



Capstone Headwaters



GENE THERAPY: NEW OPPORTUNITIES FOR CDMO SECTOR

Institutional Industry Report

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EXECUTIVE SUMMARY

The increasing volume of gene therapy drugs under development will require greater manufacturing capacity and, in turn, greater utilization of CDMO capacity. CDMOs may be able to increase penetration of their outsourced manufacturing services by providing services at the commercial stage in addition to the earlier stages of preclinical development and clinical trials.

We see the injection of new capital into both gene therapy drug developers and CDMOs focused on gene therapy manufacturing as a positive industry dynamic. We point to recent M&A deals as evidence of capital injection. These include the acquisitions of three makers of “viral vectors” (modified viruses that serve as delivery mechanisms for new genes), which we discuss in this report.

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Increasing Volume of Gene Therapy Drugs Under Development Requires Greater CDMO Manufacturing Capacity

Over the past two years, the FDA has approved four new gene therapy treatments that by any objective measure are miraculous medical breakthroughs. These new drugs include Luxturna (from Spark Therapeutics), which reverses a genetic disorder and is able to restore functioning vision to blind patients, and Zolgensma (from Novartis), which treats a tragic condition called spinal muscular atrophy that afflicts very young children. Gene therapy drugs have also advanced to the commercial stage in Europe, Japan and China. Right behind these approved treatments are thousands of other gene therapy trials under way or completed.

Each stage of the development process requires supporting manufacturing services. This manufacturing capacity can be built in-house by the drug sponsor or provided by outsourcing partners, including contract development and manufacturing organizations (CDMOs). While there are pluses and minuses to both strategies, we believe that the ability of CDMOs to immediately provide scale; to offer modular, cGMP-compliant facilities; and, especially, to bring deep experience in process validation, gives them tremendous advantages over in-house facilities. In short, we believe CDMOs can offer faster, more cost-effective manufacturing solutions, while also enabling sponsors to avoid significant capital investment and compliance risks.

The rapidly growing volume of gene therapy drugs in the development pipeline is driving increased demand for manufacturing services. The Alliance for Regenerative Medicine reported that as of the end of 1Q19, there were 1,014 clinical trials under way globally, including trials in gene therapy (372), gene-modified cell therapy (374), and cell therapy (268). Of these trials, 618 (or more than 60%) are in oncology indications. In the gene therapy category alone, the number of trials in progress rose 17% year-over-year in 1Q.

(For clarity, we should note that gene and cell therapies may overlap in some cases. According to the American Society of Gene & Cell Therapy, gene therapy involves the transfer of genetic material, usually in a carrier or vector, and the uptake of the gene into the appropriate cells of the body. Cell therapy involves the transfer of entire cells with the relevant functions into the patient. Some protocols utilize both gene therapy and cell therapy, e.g., stem cells that are isolated from the patient, genetically modified in a tissue culture to express a new gene, expanded to sufficient numbers, and then returned to the patient.)

Looking at the bigger picture for biologic drugs, we note that in 2018, the FDA approved 59 new drugs, including 17 biologic license applications (BLAs) for biologic drugs, up from 51 new drugs approved in 2017, including 12 BLAs. For an even more dramatic illustration of this growth, just 22 new drugs were approved in 2016,

including 7 BLAs. While most of these BLAs were not for gene therapies, the increased activity highlights the shift in demand for development and manufacturing services to biologic drugs from solid, small-molecule oral drugs.

Given the recent growth in the biologics and gene/cell therapy development pipeline, we believe that demand for associated manufacturing services is running well ahead of current and projected capacity. This accelerating demand has helped to drive several recent M&A transactions in viral vector manufacturing, a key requirement for one of several delivery mechanisms for gene therapies.

Three deals (all completed in May 2019) caught our eye. First, Thermo Fisher Scientific (TMO) paid \$1.7 billion to acquire Brammer Bio, which specializes in manufacturing viral vectors for gene and cell therapies. Countering Thermo's move, Catalent paid \$1.2 billion to acquire Paragon Bioservices, another major provider of manufacturing services for viral vectors. Finally, Ampersand Capital Partners, a private equity player that realized substantial liquidity from the sale of Brammer to Thermo, used some of its profits to acquire Vibalogics, a German CDMO specializing in virus delivery mechanisms. And we think more transactions in the sector are on the way.

We believe that these acquirers are also investing additional capital to expand the capacity of the viral vector manufacturers, and perhaps to extend their capabilities to include commercial-stage manufacturing.

Of course, the sheer volume of gene therapy drugs in the development pipeline is an important factor in driving demand for associated outsourced manufacturing services. The four gene therapy products thus far approved by the FDA are just the tip of the proverbial iceberg.

Just as capital is being invested in CDMOs, there have also been acquisitions of companies that have created gene therapy drugs. In 2018, Novartis acquired AveAxis, which was then developing Zolgensma. Adding AveAxis enlarged Novartis' commercial gene therapy portfolio, which also includes Kymriah. Roche has a pending deal to acquire Spark Therapeutics, which recently won approval for Luxturna. There are also multiple pipeline deals involving the transfer of commercial rights for gene therapy drugs.

A Potential Driver for CDMOs is Greater Outsourcing of Manufacturing at Later Stages of Drug Development, Including Commercialization

As has been amply demonstrated in the small-molecule outsourced manufacturing context, if a CDMO successfully completes the validation process for a new drug at the clinical development stage, it can achieve higher profitability and ROI if it continues to man-

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ufacture the drug at the commercial stage (which also enables the sponsor to lower overall development and manufacturing costs). In announcing its deal to acquire Brammer Bio, Thermo Fisher estimated that viral vector production was a \$1 billion market growing 25% per year. It estimates that about 60% of this manufacturing capacity is already outsourced to CDMOs.

However, we think the 60% assumption underestimates the opportunities for outsourced manufacturing in gene therapies. To begin with, any market growing at 25% per annum has upsides for all players. Second, we note that sponsors of biologic drugs that address larger indications, such as in oncology or immunology, typically bring manufacturing in-house as the products reach commercial stage, even after outsourcing the manufacturing process at earlier clinical stages. Reversing this tendency to in-source at the commercial stage would create more opportunities for CDMOs.

We would argue that for a biopharma company, there are better uses for capital than investing in manufacturing infrastructure. This may be seen in the traditional pharmaceutical environment by the continuing devolution of development and manufacturing volume to outsourced providers. We think that biopharma sponsors can achieve higher ROIs by investing capital in M&A, the in-licensing of intellectual property, or sales and marketing.

The following comment from the 4Q19 earnings call transcript of Avid Bioservices, a CDMO, highlights the appeal of outsourced commercial-stage manufacturing for biopharma sponsors and the opportunity this provides for CDMOs:

“As we discussed last quarter, Avid recently completed a profit validation campaign for a new scaled up manufacturing process on behalf of [a client] in anticipation of future commercial manufacturing. In addition, we have recently completed a second process validation campaign of fiscal 2019, with another campaign in progress. Once the profit validation is completed, the associated certifications of that process represent a key part of global regulatory filings. The manufacturing profit becomes part of the product approval, and the customer is required to manufacture in the specified facility using a specified process. Of course, clinical trials and regulatory reviews take years and there’s no guarantee of a drug approval at the end of the process. However, for those products approved using processes validated at Avid, [it] is likely that the commercial manufacturing will be conducted at Avid. To move the business to another CDMO at that point would require a new process validation and refiling with the regulatory agency, which are highly risky, expensive and time-consuming propositions. For these reasons, we see each process validation completed today as a great opportunity to build commercial business in the future. We remain very excited about the demand in the biopharmaceutical community in general. And with our regulatory history, we believe we are uniquely positioned to serve clients, who are developing products with an accelerated approval time line.”

We believe that Thermo Fisher, Catalent and Avid are moving to capture outsourced manufacturing opportunities at the commercial stage while also expanding at the clinical stages. We wonder whether other CDMO players are considering investment of capital for similar capacity expansions.

Outsourced Manufacture of Viral Vectors — A Template for the Larger Gene and Cell Therapy Outsourcing Sector

As noted above, CDMOs are playing an increasingly important role in viral vector manufacturing, and rapidly expanding their capabilities to include commercial-level production. We see this as a model for the future, and expect a similar shift in the role of CDMOs elsewhere within the gene and cell therapy sector.

As CDMOs develop deeper expertise and scale in viral vector manufacturing and other technology for the targeted delivery of genetic materials, they will become more attractive to biopharma sponsors seeking to outsource commercial manufacturing. For smaller biotech companies that do not have capital to build their own manufacturing facilities, the outsourced model is attractive at both earlier clinical stages and later commercial stages.

With all this discussion of viral vectors, it’s important to define what they are. In gene therapy, scientists replace a defective gene that is causing a medical problem with a normal gene, add new and/or modified genes to help the body fight disease, or turn off genes that are causing problems. In order to insert new genes directly into cells, scientists use a vehicle called a “vector,” which is engineered to carry the right gene to the right place.

Because of their ability to bind to human cells, viruses (such as the common flu virus) are very capable of delivering genetic material into human cells. However, these viruses must first be modified to prevent them from causing an infectious disease such as the flu or HIV.

However, viral vectors are not the sole method of inserting new or modified genes into human cells. Another technique is a gene editing technology called CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats). CRISPRs — shorthand for “CRISPR-Cas9” — are specialized stretches of DNA. The protein Cas9 (or “CRISPR-associated”) is an enzyme that acts like a pair of “molecular scissors,” capable of cutting or editing strands of DNA. This editing process has a wide range of applications, including basic biological research, the development of biotech products, and the treatment of disease.

CRISPR has an advantage over viral vectors in being more easily manufactured. And the editing process — inserting the correct genetic material in the right location within cells — is more precise since it is done directly rather than by a vector “proxy.” Still, while there are numerous companies with CRISPR manufacturing capabilities, their valuations are currently quite high.

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The Impact of Corporate Mergers and Restructuring Outsourcing Decisions

Another factor in the outsourcing vs. insourcing debate involves the capital- and asset-allocation decisions made by merging companies (as in the case of Bristol-Myers' acquisition of Celgene) or by larger biopharma companies (Pfizer, Johnson & Johnson, Gilead and others) in the normal course of refining their operating and capital investment strategies.

To achieve its cost synergy targets, Bristol-Myers may consider divesting or outsourcing its own legacy manufacturing assets or those acquired from Celgene. Celgene built up manufacturing capacity in the U.S. and Europe after it acquired Juno and its CAR T programs in gene therapy, and may thus have redundant or excess capacity. This problem would of course be exacerbated if the post-merger BMY decided to increase its use of outsourcing.

Pfizer faces a different set of outsourcing decisions. It divested its consumer health business to a joint venture with GlaxoSmithKline and is now focused on reconfiguring its manufacturing footprint. As Pfizer's product pipeline and portfolio focuses increasingly on biologics and less on small-molecule oral drugs, we will be watching to see whether it expands manufacturing capacity in-house or through outsourcing.

Gilead recently hired a new leader (Christi Shaw from Eli Lilly) to head its Kite Pharma business, which has secured approval for one CAR T drug and is developing others. Meanwhile, as its revenue from hepatitis C products declines, Gilead has important capital allocation decisions to make regarding its manufacturing footprint. Since Gilead also has a relatively new CEO (Daniel O'Day began his tenure in March), its new leaders could bring a fresh perspective to these decisions.

Johnson & Johnson is also reconfiguring its manufacturing footprint to reflect its increased focus on biologic drugs.

As discussed above, speed, operational efficiency, and the use of capital are paramount considerations in manufacturing footprint decisions.

APPENDIX

Capstone Headwaters Life Sciences Global BPOS Transaction Summary

April 1, 2019, to date

Transaction			Transaction Value	
Date	Acquired/Investee	Acquiror/Investor	(\$ in 000s)	Acquired Industry Space
8/7/19	Cambrex	Permira Funds	\$2,000,000	CDMO
8/2/19	Biogen	Fujifilm Diosynth Biotechnologies	\$890,000	Biologics production facility
7/9/19	GlaxoSmithKline Shanghai, China facility	Shanghai Fosun Pharma	\$36,000	Pharmaceutical manufacturing facility
7/8/19	Teva Copiague, NY facility	PL Developments	Not Disclosed	Discovery services
7/1/19	Novartis Stein, Switzerland, clinical supply sterile manufacturing and fill-and-finish facility		Not Disclosed	Drug product facility
6/27/19	Novavax gene manufacturing operations	Catalent	\$18,000	Gene manufacturing facility
6/25/19	Novartis Sandoz Broomfield, CO production facility	Mile High Labs	\$18,750	Drug product facility
6/19/19	Bristol-Myers Squibb Anagni, Italy facility	Catalent	Not Disclosed	Drug product facility
6/13/19	Medidata	IPO	\$5,700,000	Clinical trial IT specialist
6/12/19	Nanopharm	AptarGroup	Not Disclosed	Pharma product development services
6/12/19	Gateway Analytical	AptarGroup	Not Disclosed	Pharma product development services
6/5/19	Medimix	PPD/Evidera	Not Disclosed	Data management
5/30/19	KAI Research	Navitas Life Sciences	Not Disclosed	CRO
5/30/19	Vibalogics	Ampersand Capital Partners	Not Disclosed	Viral vector contract manufacturing
5/28/19	MeDiNova Research	Icon	Not Disclosed	Site Networks
5/21/19	Just Therapeutics	Evotec	\$90,000	Biologics CDMO
5/16/19	GlaxoSmithKline Cork, Ireland facility	Series C equity investment	\$112,000	API manufacturing facility

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APPENDIX (CONTINUED)
Capstone Headwaters Life Sciences
Global BPOS Transaction Summary
 April 1, 2019, to date

Transaction Date	Acquired/Investee	Acquiror/Investor	Transaction Value (\$ in 000s)	Acquired Industry Space
5/8/19	Pharmapace	WuXi AppTec/WuXi Clinical	Not Disclosed	Clinical services
4/18/19	Envigo	Labcorp/Covance	\$485,000	CRO; research products
4/15/19	Paragon Bioservices, Inc.	Catalent	\$1,200,000	Viral vector development and manufacturing CDMO
4/11/19	Asklepios BioPharmaceutical	TPG Capital; Vida Ventures	\$225,000	Developer and manufacturer of AAV
4/9/19	Avectas	Seamus Mulligan and others	\$10,000	Cell engineering
4/3/19	CiVentiChem U.S. Operations	Sterling Pharma Solutions	Not Disclosed	API manufacture
4/2/19	Finger Lakes Clinical Research	Evolution Research Group	Not Disclosed	Clinical trials site
4/2/19	Astero Bio Corporation	BioLife Solutions	\$8,000	Cell and gene therapies tools
4/2/19	AstraZeneca manufacturing facilities	AveXis/Novartis	Not Disclosed	Biologic drug manufacturing facilities
4/1/19	Precision BioSciences	IPO	\$145,400	Gene-editing technology
5/30/19	Vibalogics	Ampersand Capital Partners	Not Disclosed	Viral vector contract manufacturing
5/28/19	MeDiNova Research	Icon	Not Disclosed	Site Networks
5/21/19	Just Therapeutics	Evotec	\$90,000	Biologics CDMO
5/16/19	GlaxoSmithKline Cork, Ireland facility	Series C equity investment	\$112,000	API manufacturing facility
5/8/19	Pharmapace	WuXi AppTec/WuXi Clinical	Not Disclosed	Clinical services
4/18/19	Envigo	Labcorp/Covance	\$485,000	CRO; research products
4/15/19	Paragon Bioservices, Inc.	Catalent	\$1,200,000	Viral vector development and manufacturing CDMO

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Transaction Date	Acquired/Investee	Acquiror/Investor	Transaction Value (\$ in 000s)	Acquired Industry Space
4/11/19	Asklepios BioPharmaceutical	TPG Capital; Vida Ventures	\$225,000	Developer and manufacturer of AAV
4/9/19	Avectas	Seamus Mulligan and others	\$10,000	Cell engineering
4/3/19	CiVentiChem U.S. Operations	Sterling Pharma Solutions	Not Disclosed	API manufacture
4/2/19	Finger Lakes Clinical Research	Evolution Research Group	Not Disclosed	Clinical trials site
4/2/19	Astero Bio Corporation	BioLife Solutions	\$8,000	Cell and gene therapies tools
4/2/19	AstraZeneca manufacturing facilities	AveXis/Novartis	Not Disclosed	Biologic drug manufacturing facilities
4/1/19	Precision BioSciences	IPO	\$145,400	Gene-editing technology

HIGHLIGHTS FROM RECENT RESULTS

COMPILED BY ARGUS RESEARCH

U.S. COMPANIES

BIO TECHNE (TECH)

Quarterly Results Summary

Bio Techne recently reported above-consensus results for fiscal 3Q19. For the quarter, sales grew 13% on a GAAP basis (14% organically) to \$185 million. The adjusted operating margin tightened by 290 basis points to 35.2% and was adversely affected by unfavorable exchange rates and the Exosome acquisition. Excluding Exosome, the margin expanded by 190 basis points, to 40.0%. Adjusted earnings were flat year-over-year at \$1.21 per share but topped the consensus forecast of \$1.14. In fiscal 2018, sales grew 14% to \$643 million and adjusted EPS rose 22% to \$4.54.

The company does not provide earnings guidance.

Segment	% of Sales	3Q19 Segment Growth Rate
Protein Sciences	75%	12%
Diagnostics/Genomics	25%	15%

Business & Customers — 3Q19 Transcript

- Protein Sciences posted 13% organic growth in 3Q19, following 14% organic growth in 2Q19. The Diagnostics & Genomics segment posted organic growth of 13%, rebounding from 2% growth in 2Q19 and reflecting strong growth in the genomics division.
- Acquisitions are performing well, according to CEO Charles Kummeth, and boosting results in the core reagents business.
- Bio Techne posted 20%-plus growth in China, which lacks domestic life-sciences suppliers; growth in China slowed from 30%-plus in prior quarters, however.
- Bio-Techne is incorporating GMP reagents (intended for human use) earlier in the manufacturing process to accelerate cell therapy workflow transitions. The global need for GMP-grade reagents is expected to increase dramatically in the coming years.
- In March 2019, National Comprehensive Cancer Network (NCCN) announced the inclusion of Exosome's EPI, a non-invasive, urine-based prostate test, to be used along with PSA and other standard-of-care factors, in testing for prostate cancer.

Capital Strategy and M&A

- In April 2019, Bio-Techne entered into a strategic collaboration with Elpiscience BioPharma to develop anti-cancer therapeutics.
- Bio-Techne plans to invest \$40 million over 12 months on a new GMP factory, capable of delivering \$200 million of GMP reagents annually to customers.
- Two acquisitions (Quad Technologies and Exosome Diagnostics) were completed in 1Q19. Exosome Diagnostics provides exosome-derived diagnostics to detect numerous cancers and neurological conditions from body fluids, eliminating the need for invasive biopsies.

- Quad Technologies provides biocompatible dissolvable polymer (QuickGel) that captures and activates T-cells.

CAMBREX (CBM)

Quarterly Results Summary

Cambrex recently reported results for fiscal 1Q19; all comparisons are now under the ASC 606 revenue recognition standard. For the quarter, net sales of \$160 million increased 13% from a year earlier, while growing 17% in constant currency. Adjusted EBITDA rose to \$41.1 million from \$3.79 million a year earlier. Adjusted EPS of \$0.60 declined 20% from the prior year while meaningfully beating the \$0.41 consensus call. For all of fiscal 2018, net sales rose to \$552 million from \$534 million a year earlier, under ASC 605 for both periods; diluted non-GAAP EPS of \$3.07 declined from \$3.16 in 2017.

Along with the 1Q19 results, management provided revised fiscal 2019 guidance. It continues to expect full-year revenue growth of 21%-25%, which would imply revenue of \$622-\$643 million. Management reiterated its call for 2019 adjusted EBITDA of \$150-\$160 million but reduced its non-GAAP EPS forecast to \$1.87-\$2.09 from \$1.95-\$2.17.

Segment	% of Sales	1Q19 Segment Growth Rate
Drug Substances	70%	-18%
Drug Products	15%	NM
Early Stage Development	15%	409%

Business & Customers — 1Q19 Transcript

- The Drug Substance segment (formerly API, and constituting 70% of revenue, declined 14% in constant currency due to lower volumes of branded APIs.
- Drug substance (formerly Halo) revenue was \$24.5 million. Halo adds finished-dose expertise to Cambrex's active pharmaceutical ingredient (API) leadership, thus strengthening its capabilities as an end-to-end small-molecule CDMO.
- With large pharma companies looking to reduce their small-molecule footprint, Cambrex has a robust and growing small-molecule clinical development pipeline.

Capital Strategy and M&A

- In June 2019, Cambrex announced completion of a new facility at its Karlskoga, Sweden, complex, incorporating new laboratories for process and analytical development.
- In 3Q18, Cambrex completed its acquisition of Halo Pharma, a leading finished dosage-form CDMO, for \$425 million. In January 2019, the company acquired Avista Pharma Solutions for \$252 million, expanding Cambrex's BPOS business into early-stage small-molecule development and testing services.
- Cambrex recently completed expansion of its R&D lab in Milan, Italy, and has a new high-potency API facility in Iowa that is expected to come on line in calendar 2Q19.

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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CATALENT INC. (CTLT)

Quarterly Results Summary

Catalent recently reported above-consensus results for fiscal 3Q19. For the quarter, sales declined 2% (up 2% in constant currency) to \$618 million. Adjusted EBITDA of \$154 million rose 11% from the prior year; the adjusted EBITDA margin expanded by 290 basis points to 25.0%. Adjusted 3Q EPS of \$0.49 increased 20% year-over-year and exceeded the \$0.46 consensus forecast.

For all of fiscal 2018, revenue of \$2.46 billion rose 19% as reported (16% organically) and adjusted EBITDA rose 22% to \$454 million.

For fiscal 2019, management tightened its guidance range based on increased visibility. Management now projects revenue of \$2.50-\$2.52 billion, reduced from \$2.50-\$2.59 billion; the revised outlook implies 2%-3% top-line growth. Management tightened its full-year adjusted EBITDA forecast to \$605-\$615 million from \$597-\$622 million. The \$610 million midpoint is unchanged and continues to imply 34% growth.

Segment	% of Sales	3Q Segment Growth Rate
Softgel Technologies	35%	-6%
Biologics & Specialty DD	28%	4%
Oral DD Solutions	26%	9%
Clinical Supply Services	13%	-25%

Business & Customers — 2Q19 Transcript

- Revenues declined 1% in constant currency in the Softgel business due to lower volume for prescription products in North America. The worldwide ibuprofen API shortage, which also negatively impacted 3Q19 results, should moderate in the fiscal fourth quarter.
- Top-line growth slowed in Biologics and Specialty Drug Delivery, as solid demand for biologic drug products was offset by timing-related declines in biologic drug substance offerings and in respiratory and ophthalmic drug delivery platforms.
- Oral Drug Delivery revenue grew in the high single digits, primarily due to the Juniper acquisition.
- The 23% constant-currency decrease in Clinical Supply Services revenue reflected the adoption of the ASC 606 revenue recognition standard. Under the prior ASC 605 standard, sales would have been up 2%.

Capital Strategy and M&A

- In late June 2019, Catalent announced pricing for a private offering of \$500 million in 5% senior unsecured notes due 2027.
- In mid-June 2019, Catalent agreed to purchase Bristol-Myers' oral solid biologics manufacturing facility in Anagni, Italy. The deal is expected to close by the end of calendar 2019.
- In May 2019, Catalent completed the \$1.2 billion acquisition of Paragon Bioservices, a leading vector development and manufacturing partner for gene therapies.

- In August 2018, Catalent acquired Juniper Pharmaceuticals, a European provider of dose-form development and early-stage manufacturing services. Juniper strengthens the company's offerings in formulations, bioavailability solutions, and clinical-scale oral dose manufacturing.

CHARLES RIVER LABS (CRL)

Quarterly Results Summary

Charles River Labs recently reported above-consensus results for 1Q19. For the quarter, sales grew 22% to \$605 million; excluding acquisitions and currency effects, organic sales grew 11%. The adjusted operating margin narrowed to 16.3% in 1Q19 from 16.8% a year earlier. Adjusted EPS rose 9% year-over-year to \$1.40 and topped the consensus forecast of \$1.38.

For all of 2018, revenue rose 22% to \$2.27 billion and non-GAAP EPS rose 14% to \$6.03.

Along with the 1Q19 results, the company reiterated its 2019 guidance. Charles River continues to expect organic revenue growth of 8.0%-9.5%, and growth of 16%-18% including contributions from acquisitions. Management also reiterated its forecast for adjusted EPS of \$6.40-\$6.55, implying 10%-13% growth. Including Citoxlab, it projects full-year free cash flow of \$310-\$320 million.

Segment	% of Sales	1Q Segment Growth Rate
Research Models & Services	23%	2%
Discovery & Safety Assessment	59%	36%
Manufacturing Support	19%	13%

Business & Customers — 1Q19 Transcript

- In 1Q19, Charles River reported a third consecutive quarter of double-digit organic revenue growth, with organic growth in all three segments at or above management's long-term targets in the high single digits.
- Organic top-line growth of 5% in Research Models and Services (RMS) was driven by rising demand, reflecting a large government contract and increased demand for research models, particularly in China.
- Discovery and Safety Assessment revenue grew 11% organically, primarily reflecting robust demand from biotechnology clients. Manufacturing Support benefited from strong demand for Microbial Solutions and Biologics Testing Solutions.
- Based on organic development and niche acquisitions, the company is well positioned to further develop its role as the premier early-stage CRO — with the ability to support clients from the target discovery phase through nonclinical development.

Capital Strategy and M&A

- In April 2019, Charles River completed the acquisition of UK-based Citoxlab for approximately \$510 million. Citoxlab

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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extends CRL's leadership in Safety Assessment, particularly in continental Europe.

- Citoxlab is a premier nonclinical CRO providing early-stage services for biopharmaceutical, medical device, agricultural, and chemical companies worldwide. Including Citoxlab, Charles River's Safety Assessment business is at least 50% larger than that of its nearest competitor.
- The company's broad portfolio has been enhanced by the acquisitions of MPI Research, WIL Research, and now Citoxlab.
- Capital priorities in 2019 are focused on repaying debt, which reached \$2.1 billion following the Citoxlab deal. Charles River is working to push its gross leverage ratio below 3.0 by year-end, down from a current 3.25.

ICON PLC (ICLR)

Quarterly Results Summary

Icon recently reported above-consensus earnings for 1Q19. First-quarter sales grew 9% to \$675 million. Operating income of \$102 million rose 11% year-over-year, while the operating margin rose 30 basis points to 15.1%. First-quarter EPS rose 15% to \$1.63, three cents above the consensus forecast.

For all of 2018, revenue rose 8% to \$2.60 billion and diluted EPS before nonrecurring charges rose 14% to \$6.16.

Icon has raised its 2019 guidance. With all comparisons under the new ASC 606 revenue recognition standard, the company expects revenue of \$2.760-\$2.840 billion, up from preliminary guidance of \$2.735-\$2.835 billion; at midpoint, revenue would be up 8% year-over-year. Non-GAAP EPS guidance was raised from \$6.69-\$6.89 to \$6.75-\$6.95, which at the \$6.85 midpoint would be up 12%.

Business & Customers — 1Q19 Transcript

- Based on net business wins of \$885 million, book-to-bill was 1.31 in 1Q19, up from 1.27 for all of 2018.
- The closing backlog (including pass-through) at the end of 1Q19 was a record \$7.9 billion, up 11% year-over-year. No single customer represented more than 10% of the backlog.
- Expansion of Icon's site network in North America and especially in Europe is a key M&A focus.

Capital Strategy and M&A

- In May 2019, Icon announced that it had acquired a majority stake in MeDiNova Research, a site network with 33 active clinical research sites in Europe and Africa. Icon has the right to acquire all remaining MeDiNova shares by 3Q20.
- In February 2019, Icon completed the acquisition of MolecularMD. The acquisition expanded Icon's capabilities into molecular diagnostic testing, immunohistochemistry, and companion diagnostics for precision medical research.
- Icon is benefiting from partnerships with TriNetX, Transmit,

and Practice Fusion. The consortium now covers more than 2.2 million lives, with oncology being a specific area of focus.

- Earlier in 2019, Icon extended its master services agreement with Pfizer, designed to help Pfizer advance its development pipeline rapidly and efficiently.

ILLUMINA INC. (ILMN)

Quarterly Results Summary

Illumina recently reported above-consensus EPS for 1Q19. First-quarter revenue rose 8% from the prior year to \$846 million. The non-GAAP operating margin declined 230 basis points to 27.2%, but expanded sequentially from 24.2%. Adjusted EPS of \$1.60 grew 10% from \$1.45 a year earlier and topped the consensus forecast by \$0.26.

For all of 2018, revenue rose 21% to \$3.33 billion and adjusted diluted EPS rose 43% to \$5.72.

Along with the 1Q19 results, management updated its full-year guidance. It continues to expect 13%-14% revenue growth, implying sales of \$3.77-\$3.80 billion. Illumina raised its forecast for non-GAAP EPS from \$6.50-\$6.60 to \$6.63-\$6.73 based on the favorable impact of the deconsolidation of Helix. The revised non-GAAP EPS guidance implies growth of 14%-16%.

Segment	% of Sales	1Q19 Segment Growth Rate
Product	79%	7%
Service & Other	21%	16%

Business & Customers — 1Q19 Transcript

- Along with record revenue, Illumina generated more than \$1 billion in orders in 1Q19 for the first time in its history.
- Illumina posted 14% growth in sequencing consumables in 1Q19, including 20% growth in clinical sequencing consumables. Sequencing instruments revenue declined 6% annually, however.
- Illumina is currently managing product transitions, from HiSeq (high-end) sequencers to MiniSeq and NextSeq (less-expensive, desktop machines), and shifting high-end users to NovaSeq, its most advanced option.
- Illumina should benefit from the 2018 decision by the Centers for Medicare & Medicaid Services to provide Medicare coverage for NGS testing of certain cancer patients.
- Although 225 petabytes of sequencing data have been generated on Illumina platforms, less than 1% of the human genome has been mapped, signaling a vast opportunity for genetic sequencing equipment and services.

Capital Strategy and M&A

- Illumina accelerated Helix's path to independence in 1Q19. Helix was deconsolidated from Illumina on 4/25/19.

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

COMPILED BY ARGUS RESEARCH

- In November 2018, Illumina agreed to acquire Pacific Biosciences, a device company focused on long-read sequencing technologies. Illumina expects to complete the deal in mid-2019.
- In June 2019, U.K. antitrust authorities expressed concerns about the proposed Pacific Biosciences acquisition. Regulators asked Illumina and Pacific Biosciences to address concerns that the deal might diminish competition in DNA sequencing.
- In 1Q19, the Illumina board authorized a \$550 million share repurchase program. The company repurchased \$63 million of common stock in 1Q19.

IQVIA (IQV)

Quarterly Results Summary

IQVIA recently reported above-consensus results for 1Q19. First-quarter revenue of \$2.68 billion rose 5% on a reported basis and 7% in constant currency. Adjusted EBITDA of \$587 million increased 7% in constant currency, and the adjusted EBITDA margin of 21.9% expanded by 60 basis points. Adjusted EPS rose 14% to \$1.53 and beat the consensus estimate by \$0.02.

For all of 2018, revenue rose 7% to \$10.4 billion on a GAAP basis and in constant currency. Adjusted EBITDA of \$2.22 billion increased 11% on a GAAP basis and 10% in constant currency, and non-GAAP diluted EPS of \$5.55 increased 22%.

Along with the 1Q19 results, management updated guidance for 2019. It continues to expect GAAP revenue growth of 4.7%-6.8%, implying full-year revenue of \$10.90-\$11.13 billion. IQVIA also guided for non-GAAP EPS of \$6.20-\$6.40, implying growth of 11.7%-15.3%.

Segment	% of Sales	1Q19 Segment Growth Rate
Technology & Analytics	40%	9%
R&D Solutions	53%	4%
Contract Sales & Medical	7%	-5%

Business & Customers — 1Q19 Transcript

- Net book-to-bill for 1Q19, excluding pass-throughs, was 1.51. Although down from 1.7 in 2H18, first-quarter book-to-bill was above historical levels in the 1.2 range.
- R&D Solutions contracted backlog grew 16% annually to \$17.6 billion. Following an announced customer disengagement, the revised backlog is estimated at \$17.2 billion, of which \$4.9 billion is expected to convert to revenue in the coming 12 months.
- R&D Solutions revenue grew 5% in constant currency in 1Q19; excluding a 300-basis-point headwind from pass-throughs, R&DS revenue grew 8%. Technology & Analytics revenue grew 13% in constant currency, of which 7% was organic.

- IQVIA continues to sign new clients to its Orchestrated Customer Engagement (OCE) platform. In 2018, major signings included Roche Pharma and Novo Nordisk.

Capital Strategy and M&A

- In April 2019, IQVIA introduced enhanced capabilities for its OCE platform. Since its launch with partner Salesforce.com, the OCE platform has registered over 30 competitive wins and now has more than 30,000 users in 100-plus countries.
- In March 2019, IQVIA launched E360 Genomics, a patented technology platform that protects genomic data privacy in a scalable database solution.
- Late in 2018, IQVIA signed a collaboration agreement with Genomics England, which will assemble the world's largest pool of linked clinical whole-genome sequence data available for research.
- In May 2019, IQVIA announced its intention to raise \$1.1 billion in gross proceeds through an offering of senior notes due 2027.

LABORATORY CORP OF AMERICA HOLDINGS (LH)

Quarterly Results Summary

Laboratory Corp. of America Holdings (LabCorp) recently reported above-consensus non-GAAP EPS for 1Q19. First-quarter revenue of \$2.8 billion declined 2% from the prior year. Adjusted operating income of \$411 million declined 6%, and the adjusted operating margin narrowed by 60 basis points to 14.7%. Adjusted EPS of \$2.62 declined 6% from the prior year but topped the consensus forecast by \$0.09.

For all of 2018, revenue rose 10% to \$11.33 billion, with 7% from M&A and 3% from organic growth and currency translation. The adjusted operating margin of 15.2% narrowed from 16.2% a year earlier. Adjusted diluted EPS of \$11.02 rose 20% from the prior year.

Along with the 1Q19 results, management raised its full-year non-GAAP EPS guidance. LabCorp continues to expect revenue growth of 0.5%-2.5%, with growth in Covance Drug Development offsetting lower revenue in LabCorp Diagnostics. Management boosted its forecast for non-GAAP diluted EPS from \$11.00-\$11.40 to \$11.05-\$11.45, implying that full-year earnings would be flat to up 4%. Management continued to project full-year free cash flow of \$950 million to \$1.05 billion, compared to \$926 million in 2018.

Segment	% of Sales	1Q19 Segment Growth Rate
LabCorp Diagnostics	61%	-3%
Covance Drug Dvlpmnt.	39%	0%

Business & Customers — 1Q19 Transcript

- LabCorp Diagnostics revenue declined primarily due to the impact of business dispositions, currency headwinds, and the federal Protecting Access to Medicare Act (PAMA). The

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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new PAMA rules are cutting into earnings for LabCorp and top rival Quest.

- Despite flat GAAP revenue for Covance, 1Q revenue growth on an organic basis and excluding pass-throughs was consistent with management's long-term goal of 5%-9%.
- On a trailing 12-month basis, Covance generated a 1.29 book-to-bill ratio in 1Q19. The backlog of \$9.95 billion was up 2% sequentially. The company expects to convert \$3.9 billion of its backlog to revenue over the next 12 months.
- Covance, according to LabCorp, is the only contract research organization to combine early development, central lab, and clinical services in an end-to-end offering.

Capital Strategy and M&A

- On 11/1/19, current lead independent director of LabCorp and long-time Merck executive Adam Schechter will become president and CEO. He will succeed David King, who will retire as CEO and become executive chairman.
- In June 2019, LabCorp and Envigo entered into a series of innovative transactions. LabCorp's Covance Drug Development business acquired Envigo's nonclinical research services business. And Envigo's Research Models & Services business acquired the Covance Research Products business.
- Following these transactions, LabCorp and Envigo will continue to collaborate through a renewable multiyear supply agreement.
- In February 2019, LabCorp announced details about Phase II of its LaunchPad initiative in Diagnostics, designed to digitize the business and reduce costs.
- The LabCorp-Walgreens partnership plans to open 125 locations by the end of 2019 and to have 600 locations in operation within four years.

MEDPACE HOLDINGS INC. (MEDP)

Quarterly Results Summary

Medpace Holdings (Medpace) recently reported above-consensus results for 1Q19. First-quarter revenue of \$201 million increased 23% year-over-year. On an unadjusted basis, EBITDA increased 12% to \$33.4 million, while the EBITDA margin tightened by 150 basis points to 16.7%. Adjusted EPS rose 16% to \$0.64 and topped the consensus estimate by \$0.04.

For all of 2018, and under the prior accounting standard ASC 605 in order to maintain comparability, Medpace posted net service revenue of \$478 million, up 24% from 2017. Non-GAAP EPS rose 85% to \$2.81.

Along with its 1Q results, Medpace raised its full-year revenue guidance to \$813-\$837 million from \$783-\$807 million; the revised estimate implies growth of 15.4%-18.8% from \$704.6 million in 2018. EPS guidance was unchanged; the company continues to project adjusted diluted EPS of \$2.58-\$2.69.

Business & Customers — 1Q19 Transcript

- Revenue for 1Q19, in addition to growing 23% annually, reflected a 19% backlog conversion rate.
- The backlog as of 3/31/19 grew 22% year-over-year to \$1.1 billion. Net new business awards were \$249 million, resulting in a 1Q book-to-bill of 1.24.
- The business environment in 1Q19 was consistent with that in 4Q18, when Medpace experienced a significant softening in demand, and remained weaker than in the prior-year quarter.
- According to CEO August Troendle, cancellations in 1Q19 remained above their historical average level. In 4Q18, the cancellation rate roughly doubled from prior quarters.
- On lower volumes, margins contracted in 1Q19. Full-year margins should be consistent with 1Q19, as the company continues hiring in anticipation of improved demand.

Capital Strategy and M&A

- Medpace, which remains focused on serving small and mid-sized biopharma customers, continues to expand its global infrastructure.
- Small biopharma customers provided 75% of 1Q19 revenue, up from 65% in the year-earlier quarter. Large pharmaceutical customers were just 4% of 1Q19 revenue, down from 10% a year earlier.
- Medpace continues to benefit from low customer concentration. Its top five customers represented just 21% of 1Q19 revenue, down from 22% a year earlier. Top 10 customers were just 32% of revenue, down from 35% a year earlier.
- Medpace has increased its exposure to the "Other" therapeutic area, which includes nephrology, rheumatology, musculoskeletal, dermatology, gastroenterology, and ophthalmology. The "Other" category represented 26% of 1Q19 revenue, versus 21% a year earlier.

PRA HEALTH SCIENCES INC. (PRAH)

Quarterly Results Summary

PRA Health Sciences recently reported above-consensus non-GAAP EPS for 1Q19. First-quarter revenue of \$722 million rose 3% (4% in constant currency) on a year-over-year basis. Adjusted EBITDA of \$117.1 million increased 22%, while the adjusted EBITDA margin expanded to 16.2% from 13.6% a year earlier. Adjusted net income of \$1.10 per share rose 29% year-over-year and beat the consensus by \$0.04.

For all of 2018, PRA Health Sciences reported revenue of \$2.87 billion, up 27% from 2017; on a comparable basis under ASC 605 for all periods, revenue would have been \$2.61 billion, up 18% (17% in constant currency). Adjusted net income of \$4.28 per diluted share rose 29%.

Along with the 1Q19 results, management reaffirmed its 2019 guidance. It expects revenue of \$3.09-\$3.20 billion, representing

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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as-reported and constant-currency growth of 8%-11%. Management also projects full-year non-GAAP diluted EPS of \$4.93-\$5.08, representing growth of 15%-19%.

Business & Customers — 1Q19 Transcript

- For the Clinical Research segment, net new business wins for 1Q19 were \$664.6 million, up 2% year-over-year. Strong order trends led to a net book-to-bill ratio of 1.27, extending the company's multiquarter run of book-to-bill ratios exceeding 1.2.
- The backlog rose 3% sequentially and 15% from the prior year, finishing 1Q19 at \$4.36 billion. The backlog does not include the Data Solutions segment or reimbursed revenue.
- Among new business awards for 1Q19, 70% came from the pharmaceutical sector and 30% from biotech. The business is usually more evenly matched between pharmaceutical and biotech, but management did not see the 1Q19 customer split as meaningful.
- CEO Colin Shannon characterized the CRO environment as "stable."

Capital Strategy and M&A

- PRA has a relationship with Japan's Takeda dating to 2016. Prior to acquiring Ireland's Shire plc in January 2019, Takeda sold its Chinese JV and made other niche dispositions.
- According to CEO Shannon, PRA does not anticipate any impact on studies it is currently running for Takeda and looks forward to continuing its Takeda partnership.
- The integration of Symphony Health, which closed in September 2017, is largely complete.
- PRA conducted a secondary offering of 6.5 million shares of common stock in August 2018.
- In 2Q18, PRA amended its A/R financing agreement, which increased borrowing capacity and extended the maturity date.

SYNEOS HEALTH INC. (SYNH)

Quarterly Results Summary

Syneos Health recently reported below-consensus non-GAAP EPS for 1Q19. First-quarter revenue was \$1.12 billion, up 6% from \$1.05 billion a year earlier. Adjusted EBITDA of \$135 million rose 5%, while the adjusted EBITDA margin fell 10 basis points to 12.0%. Adjusted EPS rose 7% year-over-year to \$0.59, but came in \$0.02 below the consensus forecast of \$0.61.

For all of 2018, Syneos Health reported revenue of \$4.39 billion under ASC 606; reported revenue rose 137% year-over-year from \$1.85 billion in 2017. As measured under ASC 605 for all periods, 2018 revenue would have been \$3.18 billion and would have been up 3% from \$3.10 billion in 2017 (which includes a pro forma contribution from InVentiv Health, acquired in August 2017). Adjusted 2018 net income of \$2.87 per diluted share rose 26% year-over-year.

Along with the 1Q19 results, management reaffirmed its 2019 guidance. It continues to forecast revenue of \$4.62-\$4.73 billion, which assumes as-reported estimated growth of 5%-7%. Management also projects full-year adjusted EBITDA of \$625-\$660 million and non-GAAP diluted EPS of \$3.03-\$3.23, representing growth of 6%-13% from 2018.

Segment	% of Sales	1Q19 Segment Growth Rate
Clinical Solutions	73%	2%
Commercial Solutions	27%	16%

Business & Customers — 1Q19 Transcript

Syneos is seeing strong customer engagement based on the breadth of its biopharmaceutical outsourcing offerings.

Based on trailing 12-month net new business awards, book-to-bill for Commercial Solutions was 1.09 as of 1Q19. Commercial Solutions' ending backlog of \$690 million was up 14% year-over-year. Trailing 12-month book-to-bill for Clinical Solutions was 1.24 as of 1Q19. Clinical solutions boosted its quarter-end backlog by 13%, to \$7.61 billion.

Capital Strategy and M&A

As part of its balanced approach to capital management and deployment, Syneos has set goals of reducing the cost of debt, lowering overall leverage, reviewing potential tuck-in acquisitions, and opportunistically repurchasing shares.

Syneos, which was formed in January 2018 from the combination of InVentiv and INC Research, has achieved over \$100 million in integration synergies to date and is on track to achieve \$125 million in synergies annually by 2020, according to CEO Alistair MacDonald. The company continues to invest in its Syneos One offering (formerly Integrated Solutions), which collaborates across business units to create custom solutions encompassing a full suite of capabilities.

The acquisition of Kinapse expands the company's regulatory, safety, and pharmacovigilance consulting services in the post-approval space.

THERMO FISHER SCIENTIFIC (TMO)

Quarterly Results Summary

Thermo Fisher recently reported above-consensus non-GAAP earnings for 1Q19. First-quarter revenue of \$6.12 billion grew 5% on a GAAP basis and 7% organically, as M&A added 1% while currency subtracted 3% from growth. Adjusted operating income grew 7% from the prior year, to \$1.37 billion; the adjusted operating margin expanded by 40 basis points to 22.4%. Adjusted EPS rose 12% to \$2.81 and topped the consensus forecast by \$0.08.

For all of 2018, revenue of \$24.4 billion increased 16% on a reported basis and 8% on an organic basis. Non-GAAP EPS totaled \$11.12, up 17% from 2017.

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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In addition to releasing 1Q19 results, management raised its sales and EPS guidance for 2019 to reflect the strong operational performance of the acquired Brammer Bio business. The company now projects revenue of \$25.17-\$25.47 billion, up from an earlier \$24.88-\$25.28 billion; the new guidance implies 3%-5% growth. Thermo forecast full-year non-GAAP diluted EPS of \$12.08-\$12.22, raised from \$12.00-\$12.20; the new guidance implies 9%-10% growth.

Segment	% of Sales	1Q19 Segment Growth Rate
Life Sciences	26%	7%
Analytical Instruments	22%	5%
Specialty Diagnostics	16%	1%
Laboratory Products	41%	4%

Business & Customers — 1Q19 Transcript

- During the first quarter, the company pushed forward a number of initiatives to grow future business. The company launched two new instruments for materials analysis: the Nicolet Summit FTIR spectrometer and the Helios 5 DualBeam scanning electron microscope.
- In specialty diagnostics, Thermo received FDA clearance for a new ImmunoCAP test for peanut allergies. Thermo opened new customer solutions centers in Beijing and Delhi to help scientists in the food and beverage industry develop advanced analytical workflows that improve food quality and safety.
- The company announced a \$150 million expansion of its pharma services sites in Italy and North Carolina to increase the capacity and capabilities of its global sterile manufacturing network and to meet growing demand for biologics development and manufacturing services.
- The three pillars of Thermo Fisher's growth strategy are high-impact innovation, built around new product launches; a focus on high-growth emerging markets, led by China; and efforts to enhance the customer value proposition.

Capital Strategy and M&A

- In March 2019, Thermo Fisher agreed to acquire Brammer Bio from private equity firm Ampersand Capital partners for \$1.7 billion. Brammer provides commercial supply of vectors for in vivo gene therapy and ex vivo gene-modified cell therapy.
- Brammer is expected to generate \$250 million in 2019 revenue while exceeding the projected market growth rate of 25% for the medium term.
- In June 2019, Thermo and Roper terminated an agreement under which Roper planned to sell its Gatan subsidiary to Thermo Fisher, due to challenges in obtaining regulatory approval in the U.K. Existing long-term supply arrangements between the two companies remain intact.
- In January 2019, Thermo announced the sale of its Anatomical Pathology business. While that sale is incorporated into 2019 guidance, the Brammer Bio acquisition is not.

FOREIGN COMPANIES

DOTTIKON ES HOLDINGS AG (DESN)

Semiannual Results Summary

Switzerland-based Dottikon reports semiannually in Swiss Francs (CHF). In May 2019, Dottikon reported lower 2018 revenue and net income. Net sales of CHF 147.7 million for 2018 were down 7% from the prior year. Production output (net sales plus inventory changes in semi-finished and finished goods) declined 2% from the prior year. EBITDA of CHF 39.9 million declined 15% year-over-year; the EBITDA margin contracted to 27.0% in 2018 from 29.7% in 2017. IFRS net income of CHF 16.3 million declined 37% from CHF 25.8 million a year earlier; on a per-share basis, EPS fell to CHF 13.00 in 2018 from CHF 20.67 in 2017.

Along with the 2018 results, management provided preliminary guidance for the 2019-2020 business year. The company now expects net sales in the current year to exceed the levels achieved in 2018.

Business & Customers – 2018

- Management attributed the company's disappointing 2018 performance to geopolitical and economic uncertainties, the intermittent scale-up of business processes, and supply bottlenecks due to the enforcement of environmental regulations.
- The company expects annual growth in global pharmaceutical sales of 3%-6% in the coming years, slightly slower than in the past. More than half of all growth is expected to come from oncology, auto-immune, and diabetes-related therapies.

Capital Strategy and M&A

- In the current pharmaceutical environment, Dottikon believes it is well positioned for medium-term growth.
- The company reaffirmed its focus on serving customers as a strategic development and manufacturing partner and its specialist role for hazardous reactions. To better serve its customers, Dottikon has added new facilities and intends to increase utilization of its existing plant.

EUROFINS SCIENTIFIC (ERF)

Annual Results Summary

Luxembourg-based Eurofins Scientific reports semiannually in euros. Eurofins reported 2018 revenue of 3.78 billion euros, up 27% from 2017 despite a 3% currency headwind. Revenue rose 4.5% on an organic basis. Core (non-IFRS) EBITDA of 720 million euros grew 29% year-over-year and represented 19.0% of 2018 revenue versus 18.7% in 2017. Core net income of 20.11 euros per diluted share rose 15% from 17.49 euros a year earlier.

Along with the 2018 results, Eurofins management provided 2019 guidance, which it updated in June. The company forecast revenue (at 2018 average exchange rates) of 4.5 billion euros, implying 18%

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

COMPILED BY ARGUS RESEARCH

IFRS growth and 5% organic growth from 2018. That forecast was positively revised from 4.39 billion euros issued with the release of mid-2018 results. Management guided for core EBITDA of 850 million euros, which would be up 18% year-over-year and would imply a core EBITDA margin of 18.9%.

The company continues to target a core EBITDA margin of 20% by 2020, as reflected in preliminary guidance of 5.0 billion euros in revenue and 1.0 billion euros in adjusted EBITDA for 2020.

Business & Customers — 2018

- Eurofins' testing and related services across four platforms (food, environment, clinical, and pharmaceutical) have high barriers to entry.
- The company's bioanalytical business is highly scalable and benefits from a global network of laboratories. Eurofins' pharma service business spans the entire drug development cycle.
- The company is more than halfway through its current five-year growth plan, with the goal of building a one-of-a-kind laboratory infrastructure platform.
- Eurofins doubled revenue multiple times between 2005 and 2018 and grew EBITDA more than twelvefold during this period.
- In 2019 and 2020, according to CEO Gilles Martin, Eurofins will de-emphasize M&A as most strategic acquisitions have been completed. Eurofins will instead focus on operational excellence. We thus expect top-line growth to slow while profitability improves.

Capital Strategy and M&A

- In June 2019, Eurofins acquired Transplant Genomics, a developer of molecular diagnostics for management of organ transplant patients, for an undisclosed amount.
- In the materials science and high technology space, Eurofins acquired Nanolab in August 2018, building on the acquisition of EAG Laboratories in December 2017.
- In December 2018, Eurofins completed the \$175 million acquisition of TestAmerica, a leading environmental testing laboratory group in North America.
- In August 2018, Eurofins completed the \$670 million acquisition of Covance Food Solutions from LabCorp (NYSE: LH). The acquisition brings a network of 12 Covance Food Solutions test & safety facilities across the globe.

EVOTECH AG (EVT)

Annual Results Summary

Germany-based Evotech reports semiannually in euros; additionally, the company provides limited information in its quarterly update. For fiscal 2Q19, revenue of 104 million euros was up 27% from the prior year. Adjusted (non-IFRS) EBITDA grew 114% to 30 million euros, and represented 28.9% of revenue, up from 17.2% in 1Q18.

Evotech reported 2018 revenue of 375 million euros, which was up 42% from the prior year. Core (non-IFRS) EBITDA grew 67% and represented 25.4% of revenue, up from 21.7% in 2017. IFRS net income of 0.56 euros per diluted share rose strongly from 0.16 euros a year earlier.

Along with its 1Q19 quarterly update, management reaffirmed its 2019 guidance. Group revenues are expected to increase approximately 10% year-over-year. Adjusted EBITDA is also forecast to grow approximately 10%.

Business & Customers – 2018

- In May 2019, Evotech acquired Just Biotherapeutics, a biologics manufacturing specialist, for \$90 million. The deal expands Evotech's drug discovery services to the design, development and manufacturing of optimized biologics.
- Evotech acquired Aptuit in August 2017. Aptuit offers scientific expertise across drug discovery, preclinical testing, and drug substance and drug product manufacturing to its biopharma partners.
- The company has strengthened its partnership with Celgene in oncology, and in September 2018 expanded this partnership to include targeted protein degradation.

LONZA GROUP (LONN)

Semiannual Results Summary

Switzerland-based Lonza Group reports semiannually in Swiss Francs (CHF). Lonza reported 2018 revenue of CHF 5.54 billion, which was up 9% from CHF 5.1 billion in 2017. All comparisons now include Capsugel. Core (non-IFRS) EBITDA of CHF 1.51 billion grew 12% from 2017. Core net income of CHF 11.93 per diluted share rose 11% year-over-year.

Along with the 2018 results, management provided directional rather than explicit full-year 2019 guidance and medium-term (to 2022) guidance. The company expects mid- to high single-digit revenue growth in 2019, along with a sustained high core EBITDA margin. Its 2022 outlook, still including the water care business, calls for annual sales of CHF 7.5 billion, a core EBITDA margin of 30%, and a double-digit return on invested capital.

Segment	% of Sales	2018 Segment Growth Rate
Pharma&Biotech	56%	29%
Specialty Ingredients	44%	14%

Business Outlook

On a segment basis, objectives include high single-digit sales growth for Pharma & Biotech with a 30%-plus core EBITDA margin; mid- to high single-digit sales growth for Specialty Ingredients, Consumer Health, with progression from a high 20% to a 30%-plus EBITDA margin; and low to mid-single-digit sales growth for

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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Specialty Ingredients, Consumer & Resources Protection, with progression from a high teens to a 25%-plus EBITDA margin.

Capital Strategy and M&A

In November 2018, Lonza announced plans to divest its water care business to private equity firm Platinum Equity for \$630 million. Inclusion of the French water care business in this deal is still under discussion.

The divestiture of water care strengthens Lonza's focus on its healthcare continuum strategy.

SIEGFRIED HOLDINGS AG (SFZN)

Semiannual Results Summary

Switzerland-based Siegfried Holdings AG reports semiannually in Swiss Francs (CHF). Siegfried Holdings reported 2018 revenue of

CHF 794 million, which was up 6% (4% in local currency) from 2017. EBITDA of CHF 127 million rose 15% annually, and the EBITDA margin widened by 120 basis points to 16.0%. IFRS net income of CHF 13.38 per diluted share rose 34% from CHF 9.97 in 2017.

Along with its 2018 results, management provided full-year guidance for 2019. It expects to grow revenue in at least the mid-single-digit range and to continue to expand the EBITDA margin.

<u>Segment</u>	<u>% of Sales</u>	<u>2018 Segment Growth Rate</u>
Drug Substances	75%	2%
Drug Products	25%	17%

HIGHLIGHTS FROM RECENT RESULTS (CONTINUED)

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BPOS VALUATION TABLE

Ticker	Fundamentals				Growth Rates				Valuations				
	Mkt. Cap (\$BIL)	Revenue (\$BIL)	Op Mgn (%)	D/E (%)	Rev %	EPS %	1-Yr Return (%)	5-Yr Return (%)	PS	PE	EV/ EBITDA	Yield (%)	
US Companies													
Bio-Techne Corp.	TECH	7.9	0.7	21.8	46	8	1	42	125	11.2	39.0	38.6	0.7
Cambrex Corp.	CBM	1.6	0.6	19.4	82	17	-33	-8	131	2.9	23.6	13.1	0.0
Catalent Inc.	CTLT	8.0	2.5	12.8	135	2	6	33	175	3.2	27.5	18.0	0.0
Charles River Laboratories International, Inc.	CRL	6.9	2.7	15.4	120	17	7	27	120	2.9	19.4	15.4	0.0
ICON Public Limited Company	ICLR	8.4	2.8	14.9	32	8	13	18	233	3.2	20.1	17.7	0.0
Illumina Inc.	ILMN	53.8	3.8	25.6	61	13	17	35	112	15.9	47.8	48.7	0.0
Iqvia Holdings Inc.	IQV	31.5	11.0	8.0	172	6	14	59	102	3.0	22.1	23.1	0.0
Laboratory Corporation of America Holdings	LH	17.0	11.5	13.0	96	1	2	-4	48	1.5	14.3	12.2	0.0
Medpace Holdings Inc.	MEDP	2.3	0.8	14.4	18	17	2	51	131	3.2	22.0	16.5	0.0
PRA Health Sciences Inc.	PRAH	6.4	3.1	11.6	115	8	17	4	319	2.2	17.2	16.6	0.0
Syneos Health Inc.	SYNH	5.3	4.7	6.4	109	6	8	6	83	1.2	14.3	14.8	0.0
Thermo Fisher Scientific Inc.	TMO	116.5	25.4	16.2	68	4	9	43	148	5.7	21.5	21.7	0.3
<i>Averages</i>		<i>22.1</i>	<i>5.8</i>	<i>16.0</i>	<i>87.8</i>	<i>9</i>	<i>5</i>	<i>25</i>	<i>144</i>	<i>4.7</i>	<i>24.1</i>	<i>21.4</i>	<i>0.1</i>
Foreign Companies													
Dottikon ES Holding AG	DESN	0.7	0.1	17.3		-7	-37	-24	241	4.3	40.0	14.0	0.0
Eurofins Scientific	ERF	6.9	4.4	11.4	116	27	15	-19	69	1.8	40.6	13.4	0.8
Evotech AG	EVT	3.7	0.4	19.3	51	30	30	39	479	9.3	39.2	33.8	0.0
Lonza Group Ltd.	LONN	24.5	6.0	18.4	66	9	11	23	271	4.4	44.0	18.6	0.9
Siegfried Holding AG	SFZN	1.4	0.8	9.6	16	6	34	-14	110	1.8	26.0	11.8	0.8

Sources: Argus Research, Bloomberg Inc. Data as of 7/31/2019

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