LIVENT CORPORATION (NYSE:LTHM)

Equity Research Report

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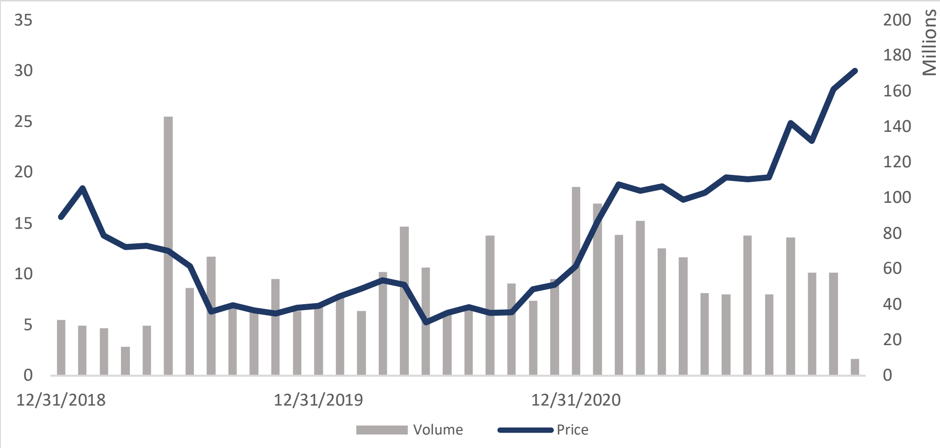
Sector: Energy, Utilities and Materials
Industry: Mineral and Precious Stone Mining



Livent

Target: $29.02

Current Price: $25.09
Market Cap: $2.9 billion
Credit Rating: IG9 (Credit Default Risk Indicator)
Price to Earnings: n.a. (negative)

Dividends: $0.0
2018 EBITDA Margin: 38%
2018 ROA: 22x
2018 Revenue Growth (YoY): 27%

2021 Q1 Revenue Growth (QoQ: 34%
2021 Q2 Revenue Growth (QoQ): 57%
Estimated 2021 Revenue Growth: 34% (BI)

Investment Thesis

Recovering lithium prices provide attractive opportunities:
Lithium is a high-quality resource that requires complex supply chain processing. Products that use lithium compounds are often priced higher than those that use alternative resource sources such as fossil fuels and other non-renewable resources. As the pandemic limited consumer income and caused disruptions in supply chains, many of these products were made unavailable or unaffordable. Demand, and ultimately lithium pricing, was therefore hit with the onslaught of the COVID-19 pandemic. Pricing is anticipated to increase as demand returns to pre-pandemic levels and lithium-oriented products are made more affordable through scale efficiencies. Additionally, supply chain inconsistencies have been addressed, international agreements regarding lithium applications have been fostered, and government interventions have been cultivated to increase lithium product adoption through subsidies, taxes, and regulation. Higher spot lithium prices and greater demand for lithium products, complemented by reduced operating costs from economies of scale, highlight Livent's promising outlook. Lithium demand is expected to double or triple by 2030, and this poses great upside for Livent as they engage in long-term contract pricing renegotiations and short-term contract market-pricing adjustments.

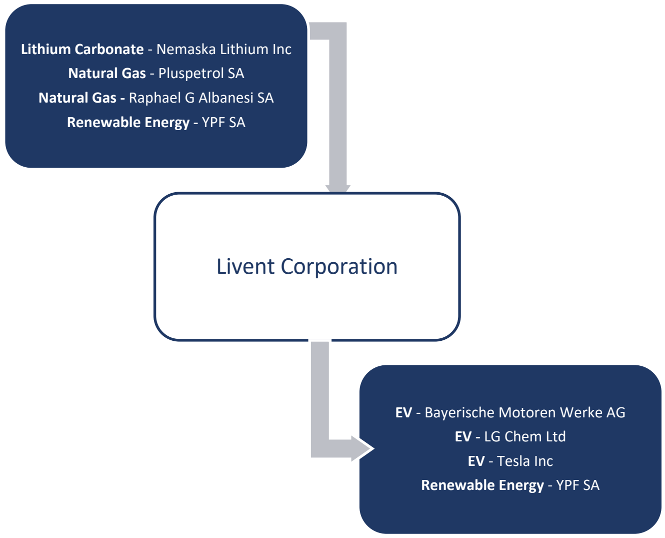
New and growing markets provide first-mover advantage opportunities:
The lithium industry is a largely untapped market with applications in growing markets such as electric vehicle (EV) batteries, plastics and rubbers, and aviation materials. In particular, high-quality lithium hydroxide is required for EVs, and the market is expected to grow by a CAGR of 29% between 2020 and 2030. Livent has established relationships with key EV auto manufacturers including Tesla and BMW and has indicated plans to continue to do so moving forward. There are a few other competitors who have become large, public, and well established within the lithium industry. Livent, therefore, yields first-mover advantages such as enhanced brand reputation in key markets, established supply chain and pronounced relationships with key stakeholders

Improved profitability margins through the execution of the capital expansion plan:
Prior to the pandemic, Livent exhibited limited capacity for lithium production and difficulties in its supply chain structure. Their capital expansion plan seeks to address these issues by increasing capacity by 60,000 tons and establishing infrastructure in key markets including Argentina and the United States. This will allow the company to capitalize on future efficiencies in economies of scales and reduce supply chain issues, thus, improving profitability margins and increasing overall cash flows.

Promising ESG outlook as a company in the minerals and mining sector:
Despite providing materials for cleantech and more environmentally friendly products, the minerals and mining sector is often criticized for harmful extraction, manufacturing, and processing practices. These processes use significant amounts of water, create excessive waste, and produce large amounts of GHG emissions. Livent has acknowledged its impact on the environment and committed to improving these metrics through its capital expansion plan. The company will be testing a new process to assess and incorporate sustainable business practices across all operations. The company is also partnered with higher education institutions in a study for sustainable extraction of lithium in South America.

COMPANY OVERVIEW

Livent Corporation (NYSE: LTHM) is a high-quality lithium producer and distributor based in Philadelphia, Pennsylvania. The company was previously a wholly owned subsidy of the chemical manufacturing company FMC. In 2018, Livent separated from FMC and went public as its own lithium business. Their product offerings span high purity lithium metal and other specialty compounds, lithium carbonate and lithium chloride, butyllithium, and lithium hydroxide that contribute to revenue at 11%, 4%, 30%, 55% respectively.[1] These resources are used in the production of electric batteries, pharmaceutical products, polymers, industrials, lightweight aerospace materials, and internal feedstock. Livent operates in North America, Latin America, Europe, [2]Africa and the Asia Pacific region. The company has recently made operational capacity investments in the US and Argentina. Asia-Pacific markets make up 64% of revenue, followed by North America at 18%, Europe, the Middle East and Africa at 17%, and Latin America at less than 1%.[3] The company operates contractually with mixed time horizons spanning single and multi-year contracts. Livent has four primary suppliers including Nemaska Lithium Inc for lithium carbonate, Pluspetrol SA, Raphael G Albanesi SA, and YPF SA for natural gas and renewable energy for manufacturing plants, and four primary customers including Bayerische Motoren Werke AG, LG Chem Ltd, Tesla Inc, and YPF SA for energy and electric battery component needs.[4] Additionally, Livent engaged in a $285 million supply agreement with BMW starting 2022.[5] This contract is anticipated to supply BMW with the components for 15-25% of sales by 2025. The company differentiates themselves by producing high quality resources that are difficult and expensive to develop but meet the growing regulatory requirements for customers. Livent has guided that they will continue to develop these resources in diverse locations that support their supply chain.[6]

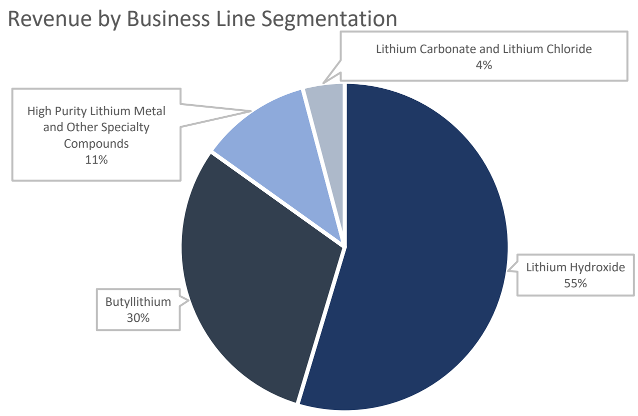


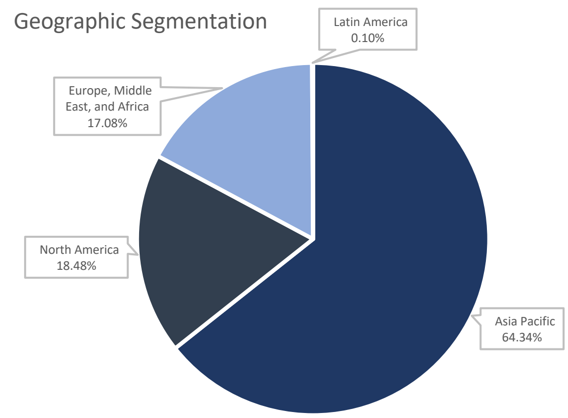
Business Drivers: Livent has two key business drivers, lithium hydroxide and lithium carbonate. Lithium carbonate is sold on its own or used as feedstock in the creation of lithium hydroxide. Carbonate is easier to produce, and the market is more established. Livent's internal production of lithium carbonate creates an integrated supply chain for more predictable margins and greater contract flexibility. Alternatively, lithium hydroxide is used in high-quality batteries for electric vehicles because of its sustainable and long-lasting qualities. The hydroxide market is newer, more complex, and requires longer-term relationships with customers to secure attractive pricing. Livent has benefitted from high-quality product demands from customers to meet regulatory requirements and high switching costs within the industry. Livent's other lithium resources encompass shorter contracts and lower volumes, with pricing largely dependent on benchmarks that are priced up monthly.[7]

[1] Bloomberg database
[2] Bloomberg database
[3] Bloomberg database

[5] https://www.press.bmwgroup.com/global/article/detail/T0328669EN/bmw-group-steps-up-sustainable-sourcing-of-lithium-for-battery-cell-production-to-ensure-rapid-e-mobility-expansion?language=en

[7] 2021 10K





Facilities: Livent currently operates 1 headquarter location, 6 international offices, 6 manufacturing facilities, 1 transfer station, and 1 production plant located in Argentina's Salar del Hombre Muerto. The company currently elicits lithium carbonate from third-party suppliers as well but intends to reduce reliance through increased production capabilities, thereby vertically integrating its[89]

Properties	
Headquarters (1)	**Extraction (1)**
Philadelphia, Pennsylvania	Fenix, Argentina
Office (6)	**Manufacturing (6)**
Charlotte, North Carolina	Bessemer City, North Carolina
Catamarca, Argentina	Guemes, Argentina
Salta, Argentina	Fenix, Argentina
Shanghai, China	Bromborough, United Kingdom
Tokyo, Japan	Zhangijiagang, China
Singapore	Pantancheru, India
Transfer Station (1)	
Pocitos, Salta, Argentina	

Extraction: The Argentinian extraction site differs from the majority of lithium sites globally, as lithium is derived from a brine source (groundwater reserves), rather than a mine (hard rock.)[10] Although more costly to produce, lithium products derived from brine are of higher quality and can therefore be sold at a greater profit. [11] Brines are also much rarer than mine locations. The majority are located in Chile, Argentina, and a few in

[9] 2021 10K
[10] https://newagemetals.com/lithium-supply-hard-rock-vs-brine/
[11] https://www.csaglobal.com/wp-content/uploads/2019/11/African-Exploration-Showcase_An-Overview-of-Lithium_Geology-to-Markets_Michael-Crnwright_November_2019.pdf

Nevada, USA. Comparatively, hard rock sources are primarily located in Australia and China.[12] Livent, therefore, has exclusive rights to a large source of high-quality production. However, as hard rock extraction has been more popularized and existed for longer periods of time, there is more research around the most efficient and sustainable operations. As such, per tonne lithium brines consume more water, more land, and can be extremely disruptive to the local communities in which they operate.[13] Initial costs and time for setup for brine extraction are also more significant, thereby dissuading new entrants.[14] It is also important to note that both extraction sources can derive lithium carbonate, which if processed, results in lithium hydroxide, a key component in electric batteries.

Hard Rock v. Brine Extraction

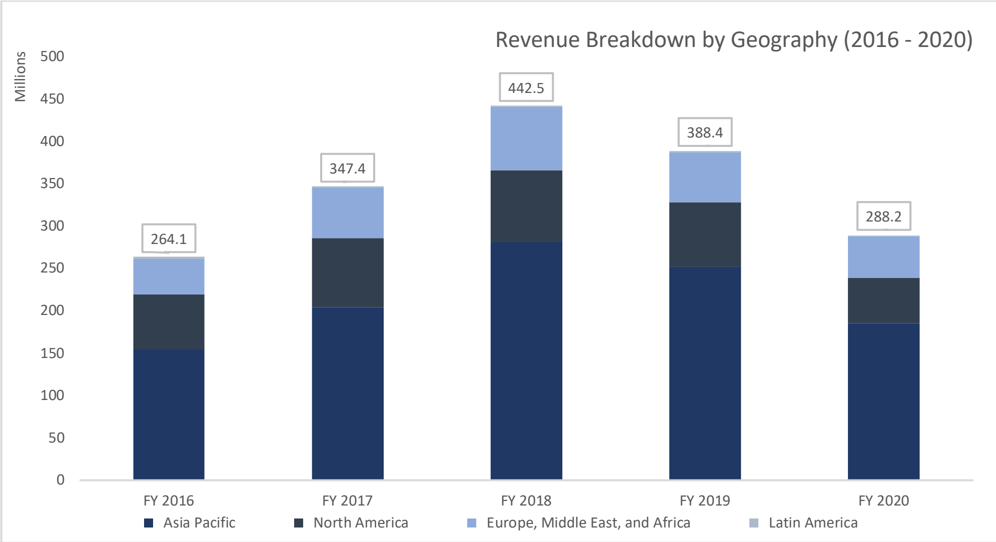
**per tonne lithium unless specified*

Category	Hard Rock	Brine
CO_2 Emissions (kg)	15,000	5,000
Water Use (m^3)	170	469
Land (m^2)	464	3,124
Cost of Production		x2
Value of Products		+ USD $6,250/t LCE
Initial Start-up Time & Costs		Higher

Capital Expansion: Livent is currently involved in a capital expansion program that was delayed last year. This program intends to increase lithium carbonate production capacity by up to 60,000 tons through expenditures on permanent infrastructure such as pipelines and treatment facilities, temporary infrastructure including logistics, shipping and camps for workers, and productive assets like absorption columns, small ponds and lithium carbonate plants. Additionally, the company plans to increase lithium hydroxide capacity by 55,000 tons in the coming years.[15] Many of these investments will be paired with innovative processing tests to make business operations more sustainable. If successful, business operations may use less water, less carbon and more renewable energy. These expenditures are mostly complete but will increase spending in 2022 and may have lagging effects in 2023 and 2024.[16]Additionally, the company holds an equal joint venture agreement with Pallinghurst Group (previously Nemaska Lithium Inc.) called the "Quebec Lithium Partners." Nemaska Lithium Inc. was a previous contracted supplier of Livent but filed for creditor protection under the Companies Creditors Arrangement Act (CCAA). Livent intends to increase its stake in the company to further expand operations in North America.[17]

[12] https://www.csaglobal.com/wp-content/uploads/2019/11/African-Exploration-Showcase_An-Overview-of-Lithium_Geology-to-Markets_Michael-Crnwright_November_2019.pdf
[13] https://www.csaglobal.com/wp-content/uploads/2019/11/African-Exploration-Showcase_An-Overview-of-Lithium_Geology-to-Markets_Michael-Crnwright_November_2019.pdf
[14] https://newagemetals.com/lithium-supply-hard-rock-vs-brine/
[15] 2021 10K
[16] 2021 10K
[17] 2021 10K

Resource	Use Case(s)
Lithium Hydroxide	High-performance lithium-ion batteries
Butyllithium	Used in the production of polymers (plastics, rubbers) and pharmaceutical products
High Purity Lithium Metal and Other Specialty Compounds	Used in the production of lightweight materials for aerospace applications and non-rechargeable batteries
Lithium Carbonate and Lithium Chloride	Feedstock for producing performance lithium compounds



INDUSTRY TRENDS

The rise of zero plastic waste: The rise of sustainability has encouraged many developed countries to adopt standards around single-use plastics. Countries like Canada have instated policies to ban production by a prespecified date, while others have required production caps and tax systems. This decrease in demand for single-use plastics has been redistributed to substitute products such as reusable plastic and rubber alternatives.

Aviation recovery post-pandemic: The COVID-19 pandemic had detrimental impacts on the aviation industry, reducing transportation demand and limiting funding opportunities. However, this industry is a large enabler of parallel industries' GDP contribution.[18] It is therefore a strong focus of private and public intervention moving forward. Post-pandemic, this industry is set to recover in 2024.[19][20]

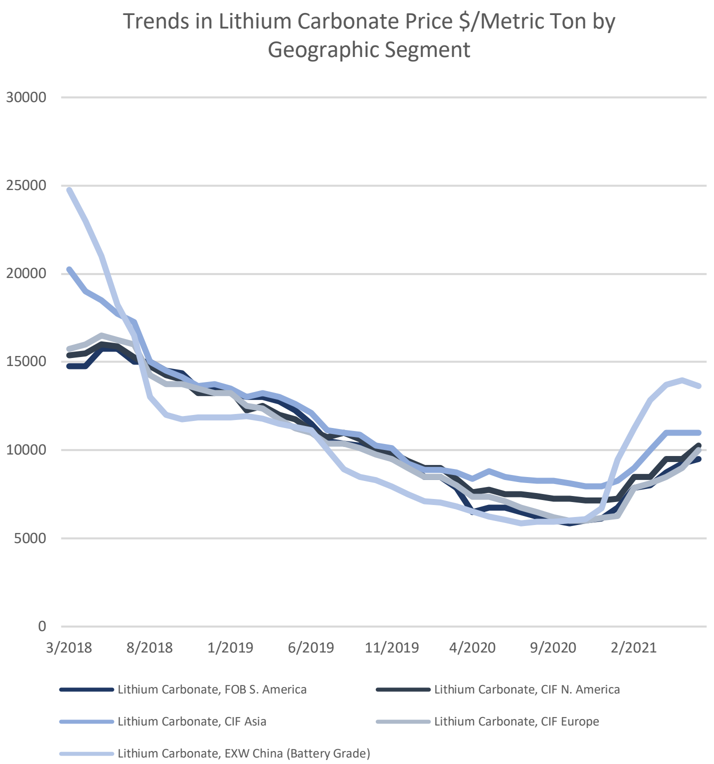
Government incentives to stimulate electric vehicle (EV) demand: The electric vehicle (EV) market is expected to grow by a CAGR of 29% between 2020 and 2030.[21] Electric vehicles have been a pressing focus for governments, non-profit organizations, multilateral agreements, and environmentally conscious consumers. Governments of developing countries have committed to large investments in EV value chain research, capacity and charging stations to drive consumer adoption through accessibility and affordability. Additionally, governments have entered contracts to produce a specified number of EV fleet vehicles for internal uses. Lithium demand is to set thrive as electric vehicle adoption increases for both personal and fleet use.

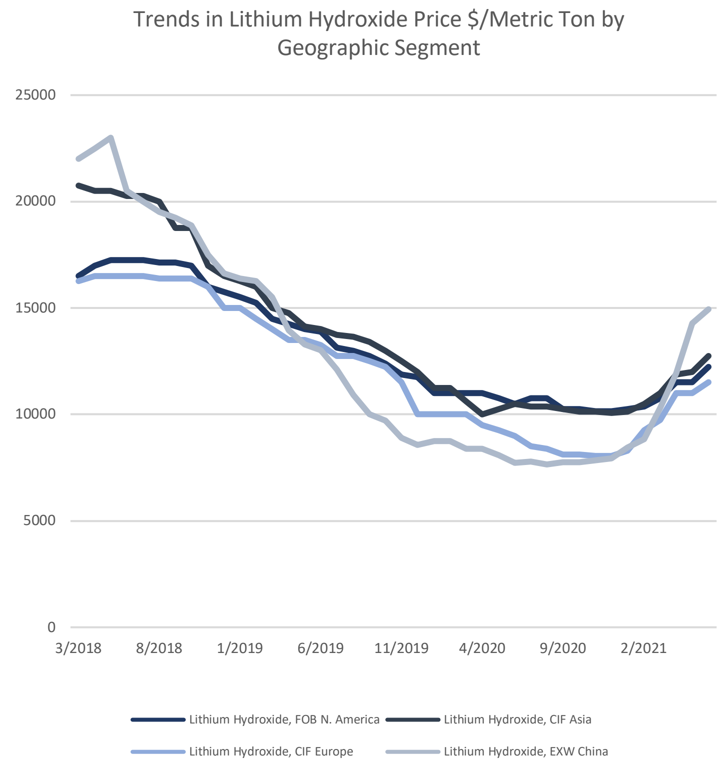
[18] https://www.oecd.org/coronavirus/policy-responses/covid-19-and-the-aviation-industry-impact-and-policy-responses-26d521c1/

[20] https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/back-to-the-future-airline-sector-poised-for-change-post-covid-19#

[21] https://www2.deloitte.com/us/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html

Resurgence in lithium pricing post-pandemic with increased demand: Lithium demand was hit with the onslaught of the COVID-19 pandemic. Lithium is a high-quality resource and therefore considered a more luxurious product. Products that use lithium compounds are often priced higher than those that use alternative resource sources such as fossil fuels and other non-renewable resources. As the pandemic limited consumer income and caused disruptions in supply chains, many of these products were unavailable or unaffordable. Pricing is anticipated to increase as demand returns to pre-pandemic levels and lithium-oriented products are made more affordable through scale efficiencies. Demand is expected to double or triple by 2030.[22]





COMPETITIVE POSITIONING

There are few public competitors in the lithium industry, and those that exist are often small-cap and largely undeveloped. Additionally, lithium products span electric vehicles, materials and other goods that vary depending on the lithium compound derived (whether from brine or hard rock.) Therefore, "lithium producers" and "lithium manufacturers" vary significantly based on their end consumers. Although the majority of lithium is produced in Australia (60%), much of this extraction is from hard rock and therefore not necessarily comparable.[23] The majority of reserves are located in South America and have yet to be touched by competitors. Additionally, the lithium market is divided by extraction companies, lithium carbonate producers, lithium hydroxide manufacturers, and distributors. However, supply chains are becoming increasingly integrated. Prior to filing for CCAA, companies like Nemaska Lithium Inc (NMX) were previously in extraction but began investing in conversion facilities as well. The industry is likely to experience shifting business models and practices as scale becomes possible and alternative extraction methods develop. Main competitors include direct

[22] https://www2.deloitte.com/ca/en/pages/energy-and-resources/articles/commodities-of-the-future-predicting-tomorrows-disruptors.html
[23] https://newagemetals.com/lithium-supply-hard-rock-vs-brine/

competitors, pre-revenue competitors, private firms, and alternative resource producers, metals and mining companies.

Price increases for lithium carbonate put pressure on lithium hydroxide producers' margins through greater conversion costs. Livent positions themselves within the industry by self-sourcing lithium carbonate, thus, alleviating cost pressures and creating more predictability in operational margins. Additionally, high-quality sources are required for battery production due to legal and regulatory requirements. Livent targets these high-quality sources to enable better contracts and limit competitor imitability. Livent may also benefit from first-mover and early innovation advantages such as brand recognition and contractual establishment. Livent is the 3rd largest company by industry revenue at $386.1 million, and one of few competitors to solely derive income from lithium products.

Direct Competitors: Direct competitors include brine extractors and hard rock extractors that focus on lithium carbonate. Many of these competitors may also be seen as suppliers, as some produce the feedstock for more sophisticated lithium products. Showa Denko derives 10% of revenue for $1.26 billion in lithium products. Showa is located in Japan and primarily focuses on materials used in lithium-ion batteries for EVs and hardware technologies such as smartphones and tablets. The majority of sales are maintained locally with 55% in Japan, 25% in Asia, and the remainder in Europe and the US. Showa focuses on manufacturing these components and procures materials from third-party suppliers.

Soquimich earns $513 million from lithium products for 21% of total revenue. They own several lithium-focused subsidiaries including SGM Salar in Chile for marketing, SQM Australia for mining, SQM Lithium Specialties for production and marketing, and SQM North America for marketing. Key lithium sources include Australian and Chilean sources, thereby assuming they use a combination of brine and hard rock sources. They have indicated a 50% reduction in brine extraction by 2030. They market to manufacturers in China, South Korea, Belgium, Japan and the US.

Chengxin is the fourth largest competitor, deriving 64% for $382 million in revenue from the manufacturing and distribution of lithium products in China. It operates lithium activities under its subsidiary, Sichaun Chengtun Lithium. Despite offering similar products as Livent, their customers are in China and therefore they operate in a distinct market.

Pre-revenue, Private and Challenged Firms: The lithium industry is a capital-intensive, price-driven, and competitive space. Many firms wait years before obtaining customer contracts and generating revenue, and even longer before they become profitable. Nemaska Lithium is an example of a previous supplier and competitor that is no longer successful within the industry. Specializing in hard rock extraction, Nemaska serviced Canadian reserves and established contracts with manufacturing companies such as Livent Corporation. In 2019, the company received an initial order from the CCAA and ultimately became a joint venture arrangement between key customer Livent and Pallignhurst. Previously, the company had signed a supplier contract with Livent to receive resources for their Tesla deal.[24] Other companies such as Millenial Lithium, Lithium Americas, and Standard Lithium currently make little or no revenue. Aside from the 4 dominating firms Showa Denko, Soquimich, Livent, and Chengxin, the majority of competitors earn less than $100 million in revenue.

Substitute Firms: Other competitors include Original Materials Inc (ORGN), MP Materials Corp (MP), and American Battery Metals Corp (ABML). These companies operate similar business models and may serve similar customers depending on the end-product. However, even substitute products have not been proven to have the same quality and performance standards as lithium products.

[24] 10k

Difference	Peer	Ticker	Market Cap	Revenue	P/S	EBITDA Margin	Operating Margin	ROIC
Industry	MP MATERIALS CORP	MP US	8073.3	275.02	26.38	61.19	54.23	n.a.
	CELANESE CORP	CE US	17269.09	7853	2.28	27.71	23.57	-6.48
	ALBEMARLE CORP	ALB US	30117.89	3312.9	8.78	24.97	15.84	7.48
	SOC QUIMICA Y MINERA CHILE-B	SQM/B CI	16024.7	2291.83	6.94	34.63	26.16	6.07
	ORIGIN MATERIALS INC	ORGN US	888.49	0	n.a.			n.a.
Geography	CHENGXIN LITHIUM GROUP CO-A	002240 CH	8540.54	333.88	22.3		41.23	-8.87
	GANFENG LITHIUM CO LTD-A	002460 CH	34185.06	1335.45	25.64		40.95	4.86
Private or	LITHIUM AMERICAS CORP	LAC CN	4154.15	0	n.a.			-11.22
Pre-sales	STANDARD LITHIUM LTD	SLI CN	1311.7	0	n.a.			-42.48
	PIEDMONT LITHIUM INC	PLL US	941.53	0	n.a.			-18.94
	MEDIAN		**8306.92**	**304.45**	**15.54**	**31.17**	**33.56**	**-7.68**
	LIVENT CORPORATION	LTHM	4318.9	379.7	10.62	10.04	3.67	-1.8

Sustainability Analysis

Business Operations: Livent's product offering is inherently environmentally sustainable. Lithium is an alternative solution to non-renewable resources and materials, and therefore furthers SDG 7 Affordable and Clean Energy. Due to the limited competitive landscape, it is difficult to assess Livent's ESG positioning relative to peers.

Metrics	Current	Delta
Environmental		
GHG/Revenue	0.3	0.1
Social		
Women Employees %	21	0
Employees Unionized	23.8	0.9
Governance		
Independent Directors %	66.7	9.5
Women BoD Members %	22.2	0
Director Meeting Attd %	100	25
Better	Worse	Indifferent

Environmental: Minerals and mining are extremely energy-intensive and extractive industries. As a newly incorporated business, Livent has prioritized capacity building and scale over sustainability. The company has also directed efforts to brine mining, which is a less researched space in terms of best practices. However, management has indicated future actions to assess and incorporate sustainable business practices across all operations. Their capital expansion program includes efforts to reduce water and carbon uses and incorporate renewable energy.[25]

Social: The company is partnered with higher education institutions in a study for sustainable extraction of lithium in South America. This study would encompass both environmental and social best practices and be the foundation for current and future extraction in local communities. This study is especially pertinent due to their mining processes in Argentina. Additionally, the company operates in a heavily male-dominated industry. While female employees make up 8 to 17% of global mining occupations, female C-suite executives sit at only 13%.

[25] 2021 10K

Livent is well-above industry average with 21% female employees and has 37.5%, key executives.[26] The company lacks explicit descriptions of relationships with local communities. As extraction from brines has high levels of water contamination, relationships with local indigenous communities are especially pertinent.

Governance: Livent has also experienced YoY improvements in employees unionized, percentage of independent directors and Director meeting attendance. Despite being newly formed in 2018, key executives are well-equipped with experience within the industry, high past performance, and a commitment to the company's success due to long tenures with Livent's previous parent company, FMC. Chief Executive Officer, Chief Operations & Engineering Officer, and Chief Financial Officer, Paul Graves, Barbara Fochtman and Gilberto Antoniazzi respectively, have all been with the company since its initial spin-off in 2018.

RISKS

Similar to other commodities, lithium pricing is highly volatile and largely driven by demand. Although lithium prices are expected to rise in the near future, there is still uncertainty around customer adoption and differences in lithium carbonate and lithium hydroxide pricing.

Gaps in lithium carbonate and lithium hydroxide pricing: High lithium carbonate pricing paired with low lithium hydroxide pricing could limit upside potential by tightening margins. Contract length may also limit potential upside as low-priced, long-term customer contracts and high-priced, long-term supplier contracts may lock in undesirable prices.

Limited consumer discretionary income with an impending recession: A recession could further delay growth in the lithium market. Despite the capital expansion program enabling greater cost efficiencies with growing economies of scale, lithium products are still often priced greater than alternatives. Applications such as EVs and aviation materials require large upfront investments from customers. A recession would limit customers' discretionary income and therefore may slow lithium adoption once more.

Overly optimistic management team: The lithium industry has undergone severe shocks during the COVID-19 pandemic. This has contributed to management's miscalculation and over-optimism in earnings and guidance in 6 out of 8 recent earnings reports. Management guidance should be critically examined and priced in with risk management measures.

Political and regulatory changes in operating countries: As the company operates key manufacturing facilities and extraction sites in Argentina, the company is subject to changes in the political and regulatory landscape. This includes production and extractions caps, tariffs, nationalistic policies favouring Argentina-owned businesses, civil unrest, and rising costs of labour, site operations, and other influential factors. Additionally, environmental laws to protect local communities could be especially harmful to current practices, preventing future extraction or penalizing environmental harm through damage repayments.

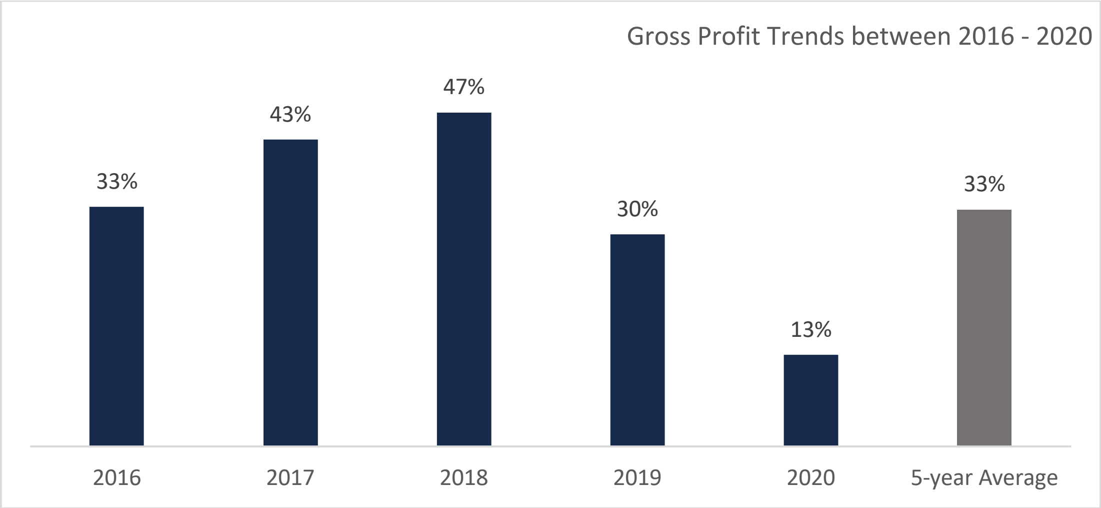
Alternative (and more sustainable) lithium extraction practices: The third method of lithium extraction concerns lithium clays. Despite a growing interest in this space, there still lacks significant investment to materialize lithium extraction scale, process and sustainability efficiencies. This space is therefore currently

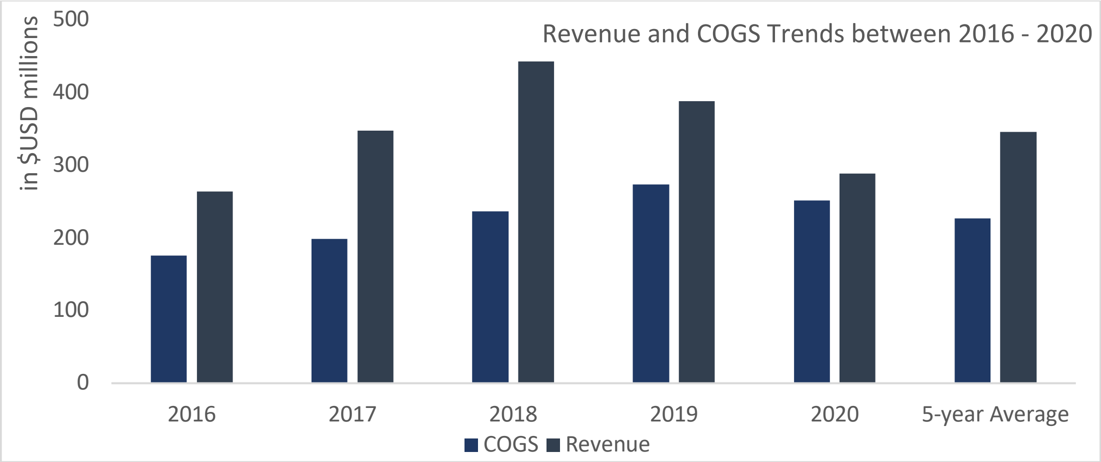
[26] Bloomberg database

considered "high risk" but may be realized in the future, therefore challenging Livent's current extraction practices.[27]

FINANCIALS

Livent's performance is linked to lithium prices and was therefore impacted by COVID-19 implications on supply chains and lithium demand. The pandemic served to exacerbate pre-existing supply chain issues and propel the company towards capital expansion. The company exhibited YoY growth of 15% in EBITDA margin, 135% profit margin, and 125% return on assets in 2018. In 2019, the company saw a YoY decline of 46% EBITDA margin, 55% profit margin, and 70% return on assets. Similarly, 2020 results yielded a YoY decline of 90% EBITDA, 150% profit margin, and 130% return on assets. However, the company has started to recover in Q1 with a greater anticipated recovery in late 2021. Livent exhibited 34% QoQ revenue growth in Q1 driven by greater customer demand. Pricing profits from lithium hydroxide are expected to flow end of 2021 with pricing renegotiations and lagged adjustments to market-linked pricing contracts.





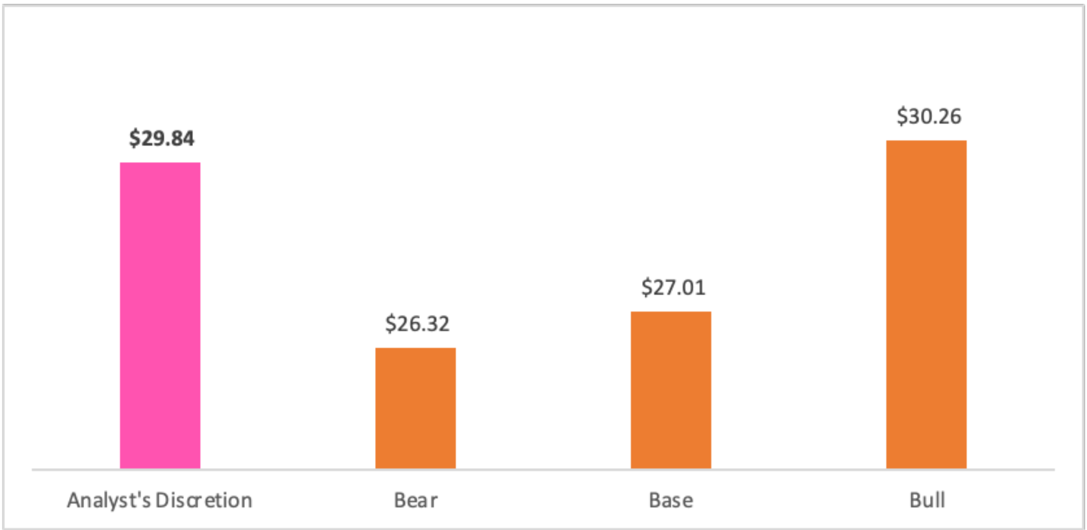
Livent's debt balance has increased 9% since December 2020 due to its capital expansion program. The capital expansion plan will create capacity opportunities for greater economies of scale and alleviate supply chain pressures with more concentrated production and distribution operations. The company delayed expansion during the pandemic but will recommence operations later this year. This has temporarily impacted the company's solvency ratios including a YoY increase in long-term debt to assets and long-term debt to equity of 36% and 42% respectively. The earliest of the company's debt does not come due until 2023 at $55 million, with the majority due in 2025 at $246 million. The capital expansion program will primarily be paid down through greater profitability margins. However, Livent has also indicated potentially raising capital to finance funding gaps through either debt or equity instruments.

Livent Corp (LTHM) In Millions of USD except Per Share	2017	2018	2019	2020
Profitability				
EBITDA Margin	33.79	38.78	20.96	2.12
Profit Margin	12.15	28.61	12.92	-6.56
Return on Assets	9.72	21.87	6.6	-2.1
Return on Common Equity			9.71	-3.41
Return on Invested Capital	1423.92	60.33	13.74	-2.02
Liquidity				
Current Ratio	2.4	2.52	2.22	3.04
Cash Ratio	0.01	0.24	0.14	0.14
Activity				
Accounts Receivable Turnover	4.05	3.35	3.36	3.47
Inventory Turnover	3.8	3.84	2.93	2.3
Accounts Payable Turnover	4.54	3.95	4.04	3.84
Cash Conversion Cycle	105.74	111.4	143.05	169.61
Asset Turnover	0.8	0.76	0.51	0.32
Net Fixed Asset Turnover	1.71	1.78	1.02	0.55
Financial Leverage				
LT Debt to Total Assets		5.14	19.78	26.85
LT Debt to Total Equity		6.94	31.25	44.45
Total Debt to Total Equity		6.94	31.64	44.7
Financial Leverage			1.47	1.62
Capital Expenditure Ratio	1.19	1.25	0.32	0.05
Shareholder Ratios				
Basic Earnings per Share		0.99	0.34	-0.13
Dividend Payout Ratio	0	0	0	0

VALUATION

Livent is valued at a target price of $29.02, for an upside of 16% given their current price of $25.09. The company was valued through a DCF analysis, including a bottom-up beta for its discount rate calculation and the Multiples Method for the terminal value due to the popularity of multiples within the new and growing industry. An EV/EBITDA multiple of 15x was assumed because a peer median of 28x was calculated but the company has already been established and therefore yields less growth potential.

The forecast period covered 2021 – 2025 for a 5-year forecast. Revenue was derived from the scenario-based price per-unit method. The price per unit method took into consideration current capacity, production and market prices for “performance” lithium products (Lithium Hydroxide, Butyllithium, and High Purity Lithium Metal) and “base” lithium products (Lithium Carbonate and Lithium Chloride.) Considerations were also made for increased production through their capital expansion plan, increasing lithium hydroxide and lithium carbonate capacity straight line over the next 5 years to 55,000 MT and 60,000 MT respectively. Scenarios included Analyst’s Discretion, Bear, Bull, and Base cases, however, the Analyst’s Case was used to derive the final intrinsic value. This scenario assumed a small gap in hydroxide and carbonate prices, to ensure investment decisions were not derived from a pricing play alone. Therefore, the price was forecasted to grow at 15% base products and 20% hydroxide products for 2021. This gap was assumed because carbonate is an essential component of hydroxide, and therefore the demand is likely to increase with increased demand for end-hydroxide products. However, the hydroxide market is likely to grow as slightly greater rates as it becomes more popularized.



WACC was calculated using the bottom-up beta approach, considering the cost of equity as an average of comparables and the current capital structure, comparables and the optimal capital structure assuming the company will move towards optimization over the next 5 years and based on the historical beta. The WACC was calculated in a similar manner. The combination of competitors included those within and outside the geographies of operation, the same and substitute product offerings, and exhibit similar risk levels. Of note, the competitor selection is not perfect due to a complicated industry landscape that is constantly evolving. The calculated WACC was 15.49% for a 0.52% difference from Bloomberg.

Finally, price sensitivity tables were included to account for large price variances with differing key variables such as the discount rate and EV/EBITDA multiple.

		EV/EBITDA Multiple				
		13.00x	14.00x	15.00x	16.00x	17.00x
Discount Rate	13.00%	$ 28.68	$ 30.62	$ 32.55	$ 34.48	$ 36.41
	14.00%	$ 27.70	$ 29.56	$ 31.43	$ 33.29	$ 35.16
	15%	$ 26.75	$ 28.55	$ 30.35	$ 32.15	$ 33.95
	16.00%	$ 25.84	$ 27.58	$ 29.32	$ 31.06	$ 32.80
	17.00%	$ 24.97	$ 26.65	$ 28.33	$ 30.01	$ 31.69

INVESTMENT RECOMMENDATION

The attractive positioning of the lithium space, as well as Livent's advanced capabilities in terms of scale, customer contracts, and upside potential contribute to a buy recommendation. Not only is the company vertically integrating operations and expanding production capabilities, but they have a distinct focus on becoming more ESG-friendly. They are a great example for companies pursuing a more gender-diverse workforce and showcase strong margins. Although both the industry and company itself were hit by the pandemic, management has promptly recovered and proven competency in both their experience and track record. However, with both operations and key consumers located in Argentina, political and regulatory advancements related to trade, nationalism, the environment, and labour laws should be closely monitored. Additionally, changes in the overall structuring of the lithium industry should be considered throughout the investment holding period.

DISCLAIMERS

Appendix

I: Peer Comparison -

Difference	Peer	Ticker	Market Cap	Revenue	P/S	EBITDA Margin	Operating Margin	ROIC
Industry	MP MATERIALS CORP	MP US	8073.3	275.02	26.38	61.19	54.23	n.a.
	CELANESE CORP	CE US	17269.09	7853	2.28	27.71	23.57	-6.48
	ALBEMARLE CORP	ALB US	30117.89	3312.9	8.78	24.97	15.84	7.48
	SOC QUIMICA Y MINERA CHILE-B	SQM/B CI	16024.7	2291.83	6.94	34.63	26.16	6.07
	ORIGIN MATERIALS INC	ORGN US	888.49	0	n.a.			n.a.
Geography	CHENGXIN LITHIUM GROUP CO-A	002240 CH	8540.54	333.88	22.3		41.23	-8.87
	GANFENG LITHIUM CO LTD-A	002460 CH	34185.06	1335.45	25.64		40.95	4.86
Private	LITHIUM AMERICAS CORP	LAC CN	4154.15	0	n.a.			-11.22
	STANDARD LITHIUM LTD	SLI CN	1311.7	0	n.a.			-42.48
	PIEDMONT LITHIUM INC	PLL US	941.53	0	n.a.			-18.94
	MEDIAN		**8306.92**	**304.45**	**15.54**	**31.17**	**33.56**	**-7.68**
	LIVENT CORPORATION	LTHM	4318.9	379.7	10.62	10.04	3.67	-1.8

II: Revenue Projections –

LIVE CASE | Analyst's Discretion

Growth Rate Assumptions

Lithium price growth market forecasts range from 5 - 30%

Scenarios - Initial Price	Base	Performance
Analyst's Discretion	15.0%	20.0%
Bear	15.0%	15.0%
Base	15.0%	20.0%
Bull	20.0%	30.0%

% Used Capacity Assumptions

Assumes Livent will steadily return to pre-pandemic capacity levels. 2021 will exhibit 3-yr average levels. 2022 and beyond will return to pre-pandemic (2019 levels.)

Capacity Assumptions

Capacity will remain in constant except as noted in their capital expansion plan: lithium hydroxide increased by 55,000 MT and lithium carbonate increased by 60,000 tons. These are increasing straightline over the next 5 years.

**Assume that Livent will no longer be relying on 3rd party contracts as they are owners of previous supplier, Nemaska. Assume*

							Forecasted				
		2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
Pricing											
Performance Lithium	($/MT)	17903.65	18210.94	13224.74	9510.94	11413.13	13125.09	15093.86	17357.94	19093.73	21003.10
% change			*1.7%*	*-27.4%*	*-28.1%*	*20.0%*	*15.0%*	*15.0%*	*15.0%*	*10.0%*	*10.0%*
Base Lithium	($/MT)	14049.48	15850.69	10651.22	6938.89	7979.72	8777.69	9655.46	10621.01	11152.06	11709.66
% change			*12.8%*	*-32.8%*	*-34.9%*	*15.0%*	*10.0%*	*10.0%*	*10.0%*	*5.0%*	*5.0%*
Products											
Performance Lithium											
Lithium Hydroxide	Capacity (MT)		18500	25000	25000	36000	47000	58000	69000	80000	80000
	Production (MT)		15936	21348	14686	27633	40134	49527	58920	68314	68314
	% used capacity		*86.1%*	*85.4%*	*58.7%*	*76.8%*	*85.4%*	*85.4%*	*85.4%*	*85.4%*	*85.4%*
	Price ($/MT)					11413.13	13125.09	15093.86	17357.94	19093.73	21003.10
	Total ($)		$ 222,700,000.00	$ 213,800,000.00	$ 157,500,000.00	$ 315,380,993.01	$ 526,765,662.59	$ 747,558,929.67	$ 1,022,737,949.47	$ 1,304,361,442.80	$ 1,434,797,587.08
Butyllithium	Capacity (MT)		3265	3265	3265	3265	3265	3265	3265	3265	3265
	Production (MT)		2389	2437	2180	2335	2437	2437	2437	2437	2437
	% used capacity		*73.2%*	*74.6%*	*66.8%*	*71.5%*	*74.6%*	*74.6%*	*74.6%*	*74.6%*	*74.6%*
	Price ($/MT)					11413.13	13125.09	15093.86	17357.94	19093.73	21003.10
	Total ($)		$ 99,000,000.00	$ 99,900,000.00	$ 87,100,000.00	$ 26,653,451.25	$ 31,985,853.47	$ 36,783,731.49	$ 42,301,291.21	$ 46,531,420.33	$ 51,184,562.37
High Purity Lithium Metal	Capacity (MT)		250	250	250	250	250	250	250	250	250
	Production (MT)		140	167	160	156	167	167	167	167	167
	% used capacity		*56.0%*	*66.8%*	*64.0%*	*62.3%*	*66.8%*	*66.8%*	*66.8%*	*66.8%*	*66.8%*
	Price ($/MT)					11413.13	13125.09	15093.86	17357.94	19093.73	21003.10
	Total ($)		$ 62,500,000.00	$ 52,000,000.00	$ 31,700,000.00	$ 1,776,643.13	$ 2,191,890.66	$ 2,520,674.25	$ 2,898,775.39	$ 3,188,652.93	$ 3,507,518.23
Revenue Performance Litl	**($)**		$ 384,200,000.00	$ 365,700,000.00	$ 276,300,000.00	$ 343,811,087.39	$ 560,943,406.71	$ 786,863,335.41	$ 1,067,938,016.07	$ 1,354,081,516.07	$ 1,489,489,667.67
Base Lithium											
Lithium Carbonate	Capacity (MT)		18000	18000	18000	30000	42000	54000	66000	78000	78000
	Production (MT)		17238	16785	15589	27562	39165	50355	61545	72735	72735
	% used capacity		*95.8%*	*93.3%*	*86.6%*	*91.9%*	*93.3%*	*93.3%*	*93.3%*	*93.3%*	*93.3%*
	Price ($/MT)		15850.69	10651.22	6938.89	7979.72	8777.69	9655.46	10621.01	11152.06	11709.66
	Total ($)		$ 273,234,270.84	$ 178,780,648.44	$ 108,170,338.89	$ 219,938,877.16	$ 343,778,402.91	$ 486,200,884.12	$ 653,670,077.54	$ 811,145,141.68	$ 851,702,398.76
Lithium Chloride	Capacity (MT)		9000	9000	9000	9000	9000	9000	9000	9000	9000
	Production (MT)		5005	4284	4836	4708	4284	4284	4284	4284	4284
	% used capacity		*55.6%*	*47.6%*	*53.7%*	*52.3%*	*47.6%*	*47.6%*	*47.6%*	*47.6%*	*47.6%*
	Price ($/MT)		15850.69	10651.22	6938.89	7979.72	8777.69	9655.46	10621.01	11152.06	11709.66
	Total ($)		$ 79,332,725.70	$ 45,629,806.25	$ 33,556,466.67	$ 37,571,192.13	$ 37,603,643.00	$ 41,364,007.30	$ 45,500,408.03	$ 47,775,428.43	$ 50,164,199.85
Base Lithium Produced	($)		$ 352,566,996.54	$ 224,410,454.69	$ 141,726,805.55	$ 257,510,069.29	$ 381,382,045.91	$ 527,564,891.42	$ 699,170,485.57	$ 858,920,570.11	$ 901,866,598.61
Base Lithium Feedstock	**($)**		$ 294,266,996.54	$ 202,110,454.69	$ 129,826,805.55	$ 218,883,558.89	$ 324,174,739.03	$ 448,430,157.71	$ 594,294,912.73	$ 730,082,484.59	$ 766,586,608.82
	% feedstock of production		*83.5%*	*90.1%*	*91.6%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*
Revenue Base Lithium	**($)**		$ 58,300,000.00	$ 22,300,000.00	$ 11,900,000.00	$ 38,626,510.39	$ 57,207,306.89	$ 79,134,733.71	$ 104,875,572.84	$ 128,838,085.52	$ 135,279,989.79
Total Revenue	($M)		**$ 442.50**	**$ 388.00**	**$ 288.20**	**$ 382.44**	**$ 618.15**	**$ 866.00**	**$ 1,172.81**	**$ 1,482.92**	**$ 1,624.77**

Analyst Discretion		2021	2022	2023	2024	2025	TV
Pricing							
Performance Lithium	($/MT)	11413.13	13125.09	14437.60	15881.36	16675.43	17509.20
% change		*20.0%*	*15.0%*	*15.0%*	*15.0%*	*10.0%*	*10.0%*
Base Lithium	($/MT)	7979.72	8777.69	9655.46	10138.24	10645.15	11177.41
% change		*15.0%*	*10.0%*	*10.0%*	*10.0%*	*5.0%*	*5.0%*
Total Revenue	($M)	**$382.44**	**$618.15**	**$831.79**	**$1,077.20**	**$1,305.56**	**$1,364.69**

				Forecasted			
Bear		2021	2022	2023	2024	2025	TV
Pricing							
Performance Lithium	($/MT)	10937.58	12031.34	13234.47	13896.19	14591.00	15320.55
% change		*15.0%*	*15.0%*	*15.0%*	*10.0%*	*10.0%*	*10.0%*
Base Lithium	($/MT)	7979.72	8777.69	9655.46	10138.24	10645.15	21822.56
% change		*15.0%*	*15.0%*	*15.0%*	*10.0%*	*10.0%*	*5.0%*
Total Revenue	($M)	**$332.38**	**$504.30**	**$662.22**	**$840.99**	**$1,042.95**	**$1,043.95**

				Forecasted			
Base		2021	2022	2023	2024	2025	TV
Pricing							
Performance Lithium	($/MT)	11413.13	12554.44	13809.88	14500.38	15225.39	15986.66
% change		*20.0%*	*20.0%*	*15.0%*	*10.0%*	*10.0%*	*5.0%*
Base Lithium	($/MT)	7979.72	8378.71	8797.64	8973.60	9153.07	18489.20
% change		*15.0%*	*15.0%*	*10.0%*	*10.0%*	*5.0%*	*5.0%*
Total Revenue	($M)	**$344.27**	**$544.36**	**$744.31**	**$984.01**	**$1,270.08**	**$1,271.08**

				Forecasted			
Bull		2021	2022	2023	2024	2025	TV
Pricing							
Performance Lithium	($/MT)	11413.13	13125.09	14437.60	15881.36	16675.43	17509.20
% change		*30.0%*	*20.0%*	*15.0%*	*10.0%*	*10.0%*	*10.0%*
Base Lithium	($/MT)	8326.67	9575.67	10533.23	11586.56	12165.88	24940.06
% change		*20.0%*	*15.0%*	*10.0%*	*10.0%*	*5.0%*	*5.0%*
Total Revenue	($M)	**$356.16**	**$581.26**	**$820.07**	**$1,119.00**	**$1,491.15**	**$1,492.15**

III: Assumptions –

Income Statement	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
						Forecasted					
Revenue	**264.10**	**347.40**	**$ 442.50**	**$ 388.00**	**$ 288.20**	**$ 382.44**	**$ 618.15**	**$ 866.00**	**$ 1,172.81**	**$ 1,482.92**	**$ 1,624.77**
Cost of Goods Sold	175.80	198.60	236.20	273.50	251.40	$ 210.34	$ 339.98	$ 476.30	$ 645.05	$ 815.61	$ 893.62
% of Revenue	67%	57%	53%	70%	87%	55%	55%	55%	55%	55%	55%
Gross Profit	**$ 88.30**	**$ 148.80**	**$ 206.30**	**$ 114.50**	**$ 36.80**	**$ 172.10**	**$ 278.17**	**$ 389.70**	**$ 527.77**	**$ 667.31**	**$ 731.15**
% Revenue	*33%*	*43%*	*47%*	*30%*	*13%*	*45%*	*45%*	*45%*	*45%*	*45%*	*45%*
Selling, General and Administration	12.00	13.40	21.10	40.50	44.60	38.24	61.82	43.30	58.64	74.15	81.24
% of Revenue	0.07	0.07	0.09	0.15	0.18	0.10	0.10	0.05	0.05	0.05	0.05
Research and Development	3.10	3.10	3.80	3.30	3.70	3.87	6.25	8.76	11.87	15.00	16.44
% of Revenue	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other Operating Expenses	12.20	22.10	15.50	-4.40	-0.10	0.00	0.00	0.00	0.00	0.00	0.00
% of Revenue	0.07	0.11	0.07	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Operating Expenses	$ 27.30	$ 38.60	$ 40.40	$ 39.40	$ 48.20	$ 42.11	$ 68.07	$ 52.06	$ 70.51	$ 89.15	$ 97.68
% of Revenue	*10%*	*11%*	*9%*	*10%*	*17%*	*11%*	*11%*	*6%*	*6%*	*6%*	*6%*
Operating Income	**$ 61.00**	**$ 110.20**	**$ 165.90**	**$ 75.10**	**$ (11.40)**	**$ 129.98**	**$ 210.10**	**$ 337.64**	**$ 457.26**	**$ 578.17**	**$ 633.47**
% of Revenue	*23%*	*32%*	*37%*	*19%*	*-4%*	*34%*	*34%*	*39%*	*39%*	*39%*	*39%*

Balance Sheet	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
						Forecasted					
Assets											
Current Assets											
Cash & Cash Equivalents	4.00	1.20	28.30	16.80	11.60	100.05	220.33	403.67	731.10	1131.80	1760.05
% of Revenue	2%	0%	6%	4%	4%	26%	36%	47%	62%	76%	108%
Accounts & Notes Receivable	48.90	122.70	141.40	90.00	76.30	103.61	167.47	234.62	317.74	401.75	440.18
% of Revenue	19%	35%	32%	23%	26%	27%	27%	27%	27%	27%	27%
Inventories	54.90	49.60	73.30	113.40	105.60	89.87	148.62	225.12	326.99	409.46	419.29
% of Revenue	21%	14%	17%	29%	37%	23%	24%	26%	28%	28%	26%
Other Short-term Assets	18.50	32.60	59.80	51.80	56.30	56.30	56.30	56.30	56.30	56.30	56.30
% of Revenue	7%	9%	14%	13%	20%	15%	9%	7%	5%	4%	3%
Total Current Assets	126.71	206.60	303.35	272.57	250.47	350.60	593.58	920.70	1433.30	2000.62	2677.43
Long-term Assets											
Property, Plant & Equipment	368.90	407.20	468.80	687.90	783.80	822.04	852.95	896.25	925.57	962.64	1003.26
% of Revenue	140%	117%	106%	177%	272%	215%	138%	103%	79%	65%	62%
Accumulated Depreciation	-183.80	-186.50	-193.10	-202.20	-222.40	-251.67	-281.97	-313.71	-346.43	-380.38	-415.69
% of Revenue	-70%	-54%	-44%	-52%	-77%	-66%	-46%	-36%	-30%	-26%	-26%
LT Investments & Receivables	0.00	0.00	0.00	2.20	23.80	23.80	23.80	23.80	23.80	23.80	23.80
% of Revenue	0%	0%	0%	1%	8%	6%	4%	3%	2%	2%	1%
Other Long-term Assets	60.70	69.40	83.00	99.70	101.80	101.80	101.80	101.80	101.80	101.80	101.80
% of Revenue	23%	20%	19%	26%	35%	27%	16%	12%	9%	7%	6%
Total Long-term Assets	246.50	290.74	359.32	588.86	689.03	697.53	697.55	708.84	705.26	708.27	713.55
Total Assets	373.21	497.33	662.67	861.43	939.50	1048.13	1291.13	1629.55	2138.56	2708.90	3390.99
% of Revenue	141%	143%	150%	222%	326%	274%	209%	188%	182%	183%	209%

Liabilities & Shareholders' Equity											
Current Liabilities											
Accounts Payable	25.50	59.70	72.00	83.10	43.90	31.55	51.00	71.44	96.76	122.34	134.04
% of COGS	15%	30%	30%	30%	17%	15%	15%	15%	15%	15%	15%
Accrued Taxes & Other Accruals	11.40	24.50	48.20	37.30	37.00	37.00	37.00	37.00	37.00	37.00	37.00
% of COGS	6%	12%	20%	14%	15%	18%	11%	8%	6%	5%	4%
Short-term Debt	0.00	0.00	0.00	2.10	1.40	1.40	1.40	1.40	1.40	1.40	1.40
% of COGS	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%
Other Short-term Liabilities	2.20	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% of COGS	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Current Liabilities	39.31	86.42	120.71	122.95	82.63	70.28	89.66	110.08	135.37	160.94	172.64
Noncurrent Liabilities											
Long-term Debt	0.00	0.00	34.00	170.00	251.50	251.50	251.50	251.50	251.50	251.50	251.50
% of COGS	0%	0%	14%	62%	100%	120%	74%	53%	39%	31%	28%
Deferred Tax Liabilities	6.60	8.20	2.50	6.70	13.90	13.90	13.90	13.90	13.90	13.90	13.90
% of COGS	4%	4%	1%	2%	6%	7%	4%	3%	2%	2%	2%
Other Long-term Liabilities	326.40	402.00	15.20	16.40	23.30	23.30	23.30	23.30	23.30	23.30	23.30
% of COGS	186%	202%	6%	6%	9%	11%	7%	5%	4%	3%	3%
Total Current Liabilities	333.04	410.24	51.85	193.75	289.76	289.96	289.48	289.26	289.11	289.03	289.00
Total Liabilities	372.35	496.67	172.56	316.69	372.38	360.25	379.14	399.33	424.48	449.96	461.63
% of Revenue	141%	143%	39%	82%	129%	94%	61%	46%	36%	30%	28%
Shareholder's Equity											
Common Stock	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
% of Revenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Treasury Stock	0.00	0.00	0.00	-0.80	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70
% of Revenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Retained Earnings	0.00	0.00	26.40	76.60	57.70	0.00	0.00	0.00	0.00	0.00	0.00
% of Revenue	0%	0%	6%	20%	20%	0%	0%	0%	0%	0%	0%
Other Equity	0.00	0.00	463.10	468.10	508.70	508.70	508.70	508.70	508.70	508.70	508.70
% of Revenue	0%	0%	105%	121%	177%	133%	82%	59%	43%	34%	31%
Total Shareholder's Equity	0.00	0.00	489.66	544.20	566.00	508.10	508.10	508.10	508.10	508.10	508.10
Total Liabilities & Shareholder's Equity	372.35	496.67	662.22	860.89	938.38	868.34	887.24	907.43	932.58	958.06	969.73

IV: Forecasted Financial Statements –

Avg. Diluted Shares	0.00	0.00	127.70	146.40	146.20	146.20	146.20	146.20	146.20	146.20	146.20
Earnings per Share (Adjusted)	0.00	0.00	0.99	0.34	-0.13	0.83	1.53	2.18	3.31	3.73	4.58
Earning per Share	0.00	0.00	0.92	0.25	-0.14	0.83	1.53	2.18	3.31	3.73	4.58
Margins											
Gross Margin	0.33	0.43	0.47	0.30	0.13	0.45	0.45	0.45	0.45	0.45	0.45
EBITDA Margin	0.22	0.29	0.35	0.15	-0.07	0.34	0.34	0.39	0.39	0.39	0.39
EBIT Margin	0.17	0.25	0.31	0.10	-0.15	0.26	0.29	0.35	0.36	0.37	0.37

Income Statement

								Forecasted			
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
Revenue											
Sales Revenue	264.10	347.40	442.50	388.00	288.20	382.44	618.15	866.00	1172.81	1482.92	1624.77
COGS	175.80	198.60	236.20	273.50	251.40	210.34	339.98	476.30	645.05	815.61	893.62
Gross Profit	88.30	148.80	206.30	114.50	36.80	172.10	278.17	389.70	527.77	667.31	731.15
Operating Expenses											
S,G & A	12.00	13.40	21.10	40.50	44.60	38.24	61.82	43.30	58.64	74.15	81.24
R&D	3.10	3.10	3.80	3.30	3.70	3.87	6.25	8.76	11.87	15.00	16.44
Other Operating Expenses	12.20	22.10	15.50	-4.40	-0.10	0.00	0.00	0.00	0.00	0.00	0.00
	61.00	110.20	165.90	75.10	-11.40	129.98	210.10	337.64	457.26	578.17	633.47
Depreciation & Amortization	14.20	14.90	15.00	19.10	22.00	29.27	30.30	31.74	32.72	33.95	35.31
Abnormal Losses (Gains)											
Disposal of Assets	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Early Extinguishment of Debt	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Restructuring	1.00	4.30	9.30	6.30	-1.10	0.00	0.00	0.00	0.00	0.00	0.00
Other Abnormal Items	1.00	0.40	2.80	10.60	10.80	0.00	0.00	0.00	0.00	0.00	0.00
Operating Income (EBIT)	44.80	86.60	138.80	39.10	-43.20	100.72	179.80	305.90	424.54	544.21	598.16
Non-Operating Expenses (Income)											
Net Interest Expense	0.90	0.00	0.30	0.00	3.70	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Exchange Loss (Gain)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loss (Gain) from Affiliates	0.00	0.00	0.00	0.80	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Operating Expenses (Income)	3.60	31.40	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-tax Income (EBT)	54.50	70.10	153.70	57.40	-25.40	129.98	210.10	337.64	457.26	578.17	633.47
Income Tax Expense											
Current Income Tax	7.00	28.60	30.20	11.00	2.70	8.63	-13.94	19.53	-26.45	33.45	-36.64
Deferred Income Tax	0.40	-0.70	-3.10	-3.40	-9.20	0.00	1.00	2.00	3.00	4.00	5.00
Total Income Tax Expense	7.40	27.90	27.10	7.60	-6.50	8.63	-13.94	19.53	-26.45	33.45	-36.64
Net Extraordinary Gains (Losses)	1.30	5.70	9.60	13.40	1.70	0.00	0.00	0.00	0.00	0.00	0.00
Net Income (A	48.40	47.90	136.20	63.20	-17.20	121.36	224.04	318.11	483.71	544.72	670.12
Net Income	47.10	42.20	126.60	49.80	-18.90	121.36	224.04	318.11	483.71	544.72	670.12
Shareholder's Equity											
Common Stock	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Treasury Stock	0.00	0.00	0.00	-0.80	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70
Retained Earnings	0.00	0.00	26.40	76.60	57.70	179.06	403.10	721.21	1204.92	1749.64	2419.75
Other Equity	0.00	0.00	463.10	468.10	508.70	508.70	508.70	508.70	508.70	508.70	508.70
Total Shareholder's Equity	0.00	0.00	489.60	544.00	565.80	687.16	911.20	1229.31	1713.02	2257.74	2927.85
Total Liabilities & Shareholder's Equity	372.10	496.20	661.50	859.60	936.80	1045.81	1289.30	1627.85	2136.87	2707.18	3389.00
Balance	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Balance Sheet

						Forecasted					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
Assets											
Current Assets											
Cash & Cash Equivalents	4.00	1.20	28.30	16.80	11.60	100.05	220.33	403.67	731.10	1131.80	1760.05
Accounts & Notes Receivable	48.90	122.70	141.40	90.00	76.30	103.61	167.47	234.62	317.74	401.75	440.18
Inventories	54.90	49.60	73.30	113.40	105.60	89.87	148.62	225.12	326.99	409.46	419.29
Other Short-term Assets	18.50	32.60	59.80	51.80	56.30	56.30	56.30	56.30	56.30	56.30	56.30
Total Current Assets	126.30	206.10	302.80	272.00	249.80	349.83	592.71	919.71	1432.13	1999.31	2675.82
Long-term Assets											
Property, Plant & Equipment	368.90	407.20	468.80	687.90	783.80	822.04	852.95	896.25	925.57	962.64	1003.26
Accumulated Depreciation	-183.80	-186.50	-193.10	-202.20	-222.40	-251.67	-281.97	-313.71	-346.43	-380.38	-415.69
LT Investments & Receivables	0.00	0.00	0.00	2.20	23.80	23.80	23.80	23.80	23.80	23.80	23.80
Other Long-term Assets	60.70	69.40	83.00	99.70	101.80	101.80	101.80	101.80	101.80	101.80	101.80
Total Long-term Assets	245.80	290.10	358.70	587.60	687.00	695.98	696.59	708.14	704.75	707.86	713.18
Total Assets	372.10	496.20	661.50	859.60	936.80	1045.81	1289.30	1627.85	2136.87	2707.18	3389.00
Liabilities & Shareholders' Equity											
Current Liabilities											
Accounts Payable	25.50	59.70	72.00	83.10	43.90	31.55	51.00	71.44	96.76	122.34	134.04
Accrued Taxes & Other Accruals	11.40	24.50	48.20	37.30	37.00	37.00	37.00	37.00	37.00	37.00	37.00
Short-term Debt	0.00	0.00	0.00	2.10	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Other Short-term Liabilities	2.20	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Current Liabilities	39.10	86.00	120.20	122.50	82.30	69.95	89.40	109.84	135.16	160.74	172.44
Noncurrent Liabilities											
Long-term Debt	0.00	0.00	34.00	170.00	251.50	251.50	251.50	251.50	251.50	251.50	251.50
Deferred Tax Liabilities	6.60	8.20	2.50	6.70	13.90	13.90	13.90	13.90	13.90	13.90	13.90
Other Long-term Liabilities	326.40	402.00	15.20	16.40	23.30	23.30	23.30	23.30	23.30	23.30	23.30
Total Current Liabilities	333.00	410.20	51.70	193.10	288.70	288.70	288.70	288.70	288.70	288.70	288.70
Total Liabilities	372.10	496.20	171.90	315.60	371.00	358.65	378.10	398.54	423.86	449.44	461.14
Shareholder's Equity											
Common Stock	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Treasury Stock	0.00	0.00	0.00	-0.80	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70
Retained Earnings	0.00	0.00	26.40	76.60	57.70	179.06	403.10	721.21	1204.92	1749.64	2419.75
Other Equity	0.00	0.00	463.10	468.10	508.70	508.70	508.70	508.70	508.70	508.70	508.70
Total Shareholder's Equity	0.00	0.00	489.60	544.00	565.80	687.16	911.20	1229.31	1713.02	2257.74	2927.85
Total Liabilities & Shareholder's Equity	372.10	496.20	661.50	859.60	936.80	1045.81	1289.30	1627.85	2136.87	2707.18	3389.00
Balance	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Cash Flow Statement

								Forecasted			
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
Cash From Operating Activities											
Net Income	47.10	42.20	126.60	49.80	-18.90	121.36	224.04	318.11	483.71	544.72	670.12
Depreciation & Amortization	14.80	15.90	17.80	20.90	25.00	29.27	30.30	31.74	32.72	33.95	35.31
Non-Cash Items											
Stock-Based Compensation	2.10	3.40	4.40	4.30	4.10	0.00	0.00	0.00	0.00	0.00	0.00
Deferred Income Taxes	0.40	-0.70	-3.10	-0.90	-7.10	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Cash Adjusted	-8.50	-43.80	-134.20	21.50	82.10	0.00	0.00	0.00	0.00	0.00	0.00
Change in Non-cash Working Capital	4.90	-41.30	-80.50	3.60	-6.80	23.93	103.16	123.20	159.69	140.90	36.55
Cash from Operating Activities	51.00	58.30	92.00	92.00	92.00	126.70	151.18	226.65	356.74	437.78	668.87
Cash From Investing Activities											
Capex	-25.70	-48.70	-73.60	-184.30	-124.00	-38.24	-30.91	-43.30	-29.32	-37.07	-40.62
Net Change in LT Investments	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Investing Activities	-5.60	-13.80	-4.80	-5.70	-17.10	0.00	0.00	0.00	0.00	0.00	0.00
Cash from Investing Activities	-31.30	-62.50	-78.40	-190.00	-131.10	-38.24	-30.91	-43.30	-29.32	-37.07	-40.62
Cash From Financing Activities											
Dividends Paid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash From (Repayment) Debt	-10.70	0.00	34.00	120.60	-119.10	0.00	0.00	0.00	0.00	0.00	0.00
Cash (Repurchase) of Equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Financing Activities	-7.90	1.50	-21.00	-0.10	238.20	0.00	0.00	0.00	0.00	0.00	0.00
Cash from Financing Activities	-18.60	1.50	13.00	120.50	119.10	0.00	0.00	0.00	0.00	0.00	0.00
Effect of Foreign Exchange Rates	0.00	-0.10	0.50	-0.10	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Beginning Cash Balance		4.00	1.20	28.30	16.80	11.60	100.05	220.33	403.67	731.10	1131.80
Change in the Cash Position	1.10	-2.70	26.60	22.50	80.00	88.45	120.27	183.35	327.42	400.70	628.25
Ending Cash	4.00	1.20	28.30	16.80	11.60	100.05	220.33	403.67	731.10	1131.80	1760.05
Cash Flow	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

V: SUPPORTING SCHEDULES –

Schedules

PP&E Schedule

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
						Forecasted					
Capex	-25.70	-48.70	-73.60	-184.30	-124.00	-38.24	-30.91	-43.30	-29.32	-37.07	-40.62
% of Revenue	*-10%*	*-14%*	*-17%*	*-48%*	*-43%*	*-10%*	*-5%*	*-5%*	*-3%*	*-3%*	*-3%*
Open Net PPE			407.20	468.80	687.90	783.80	792.78	793.39	804.94	801.55	804.66
Add Capex			-73.60	-184.30	-124.00	38.24	30.91	43.30	29.32	37.07	40.62
Less Depreciation			-17.80	-20.90	-25.00	-29.27	-30.30	-31.74	-32.72	-33.95	-35.31
Closing Balance		**407.20**	468.80	687.90	783.80	792.78	793.39	804.94	801.55	804.66	809.98

Est Useful Life Existing	28
Est Useful Life New	30
PPE year end 2020	783.80

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
PPE Pre 2020	14.80	15.90	17.80	20.90	25.00	27.99	27.99	27.99	27.99	27.99	27.99
Capex 2021						1.27	1.27	1.27	1.27	1.27	1.27
Capex 2022							1.03	1.03	1.03	1.03	1.03
Capex 2023								1.44	1.44	1.44	1.44
Capex 2024									0.98	0.98	0.98
Capex 2025										1.24	1.24
Capex TV											1.35
Total Depreciation	14.80	15.90	17.80	20.90	25.00	29.27	30.30	31.74	32.72	33.95	35.31

Shareholder's Equity

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
						Forecasted					
Retained Earnings Opening Balance			0.00	26.40	76.60	57.70	179.06	403.10	721.21	1204.92	1749.64
Net Income			126.60	49.80	-18.90	121.36	224.04	318.11	483.71	544.72	670.12
Stock Issuance (Repurchases)			0.10	0.80	-0.10	0.00	0.00	0.00	0.00	0.00	0.00
Dividends Paid			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Equity			-100.10	27.60	76.50	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings Closing Balance		**0.00**	26.40	76.60	57.70	179.06	403.10	721.21	1204.92	1749.64	2419.75
BS v. Schedule Difference		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

VI: WACC –

Risk-Free Rate	0.86%	US 5-Year Bond Yield as of as of 09/01/2021	WACC - Calculated	16.09%
Equity Risk Premium	9.10%	Bloomberg's US Market Risk Premium as of 09/01/2021	WACC - Bloomberg	16.01%
Pre-Tax Cost of Debt	4.13%	Weighted Average Fixed Coupon as of 09/01/21		
IFC - 5 Year Average Tax Rate	21.97%	Calculated below	Difference	0.08%

Comparable Companies - Unlevered Beta Calculation:

Name	Ticker	Levered (Raw) Beta	Debt (million $ USD)	% Debt	Equity Value (million $ USD)	% Equity	3 yr Avg. Tax Rate	Unlevered Beta
MILLENNIAL LITHIUM CORP	ML CN	2.073	0.08	0.03%	286.86	99.97%	10.59%	2.072
MP MATERIALS CORP	MP US	1.209	674.00	10.81%	5,563.82	89.19%	18.49%	1.100
STANDARD LITHIUM LTD	SLI CN	1.490	3.64	0.29%	1,250.04	99.71%	10.59%	1.486
PIEDMONT LITHIUM INC	PLL US	1.269	1.23	0.13%	949.31	99.87%	10.59%	1.268
AVERAGE		**1.641**	**337.04**	**5.42%**	**2,925**	**94.58%**	**14.54%**	**1.58642**
Livent Corporation	**(NYSE:LTHM)**	**2.056**						

Livent Corporation - Levered Beta & WACC Calculation

	Unlevered Beta	Debt (million $ USD)	% Debt	Equity Value (million $ USD)	% Equity	3 yr Avg. Tax Rate	Levered (Raw) Beta
Current Capital Structure	1.58642	251.50	5.84%	4,052.04	94.16%	21.97%	1.66325
"Optimal" Capital Structure	1.58642	233.09	5.42%	4,070.44	94.58%	21.97%	1.65731
Cost of Equity Based on Comparables, Current Capital Structure							**15.99%**
Cost of Equity Based on Comparables, "Optimal" Capital Structure							**15.94%**
Cost of Equity Based on Historical Beta							**19.57%**
Average Cost of Equity Produced by All Methods							**17.17%**
WACC Based on Comparables, Current Capital Structure							**15.25%**
WACC Based on Comparables, "Optimal" Capital Structure							**15.25%**
WACC, Current Capital Structure and Historical Cost of Equity							**18.61%**
Average WACC Produced by All Methods							**16.09%**

Appendix

3-year Average Tax Rate

Name	Ticker	2016	2017	2018	2019	2020	3 yr Avg. Tax Rate
MILLENNIAL LITHIUM CORP	ML CN						
MP MATERIALS CORP	MP US					18.49%	18.49%
LITHIUM AMERICAS CORP	LAC CN				2.69%		2.69%
STANDARD LITHIUM LTD	SLI CN						
PIEDMONT LITHIUM INC	PLL US						
AVERAGE					**2.69%**	**18.49%**	**10.59%**
Livent Corporation	**(NYSE:LTHM)**	**13.58%**	**39.80%**	**17.63%**	**13.24%**	**25.59%**	**21.97%**

VI: DCF VALUATION –

DCF Model

						Forecasted					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TV
EBIT	44.80	86.60	138.80	39.10	-43.20	100.72	179.80	305.90	424.54	544.21	598.16
EBIT(1-T)	34.96	67.58	108.31	30.51	-33.71	78.59	140.30	238.70	331.28	424.66	466.76
+D&A	14.20	14.90	15.00	19.10	22.00	29.27	30.30	31.74	32.72	33.95	35.31
-Changes in WC	4.90	-41.30	-80.50	3.60	-6.80	23.93	103.16	123.20	159.69	140.90	36.55
-Capex	25.70	48.70	73.60	184.30	124.00	38.24	30.91	43.30	29.32	37.07	40.62
Free Cash Flow to the Firm	18.56	75.08	130.21	-138.29	-128.91	45.68	36.53	103.94	174.99	280.64	424.89
Date						2021-01-11	2022-01-11	2023-01-11	2024-01-11	2025-01-11	2025-01-11

Intrinsic Value

PV Cash Flows	420.57
Terminal Value	9502.06
PV Terminal Value	4506.47
Enterprise Value	4927.05
Equity Value	4687.15
Equity Value/Share	$ 29.02
Current Price	$ 25.09
Upside (Downside)	*16%*

Assumptions

Tax Rate	21.97%	Current Price as of October 12, 2021	25.09	Debt	251.50
Discount Rate	16.09%	Fully Diluted (MM)	161.5	Cash	11.60
EV/EBITDA Multiple	15.00x	Transaction Date	2021-10-12	Market Cap	$ 4,052.04

Cases

Analyst's Discretion	$ 29.02
Base Case	$ 27.98
Bull Case	$ 31.50
Bear Case	$ 27.17

		EV/EBITDA Multiple				
		13.00x	14.00x	15.00x	16.00x	17.00x
	10.00%	$ 33.20	$ 35.63	$ 38.07	$ 40.50	$ 42.94
	12.50%	$ 29.65	$ 31.83	$ 34.00	$ 36.18	$ 38.36
Discount Rate	15%	$ 26.54	$ 28.49	$ 30.44	$ 32.39	$ 34.34
	17.50%	$ 23.80	$ 25.55	$ 27.31	$ 29.06	$ 30.81
	20.00%	$ 21.39	$ 22.97	$ 24.54	$ 26.12	$ 27.70