



HOULIHAN LOKEY

CHEMICALS UPDATE

Fall 2019



Introduction

Dear Clients and Friends,

Houlihan Lokey is pleased to present its Chemicals Fall 2019 Industry Update.

In this issue, 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

2018 M&A Advisory Rankings All U.S. Transactions		
	Advisor	Deals
1	Houlihan Lokey	207
2	Goldman Sachs & Co	197
3	JP Morgan	154
4	Morgan Stanley	135
5	Jefferies LLC	117

Source: Thomson Reuters

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2018 Global Distressed Debt & Bankruptcy Restructuring Rankings		
	Advisor	Deals
1	Houlihan Lokey	63
2	PJT Partners Inc.	45
3*	Moelis & Co.	36
3*	Lazard	36
3*	Rothschild & Co.	36

Source: Thomson Reuters
* Denotes tie

No. 1 Global Restructuring Advisor

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

Financial and Valuation Advisory

1999 to 2018 Global M&A Fairness Advisory Rankings		
	Advisor	Deals
1	Houlihan Lokey	1,073
2	JP Morgan	971
3	Duff & Phelps	728
4	Bank of America Merrill Lynch	660
5	Morgan Stanley	659

Source: Thomson Reuters. Announced or completed transactions.

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

1,000+ Annual Valuation
Engagements

Selected Transactions

<p>has acquired</p> <p>Buy-side Advisor</p>	<p>a portfolio company of</p> <p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>has completed the spin-off of</p> <p>Financial Opinion</p>	<p>has sold certain assets to</p> <p>Fairness Opinion</p>	<p>Phosgene Chemistry – Custom Chemicals a portfolio company of</p> <p>has been acquired by</p> <p>Sell-side Advisor</p>
<p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>a portfolio company of</p> <p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>has been acquired by</p> <p>Financial Opinion</p>	<p>has acquired</p> <p>from</p> <p>Arsenal Capital Partners</p> <p>Buy-side Advisor</p>	<p>has completed a merger with the chemicals business of PPG in a Reverse Morris Trust transaction</p> <p>Financial Advisor</p>

Tombstones included herein represent transactions closed from 2012 forward.

Selected Recent M&A News

Indorama Ventures to Acquire Huntsman's World-Class Integrated Oxides and Derivatives Businesses (*IndoramaVentures.com, August 8, 2019*)

"Huntsman is a global leader in integrated Oxides (EOs) and Derivatives (EOD), operating a large, well-invested site in US Gulf Coast (USGC) as well as in India and Australia.

This acquisition reinforces [Indorama Venture]'s Integrated EOs and Specialty Chemical segment's growth trajectory and includes sought after value-added EODs and Propylene Oxide Derivatives.

The transaction will broaden [Indorama Venture]'s expertise of operating USGC Integrated Oxides facilities through operational excellence, global scale, differentiated formulations and technologies.

The purchase price is based on an enterprise value of US\$2.0 billion and up to US\$76 million in pension obligations, which corresponds to an EV/EBITDA multiple of 5.7. The deal accelerates [Indorama Venture]'s ability to achieve its stated goal to double its core EBITDA by 2023.

This acquisition is a profitable, resilient and growth business and is not competing in the otherwise crowded olefins space. It comes at less than 50% of its replacement cost. It is a game changing acquisition for [Indorama Ventures], its largest ever and one of the biggest by a Thai company in the last decade.

The deal is earnings accretive within the first year of full operations. Synergy benefits will further boost EBITDA contribution from these assets by additional US\$100 million annually by 2022. On a proforma basis, this acquisition adds 25% to [Indorama Venture]'s 2018 core EBITDA."

Synthomer to Buy Omnova in \$824 million Deal (*Reuters.com, July 2, 2019*)

"Polymer maker Synthomer Plc said on Wednesday it has agreed to buy Omnova Solutions Inc. for an enterprise value of \$824 million in a bid to strengthen its global position.

London-based Synthomer is offering Beachwood, Ohio-headquartered Omnova \$10.15 for each share, a premium of 58% to Omnova's closing price on Tuesday.

Shares of Synthomer fell 5% to 352.4 pence, making them the top loser on the FTSE 250 index. Omnova shares surged 55 percent on the New York Stock Exchange to trade at \$9.96.

Acquiring Omnova will help Synthomer bolster its footprint in Europe and Asia and penetrate into China, Synthomer said in a statement.

The deal will be financed through a rights issue of up to \$257 million and is likely to be completed by late 2019 or early 2020.

Upon completion of the deal, Synthomer expects it will add to its earnings in the first financial year and projects an annual pre-tax cost savings of \$29.6 million by the end of the third year."

Selected Recent M&A News (cont.)

Announcement Concerning the Acquisition of Shares in Nufarm's Group Companies in South America (*CapitalIQ.com, September 30, 2019*)

“Sumitomo Chemical Company, Limited (‘Sumitomo Chemical’) announced today that it has agreed with Nufarm Ltd. (‘Nufarm’), the leading crop protection company in Australia, to acquire all shares of Nufarm’s four South American subsidiaries in Brazil, Argentina, Chile and Colombia, through Sumitomo Chemical’s fully owned subsidiaries in the region, i.e. Sumitomo Chemical Brazil for the Brazilian subsidiary, and Sumitomo Chemical Chile for the others.

The acquisition is due to be completed upon approval by Nufarm’s shareholders’ meeting scheduled for December this year, subject to clearance by relevant regulatory authorities.

As a result of the acquisition announced this time, the crop protection revenue of Sumitomo Chemical in South America will triple, surpassing its revenue in North America. More importantly, the acquisition will give a powerful impetus to the Company’s ongoing projects to establish a network of its global footprints (Sumitomo Chemical’s own distribution networks).

Furthermore, the acquisition will provide Sumitomo Chemical with an opportunity to pursue the integration of business operations, from development through formulation to distribution because a formulation plant the Company will obtain as part of the acquisition can be managed and operated closely with its existing R&D facility and its adjoining experimental field.

The acquisition carried an estimated purchase price of 70 billion JPY and represents a 100% ownership stake in the four South American Nufarm subsidiaries.”

DIC to Acquire BASF’s Global Pigments Business (*BASF.com, August 29, 2019*)

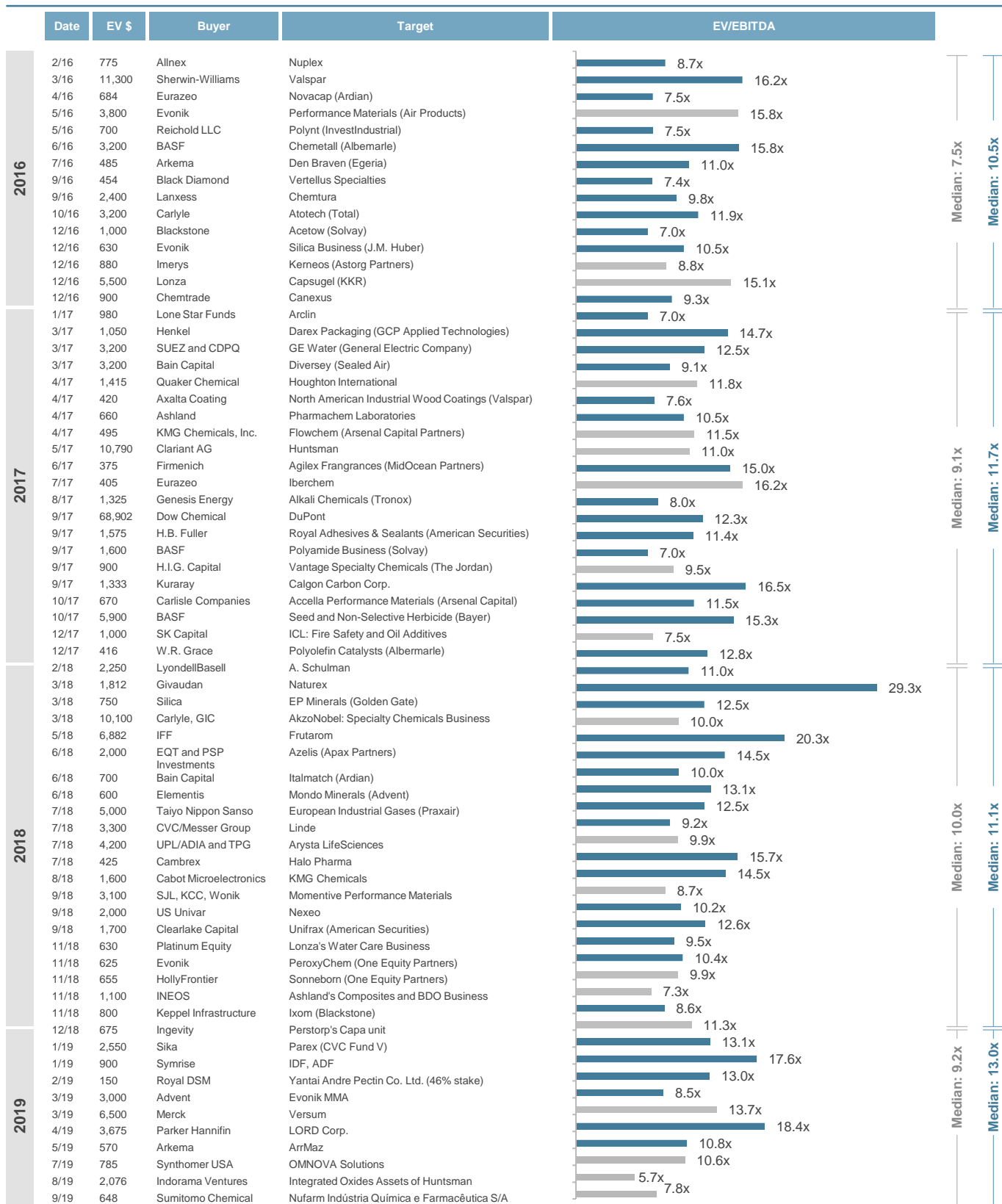
“BASF and the fine chemical company DIC have reached an agreement on the acquisition of BASF’s global pigments business. The purchase price on a cash and debt-free basis is €1.15 billion. The transaction is expected to close in the fourth quarter of 2020. The divestiture is subject to the approval of the relevant competition authorities.

‘We have outlined a clear growth path for DIC with the target to increase our sales to 1 trillion yen, i.e. approximately €8 billion, by 2025. In this context, BASF’s pigments portfolio is an important strategic addition in meeting our goals more expeditiously. It will allow us to expand our position as one of the leading pigment suppliers globally and offer our customers even more versatile solutions,’ Kaoru Ino, President and Chief Executive Officer of DIC comments on the agreement reached.

BASF’s pigments business with around 2,600 employees globally generated sales of approximately €1 billion in 2018.”

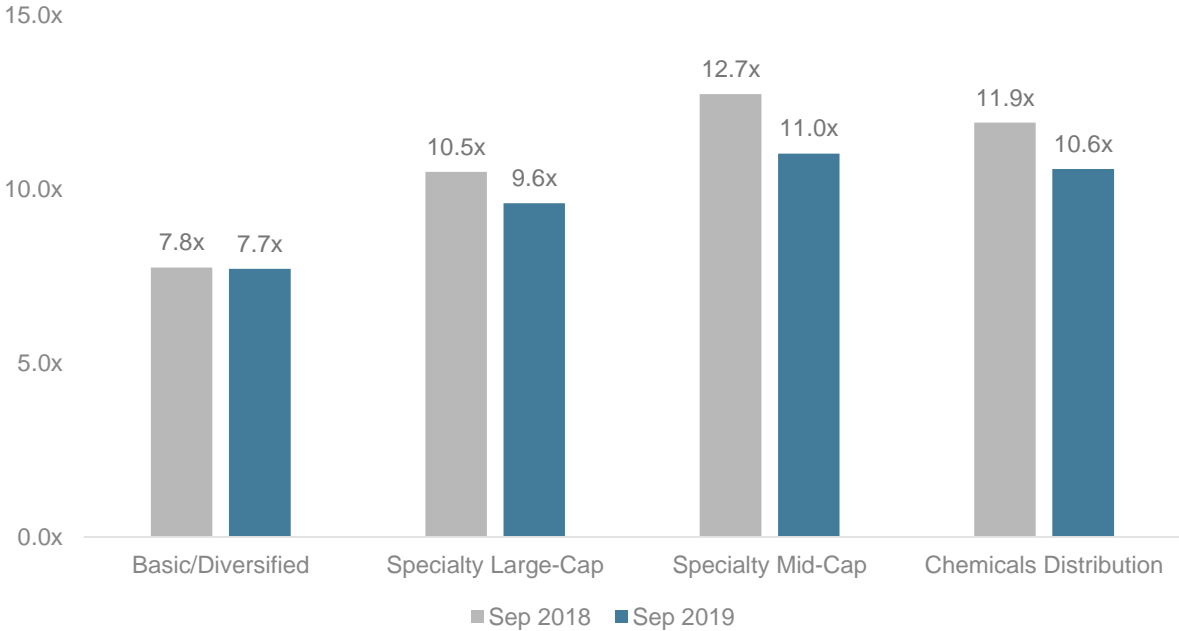
Chemical M&A Activity Continues to Be High

Financial Buyer Median Financial Buyer 11.2x Strategic Buyer Median Strategic Buyer 10.3x

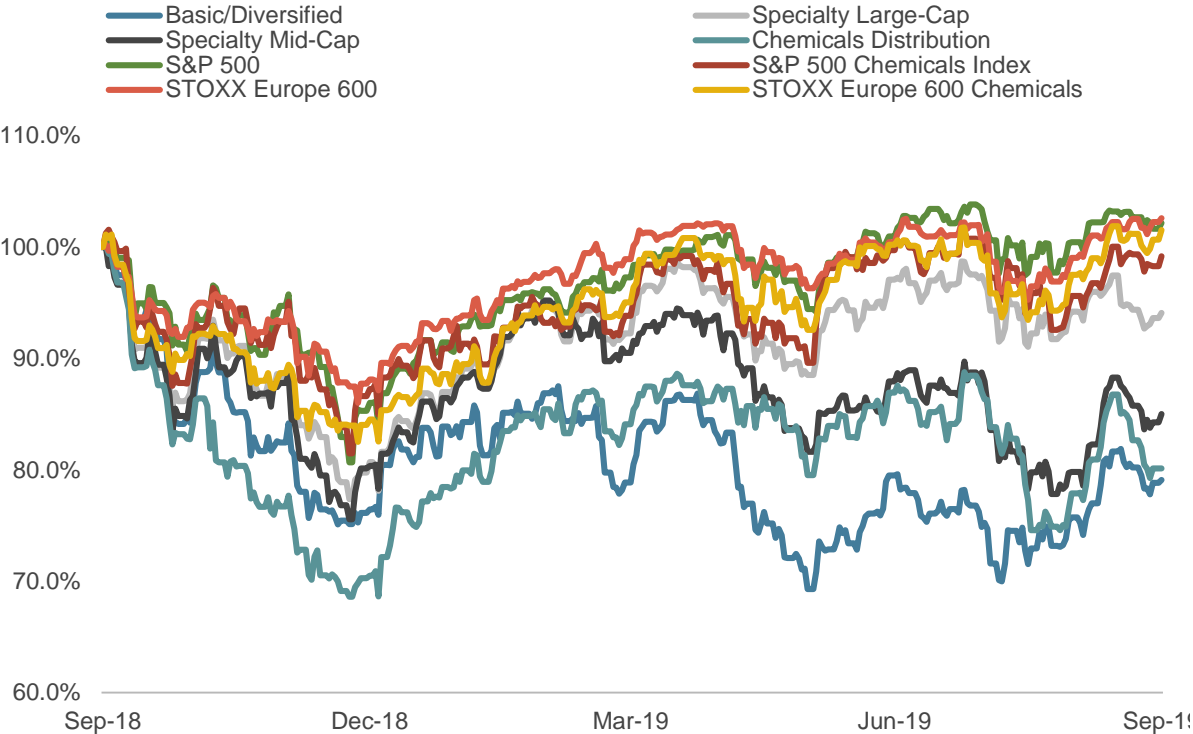


Public Markets Overview

Median TEV/EBITDA Multiples



Stock Price Index



Source: Bloomberg and S&P Capital IQ

Selected Chemical Inputs (weekly index prices)

Cushing 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)



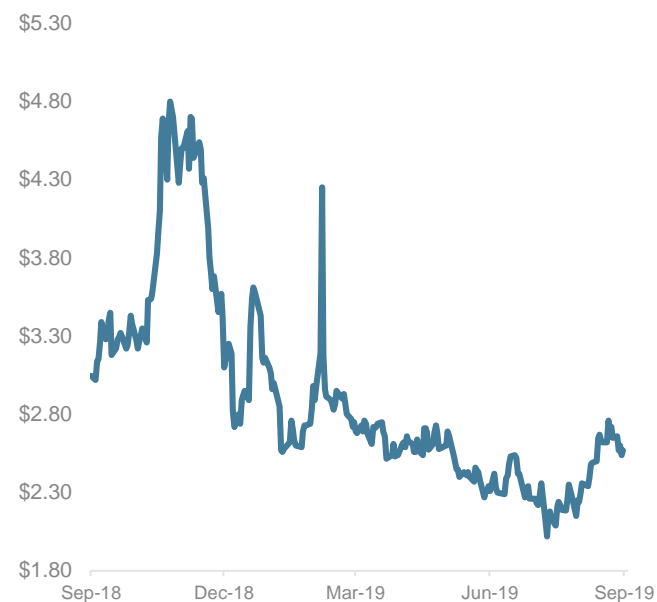
U.S. Mixed Xylene (FOB)

(\$ per gallon)



Natural Gas (Henry Hub)

(\$ per million BTU)



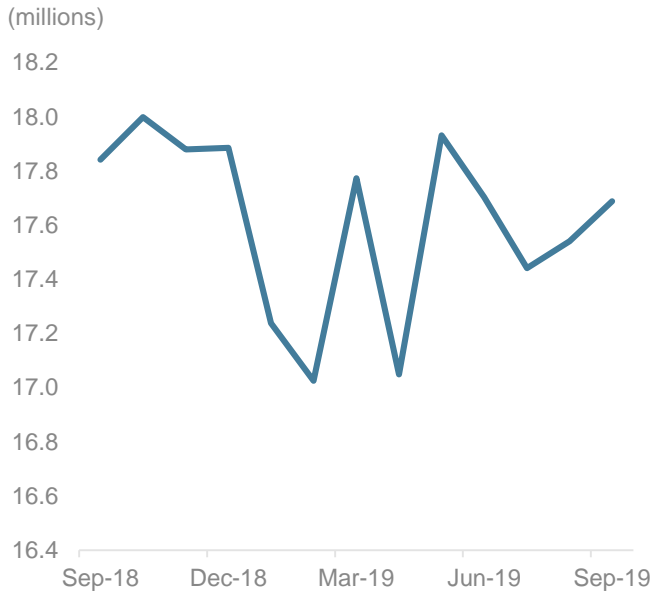
U.S. Toluene

(\$ per gallon)



Selected Macroeconomic Data

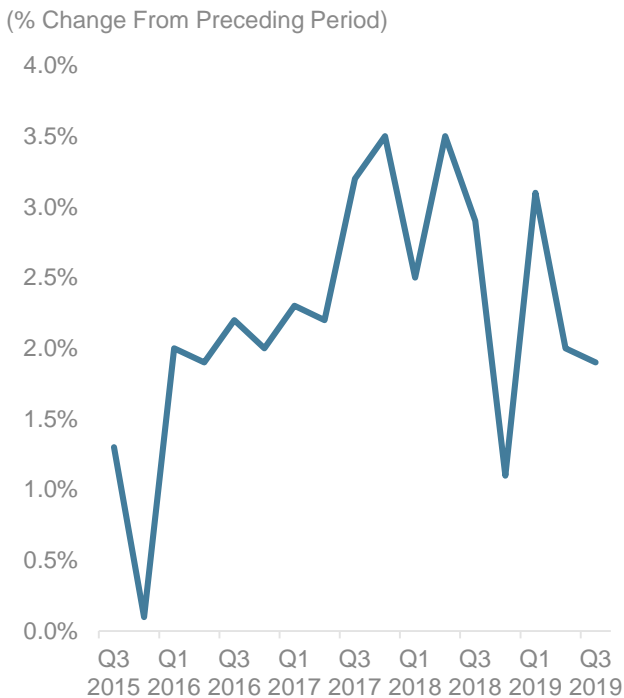
U.S. Total Monthly Automotive Sales



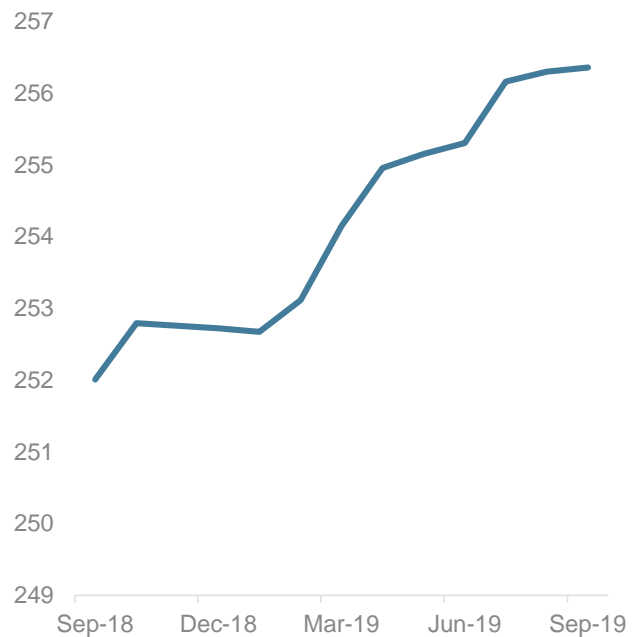
U.S. Privately Owned Housing Units Started



U.S. QoQ Real GDP Growth



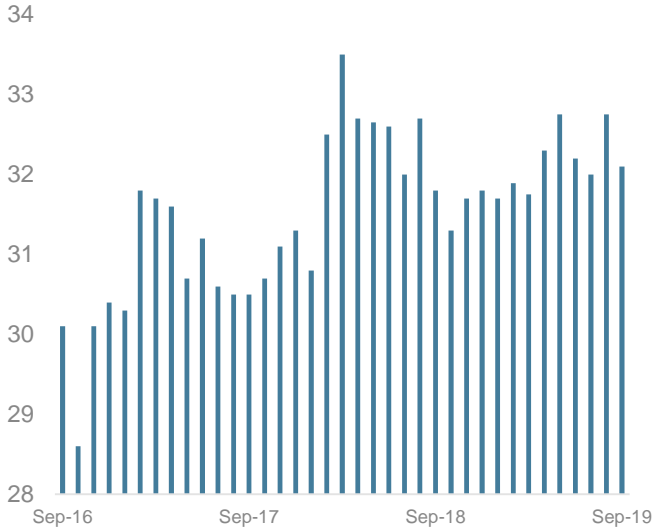
U.S. Consumer Price Index



Selected Macroeconomic Data (cont.)

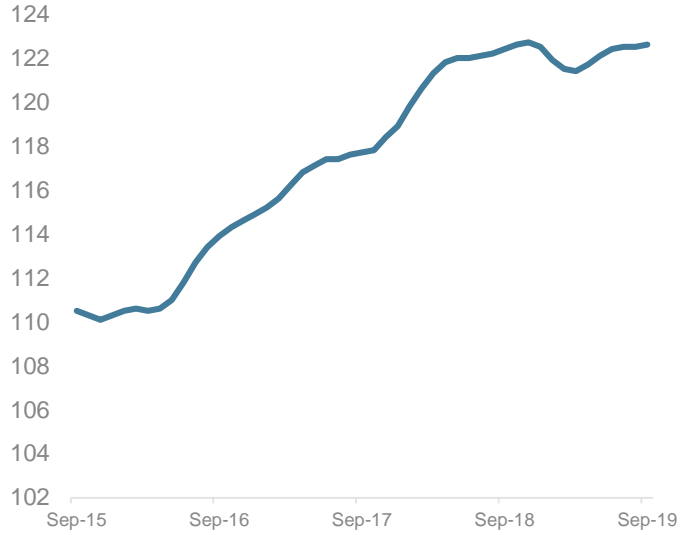
U.S. Average Weekly Chemical Railcar Loadings

(thousands)



Source: Association of American Railroads

U.S. Chemicals Activity Barometer Index



Source: American Chemistry Council, Bloomberg

Selected Public Comparables

Basic/Diversified

(as of 9/30/2019, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2019				Enterprise Value/	
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	Revenue	EBITDA
BASF SE	DB:BAS	\$69.85	5.3%	-4.0%	-21.5%	\$64,216.4	\$85,710.2	\$67,770.1	27.4%	\$7,475.7	11.0%	1.26x	11.5x
Bayer AG	DB:BAYN	\$71.07	-4.5%	2.5%	-19.6%	\$65,779.9	\$108,618.2	\$50,151.6	60.4%	\$5,221.9	10.4%	2.17x	NMF
Celanese Corp.	NYSE:CE	\$122.29	7.9%	13.4%	7.3%	\$15,132.2	\$19,019.2	\$6,554.0	26.1%	\$1,361.0	20.8%	2.90x	14.0x
Covestro AG	DB:1COV	\$49.61	9.2%	-2.6%	-39.1%	\$9,044.6	\$10,823.0	\$13,978.8	22.7%	\$1,718.5	12.3%	0.77x	6.3x
[1] Dow Inc.	NYSE:DOW	\$47.65	11.8%	-3.4%	NA	\$35,414.1	\$53,947.1	\$44,691.0	14.8%	\$6,705.0	15.0%	1.21x	8.0x
Huntsman Corp.	NYSE:HUN	\$23.26	16.8%	13.8%	-14.6%	\$5,337.5	\$8,081.5	\$8,736.0	19.3%	\$1,048.0	12.0%	0.93x	7.7x
LANXESS AG	XTRA:LXS	\$61.06	1.5%	2.7%	-16.7%	\$5,339.7	\$7,339.5	\$7,827.9	25.3%	\$1,061.0	13.6%	0.94x	6.9x
LyondellBasell Industries NV	NYSE:LYB	\$89.47	15.6%	3.9%	-12.7%	\$29,994.4	\$40,951.4	\$35,424.0	15.4%	\$5,542.0	15.6%	1.16x	7.4x
Methanex Corp.	TSX:MX	\$35.51	9.4%	-21.9%	-55.0%	\$2,705.7	\$4,820.5	\$3,102.4	21.1%	\$582.8	18.8%	1.55x	8.3x
Olin Corp.	NYSE:OLN	\$18.72	10.2%	-14.6%	-27.1%	\$3,075.7	\$6,490.5	\$6,357.9	12.5%	\$1,002.5	15.8%	1.02x	6.5x
The Chemours Co.	NYSE:CC	\$14.94	5.4%	-37.8%	-62.1%	\$2,442.4	\$6,365.4	\$5,637.0	23.3%	\$916.0	16.2%	1.13x	6.9x
Westlake Chemical Corp.	NYSE:WLK	\$65.52	11.8%	-5.7%	-21.2%	\$8,404.2	\$11,615.2	\$8,230.0	16.6%	\$1,462.0	17.8%	1.41x	7.9x
Median			9.3%	-3.0%	-21.2%			\$8,483.0	21.9%	\$1,411.5	15.3%	1.2x	7.7x
Mean			8.4%	-4.5%	-25.7%			\$21,538.4	23.7%	\$2,841.4	14.9%	1.4x	8.3x

Specialty Large-Cap (Greater Than \$5 Billion EV)

(as of 9/30/2019, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2019				Enterprise Value/	
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	Revenue	EBITDA
Albemarle Corp.	NYSE:ALB	\$69.52	12.6%	-1.3%	-30.3%	\$7,368.2	\$9,158.9	\$3,518.6	35.5%	\$954.9	27.1%	2.60x	9.6x
Arkema S.A.	ENXTPA:AKE	\$93.25	6.3%	0.2%	-24.8%	\$7,081.4	\$8,564.3	\$9,695.8	21.6%	\$1,533.1	15.8%	0.88x	5.6x
Ashland Global Holdings Inc.	NYSE:ASH	\$77.05	5.2%	-3.7%	-8.1%	\$4,663.3	\$7,138.3	\$3,705.0	28.3%	\$633.0	17.1%	1.93x	11.3x
Clariant AG	SWX:CLN	\$19.47	5.7%	-4.2%	-25.6%	\$6,420.4	\$8,357.7	\$6,792.4	29.3%	\$818.8	12.1%	1.23x	10.2x
[1] Corteva, Inc.	NYSE:CTVA	\$28.00	-4.5%	-5.3%	NA	\$20,969.0	\$21,898.0	\$13,678.0	32.9%	\$2,662.0	19.5%	1.60x	8.2x
[1] DuPont de Nemours, Inc.	NYSE:DD	\$71.31	5.0%	-5.0%	NMF	\$53,160.3	\$69,828.3	\$21,765.0	32.9%	\$4,894.0	22.5%	3.21x	14.3x
Eastman Chemical Co.	NYSE:EMN	\$73.83	12.9%	-5.1%	-22.9%	\$10,114.3	\$16,561.3	\$9,444.0	23.4%	\$1,899.0	20.1%	1.75x	8.7x
Ecolab Inc.	NYSE:ECL	\$198.04	-4.0%	0.3%	26.3%	\$56,986.4	\$64,551.1	\$14,843.2	41.4%	\$3,276.6	22.1%	4.35x	19.7x
Evonik Industries AG	DB:EVK	\$24.77	-2.7%	-15.0%	-30.8%	\$11,488.6	\$15,976.6	\$16,182.5	29.2%	\$2,545.0	15.7%	0.99x	6.3x
FMC Corp.	NYSE:FMC	\$87.68	1.6%	5.7%	0.6%	\$11,436.3	\$14,860.3	\$4,954.4	44.9%	\$1,352.1	27.3%	3.00x	11.0x
Johnson Matthey plc	LSE:JMAT	\$37.60	6.0%	-11.1%	-19.1%	\$7,222.6	\$8,276.7	\$13,992.9	9.5%	\$925.9	6.6%	0.59x	8.9x
Koninklijke DSM NV	ENXTAM:DSM	\$120.38	-3.2%	-2.7%	13.6%	\$20,645.7	\$21,341.4	\$9,885.5	35.3%	\$1,600.7	16.2%	2.16x	13.3x
Solvay S.A.	ENXTBR:SOLB	\$103.59	2.7%	-0.1%	-22.8%	\$10,685.4	\$15,201.8	\$12,372.7	26.4%	\$2,257.1	18.2%	1.23x	6.7x
W. R. Grace & Co.	NYSE:GRA	\$66.76	-1.4%	-12.3%	-6.6%	\$4,455.3	\$6,316.6	\$1,973.6	40.0%	\$437.8	22.2%	3.20x	14.4x
Wacker Chemie AG	XTRA:WCH	\$65.75	-15.6%	-17.0%	-47.7%	\$3,266.4	\$4,398.3	\$5,409.1	13.3%	\$608.3	11.2%	0.81x	7.2x
Median			2.7%	-4.2%	-22.8%			\$9,695.8	29.3%	\$1,533.1	18.2%	1.8x	9.6x
Mean			1.8%	-5.1%	-15.2%			\$9,880.8	29.6%	\$1,759.9	18.2%	1.9x	10.4x

1. Historical financial information presented pro forma to give effect to the 2019 Dow-Dupont-Corteva separation.

LTM refers to last 12 months.

NA refers to not available.

NMF refers to not meaningful figure.

Source: S&P Capital IQ

Selected Public Comparables (cont.)

Specialty Mid-Cap (Less Than \$5 Billion EV)

(as of 9/30/2019, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2019				Enterprise Value/	
			1 Month	3 Month	1 Year			Revenue	Gross Margin	EBITDA	Margin	Revenue	EBITDA
Balchem Corp.	NASDAQGS:BCPC	\$99.19	11.7%	1.3%	-11.5%	\$3,209.5	\$3,405.3	\$640.7	32.5%	\$153.5	24.0%	5.31x	22.2x
Elementis plc	LSE:ELM	\$1.82	-0.4%	2.8%	-48.1%	\$1,054.2	\$1,594.6	\$850.5	36.9%	\$196.6	23.1%	1.87x	8.1x
Ferro Corp.	NYSE:FOE	\$11.86	16.4%	-24.4%	-48.9%	\$971.7	\$1,837.9	\$1,542.7	26.9%	\$169.3	11.0%	1.19x	10.9x
Fuchs Petrolub SE	DB:FPE3	\$37.49	7.3%	-5.7%	-33.0%	\$5,138.8	\$5,079.9	\$2,798.0	34.2%	\$425.3	15.2%	1.82x	11.9x
GCP Applied Technologies Inc.	NYSE:GCP	\$19.25	9.7%	-16.1%	-27.5%	\$1,398.9	\$1,507.0	\$1,031.3	37.5%	\$132.2	12.8%	1.46x	11.4x
H.B. Fuller Co.	NYSE:FUL	\$46.56	9.3%	-0.7%	-9.9%	\$2,373.7	\$4,376.4	\$2,926.3	28.2%	\$405.5	13.9%	1.50x	10.8x
Ingevity Corp.	NYSE:NGVT	\$84.84	11.4%	-17.8%	-16.7%	\$3,551.2	\$4,946.4	\$1,268.1	37.6%	\$374.7	29.5%	3.90x	13.2x
Innophos Holdings, Inc.	NASDAQGS:IPHS	\$32.46	15.6%	15.0%	-26.9%	\$634.3	\$987.9	\$758.5	19.1%	\$109.8	14.5%	1.30x	9.0x
Innospec Inc.	NASDAQGS:IOSP	\$89.14	7.2%	-3.6%	16.1%	\$2,182.7	\$2,273.9	\$1,517.6	31.1%	\$207.0	13.6%	1.50x	11.0x
Koppers Holdings Inc.	NYSE:KOP	\$29.21	10.2%	0.1%	-6.2%	\$604.2	\$1,695.4	\$1,805.0	19.0%	\$188.7	10.5%	0.94x	9.0x
NewMarket Corp.	NYSE:NEU	\$472.09	-0.6%	18.0%	16.4%	\$5,281.8	\$5,953.1	\$2,194.2	28.6%	\$451.5	20.6%	2.71x	13.2x
OMNOVA Solutions Inc.	NYSE:OMN	\$10.07	0.2%	56.9%	2.2%	\$451.7	\$742.0	\$758.3	23.2%	\$67.3	8.9%	0.98x	11.0x
PQ Group Holdings Inc.	NYSE:PQG	\$15.94	11.5%	-2.9%	-8.8%	\$2,169.9	\$4,264.7	\$1,594.7	24.9%	\$366.4	23.0%	2.67x	11.6x
Quaker Chemical Corp.	NYSE:KWR	\$158.14	-0.5%	-22.4%	-21.8%	\$2,803.9	\$2,755.8	\$953.7	35.8%	\$134.0	14.1%	2.89x	20.6x
Stepan Co.	NYSE:SCL	\$97.06	1.8%	5.5%	11.6%	\$2,189.4	\$2,186.2	\$1,880.4	17.6%	\$216.9	11.5%	1.16x	10.1x
Median			9.3%	-0.7%	-11.5%			\$1,517.6	28.6%	\$196.6	14.1%	1.5x	11.0x
Mean			7.4%	0.4%	-14.2%			\$1,501.3	28.9%	\$239.9	16.4%	2.1x	12.3x

Chemicals Distribution

(as of 9/30/2019, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 9/30/2019				Enterprise Value/	
			1 Month	3 Month	1 Year			Revenue	Gross Margin	EBITDA	Margin	Revenue	EBITDA
Brenntag AG	XTRA:BNR	\$48.41	0.4%	-1.8%	-21.6%	\$7,479.9	\$10,056.9	\$13,988.6	21.3%	\$956.4	6.8%	0.72x	10.5x
Hawkins, Inc.	NASDAQGS:HWKN	\$42.50	-4.2%	-2.1%	2.5%	\$453.3	\$542.2	\$548.6	18.0%	\$61.1	11.1%	0.99x	8.9x
IMCD NV	ENXTAM:IMCD	\$73.98	5.4%	-19.3%	-5.0%	\$3,880.1	\$4,625.4	\$2,999.9	22.6%	\$254.6	8.5%	1.54x	18.2x
Univar Solutions Inc.	NYSE:UNVR	\$20.76	7.3%	-5.8%	-32.3%	\$3,500.5	\$6,734.3	\$9,103.1	22.8%	\$633.0	7.0%	0.74x	10.6x
Median			2.9%	-4.0%	-13.3%			\$6,051.5	21.9%	\$443.8	7.7%	0.9x	10.6x
Mean			2.2%	-7.3%	-14.1%			\$6,660.0	21.2%	\$476.3	8.4%	1.0x	12.0x

About Houlihan Lokey

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