

Price:  
\$213.20

Target:  
\$283.97

Upside:  
33%



**Sector Head:** Yehuda Silverman

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## Company Overview

Albemarle is global provider of lithium, bromine solutions, and specialty chemical solutions

With a global presence on four continents, Albemarle is the world's largest miners of brine and spodumene lithium minerals, target consumers are comprised mostly of industrial refiners and consumer-facing auto

## Operating Segments

**Lithium:** Hard rock and brine extracted lithium concentrate product

**Bromine:** Specialty chemicals for industrial and commercial applications

**Catalysts:** Chemical catalysts for petroleum residuals refinement

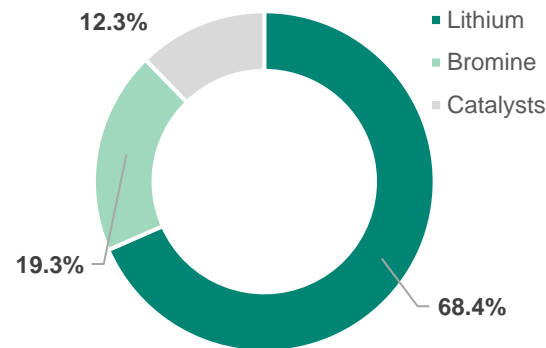
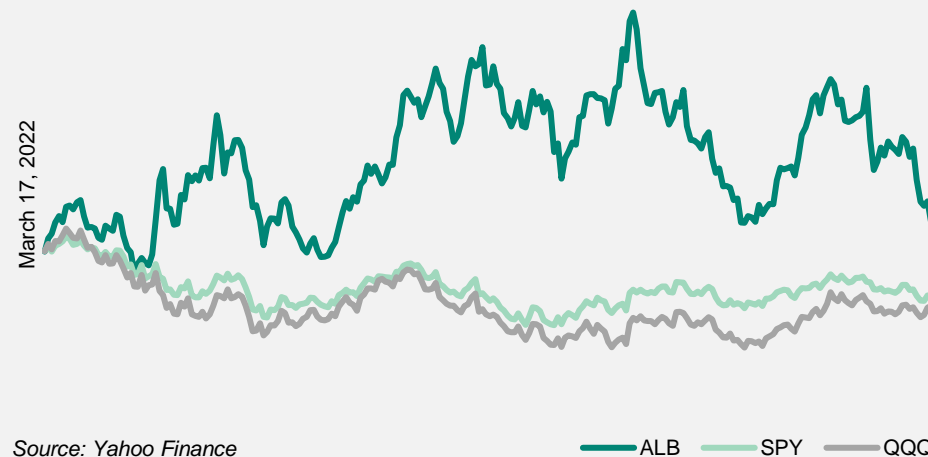


Exhibit 1: Albemarle Lithium Mine Breakdown



Source: Investor Relations

Exhibit 2: LTM Performance



Source: Yahoo Finance

ALB SPY QQQ



## Industry Growth Drivers



**Market Penetration:** Adoption of electric vehicles and renewables drives lithium demand



**Applications:** Usage in electronics, grid storage, mining, aerospace, and healthcare

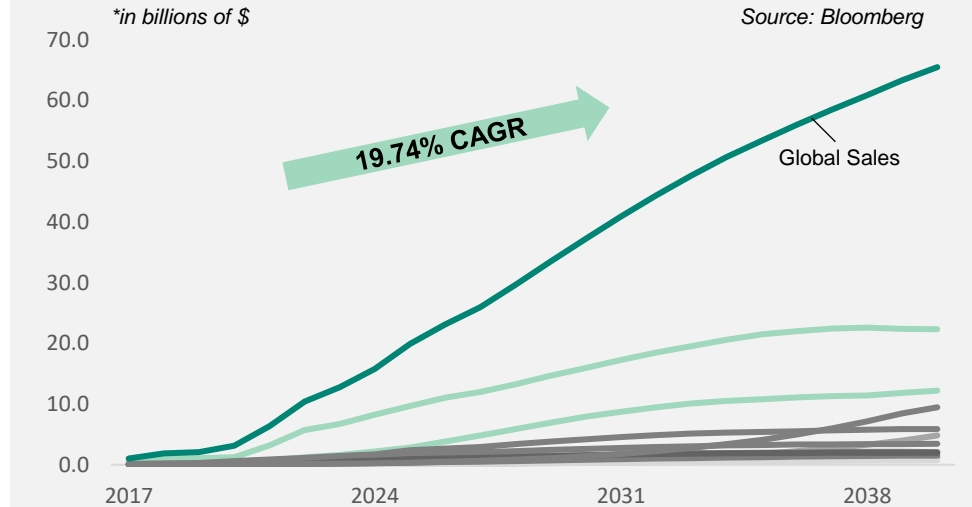


**Resiliency:** Fragmented market and industry titans strengthens lithium prices

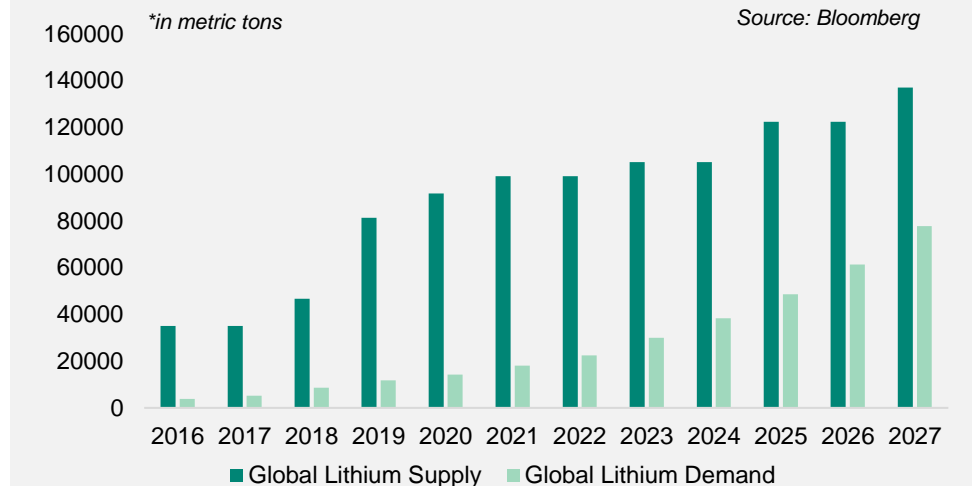
## Lithium Product End Markets

<b>Lithium Hydroxide, Carbonate, Chloride</b>	Consumer Electronics, Electric Vehicle Batteries, Chemical Catalysts, Energy Storage
<b>Bromine Solutions</b>	Flame Retardants, Pesticides, Plasma Etching, Adhesive Tapes, Rubbers
<b>Chemical Catalysts</b>	Zeolites, Metals, Chemical Compounds, Enzymes, Organometallic Materials

**Exhibit 3: Forecasted Electric Vehicle Sales**



**Exhibit 4: Global Lithium Carbonate Supply v. Demand**



## Investment Thesis

### **Chinese Supply**

China, one of the world's largest refiners of Lithium, is reopening its economy, this coincides with a unique demand phenomena and a sharp contraction in supply

### **Lithium Spot Pricing**

Low pricing visibility for Lithium has allowed spot pricing to reign supreme, and demand has remained inelastic despite strength in price drivers

### **Productive and Leverage Opportunities**

Low leverage and strong earnings insulates against interest rate exposure while staying fiscally agile, changing climate conditions offer productive synergies



### Exhibit 5: Economy in Full Swing

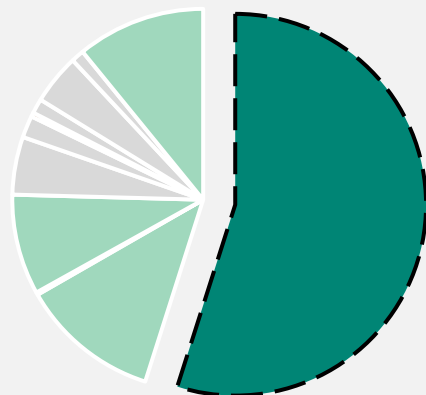
China reopened its economy in early 2023, after three years of the hallmark Zero-COVID Policy

#### Key Statistics Globally

13% share of global mining	44% of global Li chem productions
70% of cell manufacturing	78% of cathode production

**China is not a competitor, but a customer**

### Exhibit 6: Lunar New Year Demand Phenomena



54.91%

Y/Y Chinese January EV sales were **down 38%**

China reopening its travel for the first time since 2020 **resulted in lowered production and sales**, consequently dropping Li prices

## Yichuan Probe

Yichuan accounts **for 10%** of the global lithium productive capacity

- December 2021:** In wake of skyrocketing EV demand and government subsidies, miners flock to the lithium-rich Yichuan area in search of easy profit and strong supply
- April 2022:** In order to keep up with production targets, lithium miners illegally bypass environmental and labor restrictions and legislation
- March 2023:** Chinese government launches probe into the gross environmental violations by lithium miners, effectively shutting down China's largest lithium reserve

## Subsidy Taper & Consumer Pressure

### Subsidy Conclusion

China **ends \$15 billion subsidy** on electric vehicle purchases, placing more pressure on EV prices

### Purchase Pullback

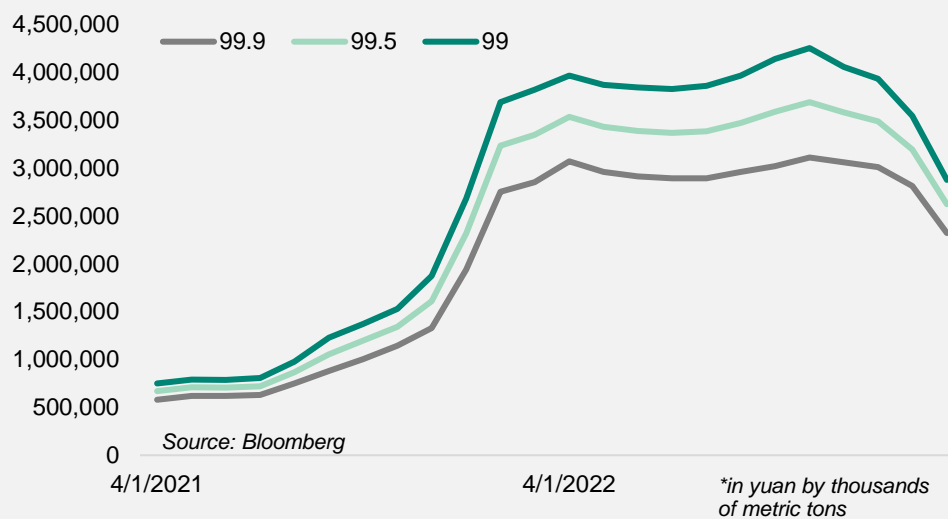
To maintain market share in a developing market, **automakers absorb price pressure**, however short-term EV sales drop regardless

### Supplier's Market

As automakers absorb prices, **pricing strength remains as a supplier advantage**, EV sales rebound in the long-term



**Exhibit 7: Chinese Spot Pricing Lithium**

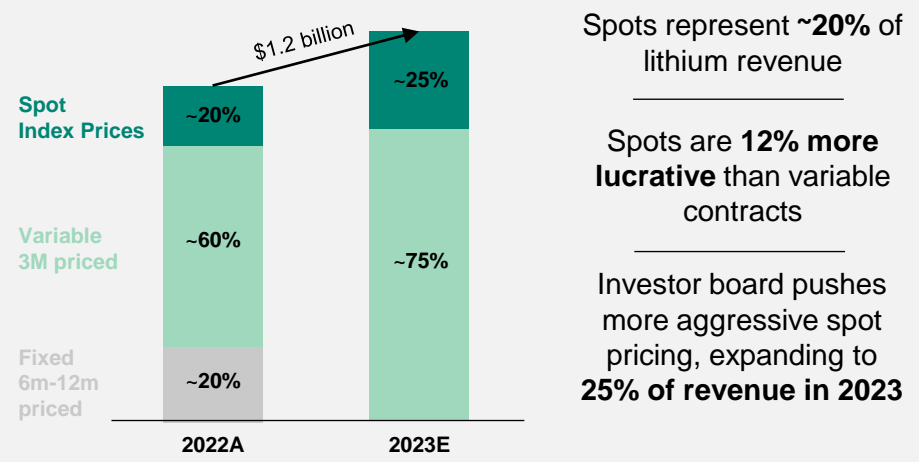


**Low Price Visibility**

<b>Nascent Market</b>	Lithium is akin to an oil market in the 1970s, low pricing visibility as a new commodity product
<b>Infrastructure</b>	There is a significant lack of trading infrastructure, meaning traders to make the market more efficient, as well as price forecasts
<b>Pricing</b>	Lithium Ore is heavily sold on spot-prices and a market for futures is largely unavailable

**Exhibit 8: Revenue by Pricing**

Source: Investor Relations



**Spot Pricing Opportunity**

Tesla, General Motors, and other EV makers have been engaged in a price war for battery grade lithium

Tesla's price cuts forces purchase of battery-grade lithium to meet production targets, **demand remains robust despite positive price action in 2022**

Vehicle	Base Price
Chevrolet Blazer	<b>52,000</b>
Tesla Model Y	<b>53,490</b>
Ford Mach-E extended	<b>57,995</b>



## Fiscal Agility & Competitive Advantage

Key Metrics	Low leverage and strong stable cash flows give ALB financial flexibility in uncertain economic conditions
Debt/Equity: 0.46x	<p><b>Key Advantages</b></p> <ol style="list-style-type: none"> <li>1. Passing of <b>Inflation Reduction Act</b> allows key tax benefits to ALB's U.S.-based mines and operations</li> <li>2. Low leverage levels coupled with high liquidity <b>reduces relatively volatile interest rate exposure</b></li> <li>3. Strong cash generation <b>enables significant capital reinvestment</b> while stable bromine segment offers lighthouse-in-storm safety</li> </ol>
Interest Rate: 5%	
ROIC Y/Y: 249%	
Cash Ratio: 1.89	
FCFF Y/Y: 48%	

## Increased Mine Efficiency & Climate Impact

Into 2025, operational improvements coupled with increases in global aridness and drought volume offer productive synergies



### Silver Peak, US

Expected to double production by year 2025, capital reinvestment

**10,000 tons**  
5 years



### Salar de Atacama, Chile

10% decrease in moisture over next decade, 6% brine production efficiency improvement

**14,000 tons**  
5 years



### Safi, Jordan

Doubled Bromine output into 2025, capital reinvestment

**22,000 tons**  
7 years

Exhibit 9: Debt Levels

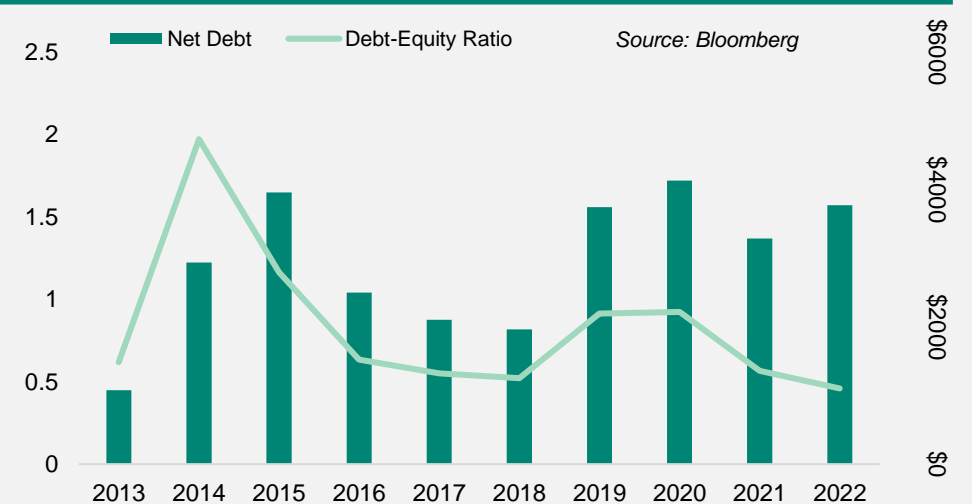


Exhibit 10: Lithium Hardrock and Brining Process

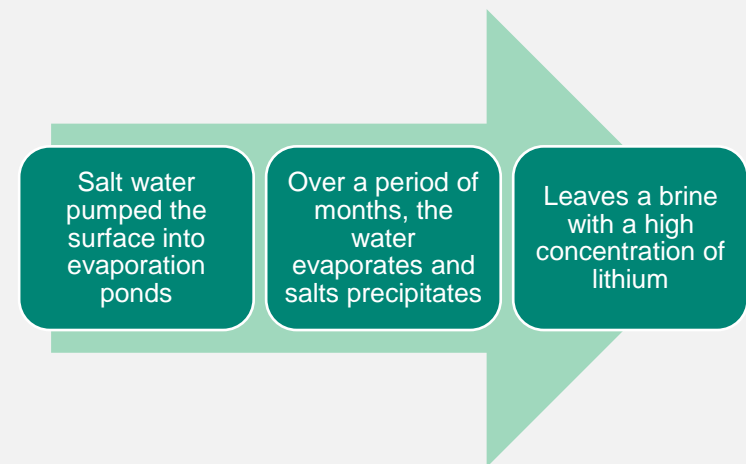
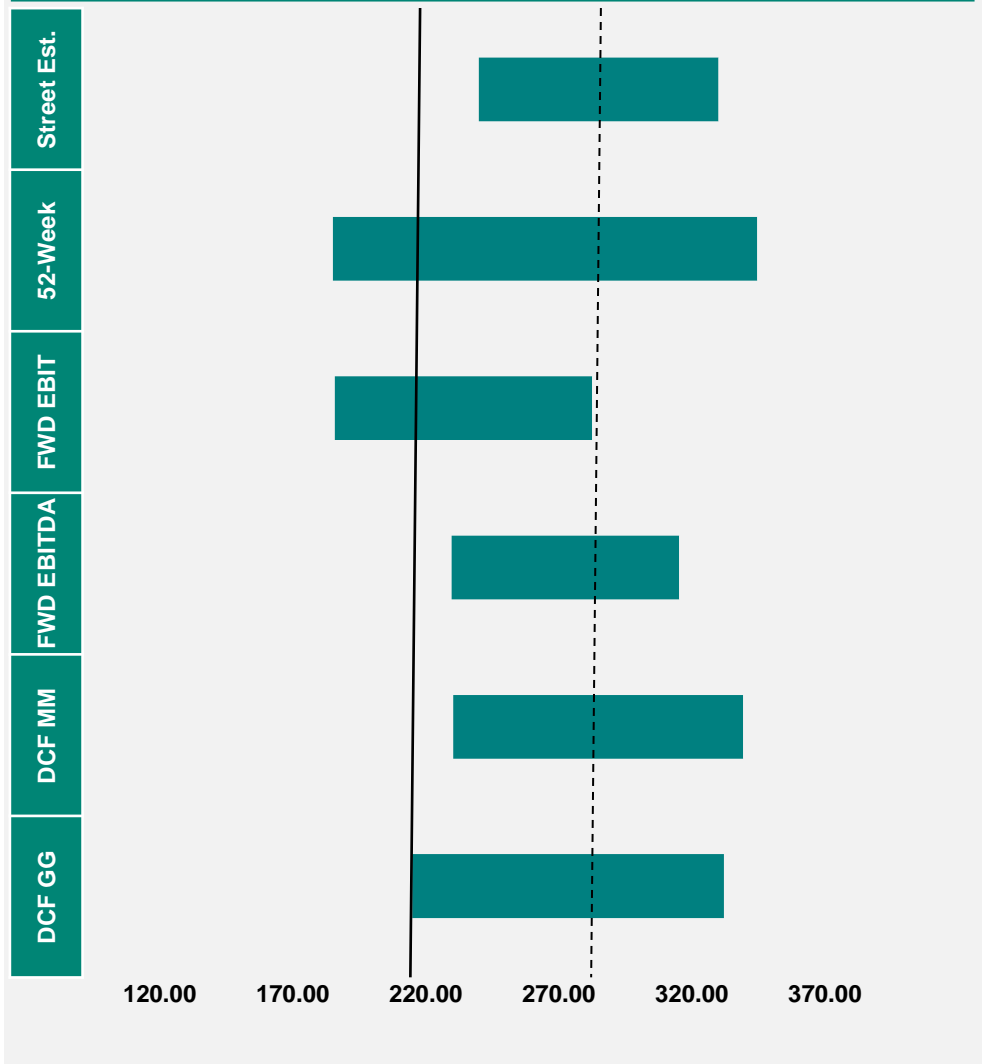
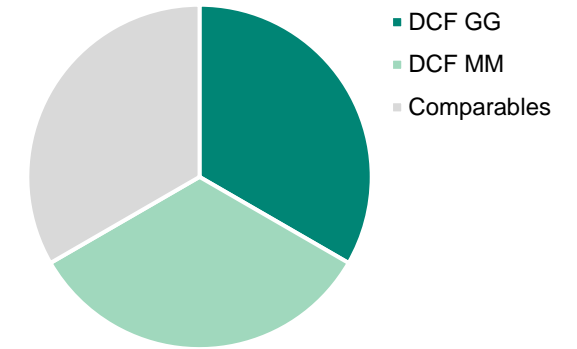


Exhibit 11: Football Field



### Valuation Weight

Method	Weight
DCF GG	33%
DCF MM	33%
Comparables	33%



Target: **\$283.97**

### Sensitivity Analysis

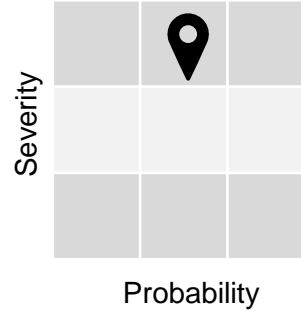
		Terminal Growth				
		1.50%	1.75%	2.00%	2.25%	2.50%
WACC	9.0%	332.09	340.75	350.04	360.01	370.75
	10.0%	287.91	294.27	301.03	308.22	315.90
	11.0%	253.21	258.02	263.09	268.46	274.14
	12.0%	225.28	229.00	232.90	237.01	241.33
	13.0%	202.33	205.27	208.33	211.54	214.91

		EV/EBITDA				
		5.2x	5.7x	6.2x	6.7x	7.2x
WACC	9.0%	286.76	304.91	323.05	341.20	359.34
	10.0%	271.22	288.24	305.26	322.28	339.30
	11.0%	256.68	272.66	288.64	304.61	320.59
	12.0%	243.09	258.09	273.10	288.10	303.11
	13.0%	230.37	244.46	258.56	272.66	286.76



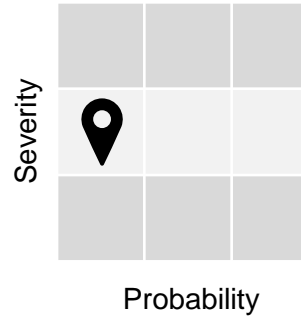


Electric Vehicle makers are **buying up smaller lithium producers** to vertically integrate into their production



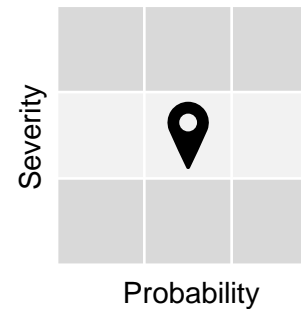
Albemarle's position as a **global producer's** cements its fiscal safety as a producer

Lithium could experience a **prolonged downturn** into the end of 2023



Stable revenue and **growth from the Bromine segments** provides fiscal safety

Strong competition **from EV makers and SQM** could eat up market share



Capital reinvestment and low dividend payouts **offers long-term productive synergies**



**Bear Case: \$150.38**

Lithium prices steepen further due to prolonged EV sale depression

China forgoes regulatory examinations, reopens Yichuan earlier than expected

Price war between automakers end, demand becomes more sensitive to changes in price

**Base Case: 283.97**

China closes Yichuan mine into Q2 2023, constricting supply of Lithium

Lunar New Year depresses EV Sales, short-term negative price action

Albemarle becomes more aggressive in spot pricing, price war between EV automakers stays demand

Long-term Li demand growth due to strong EV penetration

**Bull Case: \$350.00**

Prolonged closure of the Yichuan Mine into Q4 of 2023 impacts supply lines

Lunar New Year depresses EV Sales, short-term negative price action

Albemarle becomes more aggressive in spot pricing, price war between EV automakers stays demand

Long-term Li demand growth due to strong EV penetration

**Supporting Catalysts for Long-Term Growth**

1. Inflation Reduction Act offers long-term tax benefits
2. Strong EV penetration into the 2030s is a significant long-term growth catalyst for Albemarle and all Lithium producers
3. Price war between automakers end, demand becomes more sensitive to changes in price
4. Lithium processes will become increasingly efficient as the decade goes by, the current process is highly archaic, and time-consuming
5. Persistent Tax & regulatory benefits in key markets like the US, Europe, and China offer higher lithium demand
6. Albemarle is spearheading the US' efforts to wean off Chinese supply for lithium batteries, building out their own industrial infrastructure through their Silver Peak mine



# Summary

## The Long View

2022 was a hallmark year for both Albemarle and Lithium. 2023, less so.

Reduction in Chinese Lithium production offers price pressure, impacts from the new year cycle and closing of tax subsidies pushes the price of lithium downwards in the short-term.

Strength in spot pricing and strong volumetric demand in 2023 bolsters Albemarle's bottom line. This coupled with a solid fiscal profile positions Albemarle for success in 2023 despite uncertain macro-conditions.

**We are firm in believing that ALB is trading at a significant discount to its fair value.**

Price:  
\$213.20

Target:  
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Upside:  
33%



Albemarle Corporation Consolidated Income Statements - in millions except for shares		12 months ended					FYE	FYE	FYE	FYE	FYE	FYE	FYE
		2018	2019	2020	2021	2022	2023E	2024	2025	2026	2027	2028	2029
Revenue	3,375.0	3,589.4	3,128.9	3,328.0	7,320.1	11,544.1	13,838.6	14,722.8	15,681.8	16,547.3	17,306.7	18,008.3	
Cost of goods sold	2,157.7	2,331.6	2,134.1	2,330.0	4,245.5	6,561.4	7,763.3	8,151.8	8,569.9	8,925.2	9,213.4	9,462.2	
<b>Gross Profit</b>	<b>1,217.3</b>	<b>1,257.8</b>	<b>994.9</b>	<b>998.0</b>	<b>3,074.6</b>	<b>4,982.6</b>	<b>6,075.4</b>	<b>6,570.9</b>	<b>7,111.9</b>	<b>7,622.1</b>	<b>8,093.3</b>	<b>8,546.1</b>	
Gross Margin %	36%	35%	32%	30%	42%	43%	44%	45%	45%	46%	47%	47%	
<b>Operating Expenses</b>													
Selling, general and administrative expenses	446.1	533.4	429.8	441.5	524.1	953.8	1,131.9	1,192.2	1,257.2	1,313.3	1,359.8	1,400.8	
Research and development expenses	70.1	58.3	59.2	54.0	72.0	189.3	214.9	226.5	230.1	237.7	264.3	270.9	
Loss (gain) on sale of business/interest in properties, net	(210.4)	-	-	(296.0)	8.4	-	-	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>305.7</b>	<b>591.7</b>	<b>489.0</b>	<b>199.5</b>	<b>604.5</b>	<b>1,143.1</b>	<b>1,346.8</b>	<b>1,418.7</b>	<b>1,487.3</b>	<b>1,550.9</b>	<b>1,624.1</b>	<b>1,671.7</b>	
<b>Operating Profit</b>	<b>911.5</b>	<b>666.1</b>	<b>505.8</b>	<b>798.4</b>	<b>2,470.1</b>	<b>3,839.6</b>	<b>4,728.6</b>	<b>5,152.3</b>	<b>5,624.6</b>	<b>6,071.1</b>	<b>6,469.2</b>	<b>6,874.5</b>	
Operating Margin %	27%	19%	16%	24%	34%	33%	34%	35%	36%	37%	37%	38%	
Interest & Financing Expenses	(52.4)	(57.7)	(73.1)	(61.5)	(123.0)								
Other income (expenses), net	(64.4)	(45.5)	(59.2)	(603.3)	86.4								
<b>Income before income taxes and equity in net income of unconsolidated investments</b>	<b>794.7</b>	<b>563.0</b>	<b>373.5</b>	<b>133.6</b>	<b>2,433.4</b>								
Income tax expense	144.8	88.2	54.4	29.4	390.6								
Income before equity in net income of unconsolidated investments	649.9	474.8	319.1	104.2	2,042.9								
Equity in net income of unconsolidated investments (net of tax)	89.3	129.6	127.5	95.8	772.3								
<b>Net income</b>	<b>649.9</b>	<b>604.4</b>	<b>446.6</b>	<b>199.9</b>	<b>2,815.1</b>								
Net income attributable to noncontrolling interests	(45.6)	(71.1)	(70.9)	(76.3)	(125.3)								
Net income attributable to Albemarle Corporation	693.6	533.2	375.8	123.7	2,689.8								
Basic EPS	6.0	5.7	4.2	1.7	24.0								
Diluted EPS													
Basic Shares Outstanding	108,427,000.0	105,949,000.0	106,402,000.0	115,841,000.0	117,120,000.0								
Diluted Shares Outstanding	109,458,000.0	106,321,000.0	106,808,000.0	116,536,000.0	117,793,000.0								



Albemarle Corporation Balance Sheet - in millions of \$	FY2018	FY2019	12 Months Ended FY2020	FY2021	FY2022
<b>Current Assets</b>					
Cash and cash equivalents	555.32	613.11	746.72	439.27	1,499.14
Trade Receivables	605.71	612.65	530.84	556.92	1,190.97
Other accounts receivable	52.06	67.55	61.96	66.18	185.82
Inventories	700.54	768.98	750.24	798.62	2,076.03
Other current assets	84.79	162.81	116.43	132.68	234.96
<b>Total current assets</b>	<b>1,998.42</b>	<b>2,225.11</b>	<b>2,206.18</b>	<b>1,993.68</b>	<b>5,186.92</b>
Property, plant and equipment, at cost	4,799.06	6,817.84	7,427.64	8,074.75	9,354.33
Property, Plant, and Equipment and Finance Lease Right-of-Use Asset, Accumulated Depreciation and Amortization	1,777.98	1,908.37	2,073.02	2,165.13	2,391.33
<b>Net property, plant and equipment</b>	<b>3,021.08</b>	<b>4,909.47</b>	<b>5,354.63</b>	<b>5,909.62</b>	<b>6,963.00</b>
Investments	528.72	579.81	656.24	912.01	1,150.55
Other assets	80.14	213.06	219.27	252.24	250.56
Goodwill	1,567.17	1,578.79	1,665.52	1,597.63	1,617.63
Other intangibles, net of amortization	386.14	354.62	349.11	308.95	287.87
<b>Total assets</b>	<b>7,581.67</b>	<b>9,860.86</b>	<b>10,450.95</b>	<b>10,974.12</b>	<b>15,456.52</b>
<b>Current Liabilities</b>					
Accounts payable to third parties	522.52	574.14	483.22	600.49	1,533.62
Accounts Payable, Related Parties, Current	-	-	-	47.50	518.38
Accrued expenses	257.32	576.30	440.76	763.29	505.89
Current portion of long-term debt	307.29	187.34	804.68	389.92	2.13
Dividends payable	35.17	38.76	40.94	45.47	46.12
Income taxes payable	60.87	32.46	32.25	27.67	134.88
Other current liabilities	-	-	-	-	-
<b>Total current liabilities</b>	<b>1,183.17</b>	<b>1,409.00</b>	<b>1,801.85</b>	<b>1,874.34</b>	<b>2,741.02</b>
Long-term debt	1,397.92	2,862.92	2,767.38	2,004.32	3,214.97
Postretirement benefits	46.16	50.90	48.08	43.69	32.75
Pension benefits	285.40	292.07	340.82	229.19	159.57
Other noncurrent liabilities	526.94	754.54	629.38	663.70	636.60
Deferred income taxes	382.98	397.86	394.85	353.28	480.77
<b>Total Liabilities</b>	<b>3,822.57</b>	<b>5,767.28</b>	<b>5,982.35</b>	<b>5,168.51</b>	<b>7,265.68</b>
<b>Shareholder's Equity</b>					
Additional paid-in capital	1,368.90	1,383.45	1,438.04	2,920.01	2,940.84
Accumulated other comprehensive loss	(350.68)	(395.74)	(326.13)	(392.45)	(560.66)
Retained earnings	2,566.05	2,943.48	3,155.25	3,096.54	5,601.28
Total Albemarle Corporation shareholders' equity	3,585.32	3,932.25	4,268.23	5,625.27	7,982.63
Noncontrolling interests	173.79	161.33	200.37	180.34	208.22
<b>Total equity</b>	<b>3,759.11</b>	<b>4,093.58</b>	<b>4,468.59</b>	<b>5,805.61</b>	<b>8,190.85</b>
<b>Total Liabilities &amp; Equity</b>	<b>7,581.67</b>	<b>9,860.86</b>	<b>10,450.95</b>	<b>10,974.12</b>	<b>15,456.52</b>



Albermarle Corporation Statement of Cash Flows - in millions of \$		12 Months Ended				
		FY2018	FY2019	FY2020	FY2021	FY2022
<b>Cash Flows from Operating Activities</b>						
Net income		649.9	604.4	446.6	199.9	2,815.1
<b>Adjustments to reconcile net income to cash flows from operating activities:</b>						
Depreciation and amortization		200.7	213.5	232.0	254.0	300.8
Gain on sale of business/interest in properties, net		-	-	(7.2)	(296.0)	8.4
Stock-based compensation and other		15.2	19.7	22.8	20.1	30.5
Equity in net income of unconsolidated investments (net of tax)		(89.3)	(129.6)	(127.5)	(95.8)	(772.3)
Dividends received from unconsolidated investments and nonmarketable securities		57.4	71.7	88.2	78.4	801.2
Pension and postretirement (benefit) expense		10.4	31.5	45.7	(74.0)	(52.3)
Pension and postretirement contributions		(15.2)	(16.5)	(16.4)	(30.3)	(16.1)
Unrealized gain on investments in marketable securities		(0.5)	(2.8)	(4.6)	(3.8)	3.3
Loss on early extinguishment of debt		-	4.8	-	29.0	19.2
Deferred income taxes		49.2	14.4	(2.0)	(38.5)	93.3
Other Cash Flows		(210.4)	(14.4)	-	-	-
<b>Change in Working Capital</b>						
(Increase) decrease in accounts receivable		(97.4)	(18.2)	100.1	(49.3)	(786.1)
(Increase) decrease in inventories		(124.1)	(46.3)	52.0	(127.4)	(1,609.6)
(Increase) decrease in other current assets		(2.2)	(32.9)	7.9	17.4	(104.7)
Increase (decrease) in accounts payable		73.7	(12.2)	(31.5)	143.9	1,287.1
(Decrease) increase in accrued expenses and income taxes payable		(2.0)	(4.6)	(215.0)	127.1	(201.4)
Non-cash transfer of 40% value of construction in progress of Kemerton plant to MRL		-	-	179.4	135.9	122.7
Other, net		(58.5)	(11.4)	37.0	(82.6)	(162.2)
<b>Net cash provided by operating activities</b>		<b>456.9</b>	<b>719.4</b>	<b>798.9</b>	<b>344.3</b>	<b>1,907.8</b>
<b>Cash Flows from Investing Activities</b>						
Acquisitions, net of cash acquired		(58.5)	(11.4)	37.0	(82.6)	(162.2)
Capital expenditures		(700.0)	(851.8)	(850.5)	(953.7)	(1,261.6)
Cash proceeds from divestitures, net		413.6	-	-	289.8	-
Proceeds from sale of property and equipment		-	10.4	-	-	-
Proceeds from sale of joint venture		-	-	11.0	-	-
Sales of marketable securities, net		(0.3)	0.4	0.9	3.8	1.9
Investments in equity and other corporate investments		(5.6)	(2.6)	(2.4)	(6.5)	(0.7)
<b>Net Cash used in Investing Activities</b>		<b>(303.7)</b>	<b>(1,663.6)</b>	<b>(863.6)</b>	<b>(666.6)</b>	<b>(1,422.6)</b>
<b>Cash Flow from Financing Activities</b>						
Proceeds from issuance of common stock		-	-	-	1,453.9	-
Proceeds from borrowings of other long-term debt		-	1,597.8	452.2	-	1,964.2
Repayments of long-term debt and credit agreements		-	(175.2)	(250.0)	(1,173.8)	(705.0)
Other (repayments) borrowings, net		(113.6)	(126.4)	137.6	61.0	(301.7)



**Cash Flows from Investing Activities**

Acquisitions, net of cash acquired	(11.4)	(820.0)	(22.6)	-	(162.2)
Capital expenditures	(700.0)	(851.8)	(850.5)	(953.7)	(1,261.6)
Cash proceeds from divestitures, net	413.6	-	-	289.8	-
Proceeds from sale of property and equipment	-	10.4	-	-	-
Proceeds from sale of joint venture	-	-	11.0	-	-
Sales of marketable securities, net	(0.3)	0.4	0.9	3.8	1.9
Investments in equity and other corporate investments	(5.6)	(2.6)	(2.4)	(6.5)	(0.7)
<b>Net Cash used in Investing Activities</b>	<b>(303.7)</b>	<b>(1,663.6)</b>	<b>(863.6)</b>	<b>(666.6)</b>	<b>(1,422.6)</b>

**Cash Flow from Financing Activities**

Proceeds from issuance of common stock	-	-	-	1,453.9	-
Proceeds from borrowings of other long-term debt	-	1,597.8	452.2	-	1,964.2
Repayments of long-term debt and credit agreements	-	(175.2)	(250.0)	(1,173.8)	(705.0)
Other (repayments) borrowings, net	(113.6)	(126.4)	137.6	61.0	(391.7)
Fees related to early extinguishment of debt	-	(4.4)	-	(24.9)	(9.8)
Dividends paid to shareholders	(144.6)	(152.2)	(161.8)	(177.9)	(184.4)
Dividends paid to noncontrolling interests	(14.8)	(83.2)	(32.1)	(96.1)	(44.2)
Repurchases of common stock	(500.0)	-	-	-	-
Proceeds from exercise of stock options	3.6	4.8	40.4	18.4	2.8
Withholding taxes paid on stock-based compensation award distributions	(17.2)	(11.0)	(5.1)	(8.1)	(13.3)
Debt Financing	-	7.5	-	-	-
Other	-	-	(4.0)	(2.2)	(6.7)
<b>Net cash provided by financing activities</b>	<b>(786.5)</b>	<b>1,057.7</b>	<b>177.3</b>	<b>50.2</b>	<b>611.9</b>

Net effect of foreign exchange on cash and cash equivalents

(37.9) (40.6) 21.0 (35.3) (37.2)

Beginning Cash Balance

1,137.3 555.3 613.1 746.7 439.3

Change in Cash and Cash Equivalents

(582.0) 57.8 133.6 (307.5) 1,059.9

**Ending Cash Balance****555.3 613.1 746.7 439.3 1,499.1**

Albemarle Corporation		12 months ended					FYE	FYE	FYE	FYE	FYE	FYE	FYE
Revenue Build - in millions of \$		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue		3375.0	3589.4	3128.9	3328.0	7320.1	11544.1	13838.6	14722.8	15681.8	16547.3	17306.7	18008.3
Y/Y Growth %			6%	-13%	6%	120%	58%	20%	6%	7%	6%	5%	4%
Gross Profit		1217.3	1257.8	994.9	998.0	3074.6	4982.6	6075.4	6570.9	7111.9	7622.1	8093.3	8546.1
Y/Y Growth %			3%	-21%	0%	208%	62%	22%	8%	8%	7%	6%	6%
<b>Segmented Revenue</b>													
Lithium		1228.2	1358.2	1144.8	1363.3	5008.9	9015.9	11179.8	11984.7	12813.1	13663.3	14297.9	14935.5
Average Lithium Price		79.5	49.5	46.5	277.5	490.3	343.2	240.2	216.2	194.6	175.1	157.6	141.9
Revenue per ton		15.4	27.4	24.6	4.9	10.2	26.3	46.5	55.4	65.8	78.0	90.7	105.3
Y/Y Growth %			11%	-16%	19%	267%	80%	24%	7%	7%	7%	5%	4%
Bromine		917.9	1004.2	965.0	1128.3	1411.7	1646.6	1756.2	1861.4	1961.7	2014.6	2096.0	2214.7
Y/Y Growth %			9%	-4%	17%	25%	17%	7%	6%	5%	3%	4%	6%
Catalysts		1101.6	1061.8	797.9	761.2	899.6	881.6	902.7	876.7	907.0	869.4	912.7	858.2
Y/Y Growth %			-4%	-25%	-5%	18%	-2%	2%	-3%	3%	-4%	5%	-6%
Other		127.2	165.2	221.3	75.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Y/Y Growth %			30%	34%	-66%	0%	0%	0%	0%	0%	0%	0%	0%





Albemarle Corporation		12 months ended					FYE	FYE	FYE	FYE	FYE	FYE	FYE
Cost Build - in millions of \$		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Cost of Goods Sold		2157.7	2331.6	2134.1	2330.0	4245.5	6561.434	7763.298	8151.841	8569.888	8925.218	9213.363	9462.2
Y/Y Growth %			8%	-8%	9%	82%	55%	18%	5%	5%	4%	3%	3%
Selling, general and administrative expenses		446.1	533.4	429.8	441.5	524.1	953.8	1131.9	1192.2	1257.2	1313.3	1359.8	1400.8
Y/Y Growth %			20%	-19%	3%	19%	82%	19%	5%	5%	4%	4%	3%
Research and development expenses		70.1	58.3	59.2	54.0	72.0	189.3	214.9	226.5	230.1	237.7	264.3	270.9
Y/Y Growth %			-17%	2%	-9%	33%	163%	14%	5%	2%	3%	11%	3%
Adjusted Operating Expenses		516.1	591.7	489.0	495.5	596.1	1143.1	1346.8	1418.7	1487.3	1550.9	1624.1	1671.7
Y/Y Growth %			15%	-17%	1%	20%	92%	18%	5%	5%	4%	5%	3%
Gross Margin		64%	65%	68%	70%	58%	43.2%	43.9%	44.6%	45.4%	46.1%	46.8%	47.5%
Y/Y Growth %			2%	5%	3%	-17%	-26%	2%	2%	2%	2%	2%	1%
COGS/Revenue		63.9%	65.0%	68.2%	70.0%	58.0%	56.8%	56.1%	55.4%	54.6%	53.9%	53.2%	52.5%
SG&A/Revenue		13.2%	14.9%	13.7%	13.3%	7.2%	8.3%	8.2%	8.1%	8.0%	7.9%	7.9%	7.8%
R&D/Revenue		2.1%	1.6%	1.9%	1.6%	1.0%	1.6%	1.6%	1.5%	1.5%	1.4%	1.5%	1.5%



Albemarle Corporation Production Projections - tonnes	2020	2021	2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028	FYE 2029
<b>Lithium</b>										
Australia										
Greenbushes	8,000	13,000	19,000	19,000	19,000	22,800	25,080	25,080	25,080	25,080
Wodgina			3,000	3,000	3,000	3,000	4,000	4,000	4,000	4,000
Chile										
Salar de Atacama	8,000	8,000	10,000	13,500	13,500	16,200	17,820	19,602	21,562	23,718
United States										
Silver Peak	<u>2,000</u>	<u>2,000</u>	<u>2,000</u>	<u>2,000</u>	<u>2,000</u>	<u>4,000</u>	<u>4,000</u>	<u>4,000</u>	<u>4,000</u>	<u>4,000</u>
<b>Total Lithium</b>	18,000	23,000	34,000	37,500	37,500	46,000	50,900	52,682	54,642	56,798
<b>Bromine</b>										
Jordan										
Safi	56,000	57,000	60,000	61,000	62,500	63,500	65,000	66,000	68,000	68,500
United States										
Magnolia, AR	<u>74,000</u>	<u>71,000</u>	<u>73,000</u>	<u>74,000</u>	<u>75,500</u>	<u>76,500</u>	<u>78,000</u>	<u>79,000</u>	<u>81,000</u>	<u>81,500</u>
<b>Total Bromine</b>	130,000	128,000	133,000	135,000	138,000	140,000	143,000	145,000	149,000	150,000



## Appendix G: Net Working Capital &amp; Capital Expenditure Projections

Albemarle Corporation		12 Months Ended											
Networking Capital Projections - in millions of \$		FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029
Revenue		3,375.0	3,589.4	3,128.9	3,328.0	7,320.1	11,544.1	13,838.6	14,722.8	15,681.8	16,547.3	17,306.7	18,008.3
<b>Current Assets</b>													
A/R		657.8	680.2	592.8	623.1	1,376.8	2,191.5	2,613.0	2,778.0	2,956.5	3,124.0	3,269.8	3,399.1
A/R days		70.2	68.2	68.2	67.4	67.7	68.3	68.0	67.9	67.9	68.0	68.0	68.0
Cost of Goods Sold		2,157.7	2,331.6	2,134.1	2,330.0	4,245.5	6,561.4	7,763.3	8,151.8	8,569.9	8,925.2	9,213.4	9,462.2
Inventories		700.5	769.0	750.2	798.6	2,076.0	2,411.7	2,920.0	3,141.7	3,360.8	3,588.4	3,544.0	3,672.1
Inventory Days		116.9	118.7	126.6	123.4	176.0	132.3	135.4	138.7	141.2	144.7	138.5	139.7
<b>Total Current Assets</b>		<b>1,358.3</b>	<b>1,449.2</b>	<b>1,343.0</b>	<b>1,421.7</b>	<b>3,452.8</b>	<b>4,603.2</b>	<b>5,533.1</b>	<b>5,919.7</b>	<b>6,317.4</b>	<b>6,712.4</b>	<b>6,813.8</b>	<b>7,071.2</b>
<b>Current Liabilities</b>													
Accounts Payable		522.5	574.1	483.2	648.0	2,052.0	1,937.3	2,490.3	2,807.2	3,093.2	2,948.3	3,124.3	3,252.0
A/P Days		87.2	88.6	81.5	100.1	174.0	106.3	115.5	124.0	129.9	118.9	122.1	123.7
SG&A		446.1	533.4	429.8	441.5	524.1	953.8	1,131.9	1,192.2	1,257.2	1,313.3	1,359.8	1,400.8
<b>Total Current Liabilities</b>		<b>968.6</b>	<b>1,107.5</b>	<b>913.0</b>	<b>1,089.5</b>	<b>2,576.1</b>	<b>2,891.1</b>	<b>3,622.2</b>	<b>3,999.4</b>	<b>4,350.3</b>	<b>4,261.6</b>	<b>4,484.1</b>	<b>4,652.8</b>
Net Working Capital		389.7	341.7	430.0	332.3	876.7	1,712.1	1,910.8	1,920.3	1,967.0	2,450.8	2,329.7	2,418.4
Change in Net Working Capital			(48.0)	88.3	(97.7)	544.4	835.4	198.7	9.4	46.8	483.8	(121.1)	88.7
<b>Capital Expenditures Projections - in millions of \$</b>		<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>	<b>FY2021</b>	<b>FY2022</b>	<b>FY2023</b>	<b>FY2024</b>	<b>FY2025</b>	<b>FY2026</b>	<b>FY2027</b>	<b>FY2028</b>	<b>FY2029</b>
Capital Expenditures		700.0	851.8	850.5	953.7	1,261.6	1,847.1	2,767.7	2,355.6	2,509.1	2,647.6	2,769.1	2,881.3
as a % of revenue		21%	24%	27%	29%	17%	16%	20%	16%	16%	16%	16%	16%



Albemarle Corporation WACC	
Risk Free Rate	3.63%
Market Return	10.70%
Beta	1.07
Equity Risk Premium	7.07%
Cost of Equity	11.17%
Credit Spread	2.00%
Implied Tax Rate	18%
Weight of Debt	10.80%
Cost of Debt	5.63%
<b>WACC</b>	<b>10.95%</b>
MV Equity	26545.83
<i>Share Price</i>	225.36
<i>Shares Outstanding</i>	117.793
BV Long Term Debt	3,214.97



Albemarle Corporation	12 months ended				FYE	FYE	FYE	FYE	FYE	FYE	FYE
Discounted Cash Flow - in millions of \$	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue	3,589.4	3,128.9	3,328.0	7,320.1	11,544.1	13,838.6	14,722.8	15,681.8	16,547.3	17,306.7	18,008.3
Y/Y Growth %	6%	-13%	6%	120%	58%	20%	6%	7%	6%	5%	4%
EBIT	666.1	505.8	798.4	2,470.1	3,839.6	4,728.6	5,152.3	5,624.6	6,071.1	6,469.2	6,874.5
EBIT Margin %	19%	16%	24%	34%	33%	34%	35%	36%	37%	37%	38%
NOPAT	561.8	432.1	622.5	2,073.6	3,225.2	3,972.0	4,327.9	4,724.7	5,099.8	5,434.2	5,774.5
Tax Rate %	16%	15%	22%	16%	16%	16%	16%	16%	16%	16%	16%
plus: D&A	213.5	232.0	254.0	300.8	577.2	691.9	736.1	784.1	827.4	865.3	900.4
less: CapEx	851.8	850.5	953.7	1,261.6	1,847.1	2,767.7	2,355.6	2,509.1	2,647.6	2,769.1	2,881.3
less: change in NWC	(48.0)	88.3	(97.7)	544.4	835.4	198.7	9.4	46.8	483.8	(121.1)	88.7
<b>Free Cash Flow to Firm</b>	<b>(28)</b>	<b>(275)</b>	<b>21</b>	<b>568</b>	<b>1,120</b>	<b>1,697</b>	<b>2,699</b>	<b>2,953</b>	<b>2,796</b>	<b>3,651</b>	<b>3,705</b>
Discount Factor					1	2	3	4	5	6	7
Midpoints					0.5	1.5	2.5	3.5	4.5	5.5	6.5
<b>PV of Cash Flows</b>					<b>1,063</b>	<b>1,452</b>	<b>2,081</b>	<b>2,052</b>	<b>1,751</b>	<b>2,061</b>	<b>1,885</b>

WACC	10.95%
Terminal Growth Rate	1.0%
EV/EBITDA	6.20x

Gordon Growth	
Terminal Value	37,592
PV of Terminal Value	18,159
<b>Enterprise Value</b>	<b>30,506</b>
Less: Debt	3,217
Plus: Cash	1,499
<b>Equity Value</b>	<b>28,788</b>
Diluted Shares Outstanding	117
<b>Share Price</b>	<b>\$ 245.63</b>

Multiples	
Terminal Value	48,204
PV of Terminal Value	23,285
<b>Enterprise Value</b>	<b>35,632</b>
Less: Debt	3,217
Plus: Cash	1,499
<b>Equity Value</b>	<b>33,914</b>
Diluted Shares Outstanding	117
<b>Share Price</b>	<b>\$ 289.37</b>



Albemarle Corporation  
Comparable Companies Analysis - in millions of \$

Company	Ticker	Price	Shares Outstanding	Market Cap	Cash	Debt	Minority Interest	EV	EBIT	EPS	EV/Revenue	EV/EBIT	EV/EBITDA	P/E	EV/2025 Revenue	EV/2025 EBIT	EV/2025 EBITDA
Albemarle Corporation	ALB	212.74	117.2	24933.13	1,499.14	3,214.97	208.22	26,440.74	2470.061	22.16	2.40x	10.70x	5.90x	7.40x	2.20x	6.80x	5.40x
Lithium Americas Corporation	LAC	20.35	151.06	3074.07	186.6	235.1	0	3,122.57	-144.9	-1.19	6.90x	-21.55x	21.10x	28.40x	4.10x	4.60x	6.60x
Sociedad Quimica y Minera de Chile	SQM	77.48	142.82	11065.69	2660	2420	35.37	10,790.32	5530	13.68	1.80x	1.95x	3.40x	5.90x	2.00x	4.40x	3.90x
Sigma Lithium Corp	SGML	36.41	107.21	3903.52	61.8	0.15234	0	3,841.87	-49.85	-0.47	7.10x	-77.07x	8.60x	9.30x	3.00x	8.70x	3.90x
Rio Tinto PLC	RIO	66.45	1250.83	83117.65	6770	1106	2100	75,353.65	1993	5.92	2.20x	37.81x	4.80x	8.90x	2.30x	6.70x	4.90x
Minimum											1.80x	-77.07x	3.40x	5.90x	2.00x	4.40x	3.90x
Quartile 1											2.20x	-21.55x	4.80x	7.40x	2.20x	4.60x	3.90x
Median											2.40x	1.95x	5.90x	8.90x	2.30x	6.70x	4.90x
Quartile 3											6.90x	10.70x	8.60x	9.30x	3.00x	6.80x	5.40x
Maximum											7.10x	37.81x	21.10x	28.40x	4.10x	8.70x	6.60x
Average											4.08x	-9.63x	8.76x	11.98x	2.72x	6.24x	4.94x

Comps Output	EV	Debt	Cash	Minority	Equity	Shares	Per Share
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EBIT	5152.27						
<b>FWD EBIT</b>							
Min	4.40	22,670	3,215	1,499	208	20,746	117.2 177.01
Q1	4.60	23,700	3,215	1,499	208	21,776	117.2 185.81
Med	6.70	34,520	3,215	1,499	208	32,596	117.2 278.12
Q3	6.80	35,035	3,215	1,499	208	33,111	117.2 282.52
Max	8.70	44,825	3,215	1,499	208	42,901	117.2 366.05

EBITDA	5888.41						
<b>FWD EBITDA</b>							
Min	3.90	22,965	3,215	1,499	208	21,041	117.2 179.53
Q1	3.90	22,965	3,215	1,499	208	21,041	117.2 179.53
Med	4.90	28,853	3,215	1,499	208	26,929	117.2 229.77
Q3	5.40	31,797	3,215	1,499	208	29,873	117.2 254.89
Max	6.60	38,863	3,215	1,499	208	36,939	117.2 315.18

Revenue	16547.3						
<b>FWD Revenue</b>							
Min	2.00	33,095	3,215	1,499	208	31,171	117.2 265.96
Q1	2.20	36,404	3,215	1,499	208	34,480	117.2 294.20
Med	2.30	38,059	3,215	1,499	208	36,135	117.2 308.32
Q3	3.00	49,642	3,215	1,499	208	47,718	117.2 407.15
Max	4.10	67,844	3,215	1,499	208	65,920	117.2 562.46

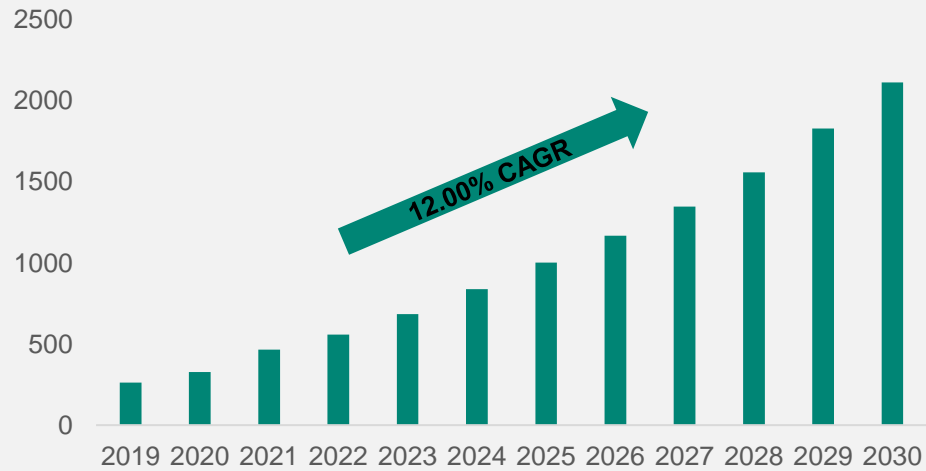
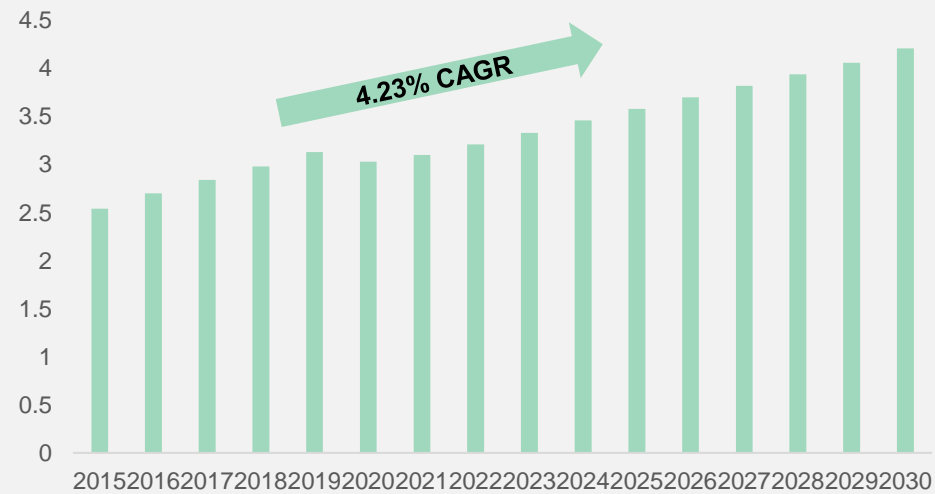
Comps Output	EPS	Per Share
--------------	-----	-----------

P/E	
Min	5.90x
Q1	7.40x
Med	8.90x
Q3	9.30x
Max	28.40x

## Comps Share Price

\$ 293.46



**Exhibit 11: Lithium Consumption by Volume****Exhibit 12: Bromine Market by Value**

## Bromine Uses

Bromine's stability comes from its use as a critical component in a variety of different products, from pharmaceuticals, to agriculture to oil production.

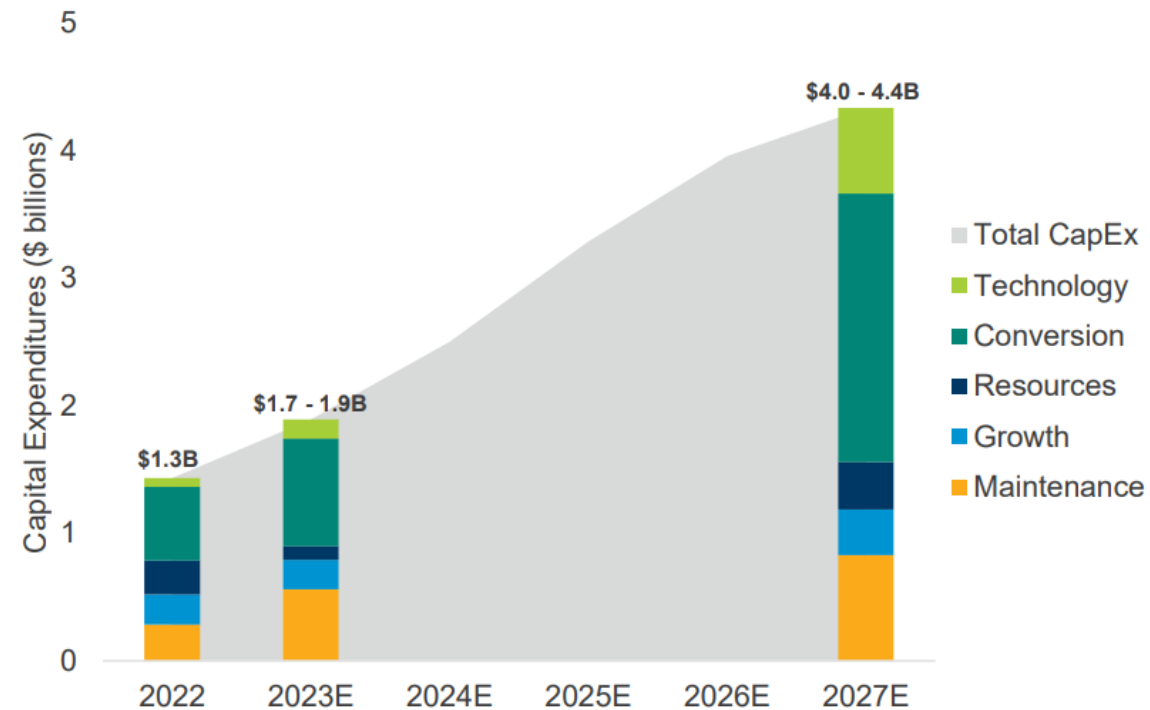
The global bromine market is expected to grow at a 4.23% CAGR into 2030



## Expenditure Results

**From 2023 to 2027, capital expenditures are expected to increase ~\$2.4B, driven by:**

- Conversion: ~50% geographic shift from primarily China to US, EU, and Australia; capital intensity increase partially offset by manufacturing tax credits
- Technology: ~20% capital investments to build advanced energy storage capability
- Resources: ~10% additional resource development
- ~20% from Specialties growth and debottlenecking, general inflation ~ 5-6% of capital towards sustainability – including maintenance of existing facilities and growth capital with additional sustainability benefits





## U.S. and Global Lithium Mines and Types

