



Albemarle Corporation (NYSE: ALB)

Sector: Materials

Industry: Specialty Chemicals

Emma Roby, Gretchen Halloran, Natalie Khoury

Position: Long

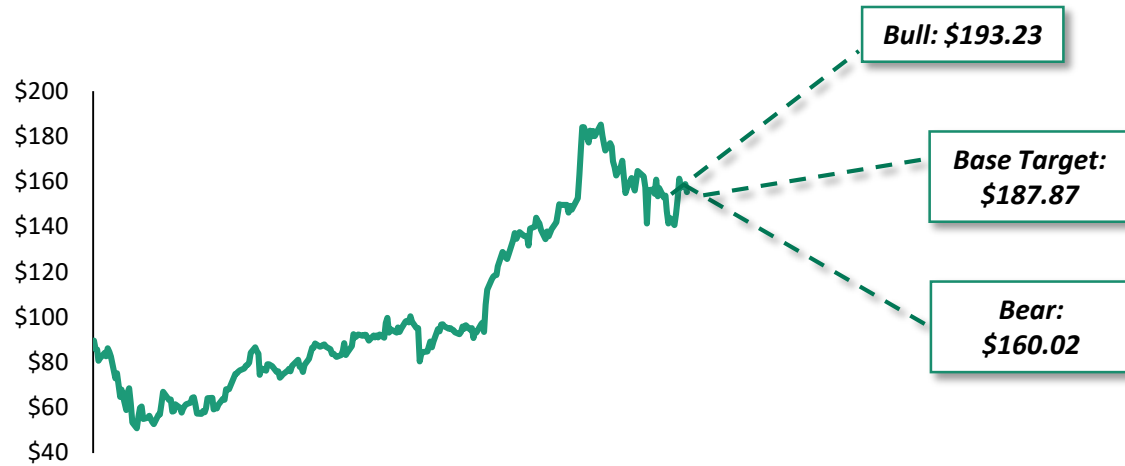
March 27th, 2020

Investment Thesis

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Albemarle shares present an opportunity for *10%* appreciation driven by the company's *lithium production capabilities, global presence, and shareholder commitment, leading to revenue growth, decreased costs, and improved margins.*

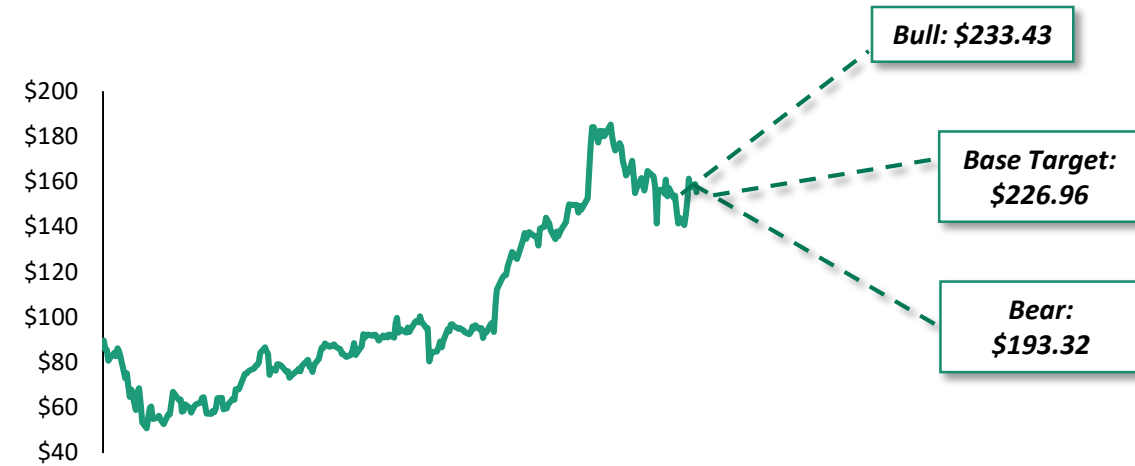
Price Target: 1 Year



Recommendation

Our team recommends a *buy* for Albemarle. We are bullish on the stock and see significant upside in the long term.

Price Target: 3 Year



Company Overview

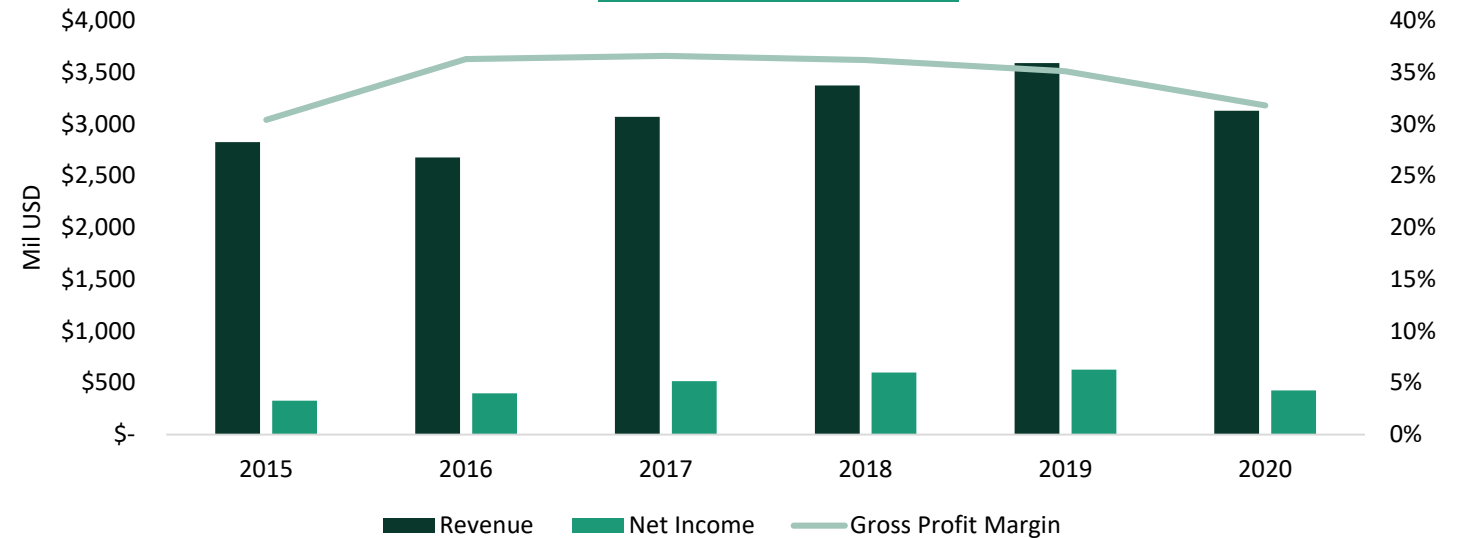
- Globally operating specialty chemicals company
- One of the world's largest lithium producers
- Manufactures, a diverse range of chemical products to a wide range of end markets
- Focused on performance-based solutions and innovative ideas to promote safety and sustainability
- Dividend has been increasing consistently
- Diverse management team broken down into the company's three main segments
- New CEO initially joined ALB through an acquisition and has seen the company through many different perspectives

Market Data Snapshot	
Share Price (USD)	\$155.53
Market Cap (Bil USD)	\$18.53
52 Week High (USD)	\$188.35
52 Week Low (USD)	\$48.89

Value Snapshot	
P/E (22.16x)	36.9x
EV/EBITDA (19.16x)	25.1x
Beta (1.19)	1.22
Dividend Yield (1.30%)	0.99%

Capital Structure Snapshot	
Debt (Bil USD)	\$3,842
Debt to EBITDA (6.1x)	5.44x
Debt to Cap (56.43x)	48x
Current Ratio (1.61)	1.22x

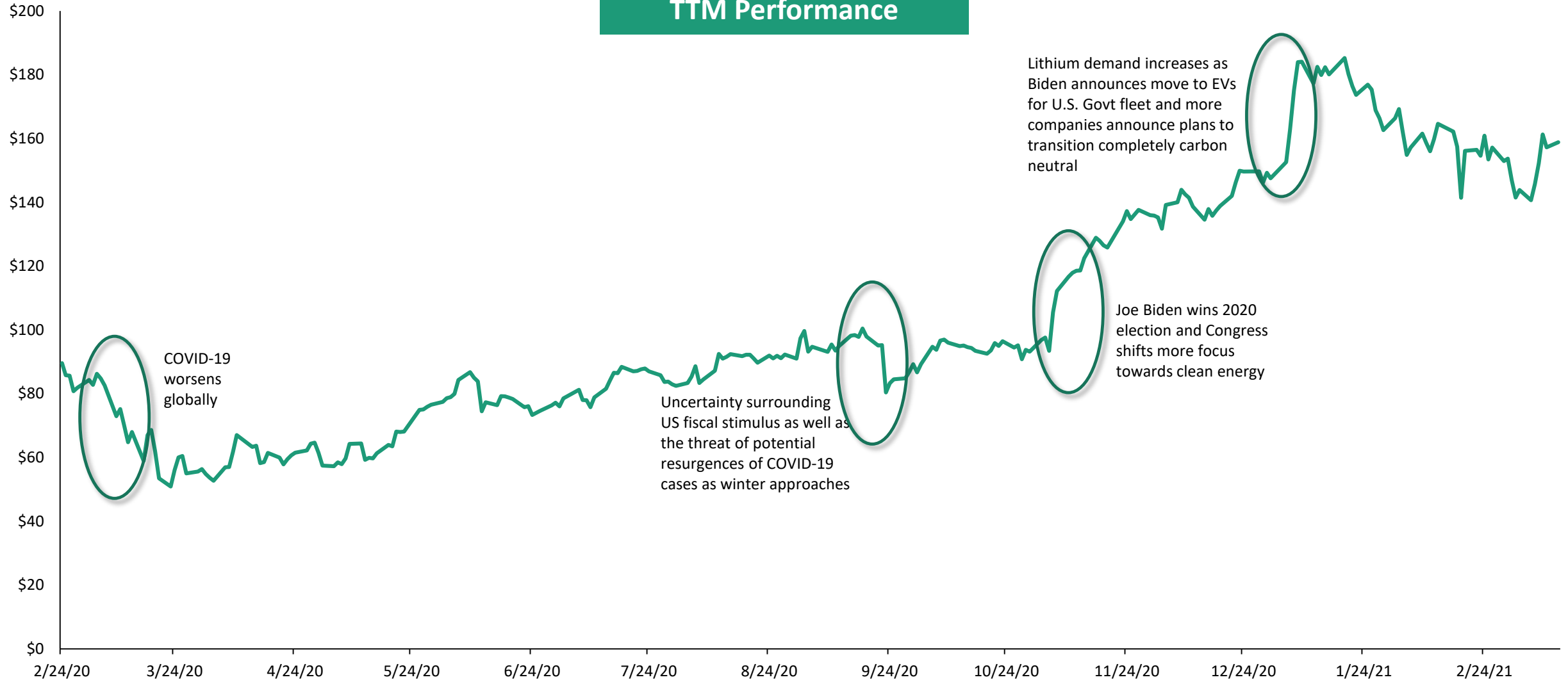
Financial Performance

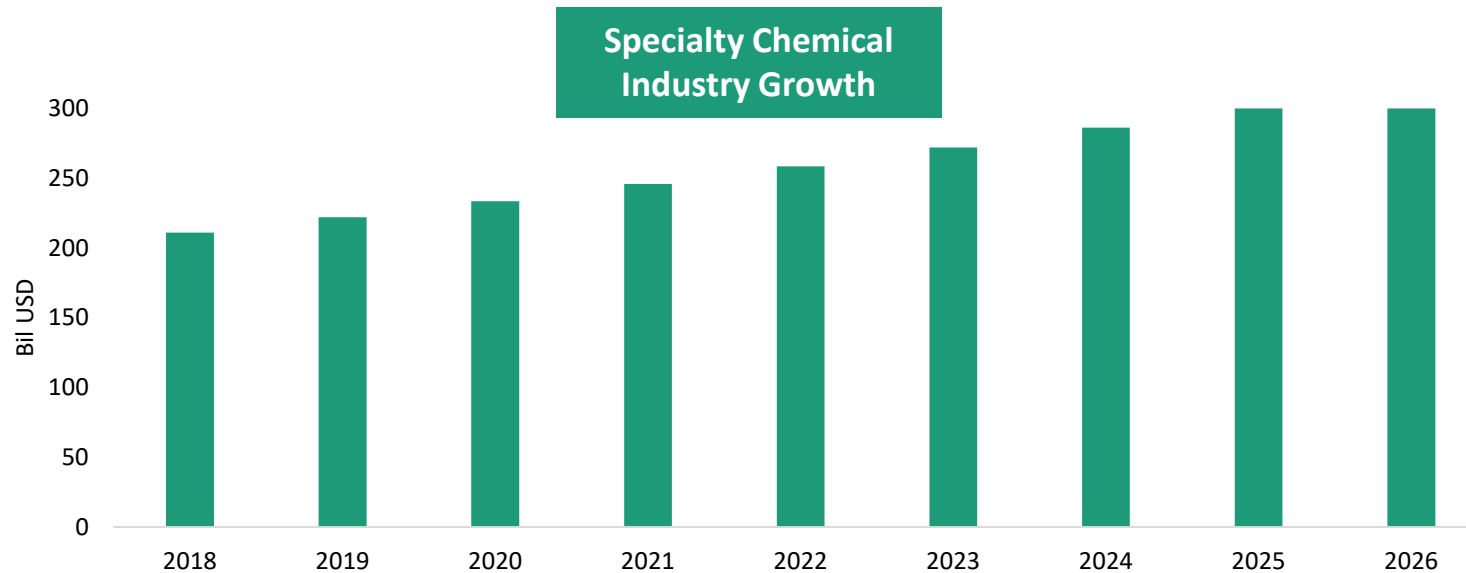


Stock Performance



TTM Performance





Lithium

- Strong increase in lithium ion battery demand due to the increase in products such as Electric Vehicles
- High CAGR for the next 5-10 years

Bromine

- Bromine market expected to grow from \$3.3B in 2019 to \$4.4B in 2024
- Demand for bromine in flame retardants, mercury emission control, water treatment, and oil and gas drilling

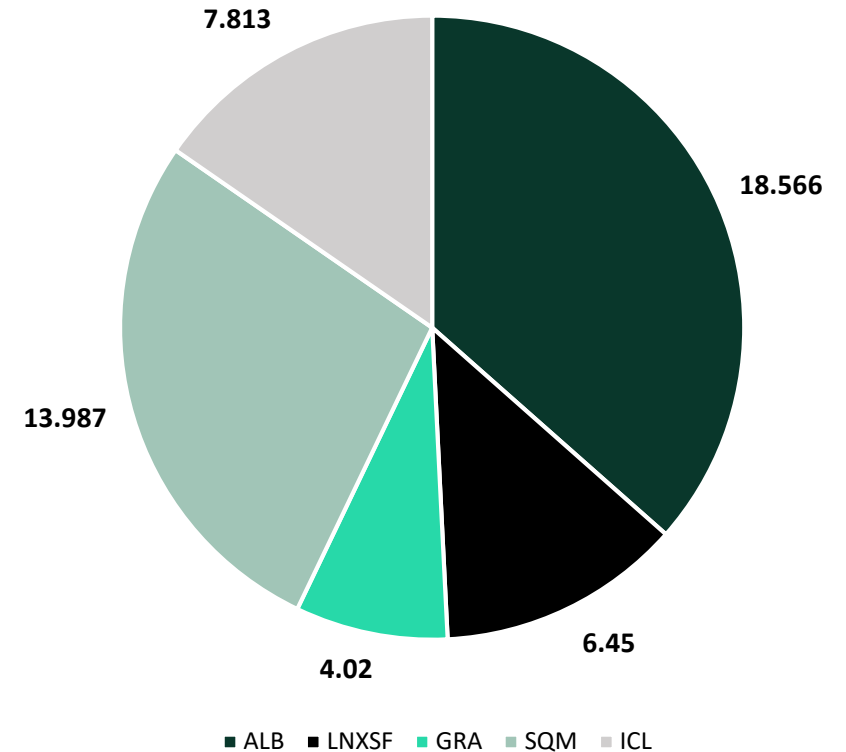
Catalysts

- Global catalyst market in 2019 was worth \$33.9B
- Anticipated to grow at a 4.5% CAGR over the next 5 years
- Rising product demand due to emission regulations

Company Defensibility

- High barriers to entry and initial capital expenditure costs dissuade new companies from entering the space ALB operates in
- Lithium is one of the most crucial ingredients in EV batteries
 - No substitutions for the product are yet on the horizon
- ALB is one of the largest and most stabilized company in the industry
- As a manufacturer of the products it sells, ALB has tight control over its prices and doesn't have to take into consideration supplier bargaining power

ALB Market Cap Compared to Competitors (Bil USD)



Lithium Production

- Demand of lithium for EV's is powerful catalyst for long term growth
- Increased nameplate conversion capacity and lower production costs

Strong Global Presence

- Long-term contracts help shield earnings and promote stability
- Successful business ventures have led to strategic operations in key regions

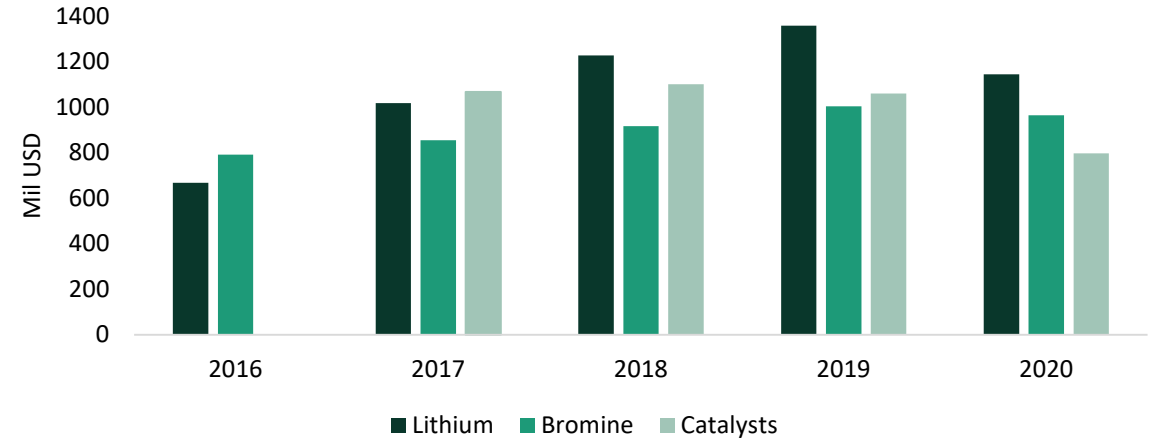
Commitment to Shareholders

- Prioritizing Capital Allocation to Support Growth Strategy
 - Consistently increasing dividend
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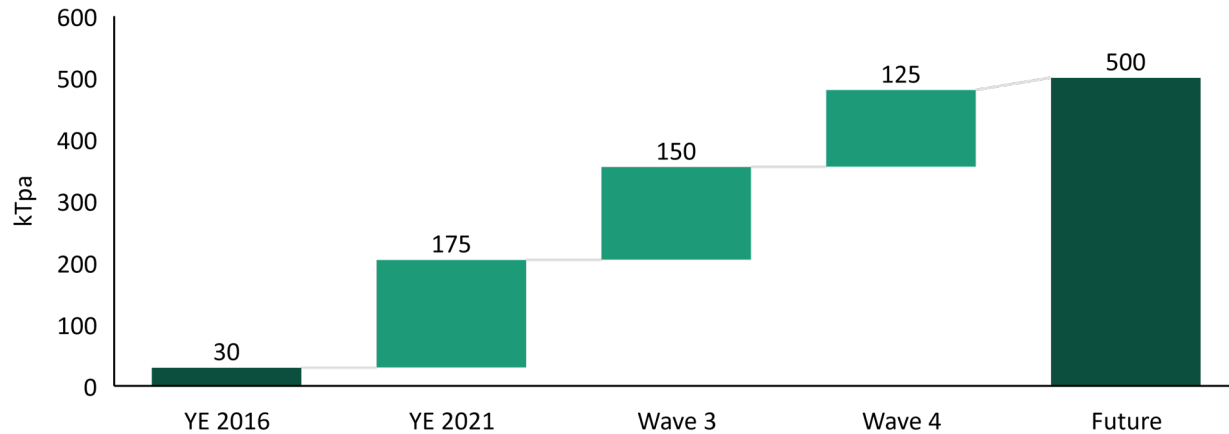
Lithium Growth Prospect

- Global demand for lithium is expected to rise due primarily to increase in production and demand of lithium ion batteries for electric vehicles
- New capital allocation plan enables Albemarle to enhance and increase production of lithium while decreasing costs
- Regulatory environmental shifts and recent OEM announcements are the main forces behind this projected growth

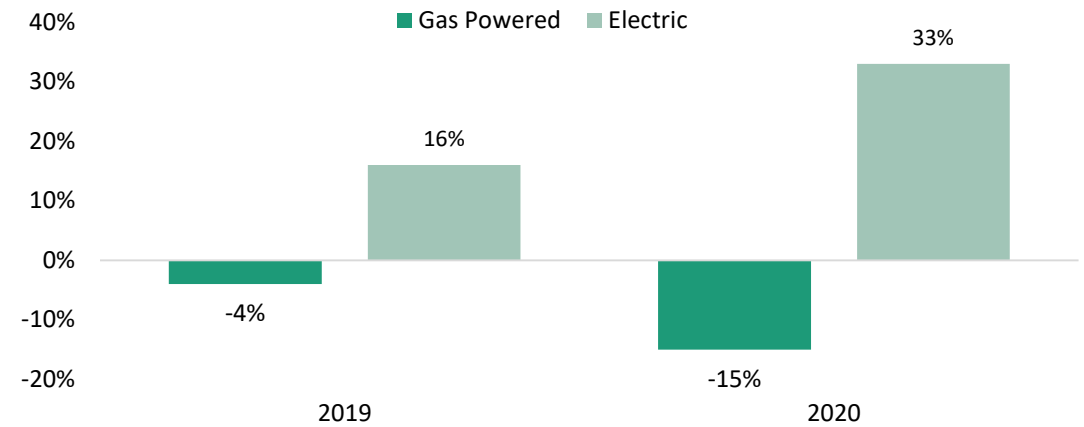
Increase of Lithium Contribution to Revenue



Estimated Lithium Conversion Capacity



Vehicle Sales Growth

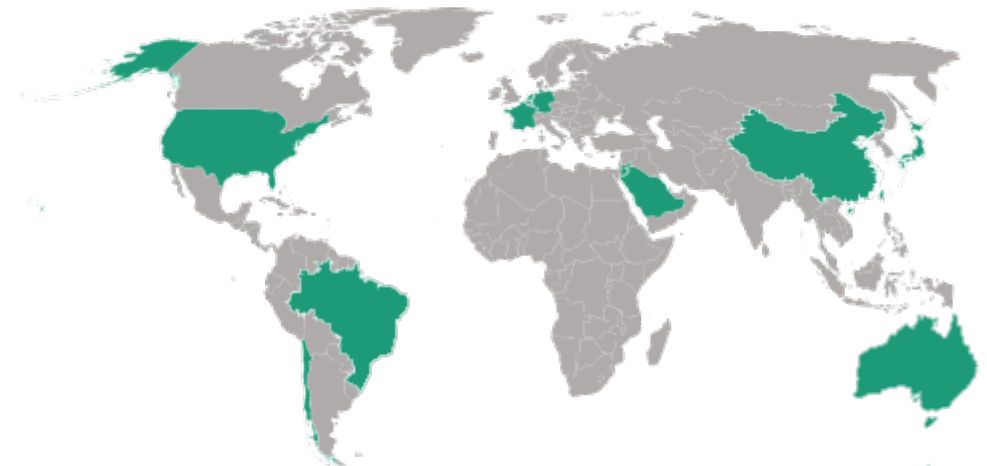


- ALB's long term price contracts allow the company to lock in prices early
 - Promotes stable deals and protects from the swings of the economy
- Has executed 9 M&A activities
 - Key deals include its acquisition of Rockwood Holdings and joint ventures with companies such as Mineral Resources Limited and JBC
- Owns or leases 30 properties across the globe
- Key lithium operations in Australia, Chile, and Nevada
- Bromine sourced from two key sites in Arkansas and the Dead Sea
- Catalyst supply from multiple locations around the world

Target Industries for M&A Activity



Global Presence



Shareholder Commitment

Invest to Grow Profitability

- Grow lithium capacity
- Focus on operational excellence

Limited Share Repurchases

- Invest in growth for the short term rather than share buybacks



Maintain Financial Flexibility

- Committed to IG rating
- Long Term Net Debt target of 2.0x- 2.5x

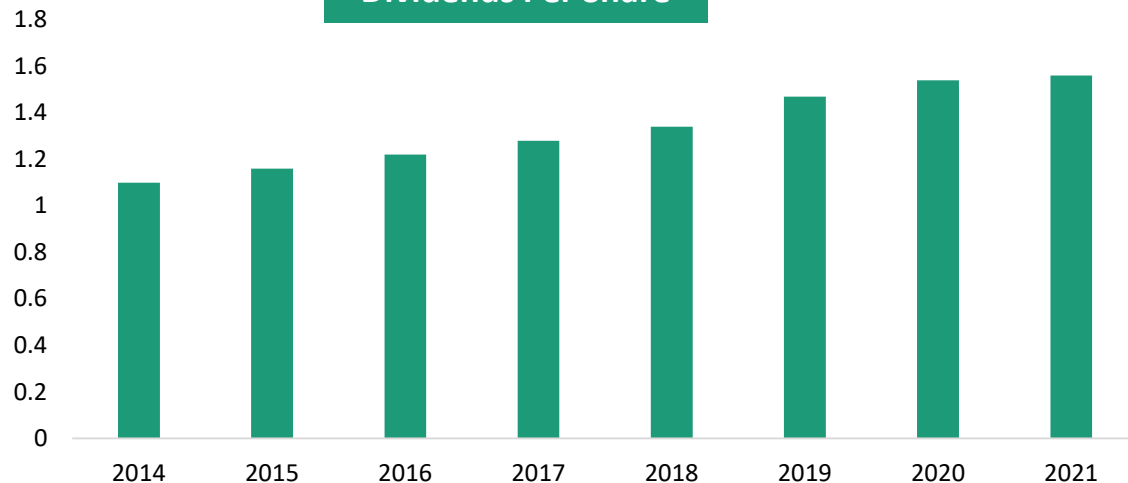
Growth Via M&A

- Improved capital efficiency
- Low-cost resources and operations

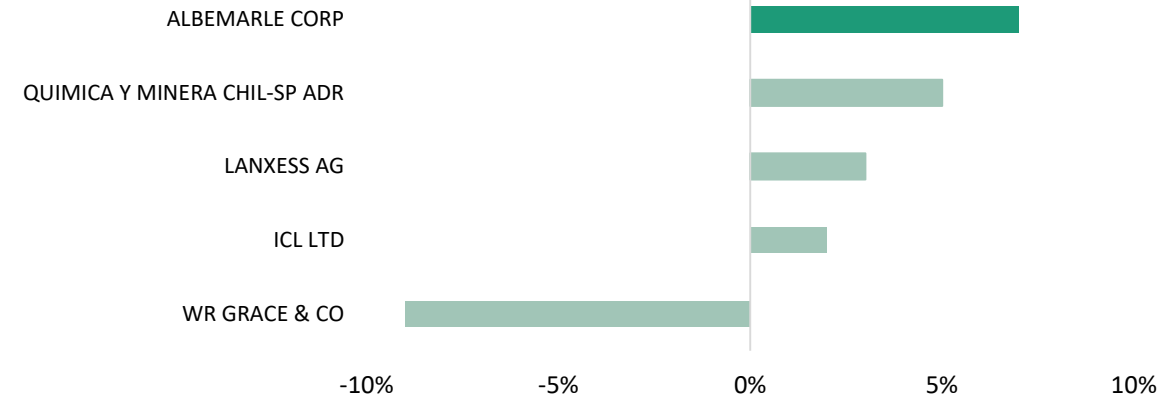
Grow Dividend

- 26 consecutive years of growth

Dividends Per Share



Return on Invested Capital



Valuation



Market Value vs Intrinsic Value

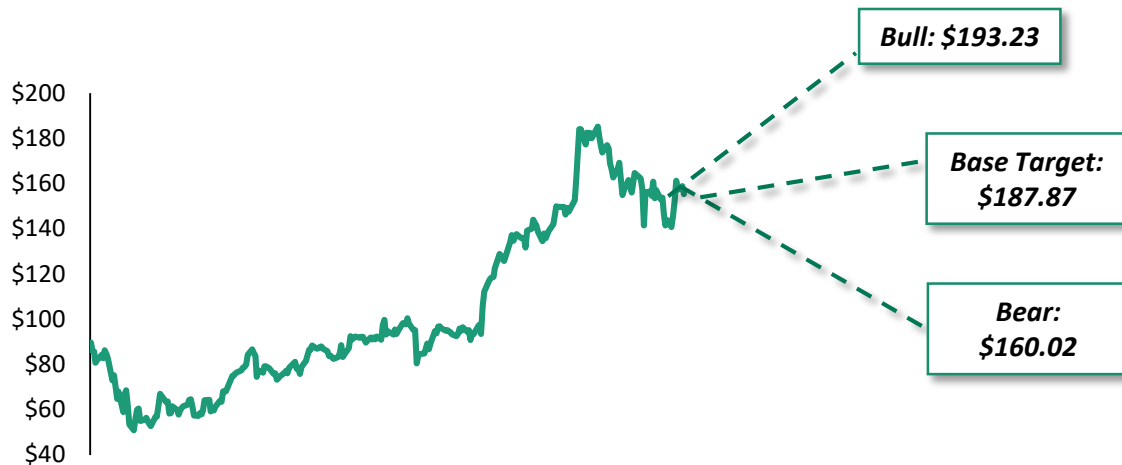


Conclusion

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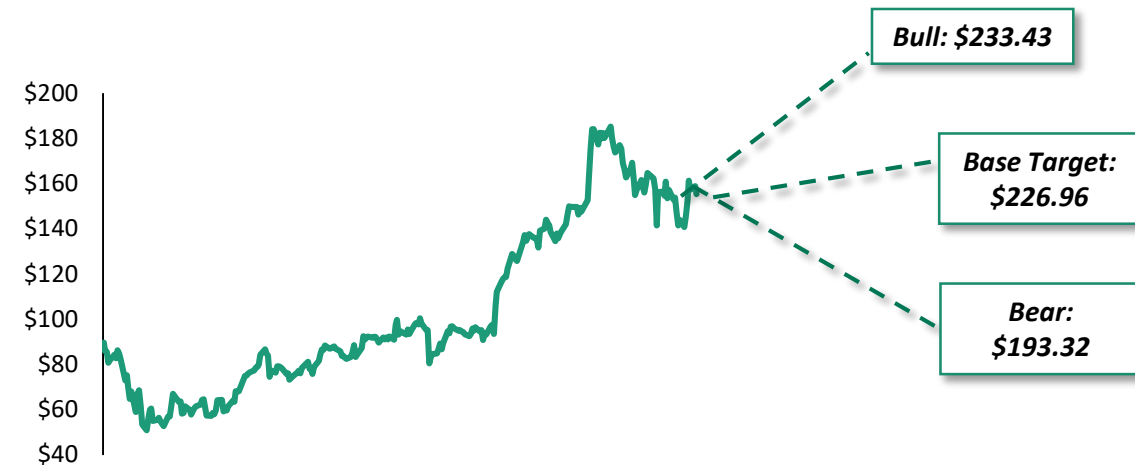
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I. Lithium Segment

I. Investing to Align Capacity with Demand

II. Bromine Specialties Segment

III. Refining Catalysts Segment

Industry Overview

- The Lithium Sub-Industry is dominated by four companies that account for more than 90% of the market
- Electric Vehicles and Energy Storage capabilities to drive the growth of the market
- Asia-Pacific region is the largest consumer of lithium globally
 - Japan, China, and South Korea occupy 96% market share in terms of battery capacity shipments

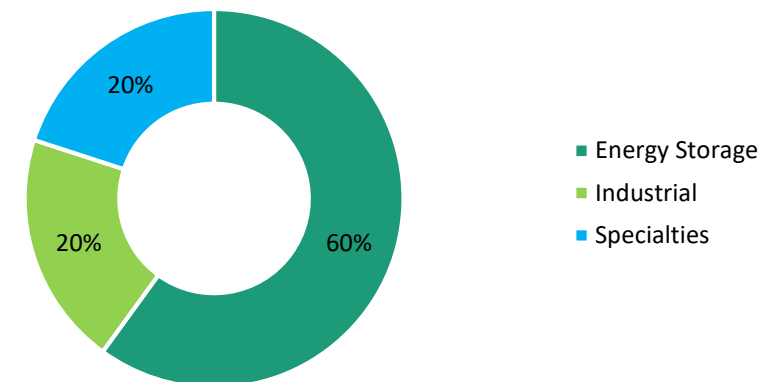
Major Competitors

Company	Market Cap	Description
SQM	\$5.576B	Produces and markets specialty fertilizers for the agricultural industry and produces industrial chemicals, iodine and lithium..
Ganfeng Lithium	\$7.068B	Researches and produces lithium products, and sells lithium metal, lithium aluminum hydride, lithium fluoride, lithium chloride, and other chemical products of lithium.
Tianqi Lithium	\$27.622B	Develops, manufactures, and sells lithium products, and produces lithium carbonate, lithium chloride, lithium hydroxide, and other related products.

Albemarle Lithium Business

- Develops lithium-based materials for a wide range of industries and end markets
- Leading market positions in Hydroxide, Carbonate, Lithium Metal, and Organometallics
- Vertically integrated from natural resource to specialty performance products
- Applications broken down into three groups:
 - Energy Storage – EVs, Grid, Phone, Wearables
 - Industrial – Glass, Grease, Aerospace
 - Specialties – Synthetic Rubber, Pharma, Agricultural

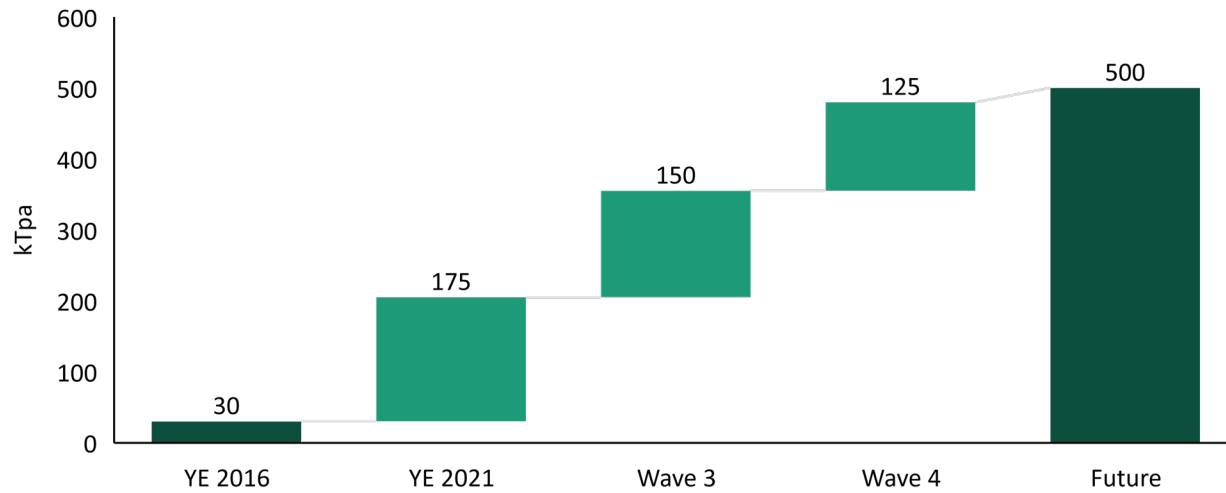
Revenue Mix



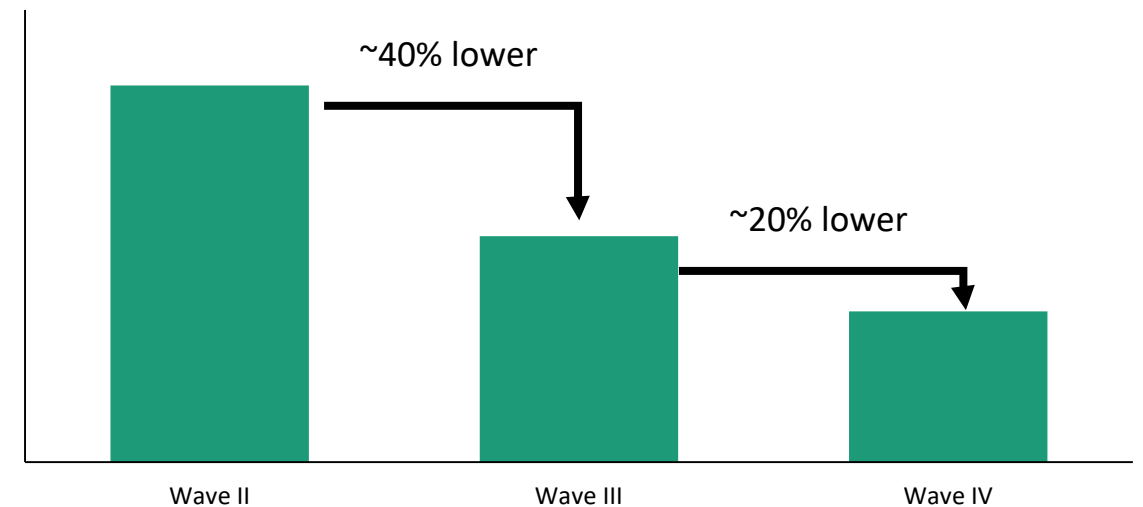
Investing to Align Capacity with Demand

- Albemarle has tripled the nameplate conversion capacity to 85,000 tons per year in 2020 since 2015
- Wave II is anticipated to be completed in 2021
 - La Negra III and IV: adds lithium carbonate capacity
 - Kemerton I and II: new lithium hydroxide conversion plants in Western Australia
- Wave III: new conversion plant in China (MARBL), Kemerton III and IV brownfield project in Australia, expansions at our Silver Peak asset, and another plant in China on a new mega site
- Wave IV: further expansions in Australia, China, and Southeast Asia and includes options to support customers looking to localize supply

Estimated Lithium Nameplate Conversion Capacity



Lithium Capital Intensity Range (Cost/kg)



Bromine Specialties Segment

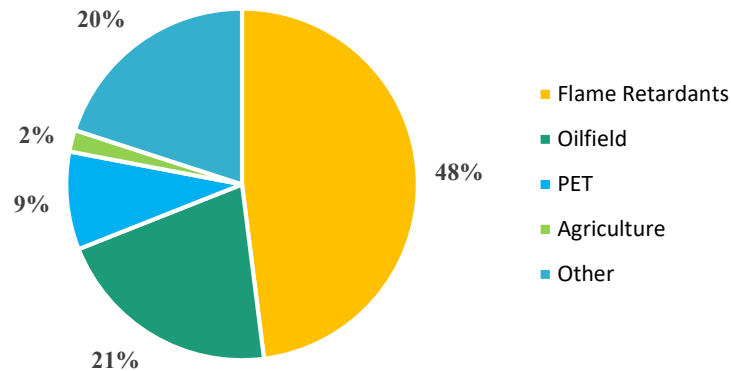
Industry Overview

- The Global Bromine Sub-Industry is highly consolidated with the top three players owning more than 80% of the market
 - Albemarle Corp, Israel Chemicals Ltd., and Lanxess AG
- The four largest bromine producing countries are Israel, Jordan, the United States, and China
- Brominated Flame Retardants drive the market, specifically within electronics and electrical equipment
- Provides Completion Fluids to the Oil Industry for transitioning between reservoir drilling and the completion phase

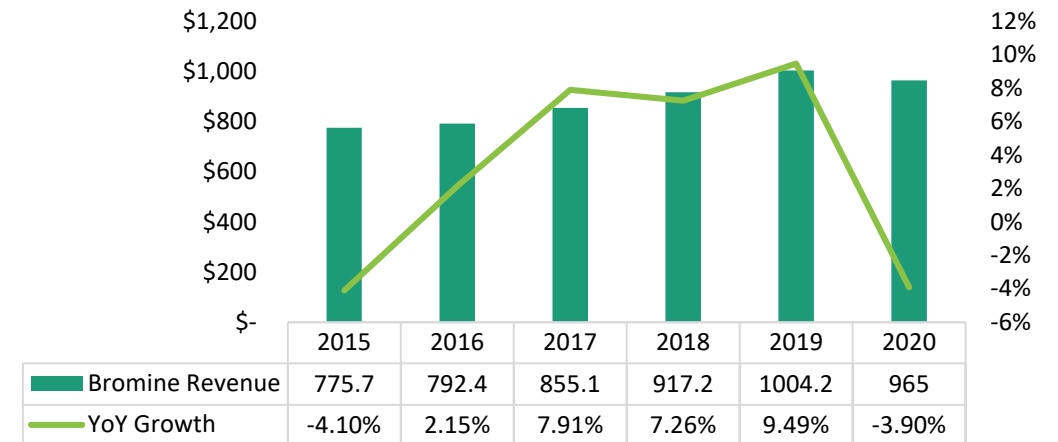
Albemarle Bromine Business

- Provides bromine and bromine-based products used in flame retardants, clear completion fluids, textiles and packaging, as well as other specialty chemical applications
 - Greater than 50% of revenues come from fire prevention products
- Bromine is sourced from two locations: Arkansas and the Dead Sea
 - Has access the highest quality Bromine resources in the world
 - The Dead Sea and Arkansas have the lowest production cost per kT of Bromine
- Low-cost position supporting their ability to maintain industry leading margins
- Stable and strong cash flow to fund higher growth potential markets

Global Bromine by Application



Revenue & EBITDA



Refining Catalysts Segment

Industry Overview

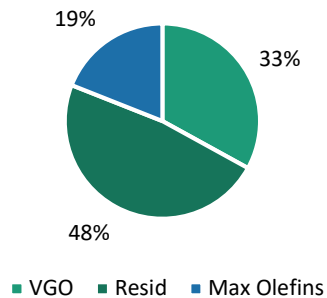
- The Refining Catalysts Sub-Industry is mainly consolidated between four companies who make up approximately 80% of the market
 - Albemarle Corp, W.R. Grace & Co, BASF SE, and China Petroleum & Chemical Corp
- Fluid catalytic cracking (FCC) process plays a crucial role in refineries while producing lighter products from crude oil
 - Around 35% of the total gasoline and 50% of total transportation fuel is produced through FCC processing
- The Asia-Pacific region accounts for the largest share in the market for refining catalysts with almost 50% of the global share
 - China makes up 40% of this region and 14% globally

Albemarle Catalysts Business

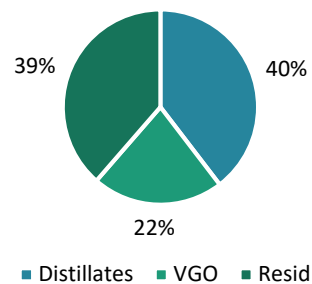
- The three main product lines are, Hydroprocessing catalysts (HPC), Fluidized catalytic cracking (FCC), Performance catalyst solutions (PCS)
- Two thirds of the 600+ worldwide refineries use their catalysts
- Leader in the FCC market in:
 - Bottoms cracking
 - Olefins output
 - Emerging markets
- Leader in the HPC market in:
 - Middle distillates
 - Bio-based oil and hydro-cracker oil pretreatment
 - Deep hydrotreating catalysis

FCC & HPC Global Markets

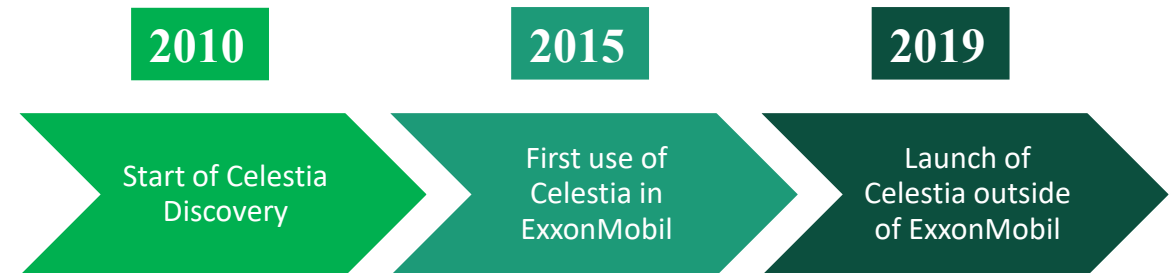
FCC Market – \$2.6B



HPC Market – \$2.1B



ExxonMobil Partnership



Executive Summary: Albemarle

Business Description/Model

Overview

Albemarle is a materials corporation that develops and produces specialty chemicals with a focus on global safety and sustainability. The company is based out of North Carolina and operates internationally in over 75 countries and serves more than 2,300 individual customers. The majority of revenue is accumulated in Asia (48%), North America (26%) and the Middle East (24%).

Segmentation

The company's business model revolves around three segments: Lithium, Bromine Specialties, and Catalysts. Lithium, accounts for the largest source of revenue (37%) and specializes in low-cost derivatives through a unique portfolio that distinguishes itself from the rest of the industry. The first main component of this segment is energy storage which consists of lithium batteries and accounts for 60% of total revenue in the Lithium segment. This category is driven primarily by electric vehicle sales and has been gaining significant momentum in the past year. The second component of the segment consists of specialty products and accounts for 40% of total revenue in the segment. Products under this classification include things such as greases, thermoplastic elastomers, and rubber soles, and are driven mainly through consumer spending and industrial-wide production. Due to the pandemic severely diminishing consumer confidence, net sales decreased 15.7% during 2020. The company expects the economic recovery and shift to electric vehicles to allow this segment to bounce back at faster rates than originally anticipated. The second segment, Bromine Specialties, accounts for the second largest portion of revenue (31%) and is heavily focused on developing products for fire safety solutions. It tends to be closely attached to cyclical industries such as consumer electronics and oil, and therefore causes demand for these technologies to operate on a cyclical basis. The largest source of sales from this segment come from flame retardants, making up 60% of all revenue. With the flame retardants being heavily influenced by consumer spending and GDP, and a large part of the specialty applications being dependent upon oil prices, 2020 net sales decreased 3.9% for the year. The company was able to maintain relatively stable EBITDA margins over each of the last 5 quarters due to continual low costs on raw materials. This segment is expected to gradually increase as international economies begin to show signs of recovery in the future. The catalyst segment accumulates the lowest percentage of revenue (26%) and consists of three categories: Clean Fuels Technologies, Fluidized Catalytic Cracking, and Performance Catalyst Solutions. The company is in the process of attempting to divest the PCS category due to continued underperformance. The products in this overall segment are used to deliver a cleaner source to oil fractions and to improve refinery petroleum streams. This segment is heavily driven by demand for oil, which explains why the segment witnessed a 24.9% decrease in net sales, due to travel restrictions and lockdowns. The company expects a good Q1 2021 as travel restrictions lessen and oil prices continue to increase.

Historical Performance/Context

ALB has generated a 1-year return of 173.14%. This can be compared to the XLI benchmark, which has returned 78.42% over the same period. In regard to revenue growth, the company had been able to produce an increase in growth between 6.35%-9.86% pre-pandemic but experienced a 12.83% decrease during 2020 due to the pandemic causing cyclical industries to suffer. Pre-pandemic operating margins stayed relatively stable around 18%-20% but have also fallen due to pandemic related factors to about 16.17%. Investors witnessed gross profit margins follow similar tendencies, with pre-pandemic levels maintaining a margin of 35%-36% but falling to 31% during 2020 due to less revenues being produced and increasing costs.

Competitive Landscape/Moat

Industry Analysis

The lithium industry was valued at approximately \$4.2 billion in 2019 with a high expected CAGR. With electric vehicles relying heavily on lithium batteries, this market will continue to grow significantly. This segment is best tailored for evolving changes in consumer preferences and innovative technology, which will be very beneficial for the industry for a long time to come.

The Bromine industry is expected to expand over the next 5 years, due to an industry CAGR of nearly 5%. Flame retardants are expected to continue producing growth even with ongoing regulations preventing the

production of certain prototypes. The Asia-Pacific region is considered to be the largest market for Bromine and its forecasted CAGR is expected to ensure that they stay at the top for years to come. It is also important to highlight the growth in India. With a growing labor force in their emerging market, the demand for Bromine is expected to strengthen as production continues to increase. Lastly, total smartphone sales are expected to reach an 11.5% growth rate in 2021, while the newly anticipated 5G smartphones are expected to contribute over a third of all smartphone revenues globally this year. This will have a direct impact on the growth of Bromine.

The global catalyst market is predicted to experience a CAGR of 4.4% for the upcoming years. It is estimated that about 600 FCC systems are being operated internationally currently, but the industry expects to see smaller and less profitable firms being replaced by larger firms due to impacts of the pandemic. From a geographical standpoint, Asia and Middle East regions are expected to show significant growth over the coming years.

Competition

Competition for the lithium segment is mainly in the Americas, Asia, and Australia, and includes firms such as Sichuan Tianqi Lithium, and Livent Corporation. Competition for the bromine specialties segment is found in the Americas, Asia, Europe, and Middle East, and includes companies such as Lanxess AG and Israel Chemicals Ltd. Competition in the catalysts segment is similar to that of bromine from a geographical perspective and includes companies such as Advanced Refining Technologies, W.R. Grace & Co.

Competitive Advantage

As the industry leader in lithium, the company has the ability to sustain an incredible competitive advantage in this rapidly growing market due to its diverse number of resources at its disposal as well as its profound leadership. With lithium contributing to be the largest percentage of its business model from a revenue standpoint, the company already has an edge on its competitors and does a good job focusing the most amount of effort on the segment that is becoming more and more prevalent in today's evolving world.

Investment Thesis/Risks

Thesis

Albemarle presents a quality buy position at the moment due to the strong growth in the lithium segment through electric vehicle demand, continued strategic investments, and optimal leverage through new opportunities of joint ventures and acquisitions. Albemarle presents a unique buying opportunity due to the growing demand for lithium battery development and production in response to the electric vehicle market. In 2020, electric vehicle sales increased 45% from the previous year and global electric vehicle production is estimated to have a 35% CAGR for the next 5 years. Many car manufacturers are beginning to revolve their business model around changing consumer preferences. Governments are also creating regulations that benefit the electric vehicle market significantly and in turn benefit the lithium market. The company's current and future strategic investments recommend a buy for ALB. The company is almost done with construction on their wave 2 conversion facilities. Both are anticipated to operate at low-cost, high quality standards, which will deliver substantially higher lithium sales, allowing the company to reach pre-pandemic margins quickly. The company is also planning wave 3 projects for the next 3-5 years and has begun discussing wave 4 projects as well. ALB is steadily securing growth through acquisitions and joint ventures. These strategic moves have allowed the company to expand its product line and create new opportunities. They also allow the company to safely divest in product lines that are underperforming. This increases leverage flexibility as well as the generation of more capital to be delivered to shareholders, which is exactly what the management team prioritizes. Notable acquisitions and joint ventures in recent years include SOCC in 2020 as well as MARBL in 2019 through the joint venture with MRL.

Risks to be Considered

The company has noted that they are monitoring non-lithium battery technologies, which would drastically hurt their business model. These new batteries would be cheaper, faster to charge, and more efficient overall. Next, regulators have been cracking down on certain types of bromine flame retardants which would hurt ALB's Bromine segment. Finally, intellectual property rights do not have equal protection when operating in foreign countries, which could lead to ideas being stolen and more competitors entering the global market, reducing overall market share.