



EXECUTIVE SUMMARY

Coupled with rising concerns of climate change and governments' commitment to carbon neutrality, it is an irreversible trend of electric vehicles increasingly being adopted as a replacement of conventional vehicles powered by internal combustion engines. It is worth noting that the electric vehicle sales in Europe notably expanded in the previous year that has positioned Europe as another key market in addition to China, partly due to the governments' incentives on purchase of electric vehicles during the pandemic. The governments across the globe remain their supporting stance in the electric vehicle industry with a wide range of updated targets and measures in hopes of promoting the acceptance of electric vehicles as well as relevant technological advancement, including but not limited to funding support for charging infrastructure installation and research support on battery.

China, which has remained a significant presence in the market over the past several years, recorded a substantially higher level of production and sales in recent months compared to the pre-pandemic level. As a result, there has seen a substantial rise in prices of certain major materials used in lithium-ion batteries since the beginning of 2021, which may put pressure on the margins of battery manufacturing and vehicle manufacturing companies.

The increasing adoption of electric vehicles by drivers has brought investment attractiveness in the financial market. The electric vehicle-related Exchange Traded Funds ("ETF") notably outperformed the general market in both the United States (the "US") and China over the previous year, which was contributed by the companies in the value chain of industry, ranging from lithium & battery to vehicle manufacturing. On average, the LTM EV/EBITDA multiples of China and Global (ex-China) electric vehicle manufacturing companies are 16.36x and 34.56x, respectively.

Looking ahead, the electric vehicle market will continue its growth with an increasing share of total vehicle sales. Given the current safety problems of liquid electrolytes in lithium-ion batteries, the technological development towards solid-state batteries is expected to further improve the quality of electric vehicles and address the safety concerns of potential buyers. Compared to traditional lithium-ion batteries, solid-state batteries can provide improved energy density and safety, as well as be much denser and more compact to save space. Electric vehicle companies with more exposure in the adoption of solid-state batteries are expected to attract more consumers and be benefited more from the market growth.

SUPPLY CHAIN OF ELECTRIC VEHICLE

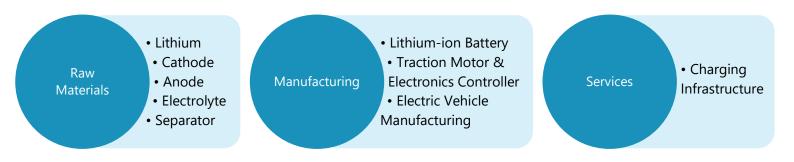
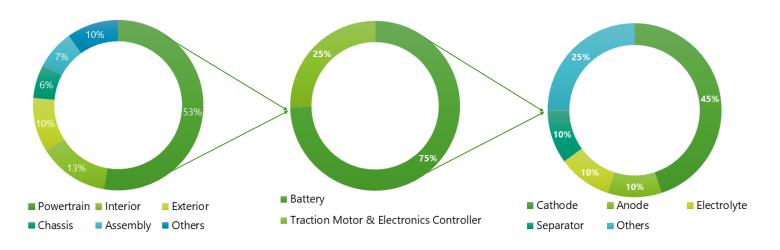


Figure 1: Cost Structure of Electric Vehicle

Figure 2: Cost Structure of Powertrain

Figure 3: Cost Structure of Lithium-ion Battery



SOURCE: König A, Nicoletti L, Schröder D, Wolff S, Waclaw A, Lienkamp M. An Overview of Parameter and Cost for Battery Electric Vehicles. World Electric Vehicle Journal. 2021; 12 (1):21, 高工锂电, AVISTA Research





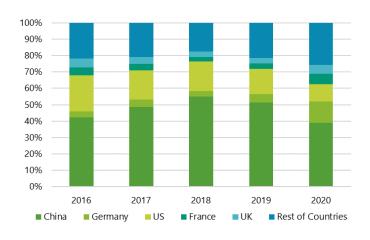
Figure 4: : Global EV Sales by Region (Thousand Units)



SOURCE: Bloomberg

With rising environmental concerns, Electric Vehicles ("EV") market has revealed a great growth of which the buyers from Asia Pacific ("APAC") region solidly supported the EV sales that accounted for 42% share of total EV sales. In 2020, EV sales in global market reached over 3 million units, which expanded over the past 5 years with a compound annualized growth rate ("CAGR") of 44.2%.

Figure 5: Percentage Share of Total EV Sales by Country



SOURCE: Bloomberg

It is noteworthy that EV sales in Europe, the Middle East and Africa ("**EMEA**") market accelerated significantly with share from 25% in 2019 to 43% in 2020. In the period between 2016 and 2020, top 5 countries that accounted for more than 70% share of total EV sales are China, Germany, the US, France and the United Kingdom ("**UK**"), of which EV sales in Germany notably increased in 2020.

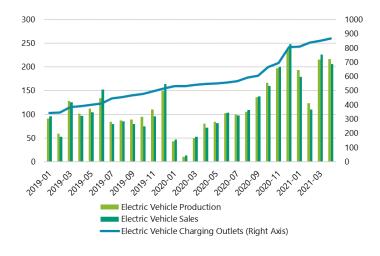
Country/Region	Policy Targets on EV Deployment	Policy Supports to Promote EV Development
China	• To increase the share of electric vehicles sales to 20% by 2025	• China's Shanghai government announced that it would remain the policy to provide the free special license to new consumers of electric vehicles which took effect on 1 March 2021 until 31 December 2023, in order to encourage the adoption of electric vehicles [announced on 11 February 2021]
United States	 To reduce net greenhouse gas ("GHG") emissions by 50-52% below 2005 levels by 2030 To install 500,000 charging stations across the U.S. by 2030 	Biden's administration proposed a USD 174 billion investment plan which would give consumers point of sale rebates and tax incentives to buy American-made EVs [announced on 31 March 2021]
European Union	 To facilitate CO2 emissions to fall 15% by 2025 and 37.5% by 2030 from 2021 level To have at least 30 million electric vehicles on the region's roads by 2030 	 The European Commission approved EUR 2.9 billion (USD 3.5 billion) that would benefit Tesla, BMW, and others to conduct research and innovation projects in electric vehicle batteries [announced on 26 January 2021] The European Battery Alliance presented a series of measures including but not limited to adoption of Batteries Regulation by 2022, development of integrated value chain for raw materials, dedicated training projects to address the skills gap, etc. [announced on 12 March 2021]
Germany	 To reduce GHG emissions by 65% from the 1990 level (previously set at 55%) by 2030 To have between 7 and 10 million electric vehicles registered in Germany and install one million charging stations by 2030 	The German government will provide EUR 5.5 billion (USD 6.5 billion) of funding for electric vehicle charging infrastructure, which will be available until 2024 [announced on 24 March 2021]
France	 To reduce GHG emissions by at least 40% from 1990 level by 2030 and go carbon-neutral by 2050 To ban the sale of most polluting vehicles (emitting more than 123 g CO2/km) by 2030 and to prohibit the sale of any fossil fuel vehicle from 2040 	The French government announced that it would launch EUR 100 million (USD 121 million) funding program to support the installation of fast-charging stations for electric vehicles [announced on 15 February 2021]

SOURCE: AVISTA Research





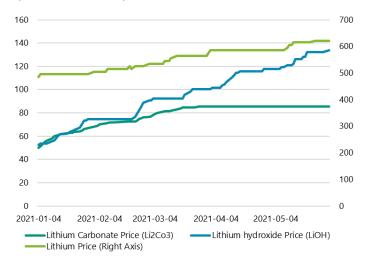
Figure 6: China EV Production & Sales and Charging Outlets (Thousand Units)



SOURCE: Wind

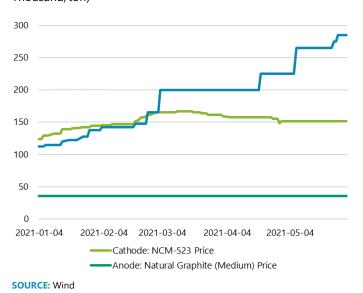
As one of the key EV markets, China's economy revealed a strong recovery from the coronavirus-induced economic downturn, which caused unprecedented mass -scale production halt. In April 2021, EV production and sales in China reached 216,000 and 206,000 units, surging by 112% and 113% compared to the prepandemic 2019 level. In the meantime, the installation of EV charging outlets has been picking up the pace since the second half of 2020 that is expected to spread out EV adoption with appropriate infrastructure support. As of April 2021, there have been over 800,000 units of EV charging outlets, which grew by 58% compared to the same month a year earlier and by 122% compared to the same month in 2019. In other words, China remained its fast pace in installing the EV charging infrastructure despite the coronavirus pandemic.

Figure 7: Lithium-related Product (Battery-grade) Prices in China (RMB Thousand/ton)



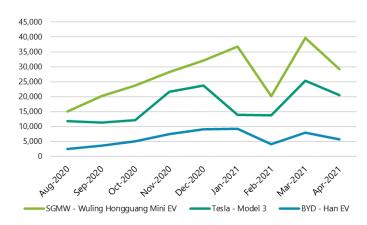
SOURCE: Wind

Figure 8: Key Lithium-ion Battery Materials' Prices in China (RMB Thousand/ton)



Alongside rising EV production and sales demand, some major raw materials' prices revealed a notably increasing trend since the start of 2021, where the prices of Lithium metal, Lithium hydroxide and LiPF6 which is a key material of electrolyte grew in the first 5 months of 2021. Until 31 May 2021, Lithium metal price increased by 27% while lithium hydroxide price even rose by 155% since the start of 2021. Meanwhile, the price of a key input of electrolyte – LiPF6 – also accelerated by 153% since the start of 2021. The rise of input prices may put pressure on the battery and EV manufacturing sectors going forward.

Figure 9: EV Sales of 3 Best-selling Models as of Apr 2021 (Unit)



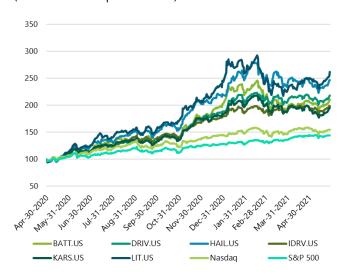
SOURCE: China Passenger Cars' Association (CPCA), AVISTA Research

Table 2: Information of 3 Best-selling Models as of Apr 2021

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	SGMW Wuling Hongguang Mini EV	Tesla Model 3	BYD Han EV
	上泛通用五菱	TESLE	BYD S
Price (RMB)	28,800 – 38,800	299,800 – 399,800	299,800 – 399,800
Top Speed (km/h)	≥ 100	225 - 261	185
Range (km)	120 – 170	468 - 605	550 – 605
Sales Volume (April 2021)	29,251	20,438	5,747

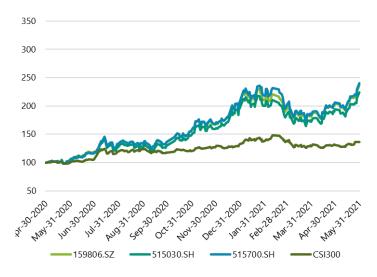
Investment Performance of EV-related ETF

Figure 10: US-listed Electric Vehicle-related ETF Performance (Index Value 30 Apr 2020=100)



SOURCE: S&P Capital IQ, AVISTA Research

Figure 11: China-listed Electric Vehicle-related ETF Performance (Index Value 30 Apr 2020 = 100)



SOURCE: S&P Capital IQ, AVISTA Research

The rising demand for EV has brought investment interest and capital to EV-related ETF in both U.S. and China markets. The ETFs in the US and China also significantly outperformed the respective wider market index since April last year. In particular, the ETFs listed in China revealed similar movement and performance while the ETFs listed in the US may have revealed different superior returns, of which LIT.US (Global X Lithium & Battery Tech ETF) and HAIL.US (SPDR S&P Kensho Smart Mobility ETF) have been the best-performing ETFs.



Transactions Highlights

Figure 12: Top 5 Major Transactions Conducted by EV-related Companies (USD Million)



SOURCE: S&P Capital IQ, AVISTA Research

Table 3: Major Transactions League Table by Values



Rank	Announcement Date	Company	Company's Sector	Role	Target Company	Value (USD Million)
1	28-Apr-2021	SK Innovation Co., Ltd.	Battery Manufacturing	Seller	SK Lubricants	983
2	15-Feb-2021	BorgWarner Inc.	Traction Motor & Electronics Controller	Buyer	Akasol AG	872
3	25-Feb-2021	Albemarle Corporation	Lithium Mining and Production	Seller	Fine Chemistry Services Business	570
4	6-May-2021	Ganfeng Lithium Co., Ltd.	Lithium Mining and Production	Buyer	Bacanora Lithium Plc	297
5	3-May-2021	Ford Motor, BMW, Volta Energy Technologies	Electric Vehicle Manufacturing	Buyer	Solid Power	149

SOURCE: S&P Capital IQ, AVISTA Research





- On 6 May 2021, Ganfeng Lithium and Bacanora Lithium have entered into an agreement that Ganfeng Lithium offered to acquire the remaining 71.12% stake in Bacanora.
- The transaction size was reported to be USD 297 million.
- The acquisition would increase Ganfeng's stake in the Sonora Lithium project in Mexico to 100%, which is expected to begin production in 2023 with the production capacity of 35,000 tonnes of lithium per year.





- On 25 February 2021, Albemarle Corporation, an industry leader in the lithium sector, announced that it has signed a definitive agreement to sell its Fine Chemistry Services business to W.R. Grace & Co. The transaction has been completed on 1 June 2021.
- The transaction size was reported to be USD 570 million.
- The sale reflected Albemarle's intention to refine the company's portfolio and take the opportunity to unlock the substantial value from the quality assets, while the lithium business segment is one of the 3 pillar segments Albemarle is increasingly focusing on.

BorgWarner



- On 15 February 2021, BorgWarner, a leading company in electrified powertrain applications, signed a Business Combination Agreement with AKASOL AG that BorgWarner would acquire AKASOL AG, after which BorgWarner owns 89.08% of AKASOL's outstanding shares.
- The transaction size was reported to be USD 872 million.
- The acquisition was expected to significantly strengthen the commercial vehicle electrification capabilities and battery systems of BorgWarner to meet industrywide demand.





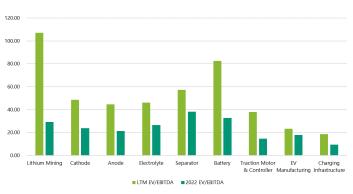
- A group led by BMW Group, Ford Motor Company and Volta Energy Technologies announced a Series-B round of investment to Solid Power, an industry-leading producer of all-solid-state batteries for electric vehicles.
- The transaction size was reported to be USD 149 million.
- For the BMW Group and Ford Motor Company, the investment facilitated the study as regards the use of Solid Power's efficient all-solid-state battery technology in the upcoming electric vehicles whenever appropriate.
- In particular, Solid Power's all-solid cell designs achieve higher energy densities with safer and low-cost features, which would position the electric vehicles of BMW and Ford Motor to be more competitive in the market.

SOURCE: S&P Capital IQ, AVISTA Research



Valuation Statistics of EV-related Companies

Figure 13: LTM & 2022 EV/EBITDA Multiple by Sectors – China



In general, the EBITDA of each sector of China's EV industry is expected to increase in FY 2022. The valuation in the upstream sectors of China's EV industry (e.g. raw materials & battery) are relatively higher, with 2022 EV/EBITDA multiple around 20x - 40x, while the 2022 EV/EBITDA multiple in the EV manufacturing is around 17.8x.

Table 4: Valuation Statistics of EV-related Companies by Sector - China

	Market Capitalization (USD Million)	Enterprise Value (USD Million)	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/ Sales	2022 EV/ EBITDA	2022 P/E
Lithium Mining & Production										
Ganfeng Lithium	26,897	27,873	29.12x	30.18x	140.64x	118.05x	14.07x	14.58x	43.07x	61.56x
Tianqi Lithium Corporation	13,218	18,009	27.28x	37.17x	107.02x	N/A	12.72x	17.33x	29.24x	69.84x
Sichuan Yahua Industrial Group	4,394	4,209	7.89x	7.56x	38.89x	72.72x	N/A	N/A	N/A	N/A
Yongxing Special Materials Technology	3,900	3,726	4.73x	4.51x	55.25x	82.97x	3.29x	3.15x	15.06x	N/A
Shenzhen Chengxin Lithium Group	3,585	3,683	11.28x	11.58x	153.16x	124.70x	4.99x	5.12x	N/A	26.74x
Tibet Mineral Development	2,325	2,234	32.95x	31.67x	756.24x	N/A	N/A	N/A	N/A	N/A
Sinomine Resource Group	2,066	2,046	9.67x	9.57x	44.38x	58.09x	4.38x	4.34x	N/A	N/A
Average	8,055	8,826	17.56x	18.89x	185.08x	91.30x	7.89x	8.90x	29.12x	52.72x
Median	3,900	3,726	11.28x	11.58x	107.02x	82.97x	4.99x	5.12x	29.24x	61.56x
Cathode										
Ningbo Ronbay New Energy Technology	7,710	7,473	11.14x	10.8x	108.07x	164.35x	3.61x	3.50x	35.31x	52.81x
Ningbo Shanshan	4,511	6,154	2.69x	3.67x	30.95x	56.41x	1.15x	1.57x	12.82x	17.77x
Xiamen Tungsten	4,498	6,430	1.36x	1.94x	17.56x	34.68x	1.15x	1.64x	15.90x	27.69x
Beijing Easpring Material Technology	4,058	3,766	6.6x	6.12x	48.46x	53.06x	3.35x	3.11x	23.72x	35.01x
Shenzhen Dynanonic	2,679	2,670	13.56x	13.51x	614.41x	1,112.77x	4.33x	4.32x	32.33x	80.87x
Average	4,691	5,299	7.07x	7.21x	163.89x	284.25x	2.72x	2.83x	24.02x	42.83x
Median	4,498	6,154	6.6x	6.12x	48.46x	56.41x	3.35x	3.11x	23.72x	35.01x
Anode										
Shanghai Putailai New Energy Technology	11,318	10,599	11.96x	11.2x	48.81x	81.56x	7.44x	6.97x	29.88x	46.78x
Ningbo Shanshan	4,511	6,154	2.69x	3.67x	30.95x	56.41x	1.15x	1.57x	12.82x	17.77x
Shenzhen XFH Technology	718	684	9.11x	8.68x	44.74x	75.91x	N/A	N/A	N/A	N/A
Average	5,516	5,812	7.92x	7.85x	41.5x	71.29x	4.29x	4.27x	21.35x	32.28x
Median	4,511	6,154	9.11x	8.68x	44.74x	75.91x	4.29x	4.27x	21.35x	32.28x

Table 4: Valuation Statistics of EV-related Companies by Sector – China (Cont'd)

	Market Capitalization (USD Million)	Enterprise Value (USD Million)	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/ Sales	2022 EV/ EBITDA	2022 P/E
Electrolyte										
Guangzhou Tinci Materials Technology	13,541	13,706	17.21x	17.42x	61.98x	114.02x	9.65x	9.76x	46.14x	56.03x
Shenzhen Capchem Technology	5,836	5,667	10.68x	10.37x	46.07x	66.55x	6.61x	6.42x	26.56x	39.82x
Do-Fluoride Chemicals	3,231	3,653	4.54x	5.14x	48.37x	150.51x	N/A	N/A	N/A	N/A
Shandong Shida Shenghua Chemical Group	3,070	3,023	3.8x	3.75x	24.71x	39.48x	3.22x	3.18x	N/A	N/A
Jiangsu Guotai International Group	1,892	1,043	0.41x	0.23x	3.35x	12.65x	0.29x	0.16x	3.21x	12.19x
Average	5,514	5,419	7.33x	7.38x	36.89x	76.64x	4.94x	4.88x	25.3x	36.01x
Median	3,231	3,653	4.54x	5.14x	46.07x	66.55x	4.92x	4.8x	26.56x	39.82x
Separator	,									
Yunnan Energy New	24,755	25,297	31.36x	32.04x	71.85x	115.09x	18.43x	18.83x	36.13x	60.91x
Shenzhen Senior Technology Material	3,258	3,442	16.89x	17.84x	57.35x	127.8x	9.67x	10.22x	40.41x	96.98x
Cangzhou Mingzhu Plastic	1,182	1,273	2.55x	2.74x	14.83x	20.27x	N/A	N/A	N/A	N/A
Average	9,732	10,004	16.93x	17.54x	48.01x	87.72x	14.05x	14.53x	38.27x	78.95x
Median	3,258	3,442	16.89x	17.84x	57.35x	115.09x	14.05x	14.53x	38.27x	78.95x
Battery Manufacturing										
Contemporary Amperex Technology (CATL)	158,752	153,045	17.21x	16.59x	87.77x	153.07x	8.33x	8.03x	39.09x	80.54x
BYD Company Limited	75,171	79,764	2.77x	2.94x	23.35x	113x	2.06x	2.19x	19.3x	69.04x
EVE Energy	32,906	33,009	21.98x	22.05x	118.38x	105.37x	8.3x	8.33x	40.87x	51.72x
Gotion High-Tech	7,215	7,819	6.49x	7.03x	77.42x	288.35x	3.79x	4.1x	26.16x	66.57x
Farasis Energy (Gan Zhou)	5,624	5,007	27.03x	24.06x	N/A	N/A	N/A	N/A	N/A	N/A
Average	55,934	55,729	15.09x	14.53x	76.73x	164.95x	5.62x	5.66x	31.35x	66.97x
Median	32,906	33,009	17.21x	16.59x	82.6x	133.04x	6.04x	6.06x	32.62x	67.81x

Table 4: Valuation Statistics of EV-related Companies by Sector – China (Cont'd)

	Market Capitalization (USD Million)	Enterprise Value (USD	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/Sales	2022 EV/ EBITDA	2022 P/E
Traction Motor & Electronics										
Shenzhen Inovance	26,590	26,291	13.03x	12.88x	60.46x	67.69x	8.86x	8.76x	41.94x	47.06x
HUAYU Automotive Systems	12,141	9,407	0.55x	0.43x	6.38x	12.13x	0.49x	0.38x	4.44x	10.27x
Zhongshan Broad-Ocean	1,950	1,598	1.51x	1.24x	15.21x	60.66x	1.41x	1.15x	14.68x	N/A
Zhejiang Founder Motor	618	637	2.89x	2.98x	N/A	N/A	N/A	N/A	N/A	N/A
Zhuhai Enpower Electric	381	386	5.53x	5.61x	222.48x	125.02x	N/A	N/A	N/A	N/A
Average	8,336	7,664	4.7x	4.63x	76.13x	66.37x	3.58x	3.43x	20.35x	28.67x
Median	1,950	1,598	2.89x	2.98x	37.83x	64.17x	1.41x	1.15x	14.68x	28.67x
Electric Vehicle Manufacturing	,									
BYD Company	75,171	79,764	2.77x	2.94x	23.35x	113x	2.06x	2.19x	19.3x	69.04x
NIO Inc.	63,265	58,953	18.13x	16.89x	N/A	N/A	7.15x	6.66x	277.89x	7,110.21
Great Wall Motor Company	44,032	44,922	2.36x	2.41x	27.06x	37.71x	1.83x	1.86x	16.32x	25.51x
SAIC Motor Corporation	36,853	38,404	0.29x	0.3x	6.79x	9.23x	0.27x	0.28x	6.12x	8.14x
XPeng Inc.	25,086	20,317	19.61x	15.88x	N/A	N/A	5.88x	4.76x	N/A	N/A
Geely Automobile Holdings	24,977	22,765	1.77x	1.61x	24.3x	29.47x	1.32x	1.2x	8.63x	14.88x
Li Auto Inc.	21,073	17,097	11.34x	9.2x	N/A	N/A	4.13x	3.35x	149.91x	153.44x
Guangzhou Automobile	15,823	15,281	1.52x	1.47x	N/A	12.62x	1.37x	1.32x	34.33x	10.46x
BAIC Motor Corporation	2,892	1,542	0.1x	0.05x	0.29x	5.05x	0.09x	0.05x	0.27x	4.74x
Average	34,353	33,227	6.43x	5.64x	16.36x	34.51x	2.68x	2.41x	64.1x	924.55x
Median	25,086	22,765	2.36x	2.41x	23.35x	21.05x	1.83x	1.86x	17.81x	20.19x
Charging Infrastructure										
Qingdao TGOOD Electric	4,570	5,169	3.73x	4.22x	54.67x	114.66x	2.27x	2.57x	18.86x	59.6x
East Group	2,317	2,796	3.56x	4.30x	18.6x	32.22x	N/A	N/A	N/A	N/A
XJ Electric	2,142	2,103	1.17x	1.15x	11.86x	19.08x	0.9x	0.89x	9.32x	N/A
Zhejiang Wanma	1,062	1,043	0.67x	0.66x	14.26x	25.55x	0.52x	0.51x	6.39x	20.45x
Shenzhen Auto Electric Power	580	618	11.44x	12.19x	175.76x	380.56x	N/A	N/A	N/A	N/A
Average	2,134	2,346	4.11x	4.5x	55.03x	114.41x	1.23x	1.32x	11.52x	40.02x
Median	2,142	2,103	3.56x	4.22x	18.6x	32.22x	0.9x	0.89x	9.32x	40.02x

Table 5: Valuation Statistics of EV-related Companies by Sector – Global ex-China

	Market Capitalization (USD Million)	Enterprise Value (USD	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/ Sales	2022 EV/ EBITDA	2022 P/E
Lithium Mining & Production										
Albemarle Corporation	19,502	21,290	6.06x	6.61x	25.91x	53.54x	5.2x	5.68x	19.99x	32.46x
Sociedad Química y Minera	11,417	12,594	5.84x	6.45x	21.23x	60.89x	4.28x	4.72x	12.23x	22.33x
Livent Corporation	2,859	3,142	9.18x	10.09x	215.2x	N/A	6.6x	7.25x	29.33x	50.24x
Lithium Americas Corp.	1,851	1,479	N/A	N/A	N/A	N/A	37.06x	29.61x	N/A	N/A
Orocobre Limited	1,757	1,856	27.46x	29.00x	N/A	N/A	8.61x	9.1x	28.33x	358.56x
Average	7,477	8,072	12.14x	13.04x	87.45x	57.22x	12.35x	11.27x	22.47x	115.9x
Median	2,859	3,142	7.62x	8.35x	25.91x	57.22x	6.6x	7.25x	24.16x	41.35x
Cathode										
Umicore SA	14,439	16,248	0.57x	0.64x	20.55x	90.43x	2.72x	3.07x	11.39x	21.93x
Ecopro BM.	3,453	3,602	4.39x	4.58x	42.72x	80.01x	1.88x	1.96x	18.25x	32.21x
Mitsui Mining & Smelting	1,687	3,785	0.36x	0.8x	4.93x	4.17x	0.33x	0.73x	5.97x	N/A
Tanaka Chemical Corporation	296	303	1.41x	1.44x	11.42x	125.3x	N/A	N/A	N/A	N/A
Average	4,969	5,984	1.68x	1.87x	19.9x	74.98x	1.64x	1.92x	11.87x	27.07x
Median	2,570	3,693	0.99x	1.12x	15.99x	85.22x	1.88x	1.96x	11.39x	27.07x
Anode										
Mitsubishi Chemical	11,355	32,029	0.39x	1.09x	12.85x	N/A	0.35x	0.98x	7.12x	N/A
Cabot Corporation	3,601	4,730	1.3x	1.71x	10.15x	N/A	1.12x	1.47x	7.54x	13.88x
Average	7,478	18,379	0.84x	1.4x	11.5x	N/A	0.73x	1.22x	7.33x	13.88x
Median	7,478	18,379	0.84x	1.4x	11.5x	N/A	0.73x	1.22x	7.33x	13.88x
Electrolyte										
BASF SE	74,857	94,523	1.03x	1.3x	10.65x	N/A	0.9x	1.14x	7.66x	13.95x
Ube Industries, Ltd.	2,128	3,534	0.38x	0.64x	6.28x	10.26x	0.37x	0.61x	4.8x	N/A
Average	38,492	49,028	0.71x	0.97x	8.46x	10.26x	0.63x	0.87x	6.23x	13.95x
Median	38,492	49,028	0.71x	0.97x	8.46x	10.26x	0.63x	0.87x	6.23x	13.95x

Table 5: Valuation Statistics of EV-related Companies by Sector – Global ex-China (Cont'd)

	Market Capitalization (USD Million)	Enterprise Value (USD Million)	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/ Sales	2022 EV/ EBITDA	2022 P/E
Separator										
Asahi Kasei Corporation	15,265	19,505	0.8x	1.02x	7.07x	21.17x	0.76x	0.97x	6.81x	N/A
Sumitomo Chemical Company	8,956	21,976	0.43x	1.06x	8.51x	21.52x	0.39x	0.96x	7.35x	N/A
Average	12,111	20,741	0.62x	1.04x	7.79x	21.34x	0.57x	0.97x	7.08x	N/A
Median	12,111	20,741	0.62x	1.04x	7.79x	21.34x	0.57x	0.97x	7.08x	N/A
Battery Manufacturing										
LG Chem	54,327	60,561	1.85x	2.06x	12.66x	33.94x	1.26x	1.4x	8.6x	20.16x
Samsung SDI	37,014	39,323	3.51x	3.73x	23.78x	57.88x	2.44x	2.59x	15.1x	30.11x
Panasonic Corporation	26,565	25,471	0.44x	0.42x	4.72x	17.8x	0.41x	0.39x	4.36x	N/A
SK Innovation	19,935	29,660	0.69x	1.03x	28.61x	N/A	0.45x	0.67x	9.5x	23.84x
Average	34,460	38,754	1.62x	1.81x	17.44x	36.54x	1.14x	1.26x	9.39x	24.7x
Median	31,789	34,492	1.27x	1.55x	18.22x	33.94x	0.85x	1.03x	9.05x	23.84x
Traction Motor & Electronics Controller										
Siemens Aktiengesellschaft	129,588	157,504	1.89x	2.3x	17.29x	18.59x	1.69x	2.06x	12.16x	17.3x
General Electric Company	123,428	172,901	1.6x	2.24x	30.58x	N/A	1.5x	2.11x	17.09x	26.54x
ABB Ltd	69,056	72,029	2.57x	2.69x	23.48x	13.1x	2.3x	2.39x	13.96x	22.44x
Nidec Corporation	67,007	69,894	4.58x	4.78x	30.11x	60.77x	4.17x	4.35x	25.97x	N/A
DENSO Corporation	53,080	54,228	1.19x	1.22x	12.23x	46.95x	1.04x	1.07x	7.48x	N/A
Infineon Technologies AG	52,926	57,305	4.51x	4.88x	22.07x	102.25x	3.59x	3.88x	13.38x	24.63x
Hitachi	50,633	68,586	0.64x	0.87x	7.69x	11.17x	0.58x	0.79x	6.45x	N/A
Mitsubishi Electric	33,140	30,558	0.87x	0.81x	7.49x	18.98x	0.81x	0.74x	6.95x	N/A
Continental Aktiengesellschaft	29,564	34,413	0.66x	0.77x	7.96x	N/A	0.54x	0.62x	4.49x	10.13x
BorgWarner Inc.	12,302	14,818	1.03x	1.25x	8.22x	28.22x	0.73x	0.88x	5.66x	10.33x
Average	62,072	73,224	1.96x	2.18x	16.71x	37.5x	1.7x	1.89x	11.36x	18.56x
Median	53,003	62,946	1.39x	1.74x	14.76x	23.6x	1.27x	1.56x	9.82x	19.87x

Table 5: Valuation Statistics of EV-related Companies by Sector – Global ex-China (Cont'd)

	Market Capitalization (USD Million)	Enterprise Value (USD	LTM P/S	LTM EV/ Sales	LTM EV/ EBITDA	LTM P/E	2022 P/S	2022 EV/ Sales	2022 EV/ EBITDA	2022 P/E
Electric Vehicle Manufacturing										
Tesla, Inc.	602,293	599,111	16.76x	16.67x	131.64x	526.94x	9.04x	8.99x	45.94x	78.97x
Toyota Motor Corporation	232,679	404,925	0.95x	1.65x	11.66x	11.46x	0.84x	1.47x	11.44x	N/A
Volkswagen AG	162,789	354,148	0.6x	1.31x	11.1x	11.83x	0.51x	1.1x	7.66x	8.73x
Daimler AG	99,632	241,265	0.54x	1.3x	12.47x	10.85x	0.45x	1.09x	8.26x	6.92x
General Motors Company	86,039	181,251	0.7x	1.48x	11.4x	9.4x	0.57x	1.2x	6.83x	8.81x
Bayerische Motoren Werke Aktiengesellschaft (BMW AG)	69,036	175,312	0.57x	1.46x	14.26x	9.75x	0.48x	1.23x	8.4x	6.86x
Ford Motor Company	57,999	180,821	0.45x	1.4x	21.4x	14.59x	0.38x	1.17x	11.96x	8.03x
Nissan Motor	19,265	73,147	0.27x	1.03x	74.36x	N/A	0.23x	0.87x	19.24x	N/A
Renault SA	11,244	64,255	0.21x	1.21x	22.79x	N/A	0.17x	1x	8.28x	5.28x
Average	148,997	252,693	2.34x	3.06x	34.56x	84.97x	1.41x	2.01x	14.22x	17.66x
Median	86,039	181,251	0.57x	1.4x	14.26x	11.46x	0.48x	1.17x	8.4x	8.03x
Charging Infrastructure										
ChargePoint Holdings, Inc.	7,444	8,050	50.82x	54.95x	N/A	N/A	36.69x	39.67x	N/A	N/A
Blink Charging Co.	1,427	1,198	199.27x	167.26x	N/A	N/A	55.44x	46.53x	N/A	N/A
Beam Global	259	234	41.4x	37.28x	N/A	N/A	11.65x	10.49x	N/A	N/A
Average	3,044	3,161	97.16x	86.5x	N/A	N/A	34.59x	32.23x	N/A	N/A
Median	1,427	1,198	50.82x	54.95x	N/A	N/A	36.69x	39.67x	N/A	N/A



Vincent Pang CFA, FCPA (HK), FCPA (Aus.), MRICS, RICS Registered Valuer Managing Director +852 3702 7338 vincent.pang@avaval.com



Hailey Jin
Director, Valuation Advisory
+86 21 3316 0291
hailey.jin@avaval.com



Ivan Lui CFA, FCPA, LL.M, MRICS, RICS Registered Valuer Director, Valuation Advisory +852 3702 7368 ivan.lui@avaval.com









