

Albemarle (NYSE: ALB)

April 13, 2021

Target Price: **\$234.94**

Upside / (Downside): **10.9%**

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Ajaypal Sundal



Agenda



Business Overview

Industry Analysis

Risks, Mitigations & Catalysts

Valuation

Appendix





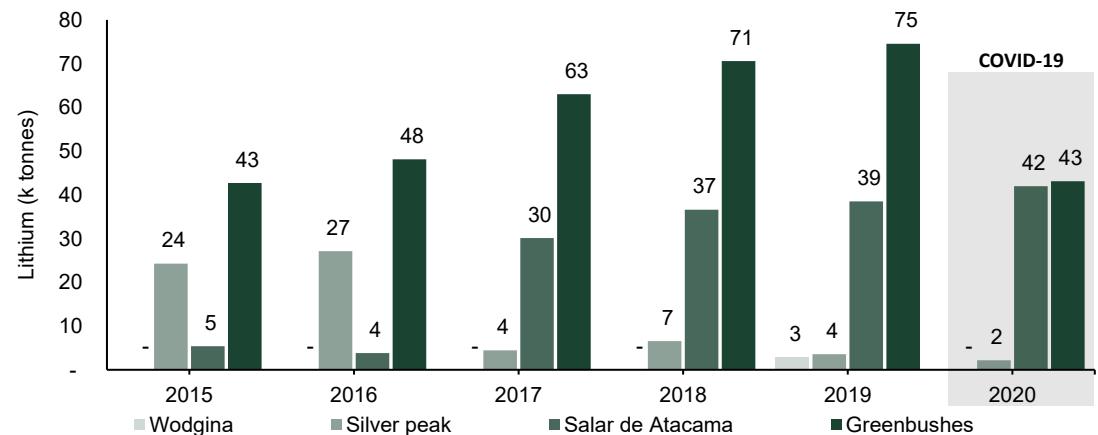
Business Overview

Company Overview

Market Data

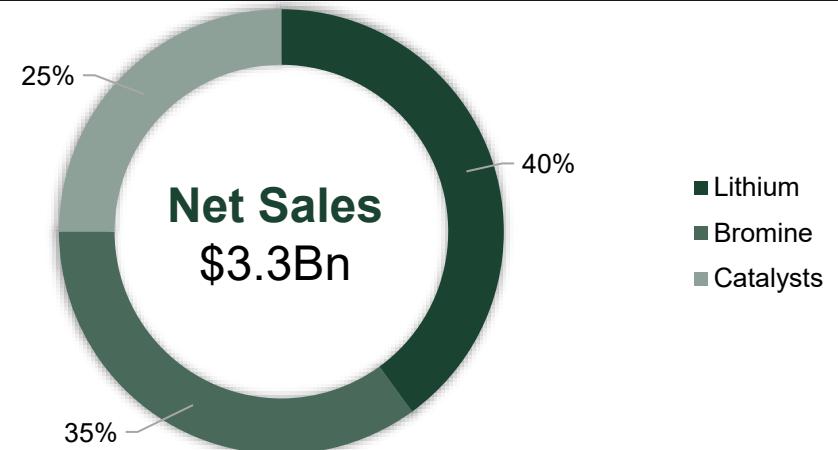
Ticker	NYSE: ALB
Share Price (2022/04/13)	\$218.8
Dividend Yield	0.75%
52-Week Range	\$291.4 - \$145.6
Market Capitalization (\$M)	24,710.7
Debt (\$M)	3,284.5
Enterprise Value (\$M)	27,736.3
Cash & Short-Term Investments (\$M)	439.3

Production by Mine - 2020

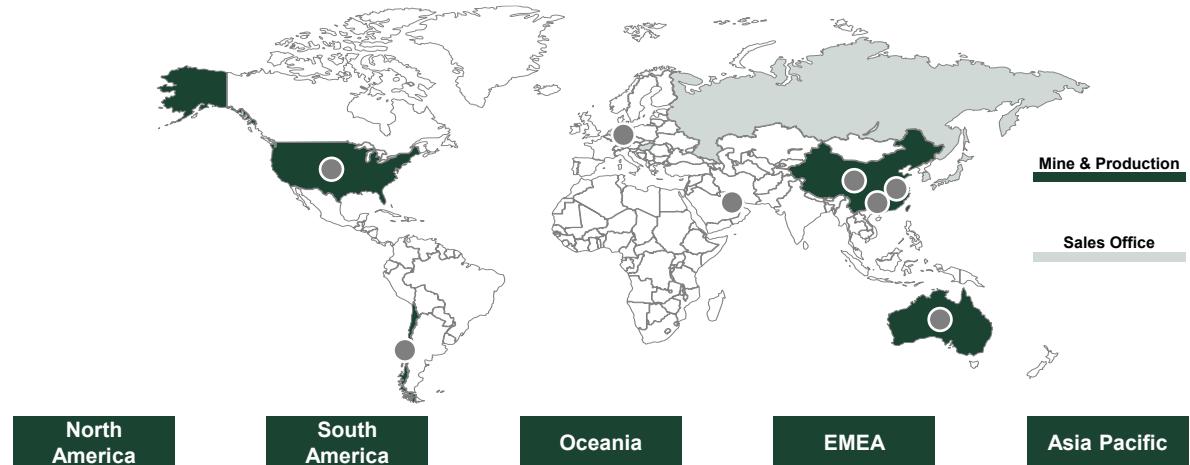


Source(s): S&P Capital IQ, Bloomberg, Company Filing

Revenue Segments



Business Locations



Source(s): S&P Capital IQ, Bloomberg, Company Filing

Business Model

Diverse business segments serve reputable companies around the world



35

Bromine

Br
79.904

Mining

Jordon & U.S.

Semi-Processed Products

Fire Safety Solutions
(60%)

Appliances, Automotive, Buildings,
Telecom / 5G

Others
(40%)

PET, Ag / Pharma / Oilfield / Other

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Lithium

Li
6.941

Mining

U.S., Chile, Australia and China

Semi-Processed Products

Energy Storage
(60%)

Automotive, Grid Storage, Electronics

Specialties & Technical Grade
(20%)

Specialty Glass, Lubricants, Health

Specialties
(20%)

Tires, Pharma, Agriculture

+

Catalysts

External Suppliers

Source various raw materials from numerous independent suppliers

Processed Products

FCC
(50%)

Fluid Cracking Catalysts

CFT (HPC)⁽¹⁾
(30%)

Clean Fuel Technology

Performance Catalyst Solutions
(20%)

Organometallics / Curatives

7,100 Customers in 70+ Countries

ExxonMobil



TEXAS INSTRUMENTS

AIRBUS

Pfizer



Mercedes-Benz

Ford

BELDEN

SAMSUNG



BOSCH

NOVARTIS



Alcoa



(1) Hydroprocessing catalysts

Source(s): Company Filing, S&P Capital IQ

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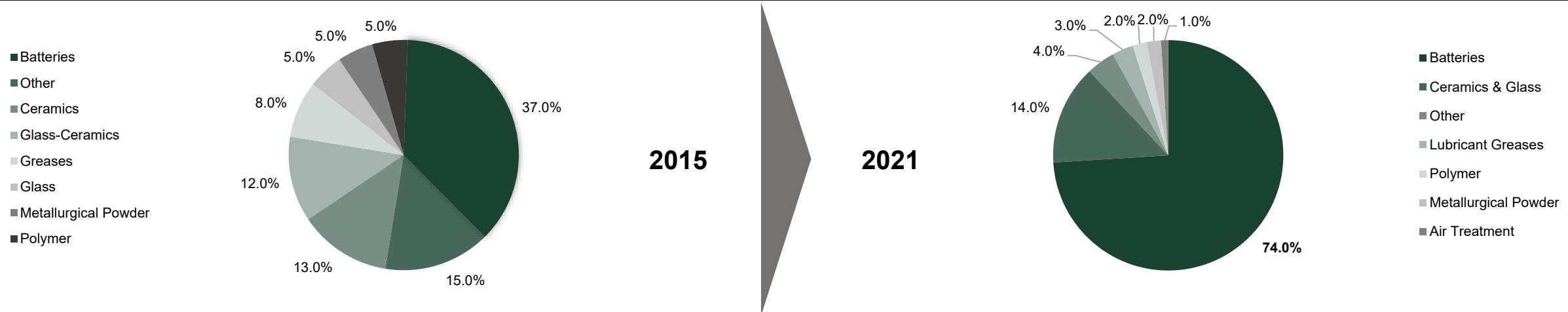
Industry Analysis

Industry Analysis: Lithium

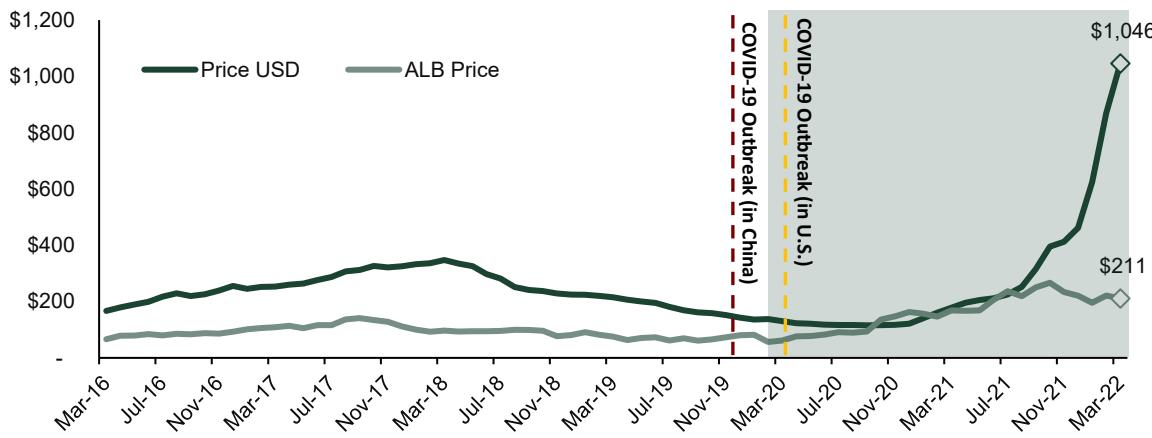
Increased lithium demand; driven by change in end use and shift towards EVs reflected in lithium prices but ALB price slow to follow



Extreme Shift in Composition of End-Use Lithium Demand Towards Energy Storage in 2021 Compared to 2015



ALB Price Lagging Behind Surge in Lithium Prices



Commentary

- One of the main drivers behind the lithium supply crunch is the accelerated shift toward Electric Vehicles, as well as electric power battery storage
- Lack of a suitable alternative to lithium is likely to keep end-use figures similar, with potential substitutes being unproven
- Markets have reflected the supply deficit & high demand with large jumps in lithium price recently
- This high price environment is likely to stay with large investments in downstream manufacturing
 - E.g., United States (U.S.) government's \$209MM for 26 EV battery research labs, and Ford's partnership with SK Innovations of \$11.4B for lithium-ion battery production & recycling



Source(s): Statista, Jung Youn Mo & Wooyoung Jeon

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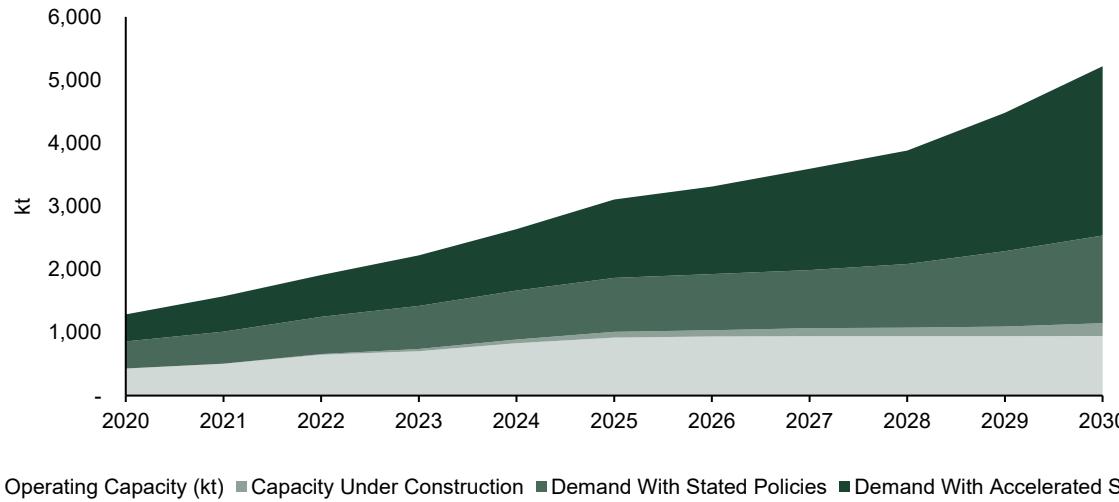
Appendix

Industry Analysis: Lithium and Bromine

Investments in downstream EV / Battery production causing significant supply shortage & Bromine overview



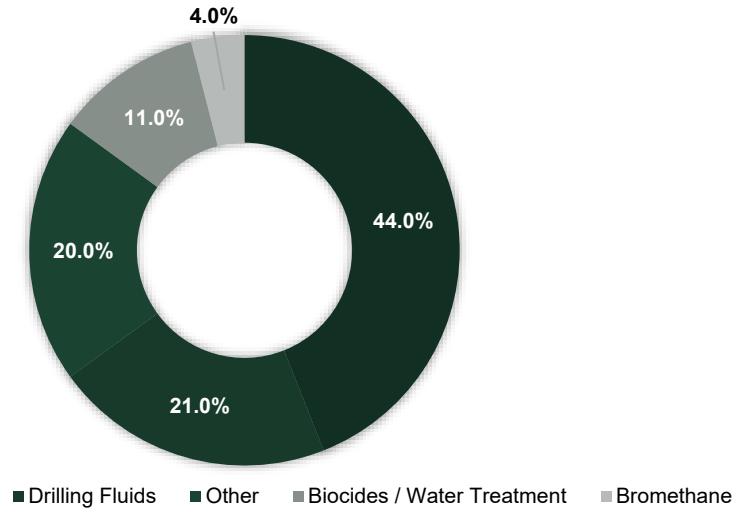
Committed Mine Production and Primary Demand for Lithium ('20 – '30)



■ Operating Capacity (kt) ■ Capacity Under Construction ■ Demand With Stated Policies ■ Demand With Accelerated Shift

- The International Energy Agency has forecasted two scenarios of demand for lithium in May 2021
 - With stated policies from major government enacted prior to May 6, 2021, 1390kt by 2030
 - Where sustainable development is accelerated, 2680kt by 2030
- With either scenario, there are significant supply shortages, with only 934 kt of lithium carbonate reserve capacity slated to be available for 2030, with an additional 203 kt under construction
- This presents an opportunity for upstream and midstream producers in ramping-up supply as well as an incentive to continue with the exploration and development of new assets

Bromine Usage in Industrial Applications



■ Flame Retardants ■ Drilling Fluids ■ Other ■ Biocides / Water Treatment ■ Bromethane

- Bromine is used in a variety of industries from pharma to manufacturing
- Most abundantly used chemical in the manufacturing of flame retardants
- The growth in the industry has also been driven by the use of Bromine based drilling fluids in the US Shale Gas drilling industry
- Sustainable industry wide growth rate of 3% through 2030 that is prone to adjustments as its use increases in other industries and applications



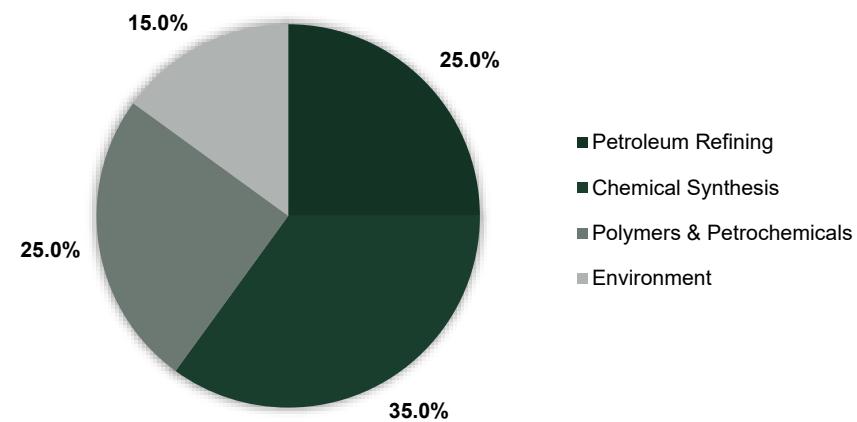
Source(s): International Energy Agency

Industry Analysis: Catalysts

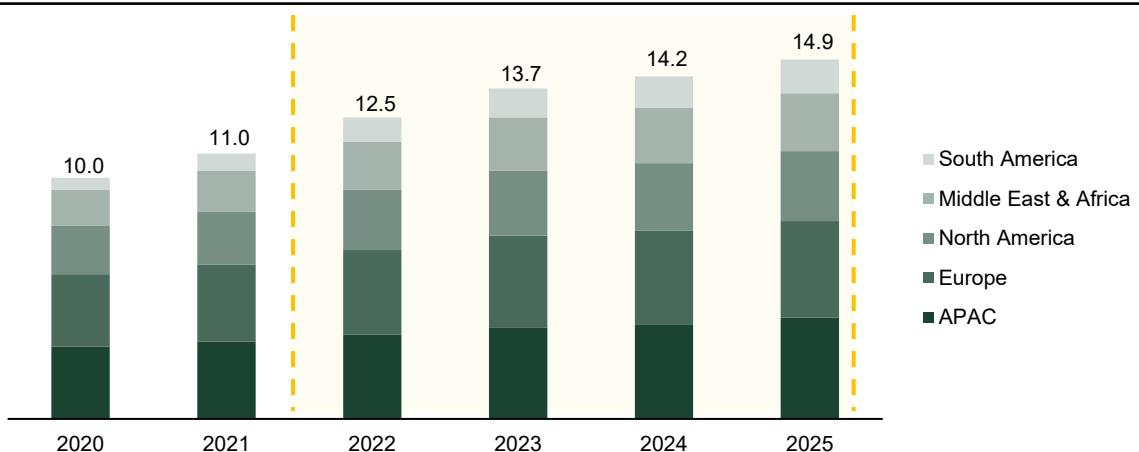
Catalyst segment and future growth prospects



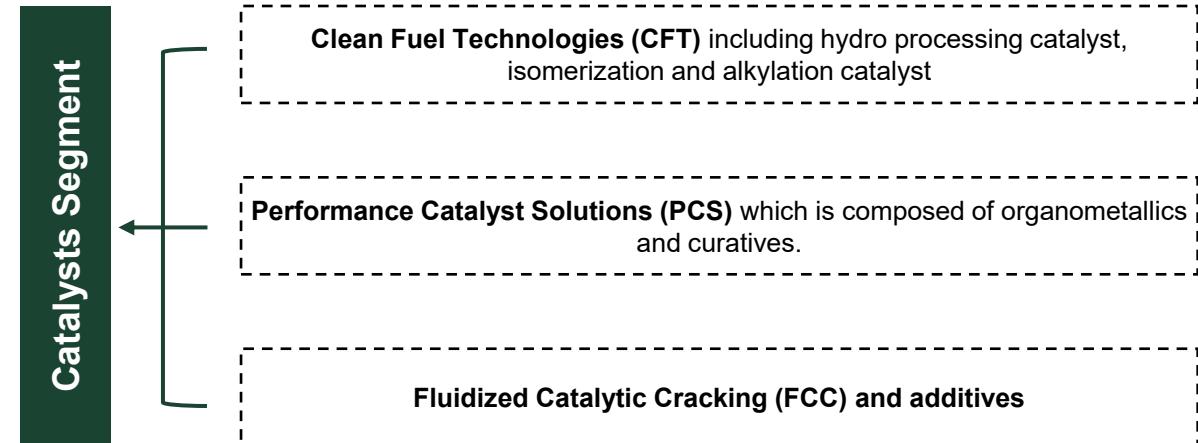
Global Catalyst Market Share



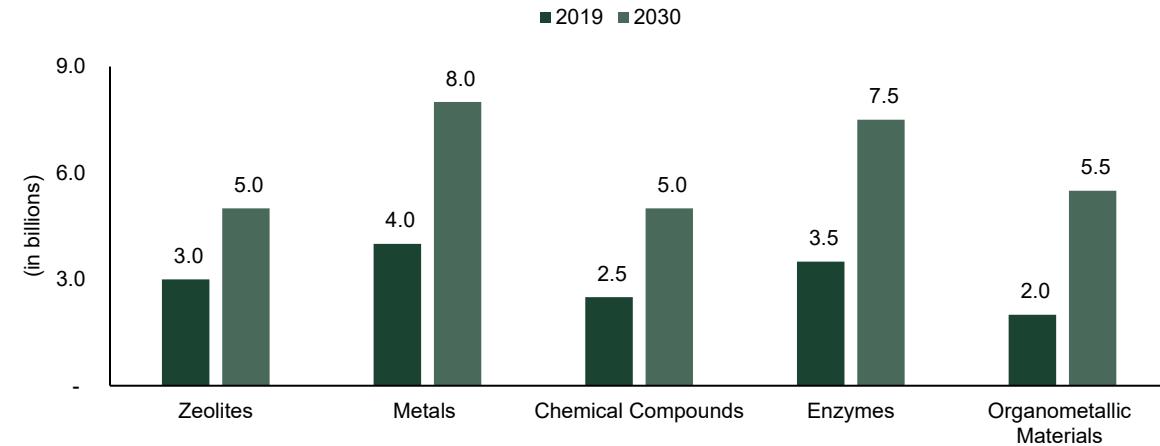
Catalyst Demand By Region (in billions)



Global Catalyst Market Value Share



Catalyst Market By Type



Source(s): Capital IQ, 10K, Yahoo Finance

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Investment Theses

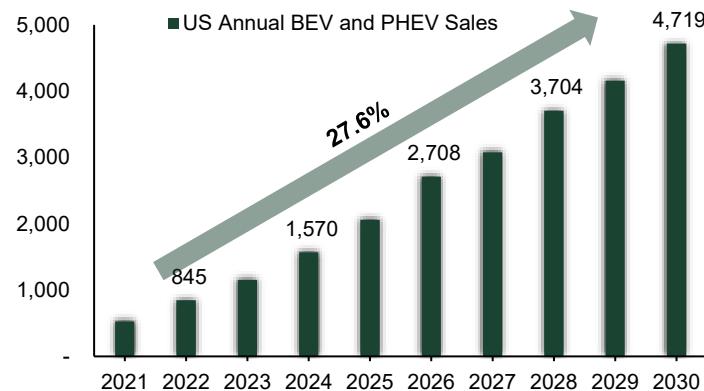
Investment Thesis I: Electric Vehicles Scream Lithium!

As Lithium being the primary supplier for batteries, it grows exponentially with the Electric Vehicle industry

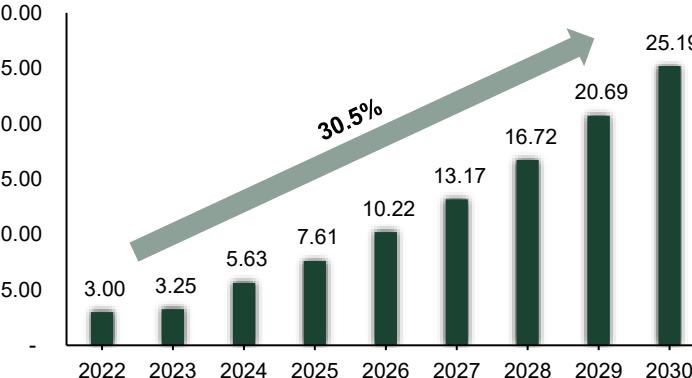


EV Industry's Reliance on Lithium just begins...

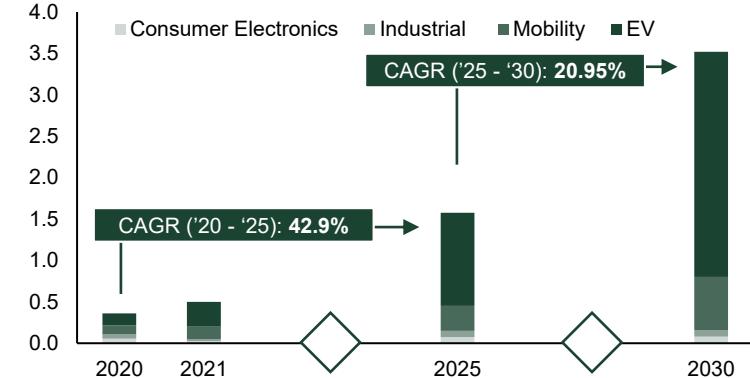
US EVs Sales & Sales Share Forecast (in thousands)



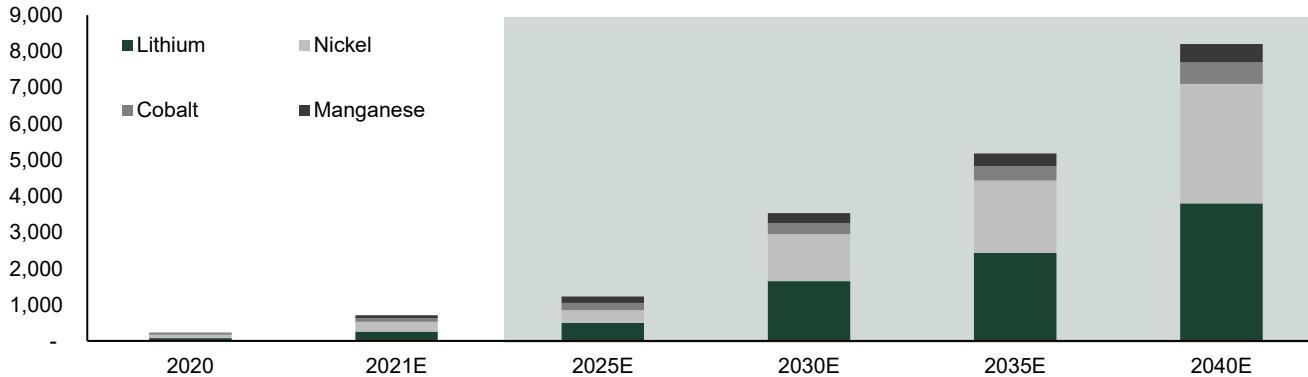
Cumulative US Electric Vehicles in Operation (in millions)



Lithium Used by Application (in Mt LCE)



Global Battery Sector Demand by Metal



12% of Ni Demand

65% of Co Demand

80% of Li Demand

Lithium is the main product in all of the battery mixes



Source(s): IEA, Goldman Sachs, Xu et al.,

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Investment Thesis II: Vertically Integrated Supply Chain

A superior supply chain from mining to producing in both business segments, Lithium and Bromine

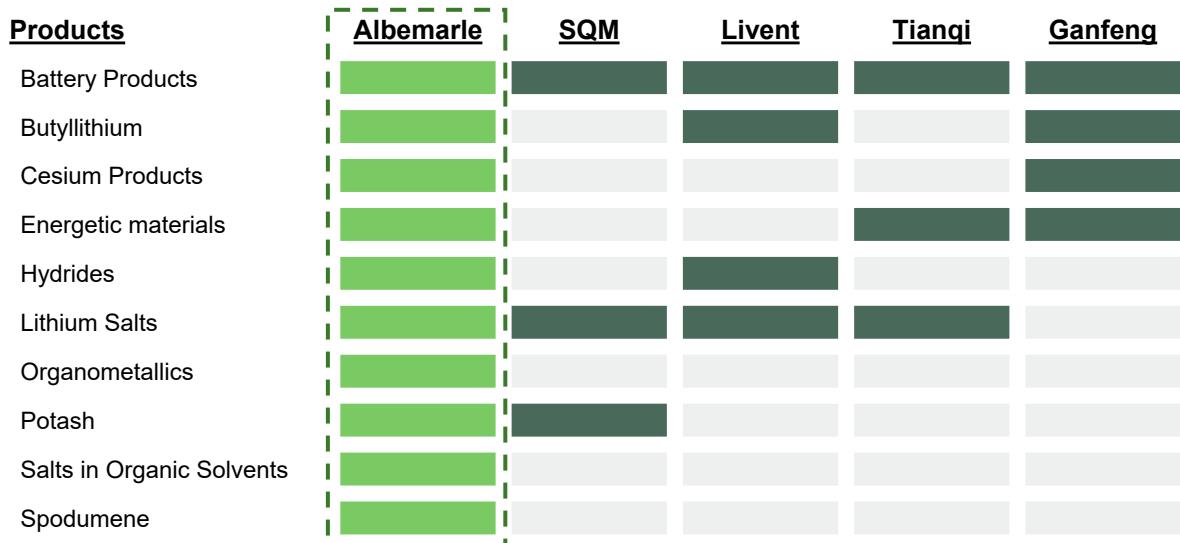


Top Tier Mines

- World-class resource base as mines located in Australia, Chile and China where these countries accounted for 88% of worldwide lithium production in 2020
 - 49% in Australia; 22% in Chile; 17% in China
 - High grade and deposit tonnage mine portfolio such as Clayton Village, Salar de Atacama, Greenbushes and Kings Valley
- Current global lead time from discovery to production is **16.9 years**
 - Discovery, exploration to feasibility study is **12.5 years**
 - Construction planning is **1.8 years**
 - Construction to production is **2.6 years**



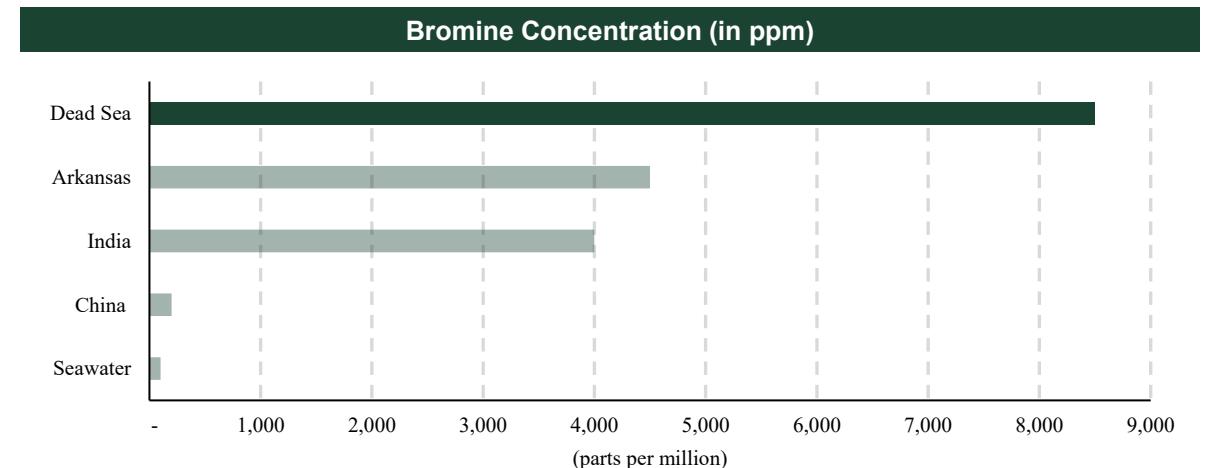
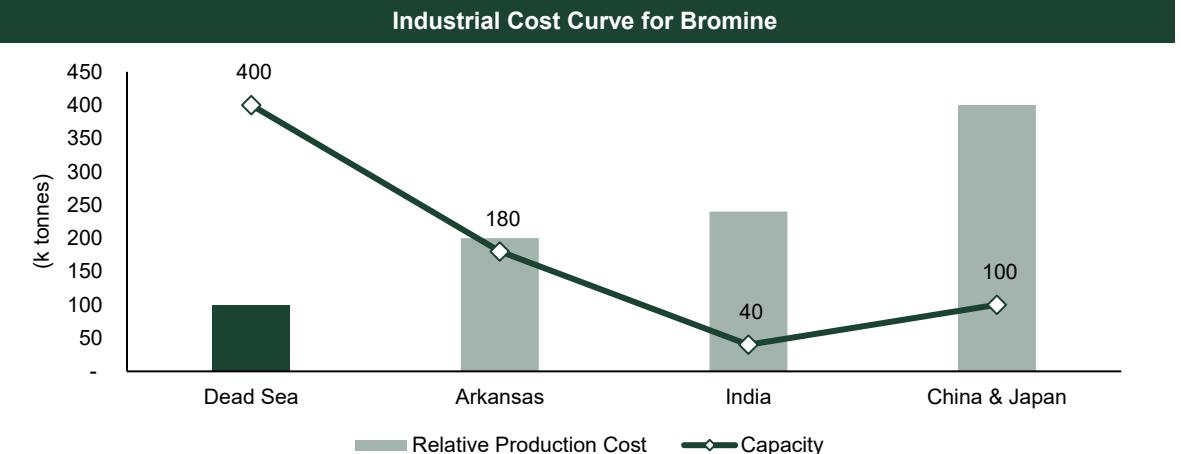
Wide Selection of Lithium Products



(1) Mining lithium in Australia; (2) Mining lithium in South America

Source(s): USGS, Company filing

Low Cost Bromine Producer



(1) Mining lithium in Australia; (2) Mining lithium in South America

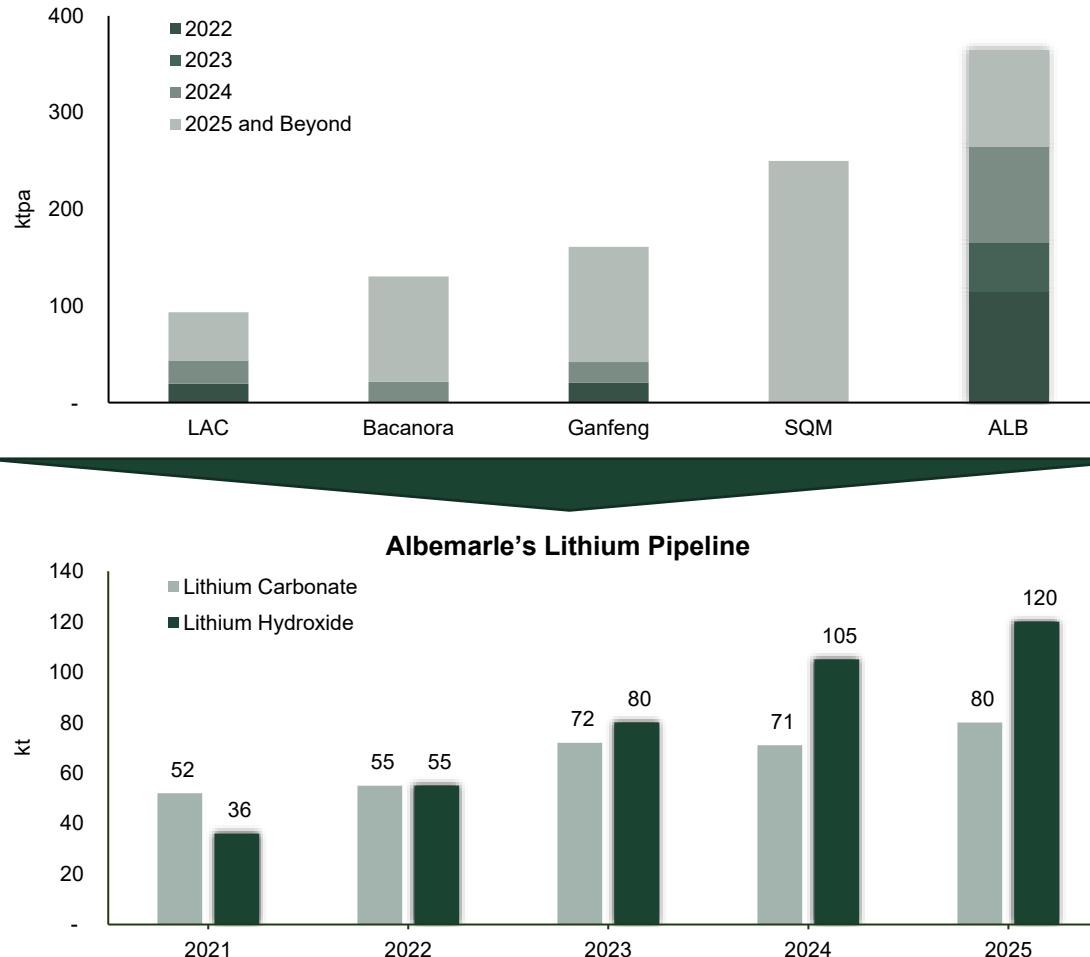
Source(s): USGS, Company filing

Investment Thesis III: Well-positioned to Remain a Leader in Lithium Sector

Extensive expansion pipeline with 40% lower capital intensity through leveraging expertise in large-scale project construction



Superior Expansion Pipeline vs. Peers



(1) Include QinZhou, Meishan and Zhangjiagang
Source(s): IEA, Company Filing

Wave 2

La Negra III/IV	40 ktpa
Kemerton I	50 ktpa
Kemerton II	50 ktpa

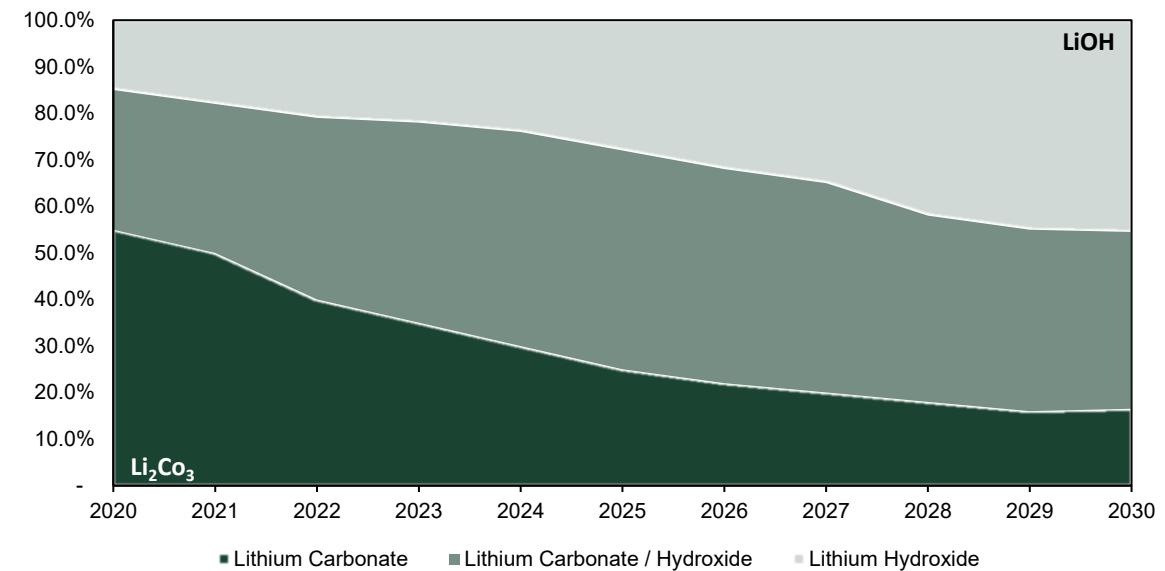
Wave 3

China ⁽¹⁾	125 ktpa
Kemerton III	N/A
Kemerton IV	N/A
Silver Peak	N/A

Wave 4

Kings Mountain	N/A
Kemerton V	N/A
Magnolia	N/A

Next Generation Lithium Cathode Requirements Favouring ALB



- As the demand of **Lithium Hydroxide** is steadily increasing, Albemarle is in a favourable position to capture the shift in battery materials



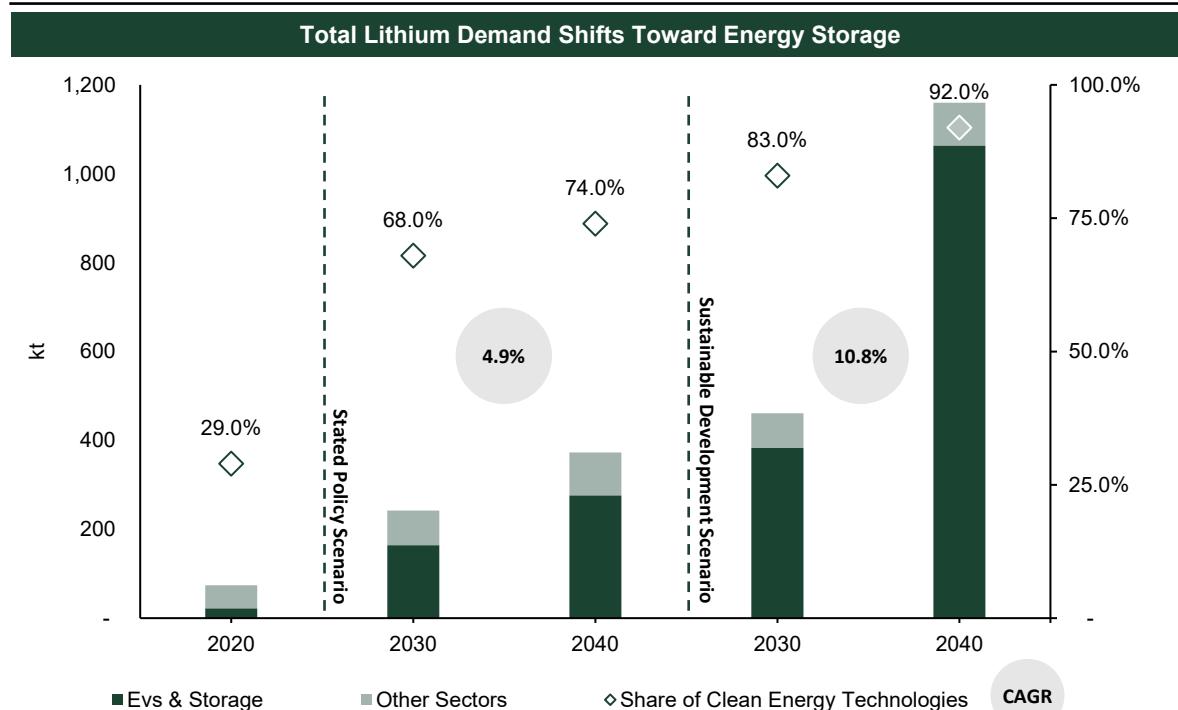
(1) Include QinZhou, Meishan and Zhangjiagang
Source(s): IEA, Company Filing

Investment Thesis III: Well-positioned to Remain a Leader in Lithium Sector (Cont'd)

The ability to pinpoint the next global trends reflected through the allocation of Lithium business segment



A Strong Rebound in Energy Storage



- Lithium is mainly supplied through **primary market** which accounts for 85.5% and 91.6% in 2040 for Stated Policy (SP) Scenario and Sustainable Development (SD) Scenario respectively
 - This indicates a decrease of (11.6)% and (6.8)% for SP and SD from 2030

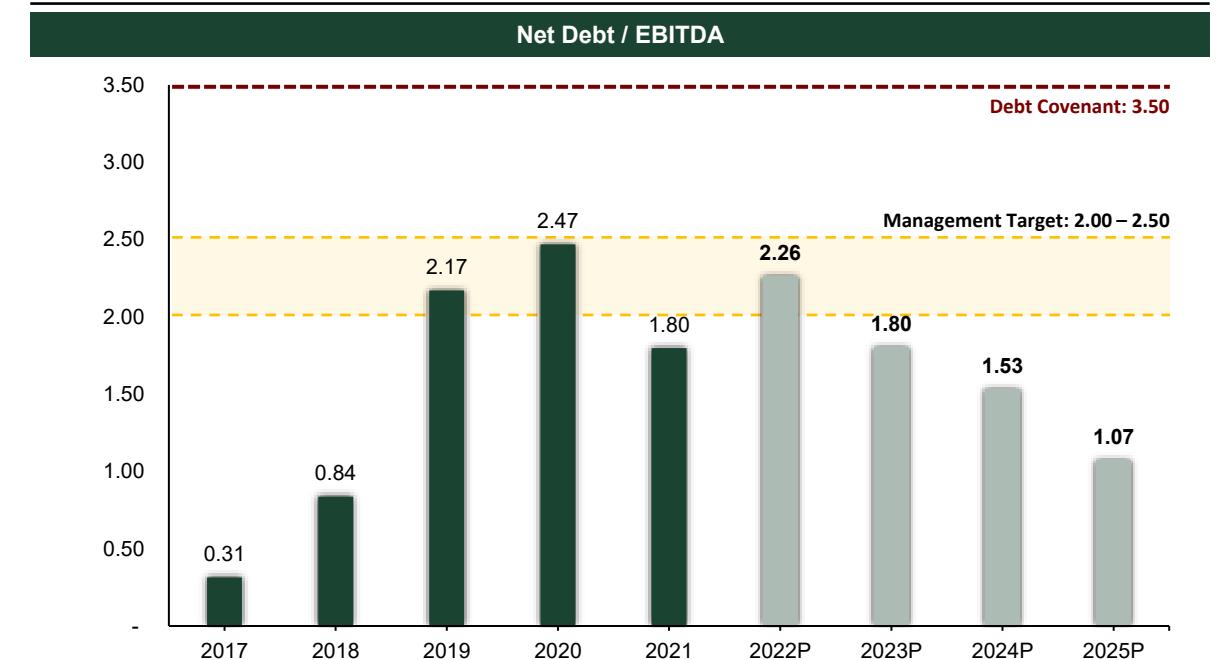
"Things like electric vehicles, grid storage, consumer electronics, that will be over 85% through this strategy that we're executing by 2026, a significant transformation of our franchise." – Sep 2021 Investor Day

Eric Norris | ALB's Lithium President



Source(s): IEA, Company Filing, S&P Capital IQ, Bloomberg

Capital Efficiency Spares Rooms for Capital Raising



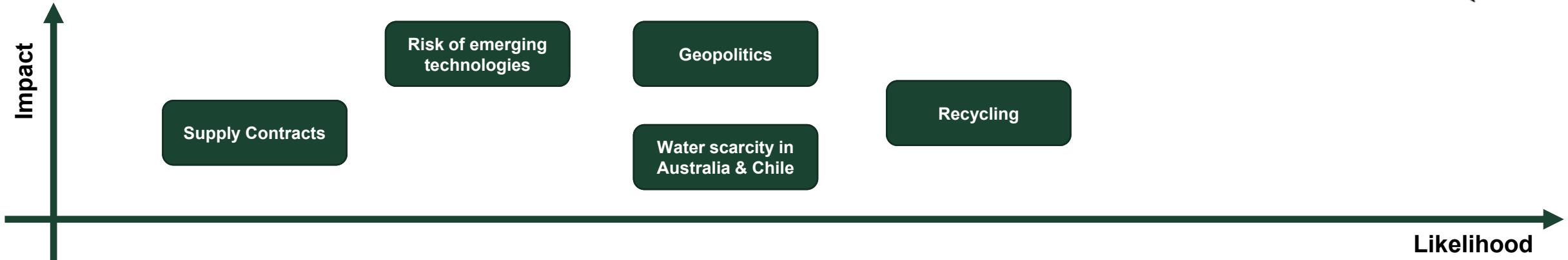
Investment Credit Rating



- Significant liquidity** (~\$2.0B); \$1.0B untapped credit revolver
- Weighted average interest rate of 2.9%



Risks, Mitigations and Catalysts



Risks

1 Geopolitical

Geopolitics pose a major risk to Albemarle as majority of their operations and production is in Chile, which is prone to giving miners difficulty operating

2 Recycling

With the increase in demand for EV battery recycling technology, lithium miners face the risk of losing battery metal market share to new recycling technology that recovers a high quantity of resources from the existing battery

3 Emerging Technologies

Emerging technologies like solid state batteries act as a risk as they may reduce demand by making batteries more efficient and longer lasting

4 Supply Contracts

Long-term lithium supply contracts with fixed prices pose a risk to Albemarle's growth and profitability as it results in the company not realizing market lithium prices due to pre-determined prices set in advance

5 Water Scarcity

Water scarcity in both Chile and Australia can affect Albemarle and other lithium miner's operations as Lithium mining can be a water intensive process

Mitigations

- ✓ Albemarle is constantly diversifying its assets and mitigates against this risk by expanding and developing mines in countries that are at less risk of geopolitical issues such as the US and Australia

- ✓ Albemarle has started investing into its own battery recycling technology and initiatives to better diversify its business model. Recycling is also more costly than using raw material which gives time for Albemarle to become a leader in the recycling industry

- ✓ Emerging technologies like solid state lithium batteries will continue to use lithium as the primary metal. The overall increase in demand for EV's will mitigate the risk as there will always be a strong demand for the battery metal

- ✓ Albemarle is mitigating this risk by renegotiating supply contract lengths to a shorter period of around 3 years and making prices variable in order to give room for price increases according to market variability

- ✓ In both Chile and Australia, Albemarle is starting to use new extraction methods that use 25% less water in the mining process and are also exploring a process called direct extraction which uses no water and require no tailing ponds



Source(s): IEA, Company filing

Increase in U.S Government Funding for Infrastructure

- The new \$2.1 Trillion infrastructure bill has a strong focus on electrification of mass transit and other carbon intensive vehicles.
- Such vehicles will require larger amounts of lithium in batteries.
- \$7 billion funding towards the battery supply chain will provide subsidies to lithium and battery producers.

Demand of Lithium Will Continue To Outstrip Supply

- Demand for Lithium continues to outstrip supply with the rapid adoption of electric vehicles.
- Analysts expect a 101,000-ton shortfall with demand expected to near 690,000 tonnes.
- Shortages will drive up lithium spot prices but will also give miners the benefit of expanding operations.

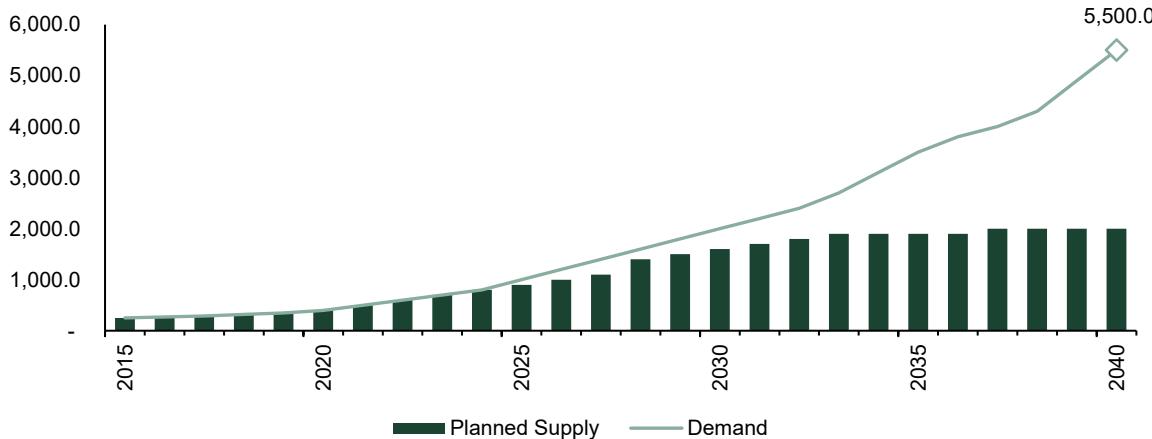
Bromine usage in the Natural Gas Drilling Processes

- With the increasing trend of hydraulic fracturing comes the demand for clear brine drilling fluids.
- Fracking requires drilling thousands of feet below the earth's surface, but also horizontally which conventional drilling processes do not require.
- Longer and deeper drilling processes require more drilling fluids to control pressure and maintain form of well.

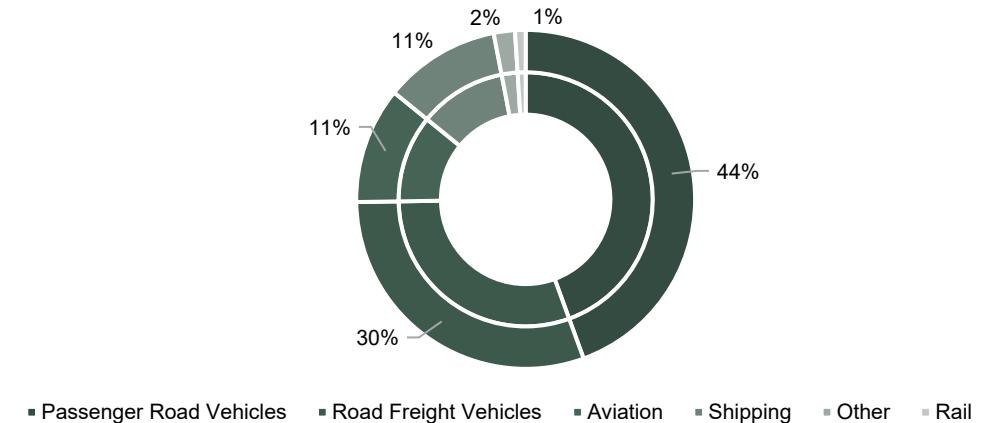
Adoption of Greener Alternatives

- Many countries continue to focus on their net zero carbon emission goals
- Number of incentives and subsidies being provided by governments to encourage the adoption of EV's.
- US infrastructure bill will invest billions into charging infrastructure making EV's a more viable option for many

Forecasted Lithium Demand Far Outstrips Planned Supply



Transport Sector Emissions



Source(s)



Valuation

Valuation: Discounted Cash Flow



Year	Historical Period			Projection Period										CAGR ('22 - '30)	Valuation Summary		
	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P			
Revenue	3,589.4	3,128.9	3,328.0	3,523.3	4,255.3	5,245.2	6,519.4	8,118.5	9,898.8	11,971.7	14,317.3	16,868.9	19,514.7	22,106.9	22.6%	Perpetuity Approach	
% Growth	6.4%	(12.8)%	6.4%	5.9%	20.8%	23.3%	24.3%	24.5%	21.9%	20.9%	19.6%	17.8%	15.7%	13.3%		2033 Free Cash Flow	6,065.6
EBITDA				919.5	1,252.1	1,725.1	2,124.5	2,689.6	3,326.0	4,155.7	5,163.0	6,349.9	7,698.4	8,902.9		Long-term Growth Rate	2.0%
% Margin				26.1%	29.4%	32.9%	32.6%	33.1%	33.6%	34.7%	36.1%	37.6%	39.4%	40.3%		Terminal Value	66,574.2
(-) D&A				373.2	447.7	523.7	598.7	667.7	722.2	779.1	838.6	900.5	964.9	1,031.9		% of TEV	71.3%
EBIT				546.3	804.4	1,201.4	1,525.8	2,021.9	2,603.8	3,376.6	4,324.5	5,449.4	6,733.5	7,871.1		Discounted Terminal Value	23,213.2
% Margin				15.5%	18.9%	22.9%	23.4%	24.9%	26.3%	28.2%	30.2%	32.3%	34.5%	35.6%		Discounted FCF	9,340.1
(-) Taxes				(78)	(129)	(209)	(273)	(368)	(481)	(636)	(823)	(1,046)	(1,302)	(1,527)		Total Enterprise Value (TEV)	32,553.3
EBIAT / NOPAT				468.1	675.9	992.5	1,253.3	1,653.5	2,122.6	2,741.0	3,501.3	4,403.4	5,431.6	6,343.9		(-) Net Debt	1,879.5
(+) Depreciation & Amortization				373.2	447.7	523.7	598.7	667.7	722.2	779.1	838.6	900.5	964.9	1,031.9		(-) Minority Interest	180.3
(-) Capital Expenditures				(1,400.0)	(1,489.3)	(1,521.1)	(1,499.5)	(1,380.1)	(1,088.9)	(1,138.9)	(1,188.9)	(1,238.9)	(1,288.9)	(1,338.9)		Equity Value	30,493.5
(-) Change in Net Working Capital				(6.8)	(25.5)	(34.5)	(44.4)	(55.7)	(62.0)	(72.2)	(81.7)	(88.9)	(92.1)	(90.3)		Fully Diluted Shares Outstanding	117.1
Unlevered Free Cash Flow				(565.5)	(391.2)	(39.3)	308.2	885.4	1,693.9	2,309.1	3,069.3	3,976.1	5,015.6	5,946.7		Equity Value / Share	\$260.3
<i>Discount Period</i>				0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5		Upside / (Downside)	22.9%
<i>Discount Factor</i>				0.949	0.854	0.768	0.692	0.622	0.560	0.504	0.454	0.408	0.368	0.331			
Present Value of Free Cash Flow				(536.4)	(334.0)	(30.2)	213.1	551.1	948.9	1,164.2	1,392.7	1,623.8	1,843.4	1,967.1			

Sensitivity of Equity Value per Share to WACC and Long-term Growth Rate

Long-term Growth Rate							
	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%
WACC	491.8	521.4	555.6	595.3	642.1	698.1	766.3
	406.9	428.1	452.0	479.3	510.7	547.3	590.4
	341.2	356.8	374.1	393.6	415.7	440.8	469.8
	289.2	300.9	313.8	328.2	344.2	362.1	382.5
	247.3	256.2	266.1	276.9	288.8	302.0	316.7
	212.9	219.9	227.5	235.8	244.8	254.8	265.8
	184.4	189.9	195.9	202.3	209.4	217.0	225.4

(1) Weighted average interest rate of debt

WACC	10-Year U.S. Treasury	2.54%
	Market Risk Premium	6.50%
	Beta	1.44
	Cost of Equity	11.94%
	Cost of Debt ⁽¹⁾	2.45%
	Tax Rate	21.00%
	After-tax Cost of Debt	1.94%
	Debt to Total-Capitalization	8.24%
	WACC	11.11%



(1) Weighted average interest rate of debt

Valuation: Company Comparable Analysis



Comparable Universe

(in millions unless stated otherwise)

Company Name	Segment ⁽¹⁾	Ticker	Latest Price	Market Capitalization	Enterprise Value	EV/EBITDA		P/E		EBITDA Margin %	EBIT Margin %	Net Income Margin %	Debt / Capital %
						LTM	NTM	LTM	NTM				
Ganfeng Lithium Co Ltd	Li	002460	19.5	26,430.7	26,864.3	14.9x	12.2x	20.7x	16.5x	53.3%	50.9%	46.4%	22.0%
Livent Corp	Li	LTHM	25.2	4,066.7	4,200.6	23.0x	16.2x	42.0x	28.8x	15.7%	9.8%	0.1%	23.7%
Lanxess Ag	Br & Ca	LXS	48.3	23,796.5	24,104.0	4.7x	4.3x	7.5x	6.5x	12.4%	6.4%	3.5%	48.2%
Icl Group Ltd	Br & Ca	ICL	11.7	26,431.0	26,864.0	11.6x	6.6x	21.8x	12.3x	22.8%	16.8%	11.3%	39.0%
Fmc Corp	Br & Ca	FMC	130.7	18,766.8	22,555.8	13.8x	12.7x	17.6x	15.5x	26.2%	22.9%	14.6%	52.2%
Albemarle Corporation	Li, Br & Ca	ALB	\$222.5	26,055	28,312	22.2x	16.6x	34.6x	24.8x	25.5%	17.9%	3.7%	30.5%
Min				4,066.7	4,200.6	4.7x	4.3x	7.5x	6.5x	12.4%	6.4%	0.1%	22.0%
Median				23,796.5	24,104.0	13.8x	12.2x	20.7x	15.5x	22.8%	16.8%	11.3%	39.0%
Mean				19,898.3	20,917.7	13.6x	10.4x	21.9x	15.9x	26.1%	21.4%	15.2%	37.0%
Max				26,431.0	26,864.3	23.0x	16.2x	42.0x	28.8x	53.3%	50.9%	46.4%	52.2%

Commentary

- Albemarle is the leader in Lithium, Bromine and Catalyst segments, there is no other company in this industry with such a vast vertically integrated supply chain. EV/EBITDA multiple is selected because Albemarle operates in different regions, different tax regimes, and capital expenditures. Due to fixed price contracts Albemarle was not able to onboard the trend of the rising Lithium prices, but in coming future they will be moving towards selling Lithium at market price. There is an increase in demand of Bromine and Catalyst, which will drastically increase Albemarle's revenue as they are the leader in producing Bromine and Catalyst. Jordan Bromine Company is a joined venture between Albemarle and APC Companies which will boost their Bromine producing capacity.

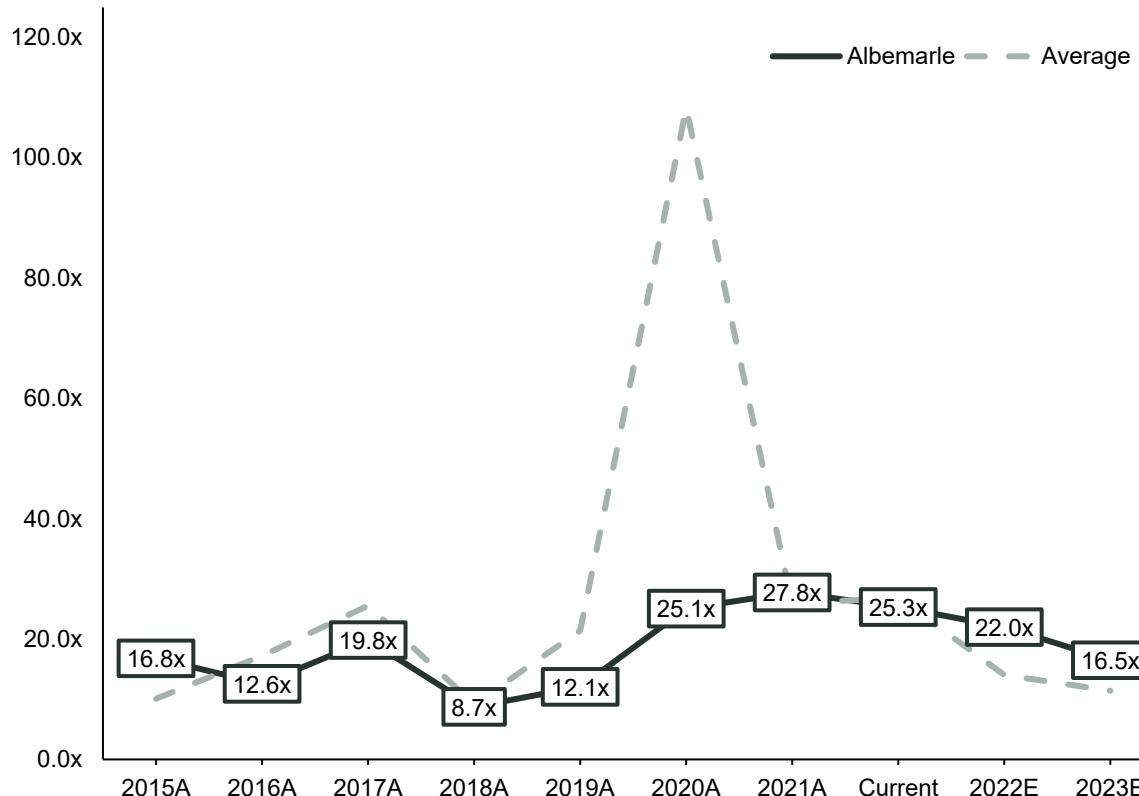


(1) Li = Lithium, Br = Bromine, Ca = Catalysts
Source(s): Bloomberg, Capital IQ

Valuation: Company Comparable Analysis (Cont'd)



EV / EBITDA Multiple



EV / EBITDA Valuation

(in millions unless stated otherwise)

	Bear Case	Base Case	Bull Case
NTM EBITDA Multiple	10.4x	12.2x	16.2x
NTM EBITDA (\$MM)	1,097.0	1,252.1	1,415.6
Enterprise value (\$MM)	11,393.9	15,255.2	22,867.7
(+) Cash (\$MM)	439.3	439.3	439.3
(-) Debt (\$MM)	1,930.3	2,318.8	1,930.3
(-) Minority Interest	180.1	180.1	180.1
Equity Value (\$MM)	9,722.8	13,195.6	21,196.6
Shares Outstanding (MM)	117.1	117.1	117.1
Equity Value per share	\$83.03	\$112.69	\$181.01
Weighted Implied Share Price	\$134.09		
Weight Allocation	20.0%	40.0%	40.0%
Share Price Today	\$211.85		
Upside / (Downside)	(36.7)%		



Source(s): Bloomberg

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Risks, Mitigants & Catalysts

Valuation

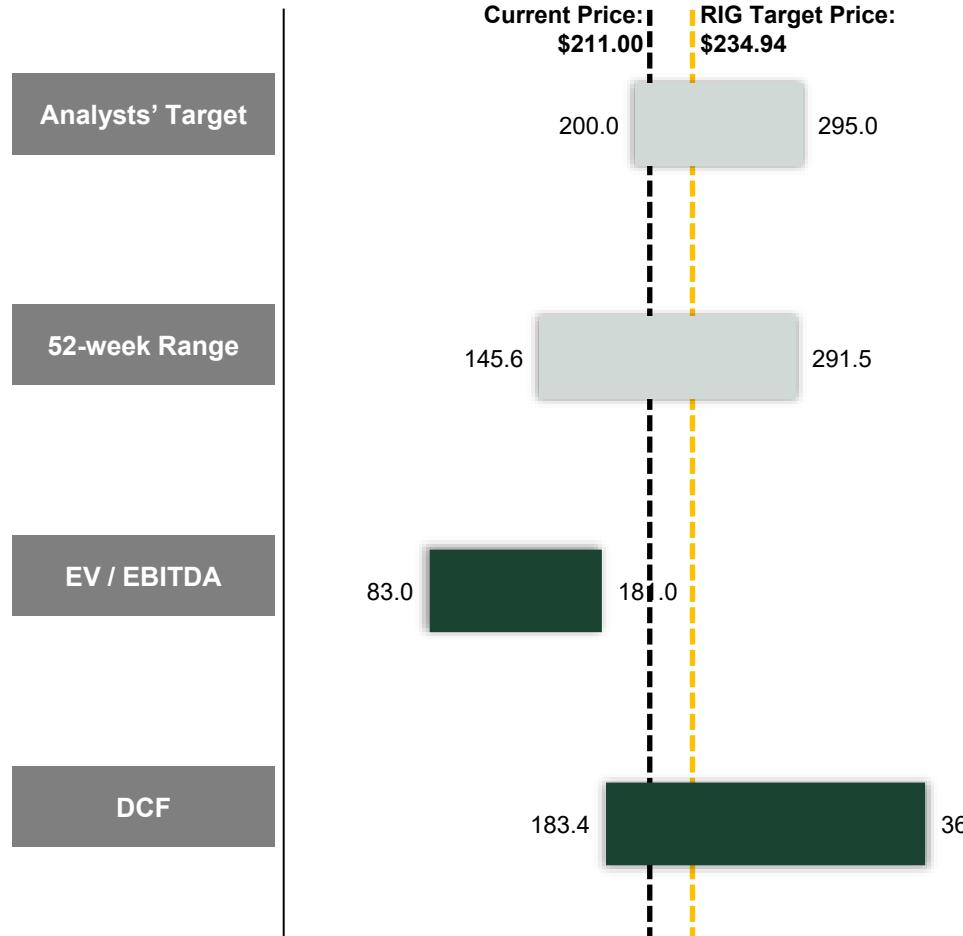
Appendix

Valuation Summary

Blended price target of \$234.94, representing an upside of 10.9%



Valuation Range

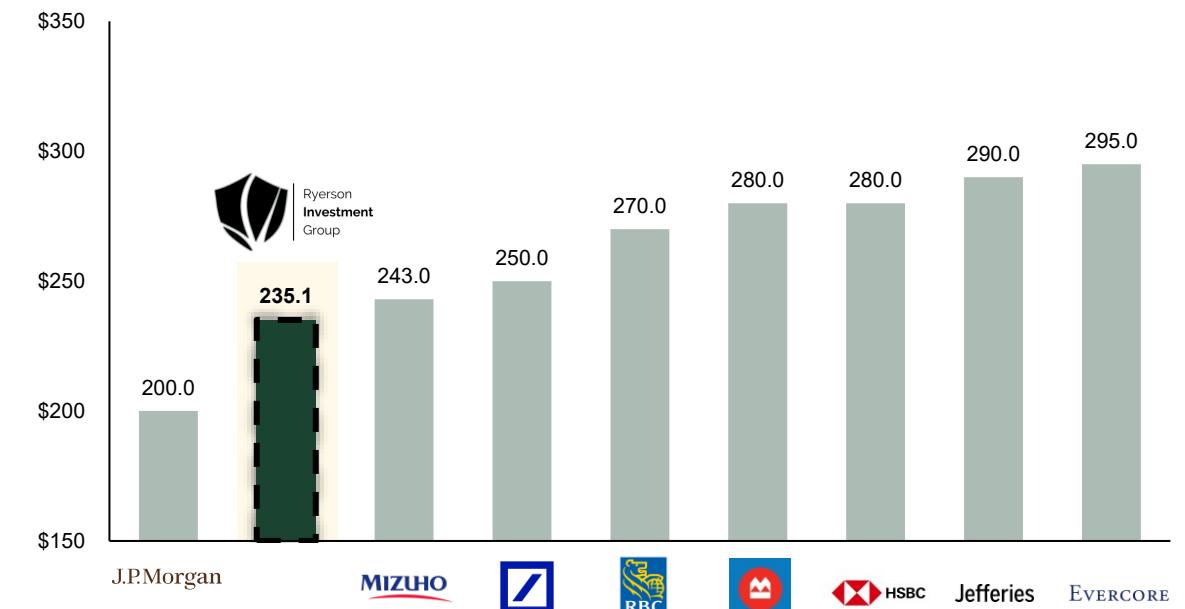


Source(s): Bloomberg

Price Target

Valuation Approach	Price	Weight
Perpetuity Approach	\$260.32	80.0%
EV / EBITDA Multiple	133.37	20.0%
Blended Target Price	\$234.94	100.0%
<i>Implied Upside / (Downside)</i>		10.9%

Select Broker Summary



Company Overview

Industry Analysis

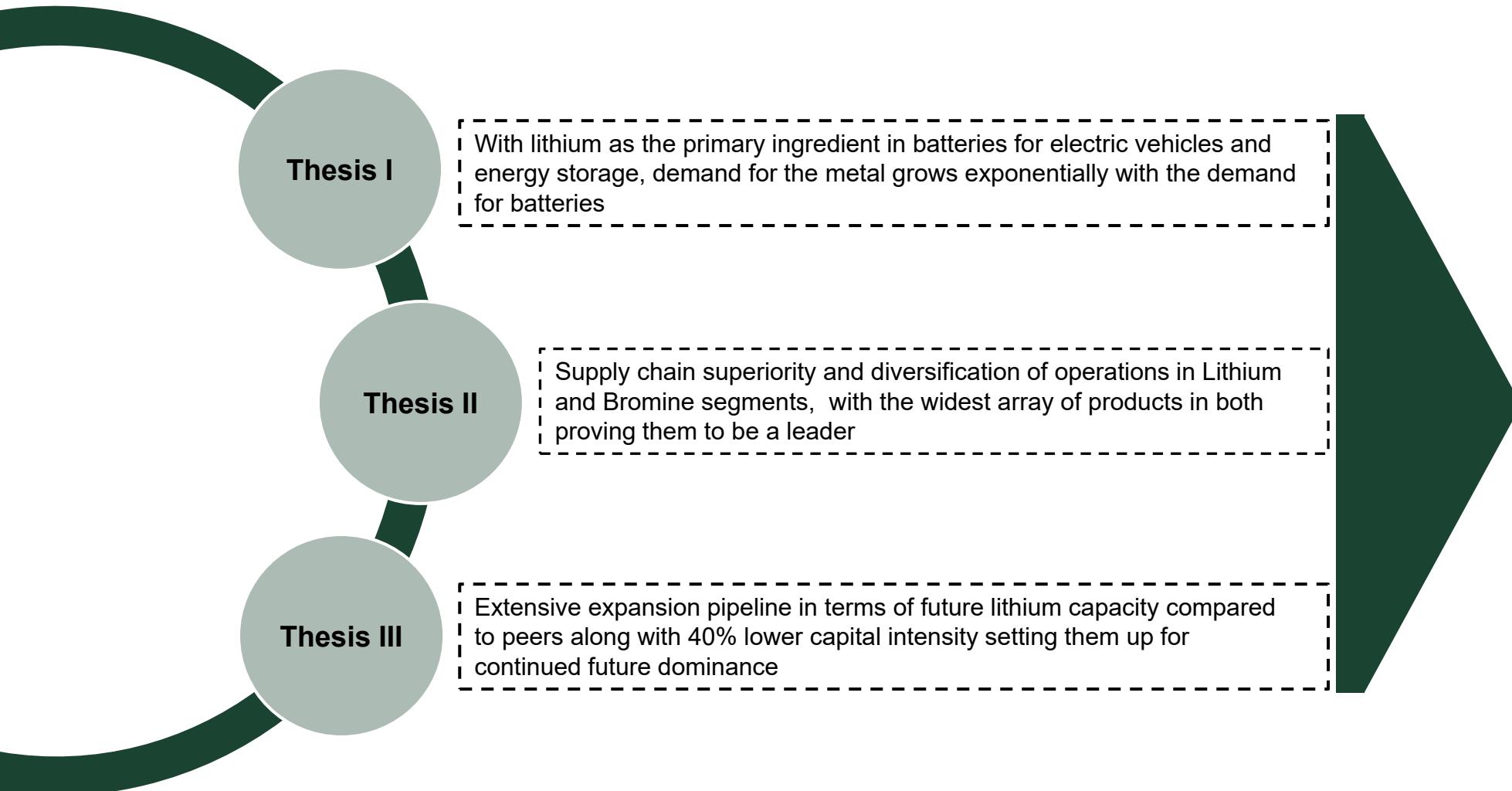
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Conclusion



**Price Target:
\$234.94**





Appendix

Appendix Network



Main Content

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- [Business Model](#)
- [Industry Analysis: Lithium](#)
- [Industry Analysis: Lithium and Bromine](#)
- [Industry Analysis: Catalysts](#)
- [Investment Thesis I](#)
- [Investment Thesis II](#)
- [Investment Thesis III](#)
- [Risks & Mitigations](#)
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Appendix

Management & Ownership Overview

Institutional investors hold approximately 66.3% of the outstanding shares



Management Team



Kent Masters | Chairman, President & CEO

Kent Masters was named Chairman, President & CEO of Albemarle Corp. in April 2020. Prior to joining Albemarle, Masters served as Operating Partner of Advent International, an international private equity group. He earned a Master of BA from New York University and holds a bachelor's degree in chemical engineering from the Georgia Institute of Technology.



Scott Tozier | Executive Vice President & CFO

Scott Tozier is responsible for all financial and fiscal management aspects of the company's operations. Prior to joining Albemarle in January 2011, Tozier served as Vice President of Finance of Honeywell International. He earned a Master of BA from the University of Michigan and a bachelor's degree in accounting and information systems from the University of Wisconsin-Madison.



Karen Narwold | Executive Vice President, General Counsel & CAO

Karen Narwold leads the company's legal, ethics and compliance, government and regulatory affairs, and communications groups. Prior to joining Albemarle in September 2010, she served as Special Counsel with Kelley Drye & Warren LLP and with Symmetry Advisors. She graduated with honors from the University of Connecticut School of Law.



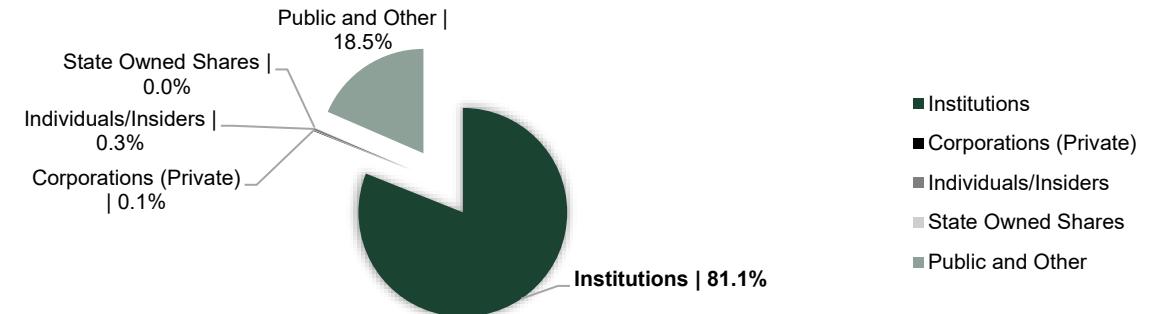
Eric Norris | President – Lithium

Eric Norris joined Albemarle in January 2018 as Chief Strategy Officer where he managed the company's strategic planning, M&A, and corporate business development programs. Prior to joining Albemarle, he served as President of health and Nutrition for FMC corporation. Norris earned a Master of BA from Harvard University and a bachelor's degree in chemistry and German from Colgate University.

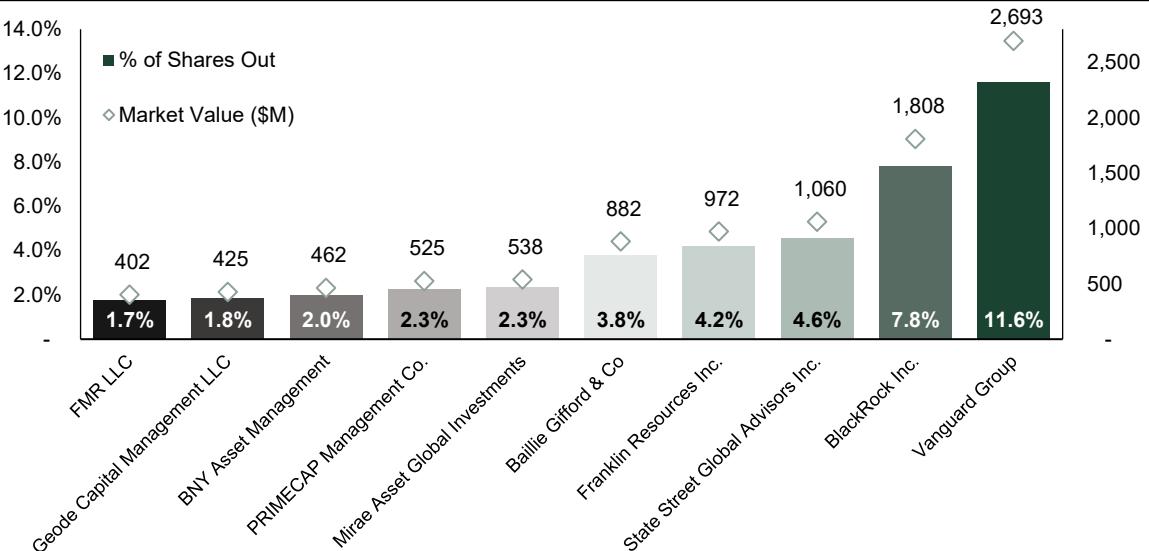


Source(s): Company filing, Bloomberg, S&P Capital IQ

Ownership Overview



Top 10 Holders

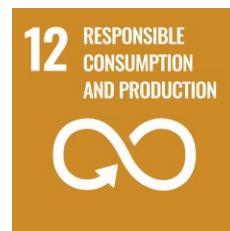
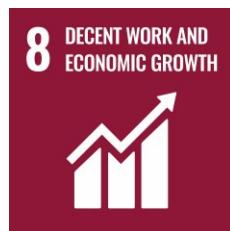


Committed to Reducing Environmental Impact

- Targeting net zero carbon emission operations by 2050
- Increasing investments in GHG reducing projects
- Reducing water consumption by 25% in their overall lithium operations

Albemarle Sustainability Framework

- Natural Resource Management: Responsibly managing all resources: Energy and GHG, Waste, Water & Resource Stewardship
- People, Workplace, & Community: Building an inclusive & diverse workplace focusing on: Safety, Diversity & Inclusion, Investment in Talent, & Community Engagement
- Sustainable Shareholder Value: Generate conditions that create sustainable value for shareholders



Source(s): Company filing

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Investing in Sustainability

- Investing in the lithium recycling business by developing drafts and plans for the construction of recycled material conversion plants
- Albemarle has 0.5% of the freshwater rights in Salar and only uses less than 9 L/s of freshwater
- In 2020 over 90% of our nonhazardous waste was recycled, mostly for use in cement production

GHG Reduction Products

- **Lithium:** 1 Kg of CO₂ emitted in the production of Lithium avoids over 50kg of CO₂ emissions caused by the transportation sector
- **Bromine:** Used in the production of Bromobutyl rubber to extend the life of tires, reduce fuel consumption and reduction of overall CO₂ emissions
- **Catalysts:** The refining catalysts business enables clean, and more efficient transportation fuels, and reduces GHG emitted by refineries
 - **10 million mt Catalysts** avoided Sulfur emissions

Demand Outlook by Metal

Research conducted by Morgan Stanley



Commodity	Bearish	Bullish
Lithium	See further price strength through 2022 as the shortage persists, but expect downside next year supply catches up	
Iron ore	A robust recovery in China's steel production on strong infrastructure spending should drive more price upside by Q3 and project a deficit market on a full-year basis in 2022	
Aluminium	Further upside ahead with a 4Q forecast of \$4,000/t as European smelter capacity remains constrained by high power prices and slow ramp-up on time	
Cobalt	Cobalt is likely to push higher in 2Q as feedstock logistics remain challenging, but supply is ramping, and we see downside to price into year-end	
Zinc	Zinc remains well supported through Q2 as power prices stay elevated, but the ease and speed of restarting smelters should drive a quicker supply recovery	
Copper	The market is tipping into surplus in 2023 which pushes prices lower, however, investor demand should prevent prices falling too far.	
Manganese Ore	Expect a balanced market in 2022 and price should ease somewhat as more low-grade material replaces disrupted higher-grade ore from Ukraine	
Nickel	Further price downside into year-end as Indonesia's Class 1 supply is ramping and there will also be demand destruction high-grade nickel in the stainless-steel sector	



Company Overview



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Investment Theses



Risks, Mitigants & Catalysts

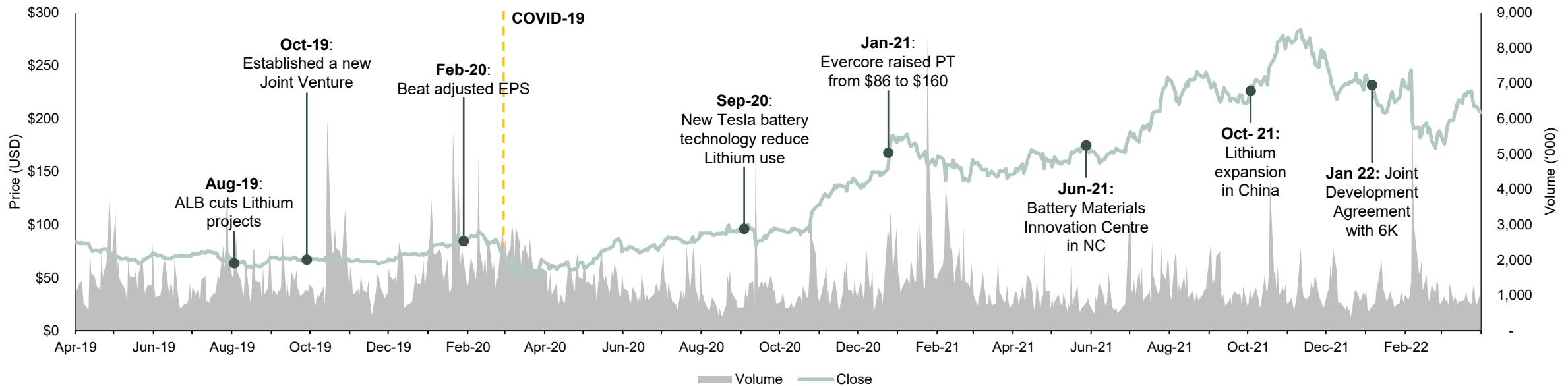


Valuation



Appendix

2-Year Annotated Price Chart



Important Events

- Aug-19:** Albemarle cuts Lithium project spending due to low prices
- Oct-19:** Albemarle announces completion of Lithium Joint Venture with Mineral Resources Limited which is named MARBL Lithium Joint Venture
- Feb-20:** ALB 2020 adjusted EPS forecast midpoint beats estimates and shares increased by 1.1% in post-market trading
- Sep-20:** Lithium stocks dropped in premarket trading after Tesla said its battery technology will lower production costs and reduce use of Lithium
- Jan-21:** Evercore raised price target from \$86 to \$160 as electric vehicle penetration-rate expectations have increased with support from green-tilted stimulus in the EU and potentially in the U.S.
- Jun-21:** Albemarle establishes Battery Materials Innovation Centre in North Carolina
- Oct-21:** Albemarle signs two agreements for strategic investments in China to expand Lithium conversion capacity
- Jan-22:** Albemarle to invest in 6K and sponsor development of UniMelt system for advanced and sustainable materials production



FY 2022 Guidance



Segments	EBITDA	Volume	Price	Cost
Lithium	Expected to be up 65%-85% Y/Y, up from previous outlook	Expected to be up 20%-30% Y/Y due to new capacity coming online from LAN, KEM, and China, plus efficiency improvements and tolling	Average realized pricing expected to increase 40%-45% Y/Y on strong market conditions and implementation of variable price structures on long-term contracts	N/A
Bromine	Expected to be up 5%-10% Y/Y, in line with previous outlook	Expected to increase following our successful execution of growth projects in 2021	N/A	Cost savings and higher pricing expected to partially offset higher freight and raw material costs
Catalysts	Expected to be up 5% - 15% Y/Y, below previous outlook in part due to higher input costs, particularly for natural gas	Expected to grow across all segments with overall refining market improvement and as travel lock-down conditions abate	Expected to also increase to offset inflationary pressures in freight and input costs	N/A



Street

Buy

- Albemarle focuses on adjusting its contract structure from a fixed price of 90% of battery grade sales and 10% spot price in 2021 to ~50% of battery grade sales to be variable, ~40% fixed and ~10% spot price in 2022E
- Lithium earnings are expected to be stronger in 2022E and doubled the capacity y/y
- Lithium supply shows no signs of being accelerated which means the market will be in deficit for the rest of the decade



Deutsche Bank

Neutral

- Expected EBITDA of \$1.63 bn from \$1.58 bn in 2023E
- Albemarle continues to focus on de-bottlenecking its Bromine assets in Arkansas and Jordan which should unlock incremental volume growth in '22 amid strong demand for flame retardants
- High utilization of FCF to develop Wave 3 lithium projects as well as through the untapped ~1 billion revolver



Sell

- Some headwinds to margins will be higher fixed costs due to the start-ups at numerous sites including Wodgina, Qinzhou, La Negra III / IV, and Kemerton. In addition to that is the higher spodumene transfer pricing
- Weaker Catalysts outlook as higher raw material costs continue to pressure margins while volumes are well below pre-pandemic levels

J.P.Morgan

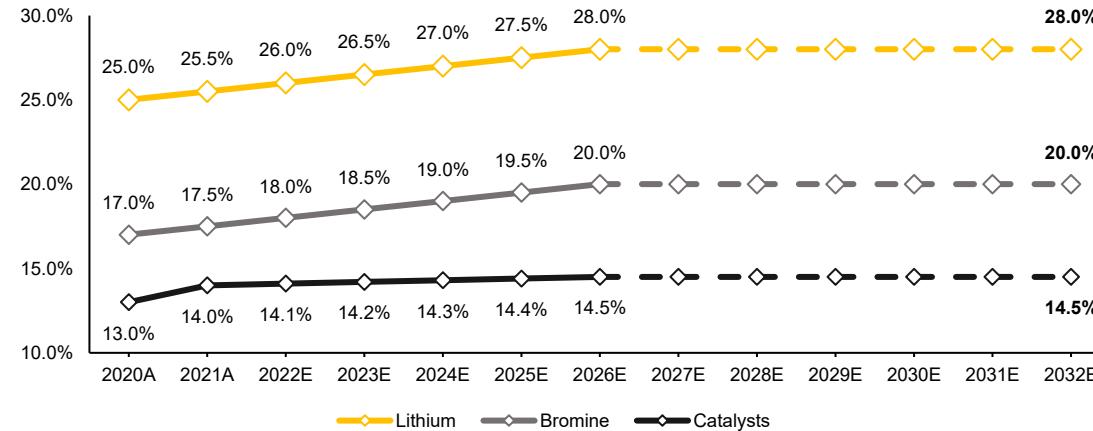


Source(s): Deutsche Bank, J.P. Morgan, Mizuho Securities

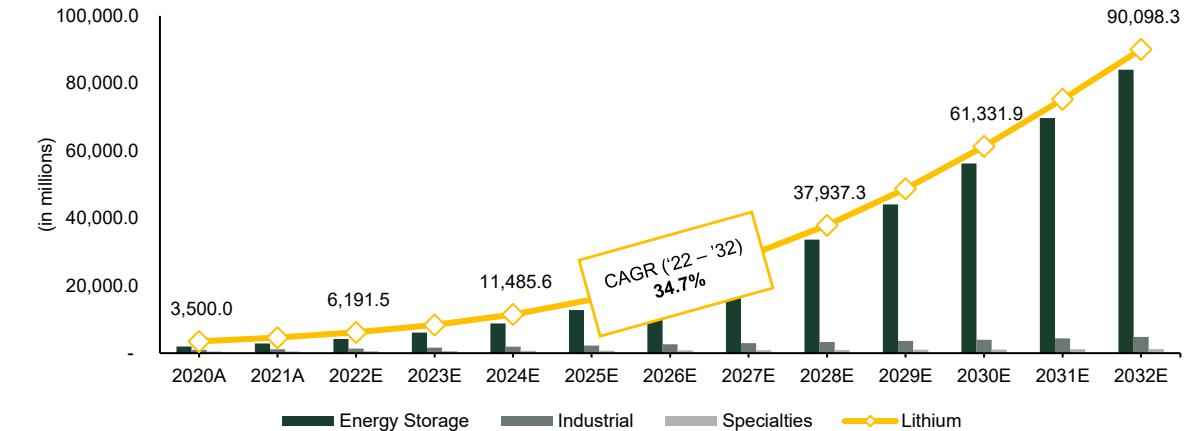
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Assumptions

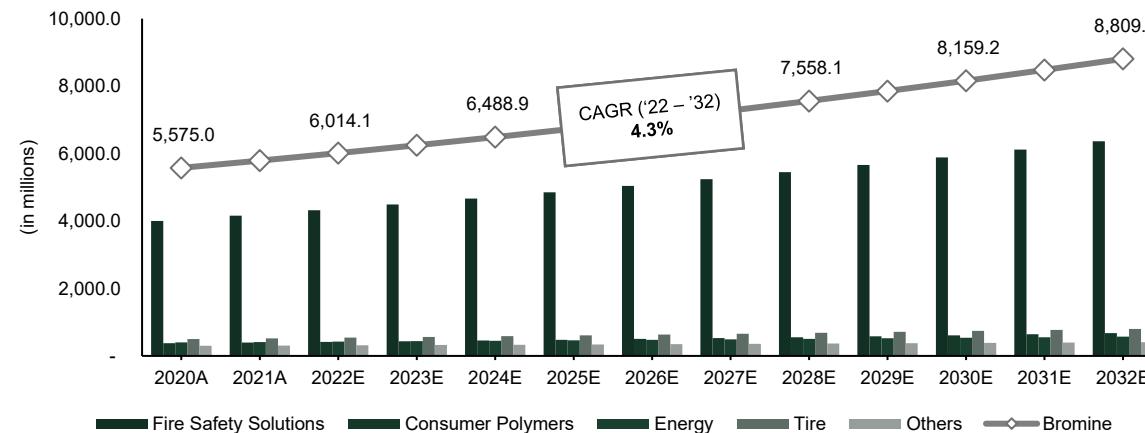
Albemarle's Market Share



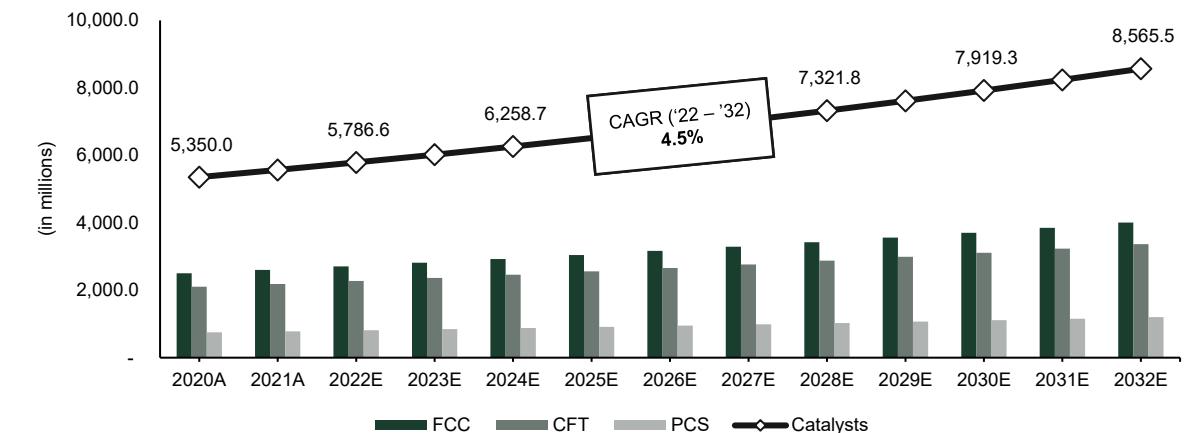
Lithium Market Size ('20 – '32)



Bromine Market Size ('20 – '32)



Catalysts Market Size ('20 – '32)



Source(s): Company filing, Statista, Bloomberg

Income Statement



INCOME STATEMENT																
Fiscal year	2017A	2018A	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P
Revenues by segment																
Lithium	1,018.9	1,228.2	1,358.2	1,144.8	1,363.3	1,624.9	2,245.1	3,117.3	4,267.6	5,736.4	7,423.0	9,398.4	11,642.6	14,088.8	16,624.8	19,102.9
Bromine	855.1	917.9	1,004.2	965.0	1,128.3	1,082.5	1,155.7	1,232.9	1,314.4	1,400.5	1,455.0	1,511.6	1,570.5	1,631.8	1,695.6	1,762.0
Catalysts	1,067.6	1,101.6	1,061.8	797.9	761.2	815.9	854.6	895.0	937.3	981.6	1,020.8	1,061.7	1,104.1	1,148.3	1,194.2	1,242.0
All Other	128.9	127.2	165.2	221.3	75.1	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	3,070.5	3,374.8	3,589.4	3,128.9	3,328.0	3,523.3	4,255.3	5,245.2	6,519.4	8,118.5	9,898.8	11,971.7	14,317.3	16,868.9	19,514.7	22,106.9
% Growth	9.9%	6.4%	(12.8)%	6.4%	5.9%	20.8%	23.3%	24.3%	24.5%	21.9%	20.9%	19.6%	17.8%	15.7%	13.3%	
Cost of Goods Sold	1,965.7	2,157.6	2,331.6	2,134.0	2,330.0	2,466.3	2,829.8	3,278.3	4,042.0	4,911.7	5,860.1	6,871.8	7,946.1	9,024.9	10,030.5	11,141.9
Gross Profit Margin %	36.0%	36.1%	35.0%	31.8%	30.0%	30.0%	33.5%	37.5%	38.0%	39.5%	40.8%	42.6%	44.5%	46.5%	48.6%	49.6%
Gross Profit	1,104.8	1,217.2	1,257.8	994.9	998.0	1,057.0	1,425.5	1,967.0	2,477.4	3,206.8	4,038.7	5,099.9	6,371.2	7,844.0	9,484.1	10,965.0
Operating Expenses																
SG&A	(450.2)	(446.0)	(553.3)	(429.8)	(441.4)	(475.6)	(574.5)	(702.9)	(867.1)	(1,071.6)	(1,296.7)	(1,556.3)	(1,846.9)	(2,159.2)	(2,478.4)	(2,785.5)
R&D	(84.3)	(70.0)	(58.2)	(59.2)	(54.0)	(56.4)	(72.3)	(94.4)	(123.9)	(162.4)	(198.0)	(239.4)	(286.3)	(337.4)	(390.3)	(442.1)
Gain on sales of business/interest in properties	-	210.4	-	-	295.9	-	-	-	-	-	-	-	-	-	-	-
Operating Income	570.3	911.6	646.3	505.9	798.5	525.0	778.7	1,169.7	1,486.4	1,972.8	2,544.0	3,304.2	4,237.9	5,347.4	6,615.5	7,737.4
% Growth	59.8%	(29.1)%	(21.7)%	57.8%	(34.3)%	48.3%	50.2%	27.1%	32.7%	29.0%	29.9%	28.3%	26.2%	23.7%	17.0%	
Interest and financing expense	(115.3)	(52.4)	(57.7)	(73.1)	(61.5)	(86.2)	(86.2)	(75.8)	(65.3)	(65.3)	(51.5)	(47.2)	(47.2)	(47.2)	(47.2)	
Other expenses, net	(9.5)	(64.4)	(45.5)	(59.2)	(603.3)	(66.6)	(80.5)	(99.2)	(123.3)	(153.5)	(187.2)	(226.4)	(270.8)	(319.0)	(369.0)	(418.1)
Earnings before tax and equity in investments	445.5	794.8	543.2	373.6	133.7	372.1	612.0	994.7	1,297.8	1,753.9	2,291.5	3,026.3	3,919.9	4,981.2	6,199.2	7,272.1
Income tax expense	(431.8)	(144.8)	(88.1)	(54.4)	(29.4)	(78.2)	(128.5)	(208.9)	(272.5)	(368.3)	(481.2)	(635.5)	(823.2)	(1,046.0)	(1,301.8)	(1,527.1)
Tax rate %	18.2%	15.7%	14.6%	22.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	
Equity in Investments	84.4	89.2	129.5	127.5	95.8	101.4	122.5	150.9	187.6	233.6	284.9	344.5	412.0	485.4	561.6	636.2
Net Income	98.1	739.2	584.6	446.7	200.1	395.4	606.0	936.8	1,212.9	1,619.2	2,095.1	2,735.3	3,508.8	4,420.6	5,458.9	6,381.1
Basic Shares Outstanding						117.0	117.0	117.0	117.0	117.0	117.0	117.0	117.0	117.0	117.0	
Diluted Shares Outstanding						117.1	117.1	117.1	117.1	117.1	117.1	117.1	117.1	117.1	117.1	
Basic EPS						1.7	3.4	5.2	8.0	10.4	13.8	17.9	23.4	30.0	37.8	46.6
Diluted EPS						1.7	3.4	5.2	8.0	10.4	13.8	17.9	23.4	30.0	37.7	46.6
Dividend Paid	140.6	144.6	152.2	161.8	177.9	184.9	187.3	189.7	192.1	194.6	197.1	199.6	202.2	204.8	207.4	210.0
Dividend Paid Per Share	1.2	1.3	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8
Dividend Growth Rate		9.8%	9.7%	4.8%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%



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Industry Analysis



Investment Theses



Risks, Mitigants & Catalysts



Valuation



Appendix

Balance Sheet



BALANCE SHEET															
Fiscal year	2018A	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P
ASSETS															
Cash And Equivalents	555.3	613.1	746.7	439.3	837.5	214.7	(463.3)	(775.3)	(69.7)	1,459.5	3,069.7	5,858.8	9,749.4	14,702.9	20,610.3
Accounts Receivable	605.7	612.7	530.8	556.9	589.6	712.1	877.8	1,091.0	1,358.6	1,656.5	2,003.4	2,396.0	2,823.0	3,265.7	3,699.5
Other Receivables	91.7	139.8	107.0	143.1	151.5	183.0	225.6	280.4	349.2	425.7	514.9	615.8	725.5	839.3	950.8
Inventory	700.5	769.0	750.2	812.9	860.6	1,039.4	1,281.3	1,592.5	1,983.1	2,418.0	2,924.3	3,497.3	4,120.6	4,766.8	5,400.0
Prepaid Exp.	43.2	83.6	57.5	49.9	52.9	63.8	78.7	97.8	121.8	148.5	179.6	214.8	253.1	292.8	331.7
Other Current Assets	1.9	6.9	13.9	5.8	6.1	7.4	9.1	11.4	14.1	17.2	20.9	24.9	29.4	34.0	38.5
Total Current Assets	1,998.4	2,225.1	2,206.2	2,008.0	2,498.2	2,220.5	2,009.1	2,297.8	3,757.2	6,125.6	8,712.8	12,607.6	17,700.9	23,901.6	31,030.9
Gross Property, Plant & Equipment	4,799.1	6,951.7	7,563.9	8,229.5	9,629.5	11,118.8	12,640.0	14,139.4	15,519.5	16,608.4	17,747.3	18,936.2	20,175.0	21,463.9	22,802.8
Accumulated Depreciation	(1,778.0)	(1,908.4)	(2,073.0)	(2,165.1)	(2,538.3)	(2,986.0)	(3,509.7)	(4,108.5)	(4,776.2)	(5,498.4)	(6,277.5)	(7,116.0)	(8,016.5)	(8,981.5)	(10,013.3)
Net Property, Plant & Equipment	3,021.1	5,043.3	5,490.9	6,064.4	7,091.2	8,132.8	9,130.2	10,030.9	10,743.4	11,110.1	11,469.8	11,820.1	12,158.5	12,482.4	12,789.4
Long-term Investments	528.7	579.8	656.2	897.7	897.7	897.7	897.7	897.7	897.7	897.7	897.7	897.7	897.7	897.7	897.7
Goodwill	1,567.2	1,578.8	1,665.5	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6	1,597.6
Other Intangibles	386.1	354.6	349.1	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9
Deferred Tax Assets, LT	17.0	15.3	20.3	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8
Other Long-Term Assets	63.1	63.9	62.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7
TOTAL ASSETS	7,581.7	9,860.8	10,451.0	10,974.1	12,491.2	13,255.1	14,041.1	15,230.5	17,402.3	20,137.4	23,084.4	27,329.5	32,761.2	39,285.8	46,722.1
LIABILITIES															
Accounts Payable	522.5	574.1	483.2	648.0	686.0	828.5	1,021.3	1,269.4	1,580.7	1,927.4	2,331.0	2,787.7	3,284.5	3,799.7	4,304.4
Accrued Exp.	257.3	288.9	276.6	266.5	282.1	340.7	420.0	522.0	650.1	792.6	958.6	1,146.5	1,350.8	1,562.6	1,770.2
Curr. Income Taxes Payable	60.9	32.5	32.3	27.7	29.3	35.4	43.6	54.2	67.5	82.3	99.5	119.0	140.2	162.2	183.8
Other Current Liabilities	35.2	303.1	182.8	510.7	540.6	653.0	804.9	1,000.4	1,245.8	1,519.0	1,837.1	2,197.0	2,588.5	2,994.5	3,392.3
Total Current Liabilities	875.9	1,198.5	974.9	1,452.8	1,538.1	1,857.6	2,289.8	2,846.0	3,544.1	4,321.3	5,226.2	6,250.2	7,364.1	8,519.1	9,650.7
Total Long-Term Debt	1,700.7	2,990.7	3,512.9	2,318.8	3,518.8	3,518.8	3,093.8	2,666.8	2,666.8	2,666.8	2,100.8	1,928.8	1,928.8	1,928.8	1,928.8
Total Long-Term Leases	4.5	197.4	198.2	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0
Pension & Other Post-Retire. Benefits	331.6	343.0	388.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9	272.9
Def. Tax Liability, Non-Curr.	383.0	397.9	394.9	353.3	353.3	353.3	353.3	353.3	353.3	353.3	353.3	353.3	353.3	353.3	353.3
Other Non-Current Liabilities	526.9	639.9	512.6	536.7	536.7	536.7	536.7	536.7	536.7	536.7	536.7	536.7	536.7	536.7	536.7
Total Liabilities	3,822.6	5,767.3	5,982.4	5,168.5	6,453.8	6,773.3	6,780.5	6,909.7	7,607.8	8,385.0	8,723.9	9,575.9	10,689.8	11,844.8	12,976.4
Common Stock	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Additional Paid In Capital	1,368.9	1,383.4	1,438.0	2,920.0	2,941.3	2,967.0	2,998.7	3,038.2	3,087.2	3,147.1	3,219.5	3,306.0	3,408.0	3,526.0	3,659.6
Retained Earnings	2,566.1	2,943.5	3,155.3	3,096.5	3,307.0	3,725.7	4,472.8	5,493.5	6,918.2	8,816.2	11,351.9	14,658.5	18,874.3	24,125.9	30,297.0
Comprehensive Inc. and Other	(350.7)	(395.7)	(326.1)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)	(392.5)
Minority Interest	173.8	161.3	200.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4
Total Liabilities and Shareholders Equity	7,581.7	9,860.8	10,451.0	10,974.1	12,491.2	13,255.1	14,041.1	15,230.5	17,402.3	20,137.4	23,084.4	27,329.5	32,761.2	39,285.8	46,722.1



Cash Flow Statement



CASHFLOW STATEMENT															
Fiscal year	2018A	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P
Fiscal year end date															
Operating Activities															
Net Income	739.19	584.56	446.73	200.07	395.39	605.97	936.76	1,212.88	1,619.24	2,095.13	2,735.32	3,508.76	4,420.58	5,458.94	6,381.13
Adj. to reconcile net income to net cash from ops															
Depreciation and amortization	200.70	213.48	231.98	254.00	373.22	447.69	523.74	598.72	667.72	722.17	779.11	838.55	900.50	964.94	1,031.88
(Gain) Loss From Sale Of Assets	(210.40)	(14.40)	(7.20)	(296.00)	-	-	-	-	-	-	-	-	-	-	-
(Gain) Loss On Sale Of Invest.	(0.50)	(2.80)	(4.60)	(3.80)	-	-	-	-	-	-	-	-	-	-	-
(Income) Loss on Equity Invest.	(89.30)	(129.60)	(127.50)	(95.80)	-	-	-	-	-	-	-	-	-	-	-
Stock-Based Compensation	15.23	19.68	22.84	20.12	21.30	25.73	31.71	39.41	49.08	59.85	72.38	86.56	101.99	117.98	133.65
Other Operating Activities	88.86	214.11	394.19	230.30	-	-	-	-	-	-	-	-	-	-	-
Change in Net Working Capital:	(51.23)	2.70	(127.46)	78.64	(6.80)	(25.49)	(34.48)	(44.37)	(55.69)	(62.00)	(72.19)	(81.69)	(88.86)	(92.14)	(90.27)
Change in Acc. Receivable	(97.40)	(18.20)	100.12	(49.30)	(41.09)	(153.98)	(208.24)	(268.02)	(336.38)	(374.51)	(436.05)	(493.42)	(536.74)	(556.55)	(545.29)
Change In Inventories	(124.10)	(46.30)	51.98	(127.40)	(47.72)	(178.80)	(241.82)	(311.23)	(390.61)	(434.88)	(506.35)	(572.96)	(623.27)	(646.28)	(633.20)
Change in Acc. Payable	73.73	(12.20)	(31.50)	143.94	38.03	142.52	192.75	248.09	311.36	346.65	403.61	456.71	496.82	515.16	504.73
Change in Other Net Operating Assets	(4.20)	(37.60)	(207.10)	144.48	43.97	164.76	222.83	286.80	359.94	400.74	466.59	527.98	574.34	595.54	583.48
Cash flow from Operations	692.55	887.73	828.98	387.53	783.10	1,053.89	1,457.74	1,806.63	2,280.35	2,815.14	3,514.62	4,352.18	5,334.21	6,449.72	7,456.40
Investing Activities															
Capital Expenditure	(700.00)	(851.80)	(850.50)	(953.70)	(1,400.00)	(1,489.35)	(1,521.12)	(1,499.46)	(1,380.14)	(1,088.87)	(1,138.87)	(1,188.87)	(1,238.87)	(1,288.87)	(1,338.87)
Sale of Property, Plant, and Equipment	-	10.36	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Acquisitions	(11.40)	(820.00)	(22.60)	-	-	-	-	-	-	-	-	-	-	-	-
Divestitures	413.57	-	-	289.79	-	-	-	-	-	-	-	-	-	-	-
Invest. in Marketable & Equity Securit.	(5.90)	(2.20)	9.48	(2.70)	-	-	-	-	-	-	-	-	-	-	-
Cash flow from Investing	(303.73)	(1,663.64)	(863.62)	(666.61)	(1,400.00)	(1,489.35)	(1,521.12)	(1,499.46)	(1,380.14)	(1,088.87)	(1,138.87)	(1,188.87)	(1,238.87)	(1,288.87)	(1,338.87)
Financing Activities															
Total Debt Issued	-	1,597.81	589.80	60.99	1,200.00	-	-	-	-	-	-	-	-	-	-
Total Debt Repaid	(113.60)	(301.60)	(250.00)	(1,173.80)	-	(425.00)	(427.00)	-	-	(566.00)	(172.00)	-	-	-	-
Issuance of Common Stock	3.63	4.81	40.44	1,472.28	-	-	-	-	-	-	-	-	-	-	-
Repurchase of Common Stock	(517.20)	(11.00)	(5.10)	(8.10)	-	-	-	-	-	-	-	-	-	-	-
Total Dividends Paid	(144.60)	(152.20)	(161.80)	(177.90)	(184.92)	(187.29)	(189.69)	(192.12)	(194.58)	(197.08)	(199.61)	(202.17)	(204.76)	(207.38)	(210.04)
Other Financing Activities	(14.80)	(95.10)	(36.00)	(123.20)	-	-	-	-	-	-	-	-	-	-	-
Cash from Financing	(786.57)	1,042.72	177.34	50.27	1,015.08	(187.29)	(614.69)	(619.12)	(194.58)	(197.08)	(765.61)	(374.17)	(204.76)	(207.38)	(210.04)
Net change in cash during period	(397.75)	266.81	142.69	(228.81)	398.19	(622.74)	(678.07)	(311.94)	705.63	1,529.19	1,610.14	2,789.15	3,890.58	4,953.47	5,907.49
Cash Flow Before Debt Paydown	244	(928)	(196)	(457)	(802)	(623)	(253)	115	706	1,529	2,176	2,961	3,891	4,953	5,907



Company Overview



Industry Analysis



Investment Theses



Risks, Mitigants & Catalysts



Valuation



Appendix

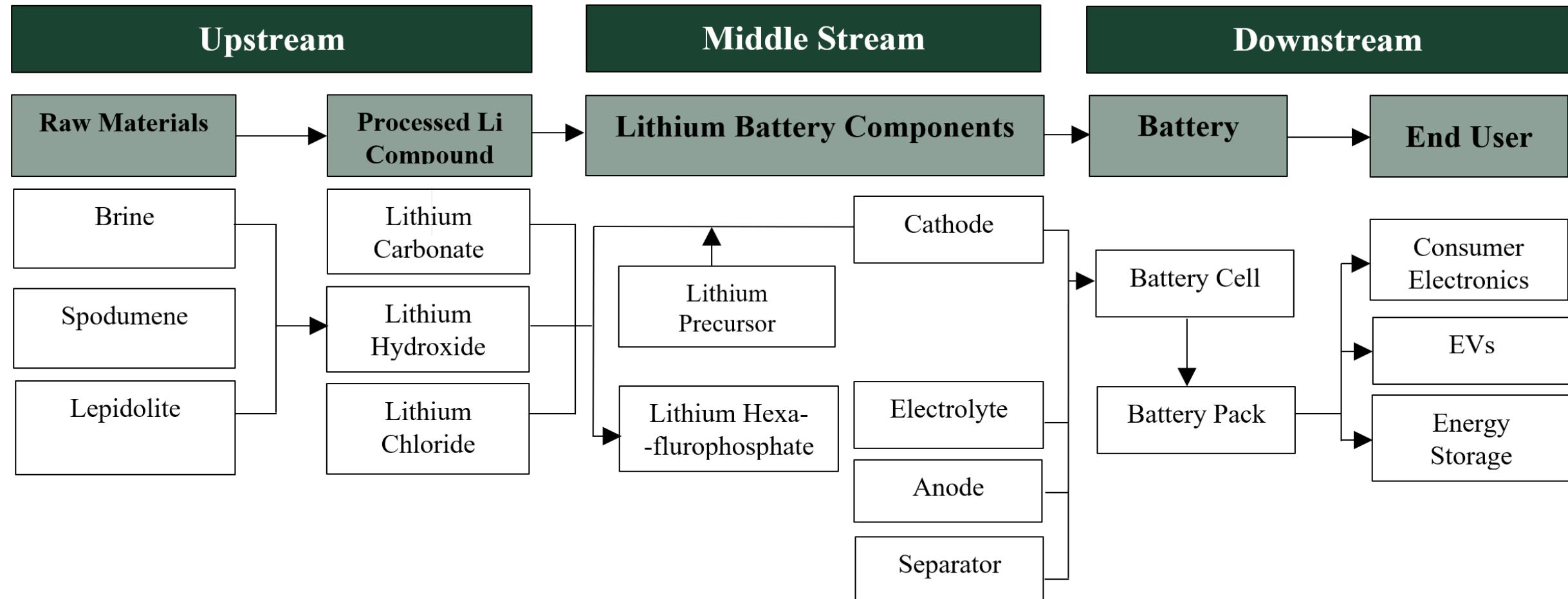
Balance Sheet Schedules



PROPERTY PLANT AND EQUIPMENT																	
Fiscal year	2017A	2018A	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P	
Fiscal year end date																	
Capital Expenditures	317.7	700.0	851.8	850.5	953.7	1,400.0	1,489.3	1,521.1	1,499.5	1,380.1	1,088.9	1,138.9	1,188.9	1,238.9	1,288.9	1,338.9	
% of Sales	10.3%	20.7%	23.7%	27.2%	28.7%	39.7%	35.0%	29.0%	23.0%	17.0%	11.0%	9.5%	8.3%	7.3%	6.6%	6.3%	
Depreciation Waterfall																	
Useful Life	10.00																
Midpoint Convention	Yes																
Long-term Asset Depreciation Prior to 2021	6,064																
2022	1,400					303	303	303	303	303	303	303	303	303	303	303	
2023	1,489					70	70	70	70	70	70	70	70	70	70	70	
2024	1,521						74	74	74	74	74	74	74	74	74	74	
2025	1,499							76	76	76	76	76	76	76	76	76	
2026	1,380								75	75	75	75	75	75	75	75	
2027	1,089									69	69	69	69	69	69	69	
2028	1,139										54	54	54	54	54	54	
2029	1,189										57	57	57	57	57	57	
2030	1,239											59	59	59	59	59	
2031	1,289											62	62	62	62	62	
2032	1,339												64	64	64	64	
Total Depreciation						303	373	448	524	599	668	722	779	839	900	965	1,032
(+) CapEx							1,400.0	1,489.3	1,521.1	1,499.5	1,380.1	1,088.9	1,138.9	1,188.9	1,238.9	1,288.9	1,338.9
(-) Accumulated Depreciation							(2,538.3)	(2,986.0)	(3,509.7)	(4,108.5)	(4,776.2)	(5,498.4)	(6,277.5)	(7,116.0)	(8,016.5)	(8,981.5)	(10,013.3)
Balance Sheet Assumptions																	
Fiscal year	2017A	2018A	2019A	2020A	2021A	2022P	2023P	2024P	2025P	2026P	2027P	2028P	2029P	2030P	2031P	2032P	
Fiscal year end date																	
Revenue	3,374.8	3,589.4	3,128.9	3,328.0	3,523.3	4,255.3	5,245.2	6,519.4	8,118.5	9,898.8	11,971.7	14,317.3	16,868.9	19,514.7	22,106.9		
Accounts Receivable	605.7	612.7	530.8	556.9	589.6	712.1	877.8	1,091.0	1,358.6	1,656.5	2,003.4	2,396.0	2,823.0	3,265.7	3,699.5		
Days Sales Outstanding - A/R	65.5	62.3	61.9	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1		
Other Accounts Receivable	91.7	139.8	107.0	143.1	151.5	183.0	225.6	280.4	349.2	425.7	514.9	615.8	725.5	839.3	950.8		
Days Sales Outstanding - OAR	9.9	14.2	12.5	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7		
Revenue	3,374.8	3,589.4	3,128.9	3,328.0	3,523.3	4,255.3	5,245.2	6,519.4	8,118.5	9,898.8	11,971.7	14,317.3	16,868.9	19,514.7	22,106.9		
Accounts Payable	522.5	574.1	483.2	648.0	686.0	828.5	1,021.3	1,269.4	1,580.7	1,927.4	2,331.0	2,787.7	3,284.5	3,799.7	4,304.4		
Days Payables Outstanding	56.5	58.4	56.4	71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1		
DEBT SCHEDULE																	
Fiscal year	2017A	2018.0	2019.0	2020.0	2021.0	2022.0	2023.0	2024.0	2025.0	2026.0	2027.0	2028.0	2029.0	2030.0	2031.0	2032.0	
Fiscal year end date																	
Long-term Debt																	
Beginning Balance	1,700.7	2,990.7	3,512.9	2,318.8	2,318.8	3,518.8	3,518.8	3,093.8	2,666.8	2,666.8	2,666.8	2,100.8	1,928.8	1,928.8	1,928.8		
Issuance																	
Repayment																	
Ending Balance	1,700.7	2,990.7	3,512.9	2,318.8	3,518.8	3,518.8	3,093.8	2,666.8	2,666.8	2,666.8	2,100.8	1,928.8	1,928.8	1,928.8	1,928.8		
Weighted Average Interest Rate																	
Interest Expense																	
								2%	2%	2%	2%	2%	2%	2%	2%	2%	
								86.2	86.2	75.8	65.3	65.3	51.5	47.2	47.2	47.2	



The Lithium Value Chain



Source(s): Deutsche Bank

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Competitor Profile

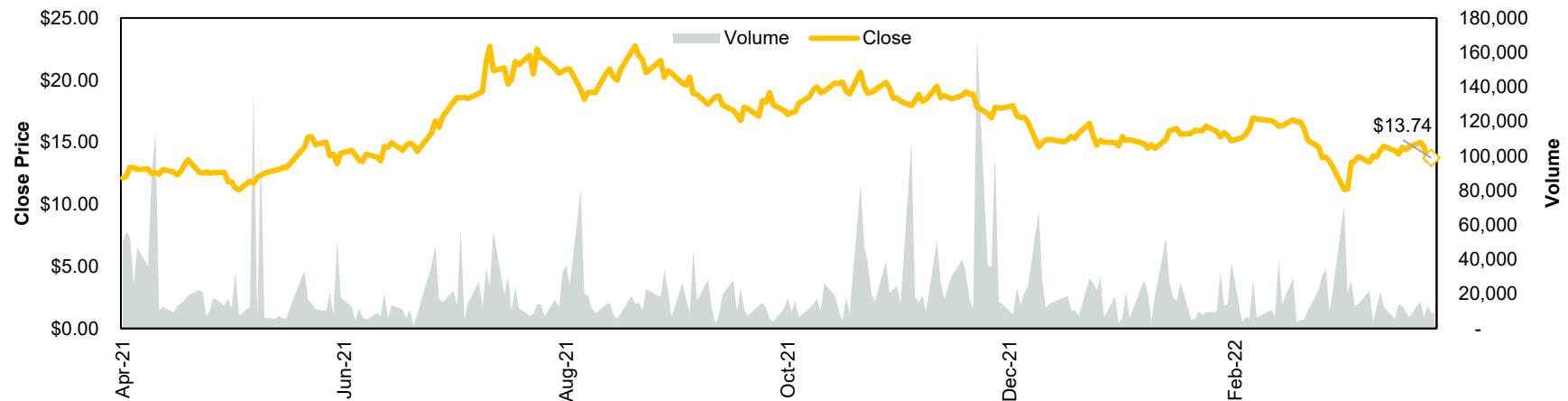
Ganfeng Lithium Co.



Business Description

- Ganfeng Lithium mainly operates in three segments: Lithium Metal and Compound, Lithium Battery and Lithium Ore Resources. They have mines operating China, South America and Australia. They are the leading manufacture and seller of Lithium products in China and Asia pacific region

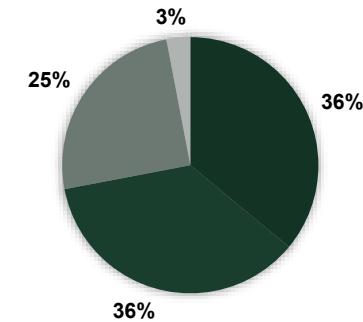
1-Year Price Chart



Market Data

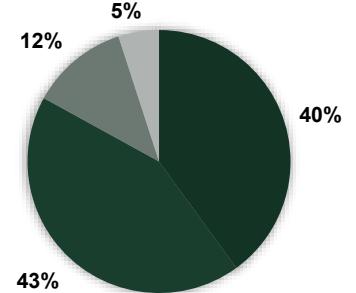
Ticker	SHE: 002460
Share Price (2022/04/08)	\$17.9
Dividend Yield	0.26%
52-Week Range	\$14.4 - \$35.3
Market Capitalization (\$M)	24,171.9
Debt (\$M)	97,412.0
Enterprise Value (\$M)	5,974.4
Cash & Short-Term Investments (\$M)	1,190,626.0

Revenue by Segment



■ Lithium Metal and Compound ■ Lithium Battery
■ Lithium Ore Resources ■ Others

Revenue by Geography



■ China ■ South and North America
■ Australia ■ European Union



Competitor Profile

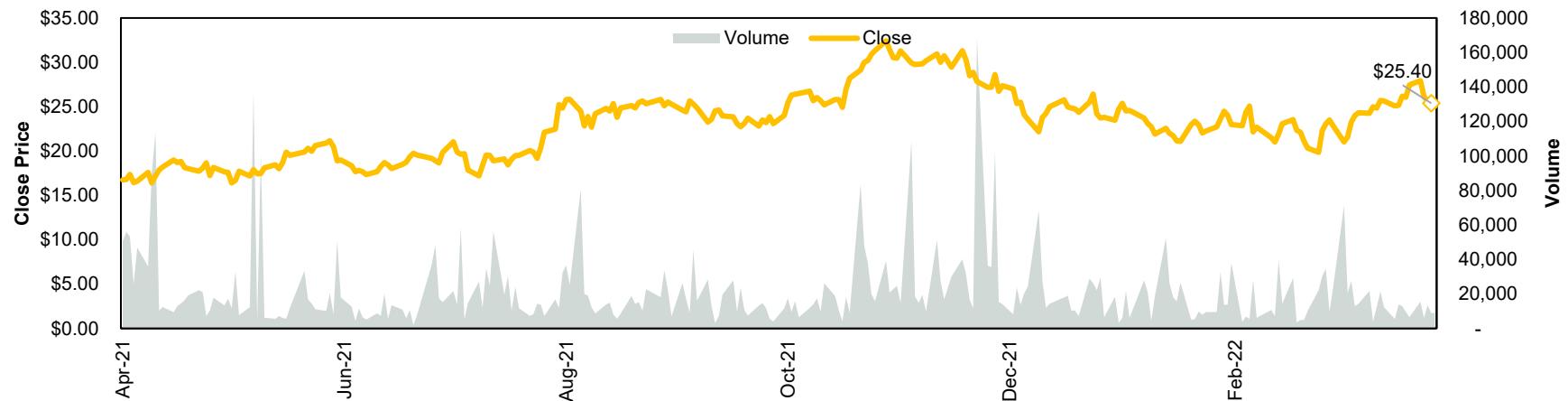
Livent Corporation



Business Description

- Livent Corporation produces battery-grade lithium hydroxide for use in high performance lithium-ion batteries; and butyllithium, which is used in the production of polymers and pharmaceutical products. They have a very diverse international operations. They specialize in making high performance battery and their 75% of the business comes from selling batteries

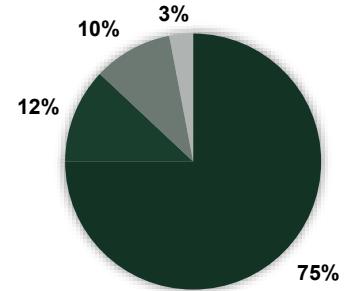
1-Year Price Chart



Market Data

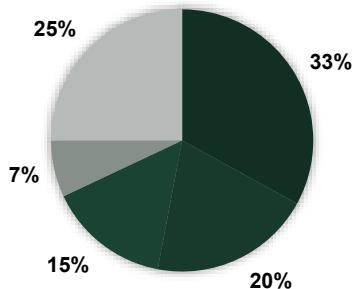
Ticker	NYQ: LTHM
Share Price (2022/04/08)	\$24.6
Dividend Yield	-
52-Week Range	\$15.9 - \$33.0
Market Capitalization (\$M)	3,892.9
Debt (\$M)	246.9
Enterprise Value (\$M)	4,026.8
Cash & Short-Term Investments (\$M)	113.0

Revenue by Segment



- Lithium based batteries
- Speciality Polymers
- Chemical Synthesis Applications
- Others

Revenue by Geography



- North America
- Latin America
- Europe
- Africa
- Asia Pacific



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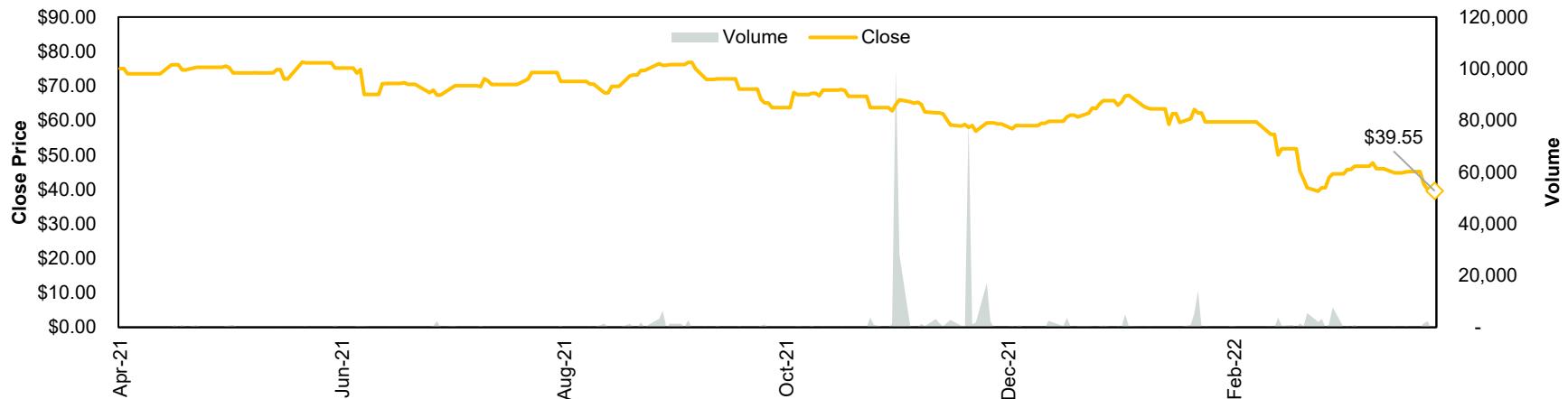
Lanxess AG



Business Description

- LANXESS AG manufactures specialty chemicals. The Company focuses on the development, manufacturing, and marketing of plastics, rubber, intermediates, and specialty chemicals. LANXESS manufacturing, and marketing of plastics, rubber, intermediates, and specialty chemicals. LANXESS offers its products around the world

1-Year Price Chart



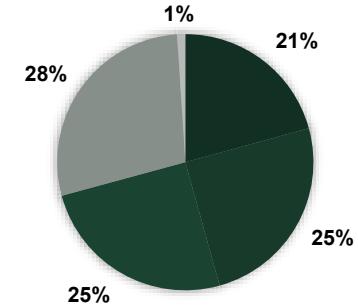
Market Data

Ticker	ETR: LXS
Share Price (2022/04/08)	\$112.0
Dividend Yield	2.88%
52-Week Range	\$38.0 - \$76.9
Market Capitalization (\$M)	3,415.0
Debt (\$M)	3,989.6
Enterprise Value (\$M)	5,974.4
Cash & Short-Term Investments (\$M)	1,405.0



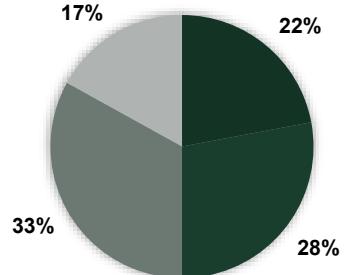
Source(s): Company filing, Bloomberg

Revenue by Segment



- Engineering Materials
- Advanced Intermediates
- Performance Chemicals
- Special Additives
- Others

Revenue by Geography



- Asia / Pacific
- Americas
- EMEA
- Germany

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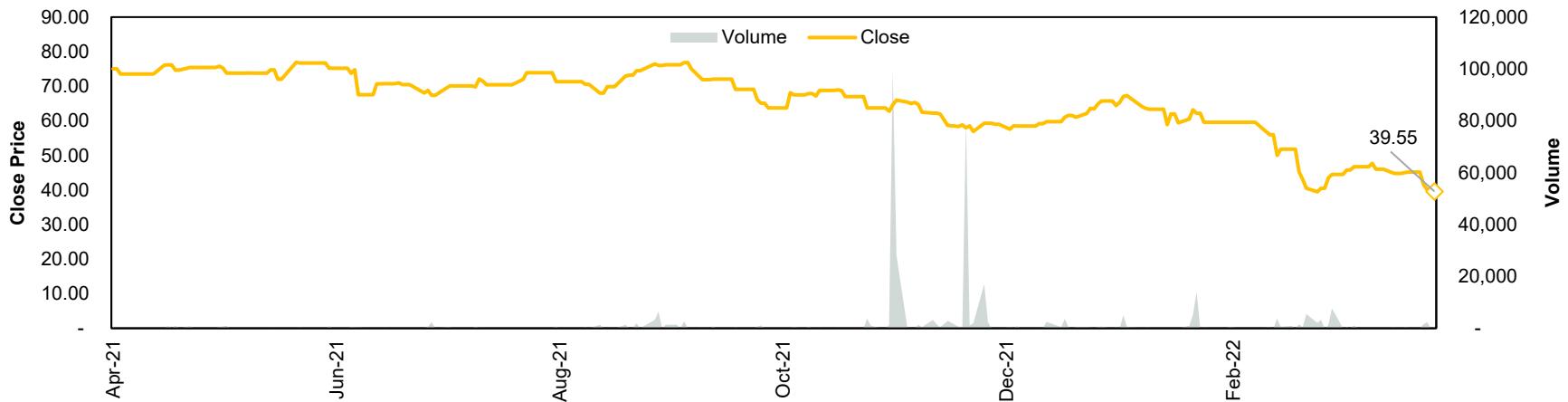
Israel Chemicals Limited



Business Description

- ICL Group Ltd manufactures agricultural chemicals. The Company offers various types of fertilizers. ICL Group serves customers in Asia

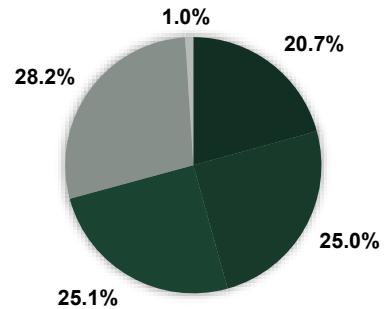
1-Year Price Chart



Market Data

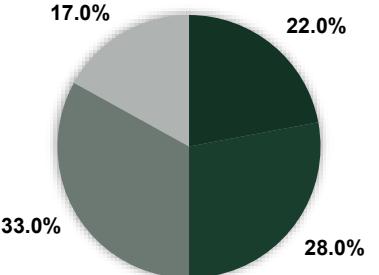
Ticker	NYSE: ICL
Share Price (2022/04/8)	\$12.0
Dividend Yield	4.39%
52-Week Range	\$6.2 - \$12.7
Market Capitalization (\$M)	15,290.8
Debt (\$M)	3,013.0
Enterprise Value (\$M)	17,926.5
Cash & Short-Term Investments (\$M)	564.0

Revenue by Segment



- Engineering Materials
- Advanced Intermediates
- Performance Chemicals
- Special Additives
- Others

Revenue by Geography



- Asia / Pacific
- Americas
- EMEA
- Germany



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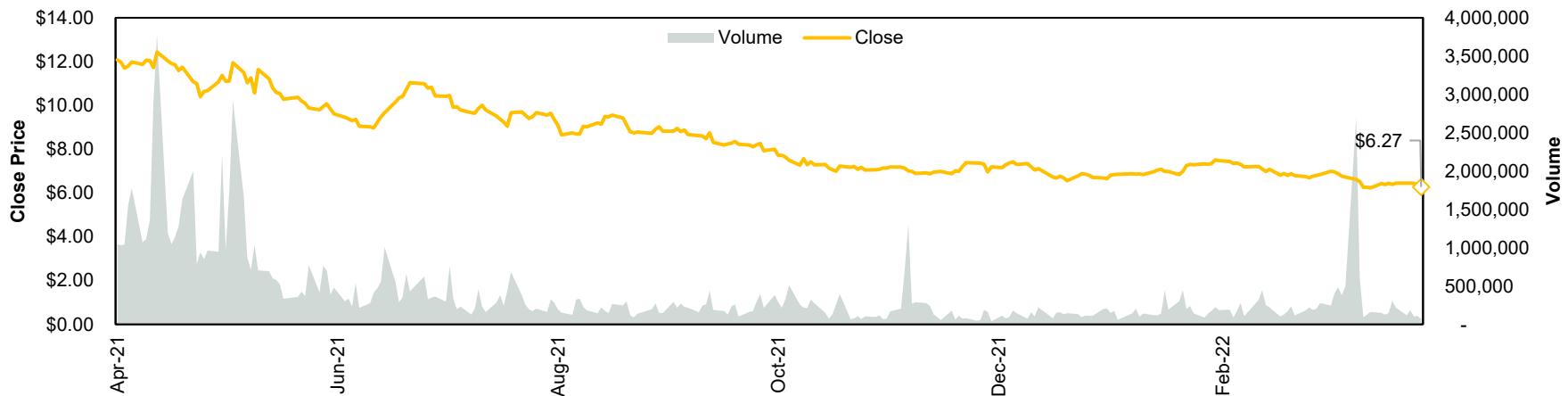
FMC Corporation



Business Description

- FMC Corporation provides agricultural solutions. The Company offers herbicides, insecticides and miticides, fungicides, harvest aids, and other crop chemicals used for seed corn, potatoes, sorghum, sweet corn, cotton, tobacco, sunflowers, grapes, and other related products. FMC serves customers worldwide

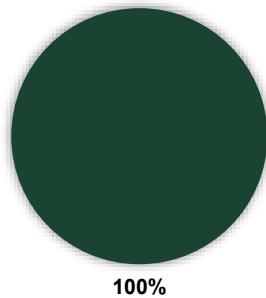
1-Year Price Chart



Market Data

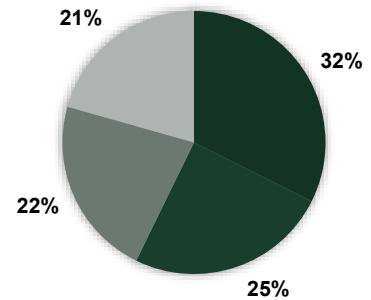
Ticker	NYSE: FMC
Share Price (2022/04/8)	\$137.2
Dividend Yield	1.55%
52-Week Range	\$87.3 - \$139.1
Market Capitalization (\$M)	17,267.5
Debt (\$M)	3,336.0
Enterprise Value (\$M)	20.106.1
Cash & Short-Term Investments (\$M)	516.8

Revenue by Segment



■ Agriculture Chemicals

Revenue by Geography



■ Latin America ■ Asia Pacific ■ NA ■ EMEA



Company Overview

Industry Analysis

Investment Theses

Risks, Mitigants & Catalysts

Valuation

Appendix