

# China / Hong Kong Industry Focus

## China Lithium Sector

Refer to important disclosures at the end of this report

DBS Group Research . Equity

28 Feb 2023

### Supply still lagging behind demand

- **Expect low project commissioning rate to limit new market supply**
- **Lithium price started to stabilise after 20% YTD correction**
- **Strong storage market and China EV sales growth to drive solid lithium demand**
- **[Ganfeng \(1772 HK\)](#) and [Tianqi \(9696 HK\)](#) would benefit from market share expansion and stable GP, with recent share correction offer good entry opportunities**

#### Expect only half of the new supply to commence in 2023.

Based on the lagging project development schedule, we believe the current market estimation on the new industry supply this year remains too bullish. Upon feedback from industry participants, we expect only half of the pre-commissioned projects will commence over the next six months, while plants would need another six months to optimise the ore to be battery grade. Meanwhile, we expect a lower supply CAGR of 25% (previous: 29%) in 2022-2025.

**Solid storage demand and China's EV market to drive demand.** Although China has cut EV purchase subsidies, we believe lithium consumption growth in power storage and battery production will remain strong this year. Also, demand would see support from improvement in the electronic products market. Meanwhile, we believe the clarity of the US's Inflation Reduction Act may boost US lithium market growth in the medium term. We maintain our forecast that global lithium demand would accelerate to an estimated CAGR of 29% till 2025.

#### The market concern of oversupply has been priced in.

Contrary to market expectations of a deep correction, we believe the new project delays will support the lithium price at an elevated level this year. The market leaders – Ganfeng and Tianqi – would be in strong positions to capture the fast industry growth relative to their global listing peers, and hence deserve higher valuation multiples. The two stocks are currently trading at only 1.5x FY23F P/BV, compared to the average of 3.0x P/BV between 2018 and 2022, and the industry average of 2.4x. We expect the upcoming seasonal strength in EV sales to drive a lithium market price rebound and become a share price catalyst.

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### Recommendation & valuation

Company	Currency	Price	Target Price	Rating
<a href="#">Ganfeng (1772 HK)</a>	HK\$	57.25	90	BUY
<a href="#">Tianqi (9696 HK)</a>	HKD	57.50	95	BUY

Source: Thomson Reuters, DBS Bank (Hong Kong) Limited ("DBS HK")

### Tight supply unavoidable

We would like to highlight a few pointers on our optimism towards the lithium market: (1) Progress of new development projects would be behind schedule due to the low commencement rate, (2) it is estimated that compound production capacity would need at least six to nine months to optimise the ore materials to the battery grade, adding potential further supply delay to market and (3) keen demand from the rapid storage market development, along with solid demand growth from the rechargeable battery segment. In conclusion, we believe the lithium market will remain in tight supply, supporting the lithium price seasonal rebound into 2023.

### Lithium supply net added overview, 2019-2025

	2019	2020	2021	2022E	2023E	2024E	2025E
Unit: '000 tons LCE							
Estimated supply	427	478	524	686	944	1,153	1,357
% growth		11.9%	9.4%	31.1%	37.6%	22.1%	17.7%
<b>Asset-level</b>							
Albemarle	106	2	9	42	31	12	34
SQM	56	11	9	22	41	26	15
Tianqi	52	12	7	4	24	7	5
Pilbara	29	4	4	4	16	27	23
Ganfeng	22	5	4	5	7	7	7
MRL	27	-4	3	14	1	0	6
Altura	14	6	-20	24	10	7	5
Livent (FMC)	15	2	2	7	5	3	2
Citic Guoan	24	2	2	2	0	0	0
Galaxy	18	-2	7	3	3	12	13
Others	64	13	19	35	120	108	94
<b>Total net added</b>		<b>51</b>	<b>46</b>	<b>162</b>	<b>258</b>	<b>209</b>	<b>204</b>
% of supply		10.6%	8.6%	23.7%	27.3%	18.1%	15.0%

Source: DBS HK

### Supply: New projects commissioning rate still low

**New project commissioning schedule uncertainty.** The challenges affecting a project's commissioning schedule can range from political to social issues; nonetheless, other aspects such as economic feasibility and profitability must also be taken into consideration. Bolivia has the largest lithium resource in the world, but it does not have a strong commercial extraction operation, and lithium extraction is a complex and intensive process. Meanwhile, environmental and social issues also become a concern. In the meantime, the market expects over 250,000 tonnes of LCE supply to newly commence in 2023, despite only half of them being likely to materialise based on actual market circumstances.

**Lagging progress in non-spodumene (lepidolite) projects as well.** The market expected new construction projects to expand capacity to an estimated 75,500 tonnes LCE in 2022 and 136,500 tonnes LCE in 2023. But based on our channel check with producers in the industry, the commissioning of most of the planned projects could be delayed by up to a year from their original scheduled dates due to various technical issues encountered during mining or project ramp-ups. In terms of resource type, we foresee that supply contribution from clay and lepidolite would be roughly about >5%, while brine and spodumene remain the majority.

**Supply overhang in Southern America.** On 18 February 2023, media reported that Mexico President Andrés Manuel López Obrador signed a decree to ensure that lithium is not exploited by Russia, China, or the US. This was after the news of nationalising lithium resources in August and November 2022. We believe his preference on nationalising the lithium resource to avoid exploitation by foreign countries has added market anxiety over the lithium supply landscape, where the technology and investment required for the extraction is huge. Chile and Mexico (lithium producing countries mentioned to be at potential risk of being nationalised) combined accounted for one-third of global total mine resources supply.

### The Yichun Incident to keep tight supply towards 2H23.

News report that China Yichun city government is cracking down illegal lithium mining production that could disrupt almost one-tenth of global supply. Meanwhile, based on the overall lagging project supply situation, we expect that the lithium market will remain in tight supply in the near term, at least until 4Q23.

### Demand: Expect demand resuming from seasonal low

**Solid demand growth from transport and storage.** We foresee global annual lithium demand increasing at a CAGR of 29.4% between 2022 to 2025, reaching a total of 1.3m tonnes of LCE in 2025. In particular, lithium demand is expected to rise for lithium-ion batteries for use as EV rechargeable batteries, one of the key end markets riding on the rising penetration of electric passenger vehicles. This is estimated to grow at a CAGR of 31.7% during the upcoming forecast period. In addition, along with the global energy transition and "carbon neutrality" goals, energy storage systems will also be one of the fastest-growing end markets, at a CAGR of 40%.

**China Lithium Sector**

**The US's IRA overhang.** According to the Act, the tax deduction eligibility for newly purchased electric vehicles will be strictly limited as it will require a minimum level of critical materials to be procured from the US or its FTA partner countries each year. On a bright note, we believe leading producers who have fulfilled all the credential requirements could benefit from expanding and driving market growth in western markets. Thus, we believe the potential impact from the Inflation Reduction Act to be neutral.

**Next-generation technologies have limited effect on mid-term lithium outlook.** Automakers like Tesla, VW, Ford, and Rivian plan to use lithium-iron-phosphate (LFP) for their entry-level models with lower driving ranges. Meanwhile, there were news reports of a breakthrough in launching the semi solid state battery from Ganfeng, putting it ahead of schedule. Lithium-nickel-manganese-cobalt-oxide (NMC) is

the mainstream cathode chemistry for cell production, in view of the energy density and suitability for EVs. In the meantime, we believe development of next-generation technologies should have a limited impact on the growing lithium demand trend.

China lithium consumption is expected to set a new milestone. China new energy vehicles are expected to reach 9m units in 2023, representing a rapid growth at over 27% y-o-y. In addition, China's energy storage capacity is to maintain its fast growth at over 140% this year. The two drivers are expected to contribute to China's lithium battery shipment, enabling it to exceed 1TWh first time this year, translating into at least 40% growth in lithium consumption.

**Our lithium market assumptions**

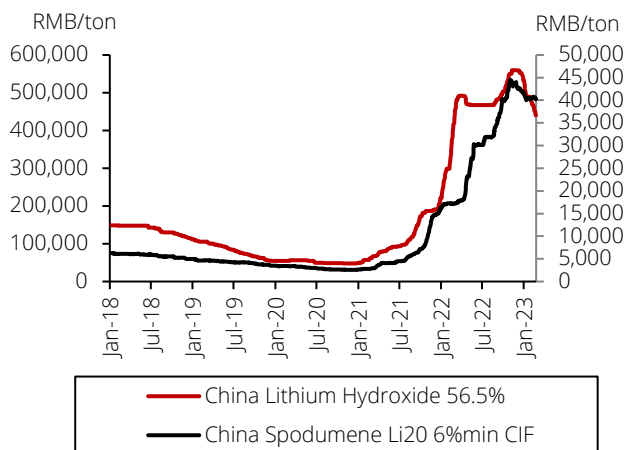
Unit: '000 tons LCE, RMB/t	2018	2019	2020	2021	2022	2023	2024	2025
Mine supply (lithium carbonate equivalent)	479	427	478	524	686	944	1,153	1,357
Refined capacity	413	555	719	997	1,284	1,528	1,668	1,770
Production	315	503	606	702	735	961	1,261	1,595
Implied utilisation (%)	76	91	84	70	57	63	76	90
Consumer electronics	66	73	98	92	81	84	95	99
Stationary storage	7	7	12	23	40	61	67	82
Passenger Evs	57	80	168	303	426	517	686	901
Commercial Evs	8	5	11	26	42	60	82	125
Others (E-buses and wheelers)	19	24	28	31	54	69	83	101
Total	158	190	317	474	644	791	1,012	1,308
China Li <sub>2</sub> CO <sub>3</sub> price	116,813	68,971	44,026	121,026	479,194	470,000	450,000	380,000
China LiOH price	137,676	82,472	51,817	113,851	465,329	470,000	465,000	395,000

Source: BloombergNEF, DBS HK

**Price: Seasonal strength opportunities exist**

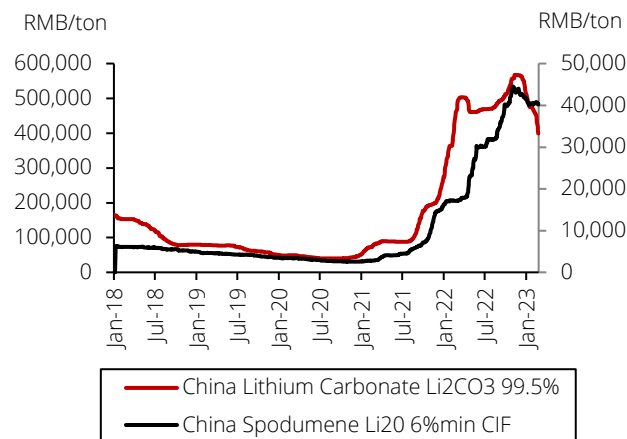
The market strongly believes that a further slash in lithium price will be demonstrated. However, considering the supply project push-back and China's pent-up EV sales set to rebound into 2Q, we expect the resumption of lithium demand to drive a recovery of the lithium price. Among the sub-product market (carbonate vs. hydroxide), we continue to believe that storage market expansion, as well as the expected Chinese automakers' plan of launching more LFP-based EVs, will result in an upbeat growth in lithium carbonate demand. We maintain our view that lithium price will likely hold up in 2023 before entering consolidation into next year as new supply commencements accelerate. In the meantime, we also believe the expectations of improving downstream backlog order would drive manufacturing to restock, resulting in rising demand for lithium products, in our view. In our revised price assumptions, we foresee China's lithium price to settle on par to 2022's level (vs previous forecast of 5% increase), and start to subside in 2024.

**Lithium hydroxide price**



Source: Bloomberg Finance L.P.

**Lithium carbonate price**



Source: Bloomberg Finance L.P.

**Valuation and Recommendation**

China-based lithium producers' share prices were trading laggards. We believe shares of the two major players, Ganfeng and Tianqi, were oversold, providing room for re-rating once market sentiment over the China outlook improves. Considering that the two companies' sales growth is intact at an estimated 9% CAGR (2022 -2024), we believe the two stocks are undervalued, as they are trading at only a 1.5x FY23F P/BV, compared to their historical average of 3.0x P/BV, and the industry average of 2.4x.

**Ganfeng Lithium (1772 HK, BUY, TP HK\$90) – Expanding fast in the lithium market**

We like the company since: **(1) Project progress is well progressing.** With the resumption of the development for the Mount Marion expansion (Australia) in late-2022, along with that of Cauchari-Olaroz (Argentina), operations are scheduled to commence by 2023. We foresee Ganfeng posting a solid sales volume growth at an estimated CAGR of 24% in 2022-2024, driving the company to expand its market share further ahead. **(2) GPM.** We anticipate an acceleration of the company's project progress to boost its self-sufficiency rate of input materials to 70% from the current 40%, which could support its gross profit. We also believe rising contribution from joint ventures (JVs) and the battery segment would drive earnings growth at an estimated CAGR of 7% during 2022-2024. **(3) Unlocking value from downstream expansion.** Ganfeng's development schedule in battery capacity expansion is faster than

expected, with a mid-term target of 40Gwh by 2025 (2022's 7Gwh). After the Seres 5 SUV and Dongfang AON, we expect the company to announce more new partners to adopt its semi/solid-state battery product. Our H-share TP is pegged to a 2.4x FY23F PB.

#### **Tianqi Lithium (9696 HK, BUY, TP HK\$95) – Levering global peer network for expansion**

We are positive on the company's outlook because of: **(1) Well capitalising integrated business model.** Headquartered in the Sichuan province, Tianqi has access to abundant upstream resources that it can convert into lithium compound products for the China market. As a close partner to major peers Talison and SQM, Tianqi could also penetrate the overseas market. We foresee lithium chemicals and derivatives sales accelerating to a 15% CAGR

during 2022-2024. **(2) Leverage on market uptrend.** We believe projects for new supply will continue to be delayed, possibly resulting in a high lithium product price being maintained in 2023. This would benefit Tianqi, given that its product ASP is tracking closely to the market price, and it is delivering superior-to-peer GP at an estimated of above 70% vs. peers' c.50%. **(3) Acquisition of new resources to add long-term value.** Tianqi's strengthened balance sheet upon the completion of the HK IPO could facilitate its inorganic expansion. We are positive about Tianqi's latest acquisition of a lithium mine in Australia, which would add additional resources for the company and drive long-term value. Our H-share TP represents a target of 2.0x FY23F PB.

**China Lithium Sector**

**Ganfeng Lithium**

Headquarters	Jiangxi, China
Reserve	>55m tonnes LCE
Capacity	124,400tpa
Life of mines	448 years
Asset distribution	Argentina, Mexico, Mali, Australia, China
Self-sufficiency	40% and targeting 70% by 2025, noting 100% if including the contribution from Pilbara and Goulamina
Supply chain engaging	Upstream, Refining, Recycling
Key customers	Tesla, BMW

Source: DBS HK

**Tianqi Lithium**

Headquarters	Sichuan, China
Reserve	>60m tonnes LCE
Capacity	68,800tpa
Life of mines	872 years
Asset distribution	Australia, Chile, China
Self-sufficiency	100%
Supply chain engaging	Upstream, Refining
Key customers	Albemarle, CALB

Source: DBS HK

**Key financial comparison: Ganfeng vs. Tianqi**

	Ganfeng Lithium (1772 HK)	Tianqi Lithium (9696 HK)
<b>Revenue (RMB m)</b>		
2022	39,143	27,710
2023	60,996	35,953
2024	58,047	34,796
CAGR 2022-2024 (%)	21.8	12.1
<b>GPM (%)</b>		
2022	51.3	86.0
2023	49.2	76.3
2024	49.1	76.0
<b>EBITDA (RMB m)</b>		
2022	24,617	39,228
2023	32,427	43,613
2024	31,325	42,365
CAGR 2022-2024 (%)	12.8	3.9
<b>Net participation income of total revenue (%)</b>		
2022	8.9	25.3
2023	4.9	16.7
2024	5.2	17.2
<b>Net profit (RMB m)</b>		
2022	20,300	23,201
2023	21,720	24,145
2024	20,783	23,399
CAGR 2022-2024 (%)	1.2	0.4
<b>Net gearing (%)</b>		
2022	Cash	Cash
2023	Cash	Cash
2024	Cash	Cash

Source: DBS HK

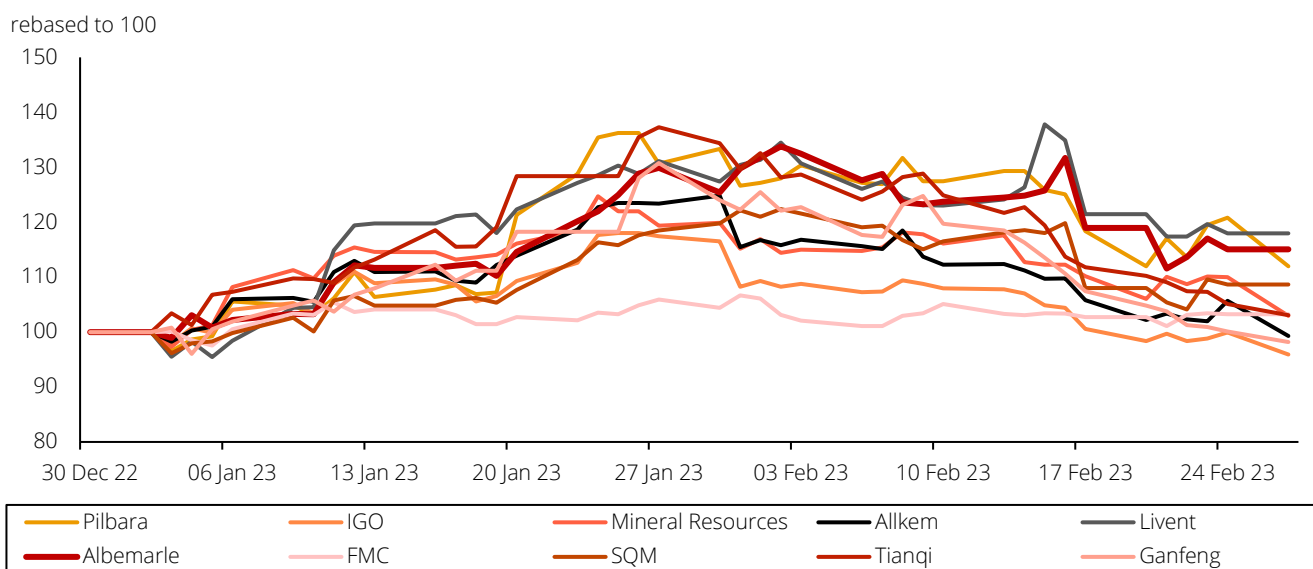
China Lithium Sector

Relative share performance

	Last close	1D	5D	1M	3M	6M	YTD	1YR	52W Hi	52W Lo
Allkem	11.6	0.8	(2.9)	(16.3)	(19.8)	(16.8)	2.8	33.5	16.8	8.6
Livent	23.8	1.9	(13.2)	(5.9)	(19.4)	(21.6)	19.7	13.2	36.4	18.3
IGO	13.3	(0.3)	(2.1)	(16.3)	(16.1)	6.2	(1.5)	20.7	17.3	9.2
SQM	87.5	5.3	(7.1)	(3.1)	(12.0)	(11.7)	9.6	46.3	115.8	56.0
Albemarle	253.9	3.0	(6.9)	(2.6)	(10.6)	(9.7)	17.1	39.5	334.5	169.9
Tianqi	59.9	(0.1)	(5.6)	(16.4)	(9.0)	(27.0)	7.3	na	88.8	54.2
Ganfeng	58.9	(0.3)	(8.8)	(14.6)	(7.4)	(16.5)	0.9	(33.5)	94.8	49.9
Pilbara	4.5	0.4	1.4	(11.4)	(5.9)	29.7	20.0	71.8	5.7	2.0
Mineral Resources	81.6	(4.0)	(4.1)	(15.2)	(5.2)	28.3	5.7	86.6	97.0	42.8
FMC	129.1	0.3	0.0	1.3	0.6	13.9	3.4	12.5	141.0	98.2

Source: Bloomberg Finance L.P., DBS HK

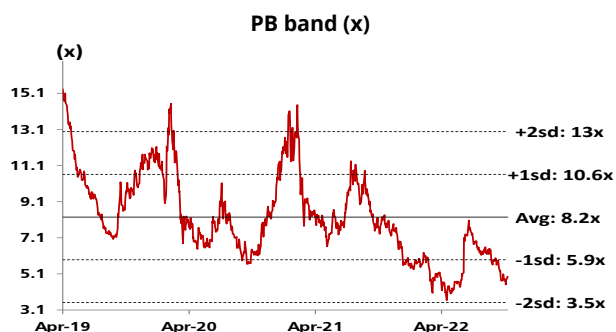
3-month share performance, Dec 2022 to Feb 2023



Source: Bloomberg Finance L.P., DBS HK

Historical PB band - Ganfeng Lithium

Historical PB band - Tianqi Lithium



Source: Bloomberg Finance L.P., DBS HK

Source: Bloomberg Finance L.P., DBS HK

Peer valuation

Company	Ticker	23 Feb		Year End	PER (x)		EPS chg (%)		PBR (x)		EV/EBITDA (x)		Dividend yield (%)	ROE (%)	Net gearing (%)
		Price HK\$	Mkt cap US\$ mn		2022F	2023F	2022F	2023F	2022F	2023F	2022F	2023F			
<b>Mine (upstream)</b>															
QINGHAI SALT LAKE INDUSTRY-A	000792.CH	24.93	135,442	CNY	10.0	7.4	53.4	249.2	5.4	4.7	5.6	6.1	na	83.7	41.4
TIANQI LITHIUM CORP-A	002466.CH	82.71	122,171	CNY	7.2	5.2	na	466.7	2.9	3.0	4.0	3.6	na	64.3	41.9
GANFENG LITHIUM GROUP CO L-A	002460.CH	73.25	118,186	CNY	8.4	6.7	372.2	262.9	3.4	3.1	6.8	6.5	0.3	60.4	36.5
ALBEMARLE CORP	ALB.US	253.85	29,751	USD	11.5	1.1	2046.7	24.2	0.5	0.3	7.1	7.2	0.6	39.5	23.2
WESTERN MINING CO -A	601168.CH	11.95	28,477	CNY	9.2	7.4	223.7	16.3	1.7	1.5	5.8	5.4	1.7	22.1	18.2
GANFENG LITHIUM GROUP CO L-H	1772.HK	58.85	23,750	CNY	5.9	5.4	372.2	259.5	2.7	2.6	6.7	6.4	0.4	60.4	38.0
FMC CORP	FMC.US	129.08	16,260	USD	16.5	2.1	5.6	33.8	0.6	0.6	12.3	11.4	1.8	22.5	28.0
QUIMICA Y MINERA CHIL-SP ADR	SQM.US	87.50	12,497	USD	na	0.8	232.8	na	na	0.7	3.7	3.7	13.6	78.0	85.1
IGO LTD	IGO.US	13.30	10,072	AUD	12.1	1.2	153.9	373.6	0.5	0.4	6.5	6.5	2.0	23.3	33.1
TIANQI LITHIUM CORP-H	9696.HK	59.90	9,831	CNY	21.3	3.8	na	464.9	5.4	1.9	4.1	3.5	na	37.3	37.8
GUANGDONG DOWSTONE TECHNOL-	300409.CH	16.85	9,795	CNY	36.1	na	684.6	na	1.6	na	na	na	0.3	5.5	na
ALLKEM LTD	AKE.US	11.46	7,308	USD	na	1.5	na	94.8	na	0.2	4.3	3.6	na	na	18.7
LIVENT CORP	LTHM.AU	23.78	4,266	USD	16.1	1.6	na	22.7	0.4	0.4	8.0	6.3	na	24.4	23.7
Average					14.0	3.7	460.6	206.2	2.3	1.6	6.2	5.9	2.6	43.5	35.5
<b>Materials (mid-stream)</b>															
NINGBO SHANSHAN CO LTD-A	600884.CH	18.05	40,865	CNY	13.7	11.6	2306.5	(33.1)	1.6	1.6	10.0	8.5	1.8	14.6	14.8
GEM CO LTD-A	002340.CH	7.83	40,212	CNY	30.8	22.5	111.1	61.1	1.9	2.1	15.6	10.4	0.4	7.6	12.9
SHENZHEN CAPCHEM TECHNOLOG-A	300037.CH	45.02	33,571	CNY	17.8	16.2	146.5	38.6	3.6	3.5	14.6	12.6	0.8	26.4	21.7
BEIJING EASPRING MATERIAL-A	300073.CH	61.03	30,912	CNY	16.6	13.1	170.3	71.8	2.5	2.4	12.8	10.1	0.7	24.3	18.8
SHENZHEN SENIOR TECHNOLOGY-A	300568.CH	21.35	27,365	CNY	37.5	30.6	131.0	135.9	2.9	3.1	19.2	12.0	0.2	10.5	16.8
GUANGDONG DOWSTONE TECHNOL-	300409.CH	16.85	9,795	CNY	36.1	na	684.6	na	1.6	na	na	na	0.3	5.5	na
NANCAL TECHNOLOGY CO LTD-A	603859.CH	35.63	5,935	CNY	36.4	28.0	20.9	7.9	2.2	2.1	19.2	14.6	0.3	6.9	9.1
Average					27.0	20.3	510.1	47.0	2.3	2.5	15.2	11.4	0.6	13.7	15.7
<b>Battery (downstream)</b>															
CONTEMPORARY AMPEREX TECHN-A	300750.CH	413.23	1,009,320	CNY	37.8	31.5	175.7	67.9	5.9	6.7	24.6	16.6	0.2	23.2	24.2
TESLA INC	TSLA.US	202.07	639,370	USD	55.2	6.4	115.4	(0.4)	1.8	1.6	31.6	22.5	NA	33.5	27.9
EVE ENERGY CO LTD-A	300014.CH	74.44	152,283	CNY	42.2	37.8	73.0	12.7	6.2	5.6	47.2	22.3	0.2	18.1	22.4
GOTION HIGH-TECH CO LTD-A	002074.CH	30.00	53,366	CNY	271.4	86.0	(44.7)	283.8	2.0	2.3	38.7	21.5	0.3	1.1	6.6
SUNWODA ELECTRONIC CO LTD-A	300207.CH	21.79	40,580	CNY	40.2	29.6	13.3	11.7	2.5	2.3	17.5	9.5	0.3	8.4	14.1
GEM CO LTD-A	002340.CH	7.83	40,212	CNY	30.8	22.5	111.1	61.1	1.9	2.1	15.6	10.4	0.4	7.6	12.9
GUANGZHOU GREAT POWER ENER-A	300438.CH	68.06	31,396	CNY	65.6	43.8	230.8	218.4	7.4	7.9	28.1	15.4	0.1	14.4	28.2
SHENZHEN DESAY BATTERY TEC-A	000049.CH	45.82	13,718	CNY	15.1	13.7	18.5	11.1	3.2	3.1	11.4	9.7	1.6	26.1	22.4
TIANNENG POWER INTL LTD	819.HK	10.68	12,027	CNY	7.6	5.7	(47.7)	44.1	0.8	0.7	3.1	2.7	3.7	10.9	16.2
CHAOWEI POWER HOLDINGS LTD	951.HK	2.04	2,252	CNY	3.8	na	(27.7)	na	0.3	na	na	na	4.3	9.2	na
Average					55.6	31.5	62.8	72.3	3.5	3.8	26.5	15.3	1.1	15.5	19.7
<b>Equipment (downstream)</b>															
WUXI LEAD INTELLIGENT EQUI-A	300450.CH	44.45	69,616	CNY	30.9	23.4	94.7	57.5	5.9	5.4	23.8	15.5	1.1	23.3	28.1
HAN'S LASER TECHNOLOGY IN-A	002008.CH	29.58	31,120	CNY	20.6	19.7	104.3	(30.5)	1.9	2.2	17.9	13.6	1.4	11.7	12.1
SHENZHEN YINGHE TECHNOLOGY-A	300457.CH	20.08	13,043	CNY	26.3	20.6	50.0	78.8	2.0	1.9	22.4	13.6	0.5	9.0	13.9
FUJIAN NEBULA ELECTRONICS -A	300648.CH	42.10	6,222	CNY	na	na	23.1	na	5.3	na	na	na	0.1	na	na
JIANGMEN KANHOO INDUSTRY C-A	300340.CH	16.99	3,629	CNY	na	na	na	na	4.9	na	na	na	na	na	na
Average					25.9	21.3	68.0	35.3	4.0	3.1	21.4	14.3	0.8	14.7	18.0
<b>Grand Average</b>					32.3	17.6	280.0	112.6	2.9	2.6	16.0	10.8	1.4	25.2	24.9

Source: Bloomberg Finance L.P.



DBS HK recommendations are based on an Absolute Total Return\* Rating system, defined as follows:

**STRONG BUY** (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)

**BUY** (>15% total return over the next 12 months for small caps, >10% for large caps)

**HOLD** (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)

**FULLY VALUED** (negative total return, i.e., > -10% over the next 12 months)

**SELL** (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

\*Share price appreciation + dividends

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