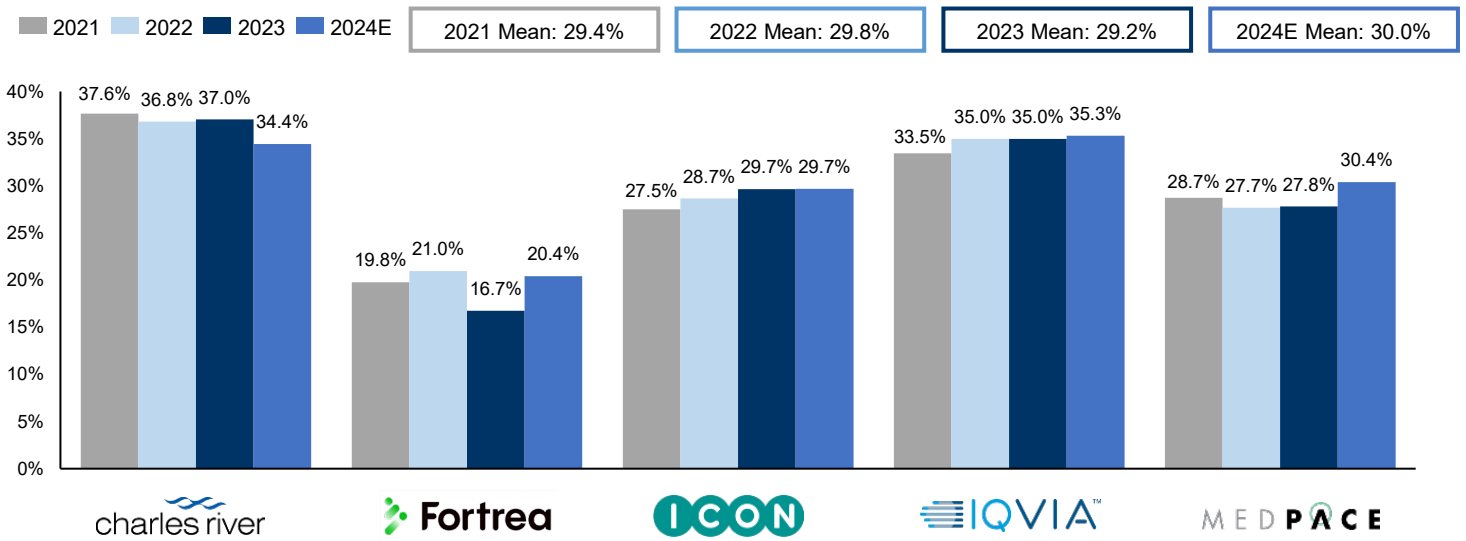
2024E Sales:	$5,459mm
2024E EBITDA:	$1,918mm
EBITDA %:	35.1%

- **Stock return of -26.5%**
- Excluding COVID-19 commercial projects, WuXi AppTec reported YoY revenue growth of 7.7% for 1H 2024; Management cited a growth in the number of projects from 613 to 742; Additionally, the company reported a backlog of $20.1 billion
- WuXi Apptec reported 1H 2024 YoY revenue growth of 27.5% in North America, a decline of 27.0% for Europe, a decline of 20.9% for China, and a 28.9% growth for the rest of the world; Management noted a decline in COVID revenue for Europe and constraints in biotech funding for China
- Adjusted EBITDA declined 6.5% YoY for 1H 2024; Management attributed this to decreased plant utilization due to the conclusion of COVID-related projects
- Excluding COVID-19 commercial projects, late-phase and commercial manufacturing revenue increased YoY by 11.7% for 1H 2024; late phase and commercial manufacturing represents 40.0% of WuXi Apptec's total portfolio, serving as a key growth driver heading into 2025

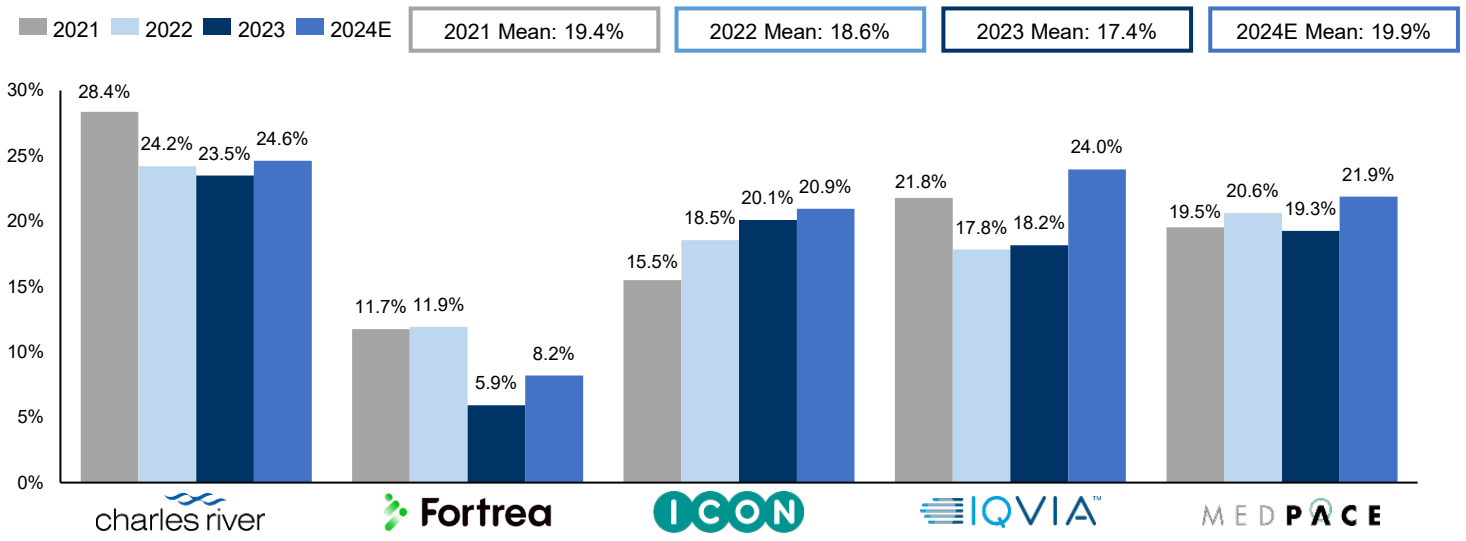
Revenue Growth of CROs[13][16]



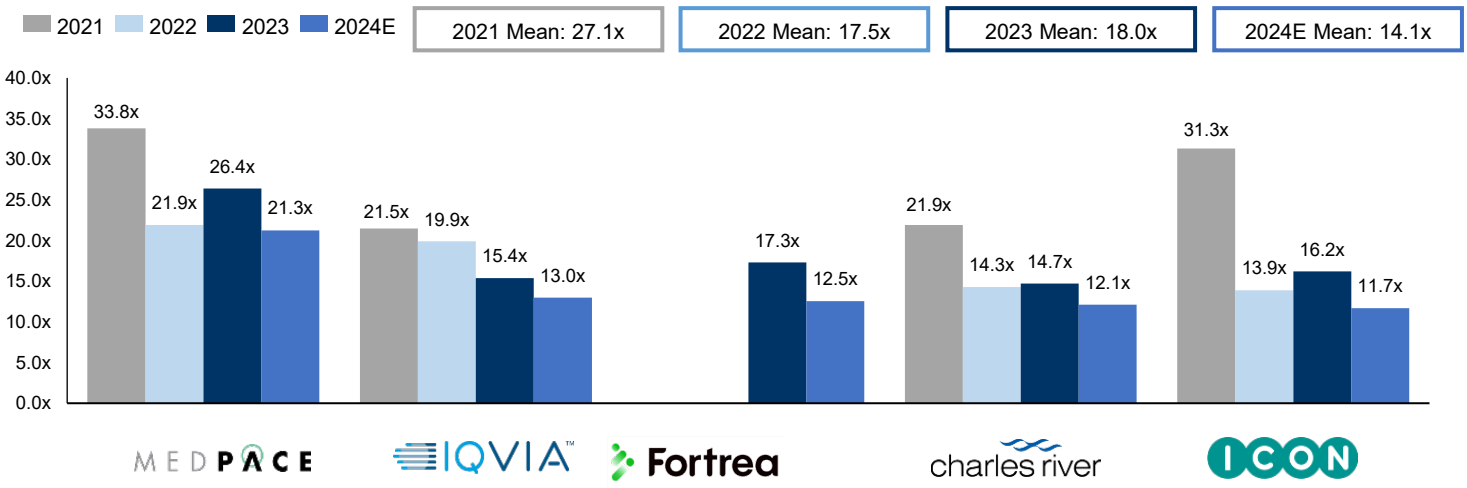
Gross Profit Margins of CROs[13]



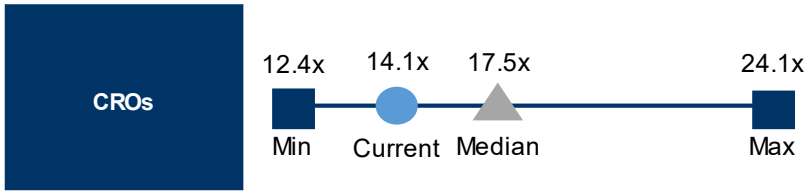
EBITDA Margins of CROs[13]



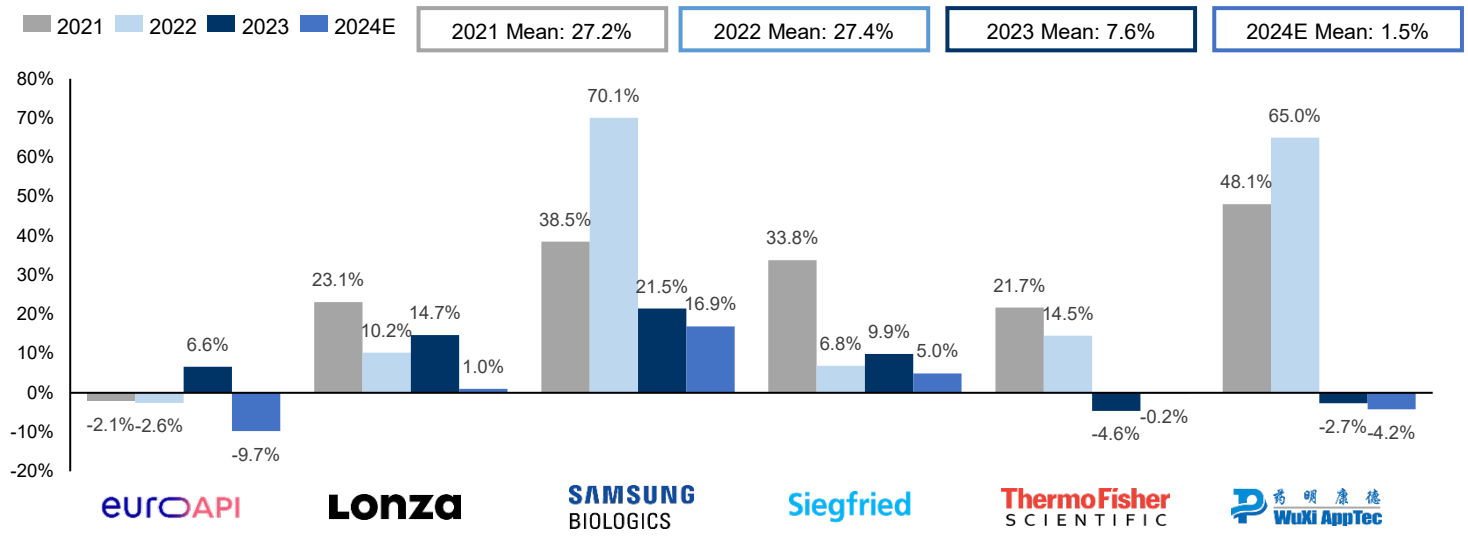
EV / EBITDA of CROs[13]



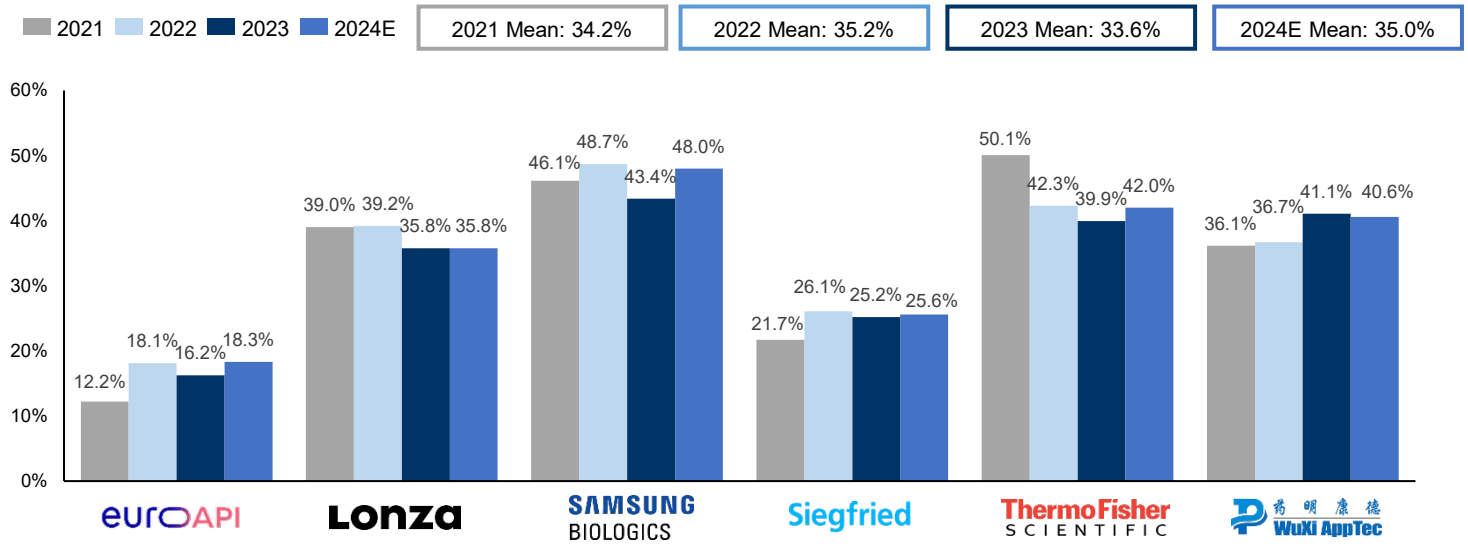
CRO 5-Year Trading Statistics (Median EV / LTM EBITDA)[13][14]



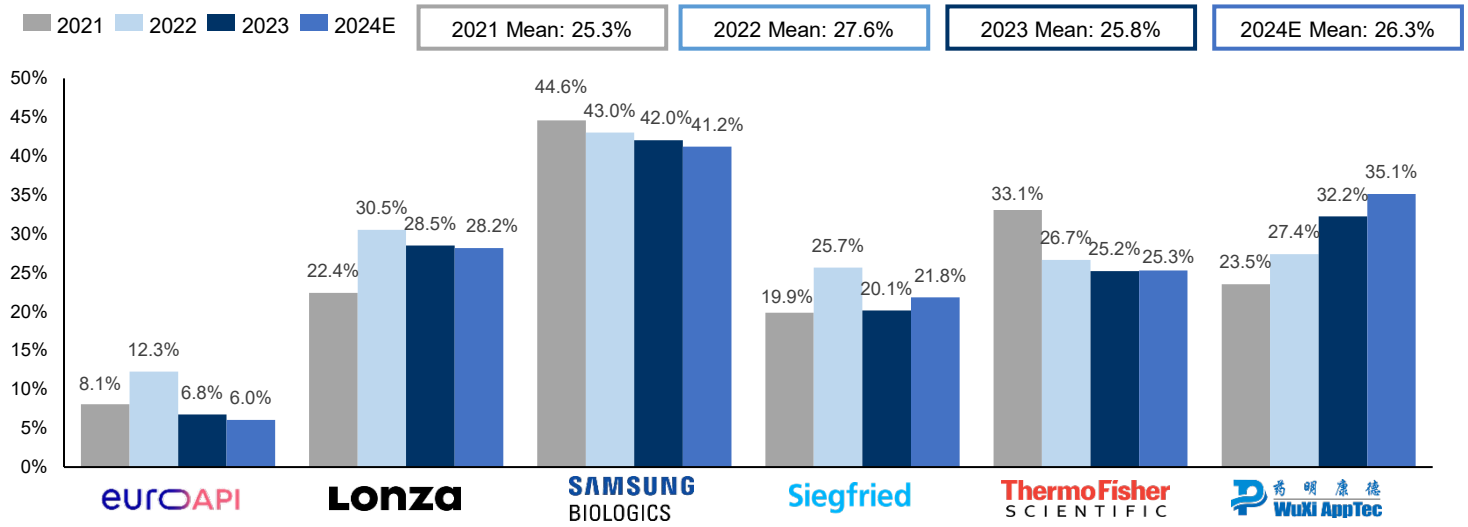
Revenue Growth of CDMOs[13]



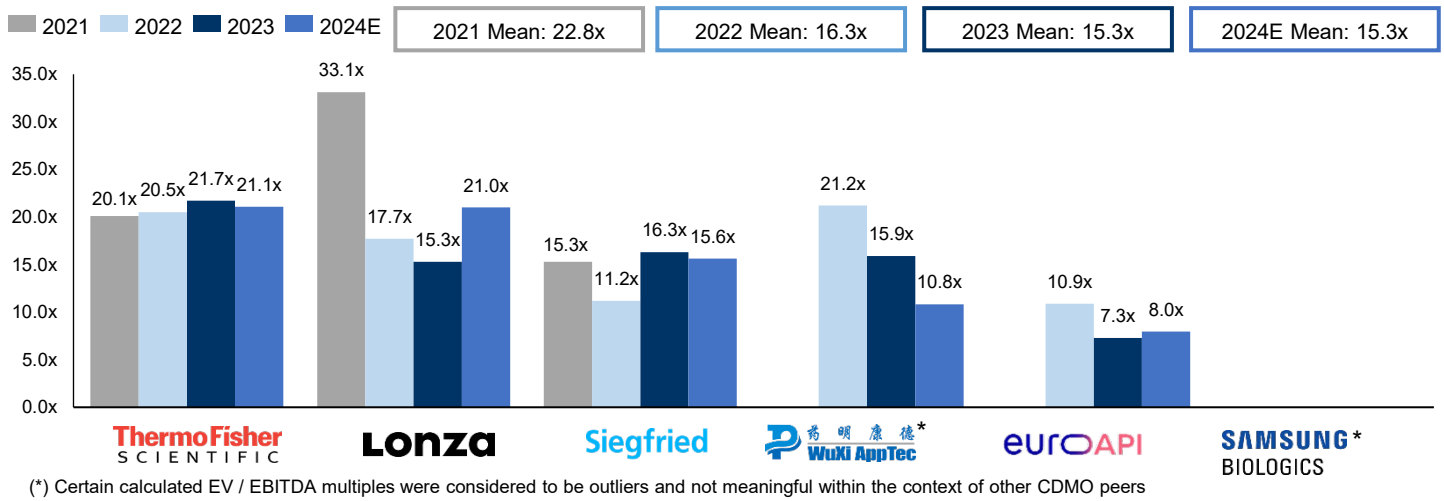
Gross Profit Margins of CDMOs[13]



EBITDA Margins of CDMOs[13]

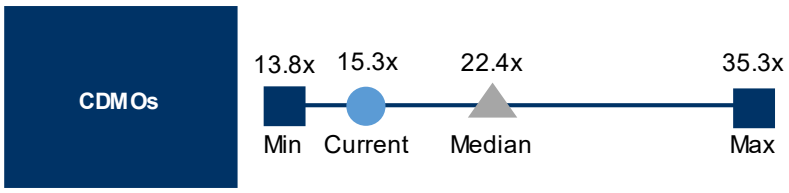


EV / EBITDA of CDMOs[13][17][18]



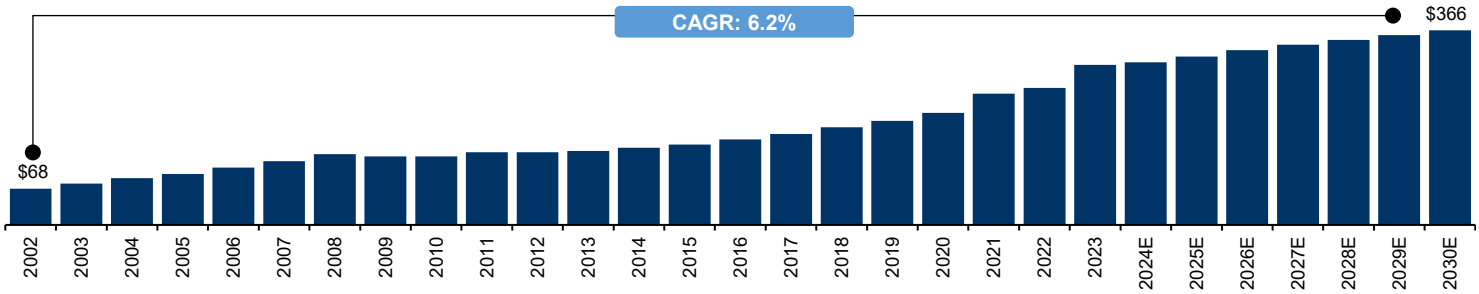
(*) Certain calculated EV / EBITDA multiples were considered to be outliers and not meaningful within the context of other CDMO peers

CDMO 5-Year Trading Statistics (Median EV / LTM EBITDA)[13][15]

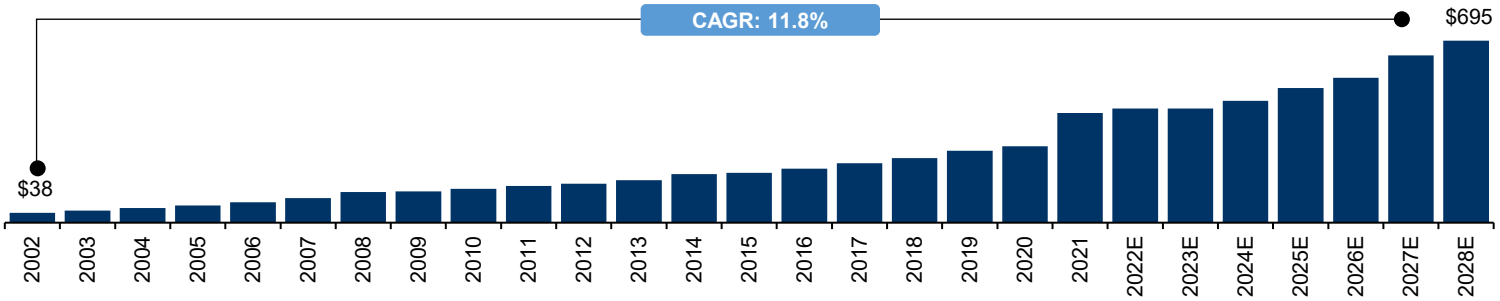


Industry Data

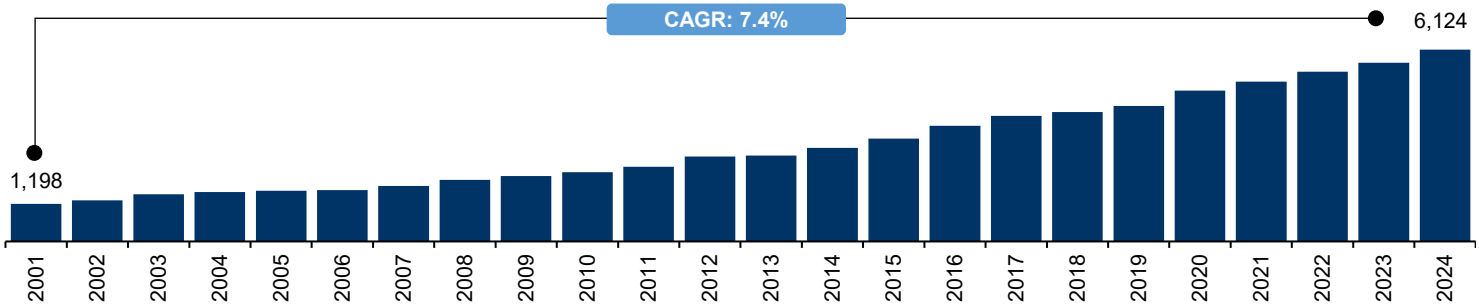
Drug R&D Spend by the Top 500 Pharma and Biotech Companies (*$ in billions*)[19]



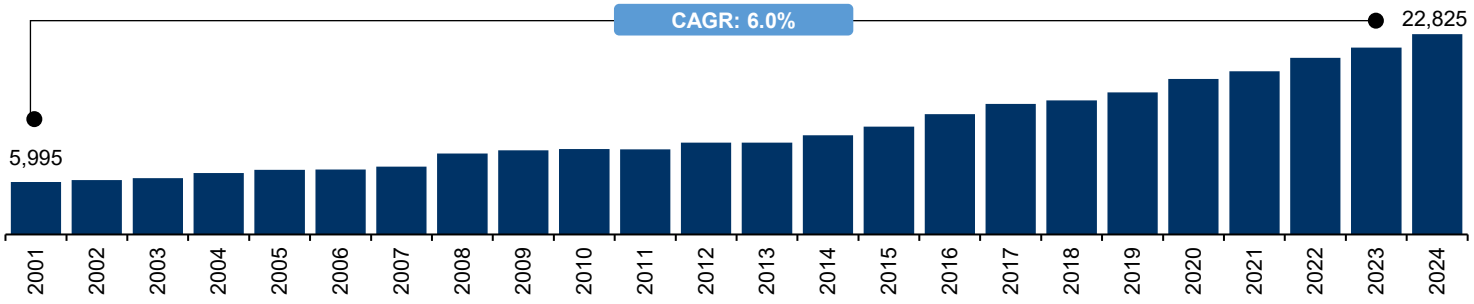
Biotech Drug Sales (*$ in billions*)[20]



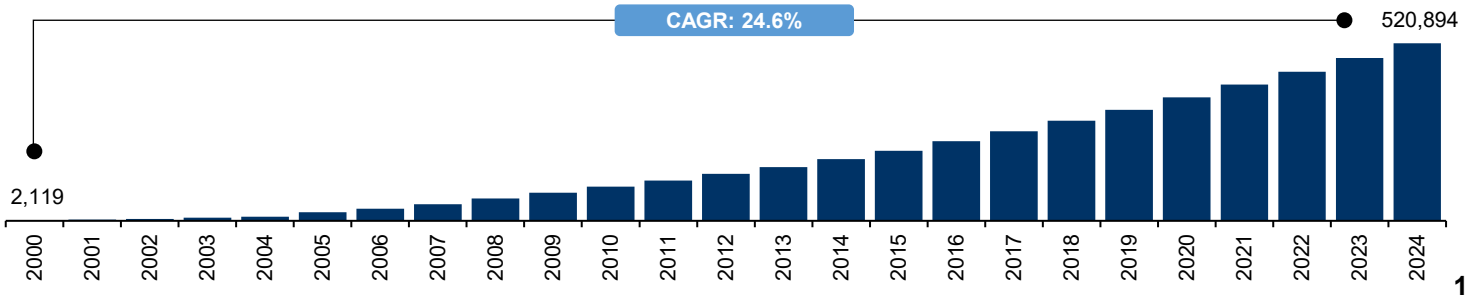
Number of Pharma Companies with Active Pipelines[7]



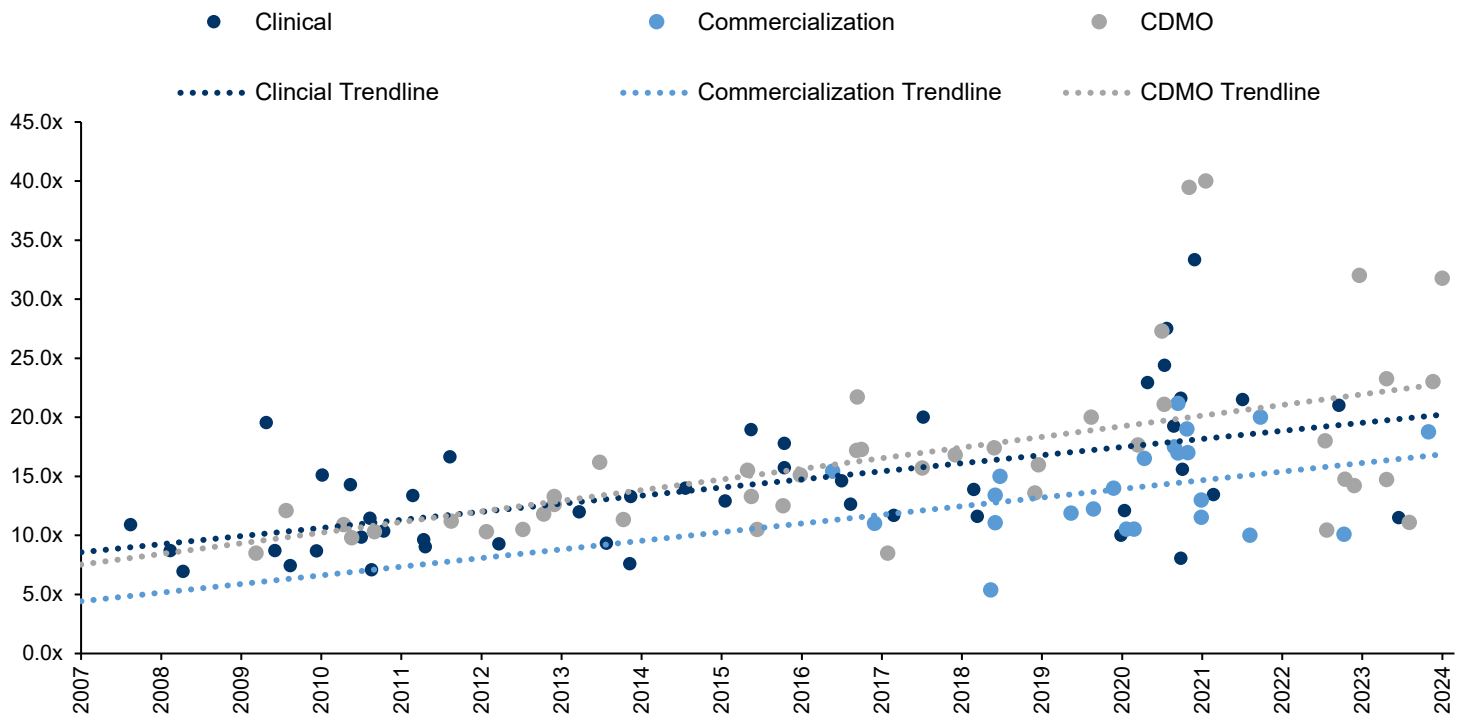
Number of Drugs in Global R&D Pipeline[7]



Number of Registered Studies[21]



M&A Transactions: Regression Analysis[13][22]



All Outsourced Pharma Services (114 Transactions)		
Metric	Mean	Median
EV	$1,857.3	$432.0
EV / LTM Revenue	3.1x	2.3x
EV / LTM EBITDA	15.2x	13.4x
LTM Revenue	$1,579.3	$205.6
LTM EBITDA	$124.0	$37.0

Clinical Research Services (47 Transactions)		
Metric	Mean	Median
EV	$2,236.1	$345.0
EV / LTM Revenue	2.4x	2.1x
EV / LTM EBITDA	14.2x	12.9x
LTM Revenue	$2,584.7	$117.8
LTM EBITDA	$158.0	$20.0

Commercialization Services (23 Transactions)		
Metric	Mean	Median
EV	$1,020.0	$360.0
EV / LTM Revenue	2.6x	2.4x
EV / LTM EBITDA	14.0x	13.4x
LTM Revenue	$440.6	$32.1
LTM EBITDA	$82.8	$22.1

CDMOs (44 Transactions)		
Metric	Mean	Median
EV	$1,861.5	$772.7
EV / LTM Revenue	4.2x	3.4x
EV / LTM EBITDA	16.6x	14.7x
LTM Revenue	$632.5	$283.5
LTM EBITDA	$107.3	$54.1

Notable M&A Activity[13]

In the past few years, Outsourced Pharmaceutical Services companies have actively used M&A to acquire additional capabilities and specialized expertise. Multiple mega mergers, acquisitions, and take-privates have occurred leading to consolidation in the industry. Several noteworthy transactions included:

2024: Novo Holdings take private of Catalent

2023: Permira take private of Ergomed

2023: Consortium of Private Equity take private of Syneos Health

2023: Labcorp completes spinoff of its CRO operations into an independent, publicly traded company, Fortrea

2021: Clayton, Dubilier & Rice's acquisition of UDG Healthcare

2021: EQT Private Equity and Goldman Sachs Asset Management's acquisition of Parexel

2021: ICON's acquisition of PRA Health Sciences

2021: Thermo Fisher's acquisition of PPD

2020: Arsenal Capital Partners' acquisition of Cello Health (Pharma Value Demonstration)

2020: Clayton, Dubilier & Rice's acquisition of Huntsworth

2017: Merger of INC Research and inVentiv Health, forming Syneos Health

2017: Pamplona take private of PAREXEL

2016: Merger of Quintiles and IMS Health, forming IQVIA

Representative transactions that were made by each of the large public and private Outsourced Pharmaceutical Services companies in 2024 are detailed below:

Company Name	# of 2024 Transactions	Description
Catalent	-	• Announced on February 5, 2024, Catalent would be taken private by Novo Holdings for all-cash offer of $16.5 billion • No identified disclosed acquisitions in 2024
charles river	1	• **Research models business of SCANBUR** – Provider of animal models used in preclinical research
euroAPI	-	• No identified disclosed acquisitions in 2024
Fortrea	-	• No identified disclosed acquisitions in 2024
ICON	3	• **HumanFirst ($13.3 million)** – Digital measurement tools for clinical trials • **ClinicalRM** – Research, regulatory, and clinical services for biologics, drugs, and devices • **Mapi Group –** Real-world evidence, strategic regulatory services, pharmacovigilance, and market access services

Notable M&A Activity *(cont'd)*[13]

Company Name	# of 2024 Transactions	Description
IQVIA	-	• No identified disclosed acquisitions in 2024
Lonza	1	• **TTEC & Aesculap Biologics (B. Braun) –** Clinical-stage technology platform for the development of antibody-drug conjugates
MEDPACE	-	• No identified disclosed acquisitions in 2024
patheon ThermoFisher SCIENTIFIC	-	• No identified disclosed acquisitions in 2024 related to ThermoFisher's CDMO business
PPD ThermoFisher SCIENTIFIC	-	• No identified disclosed acquisitions in 2024 related to ThermoFisher's CRO business
SAMSUNG BIOLOGICS	-	• No identified disclosed acquisitions in 2024
Siegfried	1	• **Curia Global's Wisconsin facility –** Manufacturing site specializing in early-phase development
药明康德 WuXi AppTec	-	• No identified disclosed acquisitions in 2024

charles river

"We look objectively every quarter at what is the best use of our capital. We've been saying for years that our preference would almost always be strategic acquisitions. It has sort of made the company. We've done about 70 deals in the last two decades. Almost all the sellers are private equity firms, so, that means everything is for sale at some point. There are several things that we'd like to do that are right down the alley, nothing particularly new that would enhance our service offering and expand our service offering for our clients. I think that strategy is critically important. We try to engage with the private equity firms early, right after they buy these companies. We get together with them two or three times a year and ask to be the first call that they make."

- ***James Foster, Chairman, CEO, and President***
Evercore ISI HealthCONx Conference, 12/4/24

Fortrea

"We've started to categorize the industry into three groups. There are pharmaceutical firms who are very successful and growing rapidly and spending rapidly on R&D. Then we have two other groups. One is the flat to declining group and the other ones have slower growth or they're flat. Both of those other groups are doing some level of restructuring. A huge amount depends on who you're exposed to. There are certain pharmaceutical firms where R&D is accelerating. The general backdrop seems solid on the biotech front. We've said that in the prior quarters, and the recent September funding numbers have indicated that as well. So, it seems solid, not spectacular, but solid. I think that firms can execute against this if their commercial organizations manage well."

- ***Thomas Pike, Chairman and CEO***
Q3 2024 Earnings Call, 11/8/24

ICON

"While there are certain large pharma customers in our portfolio that remain challenged in their spending outlooks for next year, our initial view on growth outside of these specific customers is positive and indicative of our overall development spend growth. While recovery in the biotech segment has been slower than we anticipated relative to the start of this year, large opportunities have been increasingly moving into the pipeline."

"I think we see the large pharma market as net positive; 3 to 5% growth. We believe we can benefit from that, particularly, with the strategic partnerships that we've been successful in winning over the last couple of years. Overall, we see it as a medium to long-term positive, but we have a transition period to work through over the next two to three quarters."

- ***Steve Cutler, CEO and Director***
Q3 2024 Earnings Call, 10/24/24

IQVIA

"We did see a slowdown in pharma discretionary spending in the back half of last year and into this year. We expect a mirror image to last year where we'll see higher growth at the end of the year; last year was higher growth at the beginning of the year. The reason that we saw that slowdown is two-fold. One, you had pharma companies coming off of fairly robust spending in the COVID period. As revenue started to slow down, you saw them pulling in the reins on discretionary spending. The interest rate environment and the IRA contributed to a slowdown in spending. If you look at the underlying drivers of demand, one of the biggest being new product approvals by the FDA, which was at a record level last year. This year is certainly trending towards the historic averages. There's a lot of pent-up demand among our pharma customers to do work to support the commercialization of their drug."

- ***Ronald Bruehlman, Executive VP & CFO***
UBS Global Healthcare Conference 11/13/24

Lonza

"We are looking at a very attractive and continuously growing underlying market. It's probably $1.6 trillion, growing 6.0%-7.0% year-over-year. However, there is a growth increment on top of that, which comes from a continuing reallocation of manufacturing activities from pharmaceutical companies to reliable leading CDMOs like Lonza. The capacity in Biologics manufacturing activities with CDMOs in 2019 was one-third and two-thirds with pharmaceutical companies. That is changing, inverting over the next years until 2029 to achieve 55% with CDMOs, and only 45% with Big Pharma. This trend will continue. As you can see, there's still enough room to also benefit over many more years from this growth increment on top of what the pharmaceutical market itself offers to us.

- ***Wolfgang Wienand, CEO***
Investor Meeting, 12/12/24

Siegfried

"We can grow internally through organic growth and through investment in-house, but we have also the opportunity to be very successful through accretive M&A activities. All of the assets which we have bought over the last 10 years are contributing strongly to our growth. We are reviewing many potential acquisitions on a yearly basis. We are really bold with what we are doing. It needs to have a distinct purpose, which is fulfilling our needs for the future."

- ***Marcel Imwinkelried, CEO***
Capital Markets Day, 10/24/24

ThermoFisher SCIENTIFIC

"We have a very active M&A pipeline. We know what we would buy. We have plenty of targets, and there's plenty of engagement. I think the volatility that has happened creates an interesting time because there's more unknowns. So, I think there's more likelihood to see some transactions happen. At the same point in time, I think valuations have reset in a way that even with a large premium, you can get to very attractive returns. So, I'm optimistic about what the M&A environment is going to be going forward. We're only going to do M&A because it's going to make the company stronger. So many of the deals we've done, there's some level of context that has allowed a seller to be comfortable that this was the right time to sell, and I think this is an environment that looks a lot like that."

- ***Marc Casper, CEO***
Wolfe Healthcare Conference, 11/19/24

Select New Private Equity Backed Platforms

In addition to strategic M&A activity, a number of privately-held outsourced pharmaceutical services companies attracted first-time institutional capital from private equity investors resulting in the formation of new platforms. The following are examples of companies that received private equity capital for the first time in 2024:

Financial Sponsor	Portfolio Company	Classification	Business Description
1315 CAPITAL	EXPERIC	CDMO	Provider of development and manufacturing services across a range of packaging and finished dose modalities. The company specializes in dry powder inhalation products
1315 CAPITAL	SciSafe Services	CDMO	Provider of specialized storage and cold chain management solutions for biopharma and pharmaceutical companies
Ampersand / GHO CAPITAL	AVID BIOSERVICES	CDMO	Provider of clinical and commercial manufacturing services including drug substance manufacturing, bulk packaging, release and stability testing, and regulatory submissions support
ACP	Afton Scientific	CDMO	Provider of sterile manufacturing, packaging and labeling, and micro lab services specializing in small-batch filling of injectables
Armira	G&L Healthcare Advisors	Clinical	Provider of regulatory, quality, and compliance services to pharmaceutical and biotech clients
Arsenal	endpoint / NEOVANCE / Fortrea	Clinical	Endpoint is a provider of randomization and trial supply management solutions. Neovance provides patient access services for complex medical therapies. These two businesses will be combined to form one platform
Audax Group	resonant Clinical Solutions	Clinical	Provider of clinical trial and laboratory supply chain services to pharmaceutical and biotech companies
SYNERLAB / BLUE WOLF	Seven Facilities Recipharm / EQT	CDMO	Manufacturing facilities specializing in the production of oral solid, semi-solid, and liquid dosage pharmaceutical products
EIR PARTNERS	PharmaForce IQ	Commercialization	Developer of a software platform offering omnichannel marketing solutions for pharmaceutical clients
EQT	CluePoints Intelligent Statistical Monitoring	Clinical	Provider of a cloud-based software platform for risk-based quality management and data quality oversight in clinical trials
GAUGE CAPITAL	ROVIA	Clinical	Clinical research site management organization providing patient enrollment services for clinical trials across a range of therapeutic areas
GI PARTNERS	eClinical Powered by elluminate	Clinical	Developer of a data management platform designed to increase the efficiency of clinical trials

Select New Private Equity Backed Platforms *(cont'd)*

Financial Sponsor	Portfolio Company	Classification	Business Description
Great Point	LYO CONTRACT GmbH	CDMO	Manufacturer of aseptic liquid filling, lyophilization, and packaging services
InTandem CAPITAL PARTNERS	ADAMS CLINICAL	Clinical	Clinical site network specializing in the research of the central nervous system
Oakley Capital	PLG ProductLifeGroup	Clinical / Commercialization	Provider of development, regulatory affairs, market access, pharmacovigilance, and quality management services to life sciences clients
Riverside	CRIO clinicalresearch.io	Clinical	Developer of a data management platform for clinical research
VISTRIA	Ora	Clinical	Full-service CRO specializing in the research of ophthalmic drugs
TPG GROWTH	K2 MEDICAL RESEARCH	Clinical	Clinical trial site platform specializing in central nervous system trials
WINDROSE HEALTH INVESTORS	SubjectWell	Commercialization	Direct patient access marketplace connecting patients with known conditions to relevant clinical trials and market-ready treatments

M&A Transaction Case Study – Catalent Taken Private by Novo Holdings

- On February 5, 2024, Catalent, Inc. announced that it entered into a definitive agreement to be acquired by Novo Holdings
- The offer price of $63.50 per share, representing a 16.5% premium over the closing price of $54.50 as of February 2, 2024, implied a total enterprise value of $16.5 billion
- The directors of Catalent's board unanimously recommended that shareholders vote in favor of the transaction
- The transaction closed on December 18, 2024

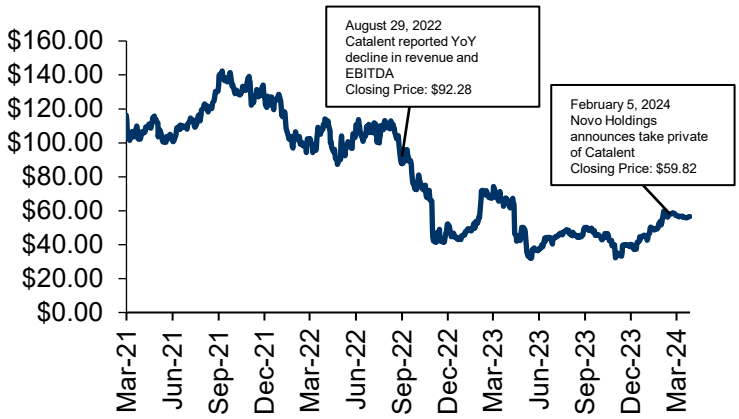
Situation Overview

- Catalent established manufacturing partnerships with leading developers of COVID-19 vaccines and treatments, benefitting from the unprecedented pharmaceutical manufacturing demand created. This resulted in significant growth in revenue, EBTIDA, and margin
- After 2021, the company began to face declines in revenue, EBITDA, and margins marked by significant decreases in demand for COVID-19 treatments, supply chain difficulties, and productivity issues in key facilities
- In August 2023, Catalent and Elliot Investment Management, an activist investor, reached a deal to add four new directors to Catalent's board with the purpose of conducting a fulsome strategic review. This strategic review would include the exploration of a sale
- In connection with the transaction, Novo Holdings will sell three of Catalent's fill-finish sites to Novo Nordisk, where it holds a controlling interest, for $11.0 billion, expanding Novo Nordisk's GLP-1 manufacturing capacity. The remaining 50 sites will continue to operate as a standalone CDMO

Transaction Overview *(as of 12/18/2024 Close)*

Target	Catalent
Buyer	novo
Transaction Structure	All-Cash
Share Price ($)	$63.50
Premium (%)	16.5%
Enterprise Value	$16.5 billion
LTM September 2023 EBITDA Multiple[23]	30.7x
2024E (FYE June) EBITDA Multiple	22.9x
Announcement Date	February 5, 2024
Completion Date	December 18, 2024

Catalent (NYSE:CTLT) Stock Price Performance



Novo Holdings

- Novo Holdings owns a controlling interest in Novo Nordisk and serves as the investment arm of the Novo Nordisk Foundation
- As of year-end 2023, Novo Holdings had $165.0 billion assets under management
- With a team of over 178 professionals, Novo Holdings has made more than 300 investments in the life sciences industry since 1999. Novo Holdings focuses on subsectors such as biotech, bio industrials, and medtech

Catalent Overview

- Catalent is a provider of development and manufacturing solutions for drugs, protein-based biologics, cell and gene therapies, vaccines, and consumer health products
- The company is headquartered in Somerset, NJ and employs 18,000+ people across 50+ global sites
- Catalent assists in accelerating 1,500 partner programs and launches over 150 new products every year. The company supplies ~70 billion doses of 8,000 products annually
- LTM September 2023 EBITDA: $538.0 million
- 2024E (FYE June) EBITDA: $720.0 million

M&A Transaction Case Study – Avid Bioservices Taken Private by Ampersand and GHO

- On November 7, 2024, Avid Bioservices announced that it entered into a definitive agreement to be acquired by Ampersand Capital Partners and GHO Capital
- The offer price of $12.50 per share, representing a 13.8% premium over the closing price of $10.98 as of November 6, 2024, implied a total enterprise value of $1.1 billion
- The directors of Avid Bioservices' board unanimously recommend that shareholders vote in favor of the transaction
- The transaction is expected to be completed during the first quarter of 2025

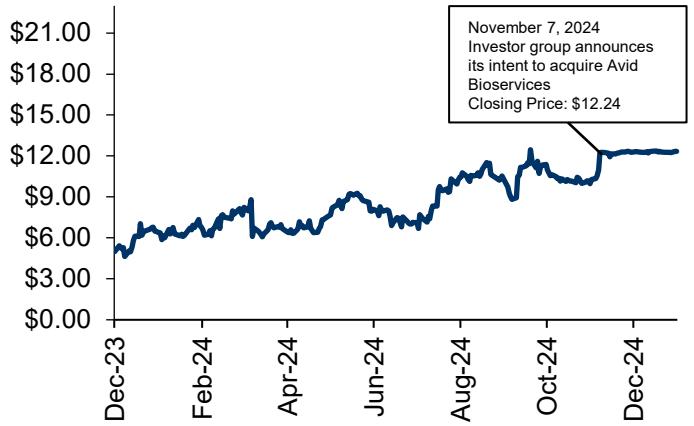
Transaction Overview *(as of 11/7/2024 Announcement)*

Target	AVID BIOSERVICES
Buyer	Ampersand / GHO CAPITAL
Transaction Structure	All-Cash
Share Price ($)	$12.50
Premium (%)	13.8%
Enterprise Value	$1.1 billion
LTM July 2024 EBITDA Multiple[23]	N.M.
Announcement Date	November 7, 2024
Expected Completion	Q1 2025

Strategic Rationale for the Transaction

- Since 2021, Avid Bioservices has invested heavily into expanding existing facilities and opening a new facility, resulting in diversified capabilities and increasing annual revenue capacity by $500 million annually
- The investor group is attracted to Avid Bioservices' presence in high growth markets in both clinical and commercial stages
- The investor group's industry expertise positions it to capitalize fully on Avid Bioservices' expanded production capacity and growing backlog, which was developed under the current management team, as the company enters its next phase of growth

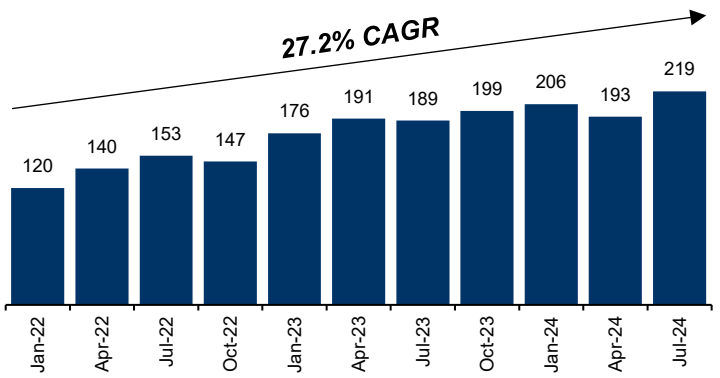
Avid Bioservices (NASDAQ:CDMO) Stock Price Performance



Avid Bioservices Overview

- Avid Bioservices is a CDMO offering commercial manufacturing for biologics providing manufacturing, bulk packaging, release and stability testing, and regulatory support for biotech and biopharma companies
- The company has continually grown its backlog resulting in a CAGR of 27.2% from January 2022 and July 2024
- Avid Bioservices is headquartered in Orange County, CA and employs approximately 370 people across two campuses
- LTM July 2024 Revenue: $142.4 million
- LTM July 2024 EBITDA: ($7.6) million

Quarterly Backlog *($ in millions)*



Select M&A Transactions

Date	Target (Seller)	Acquiror	Target Business Description
12/18/24	Catalent (NYSE: CTLT)	Novo Holdings (Novo Nordisk)	Provider of drug development, drug delivery, and clinical manufacturing services
12/4/24	Amendola Communications	Supreme Optimization (Trinity Hunt Partners)	Provider of public relations and marketing services
11/20/24	Exscientia (NASDAQ:EXAI)	Recursion Pharmaceuticals (NASDAQGS:RXRX)	Technology-driven drug design and development services
11/14/24	IDEA Pharma	SAI MedPartners (Northlane Capital Partners)	Global healthcare strategy firm specializing in early-phase positioning, clinical development, and commercialization
11/13/24	Formulary Insights	Petauri Health (Oak Hill Capital Management)	Provider of market research, market access, and strategy development
11/12/24	SciSafe	1315 Capital	Provider of specialized storage and cold chain management solutions for biopharma and pharmaceutical companies
11/11/24	Public Health Expertise	Cencora, Inc. (NYSE:COR)	Consulting firm specializing in regulatory affairs, pharmacovigilance, exploitant status services, and development consulting
11/6/24	Avid Bioservices (NASDAQ: CDMO)	Ampersand Management; GHO Capital Partners	Provider of clinical and commercial manufacturing services for biopharma companies including drug substance manufacturing, bulk packaging, release and stability testing, and regulatory submissions support
11/5/24	HealthTech BioActives (The Riverside Company)	Miura Partners	Manufacturing and distribution of flavonoids and active forms of B12
11/4/24	Trial Management Associates	Headlands Research (KKR)	Multi-site clinical research organization
11/2/24	Evotec Drug Substance (Nasdaq:EXAI)	Monacum Partners	Chemical API manufacturing site located in Germany
10/28/24	Clinical diagnostics operations in Spain of SYNLAB (HMSE:SYAB)	Eurofins Scientific SE (ENXTPA:ERF)	Clinical diagnostic operations
10/17/24	Clinical Services Business of Avantor (NYSE: AVTR)	Audax Management Company	Provider of clinical trial and laboratory supply chain services to pharmaceutical and biotech companies
10/17/24	Red Nucleus (The Riverside Company)	Thomas H. Lee Partners	End-to-end product life cycle services including learning & development, scientific services & advisory, medical and scientific communications, and market access
10/16/24	Integrated Clinical Trial Services	Eximia Research Network (VSS)	Research clinic based in Des Moines, Iowa
10/14/24	Oral Solids Development & Small-Scale Manufacturing Facility (Catalent)	Ardena Holding (GHO Capital Partners)	Manufacturing facility specializing in downstream late-stage and small-scale oral drug products
10/8/24	Life Pack Labs (MedVentures Health)	Canyon Laboratories	Design and development of temperature-controlled packaging
10/7/24	IntiQua	ProductLife Group (Oakley Group)	Consulting firm specializing in pharmacometrics, statistical modeling & simulation, and quantitative systems pharmacology
10/3/24	Nextep	ProductLife Group (Oakley Group)	Consulting firm specializing in market access and public relations
10/1/24	Roche's Vacaville Manufacturing Facility	Lonzo Group (SWX:LONN)	Manufacturing facility specializing in biologics
10/1/24	Helios Global Group	Telemos Capital	Full-service healthcare communications and market access services including medical affairs, commercial and market access, and medical and scientific communications services
9/30/24	Rovia Clinical Research	Gauge Capital	Clinical research site management organization providing patient enrollment services for clinical trials across a range of therapeutic areas
9/28/24	Sequia Biotech Consulting (Riverside Partners)	Syner-G BioPharma Group (Riverside Partners)	CDMO specializing in product development, technology transfer, and commercial manufacturing. This transaction represents the combination of two Riverside Partners platforms
9/27/24	Jubilee Clinical Research	Pinnacle Clinical Research (LongueVue Capital)	Multi-therapeutic site based in Las Vegas, Nevada specializing in complex trials targeting metabolic diseases and cardiovascular diseases
9/26/24	Small Molecule Analytical Services business (Catalent)	Pace Analytical Services (Aurora Capital Partners)	Provider of small molecule analytical services
9/26/24	Viyash Life Sciences (Carlyle Group)	Sequent Scientific (BSE:512529)	CDMO specializing in animal healthcare
9/25/24	Experic	1315 Capital	Provider of development and manufacturing services across a range of packaging and finished dose modalities. The company specializes in dry powder inhalation products
9/25/24	Groupe Synerlab	Blue Wolf Capital Partners	Manufacturing and development across multiple dosage forms specializing in niche technical processes such as freeze drying and liquid sterile finished dosage forms
9/25/24	Seven Facilities of Recipharm (EQT)	Synerlab (Blue Wolf Capital Partners)	CDMO specializing in the production of oral solid, semi-solid, and liquid dosage of pharmaceutical products
9/24/24	Minaris Regenerative Medicine (Resonac Holdings)	Altaris Capital	CDMO specializing in cell and gene therapies
9/20/24	BioVectra	Agilent Technologies (NYSE:A)	CDMO specializing in clinical-to-commercial scale production capabilities for biologics, small molecules, and bioreagents
9/18/24	Flourish Research (NMS Capital)	Genstar Capital	Multi-site CRO specializing in cardiovascular, metabolic, neuroscience, and infectious disease
9/18/24	Mapi Group	ICON (NASDAQGS:ICLR)	Provider of services such as real-world evidence, strategic regulatory services, pharmacovigilance, and market access
9/16/24	Infinity Laboratories (Imperial Capital)	Eurofins Scientific SE (ENXTPA:ERF)	CRO specializing in microbiology
9/16/24	BTS Research	PharmaLegacy Laboratories	Preclinical CRO

Select M&A Transactions *(cont'd)*

Date	Target (Seller)	Acquiror	Target Business Description
9/12/24	eClinical Solutions	GI Partners	Developer of a data management platform designed to increase the efficiency of clinical trials
9/11/24	Outcomes'10	ProductLife Group (Oakley Group)	Healthcare consulting firm specializing in market access, government affairs, and health economics & outcomes research
9/10/24	Advyzom	Danforth Advisors	Consulting firm specializing in highly strategic regulatory and development advice
9/10/24	PharmaForceIQ	Eir Partners	Developer of a software platform offering omnichannel marketing solutions for pharmaceutical clients
9/10/24	Adfire Health	Health Union (Court Square Capital Management)	Data-driven digital marketing solutions for pharmaceutical, medical device, healthcare supply chain, and biotech clients
9/9/24	Mirador Global	Citrus Health Group	Evidence development firm specializing in forecasting strategies and enhancing client access to market planning
9/9/24	Gentronix	Scantox	CRO specializing in genetic, skin, and ocular toxicology
8/29/24	Aenova Group (BC Partners)	Kühne Holding	Full-service provider for development, manufacturing, and packaging of drug products
8/29/24	Anju Software (Abry Partners)	Valsoft Capital	Offers software products focusing on life sciences information management
8/21/24	Zen-Bio	BioIVT (Linden Capital Partners)	Research support services specializing in biospecimens and related services
8/7/24	Trillium Health Care Products (New Water Capital)	Avista Healthcare Partners	Manufacturer of branded OTC products
8/1/24	Mirus Bio	Merck KGaA (XTRA:MRK)	Manufacturer of reagents
7/31/24	Genedata AG	Danaher Corporation (NYSE:DHR)	Software solutions for biopharma research & development
7/31/24	Tidewater Clinical Research	Eximia Research Network (VSS)	Clinical research site focused on women's health and ophthalmology
7/24/24	FAMAR (ECM Partners)	Mideuropa	CDMO with broad capabilities
7/23/24	Miimansa AI	Emmes Group (New Mountain Capital)	Developer of AI and machine learning applications used for clinical data management and biomedical research
7/22/24	akt Health Communications	Jones Public Affairs	Strategic healthcare communications services including patient engagement
7/21/24	Genuone Sciences (IMM Holdings)	Macquarie Asset Management	CDMO specializing in synthetic pharmaceuticals
7/19/24	Ora	The Vistria Group	Full-service CRO specializing in the research of ophthalmic drugs
7/9/24	Federal Compliance Solutions	IntegriChain Incorporated (Nordic Capital)	Consulting firm specializing in the optimization of government pricing, contracting, and revenue management
7/8/24	GXP Engaged (Kester Capital)	Qualitas Funds	Audit and consulting services to pharmaceutical clients
7/3/24	GTP Bioways	Olon	CDMO specializing in R&D services, process development, and production of mAbs, enzymes, proteins, and nanodrugs
7/1/24	DeltaMed Solutions	Harvest Integrated Research Organization	CRO providing pre-clinical strategic planning, clinical trial design, regulatory affairs, and data management services
7/1/24	4clinics	P95 (Ampersand Capital)	CRO providing data management, biostatistics, scientific writing, regulatory affairs, and clinical operations services
7/1/24	CDMO site of Curia Global	Siegfried Holding (SWX:SFZN)	Manufacturing site specializing in early-phase development
6/25/24	Clintrex Research Corporation	ToxStrategies (Renovus Capital Partners)	Provides scientific, clinical trial, operational, and regulatory assistance
6/24/24	CluePoints	EQT	Provider of a cloud-based software platform for risk-based quality management and data quality oversight in clinical trials
6/18/24	BridgeView Data Solutions	IntegriChain Incorporated (Nordic Capital)	Provider of data management services for life sciences organizations
6/18/24	Delta Hat (Lincoln International)	Petauri Health (Oak Hill Capital Management)	Provider of health economic modelling services
6/18/24	Mtech Access	Petauri Health (Oak Hill Capital Management)	Provider of market access services
6/18/24	Kerwin Medical Center	Pinnacle Clinical Research (LongueVue Capital)	Clinical research site based in Dallas, Texas specializing in central nervous systems and Alzheimer's dementia
6/18/24	Cognitive and Research Center of New Jersey	Pinnacle Clinical Research (LongueVue Capital)	Clinical research site based in Springfield, New Jersey specializing in Alzheimer's dementia
6/18/24	Bellaire Clinical Research	Pinnacle Clinical Research (LongueVue Capital)	Clinical research site specializing in metabolic disease and obesity
6/18/24	Palmetto Clinical Research	Pinnacle Clinical Research (LongueVue Capital)	Clinical research site specializing in metabolic disease, obesity, and the central nervous system
6/18/24	Dallas Research Institute	Pinnacle Clinical Research (LongueVue Capital)	Clinical research site based in Dallas, Texas specializing in metabolic clinical trials

Select M&A Transactions *(cont'd)*

Date	Target (Seller)	Acquiror	Target Business Description
6/17/24	K2 Medical Research	TPG Growth	Clinical trial site platform specializing in central nervous system trials
6/13/24	LYO Contract	Great Point Partners	Manufacturer of aseptic liquid filling, lyophilization, and packaging services
6/11/24	Pro-Ficiency Holdings (QHP Capital)	Simulations Plus (NASDAQGS:SLP)	Provider of simulation, market intelligence and compliance, and real-time data and predictive analytics services for clinical and commercial drug development
6/6/24	Contract Pharmaceuticals Limited	Aterian Investment Partners	CDMO specializing in the development, manufacturing, packaging, and testing of non-sterile liquid and semi-solid prescription and regulated OTC products
6/6/24	Sensified	ClinicalMind (Renovus Capital Partners)	Full-service healthcare communication services across various therapeutic areas
6/6/24	PharmaCord	Permira	Commercialization partner for life sciences organizations providing patient engagement services
6/6/24	Embedded	The Deerfield Group (The Edgewater Funds)	Provider of independent marketing and communications
6/5/24	TTEC & Aesculap Biologics (B.Braun)	Octane Medical (Lonza Group (SWX:LONN)	Manufacturing of orthobiologic drug products
6/3/24	North Georgia Clinical Research	Alcanza Clinical Research	Clinical research for common medical problems
6/3/24	Endpoint Clinical and Patient Access Business (Fortrea (NASDAQ:FTRE))	Arsenal Capital Partners	Provider of randomization and trial supply management services for clinical trials and patient access services
5/29/24	BW Health Group	Danforth Advisors	Provider of commercial readiness and product launch services specializing in drug product go-to-market strategy development
5/29/24	Algorics	Precision Medicine Group	Data management, biostatistics, statistical programming, and data standardization to CROs
5/27/24	OCT Global	Palleos Healthcare	CRO specializing in oncology, rheumatology, and infectious disease
5/24/24	Biocentric	Jones Public Affairs	Medical communications agency specializing in support for pipeline product candidates, clinical trial acceleration, and patient engagement
5/23/24	ProductLife Group	Oakley Capital	Provider of development, regulatory affairs, market access, pharmacovigilance, and quality management services to life sciences clients
5/21/24	Berry & Company Public Relations	CG Life (Harvey & Company)	Medical communications and marketing services for life sciences companies
5/21/24	Adams Clinical Trials	InTandem Capital Partners	Clinical site network specializing in the research of the central nervous system
5/21/24	Crio	The Riverside Company	Developer of a data management platform for clinical research
5/2/24	Advance Research Associates	Ephicacy Consulting Group	CRO providing data management and biostatistical consulting services for clinical trials
5/2/24	CreaPharm Group	Myonex	Manufactures customized cold chain and other commercial packaging solutions
5/1/24	Kansas City Research Institute	Alcanza Clinical Research	Clinical research site specializing in gastroenterology, gastrointestinal oncology, hepatology, and metabolic diseases
5/1/24	Horus Scientific	Veranex (Accelmed Partners)	CRO based in Worcester, Massachusetts
4/30/24	Invicro	Calyx Services	Research organization specializing in medical imaging for oncology, central nervous system, and the respiratory system
4/30/24	Subject Well	WindRose Health Investors	Direct patient access marketplace
4/29/24	Polaris Compliance Consultants	GXP Engaged Auditing Services (Kester Capital)	Regulatory and quality assurance services for life sciences clients
4/26/24	Enzyme Communications	Bioscript Group	Scientific communication and market access consulting
4/25/24	BioStrata	Supreme Optimization (Trinity Hunt Partners)	Provider of marketing communications and public relations services
4/23/24	11|TEN Innovation Partners	ClinicalMind (Renovus Capital Partners)	Consulting firm specializing in strategy, innovation, and market activation
4/22/24	FDI Clinical Research	Alcanza Clinical Research	Clinical research site specializing in Phase I-IV trials for endocrine and metabolic conditions, immunology, and hepatology
4/20/24	Assets of Abond CRO	Bioforum	Data management services for clinical trials
4/18/24	G&L Healthcare Advisors	Armira	Provider of regulatory, quality, and compliance services to pharmaceutical and biotech clients
4/16/24	Complete Health Economics Outcomes and Research Solutions	PharmAlliance Holdings (Waud Capital)	Provider of health economics outcomes and research and market access services
4/9/24	Innovation Medical Research Center	Alcanza Clinical Research	Multi-specialty clinical research center
4/8/24	IBEX Technologies (McLean Capital)	BBI Solutions	Manufacturing and marketing services for specialized enzymes
4/8/24	Societal CDMO (NASDAQ:SCTL)	CoreRx (QHP Capital LP)	Commercial development, manufacturing, and packaging specializing in small molecule therapeutics

Select M&A Transactions *(cont'd)*

Date	Target (Seller)	Acquiror	Target Business Description
4/3/24	Ascend Clinical	Eurofins Scientific SE (ENXTPA:ERF)	Independent laboratory for kidney dialysis testing
4/2/24	Research models business of SCANBUR (SCANBUR)	Charles River Laboratories (NYSE:CRL)	Marketing and distribution services
3/27/24	Health+Commerce	Supreme Optimization (Trinity Hunt Partners)	Provider of strategic public relations and marketing services
3/26/24	HeaDS Research	Veeda Clinical Research (CX Partners)	CRO specializing in oncology
3/22/24	Toolhouse	CG Life (Harvey & Company)	Digital marketing solutions for pharmaceutical organizations including digital marketing, process development, strategy, and capability roadmap development
3/21/24	Insife Aps	Qinecsa Solutions (Stanley Capital Partners)	Developer of pharmacovigilance software and provider of technology and consultancy services
3/18/24	Specialty Networks	Cardinal Health (NYSE:CAH)	Provider of patient engagement, clinical research, and workflow automation technologies
3/12/24	Integrity Solutions Limited	ProductLife Group	Regulatory compliant technology consulting
3/11/24	Science 37	eMed	Provider of global patient access services designed to accelerate clinical research
3/8/24	Mabtech (IK Partners)	EQT	Provider of high-quality antibody tools and kits used for vaccine, infectious disease, and oncology research
3/5/24	Health Care Solution	ProductLife Group	Healthcare consulting firm specializing in regulatory affairs and quality assurance and industrialization
2/29/24	Pharmasite Research	Headlands Research (KKR)	Clinical trial site specializing in mental illness and disorders of the central nervous system
2/26/24	AssistRX	Welsh, Carson, Anderson & Stowe	Developer of a suite of software products for life sciences organizations
2/20/24	GlocalMind	Apollo Intelligence (Frazier Healthcare Partners)	Technology-driven market research services
2/14/24	FORCE Communications	Petauri Health (Oak Hill Capital Management)	Customized medical communication and engagement services
2/13/24	ClinicalRM	ICON (NASDAQGS:ICLR)	Research, regulatory, and clinical services for biologics, drugs, and devices
2/8/24	Continuum Clinical	Spectrum Science Communications (Knox Lane)	Clinical trial enrollment solutions
2/1/24	Clincierge	Greenphire (Thoma Bravo)	Concierge travel and logistic support for patients participating in clinical trials
2/1/24	Avant Healthcare Marketing	Real Chemistry (New Mountain Capital)	Provider of development, regulatory affairs, market access, pharmacovigilance, and quality management services to life sciences clients
1/31/24	Drug Channels Institute	Healthcare Made Practical	Market intelligence, analysis, and expert insights specializing in pharmaceutical economics and distribution and reimbursement advisory
1/31/24	Commercial Eyes	ProductLife Group	Healthcare and life sciences consulting firm specializing in registration services, regulatory and quality compliance, and patient safety and risk management
1/30/24	Afton Scientific	Arlington Capital Partners	CDMO providing sterile manufacturing, packaging and labeling, and micro lab services specializing in small-batch filling of injectables
1/23/24	ZoBio BV	Oncodesign Precision Medicine Société Anonyme (ENXTPA:ALOPM)	Clinical research services specializing in biophysics-based small molecule drug discovery
1/18/24	AccelLab (Charles River Laboratories (NYSE:CRL))	AccelLab Management	Preclinical CRO specializing in intervention cardiology, orthopedics, dental medicine, spine, ENT, and regenerative medicine
1/18/24	Promedica	iuvo BioScience (Ampersand Management)	Clinical research services specializing in ophthalmology
1/18/24	Summit Biosciences	Kindeva Drug Delivery	CDMO specializing in internasal drug delivery services
1/17/24	Pacific Pharmaceutical Services	Alcami Corporation (Ampersand Capital Management)	Provider of storage services
1/11/24	Monitorforhire	PharmAlliance Holdings (Waud Capital)	Developer of a platform that matches clinical research monitors with sponsors
1/9/24	HumanFirst	ICON (NASDAQGS:ICLR)	Digital measurement tools for clinical trials

Representative Healthcare Transaction Experience

ACKLEY machine corporation has been acquired by R-V INDUSTRIES INC. a portfolio company of PROSPECT CAPITAL Advisor to Seller	ALEGIS has been acquired by MEDNAX NATIONAL MEDICAL GROUP Advisor to Seller	ARCUS MEDICA has been acquired by W2O a portfolio company of NMC New Mountain Capital LLC Advisor to Seller	Azer Scientific has combined with Electron Microscopy Sciences a portfolio company of INVERNESS GRAHAM Advisor to Azer	Biotix a portfolio company of Ferrer Freeman & Company and GROTECH VENTURES has been acquired by METTLER TOLEDO Advisor to Seller	DECO has been acquired by MedData a portfolio company of FRAZIER HEALTHCARE PARTNERS and the edgewater funds Advisor to Seller
deerfield has received an investment from the edgewater funds Advisor to Deerfield	Emmes has completed a majority recapitalization with BEHRMAN CAPITAL Advisor to Emmes	EXECUPHARM has been acquired by PAREXEL Advisor to Seller	GEO The GEO Group, Inc. (NYSE: GEO) has divested GEO Care in a Management Buyout Advisor to Independent Committee Fairness Opinion	GLOBO has completed a growth equity financing with VSS Advisor to GLOBO	hcpro a division of Simplify Compliance a portfolio company of LEEDS Equity Partners has been acquired by AHIMA American Health Information Management Association Advisor to Seller
HealthStrategiesGroup has been acquired by WATER STREET Advisor to Seller	Herspiegel Consulting has received an investment from DFW CAPITAL PARTNERS Advisor to Herspiegel	KPS LIFE has completed a senior debt financing with Santander Advisor to KPS Life	Onsite Innovations Smarter Healthcare at Work has been acquired by PIVOT HEALTH SOLUTIONS a portfolio company of CI CAPITAL PARTNERS Advisor to Seller	pyxa SOLUTIONS has merged with rednucleus a portfolio company of RENOVUS CAPITAL Advisor to Pyxa	TROEMNER has been acquired by METTLER TOLEDO Advisor to Seller
usp has acquired pharmatech associates Advisor to Buyer	usp has acquired STRATIX LABS Advisor to Buyer	WSG WORKFORCE SOLUTIONS GROUP has been acquired by CROSS COUNTRY HEALTHCARE Advisor to Seller			

Appendix

1. *How Pfizer, Bristol Myers Squibb and Johnson & Johnson Are Confronting Patent Cliffs.* BioSpace, 20 June 2024, https://www.biospace.com/how-pfizer-bristol-myers-squibb-and-johnson-and-johnson-are-confronting-patent-cliffs. Accessed 18 Jan. 2025
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12. *Analyzing The Coming Decade of Pharmaceutical Manufacturing.* Tessy, tessy.com/news-events/analyzing-the-coming-decade-of-pharmaceutical-manufacturing/. Accessed 18 Jan. 2025
13. CapIQ and public company filings (10-Ks, 10-Qs, and investor presentations)
14. DSP CRO Index includes: Charles River Laboratories, Fortrea, ICON, IQVIA, and Medpace. The multiples also include public outsourced pharma companies that have been acquired / taken private (Ergomed, Parexel, PPD, Syneos Health, UDG Healthcare) or merged into the entities above (PRA Health Sciences, Qunitles, IMS Health, INC Research)
15. DSP CDMO Index includes: EUROAPI, Lonza, Samsung Biologics, Siegfired, Thermo Fisher Scientific, WuXi AppTec. The multiples also includes Catalent, which was taken private in 2024
16. On July 2, 2021 ICON completed the acquisition of PRA Health Sciences. ICON's revenue growth of 96.0% and 41.2% for FY 2021 and 2022 reflect the pro forma combined revenue of the two entities and have been excluded from the mean revenue growth calculation for the compset for 2022 and 2021
17. EUROAPI was listed on the Euronext N.V. stock exchange on May 6, 2022. Therefore, there is no data available for EV / EBITDA for EUROAPI in 2021

18. Samsung Biologics was excluded from the chart and mean EV / EBITDA calculation due to its consistently elevated valuation compared to its CDMO peers. This is evident in Samsung Biologics' EV / EBITDA multiple of 36.0x in 2024, 39.0x in 2023, and 50.0x in 2022. Furthermore, WuXi AppTec has also been excluded from the chart and mean EV / EBITDA calculation for 2021 due to its elevated valuation of 47.1x in 2021. WuXi AppTec has been included for 2022, 2023, and 2024 given that the company is trading more in-line with its CDMO peers
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