



HOULIHAN LOKEY

# CHEMICALS UPDATE

Fall 2018



# Introduction

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Dear Clients and Friends,

Houlihan Lokey is pleased to present its Chemicals Industry Update for fall 2018.

We have included relevant news stories, recent M&A transaction announcements, a public markets overview, and other industry insights to help you stay ahead in this evolving industry. We hope you find this quarterly update to be informative and that it serves as a valuable resource to you in staying abreast of the market. If there is additional content you would find useful for future updates, please don't hesitate to call or email us with your suggestions. We look forward to staying in touch with you.

Regards,

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Houlihan Lokey is the trusted advisor to more top decision-makers than any other independent global investment bank.

### Corporate Finance

#### 2017 M&A Advisory Rankings All U.S. Transactions

Advisor	Deals
1 Houlihan Lokey	174
2 Goldman Sachs & Co	173
3 JP Morgan	164
4 Morgan Stanley	132
5 Barclays	106

Source: Thomson Reuters

### Financial Restructuring

#### 2017 Global Distressed Debt & Bankruptcy Restructuring Rankings

Advisor	Deals
1 Houlihan Lokey	63
2 Rothschild & Co.	48
3 Lazard	36
4 PJT Partners LP	35
5 Moelis & Co.	22

Source: Thomson Reuters

### Financial Advisory

#### 1997 to 2017 Global M&A Fairness Advisory Rankings

Advisor	Deals
1 Houlihan Lokey	1,001
2 JP Morgan	959
3 Bank of America Merrill Lynch	699
4 Duff & Phelps	672
5 Morgan Stanley	660

Source: Thomson Reuters. Announced or completed transactions.

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

No. 1 Global Restructuring Advisor

1,000+ Transactions Completed  
Valued at More Than \$2.5 Trillion  
Collectively

No. 1 Global M&A Fairness Opinion  
Advisor Over the Past 20 Years

1,000+ Annual Valuation  
Engagements

## Selected Transactions

<p>has completed the spin-off of</p> <p>Financial Opinion</p>	<p>has sold certain assets to</p> <p>Fairness Opinion</p>	<p>the coatings subsidiary of</p> <p>has been acquired by Kansai Paint</p> <p>Sellside Advisor</p>	<p>Specialty Chemicals</p> <p>has merged with</p> <p>performance materials</p> <p>Fairness Opinion</p>	<p>has completed a merger with the chemicals business of PPG in a Reverse Morris Trust transaction</p> <p>Financial Advisor</p>
<p>has been acquired by</p> <p>Sellside Advisor</p>	<p>a portfolio company of</p> <p>has been acquired by</p> <p>Sellside Advisor</p>	<p>has been acquired by</p> <p>NEW MOUNTAIN CAPITAL</p> <p>Financial Opinion</p>	<p>has acquired</p> <p>RESINS</p> <p>from</p> <p>Arsenal Capital Partners</p> <p>Buy-side Advisor</p>	

# Houlihan Lokey Media Mentions

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## Houlihan Lokey Continues Expansion of Its Global Industrials Group With Experienced Sector Banker Based in Frankfurt (*BusinessWire, November 5, 2018*)

“FRANKFURT, Germany—([BUSINESS WIRE](#))—Houlihan Lokey (NYSE:HLI), the global investment bank, today announced that Martin Bastian will join the firm in January 2019 as a Managing Director in the Industrials Group to lead the chemicals business in Europe, based in Frankfurt.

Mr. Bastian will join from Citigroup, where he was a Managing Director with senior coverage responsibilities in Germany and Switzerland, including chemicals sector clients as well as previously Head of EMEA Chemicals. Prior to Citigroup, he led the chemicals activities in Europe at Credit Suisse. Previous experience includes a similar role at Goldman Sachs in London and Frankfurt as well as investment banking positions at Merrill Lynch in New York.

‘Martin has more than 20 years of extensive international transaction experience, including M&A advisory, defense and strategic advisory, and capital raising across debt and equity products. During his career he has advised a wide variety of chemicals and industrials clients in Europe,’ said Ulrich Graebner, Head of Corporate Finance, Germany. ‘This expertise, combined with his local relationships and global experience, match perfectly with Houlihan Lokey’s culture and commitment to grow across Europe, its breadth of corporate and financial sponsor coverage, and its superior financing advisory capabilities, and I am excited that he will join us in Frankfurt,’ he added.

‘Over the course of my career, my approach to client service has been characterized by providing superior sector and execution expertise, strong relationships among both corporate and financial sponsor clients, and a passionate dedication to achieving exceptional results. I’m excited to join a firm that embodies this philosophy and to contribute to the growth of the global Chemicals practice in Europe,’ said Mr. Bastian. ‘Martin’s hire is representative of our efforts, and success, in adding outstanding bankers to our Industrials Group who will deliver excellent results to our clients. Further, this addition also underscores both the continued growth of the Industrials Group in Europe as well as our efforts to build a market-leading global chemicals practice in key markets around the world,’ said Bill Peluchowski, Global Head of the Industrials Group.

Mr. Bastian holds an MBA from Duke University in the United States and a diploma in Business Administration from the Frankfurt School of Finance & Management. His hire follows the recent addition of David Brock to the Industrials Group to cover the building materials sector in London, announced in October.

With more than 90 bankers based in London, Frankfurt, New York, Chicago, Dallas, Washington, D.C., and Los Angeles, Houlihan Lokey’s Industrials Group is among the largest in financial services, providing superior service and achieving outstanding results in M&A advisory as well as capital-raising, restructuring, and financial advisory services. In 2017, Houlihan Lokey was ranked the No. 1 M&A advisor for all U.S. industrial transactions by Thomson Reuters.”

# Selected Recent M&A News

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## **Cabot Microelectronics to Buy KMG Chemicals in \$1.6 billion Deal** (*Thomson Reuters, August 15, 2018*)

“Cabot Microelectronics Corp., a maker of chemicals used in semiconductors, said on Wednesday it would buy specialty chemicals company KMG Chemicals Inc. in a cash-and-stock deal valued at \$1.6 billion. The deal will expand Cabot’s reach into the market for pipeline performance products and services, Chief Executive Officer David Li [said] in a statement.

KMG provides products and services for their industrial wood preservation and global pipeline and energy markets through its performance materials segment. The company’s electronic chemicals business makes chemicals for the semiconductor industry.

The combined company is expected to have annual revenue of about \$1 billion and about \$320 million in earnings before interest, tax, depreciation, and amortization.”

## **OpenGate Capital Signs Exclusivity Agreement to Sell NAKAN to Westlake Chemical Corporation** (*The New York Times, September 25, 2018*)

“OpenGate Capital, a global private equity firm, announced today that it has signed an exclusivity agreement with Westlake Chemical Corporation (NYSE:WLK), pursuant to which Westlake has made a binding offer to acquire NAKAN, a global plasticized polyvinyl (“PVC”) compounding solutions business, headquartered in Reims, France. The transaction is valued at \$265 million and is anticipated to be completed by early 2019.

NAKAN has eight production facilities located in China, France, Germany, Italy, Japan, Mexico, Spain, and Vietnam, as well as a world-class research facility in France and application laboratory in the United States. NAKAN products are used in a wide-variety of applications by customers in the automotive, building and construction, and medical industries.”

## Selected Recent M&A News (cont.)

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### **KKR-Led Group Buys Taiwan's LCY Chemical for \$1.56 Billion** *(Bloomberg, July 22, 2018)*

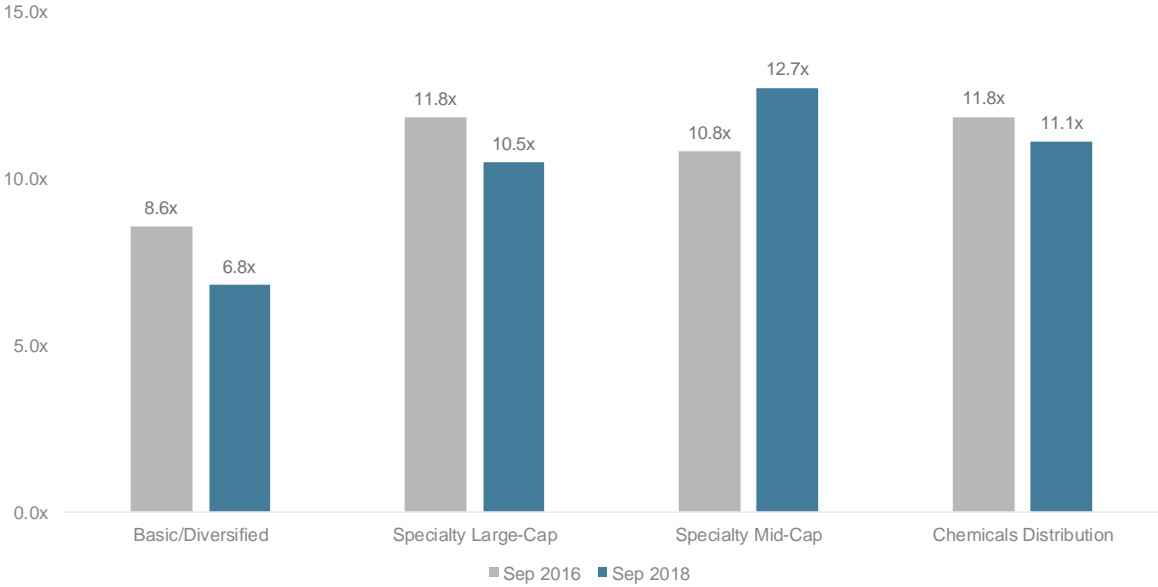
“KKR & Co. said it is taking over Taipei-based LCY Chemical Corp. in a deal valued at NT\$47.8 billion (\$1.56 billion U.S. dollars), part of a quest by the global buyout firm for more transactions involving controlling stakes in the Greater China region.

A consortium led by New-York based KKR agreed to acquire all of LCY's shares for NT\$56 each, a 17.3% increase from [the close price prior to announcement].

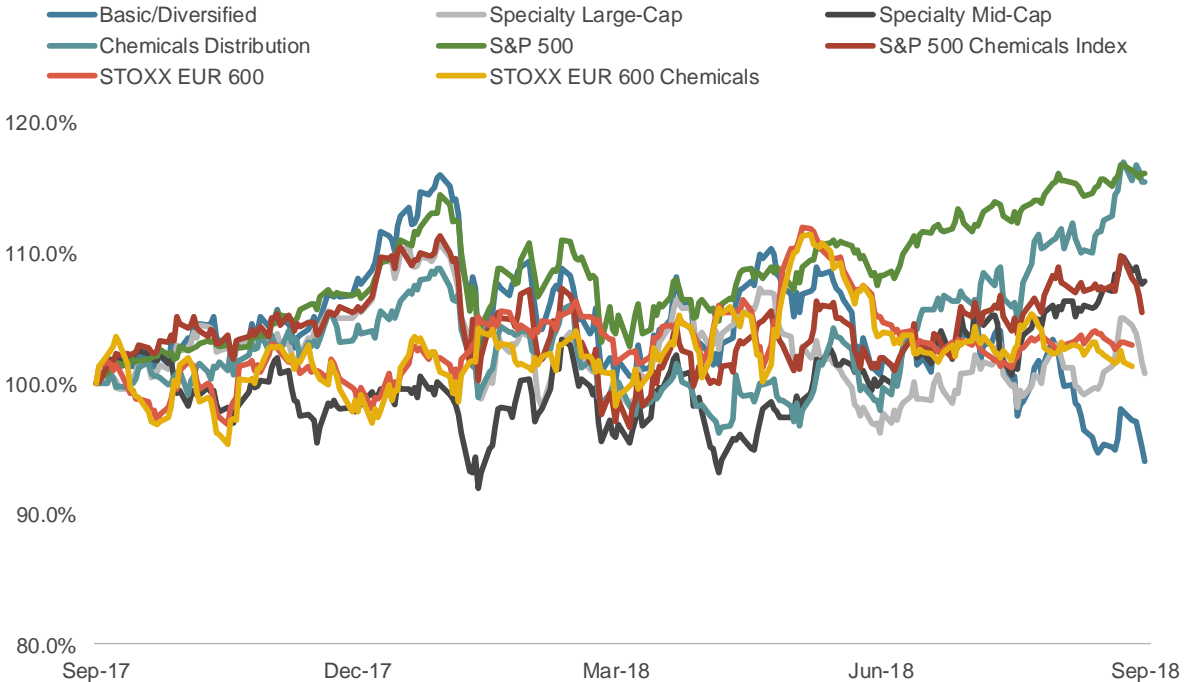
The LCY deal is part of KKR's effort to achieve a 'health balance' between transactions in Greater China involving controlling stakes and minority deals, said Paul Yang, the buyout firm's Greater China Chief executive.”

# Public Markets Overview

## Median TEV/EBITDA Multiples



## Stock Price Index



# Selected Chemical Inputs (weekly index prices)

## Crushing Crude Oil (WTI)

(\$ per barrel)



## U.S. Gulf Ethylene (FD)

(\$ per pound)



## U.S. Gulf Propylene (FD)

(\$ per pound)



## U.S. Gulf Butadiene (CIF)

(\$ per pound)

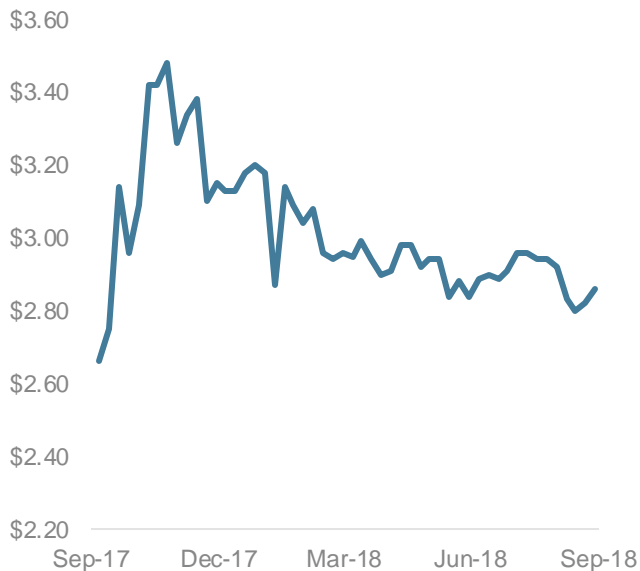




# Selected Chemical Inputs (weekly index prices, cont.)

## U.S. Gulf Benzene (FOB)

(\$ per gallon)



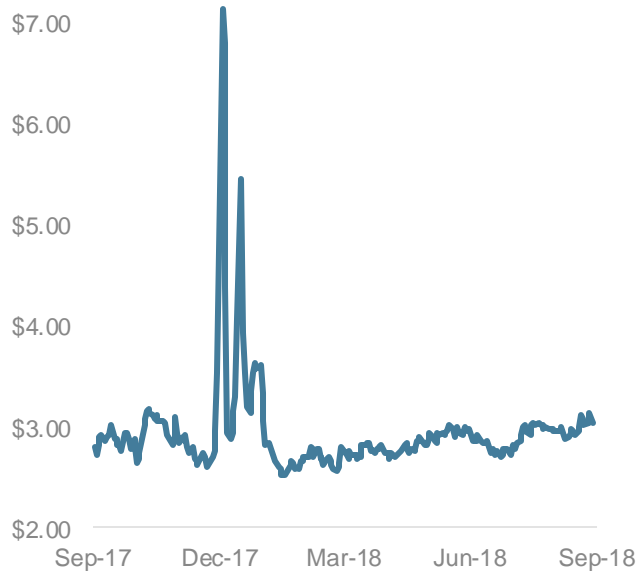
## U.S. Mixed Xylene (FOB)

(\$ per gallon)



## Natural Gas (Henry Hub)

(\$ per million Btu)



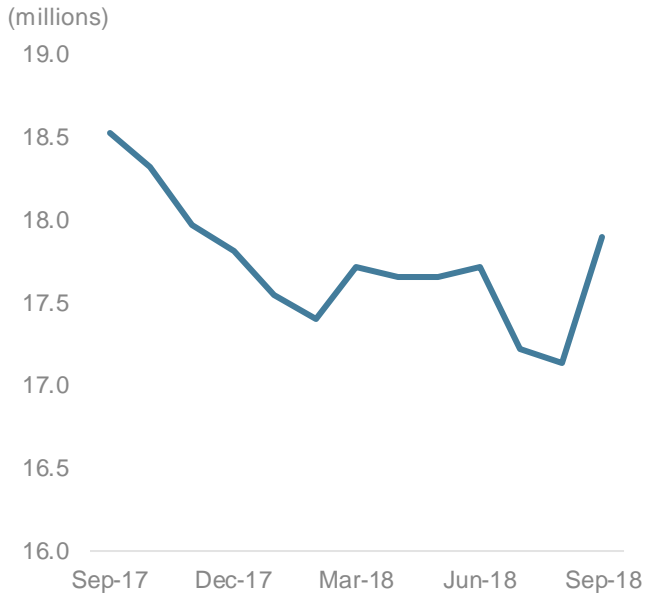
## U.S. Toluene

(\$ per gallon)



# Selected Macroeconomic Data

## U.S. Total Monthly Automotive Sales



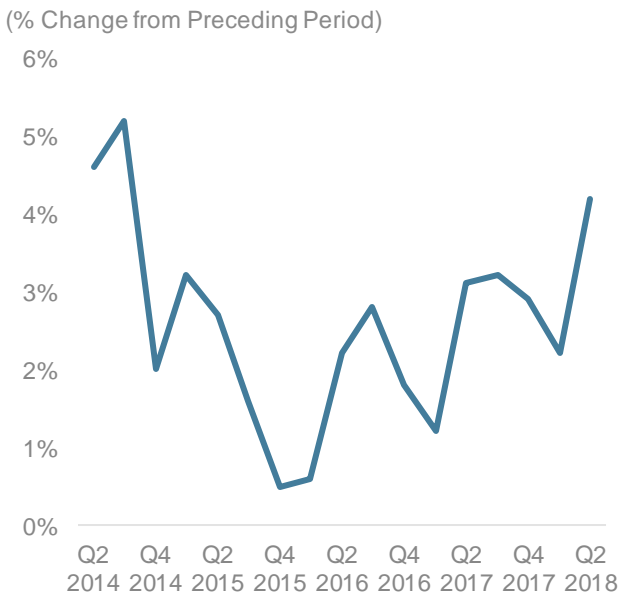
Source: Federal Reserve Bank of St. Louis

## U.S. Privately Owned Housing Units Started



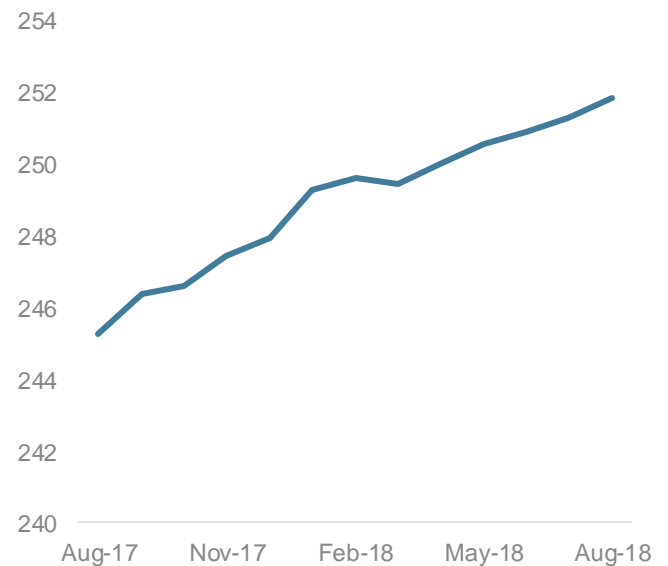
Source: U.S. Census Bureau

## U.S. QoQ Real GDP Growth



Source: Federal Reserve Bank of St. Louis

## U.S. Consumer Price Index

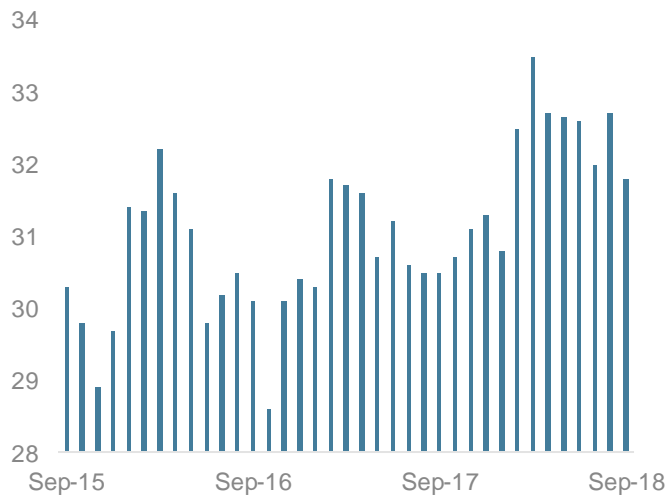


Source: Federal Reserve Bank of St. Louis

# Selected Macroeconomic Data (cont.)

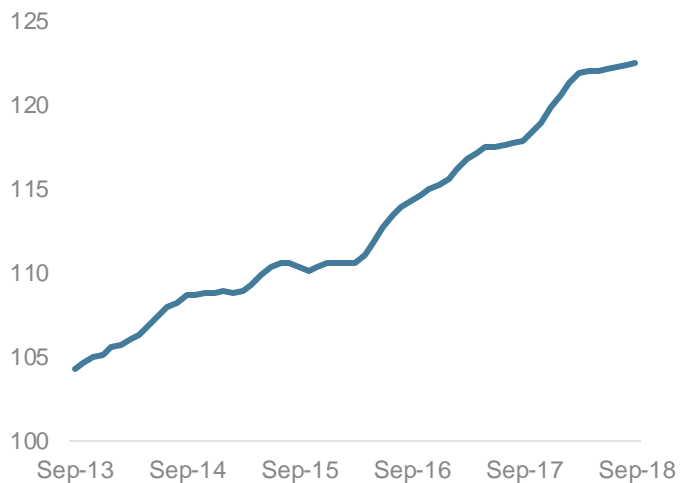
## U.S. Average Weekly Chemical Railcar Loadings

(thousands)



Source: Association of American Railroads

## U.S. Chemicals Activity Barometer Index



Source: American Chemistry Council, Bloomberg

# Selected Public Comparables

## Basic/Diversified

(as of 9/30/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2018				Enterprise Value /			
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	Revenue	EBITDA	LTM	LTM
BASF SE	DB:BAS	\$88.96	-6.0%	-6.4%	-15.7%	\$81,710.1	\$97,375.3	\$76,184.5	30.5%	\$12,544.4	16.5%	1.28x	7.8x		
Bayer Aktiengesellschaft	DB:BAYN	\$88.44	-8.6%	-20.2%	-33.7%	\$82,474.6	\$135,530.2	\$41,115.4	66.5%	\$10,380.4	25.2%	3.30x	13.1x		
Celanese Corporation	NYSE:CE	\$114.00	-2.9%	3.4%	9.3%	\$15,385.7	\$18,664.7	\$7,059.0	27.9%	\$1,691.0	24.0%	2.64x	11.0x		
Covestro AG	DB:1COV	\$81.49	-10.0%	-5.4%	-4.0%	\$15,657.6	\$16,487.1	\$17,272.0	35.5%	\$4,291.9	24.8%	0.95x	3.8x		
DowDuPont Inc.	NYSE:DWDP	\$64.31	-9.1%	-2.0%	-6.9%	\$148,387.4	\$174,661.4	\$81,175.0	26.1%	\$15,853.0	19.5%	2.15x	11.0x		
Huntsman Corporation	NYSE:HUN	\$27.23	-15.8%	-6.9%	-0.5%	\$6,504.4	\$9,668.4	\$9,071.0	22.9%	\$1,421.0	15.7%	1.07x	6.8x		
LANXESS Aktiengesellschaft	XTRA:ixs	\$73.29	-10.7%	-4.9%	-7.1%	\$6,707.6	\$10,987.9	\$11,811.9	22.7%	\$1,799.1	15.2%	0.93x	6.1x		
LyondellBasell Industries N.V.	NYSE:LYB	\$102.51	-10.8%	-6.0%	2.7%	\$39,909.6	\$45,173.6	\$37,624.0	18.2%	\$6,927.0	18.4%	1.20x	6.5x		
Methanex Corporation	TSX:MX	\$78.88	4.5%	14.4%	54.2%	\$6,226.9	\$7,712.4	\$3,816.7	26.1%	\$995.0	26.1%	2.02x	7.8x		
Olin Corporation	NYSE:OLN	\$25.68	-18.7%	-9.1%	-25.6%	\$4,288.6	\$7,693.6	\$6,613.5	14.3%	\$1,139.0	17.2%	1.16x	6.8x		
The Chemours Company	NYSE:CC	\$39.44	-13.2%	-10.7%	-21.8%	\$6,974.8	\$9,736.8	\$6,705.0	30.6%	\$1,653.0	24.7%	1.45x	5.9x		
Westlake Chemical Corporation	NYSE:WLK	\$83.11	-15.2%	-21.6%	-0.5%	\$10,775.8	\$13,443.8	\$8,504.0	24.6%	\$2,156.0	25.4%	1.58x	6.2x		
<b>Median</b>								\$10,441.5	26.1%	\$1,977.5	21.7%	1.4x	6.8x		
<b>Mean</b>								\$25,579.3	28.8%	\$5,070.9	21.1%	1.6x	7.7x		

## Specialty Large-Cap (>\$5 billion EV)

(as of 9/30/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2018				Enterprise Value /			
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	Revenue	EBITDA	LTM	LTM
Albemarle Corporation	NYSE:ALB	\$99.78	2.9%	6.8%	-24.6%	\$10,821.1	\$11,672.1	\$3,288.2	37.1%	\$938.2	28.5%	3.55x	12.4x		
Arkema S.A.	ENXTPA:AKE	\$123.97	-2.5%	6.1%	0.9%	\$9,458.2	\$11,104.5	\$9,821.5	22.9%	\$1,673.1	17.0%	1.13x	6.6x		
Ashland Global Holdings Inc.	NYSE:ASH	\$83.86	-0.9%	8.9%	27.8%	\$5,235.1	\$7,585.1	\$3,667.0	28.8%	\$615.0	16.8%	2.07x	12.3x		
Clariant AG	SWX:CLN	\$26.17	4.7%	11.0%	10.1%	\$8,616.2	\$10,560.7	\$6,677.2	29.7%	\$918.9	13.8%	1.58x	11.5x		
Eastman Chemical Company	NYSE:EMN	\$95.72	-3.2%	-3.4%	6.4%	\$13,523.3	\$20,101.3	\$10,137.0	26.2%	\$2,331.0	23.0%	1.98x	8.6x		
Ecolab Inc.	NYSE:ECL	\$156.78	4.9%	13.3%	21.3%	\$45,294.3	\$52,516.7	\$14,376.4	46.2%	\$3,023.2	21.0%	3.65x	17.4x		
Evonik Industries AG	DB:EVK	\$35.78	-6.0%	4.3%	1.3%	\$17,243.7	\$21,218.4	\$17,166.0	31.6%	\$3,048.7	17.8%	1.24x	7.0x		
FMC Corporation	NYSE:FMC	\$87.18	0.9%	-1.6%	-0.9%	\$11,737.0	\$14,507.5	\$4,098.8	44.8%	\$1,143.4	27.9%	3.54x	12.7x		
Johnson Matthey Plc	LSE:JMAT	\$46.47	-0.6%	-4.1%	1.0%	\$8,920.7	\$9,802.6	\$19,821.7	6.4%	\$934.8	4.7%	0.49x	10.5x		
Koninklijke DSM N.V.	ENXTAM:DSM	\$106.01	-1.6%	6.1%	29.5%	\$18,262.2	\$19,274.2	\$10,624.2	37.4%	\$1,842.3	17.3%	1.81x	10.5x		
Solvay SA	ENXTBR:SOLB	\$134.19	-1.7%	6.3%	-11.1%	\$13,864.6	\$18,189.0	\$12,710.3	27.9%	\$2,382.5	18.7%	1.43x	7.6x		
W. R. Grace & Co.	NYSE:GRA	\$71.46	0.2%	-1.7%	-1.7%	\$4,804.8	\$6,666.4	\$1,871.6	40.0%	\$367.2	19.6%	3.56x	18.2x		
Wacker Chemie AG	XTRA:WCH	\$125.83	-16.1%	-3.3%	-13.7%	\$6,250.9	\$7,092.5	\$5,769.4	19.0%	\$1,015.8	17.6%	1.23x	7.0x		
<b>Median</b>								\$9,821.5	29.7%	\$1,143.4	17.8%	1.8x	10.5x		
<b>Mean</b>								\$9,233.0	30.6%	\$1,556.5	18.8%	2.1x	10.9x		

EV refers to Enterprise Value.

Source: S&P Capital IQ

# Selected Public Comparables (cont.)

## Specialty Mid-Cap (<\$5 billion EV)

(as of 9/30/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Gross Revenue	Gross Margin	EBITDA	EBITDA Margin	LTM Revenue	LTM EBITDA
Balchem Corporation	NasdaqGS:BCPC	\$112.09	6.8%	15.2%	36.8%	\$3,610.6	\$3,758.9	\$635.1	31.9%	\$152.5	24.0%	5.92x	24.6x
Elementis plc	LSE:ELM	\$3.50	0.5%	-7.5%	-3.6%	\$1,622.3	\$1,878.9	\$820.6	38.1%	\$158.6	19.3%	2.29x	11.8x
Ferro Corporation	NYSE:FOE	\$23.22	4.8%	11.0%	4.6%	\$1,953.7	\$2,760.2	\$1,549.3	29.3%	\$237.0	15.3%	1.78x	11.6x
Fuchs Petrolub SE	DB:FPE3	\$55.98	-5.7%	12.6%	-4.0%	\$7,265.7	\$7,129.8	\$2,960.0	35.0%	\$494.7	16.7%	2.41x	14.4x
GCP Applied Technologies Inc.	NYSE:GCP	\$26.55	1.9%	-6.8%	-13.0%	\$1,915.8	\$1,993.3	\$1,124.9	37.0%	\$139.3	12.4%	1.77x	14.3x
H.B. Fuller Company	NYSE:FUL	\$51.67	-11.2%	-6.3%	-11.3%	\$2,619.4	\$4,856.6	\$2,950.8	27.4%	\$364.5	12.4%	1.65x	13.3x
Ingevity Corporation	NYSE:NGVT	\$101.88	2.5%	27.0%	63.0%	\$4,283.7	\$4,959.7	\$1,084.5	36.5%	\$302.1	27.9%	4.57x	16.4x
Innophos Holdings, Inc.	NasdaqGS:IPHS	\$44.40	1.9%	-7.1%	-10.0%	\$870.5	\$1,188.2	\$789.1	19.8%	\$111.7	14.2%	1.51x	10.6x
Innospec Inc.	NasdaqGS:IOSP	\$76.75	-0.4%	-1.0%	NA	\$1,874.0	\$2,036.6	\$1,405.0	29.9%	\$176.4	12.6%	1.45x	11.5x
Koppers Holdings Inc.	NYSE:KOP	\$31.15	-12.9%	-20.5%	-32.2%	\$659.7	\$1,609.0	\$1,593.0	21.6%	\$203.4	12.8%	1.01x	7.9x
NewMarket Corporation	NYSE:NEU	\$405.51	2.4%	2.0%	-4.5%	\$4,644.3	\$5,294.3	\$2,311.3	25.7%	\$367.2	15.9%	2.29x	14.4x
OMNOVA Solutions Inc.	NYSE:OMN	\$9.85	7.7%	4.8%	-2.5%	\$442.1	\$687.5	\$764.8	25.2%	\$77.6	10.1%	0.90x	8.9x
PQ Group Holdings Inc.	NYSE:PQG	\$17.47	-2.2%	-2.1%	NA	\$2,362.0	\$4,560.3	\$1,550.8	24.2%	\$358.6	23.1%	2.94x	12.7x
Quaker Chemical Corporation	NYSE:KWR	\$202.21	14.4%	31.0%	35.8%	\$2,695.6	\$2,670.7	\$858.0	35.6%	\$117.6	13.7%	3.11x	22.7x
Stepan Company	NYSE:SCL	\$87.01	-2.0%	13.0%	3.6%	\$1,959.7	\$1,990.6	\$2,001.0	17.2%	\$229.6	11.5%	0.99x	8.7x
<b>Median</b>								\$1,405.0	29.3%	\$203.4	14.2%	1.8x	12.7x
<b>Mean</b>								\$1,493.2	29.0%	\$232.7	16.1%	2.3x	13.6x

## Chemicals Distribution

(as of 9/30/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Gross Revenue	Gross Margin	EBITDA	EBITDA Margin	LTM Revenue	LTM EBITDA
Brenntag AG	XTRA:BNR	\$61.76	0.5%	11.7%	11.1%	\$9,542.5	\$11,784.4	\$13,952.6	20.9%	\$893.4	6.4%	0.84x	13.2x
Hawkins, Inc.	NasdaqGS:HWKN	\$41.45	1.1%	18.8%	1.1%	\$444.0	\$539.5	\$520.2	17.3%	\$52.7	10.1%	1.04x	10.2x
IMCD N.V.	ENXTAM:IMCD	\$77.90	4.5%	17.5%	27.1%	\$4,081.8	\$4,670.0	\$2,486.5	22.9%	\$217.5	8.7%	1.88x	21.5x
Nexeo Solutions, Inc.	NasdaqCM:NXEO	\$12.25	20.7%	33.4%	67.8%	\$1,099.2	\$1,908.4	\$3,998.7	11.4%	\$196.1	4.9%	0.48x	9.7x
Univar Inc.	NYSE:UNVR	\$30.66	7.8%	18.1%	6.1%	\$4,337.9	\$6,874.5	\$8,538.5	22.1%	\$619.0	7.2%	0.81x	11.1x
<b>Median</b>								\$3,998.7	20.9%	\$217.5	7.2%	0.8x	11.1x
<b>Mean</b>								\$5,899.3	18.9%	\$395.7	7.5%	1.0x	13.1x

EV refers to Enterprise Value.

Source: S&P Capital IQ

# About Houlihan Lokey

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Houlihan Lokey holds an indirect minority stake in Leonardo & Co. S.p.A., an investment bank with an office in Milan.

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