




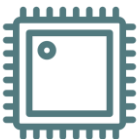






Advanced Materials and Chemicals Update

September 2023

Advanced Polymers 	Agriculture Chemicals 	Catalysts 	ChemTech 	Coatings 
Electronic Materials 	Engineered Materials 	Biosciences / Bio-Chemicals / Bio-Industrials 	Ingredients and Additives 	Sustainable Materials 

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Key Index Trading Performance

	Share Price Performance (Indexed to Today)				
	3-Years	1-Year	YTD	3 Months	1 Month
S&P 500	29%	12%	12%	(4%)	(5%)
S&P Chemicals Index	24%	0%	0%	(5%)	(5%)
S&P Commodity Chemicals Index	35%	5%	5%	(0%)	(7%)
S&P Specialty Chemicals Index	8%	8%	(1%)	(8%)	(6%)

(Indexed to 100)



	Average Performance (EV / NTM EBITDA)					
	3-Years	1-Year	YTD	3 Months	1 Month	Current
S&P 500	13.4x	12.4x	13.2x	13.2x	12.9x	12.5x
S&P Chemicals Index	11.0x	10.6x	11.0x	11.2x	11.1x	10.8x
S&P Commodity Chemicals Index	6.3x	6.6x	6.5x	7.0x	7.0x	6.8x
S&P Specialty Chemicals Index	13.6x	12.0x	13.4x	12.3x	12.0x	11.7x

(EV / NTM EBITDA)



Advanced Materials and Chemicals Industry M&A Activity

	2023		2022		YoY Change	
	#	Value (\$bns)	#	Value (\$bns)	#	Value
1Q	181	\$22.2	219	\$29.1	(17%)	(24%)
2Q	158	\$24.5	190	\$38.0	(17%)	(35%)
3 Q	141	\$15.0	138	\$9.5	2%	58%
Year to Date	480	\$61.8	547	\$76.6	(12%)	(19%)

Select Mergers & Acquisitions

- On September 1, **The Carlyle Group**, a global investment firm, launched a tender offer to acquire **Seiko PMC**, a Tokyo-listed paper and ink chemicals manufacturer at approximately **\$221 million**¹ ([Press Release](#))
- On September 4, **Eigenmann & Veronelli**, a leading distributor in the specialty chemicals and food ingredients industry, acquired **IMEA Technologies**, a distributor of specialty chemicals ([Press Release](#))
- On September 5, **Univar Solutions**, a provider to users of specialty ingredients and chemicals, acquired **FloChem**, a distributor of chemicals ([Press Release](#))
- On September 7, **Biobest Group**, a provider of pollination and biological control products acquired **Biotrop**, a provider of biological and natural farming solutions in Brazil, for approximately **\$570 million**² ([Press Release](#))
- On September 7, **Vertimass**, a developer of sustainable transportation fuels and chemicals, signed a purchase agreement to acquire **Ekobenz**, a Poland-based producer of commercial high-quality, renewable gasoline, liquefied petroleum gas and other fuels ([Press Release](#))
- On September 13, **H.B. Fuller**, the largest global pureplay adhesives company, acquired **Sanglier Limited**, one of Europe's largest independently owned manufacturers and fillers of sprayable industrial adhesives ([Press Release](#))
- On September 21, **Brightstar Capital Partners**, a private equity firm, acquired **Douglas Products and Packaging Company**, a specialty products manufacturer and marketer of brands in the global agriculture production and structural pest control markets ([Press Release](#))

Select Capital Raises

- On September 1, **Valvoline Global**, a provider of automotive and industrial solutions, announced an equity investment in **HAERTOL Chemie GmbH**, a European manufacturer of automotive heat transfer fluids ([Press Release](#))
- On September 6, **Ascend Elements**, a U.S.-based manufacturer of sustainable, engineered battery materials for electric vehicles, raised **\$542 million** to accelerate production of U.S.-engineered Lithium-Ion battery materials ([Press Release](#))
- On September 6, **Boston Metal**, a global metals technology solutions company, closed its Series C fundraising, bringing the series total to **\$262 million** ([Press Release](#))
- On September 12, **Lyten**, a pioneer in 3D graphene decarbonizing supermaterials, raised **\$200 million** in Series B funding round led by **Prime Movers Lab** ([Press Release](#))
- On September 13, **TechMet-Mercuria**, a joint venture, invested in the Series B of **Mitra Future Technologies**, a leading innovator in North American production of lithium-ion battery materials, and will act as **Mitra's** exclusive lithium procurement agent ([Press Release](#))
- On September 13, **UBQ Materials**, a developer of advanced materials made from waste, announced it has closed **\$70 million** in funding, led by **Eden Global Partners** ([Press Release](#))

Source: Nomura Greentech analysis, public disclosures, Pitchbook.

1. Exchange rate 0.007 JPY:USD

2. Exchange rate 1.071 EUR:USD

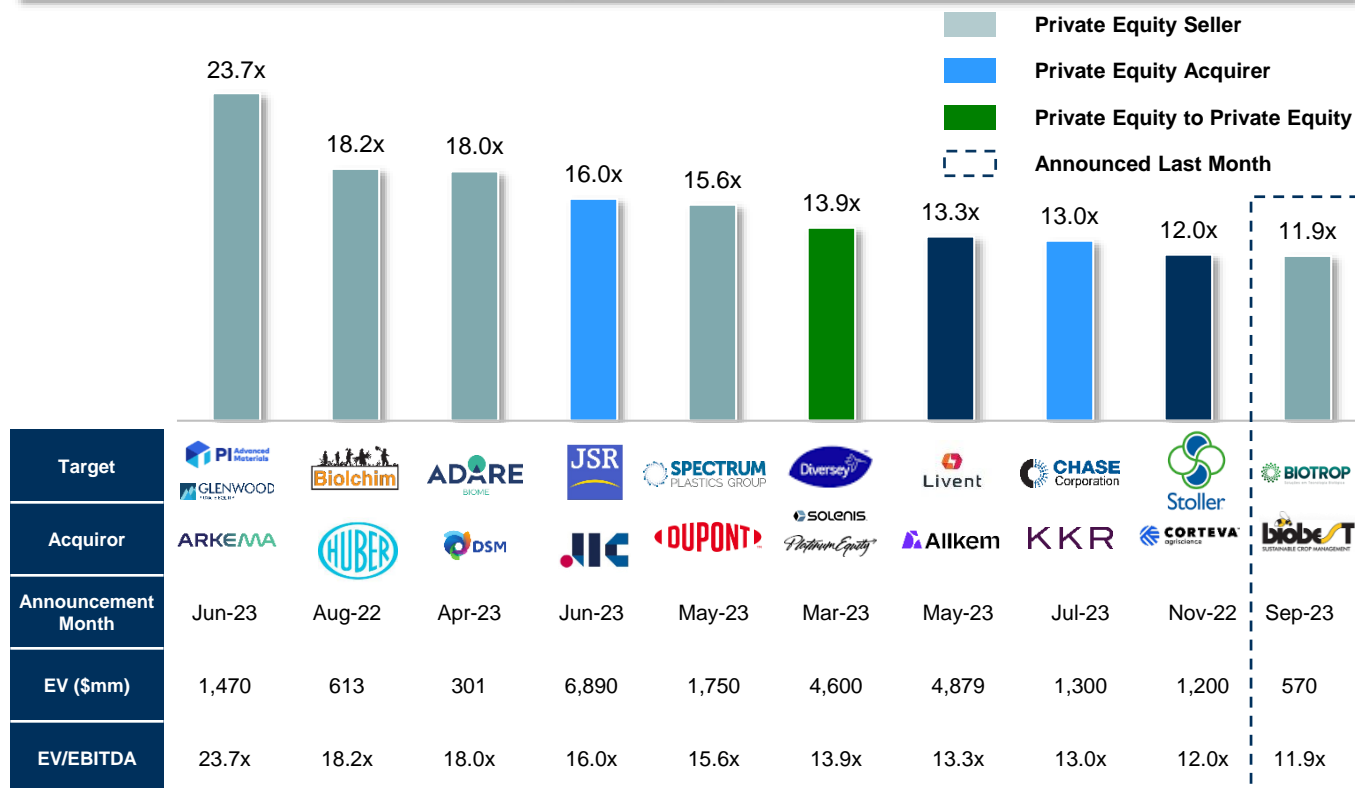
**Regulatory
Announcements**

- On September 12, **Albemarle**, a global leader in providing essential elements for mobility, energy, connectivity and health, announced that the **U.S. Department of Defense** has approved a **\$90 million** grant to help support the expansion of domestic mining and the production of lithium for the nation's battery supply chain ([Press Release](#))
- On September 18, **Origin Materials**, the world's leading carbon negative materials company with a mission to enable the world's transition to sustainable materials, received funding from **BioMADE**, a Manufacturing Innovation Institute catalyzed by the **U.S. Department of Defense** ([Press Release](#))

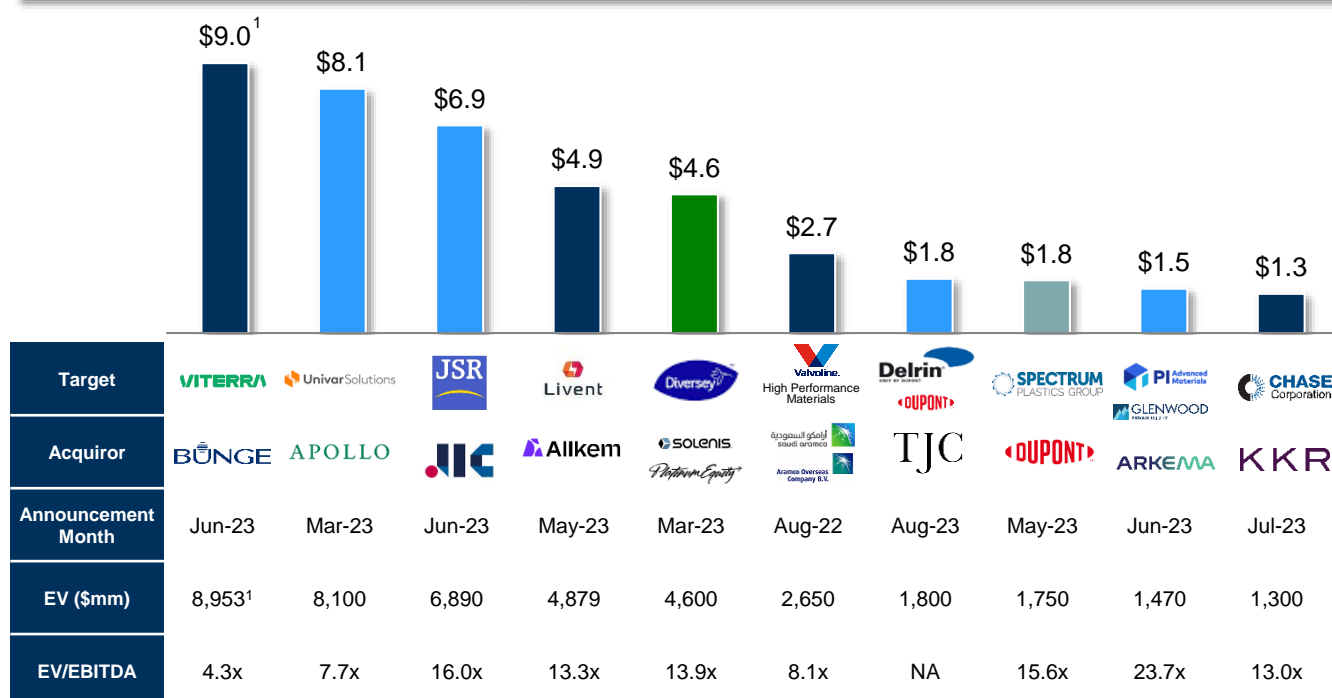
**Corporate and
Market
Announcements**

- **Covestro**, a German-based polymer producer, entered into "open-ended" discussions that could result in it being acquired by **Abu Dhabi National Oil Company**, the state-owned oil company of the United Arab Emirates ([Press Release](#))
- **Circ** and **Colorifix**, two companies working to tackle waste in the fashion and textile industry, have been selected as finalists for Prince William's Earthshot Prize ([Press Release](#))
- **Lummus Technology**, a provider of process technologies and value-driven energy solutions, and **RWDC Industries**, a biotechnology company developing biopolymer material solutions, signed a binding joint development and commercial cooperation agreement to rapidly expand manufacturing and global licensing of polyhydroxyalkanoates ([Press Release](#))
- **Franklin Mutual Advisers**, a 9.8% shareholder of **Elementis**, a manufacturer of specialty chemicals, sent a letter urging the board of directors to pursue an immediate sale of the company ([Press Release](#))
- **Albemarle** submitted a best and final non-binding proposal to acquire all outstanding shares of **Liontown**, an emerging battery minerals producer based in Australia, for **A\$3.00** cash per share, which values **Liontown** at **A\$6.6 billion** on an equity value basis ([Press Release](#))
- **Univar Solutions** is expanding its longtime distribution partnership with **Dow**, a leading global diversified chemicals producer, into Germany ([Press Release](#))
- **Arzeda**, the industry-leading Protein Design Company™, entered into a joint development agreement with **W. L. Gore & Associates**, a global leader in advanced materials science ([Press Release](#))
- **Loliware**, a materials science company replacing single-use plastics with seaweed-based materials, partnered with **Montachem International**, a distributor of thermoplastic resins and related additives, to make seaweed-based material widely available ([Press Release](#))
- **Ceres Nanosciences**, a developer of wastewater testing, and **Ginkgo Bioworks**, a platform for cell programming, are partnering to bring pathogen monitoring capabilities to laboratories around the world ([Press Release](#))

Highest Multiples Paid



Largest Transaction Size by EV



Source: Company filings, Mergermarket, Factset as of September 29th, 2023. All estimates reflect Factset consensus estimates.

1. Bunge acquisition of Viterria assumes RMI of \$9.0bn to be netted off from net debt.

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Markets Update

WTI / Brent



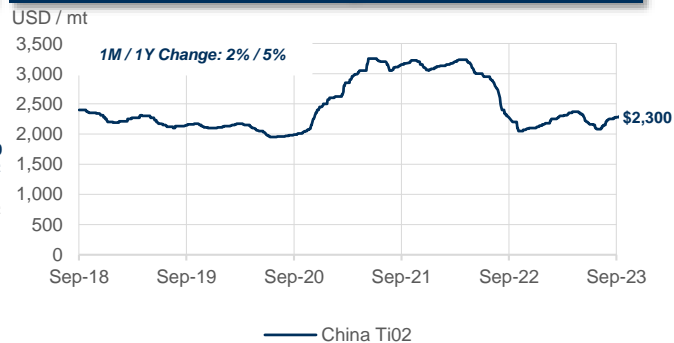
Natural Gas



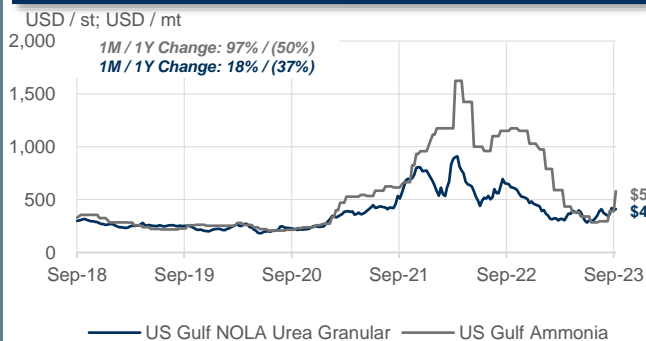
Ethylene / Polyethylene



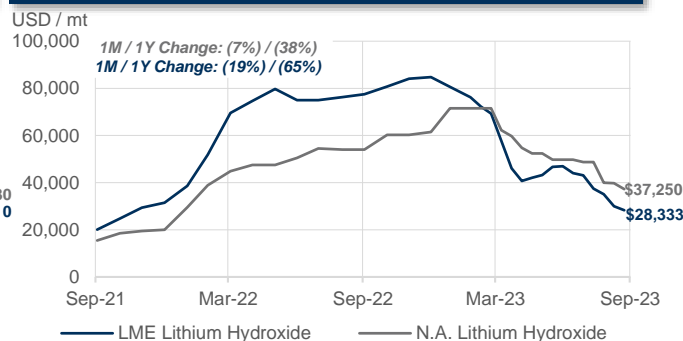
TiO₂



Nitrogen



Lithium



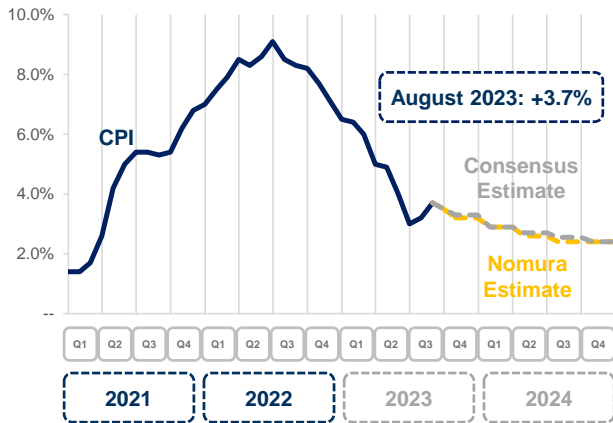
Corn



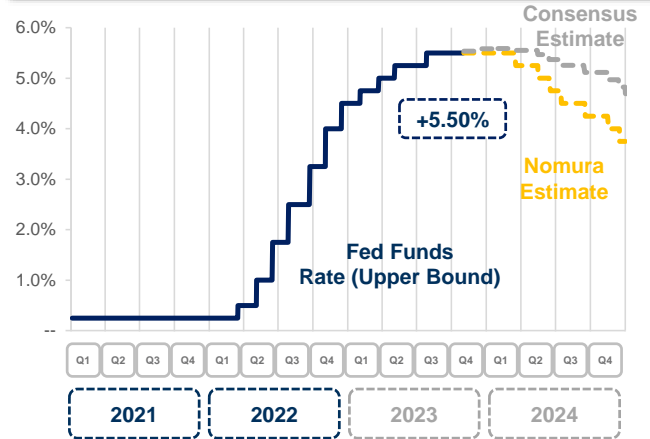
Soy



Inflation Estimates Approaching Fed Target

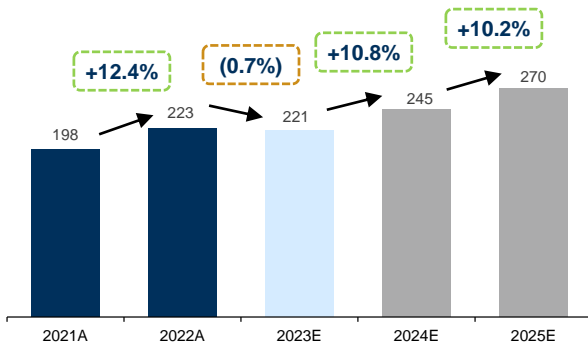


Fed Tightening Cycle Likely Complete

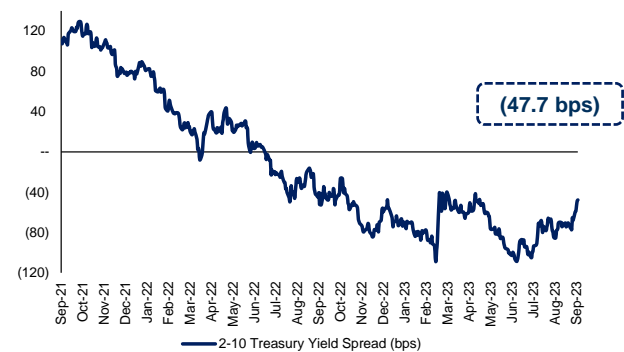


Markets Already Looking Past '23 Earnings Contraction

S&P 500 Expected Earnings



In-Line with the Signal from the Yield Curve



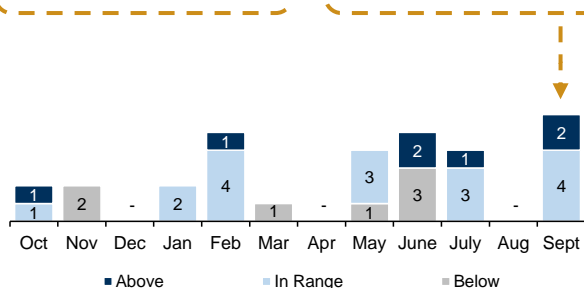
IPO Activity has Picked Up in Recent Months

Total IPO Proceeds (\$bn)

1.2 0.1 -- 0.3 1.6 0.3 -- 5.6 1.7 1.0 -- 7.1

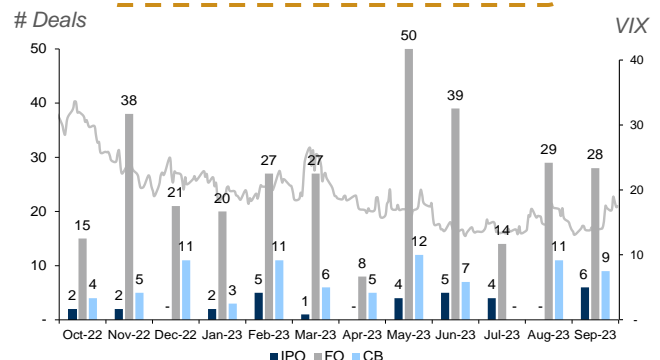
27 IPOs priced YTD compared to 20 in all of 2022

Arm's \$5.2bn IPO: largest IPO since Rivian in November 2021

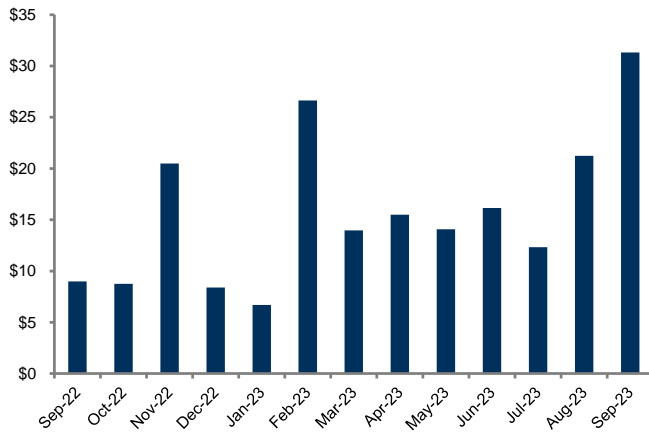


Follow-On Activity at 22/23 Highs, Aided by Low VIX

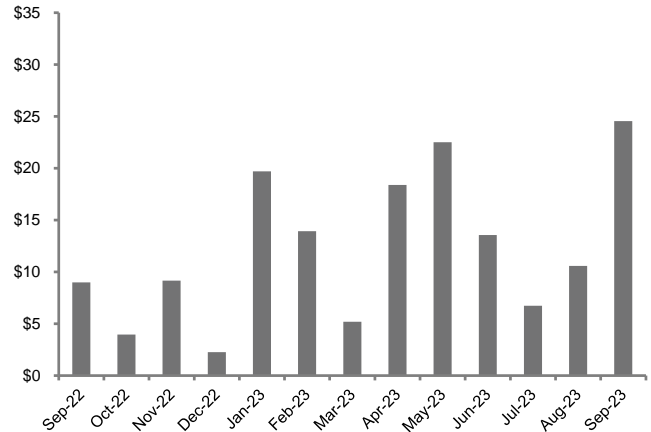
Six IPOs in September was the highest number of IPOs priced in one month since November 2021



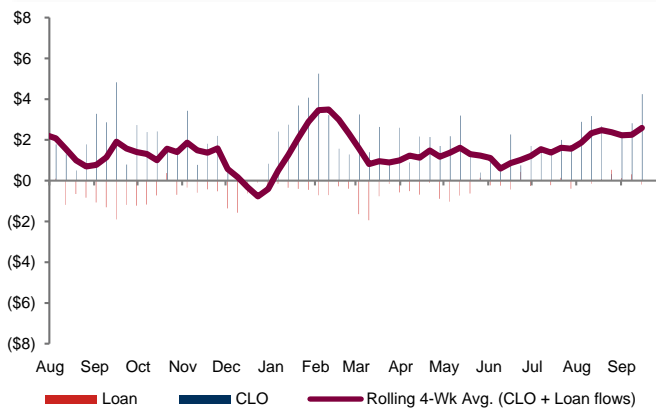
Loan Volume



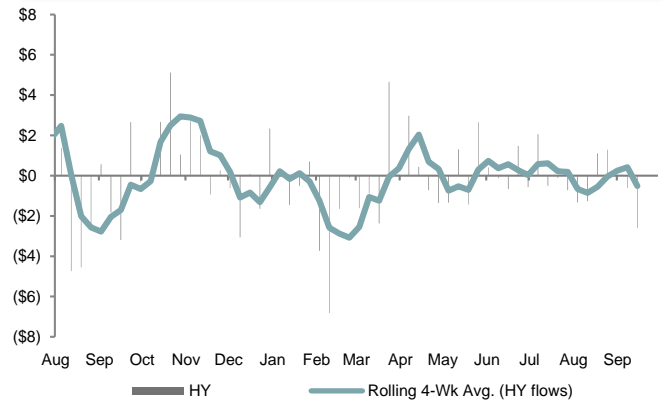
High Yield Volume (\$bn)



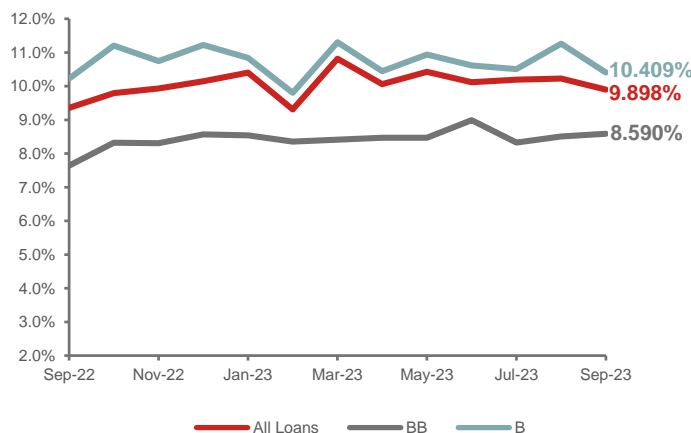
CLO Issuance + Loans Funds Flows (\$bn)



Recent High Yield Funds Flows (\$bn)



Leveraged Loan New Issue Yields¹



High Yield New Issue Yields²



Source: Nomura, LCD.

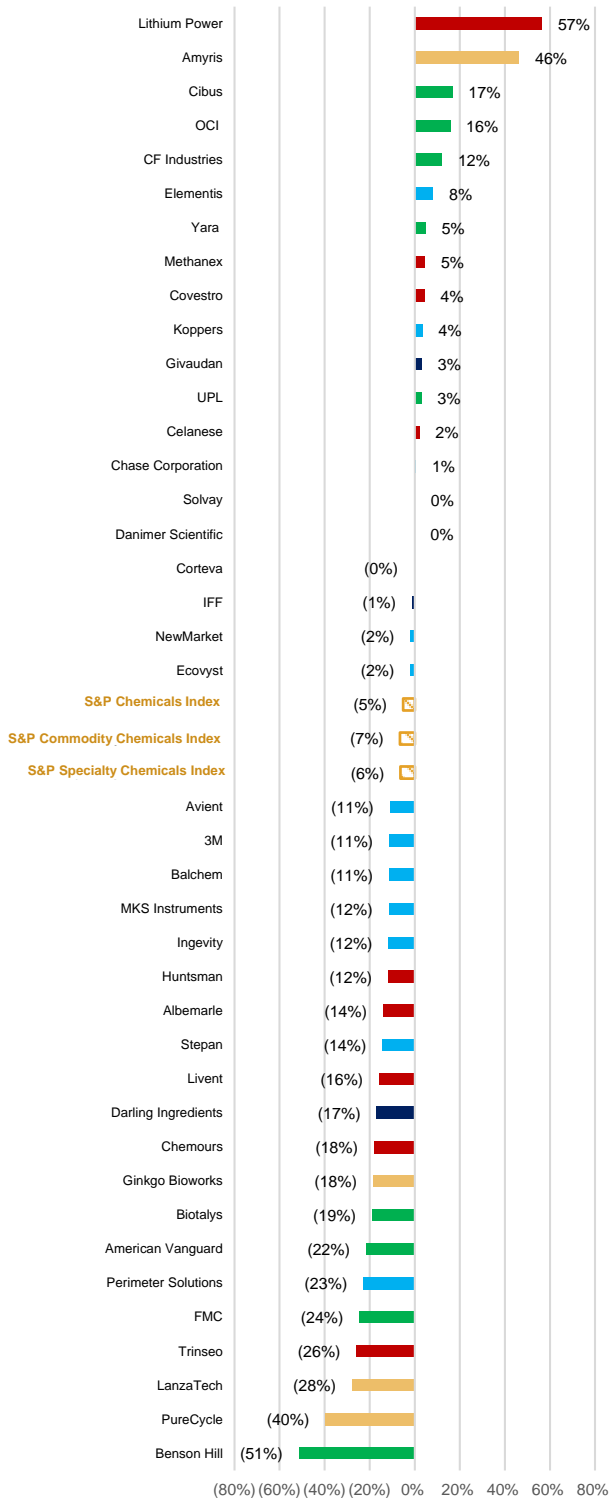
1. Reflects rolling 30-day period.

2. New Issue Yields reflect unsecured debt only.

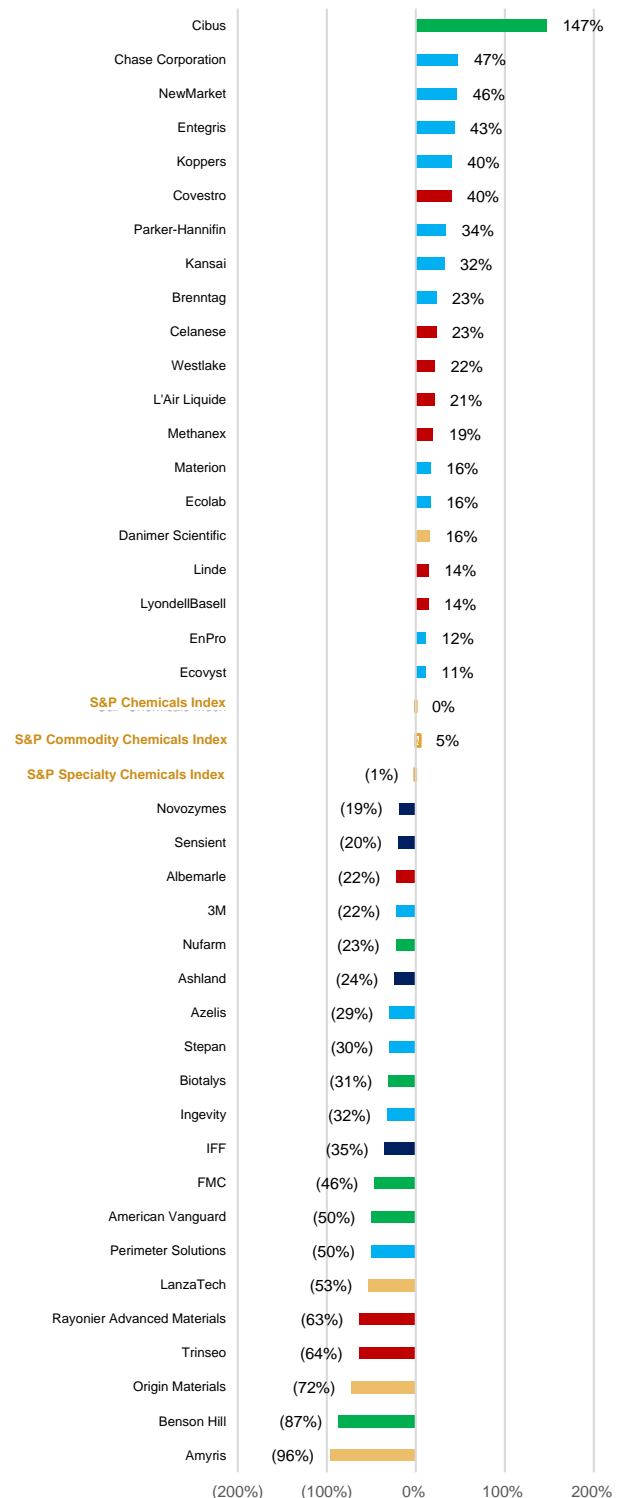
Advanced Materials and Chemicals

Share Price Performance

1 Month (Top & Bottom 20 Performers)



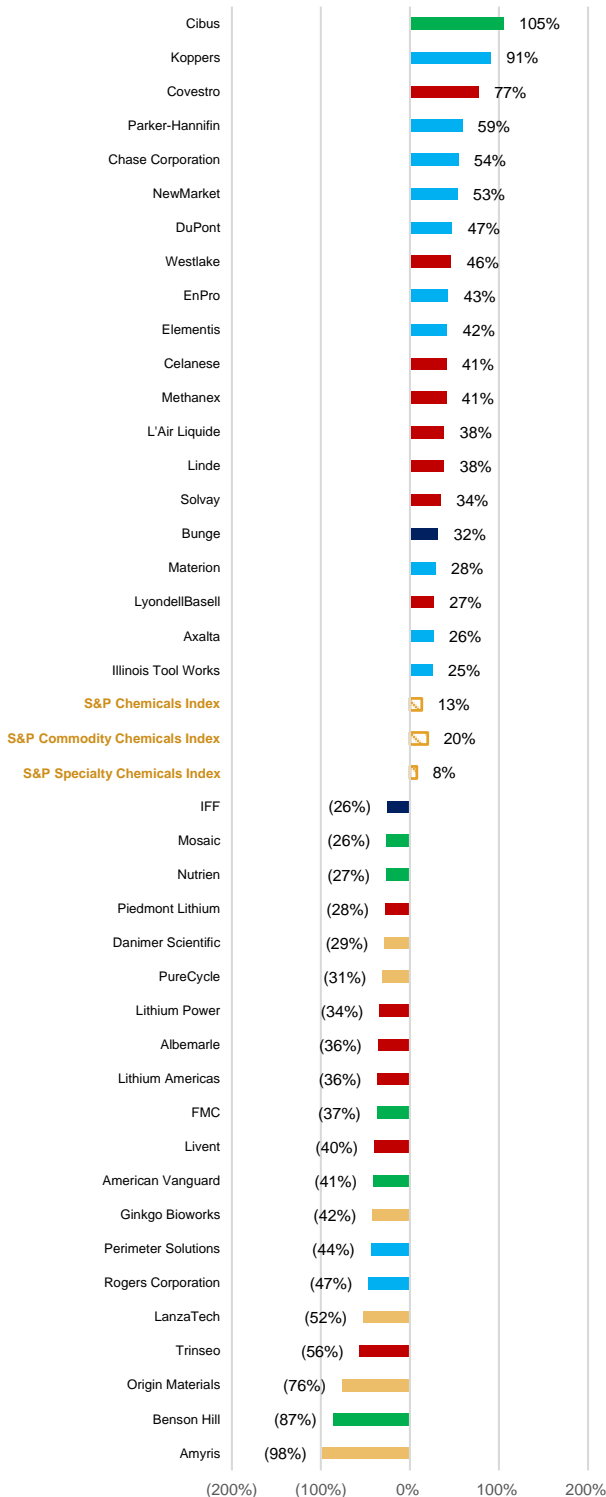
Year-to-Date (Top & Bottom 20 Performers)



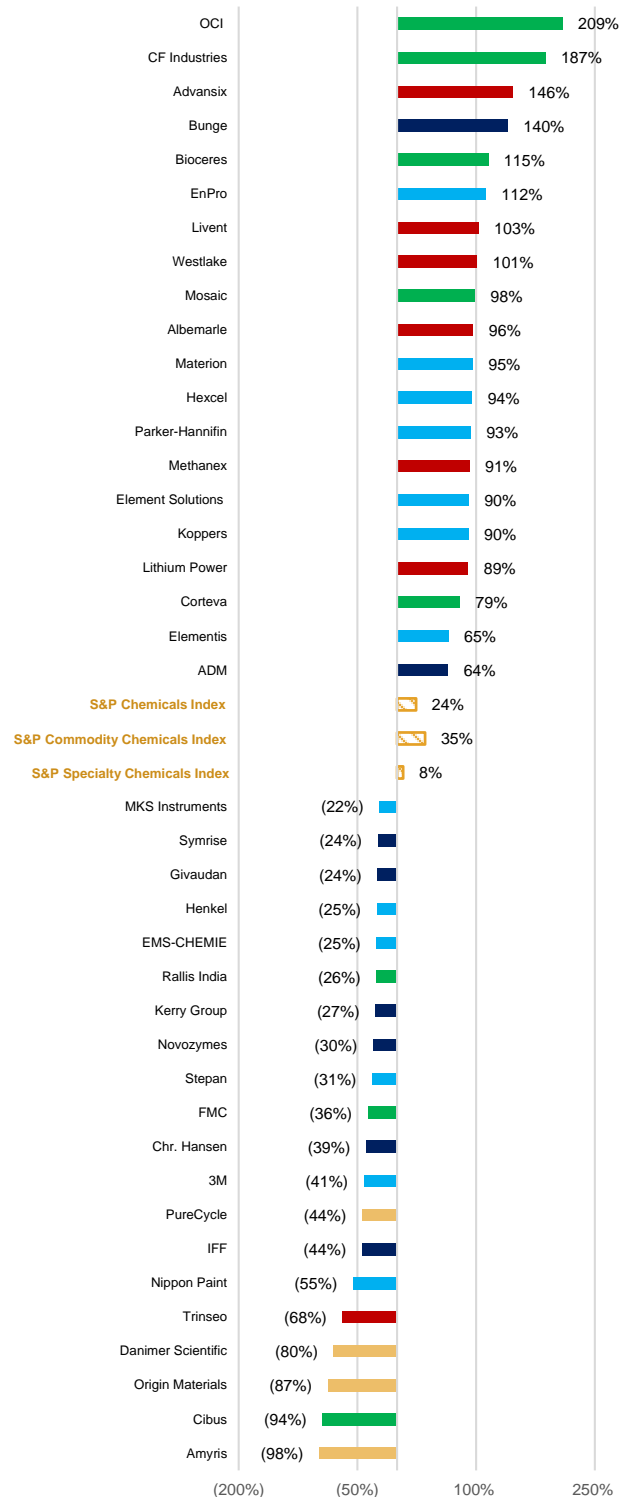
Advanced Materials and Chemicals

Share Price Performance

1 Year (Top & Bottom 20 Performers)



3 Years (Top & Bottom 20 Performers)

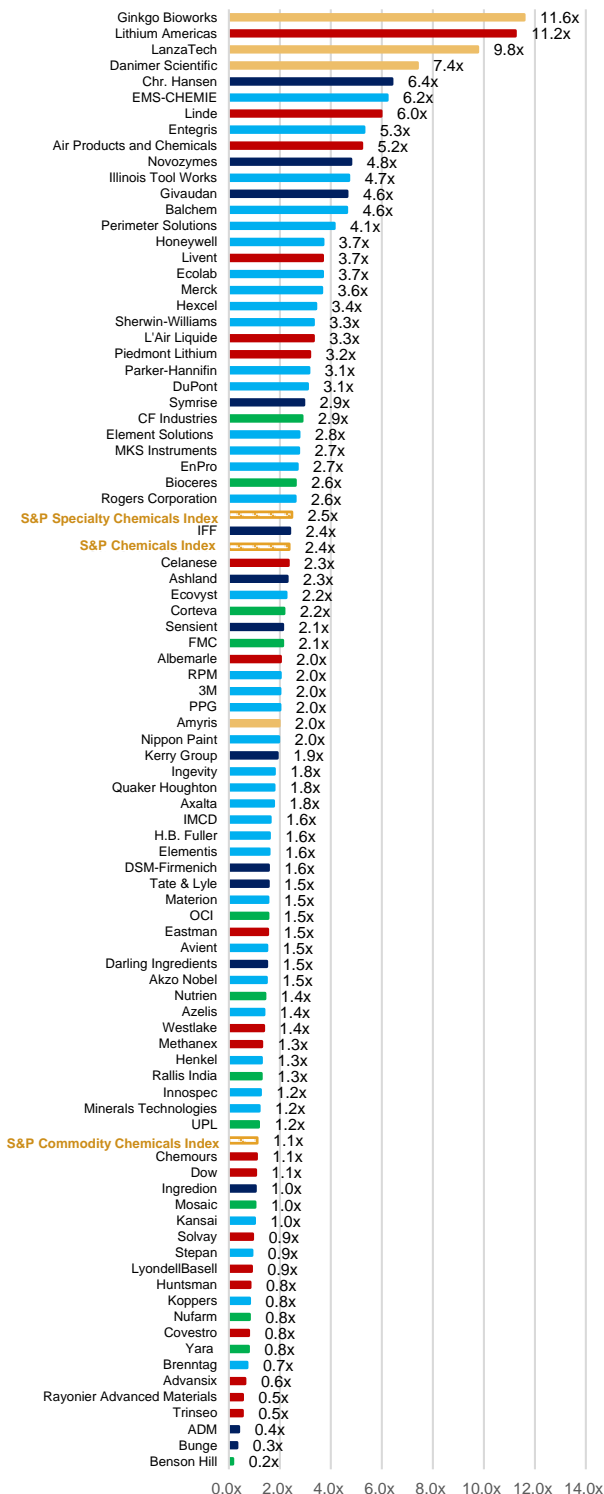


● Agriculture Chemicals
 ● Commodity & Diversified
 ● Chemicals Technology
 ● Ingredients
 ● Specialties
 ● Indices

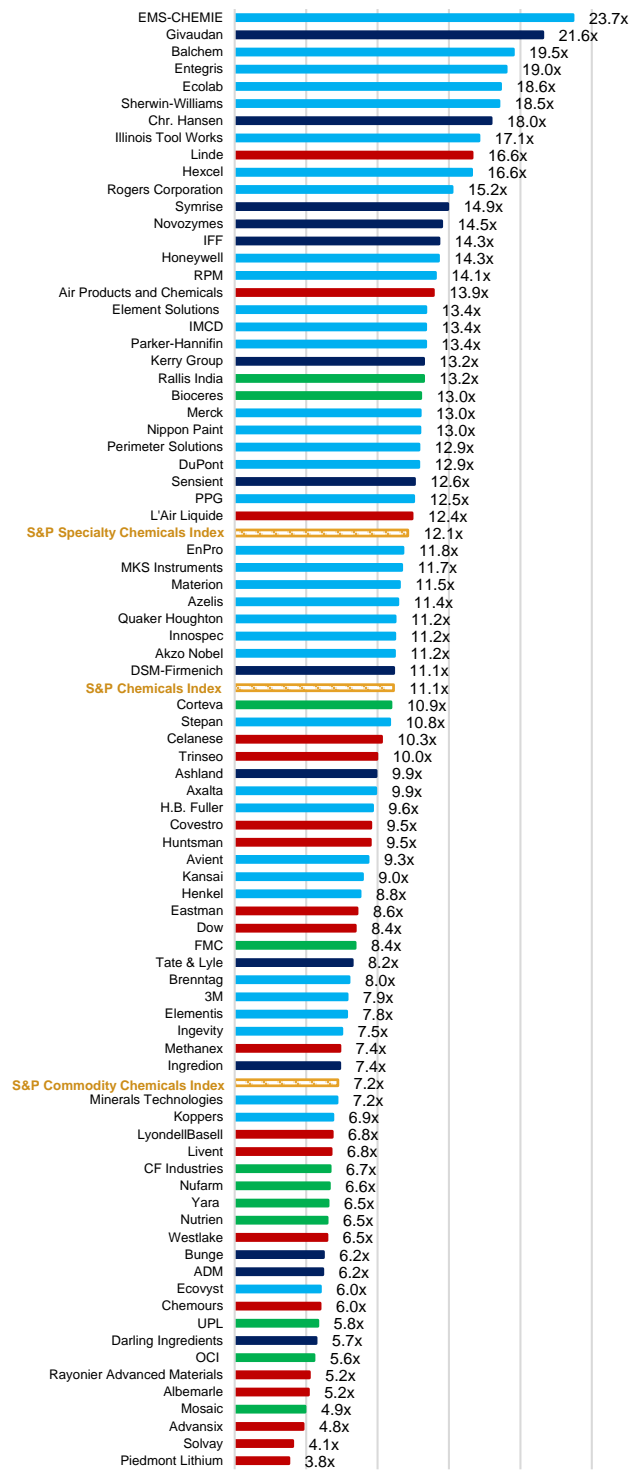
Advanced Materials and Chemicals

Trading Multiples

EV / 2023E Sales



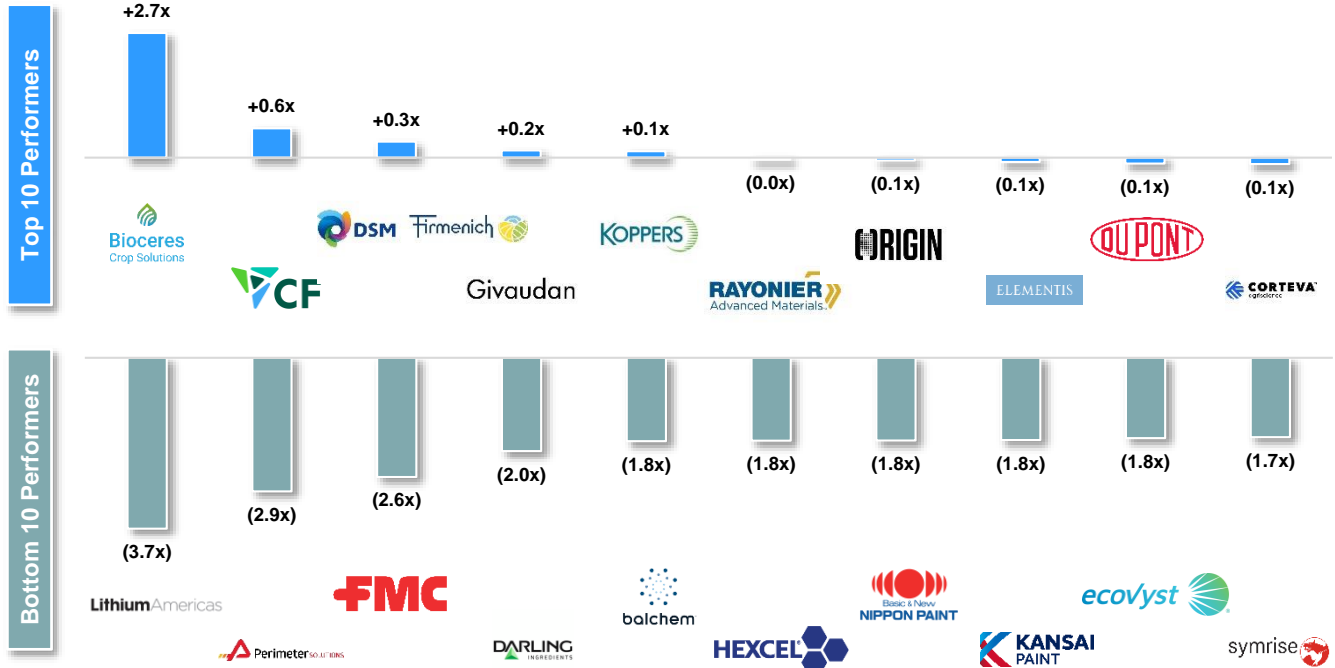
EV / 2023E EBITDA



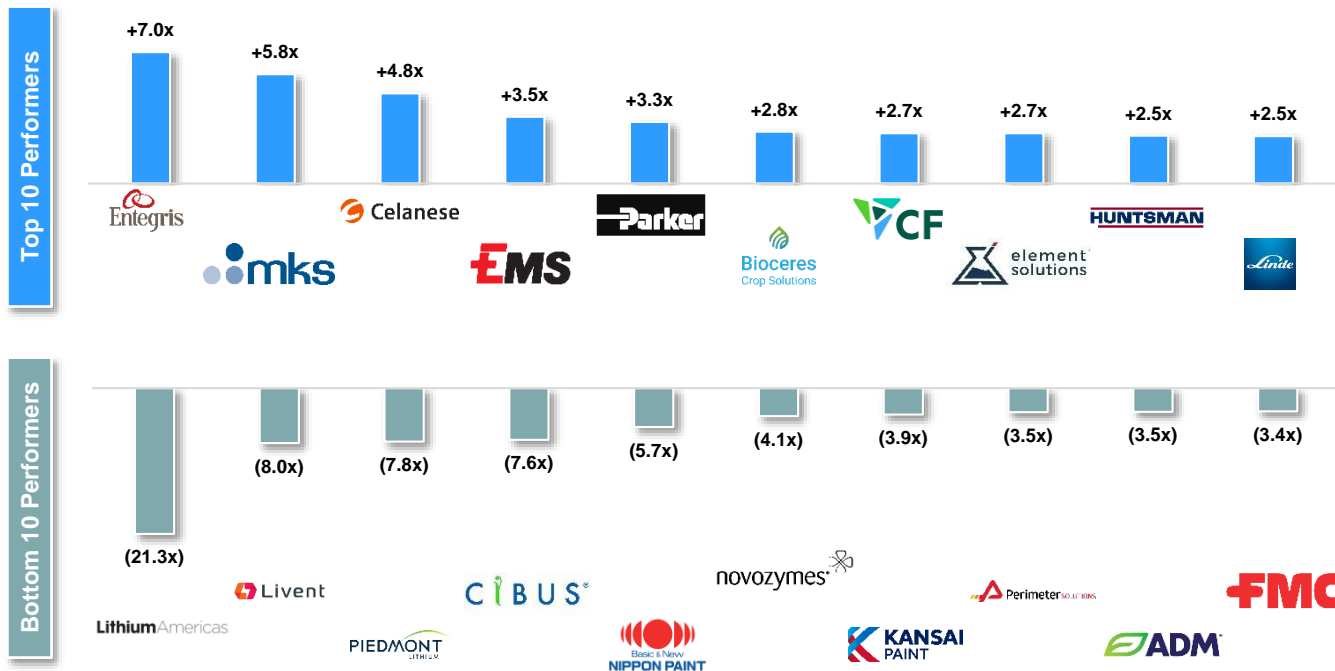
● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

Advanced Materials and Chemicals Top & Bottom Performers (EV Multiple)

1 Month Change (EV / NTM EBITDA)



1 Year Change (EV / NTM EBITDA)



Source: Factset as of September 29th 2023. All estimates reflect Factset consensus estimates.

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Trading Comparables

Advanced Materials and Chemicals

Trading Comparables

Agriculture Chemicals

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
AgChem Majors															
Corteva	USD	51.16	75%	(13%)	1.2%	18,022	3,564	19.8%	4.1%	36,565	39,017	2.2x	10.9x 10.0x	18.3x 15.4x	0.6x
FMC	USD	66.97	50%	(46%)	3.4%	5,262	1,320	25.1%	(1.7%)	8,380	11,126	2.1x	8.4x 7.6x	11.0x 9.3x	2.1x
Mean			62%	(30%)	2.3%			22.4%	1.2%			2.1x	9.7x 8.8x	14.6x 12.4x	1.4x
Median			62%	(30%)	2.3%			22.4%	1.2%			2.1x	9.7x 8.8x	14.6x 12.4x	1.4x
UPL	INR	616.25	76%	(14%)	1.7%	6,492	1,306	20.1%	4.9%	5,570	7,600	1.2x	5.8x 5.3x	12.5x 10.1x	0.0x
Nufarm	AUD	4.75	74%	(23%)	2.1%	2,355	288	12.2%	0.7%	1,174	1,907	0.8x	6.6x 6.2x	13.2x 12.1x	1.3x
Rallis India	INR	209.35	77%	(14%)	1.4%	372	36	9.6%	9.5%	490	475	1.3x	13.2x 10.4x	27.1x 20.4x	(0.0x)
American Vanguard	USD	10.93	45%	(50%)	n.a.	n.a.	n.a.	n.m.	n.m.	323	466	n.m.	n.m. n.m.	n.m. n.m.	n.m.
Mean			68%	(25%)	1.7%			14.0%	5.0%			1.1x	8.6x 7.3x	17.6x 14.2x	0.4x
Median			75%	(18%)	1.7%			12.2%	4.9%			1.2x	6.6x 6.2x	13.2x 12.1x	0.0x

Agriculture Technology

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
Ag. Tech															
Bioceres	USD	11.29	75%	(6%)	n.a.	447	90	20.1%	19.9%	990	1,167	2.6x	13.0x 10.3x	24.6x 13.1x	2.0x
Cibus	USD	18.22	47%	147%	n.a.	2	(52)	n.m.	n.m.	406	494	n.m.	n.m. n.m.	n.m. n.m.	0.9x
Biotalsys	EUR	4.70	65%	(31%)	0.0%	3	(25)	n.m.	8.9%	166	134	n.m.	n.m. n.m.	n.m. n.m.	1.4x
Benson Hill	USD	0.33	9%	(87%)	n.a.	413	(65)	(15.8%)	4.9%	73	66	0.2x	n.m. n.m.	n.m. n.m.	0.1x
Mean			49%	6%	0.0%			2.2%	11.2%			1.4x	13.0x 10.3x	24.6x 13.1x	1.1x
Median			56%	(19%)	0.0%			2.2%	8.9%			1.4x	13.0x 10.3x	24.6x 13.1x	1.2x

Coatings, Adhesives, Sealants and Elastomers (CASE)

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
CASE															
Sherwin-Williams	USD	255.05	90%	7%	0.9%	22,823	4,098	18.0%	3.1%	66,439	75,826	3.3x	18.5x 17.3x	26.0x 23.5x	2.3x
PPG	USD	129.80	85%	3%	1.9%	18,200	2,915	16.0%	3.2%	30,753	36,534	2.0x	12.5x 11.5x	17.3x 15.4x	1.9x
Henkel	EUR	59.72	85%	(1%)	3.1%	22,805	3,320	14.6%	(1.8%)	27,459	29,163	1.3x	8.8x 8.3x	14.0x 13.0x	0.5x
Nippon Paint	JPY	1,006.00	77%	(3%)	1.3%	9,558	1,445	15.1%	7.4%	15,834	18,746	2.0x	13.0x 12.4x	20.3x 19.3x	0.0x
Alzco Nobel	EUR	68.48	86%	9%	2.9%	11,475	1,511	13.2%	1.7%	12,057	16,904	1.5x	11.2x 9.6x	17.7x 14.1x	3.2x
RPM	USD	94.81	88%	(3%)	1.5%	7,423	1,067	14.4%	5.1%	12,529	14,990	2.0x	14.1x 12.6x	20.4x 17.9x	2.3x
Axalta	USD	26.90	80%	6%	n.a.	5,197	924	17.8%	5.1%	6,026	9,118	1.8x	9.9x 9.1x	18.5x 14.9x	3.3x
H.B. Fuller	USD	68.61	84%	(4%)	1.2%	3,553	587	16.5%	(0.2%)	3,873	5,664	1.6x	9.6x 8.8x	17.7x 15.5x	3.0x
Kansai	JPY	2,137.50	86%	32%	1.6%	3,669	414	11.3%	7.6%	3,239	3,708	1.0x	9.0x 8.2x	9.5x 11.9x	0.0x
Quaker Houghton	USD	160.00	74%	(4%)	0.6%	1,973	313	15.8%	2.4%	2,908	3,510	1.8x	11.2x 10.4x	21.4x 18.5x	2.2x
Chase Corporation	USD	127.23	94%	47%	n.a.	n.a.	n.a.	n.m.	n.m.	1,218	1,305	n.m.	n.m. n.m.	n.m. n.m.	n.m.
Mean			85%	8%	1.7%			15.3%	3.4%			1.8x	11.8x 10.8x	18.3x 16.4x	1.9x
Median			85%	3%	1.5%			15.5%	3.2%			1.8x	11.2x 10.0x	18.1x 15.4x	2.3x

Chemical Distribution

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
Chemicals Distribution															
Brenntag	EUR	73.48	94%	23%	2.7%	19,039	1,704	9.0%	(2.0%)	12,020	13,650	0.7x	8.0x 7.7x	14.0x 13.0x	1.0x
IMCD	EUR	120.00	77%	(10%)	1.8%	4,899	595	12.1%	3.5%	7,246	7,956	1.6x	13.4x 12.5x	20.2x 19.0x	1.3x
Azelis	EUR	18.71	69%	(29%)	1.6%	4,591	554	12.1%	6.3%	4,835	6,328	1.4x	11.4x 10.7x	17.6x 15.2x	2.7x
Mean			80%	(5%)	2.1%			11.1%	2.6%			1.2x	10.9x 10.3x	17.3x 15.7x	1.6x
Median			77%	(10%)	1.8%			12.1%	3.5%			1.4x	11.4x 10.7x	17.6x 15.2x	1.3x

Chemical Technology

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
ChemTech															
PureCycle	USD	5.61	47%	(17%)	n.a.	21	(76)	n.m.	n.m.	948	1,154	n.m.	n.m. n.m.	n.m. n.m.	(2.7x)
Danimer Scientific	USD	2.07	45%	16%	n.a.	68	(31)	n.m.	69.5%	216	503	7.4x	n.m. n.m.	n.m. n.m.	(9.4x)
Origin Materials	USD	1.28	20%	(72%)	n.a.	48	(52)	n.m.	n.m.	199	(14)	n.m.	0.3x 0.2x	n.m. n.m.	4.1x
Mean			38%	(25%)	NA			NA	69.5%			7.4x	0.3x 0.2x	NA NA	(2.6x)
Median			45%	(17%)	NA			NA	69.5%			7.4x	0.3x 0.2x	NA NA	(2.7x)

Commodity

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E 2024E	Price/Earnings 2023E 2024E	Net Leverage 2023E
Commodity															
Dow	USD	51.56	85%	2%	5.5%	44,174	5,502	12.5%	(10.0%)	36,790	46,463	1.1x	8.4x 6.7x	22.4x 13.4x	1.9x
LyondellBasell	USD	94.70	93%	14%	5.1%	40,467	5,268	13.0%	(11.5%)	30,874	35,968	0.9x	6.8x 6.1x	11.2x 9.4x	1.7x
Westlake	USD	124.67	90%	22%	1.1%	12,983	2,748	21.2%	(7.3%)	16,108	17,738	1.4x	6.8x 6.0x	14.0x 12.5x	0.8x
Methanex	CAD	61.21	82%	19%	1.6%	3,598	632	17.6%	(7.1%)	3,061	4,656	1.3x	7.4x 5.8x	23.0x 14.2x	1.7x
Advansix	USD	31.08	70%	(18%)	1.0%	1,575	209	13.3%	(8.2%)	873	1,003	0.6x	4.8x 4.1x	8.7x 6.9x	0.6x
Mean			84%	8%	2.4%			15.5%	(8.8%)			1.0x	6.8x 5.8x	15.9x 11.3x	1.4x
Median			85%	14%	1.6%			13.3%	(8.2%)			1.1x	6.8x 6.0x	14.0x 12.5x	1.7x

Source: Company filings, Factset as of September 29th, 2023.

Advanced Materials and Chemicals

Trading Comparables

Diversified

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Diversified																	
Celanese	USD	125.52	96%	23%	2.2%	11,167	2,537	22.7%	10.3%	13,697	26,076	2.3x	10.3x	9.1x	13.6x	10.0x	5.1x
Eastman	USD	76.72	83%	(6%)	4.1%	9,334	1,666	17.8%	(3.3%)	9,169	14,267	1.5x	8.6x	7.5x	11.4x	9.3x	3.0x
Solvay	EUR	104.85	93%	11%	3.9%	13,492	3,115	23.1%	(1.6%)	11,459	12,656	0.9x	4.1x	4.1x	7.7x	8.1x	0.5x
Covestro	EUR	51.06	94%	40%	0.2%	15,956	1,307	8.2%	(6.0%)	10,256	12,458	0.8x	9.5x	6.9x	n.m.	20.6x	1.9x
Chemours	USD	28.05	72%	(8%)	3.6%	6,119	1,113	18.2%	(2.2%)	4,215	6,656	1.1x	6.0x	5.2x	8.2x	6.2x	2.4x
Huntsman	USD	24.40	73%	(11%)	3.7%	6,331	556	8.8%	(9.6%)	4,401	5,278	0.8x	9.5x	6.9x	29.0x	13.0x	1.9x
Trinseo	USD	8.17	27%	(64%)	6.0%	3,930	210	5.3%	(8.9%)	299	2,092	0.5x	10.0x	6.0x	n.m.	n.m.	9.7x
Koppers	USD	39.55	94%	40%	n.a.	2,128	253	11.9%	4.9%	879	1,741	0.8x	6.9x	6.4x	8.9x	8.4x	3.4x
Rayonier Advanced Mater	USD	3.54	36%	(63%)	n.a.	1,693	176	10.4%	1.8%	243	919	0.5x	5.2x	4.5x	n.m.	n.m.	3.8x
Mean			74%	(4%)	3.4%			14.0%	(1.6%)			1.0x	7.8x	6.3x	13.2x	10.8x	3.5x
Median			83%	(6%)	3.7%			11.9%	(2.2%)			0.8x	8.6x	6.4x	10.1x	9.3x	3.0x

Electronic Chemicals & Materials

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Electronic Chemicals																	
Merck	EUR	158.15	78%	(13%)	1.4%	22,646	6,356	28.1%	0.7%	73,102	82,592	3.6x	13.0x	11.7x	18.1x	16.1x	1.6x
Entegris	USD	93.91	82%	43%	0.3%	3,614	1,009	27.9%	8.0%	14,243	19,168	5.3x	19.0x	16.4x	36.5x	26.0x	4.9x
MKS Instruments	USD	86.54	76%	2%	1.0%	3,659	858	23.4%	6.5%	5,881	10,030	2.7x	11.7x	10.0x	22.7x	15.0x	4.8x
Element Solutions	USD	19.61	90%	8%	1.3%	2,389	492	20.6%	(0.2%)	4,812	6,587	2.8x	13.4x	11.9x	15.0x	13.1x	3.6x
EnPro	USD	121.19	84%	12%	n.a.	1,099	250	22.8%	2.3%	2,560	2,950	2.7x	11.8x	10.8x	17.5x	15.6x	1.5x
Materion	USD	101.91	83%	16%	0.5%	1,681	224	13.3%	2.6%	2,161	2,585	1.5x	11.5x	10.2x	17.7x	15.2x	1.9x
Rogers Corporation	USD	131.47	53%	10%	n.a.	942	161	17.1%	2.5%	2,474	2,450	2.6x	15.2x	12.5x	31.4x	22.7x	(0.1x)
Mean			78%	11%	0.9%			21.9%	3.2%			3.0x	13.7x	11.9x	22.7x	17.7x	2.6x
Median			82%	10%	1.0%			22.8%	2.5%			2.7x	13.0x	11.7x	18.1x	15.6x	1.9x

Fertilizers

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Fertilizers																	
Nutrien	CAD	83.88	69%	(15%)	3.3%	28,418	6,226	21.9%	(12.9%)	30,762	40,289	1.4x	6.5x	6.6x	11.9x	11.8x	1.1x
CF Industries	USD	85.74	76%	1%	1.9%	6,623	2,845	43.0%	(25.4%)	16,635	19,027	2.9x	6.7x	7.5x	10.6x	12.8x	(0.1x)
Mosaic	USD	35.60	62%	(19%)	2.6%	13,372	2,798	20.9%	(20.7%)	11,936	13,795	1.0x	4.9x	5.4x	8.9x	10.3x	0.9x
Yara	NOK	405.30	81%	(6%)	6.8%	16,891	1,992	11.8%	(14.5%)	9,702	13,031	0.8x	6.5x	5.4x	17.1x	10.4x	0.2x
OCI	EUR	26.39	59%	(11%)	6.7%	5,585	1,544	27.6%	(20.6%)	5,919	8,577	1.5x	5.6x	4.5x	29.0x	14.1x	1.5x
Mean			70%	(10%)	4.3%			25.0%	(18.8%)			1.5x	6.0x	5.9x	15.5x	11.9x	0.7x
Median			69%	(11%)	3.3%			21.9%	(20.6%)			1.4x	6.5x	5.4x	11.9x	11.8x	0.9x

Ingredients

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Diversified Ingredients																	
ADM	USD	75.42	77%	(19%)	2.4%	99,028	6,268	6.3%	(1.5%)	40,994	38,658	0.4x	6.2x	6.8x	10.5x	11.3x	0.6x
Bunge	USD	108.25	93%	8%	2.5%	61,759	3,179	5.1%	(4.7%)	16,605	19,751	0.3x	6.2x	6.4x	8.7x	9.1x	1.1x
Darling Ingredients	USD	52.20	63%	(17%)	n.a.	7,248	1,890	26.1%	7.7%	8,480	10,779	1.5x	5.7x	5.4x	9.5x	8.6x	2.3x
Ingredion	USD	98.40	87%	0%	3.0%	8,442	1,192	14.1%	4.2%	6,637	8,774	1.0x	7.4x	7.1x	10.9x	10.2x	1.8x
Tate & Lyle	GBP	6.86	82%	(4%)	2.8%	2,144	403	18.8%	4.9%	3,336	3,318	1.5x	8.2x	7.7x	12.7x	11.5x	0.7x
Mean			80%	(6%)	2.7%			14.1%	2.1%			1.0x	6.7x	6.7x	10.5x	10.1x	1.3x
Median			82%	(4%)	2.6%			14.1%	4.2%			1.0x	6.2x	6.8x	10.5x	10.2x	1.1x
Specialty Ingredients																	
Ashland	USD	81.68	71%	(24%)	1.8%	2,240	519	23.2%	0.6%	4,228	5,136	2.3x	9.9x	8.8x	16.8x	13.8x	1.7x
DSM-Firmenich	EUR	80.13	66%	NA	2.5%	12,015	1,681	14.0%	22.3%	22,539	18,702	1.6x	11.1x	8.5x	39.8x	24.2x	(2.4x)
IFF	USD	68.17	58%	(35%)	4.5%	11,410	1,910	16.7%	(2.5%)	17,471	27,315	2.4x	14.3x	12.1x	20.8x	15.4x	5.1x
Givaudan	CHF	2,994.00	90%	6%	2.3%	7,655	1,646	21.5%	1.3%	30,290	35,513	4.6x	21.6x	19.8x	30.3x	27.2x	3.5x
Kerry Group	EUR	79.18	79%	(6%)	1.4%	8,824	1,270	14.4%	(1.3%)	14,987	16,796	1.9x	13.2x	12.1x	18.2x	16.2x	1.5x
Sensient	USD	58.48	74%	(20%)	2.9%	1,491	250	16.8%	4.6%	2,487	3,153	2.1x	12.6x	11.5x	19.4x	17.2x	2.7x
Symrise	EUR	90.32	80%	(11%)	1.3%	5,102	1,008	19.8%	4.8%	13,366	15,031	2.9x	14.9x	13.5x	31.8x	25.8x	2.3x
Mean			74%	(15%)	2.4%			18.0%	4.3%			2.5x	13.9x	12.3x	25.3x	20.0x	2.1x
Median			74%	(15%)	2.3%			16.8%	1.3%			2.3x	13.2x	12.1x	20.8x	17.2x	2.3x
Bio-Ingredients																	
Novozymes	DKK	284.70	66%	(19%)	2.1%	2,534	837	33.0%	3.3%	11,167	12,134	4.8x	14.5x	13.2x	24.0x	21.3x	0.2x
Chr. Hansen	DKK	432.40	72%	(13%)	2.1%	1,427	509	35.7%	6.8%	8,110	9,140	6.4x	18.0x	16.4x	29.6x	25.8x	0.3x
Mean			69%	(16%)	2.1%			34.3%	5.1%			5.6x	16.2x	14.8x	26.8x	23.5x	0.2x
Median			69%	(16%)	2.1%			34.3%	5.1%			5.6x	16.2x	14.8x	26.8x	23.5x	0.2x

Advanced Materials and Chemicals

Trading Comparables

Industrial Gas

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Industrial Gas																	
Linde	USD	372.35	95%	14%	1.4%	33,322	11,970	35.9%	2.6%	183,544	199,014	6.0x	16.6x	15.7x	26.8x	24.6x	1.2x
L'Air Liquide	EUR	159.84	95%	21%	2.0%	30,289	8,100	26.7%	0.3%	88,789	100,621	3.3x	12.4x	11.6x	24.5x	22.5x	1.5x
Air Products and Chemicals	USD	283.40	86%	(8%)	2.5%	12,947	4,854	37.5%	4.8%	63,321	67,538	5.2x	13.9x	12.6x	24.0x	21.6x	1.5x
Mean			92%	9%	1.9%			33.4%	2.5%			4.8x	14.3x	13.3x	25.1x	22.9x	1.4x
Median			95%	14%	2.0%			35.9%	2.6%			5.2x	13.9x	12.6x	24.5x	22.5x	1.5x

Lithium

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Lithium																	
Albemarle	USD	170.04	51%	(22%)	0.9%	10,454	4,109	39.3%	18.3%	20,064	21,185	2.0x	5.2x	5.7x	6.4x	7.4x	0.4x
Livent	USD	18.41	51%	(7%)	n.a.	1,067	581	54.4%	28.4%	3,848	3,923	3.7x	6.8x	5.8x	8.7x	7.5x	0.1x
Lithium Americas	CAD	23.08	58%	(10%)	n.a.	201	21	10.6%	n.m.	2,785	2,259	11.2x	n.m.	11.2x	n.m.	18.8x	n.m.
Piedmont Lithium	USD	39.70	52%	(10%)	n.a.	175	147	83.8%	n.m.	770	557	3.2x	3.8x	1.8x	6.5x	3.0x	(0.6x)
Lithium Power	AUD	0.36	56%	(18%)	n.a.	n.a.	n.a.	n.m.	n.m.	146	139	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Mean			54%	(13%)	0.9%			47.0%	23.3%			5.0x	5.2x	6.1x	7.2x	9.2x	(0.0x)
Median			52%	(10%)	0.9%			46.9%	23.3%			3.4x	5.2x	5.8x	6.5x	7.5x	0.1x

Multi-Industrial

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Multi Industrial																	
Honeywell	USD	184.74	84%	(14%)	2.3%	37,000	9,582	25.9%	4.8%	123,689	136,681	3.7x	14.3x	13.3x	20.2x	18.4x	1.3x
Merck	EUR	158.15	78%	(13%)	1.4%	22,646	6,356	28.1%	0.7%	73,102	82,592	3.6x	13.0x	11.7x	18.1x	16.1x	1.6x
Illinois Tool Works	USD	230.31	87%	5%	2.3%	16,311	4,487	27.5%	2.8%	70,011	76,737	4.7x	17.1x	16.3x	23.6x	22.4x	1.5x
3M	USD	93.62	70%	(22%)	6.6%	31,695	8,091	25.5%	(2.2%)	51,959	63,691	2.0x	7.9x	7.5x	10.5x	9.6x	1.4x
Parker-Hannifin	USD	389.52	91%	34%	1.4%	19,469	4,575	23.5%	8.1%	51,000	61,163	3.1x	13.4x	12.4x	17.7x	16.3x	2.2x
DuPont	USD	74.59	95%	9%	1.9%	12,478	2,987	23.9%	0.9%	34,513	38,515	3.1x	12.9x	11.6x	21.6x	17.9x	1.4x
Mean			84%	(0%)	2.6%			25.7%	2.5%			3.4x	13.1x	12.1x	18.6x	16.8x	1.6x
Median			85%	(4%)	2.1%			25.7%	1.9%			3.4x	13.2x	12.1x	19.1x	17.1x	1.5x

Specialty

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Specialty																	
Ecoclab	USD	169.40	89%	16%	1.3%	15,412	3,041	19.7%	6.9%	48,552	56,630	3.7x	18.6x	16.7x	33.1x	27.9x	2.6x
EMS-CHEMIE	CHF	623.00	78%	(0%)	3.2%	2,461	645	26.2%	(1.6%)	15,928	15,294	6.2x	23.7x	21.3x	31.3x	28.4x	(1.1x)
Hexcel	USD	65.14	82%	11%	0.8%	1,817	374	20.6%	13.0%	5,585	6,209	3.4x	16.6x	13.9x	33.5x	25.1x	1.8x
NewMarket	USD	455.04	96%	46%	n.a.	n.a.	n.a.	n.m.	n.m.	4,375	5,160	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Avient	USD	35.32	79%	5%	1.9%	3,281	525	16.0%	1.1%	3,238	4,901	1.5x	9.3x	8.4x	14.6x	12.0x	3.1x
Balchem	USD	124.04	86%	2%	n.a.	944	224	23.7%	3.7%	4,030	4,365	4.6x	19.5x	18.6x	32.6x	30.3x	1.5x
Ingevity	USD	47.61	52%	(32%)	n.a.	1,682	401	23.8%	3.3%	1,748	3,005	1.8x	7.5x	6.8x	11.9x	9.3x	3.4x
Minerals Technologies	USD	54.76	74%	(10%)	n.a.	2,194	365	16.6%	3.2%	1,792	2,614	1.2x	7.2x	6.5x	10.8x	9.1x	2.2x
Innospec	USD	102.20	88%	(1%)	1.4%	1,972	218	11.1%	1.9%	2,612	2,449	1.2x	11.2x	9.5x	17.7x	14.9x	(0.8x)
Stepan	USD	74.97	65%	(30%)	2.0%	2,464	206	8.4%	(2.8%)	1,690	2,239	0.9x	10.8x	8.2x	27.0x	14.0x	2.7x
Koppers	USD	39.55	94%	40%	n.a.	2,128	253	11.9%	4.9%	879	1,741	0.8x	6.9x	6.4x	8.9x	8.4x	3.4x
Ecovyst	USD	9.84	80%	11%	n.a.	707	265	37.4%	(3.8%)	1,184	1,588	2.2x	6.0x	5.5x	11.9x	9.0x	3.2x
Perimeter Solutions	USD	4.54	40%	(50%)	n.a.	325	104	32.1%	12.5%	702	1,345	4.1x	12.9x	7.4x	n.m.	16.7x	6.2x
Elementis	GBP	1.24	96%	3%	1.5%	713	144	20.2%	(0.6%)	889	1,131	1.6x	7.8x	7.2x	14.1x	11.8x	2.0x
Mean			79%	1%	1.7%			20.6%	3.2%			2.6x	12.2x	10.5x	20.6x	16.7x	2.3x
Median			81%	2%	1.5%			20.2%	3.2%			1.8x	10.8x	8.2x	16.1x	14.0x	2.6x

Synthetic Biology

Company	Local Currency	Local Price as of 29-Sep-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
SynBio																	
Ginkgo Bioworks	USD	1.81	51%	7%	n.a.	264	(483)	n.m.	(14.4%)	4,186	3,057	11.6x	n.m.	n.m.	n.m.	n.m.	2.3x
Amyris	USD	0.06	2%	(96%)	n.a.	488	(180)	n.m.	40.2%	23	966	2.0x	n.m.	n.m.	n.m.	n.m.	(5.2x)
LanzaTech	USD	4.67	43%	(53%)	n.a.	85	(85)	n.m.	116.6%	1,002	831	9.8x	n.m.	n.m.	n.m.	n.m.	1.9x
Mean			32%	(47%)	NA			NA	47.5%			7.8x	NA	NA	NA	NA	(0.3x)
Median			43%	(53%)	NA			NA	40.2%			9.8x	NA	NA	NA	NA	1.9x

Global Experts in Sustainable Technology and Infrastructure

Nomura Greentech Offices



Nomura Greentech Transactions

Mergers & Acquisitions

- Corporate sales
- Acquisitions
- Minority investments
- Joint ventures
- Fairness opinions

\$147bn

Asset Transactions

- Acquisitions
- Divestitures
- Passive equity
- Development capital formation

Operating 55GW | **Development 200GW**

Capital Raising

- Equity private placements
- Debt private placements
- Project finance advisory
- Bookrun public equity offering

\$59bn

Transactions

- Mergers and acquisitions
- Sales and divestitures
- Capital raise
- Capital markets
- General advisory

>260 transactions

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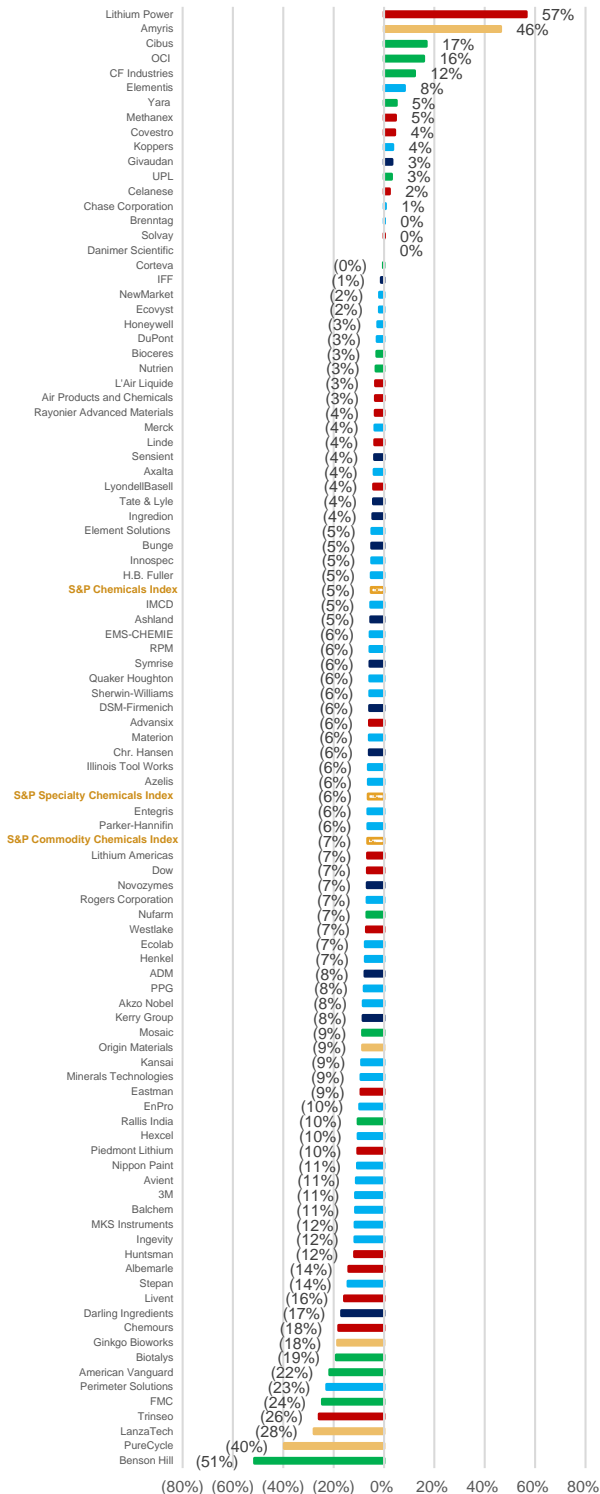


Appendix

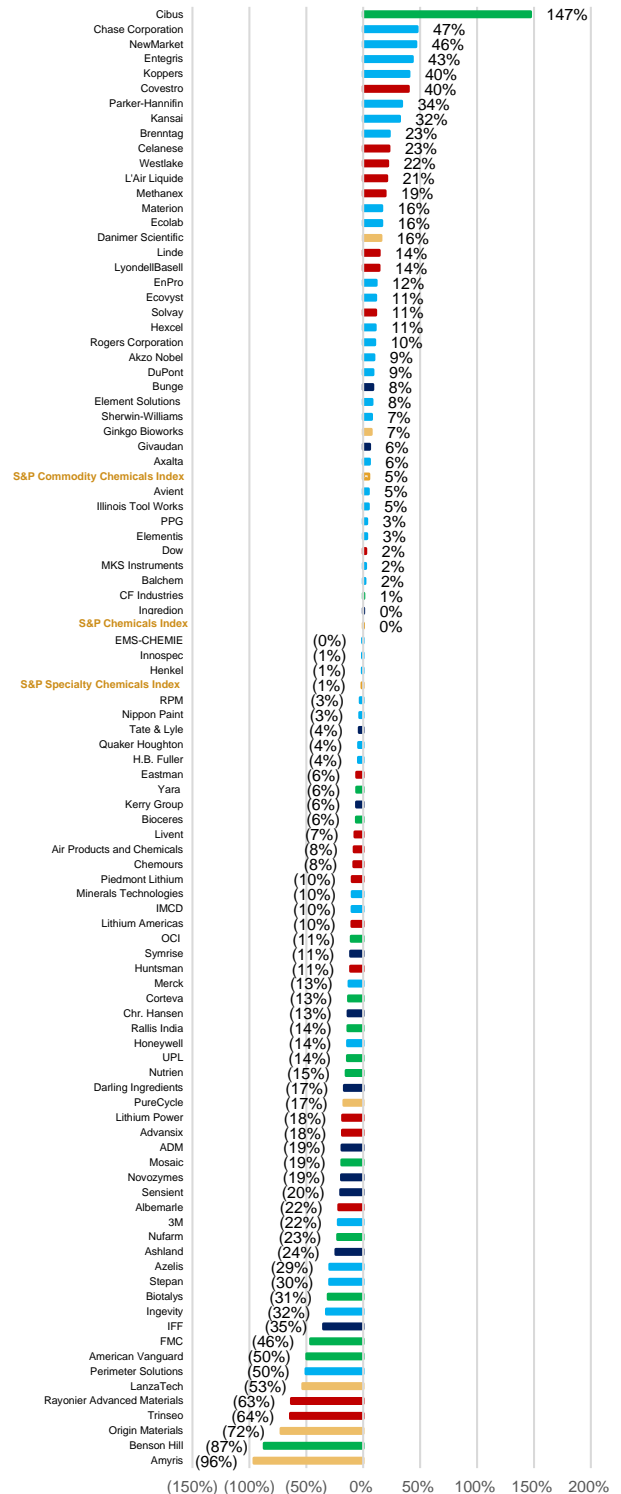
Advanced Materials and Chemicals

Share Price Performance

1 Month



Year-to-Date



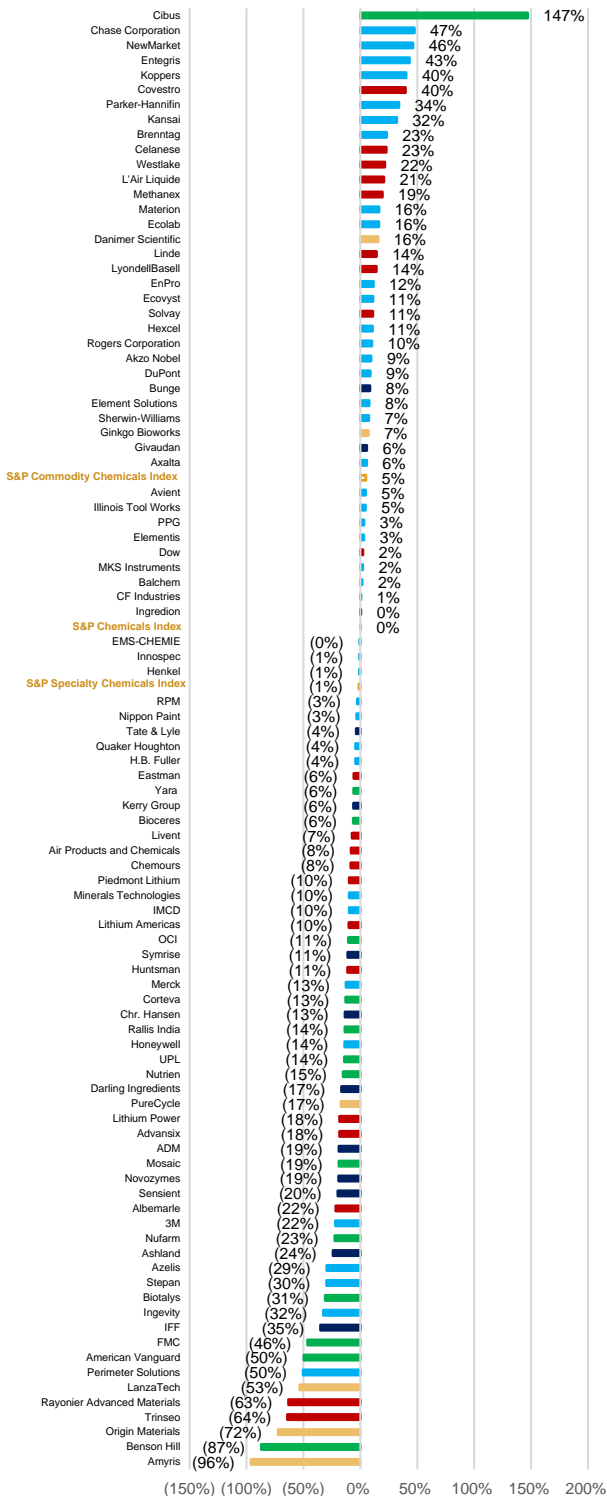
● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

Source: Factset as of September 29th, 2023, third-party providers.

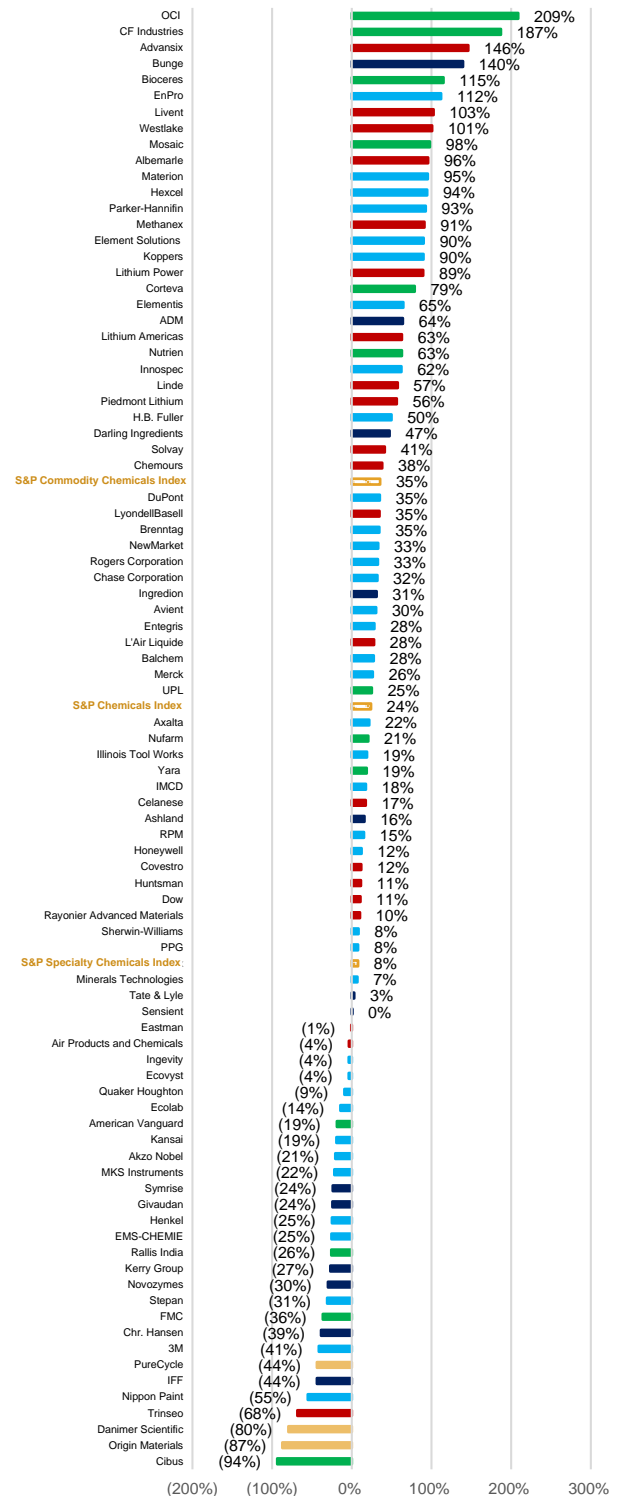
Advanced Materials and Chemicals

Share Price Performance

1 Year



3 Years



● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

Source: Factset as of September 29th, 2023, third-party providers.

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