

VALUE FOCUS

Laboratory Services

Year-End 2018

In This Issue

Industry Specific Macroeconomic Trends	1
M&A Transactions	4
Guideline Public Company Pricing	6
Valuation Trends	8
Macroeconomic Overview	10
Benchmarking Data for Testing Laboratories	15
About Mercer Capital	17

Industry Specific

Macroeconomic Trends

The Laboratory Services industry has experienced moderate performance over the last five years as the industry's revenue increased at an average annual rate of 1.2% between 2013 and 2018, reaching an estimated \$18.7 billion by end-year 2018. As defined by IBIS World, the laboratory services industry comprises the following segments: Product Performance & Safety Testing (47.2%), Environmental Testing (25.6%), Product Certification (8.1%), Biological and Chemical Testing (6.8%), Agriculture & Food Testing (6.7%), Other (5.6%). In addition to these segments, we will also focus on medical testing laboratories.

The industry's performance is sensitive to changes in the general economic environment both inside the U.S. and internationally. General economic conditions may impact demand for products and services which, in turn, trigger demand for laboratory services. Most recently, the industry has been the beneficiary of increasing environmental, industrial, and medical regulatory standards promoting demand for lab services. In addition to expanding regulatory regimes, influential growth factors include growing research and development budgets and technological innovations, industry consolidation, pharmacogenomics/companion diagnostics, and cost pressures.

Environmental Testing

This category includes testing and monitoring of air, noise, water, and soil pollution, as well as industry waste production and disposal. Within an ever-changing environment, this sector has become more robust to ensure compliance with governmental regulation as well as protecting and remediating the environment. Green initiatives and environmental concerns have influenced government and business policies, resulting in a move toward green technology and increased demand for industry services.

Medical Testing and Diagnostics

Wider access to health insurance could increase demand for medical tests, although limitations on reimbursement through Medicare and Medicaid could limit revenue growth. The aging population and the chronic diseases associated with an older population are also increasing demand for testing services. The increased emphasis on preventative measures and personalized care is also increasing the role of diagnostics testing in standard healthcare.

Industry Specific

Macroeconomic Trends

Research and Development

Increased research and development (R&D) spending has been an important driver of industry growth. R&D is positively correlated to economic growth. During the five years to 2023, R&D expenditure is projected to increase at an annualized rate of 1.2%, fueling demand for laboratory testing services. In addition to creating more products to be tested, improved technology can make testing laboratories more efficient. New methods and equipment reduce the need to replicate results, can eliminate intermediate steps in traditional testing practices, or can develop new tests entirely. New equipment can also reduce the amount of labor needed to run a testing facility, potentially creating cost savings for laboratories.

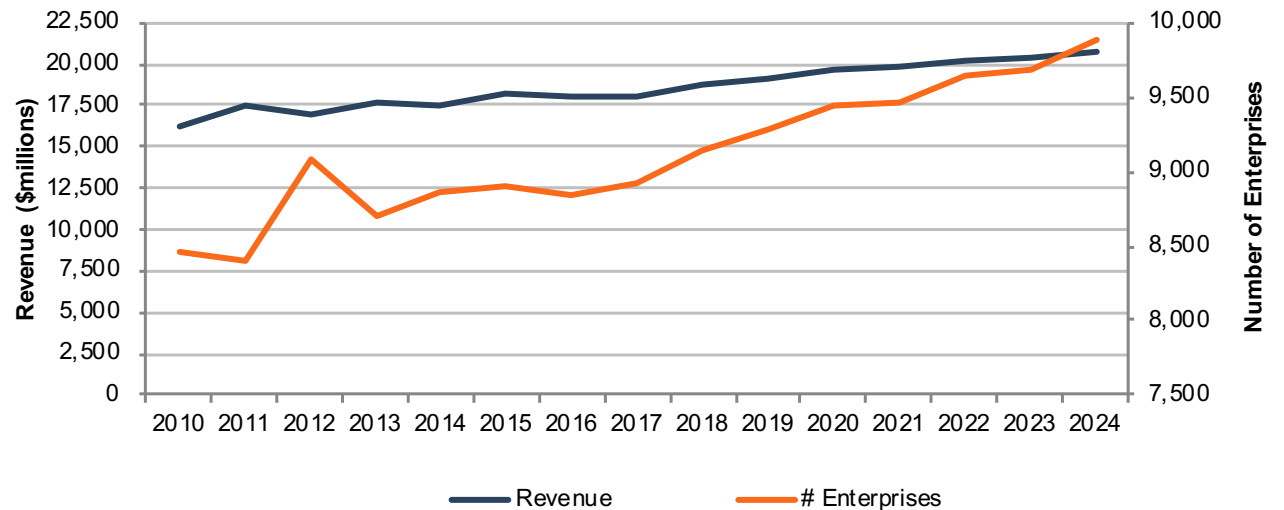
Revenue & Industry Structure

According to IBIS World, the Lab Services industry has seen revenue increase at an average annual rate of 1.2% between 2013 and 2018. The industry is expected to grow at an average annual rate of 1.8% during the next 5 year period as product manufacturers seek to maintain compliance with federal and state regulations and improve products. The FDA, the EPA, and the USDA maintain a variety of continually updating regulations that seek to adapt to changing consumer and environmental trends. FDA implemented rules that require restaurant menus to display calories and nutrition information and the EPA is revising its methods for evaluating chemicals. Increasingly stringent product safety testing rules have also driven industry growth.

Industry Specific
Macroeconomic Trends

The industry is fragmented, with the average revenue per company hovering around \$2.1 million. While there are numerous companies, competition in the industry is based on specialty. A relatively small number of firms with expertise in a specific field, such as food testing or physical safety and engineering integrity, will compete amongst themselves for business. The number of established companies has grown at a compound annual rate of 1.2% between 2013 and 2018 and is expected to experience continued stable compound annual growth rate of 1.1% into the projected 2019-2024 period.

Revenue and Establishments



Source: IBISWorld

M&A Transactions

Announced Date	Target / Issuer	Buyers / Investors	Trans. Types	Trans. Status	Total Trans. Value (\$USD mm)	Total Rev. [LTM] (\$USDmm) [Target / Issuer]	EBITDA [LTM] (\$USDmm) [Target/ Issuer]	Business Description [Target/Issuer]
11/20/2018	EnviTreat Inc.	EA Engineering, Science, and Technology, Inc.	Merger/ Acquisition	Closed	-	-	-	EnviTreat, Inc. provides laboratory services for evaluating the treatability of industrial wastewaters.
08/15/2018	Altasciences Preclinical Seattle, Inc.	Altasciences US Intermediate, LLC	Merger/ Acquisition	Closed	-	-	-	Altasciences Preclinical Seattle, Inc. provides contract research for preclinical studies.
08/15/2018	Ambient Reservoir Monitoring, Inc.	-	Private Placement	Announced	-	-	-	Ambient collects and analyzes data to identify activity in the subsurface related to the energy industry.
08/13/2018	EPL Bio Analytical Services, LLC	Tentamus Group GmbH	Merger/ Acquisition	Closed	-	-	-	EPL Bio Analytical provides analytical laboratory testing services to the agricultural, food ingredient, and feed industries.
08/02/2018	Nanolab Technologies, Inc.	Eurofins Scientific SE (ENXTPA:ERF)	Merger/ Acquisition	Announced	-	12	-	Nanolab Technologies, Inc. provides knowledge based technology analytical services.
07/16/2018	Laboratory Operations of John Hassall LLC	KLX Aerospace Solutions, Inc.	Merger/ Acquisition	Closed	-	-	-	These Laboratory Operations offers testing services of fasteners and consumables for the aerospace industry.
07/09/2018	Waypoint Analytical, Inc.	Nutrien Ltd. (TSX:NTR)	Merger/ Acquisition	Announced	-	-	-	Waypoint provides analytical services for the environmental, food, pharmaceutical, agricultural, and petroleum industries.
06/20/2018	Castle Worldwide, Inc.	Scantron Corporation	Merger/ Acquisition	Closed	-	-	-	Castle Worldwide, Inc. operates as a certification and licensure testing company.
06/07/2018	Pernicka Corporation	EAG Inc.	Merger/ Acquisition	Closed	-	-	-	Pernicka Corporation provides gas composition analysis for defense, aerospace, and medical device industries.
06/05/2018	Polymer Solutions Incorporated	SGS SA (SWX:SGSN)	Merger/ Acquisition	Closed	-	-	-	Polymer Solutions Inc. offers chemical analysis, physical testing, research and development, and litigation services.
05/24/2018	RS Calibration Services, Inc.	Trescal SA	Merger/ Acquisition	Closed	-	11	-	REACH Genetics, Inc. provides data collection and analysis of chemical, genetic and phenotypic profiles of hemp.
06/01/2018	REACH Genetics, Inc.	-	Private Placement	Announced	0	-	-	RS Calibration Services, Inc. provides calibration and validation services for biomedical, pharmaceutical, and other industries.
04/30/2018	Covance Inc.	Eurofins Scientific SE (ENXTPA:ERF)	Merger/ Acquisition	Closed	670	160	-	Covance provides routine and specialized lab testing and consulting for the food and beverage industries.

Source: S&P Capital IQ

M&A Transactions

Announced Date	Target / Issuer	Buyers / Investors	Trans. Types	Trans. Status	Total Trans. Value (\$USD mm)	Total Rev. [LTM] (\$USDmm) [Target / Issuer]	EBITDA [LTM] (\$USDmm) [Target/ Issuer]	Business Description [Target/Issuer]
04/16/2018	Silicon Cert, Ltd.	Oneida Research Services, Inc.	Merger/ Acquisition	Closed	-	-	-	Silicon Cert Laboratories, provides reliability testing and analytical services to various industries.
04/10/2018	OptiGen, LLC	Mars Petcare US, Inc.	Merger/ Acquisition	Closed	-	-	-	OptiGen, LLC provides DNA-based diagnoses and information about inherited diseases of dogs.
04/02/2018	Air Pollution Testing, Inc.	Alliance Source Testing, LLC	Merger/ Acquisition	Closed	-	5	-	Air Pollution Testing, Inc. provides emission testing and oil and gas laboratory services.
03/01/2018	REI Consultants, Inc.	Pace Analytical Services, Inc.	Merger/ Acquisition	Closed	-	15	-	Renewable Energy Test Center, LLC provides engineering, testing, and certification for renewable energy products.
02/20/2018	Jefferson Education Exchange Inc.	Strada Education Network, Endowment Arm; Curry School Foundation	Private Placement	Closed	1	-	-	REI Consultants, Inc. is an environmental consultants specializing in laboratory analysis services.
01/22/2018	Assets of Better Environmental Protection Labs, Inc.	EMSL Analytical, Inc.	Merger/ Acquisition	Announced	-	-	-	Jefferson Education Exchange Inc. defines, collects, and analyzes data to educators for decision making.
01/16/2018	Toxicology Holdings Corp.	ACM Medical Laboratory, Inc.	Merger/ Acquisition	Closed	-	-	-	Better Environmental Protection Labs, Inc. comprises laboratory testing and drinking water testing services.
01/11/2018	MET Laboratories, Inc.	Eurofins Scientific SE (ENXTPA:ERF)	Merger/ Acquisition	Closed	-	39	-	Toxicology Holdings Corp. operates as a toxicology laboratory which provides substance abuse identification and services.
01/02/2018	Karna, LLC	The Celerian Group	Merger/ Acquisition	Closed	-	26	-	Karna, LLC offers IT consulting, support services, consulting, communications, and lab support services.
01/09/2018	Jabil Inc. (NYSE:JBL)	-	Public Offering	Closed	498.57	22,095.4	1,352.8	Jabil Inc. provides electronic manufacturing services and solutions worldwide.
01/02/2018	Karna, LLC	The Celerian Group	Merger/ Acquisition	Closed	-	-	-	Karna, LLC offers IT consulting, support services, consulting, communications, and lab support services.

Source: S&P Capital IQ

Public Company Pricing

Selected Financial Data (\$Millions, as of December 31, 2018)

Company Name	Ticker	Market Values				Performance and Valuation					Forward Val. Multiples	
		Stock Price	Shares O/S	Market Cap	Enterprise Value	LTM Revenue	LTM EBITDA	EBITDA Margin	EV / Revenue	EV / EBITDA	Revenue	EBITDA
Medical Testing												
Laboratory Corporation of America Holdings	LH	\$126.36	100.9	\$12,750	\$18,405	\$11,333	\$1,919	16.9%	1.6x	9.6x	1.6x	9.3x
<i>Clinical laboratory serving the medical profession</i>												
Quest Diagnostics Incorporated	DGX	\$83.27	136.1	11,331	15,408	7,531	1,578	21.0%	2.0x	9.8x	2.0x	10.0x
<i>Diagnostic testing information services</i>												
Life Sciences Tools & Services												
Eurofins Scientific SE	ERF	\$373.25	17.6	6,588	9,682	4,329	811	18.7%	2.2x	11.9x	2.0x	10.5x
<i>Global diversified testing company</i>												
Agilent Technologies, Inc.	A	\$67.46	318.5	21,488	21,044	4,914	1,184	24.1%	4.3x	17.8x	4.1x	16.1x
<i>Bio-analytical and analytical testing</i>												
PerkinElmer, Inc.	PKI	\$78.55	111.2	8,738	10,466	2,778	559	20.1%	3.8x	18.7x	3.7x	17.0x
<i>Medical Diagnostic and environmental testing laboratory</i>												
Thermo Fisher Scientific Inc.	TMO	\$223.79	402.6	90,093	107,109	24,358	6,156	25.3%	4.4x	17.4x	4.3x	16.5x
<i>Distributor of analytical instruments, equipment, reagents, consumables, software, and services</i>												
ALS Limited	ASX:ALQ	\$4.78	486.5	2,325	2,758	1,126	233	20.7%	2.4x	11.9x	2.3x	10.7x
<i>Analytical testing of environmental, food, pharmaceutical, and consumer products</i>												

Source: S&P Capital IQ

Public Company Pricing

Selected Financial Data (\$Millions, as of June 30, 2018)

Company Name	Ticker	Market Values				Performance and Valuation					Forward Val. Multiples	
		Stock Price	Shares O/S	Market Cap	Enterprise Value	LTM Revenue	LTM EBITDA	EBITDA Margin	EV / Revenue	EV / EBITDA	Revenue	EBITDA
Other Labs & Related Services												
Ecology & Environment, Inc. <i>Environmental consulting firm</i>	EEI	\$11.34	4.3	49	34	106	5	5.1%	0.3x	6.4x	nm	nm
IDEXX Laboratories, Inc. <i>Diagnostic and detection testing for veterinary, food, and water purposes</i>	IDXX	\$186.02	86.2	16,041	16,918	2,213	577	26.1%	7.6x	29.3x	7.2x	26.6x
Danaher Corporation <i>Environmental, life sciences, and industrial technology services for medial, industrial, and commercial purposes</i>	DHR	\$103.12	700.9	72,277	81,242	19,893	4,819	24.2%	4.1x	16.9x	4.0x	16.8x
Clean Harbors, Inc. <i>Environmental remediation and industrial waste management services</i>	CLH	\$49.35	56.0	2,764	4,057	3,300	483	14.6%	1.2x	8.4x	1.2x	8.1x
MetLife, Inc. <i>Testing and certification of electrical products</i>	MET	\$41.06	986.8	40,520	108,649	67,915	7,816	11.5%	1.6x	13.9x	1.7x	nm
Average					32,981	12,483	2,178	19.0%	3.0x	14.3x	3.1x	14.2x
Median					16,163	4,622	997	20.4%	2.3x	12.9x	2.3x	13.4x

Source: S&P Capital IQ

Valuation Trends

Public Companies

We assessed the historical valuation trends of the twelve companies on pages 6-7 by comparing each company's enterprise value divided by LTM EBITDA over the last two years at each quarter-end. The median multiple decreased from 17.1x to 13.9x from December 2017 through December 2018, with most of the decline occurring during the fourth quarter of 2018. On average, companies focused on medical testing are accorded the lowest multiples (median of 9.7x) due in part to more modest growth expectations.

Historical Valuation Trends to Public Companies

Company Name	Ticker	Enterprise Value / LTM EBITDA Multiple							
		12/31/18	9/30/18	6/30/18	3/31/18	12/31/17	9/30/17	6/30/17	3/31/17
Medical Testing									
Laboratory Corporation of America Holdings	LH	9.6x	12.3x	12.6x	11.9x	12.1x	11.4x	11.6x	10.9x
Quest Diagnostics Incorporated	DGX	9.8x	11.9x	12.0x	11.2x	11.0x	10.8x	12.4x	11.4x
Life Sciences Tools & Services									
Eurofins Scientific SE	ERF	10.5x	15.9x	16.7x	15.8x	17.7x	18.6x	17.7x	15.4x
Agilent Technologies, Inc.	A	17.8x	18.9x	16.6x	18.5x	19.2x	19.0x	18.3x	17.1x
PerkinElmer, Inc.	PKI	18.8x	24.5x	22.5x	23.9x	19.9x	19.4x	20.3x	17.4x
Thermo Fisher Scientific Inc.	TMO	17.5x	19.7x	17.9x	18.7x	18.6x	18.4x	18.0x	16.7x
ALS Limited	ASX:ALQ	11.9x	15.2x	13.8x	14.1x	14.7x	16.6x	16.2x	13.8x
Other Labs & Related Services									
Ecology & Environment, Inc.	EEL	6.4x	8.0x	7.2x	5.4x	4.5x	5.9x	8.2x	6.8x
IDEXX Laboratories, Inc.	IDXX	29.3x	40.3x	36.6x	33.7x	29.2x	30.1x	32.2x	32.0x
Danaher Corporation	DHR	17.0x	17.8x	16.4x	17.2x	16.9x	16.6x	16.9x	17.1x
Clean Harbors, Inc.	CLH	8.6x	11.6x	10.1x	9.4x	10.3x	11.0x	10.9x	11.1x
MetLife, Inc.	MET	15.8x	19.1x	18.7x	22.5x	17.2x	33.2x	31.9x	36.0x
Median		13.9x	16.8x	16.5x	16.5x	17.1x	17.5x	17.3x	16.0x

Valuation Trends

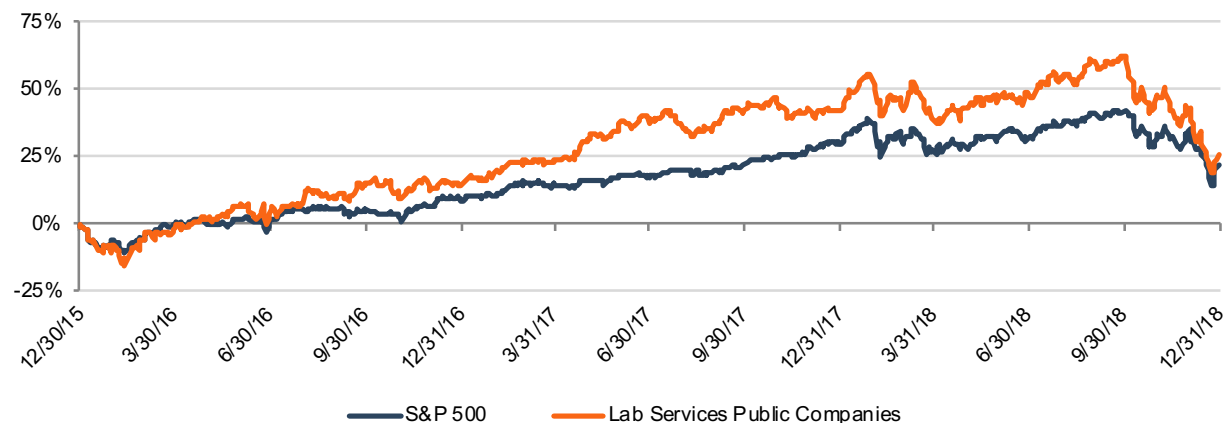
Lab Services Index

Our Lab Services Index includes the companies outlined on [pages 6-7](#). We compared the Index's performance to the S&P 500 over the last three years as well as the past year.

As previously mentioned, the laboratory services industry is influenced by general macroeconomic conditions, depicted by the three year historical analysis. Over the longer-term, lab services companies have outperformed the S&P, while over the past year, the S&P 500 declined 6%, compared to lab services declines of 11%.

Historical Market Trends

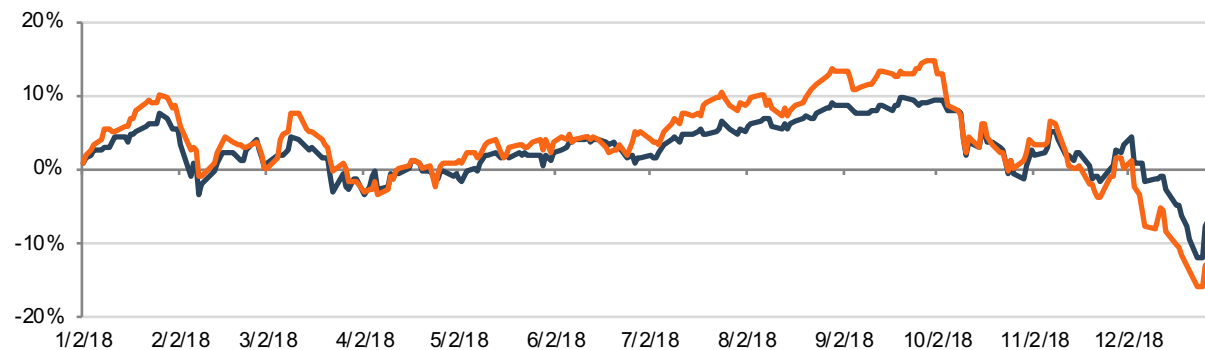
Last 3 Years



Source: Bloomberg

Historical Market Trends

LTM



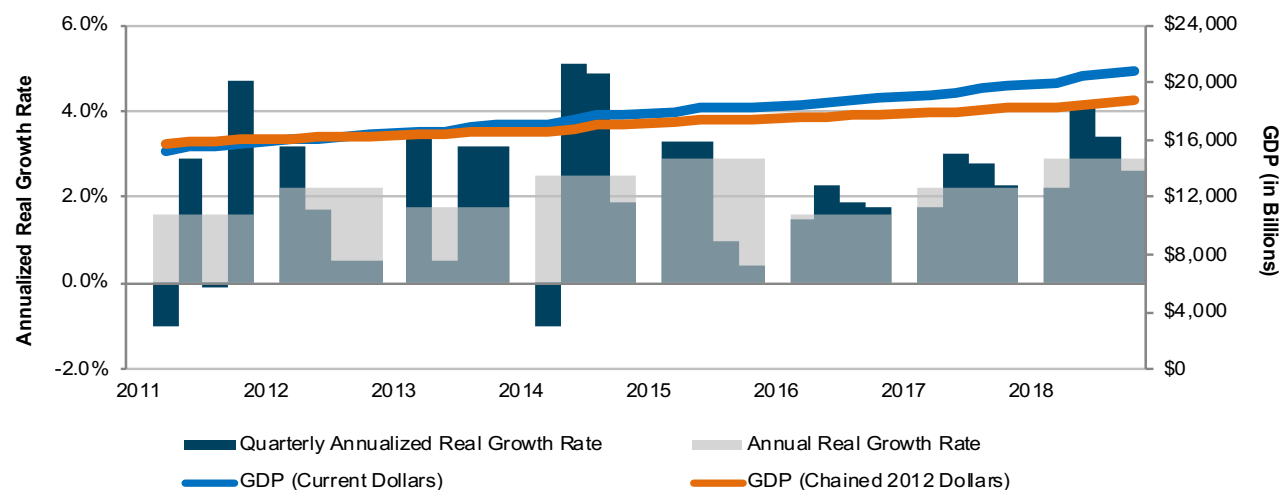
Source: Bloomberg

Macroeconomic Overview

GDP

According to advance estimates released by the Department of Commerce's Bureau of Economic Analysis (the "BEA"), Real Gross Domestic Product ("GDP"), the output of goods and services produced by labor and property located in the United States, increased at an annualized rate of 2.6% during the fourth quarter of 2018. GDP growth in the fourth quarter was down from growth of 3.4% in the third quarter of 2018 and represents the eighteenth straight quarter of growth. The increase was attributable to gains in personal consumption expenditures, nonresidential fixed investment, exports, private inventory investment, and federal government spending, and was offset by declines in residential fixed investment, state and local government spending, and growing imports. Real GDP grew 2.9% during 2018, compared to growth of 1.6% in 2016 and 2.2% in 2017.

GDP



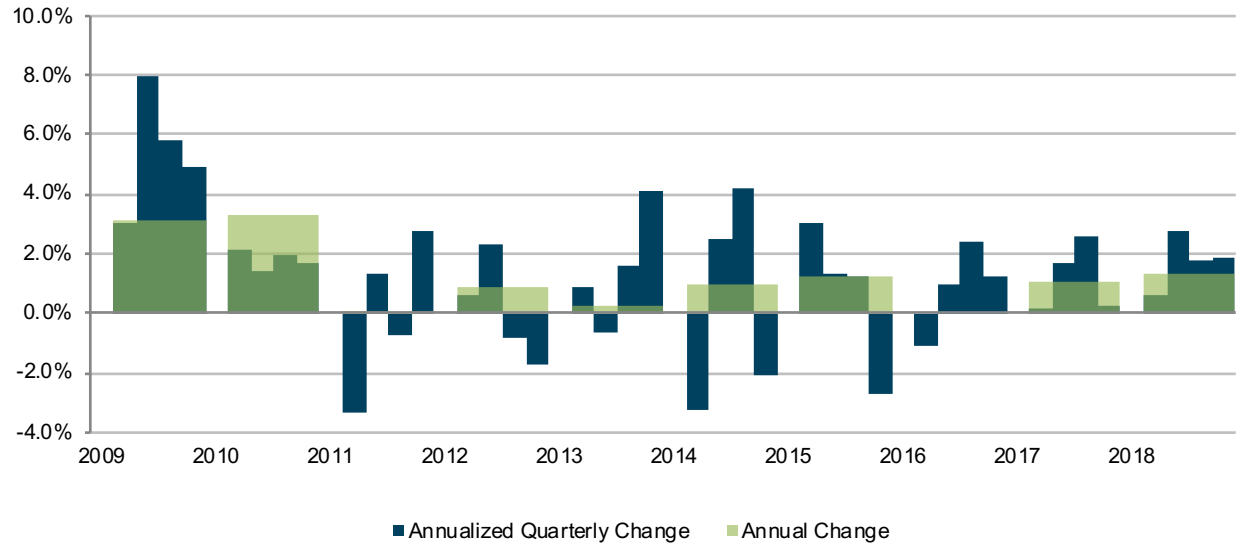
Source: Bureau of Economic Analysis

Macroeconomic Overview

Business Manufacturing and Productivity

According to the BLS, seasonally adjusted nonfarm business productivity (as measured by the hourly output of all persons) increased at an annual rate of 1.9% in the fourth quarter of 2018. The productivity increase in the fourth quarter follows an increase of 1.8% in the third quarter. Productivity increased 1.8% relative to the fourth quarter of 2017. The following chart summarizes the changes in individual components of productivity during the fourth quarter of 2018.

Change in Nonfarm Business Productivity



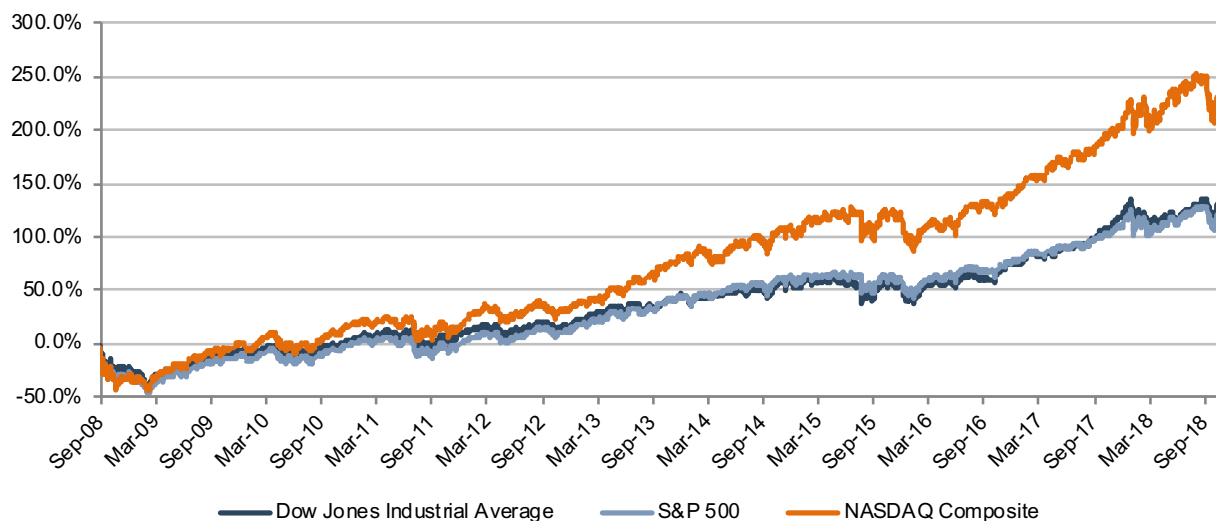
Source: Bureau of Labor Statistics

Macroeconomic Overview

The Financial Markets

The fourth quarter of 2018 was a tumultuous three months for major U.S. stock indices, resulting in the steepest annual declines in U.S. equity markets since the financial crisis. While much of the third quarter was marked by low volatility, the fourth quarter was fraught with market turbulence. October, a traditionally volatile month in equity markets, ushered in the worst monthly decline since September 2011 for the S&P 500, the sharpest monthly drop since January 2016 for the Dow Jones Industrial Average, and brought the NASDAQ into correction territory. Market indices relied on a late rally in November to finish the month slightly ahead of where they began. The bulk of the major indices' losses came in December, a month in which the Dow Jones Industrial Average and S&P 500 posted their largest monthly losses since February 2009. Further exacerbating unfavorable market conditions at the end of the year was the prospect, and eventual materialization, of a lengthy shutdown of the Federal Government, which began on December 22 and was still ongoing at year-end 2018.

Equity Index Price Return



Source: Bloomberg L.P.

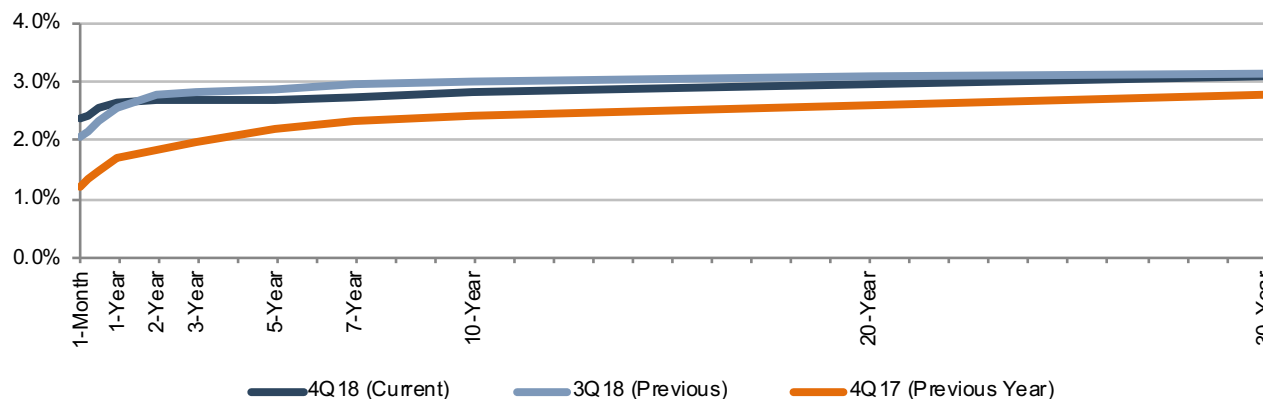
Macroeconomic Overview

Yield Curve

Short-term treasury yields increased during the fourth quarter of 2018, while longer-term yields fell. Bond prices are negatively correlated with their respective yields. As the Fed signaled toward only two rate increases in 2019 and investors looked to long-term treasuries as a safe haven from volatile equity markets, demand for government debt increased in the fourth quarter of 2018. Bond prices can shift abruptly due to investor reactions to variances in reported economic data versus market expectations (e.g., expected inflation, growth, monetary policy, and other Federal Reserve actions).

The spread between 2-year and 10 year Treasury note yields narrowed significantly over the quarter, as the fall in the 2-year note's yield (9 bps) was less pronounced than that of the 10-year note (17 bps). At the end of the first quarter of 2018, the spread between the two yields was 56 basis points. This spread had fallen to 38 basis points by the end of the second quarter and further narrowed in the third quarter to 23 basis points. By the end of the fourth quarter, the spread was 15 basis points, suggesting a continuously flattening yield curve over the course of the year. Investors generally view the slope of the yield curve as an indicator of the direction of the economy. Steeper sloped yield curves imply greater future economic growth.

U.S. Treasury Yield Curve



Source: Federal Reserve Statistical Release H.15
 Note: Figures shown are the average yield for the last month of the quarter.

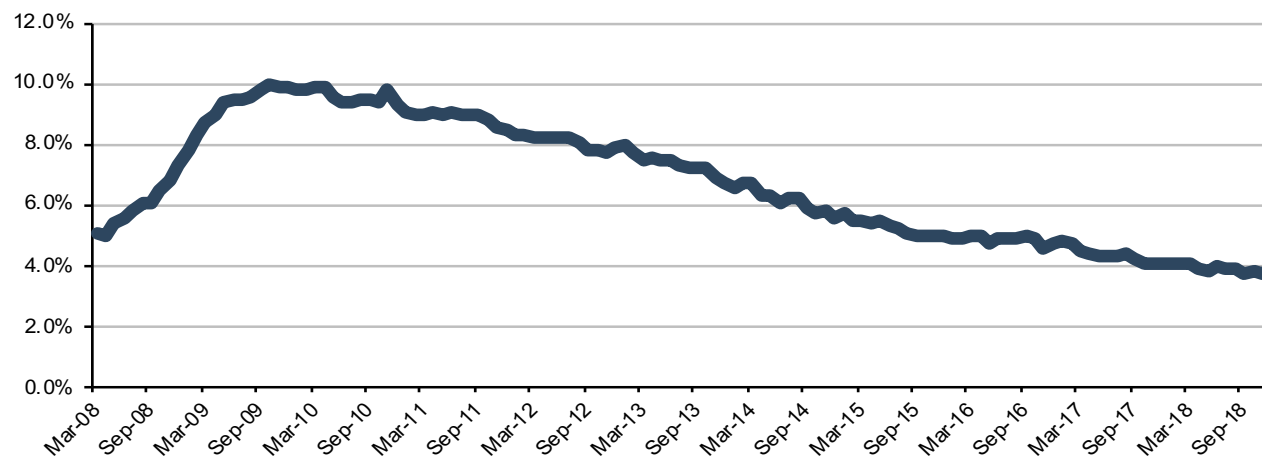
Macroeconomic Overview

Unemployment and Payroll Jobs

According to the BLS, the unemployment rate (U-3) was 3.9% in December 2018, which is up from 3.8% in October 2018 and 3.7% in November 2018. While the unemployment rate increased in December 2018, it still remains very low by historical standards. Economists surveyed by *The Wall Street Journal* anticipate unemployment rates of 3.7% in both June and December 2019.

The number of nonfarm payroll jobs increased by 312,000 in December 2018 and rose by 2.6 million in 2018, compared to 2.2 million in 2017. Population growth alone adds approximately 124,088 individuals to the workforce per month.

Civilian Unemployment Rate



Source: Bureau of Labor Statistics

Benchmarking Data for Testing Laboratories

Benchmarking to peer performance is a valuable tool for business managers. In our valuation practice, we routinely examine peer data published by Risk Management Association ("RMA"). In this issue, we present a summary of the data presented by RMA for testing laboratories.

The 2018-2019 *Annual Statement Studies* published by Risk Management Association ("RMA") compiles average percentage income statements and balance sheets and key financial ratios of Testing Laboratories classified under North American Industry Classification System ("NAICS") #54138. We compared three sales categories within this industry: \$5-10 million (31 companies), \$10-25 million (36 companies), and \$25 million and over (36 companies). The percentage balance sheet, percentage income statement, and selected financial ratios are summarized to the right.

Percentage Balance Sheets	Sales \$5-10M	Sales \$10-25M	Sales \$25M+
Total Current Assets	64.4%	57.6%	50.0%
Net Fixed Assets	26.2%	28.2%	31.1%
Other Assets	9.4%	14.2%	18.9%
Total Assets	100.0%	100.0%	100.0%
Total Current Liabilities	32.2%	24.0%	33.1%
Long-Term Debt	17.1%	13.6%	15.4%
Other Liabilities	6.4%	2.9%	8.4%
Total Liabilities	55.7%	40.5%	56.9%
Total Equity	44.3%	59.5%	43.1%
Total Liabilities and Equity	100.0%	100.0%	100.0%

Percentage Income Statements	Sales \$5-10M	Sales \$10-25M	Sales \$25M+
Operating Income	10.0%	8.8%	6.7%
Other Income / (Expense)	-0.7%	-0.4%	-0.5%
Pre-Tax Income	9.3%	8.4%	6.2%
+ Depreciation & Amortization	2.7%	3.0%	3.4%
EBITDA	12.0%	11.4%	9.6%

Ratio Analysis	Sales \$5-10M	Sales \$10-25M	Sales \$25M+
Sales / Receivables	7.2	6.5	6.3
Working Capital / Sales	11.8%	13.0%	9.7%
Sales / Net Fixed Assets	11.3	7.9	5.3
Pre-tax Return on Equity	41.1%	36.5%	26.0%

Source: Risk Management Association

Benchmarking Data for Testing Laboratories

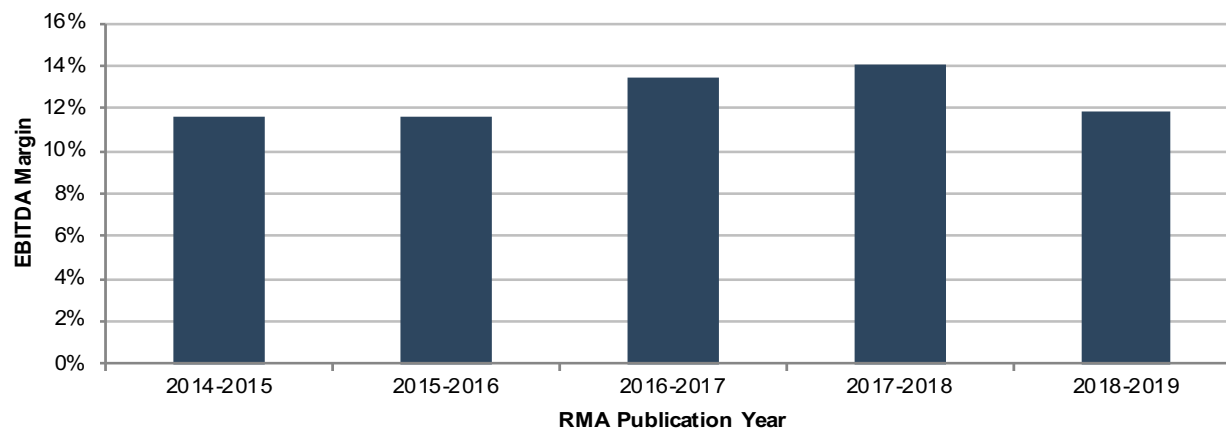
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From a balance sheet perspective, the smaller companies carry larger debt balances (17% of total assets) than their larger peers and tend to operate with lower levels of fixed assets. On a pre-tax basis, return on equity for the industry composites range from 26% to 41%, suggesting that tradenames, customer relationships, and other intangible assets are important components of the value of such labs.

The following chart summarizes EBITDA margin by year for the middle size cohort. Over the period analyzed, margins have fluctuated between 11.6% and 14.1%.

The peer group data from RMA can help lab managers benchmark their operations against a diverse group of other labs and help identify opportunities for improvement.

EBITDA Margin (Sales of \$10-25 Million)



Source: NAICS 541380 (Sales of \$10-25 Million)

Mercer Capital

Laboratory Services
Industry

Mercer Capital has expertise providing business valuation and financial advisory services to companies in the laboratory services industry.

Mercer Capital provides business valuation and financial advisory services to laboratory service companies throughout the nation. We provide valuation services for tax purposes, buy-sell agreements, partner buyouts, and other corporate planning purposes. Mercer Capital also works with owners who are considering the sale of their dealership or the acquisition of other laboratories.

Services Provided

- Valuation of laboratory services industry companies
- Transaction advisory for acquisitions and divestitures
- Valuations for purchase accounting and impairment testing
- Fairness and solvency opinions
- Litigation support for economic damages and valuation and shareholder disputes

Contact a Mercer Capital professional to discuss your needs in confidence.

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