CMB International Securities | Equity Research | Company Initiation

CMB INTERNATIONAL
招商银行全资附属机构
A Wholly Owned Subsidiary Of China Merchants Bank

China Hongqiao (1378 HK)

Sail through the winds and waves

BUY (Initiation)

Target Price	**HK$11.37**
Up/Downside	**+41.9%**
Current Price	**HK$8.01**

China Aluminum Sector

Robin Xiao
(852) 3900 0849
robinxiao@cmbi.com.hk

China Hongqiao Group Co., Ltd.（CHQ）is the largest aluminum producer in the world. The Company established costs leadership and formed integrated global supply chain covering bauxite, alumina, aluminum and fabrication products. CHQ met some obstacles due to short selling report and capacity cut in 2017. We think the Company had made proper response and regained market recognition. Looking forward in 2021E, we expect CHQ to embrace re-rating opportunity on the back of economy recovery and well performing aluminum price. **We initiate BUY on CHQ with a TP of HK$11.37.**

- **Improving aluminum supply-demand outlook**. We are optimistic on supply-demand outlook of the aluminum industry, in view of 1) global economy recovering from the pandemic; 2) real estate completion at accelerating rate in China; 3) lightweight automotive development to speed up with increasing NEV penetration rate; and 4) orderly release of new capacity, we expect China aluminum average spot price to increase 6.5% YoY to RMB15,138/tonne in 2021E and stay high in 2022E. Our assumptions indicate industry upcycle pricing.
- **Costs leadership.** On the back of captive power plant and global integrated supply chain, CHQ had established significant cost advantages. We estimate the CHQ's comprehensive aluminum costs is RMB1,500-1,600/tonne lower than capacity weighted average in China.
- **Come out of the quagmire.** CHQ met a few obstacles from 2017 due to series impacts brought by short selling report and government enforced aluminum capacity cut. We think the Company had made proper responses and regained market recognition. In 2021E, we expect short term market focus would be CHQ's debt payment. We believe CHQ has sufficient financial resources to bridge over debt repayment peak. We believe CHQ had fully come out of the quagmire.
- **Earnings CAGR to reach 16.7% in 2020-22E.** We estimate CHQ's overall revenue to have mild growth in 2020-22E with a 3-year revenue CAGR of 7%. On the back of high aluminum ASP, we estimate aluminum products GPM to be 23.2/24.8%/24.3% in 2020-22E. Following Company's positive profit alert, we estimate 2020E net profit to reach RMB9,269mn. We expect net profit to increase to RMB11,713mn/12,613mn respectively in 2021/22E. Our earnings projection reflects a net profit CAGR of 16.9% in 2020-22E.
- **Initiate BUY with TP of HK$11.37.** Based on 5-yr historical 7.15x forward PE, we derive CHQ's TP at HK$11.37 per share. We expect the Company to embrace a rerating opportunity driven by high standing aluminum price.
- **Risks**: Aluminum price decline; government to enforce cross subsidy and surcharges and potential charges for carbon emissions.

Earnings Summary

(YE 31 Dec)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue (RMB mn)	90,195	84,179	87,362	96,745	103,994
Net income (RMB mn)	5,407	6,095	9,269	11,713	12,613
EPS (RMB)	0.62	0.71	1.08	1.32	1.42
EPS CHG (%)	-11.0	14.0	52.2	22.3	7.7
Consensus EPS (RMB)	n/a	n/a	0.96	1.14	1.29
P/S (x)	10.3	9.1	6.0	4.9	4.5
P/E (x)	0.93	0.87	0.81	0.73	0.66
P/B (x)	3.00	4.24	6.50	8.48	9.38
ROE	9.0	9.6	13.6	14.9	14.7
Net gearing (%)	52.8	56.5	43.4	26.2	16.3

Source: Company data, CMBIS estimates, Bloomberg

Mkt. Cap. (HK$ mn)	71,116
Avg. 3mths t/o (HK$ mn)	165.52
52W High/Low (HK$)	8.35/2.88
Total Issued Shares (mn)	8,878

Source: Bloomberg

Shareholding Structure

Hongqiao Holdings	68.44%
CITIC Group	9.88%
Freefloat	21.58%

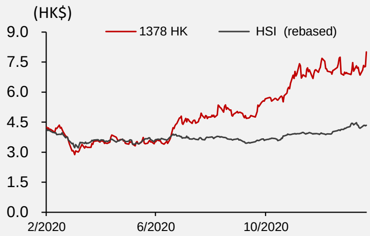
Source : HKEx, Bloomberg

Share performance

	Absolute	Relative
1-mth	0.7%	-5.0%
3-mth	26.6%	8.2%
6-mth	55.6%	33.3%
12-mth	81.5%	66.3%

Source: Bloomberg

12-mth price performance



Source: Bloomberg

Auditor: Shinewing (HK)

Contents

Investment Thesis

China Hongqiao Group Co., Ltd. is the largest aluminum producer in the world. The Company established costs leadership and formed integrated global supply chain covering bauxite, alumina, aluminum and fabrication products. CHQ met some obstacles due to short selling report and capacity cut in 2017. We think the Company had made proper response and regained market recognition. Looking forward in 2021E, we expect CHQ to embrace re-rating opportunity on the back of economy recovery and well perform aluminum price. We initiate BUY on CHQ with a TP of HK$11.37.

Aluminum industry has improving supply-demand outlook

We are optimistic on supply-demand outlook of the China Aluminum sector, and we are foreseeing continuously improving supply-demand outlook in the coming few years. According to NBS China's data, aluminum production in the country was 37.08mn tonnes in 2020, up 4.9% YoY. The output figure resumed growth after a decline in 2019, even though the industry suffered quite severe impacts from the pandemic. In the demand end, we also observed supportive growth exhibited by significantly decline in domestic inventory level as well as strong performing aluminum spot price especially in 4Q20.

Looking ahead in 2021-22E, in view of 1) global economy recovering from the pandemic; 2) real estate completion at accelerating rate in China; 3) lightweight automotive development to speed up with increasing NEV penetration rate; and 4) orderly release of new capacity, we expect China aluminum average spot price to increase 7% YoY to RMB15,138/tonne in 2021E and stay high in 2022E. Our assumptions indicate industry upcycle pricing.

Business trilogy to establish costs and supply chain edges

CHQ adopted "integration of aluminum and electricity (铝电网一体化)" strategy to boost aluminum capacity growth and established costs leadership in early development phase. To optimize costs structure, economies of scale, and secure long-term bauxite supply, CHQ enforced "vertical and global integration (上下游和全球一体化)" strategy in 2015-2019. During the period, CHQ expanded alumina capacity in both China and Indonesia, and also made significant investment in Guinea bauxite mining and transportation assets. CHQ had become the largest aluminum manufacturer in the world with 6.46mtpa approved capacity from 2017. In view of aluminum supply side reform and carbon intensity control in China, we think the Company entered into "green and high-end development (绿色和高端化发展)" phases to have capacity relocation to Yunnan from 2020, and to nurture new growth from high-end fabrication as well as secondary aluminum business.

CHQ realized most of sales through molten aluminum alloy, and recorded high sales to production ratio in 2012-19 as an aluminum fabrication industrial cluster was shaped in Binzhou City for stable increasing aluminum supply. We estimate CHQ's per tonne aluminum comprehensive electricity costs was RMB631-1,356 (VAT excl.) lower compared with out sourced electricity costs in 2012-19. We estimate CHQ's comprehensive alumina costs range from RMB1,741 – 1,933/tonne in 2012-19, and we believe the comprehensive alumina costs was RMB63 – 611/tonne lower than market reference prices. Translating to aluminum costs, we estimate CHQ's in-house alumina supply brought about RMB121 - RMB1,172 (VAT excl.) in 2012-19, compared to our reference market price. Aggregating all costs advantages, we estimate CHQ's comprehensive aluminum costs is RMB1,500-1,600/tonne lower than capacity weighted average costs in China.

Come out of the quagmire

CHQ met a few obstacles from 2017 due to series impacts brought by short selling report and government enforced aluminum capacity cut. We think the Company had made proper responses and regained market recognition. In 2021, we expect a short term market focus would be CHQ's debt payment. We think CHQ has sufficient financial resources to bridge over debt repayment pressure. As we expect China aluminum sector to enter up cycle, we think CHQ had fully come out of the quagmire.

Earnings CAGR to reach 16.7% in 2020-22E

We estimate CHQ's overall revenue to have mild growth in 2020-22E, and the Company will have largely stable revenue mix for aluminum, aluminum fabrication, alumina as well as steam sales. We project revenue in 2020-22E will be RMB87.4/96.7/104.0bn respectively, with a 3-year revenue CAGR of 7%.

On the back of high aluminum ASP, we estimate aluminum products GPM to be 23.2/24.8%/24.3% in 2020-22E.

CHQ had released positive profit alert stating net profit to surge more than 50% in 2020E. We estimate 2020E net profit to reach RMB9,269mn. In 2021-22E, on the back of 1) growing aluminum sales volume and ASP, 2) declining interest expenses, we expect net profit to increase to RMB11,713mn/12,613mn respectively. Our earnings projection reflects a net profit CAGR of 16.7% in 2020-22E.

Initiate BUY with TP of HK$11.37

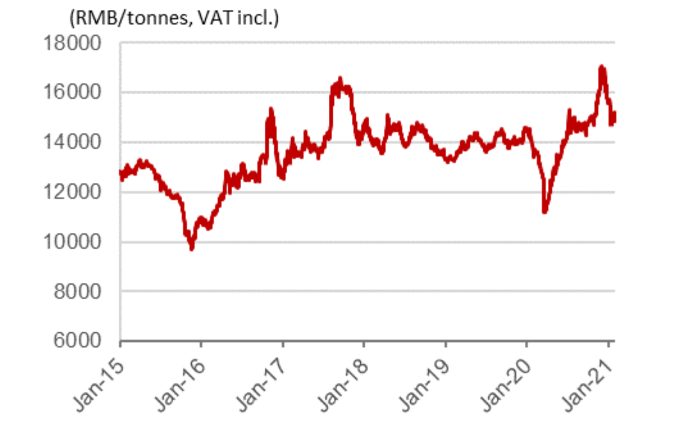
We think CHQ's valuation was mainly dragged by short selling report and supply side reform triggered capacity cut. Today, as we expect the Company had come out of the quagmire, we expect the Company is embracing a rerating opportunity driven by high standing aluminum price. Based on CHQ's 5-year historical forward PE of 7.15x, we derive CHQ's TP at HK$11.37 per share. We initiate coverage on the Company and recommend BUY rating. Our TP reflects 41.9% upside.

Risks factors

CHQ may subject to the following key risks factors: 1) Aluminum price decline with unexpected economy downturn; 2) government to enforce cross subsidy and government surcharges on captive power plant; and 3) potential charges for carbon emissions.

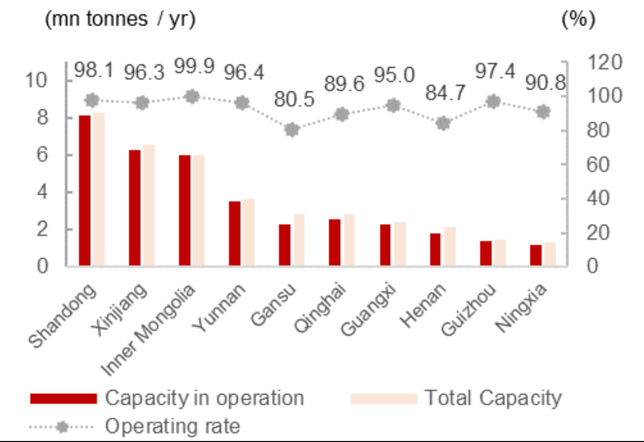
Focus Charts

Figure 1: China Shanghai Changjiang Aluminum spot price at range of 5-yr high



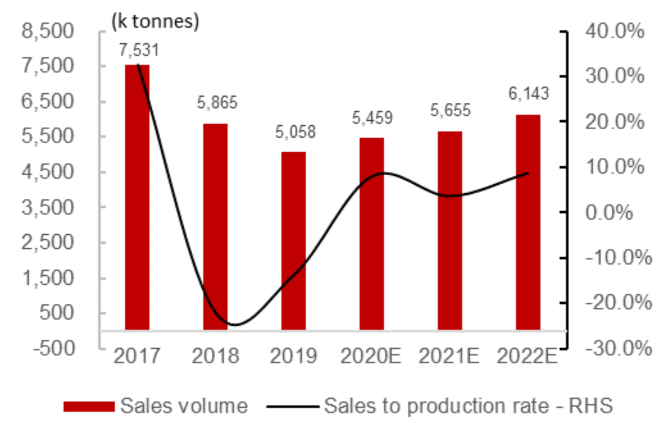
Source: Antaike, Bloomberg, CMBIS

Figure 2: Major aluminum producing areas had reached high capacity operation rate in Dec 2020



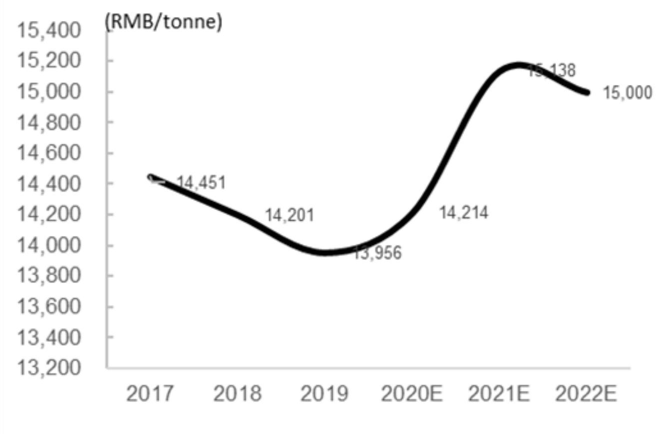
Source: Wind, CMBIS

Figure 3: We expect CHQ to have stable aluminum sales volume with mild growth



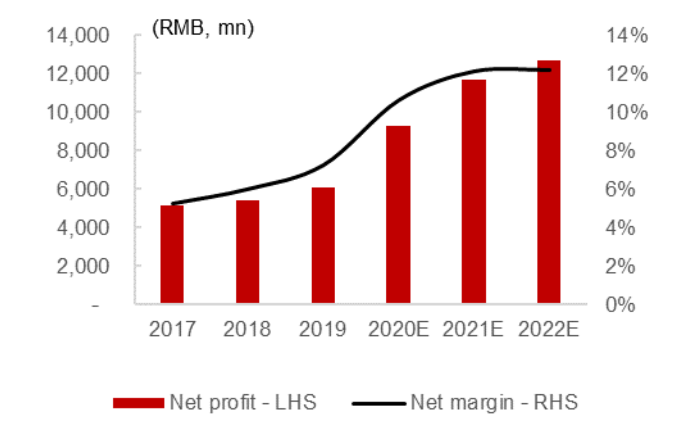
Source: Company data, CMBIS estimates

Figure 4: We expect ASP growth would be the key earnings driver



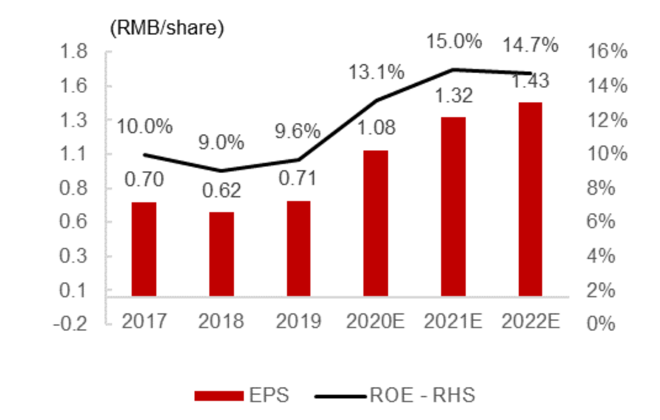
Source: Company data, CMBIS estimates

Figure 5: We expect net profit CAGR to reach 16.9% in 2020-22E



Source: Company data, CMBIS estimates

Figure 6: CHQ's EPS vs. ROE



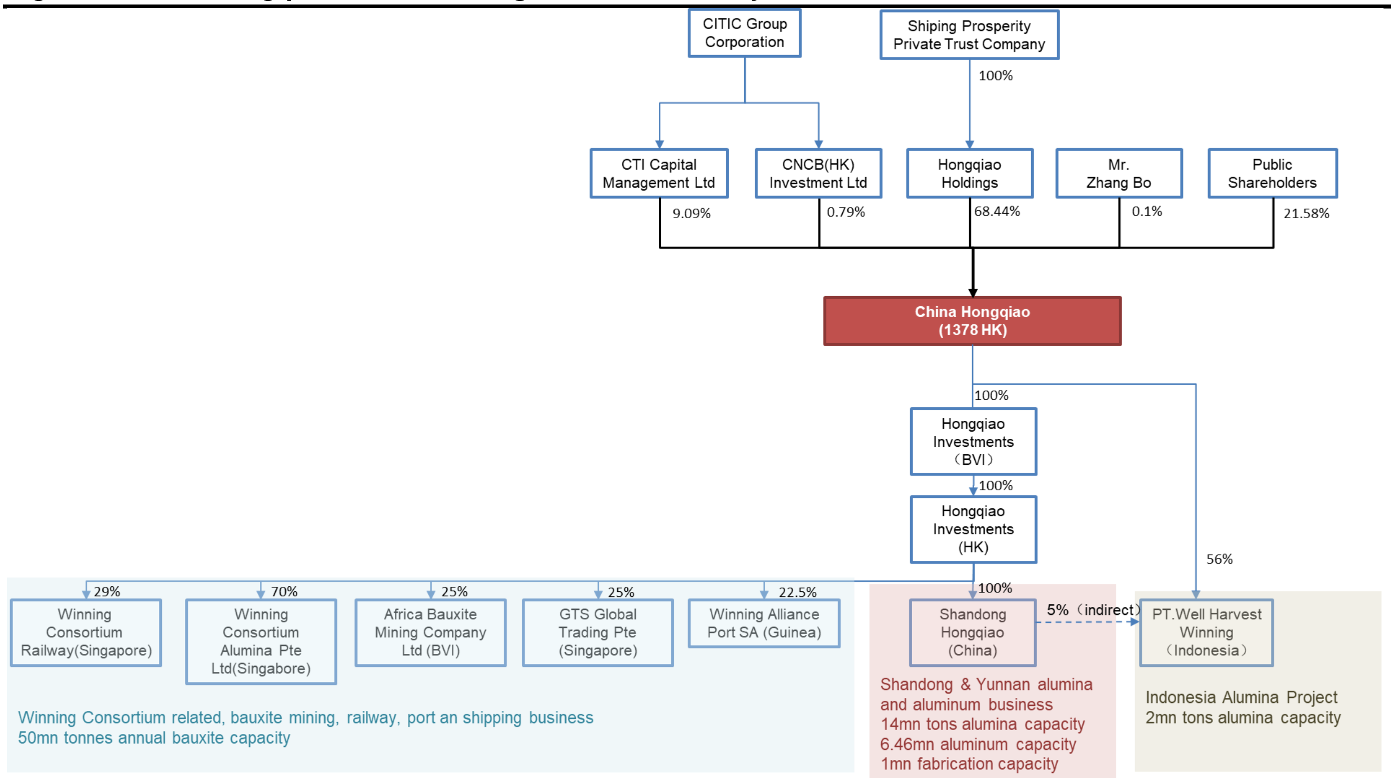
Source: Company data, CMBIS estimates

Largest aluminum manufacturer in the world

China Hongqiao Group Co., Ltd. (short for CHQ) was established in 1994. The Company had become the largest aluminum producer in the world since 2015, and stayed in leading position for years. China Hongqiao is specialized in thermoelectric, mining, producing aluminum products, and has diverse product portfolio covered bauxite, alumina, liquid aluminum alloy, aluminum alloy ingots, rolled and cast aluminum alloy products, aluminum busbar, high precision aluminum plate with foil and new materials. By end-2020, China Hongqiao had established aluminum capacity of 6.46mn tonnes per year in China, and formed integrated supply chain of 14mtpa alumina capacity in China, 1mpta alumina capacity in Indonesia, and 50mtpa bauxite capacity in Guinea.

CHQ was listed on the Main Board in HKEX in 2011. Late founder, Mr. Zhang Shiping and his family holds controlling stake of the Company through Shiping Prosperity Private Trust Company with 68.44% shareholdings. Mr. Zhang Bo, late founder Mr. Zhang Shiping's son, succeeded as Chairman of the Board and holds 0.1% shares. CITIC Group Corporation, as a material financial investor aggregately holds 9.88% shareholdings of the Company.

Figure 7: China Hongqiao's shareholding structure and major business subsidiaries

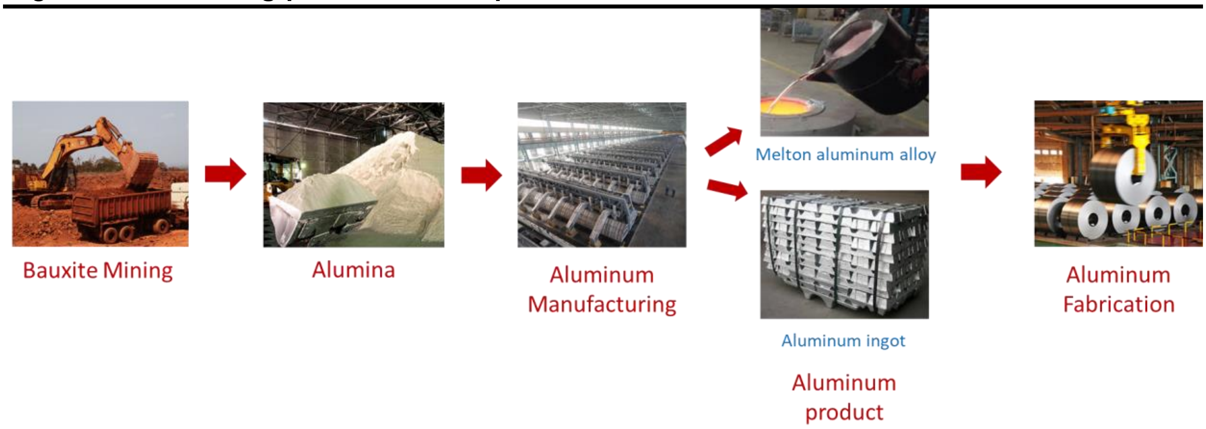


Source: Company data, CMBIS

Business Structure

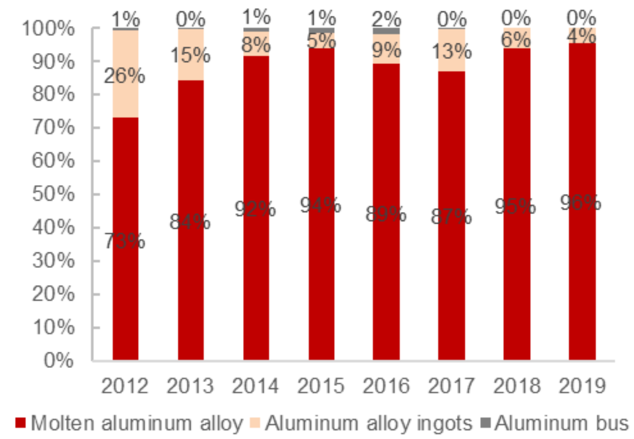
CHQ had established integrated supply chain covered major materials and products in the value chain. The Company has four major product sales types, namely aluminum products, aluminum fabrication, alumina, and steam. Aluminum products are the key product sales category, accounting for 73.5% of total sales of CHQ in 2019. Within aluminum products, most of sales were through molten aluminum alloy, which is a liquid form of aluminum. In 2019, molten aluminum alloy accounted for 70.5% of CHQ's total sales. The Company also extends its business presents into upstream alumina supply and downstream aluminum fabrication. Both alumina and fabrication product sales have increasing revenue contribution in the past few years.

Figure 8: China Hongqiao's aluminum product value chain



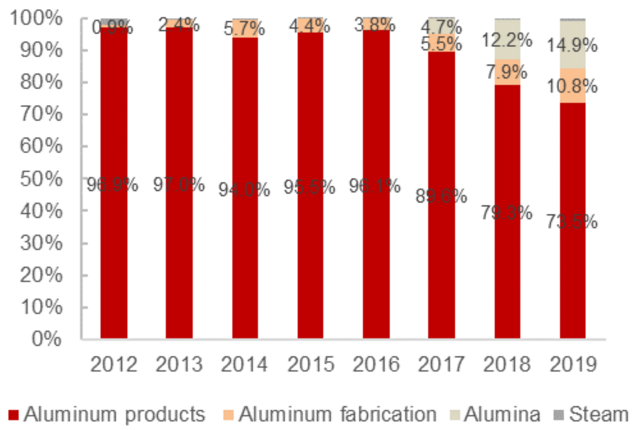
Source: Company data, CMBIS

Figure 9: Aluminum product output volume mix



Source: Company data, CMBIS

Figure 10: CHQ's product revenue mix



Source: Company data, CMBIS

Industry: improving supply-demand outlook

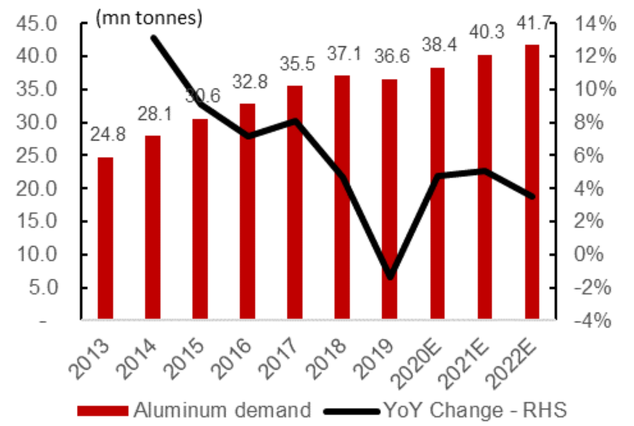
We are optimistic on supply-demand outlook of the China Aluminum sector, and we foresee continuously improving supply-demand outlook in the coming few years. According to NBS China's data, aluminum production in the country was 37.08mn tonnes in 2020, up 4.9% YoY. The output figure resumed growth after a decline in 2019, even though the industry suffered quite severe impacts from the pandemic. In the demand end, we also observed supportive growth exhibited by significantly decline in domestic inventory level as well as strong performing aluminum spot price especially in 4Q20. According to China Shanghai Changjiang Aluminum spot price (VAT incl.), aluminum price experienced a strong rebound from bottom RMB11,1210/t in Mar 2020 to RMB17,070/t in late Nov 2020, with an average of RMB14,214/t.

Looking ahead in 2021-22E, in view of 1) global economy recovering from the pandemic; 2) real estate completion at accelerating rate in China; 3) lightweight automotive development to speed up with increasing NEV penetration rate; and 4) orderly release of new capacity, **we expect China aluminum average spot price to increase 7% YoY to RMB15,210/tonne in 2021E and stay high in 2022E. Our assumptions indicate industry upcycle pricing.**

Demand side: aluminum demand to expand 5% YoY in 2021E

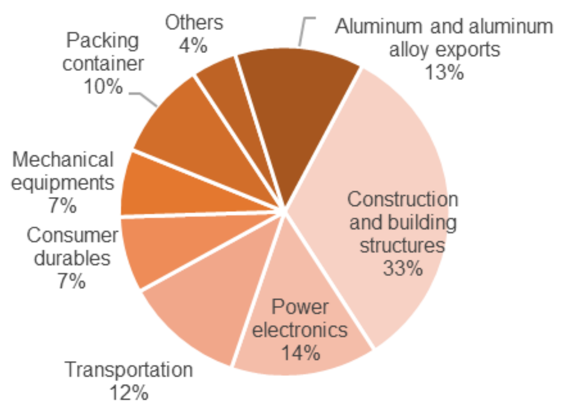
China aluminum consumption was strong in 2020. We estimate apparent primary aluminum consumption was 38.35mn tonnes, up 4.7% YoY albeit demand suffered impacts from pandemic lockdown during the past year. Real estate industry continues to account for the largest aluminum consumption in China for more than 33%, while power electronics and transportation related consumptions following by with proportion of 14%/12% respectively. In 2021E, we are optimistic on aluminum demand growth, mainly on the back of 1) residential property to enter accelerating completion cycle and 2) China vehicle sales to resume growth with increasing NEV penetration rate. **We project primary aluminum consumption to contribute 4% YoY growth in 2021E, and restocking to contribute another 1% demand growth. Overall, we see 5% demand expansion potential in 2021E.**

Figure 11: Apparent consumption of primary aluminum in China



Source: Antaike, CMBIS estimates

Figure 12: Aluminum consumption structure in China

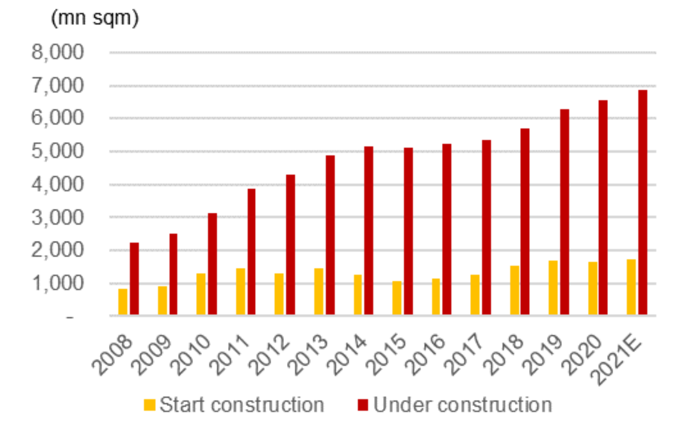


Source: CMBIS

Residential property to enter completion cycle

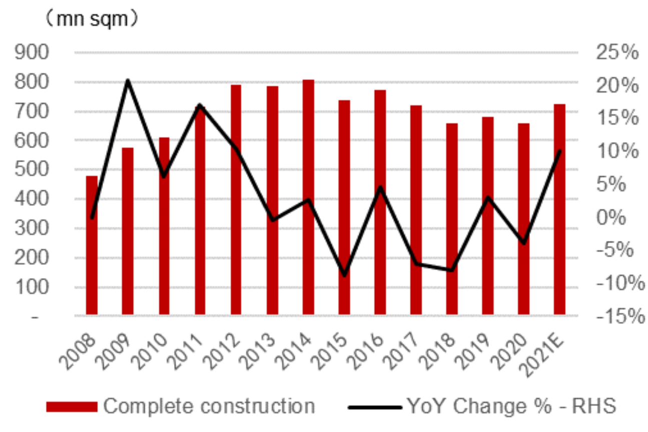
China residential property has three development stages, namely start construction, under construction, and construction complete phases. Construction aluminum demand is highly concentrated in the completion phase. In 2016-19, China residential property had experienced quite significant development areas growth, but had relatively stable completion areas. Accumulated residential property area under construction had exhibited obvious growth, as a result. In view of property development cycle of ~3 years and government is tightening credit support for real estate developer, we expect residential property to enter accelerating completion cycle. Market had expected a completion boom in 2020, but the wave was delayed due to pandemic impacts, leaving a 4% YoY completion area decline in 2020, according to NBS China. We expect the completion boom to eventually come in 2021E, and according to CMBI Property team's estimates, residential property completion area will have a surge of 10% YoY. We expect the significant jump of completion areas to boost aluminum demand in China.

Figure 13: Residential property areas start and under construction statistics



Source: NBS China, CMBIS estimates

Figure 14: We expect residential property areas complete construction to increase 10% YoY in 2021E



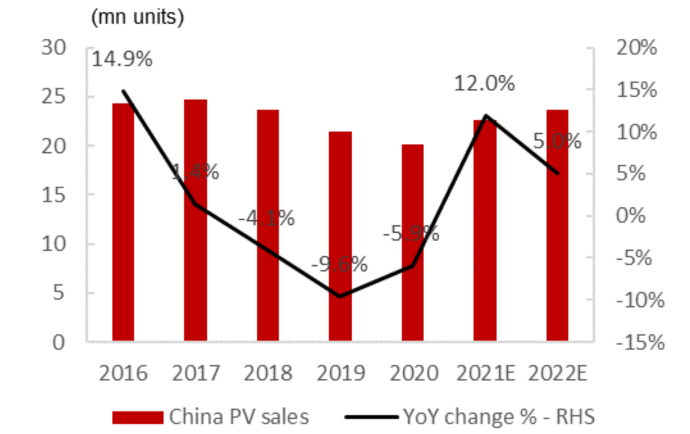
Source: NBS China, CMBIS estimates

China auto sales to boost transportation aluminum consumption

We see auto sales an important aluminum consumption growth driver in China. According to SMM, China auto industry consumed ~3.8mn tonnes aluminum in 2018, of which 72% demand came from passenger vehicle. In the coming few years, we expect automotive industry to boost aluminum demand growth through 1) passenger vehicle (PV) sales growth to pick up and 2) aluminum consumption per unit vehicle to increase with light weight development trend is emerging with increasing NEV penetration. For 2021E particularly, CMBI Auto team predicts sales growth of 12.0% or 2.42mn auto sales increment compared with 2020.

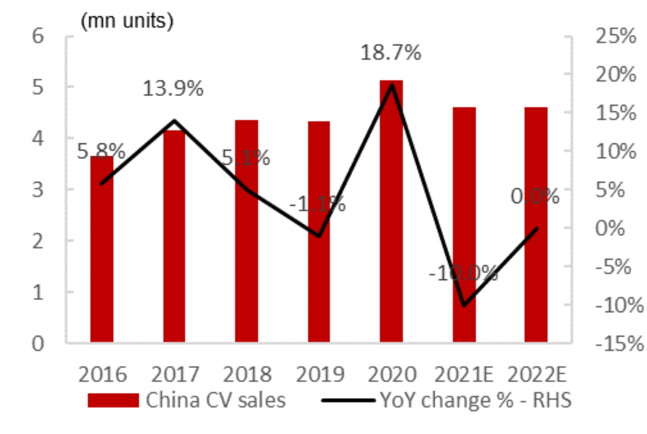
In respect of aluminum consumption per unit of vehicle sales in China, the figure was 138.6kg/122.6kg for passenger vehicle(PV)/commercial vehicle(CV), respectively in 2020E according to auto industry's estimates. As with increasing popularity of EV and industrial pursue for light weight vehicle, we estimate per unit vehicle aluminum consumption will increase with CAGR of 6.2%/3.8% to 187.1/180.1kg for PV/CV respectively in 2025E. Based on our unit consumption projection, we estimate both PV and CV aggregately will contribute 540k/450k tonnes aluminum demand increments in 2021/22E.

Figure 15: We expect passenger vehicle sales to rebound strongly in China in 2021E



Source: CAAM, CMBIS estimates

Figure 16: We expect commercial vehicle sales to decline from a high base in 2020



Source: CAAM, CMBIS estimates

Figure 17: Unit vehicle aluminum consumption trend (kg/vehicle)

	2016	2017	2018	2019	2020	2016-20 CAGR	2025E	2020-25E CAGR
Passenger vehicle	**110.4**	**115.9**	**119.7**	**129.1**	**138.6**	**5.9%**	**187.1**	**6.2%**
YoY	N/A	5.0%	3.3%	7.9%	7.4%	N/A	5.5%	N/A
ICE	110.3	115.7	118.7	127.6	136.4	5.5%	179.8	5.7%
YoY	N/A	4.9%	2.6%	7.5%	6.9%	N/A	5.0%	N/A
BEV	107.1	117.9	128.4	143	157.9	10.2%	226.8	7.5%
YoY	N/A	10.1%	8.9%	11.4%	10.4%	N/A	5.2%	N/A
PHEV	147.4	160	179.6	188.8	198.1	7.7%	238.3	3.8%
YoY	N/A	8.5%	12.3%	5.1%	4.9%	N/A	2.3%	N/A
Commercial vehicle	**76.5**	**87**	**99.3**	**110.9**	**122.6**	**12.5%**	**180.1**	**8.0%**
YoY	N/A	13.7%	14.1%	11.7%	10.6%	N/A	8.6%	N/A
Bus	60.5	62.8	65.3	67.8	70.3	3.8%	84.6	3.8%
YoY	N/A	3.8%	4.0%	3.8%	3.7%	N/A	3.8%	N/A
NEV	189	196.4	210.1	220.8	232.2	5.3%	303.6	5.5%
YoY	N/A	3.9%	7.0%	5.1%	5.2%	N/A	5.7%	N/A
Truck	73.8	86.4	99.9	112	123.9	13.8%	181.4	7.9%
YoY	N/A	17.1%	15.6%	12.1%	10.6%	N/A	8.5%	N/A
Special vehicle	**53.2**	**58.6**	**61.6**	**67.7**	**74**	**8.6%**	**110.5**	**8.3%**
YoY	N/A	10.2%	5.1%	9.9%	9.3%	N/A	7.9%	N/A

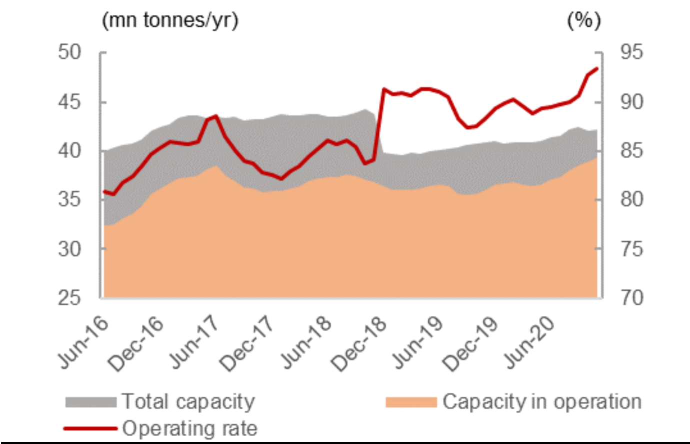
Source: SMM, Nanshan Aluminum Co., Ltd, CMBIS

Supply side: capacity to be released orderly

In the supply side, after Chinese government's supply side reform actions from 2017, total aluminum production capacity in China had exhibited significant decline in 2018. Effective capacity in operation was also subject to local governments' requirements for environmental and carbon intensity control, which had caused some capacity replacement and relocation. Capacity operating rate, as a result of above measures, had experienced rebound. In 4Q20, on the back of robust market demand, capacity operating rate exceeded 90%. According to ALD's data, by end-2020, China had total aluminum annual production capacity of 42.15mtpa, 39.35mpta in operation, and had capacity operating rate above 93%. Capacity in operation increased ~2.7mtpa during the year. China Aluminum demand is well covered by domestic supply.

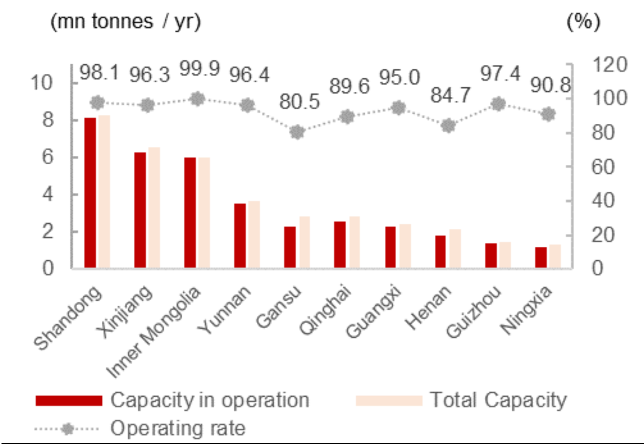
In provincial level, low costs producing regions such as Shandong, Xinjiang, Inner Mongolia, Yunnan and Guangxi recorded high operating rate in Dec 2020, implying low capacity redundancy. In Shandong and Inner Mongolia, local government had imposed carbon intensity control for economy development, which had set capacity ceiling for aluminum industry. Leading producers are bringing capacity quota to areas supported by low costs hydro power with significantly lower carbon footprint. Based on Chinese government's aluminum capacity control, we expect an aluminum capacity ceiling of 45mtpa by 2025E. We expect capacity relocation process will still be ongoing in 2021-22E, indicating moderate supply growth. We project capacity addition to be 1.4mn/1.3mn tonnes in 2021/22E.

Figure 18: China Aluminum capacity operating rate improved significantly from 2018



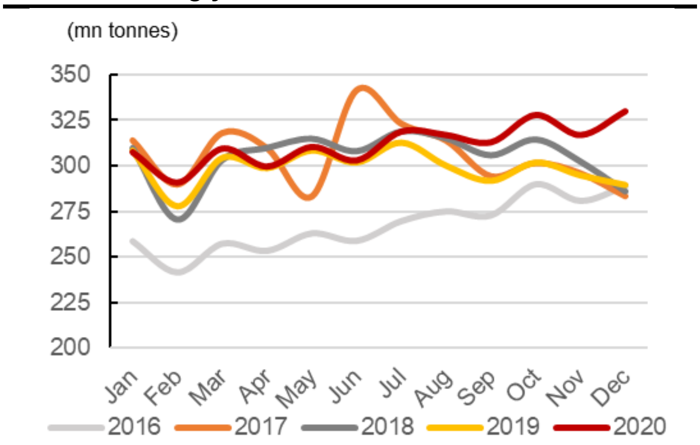
Source: ALD, Wind, CMBIS

Figure 19: Aluminum capacity status in major provinces by end-2020



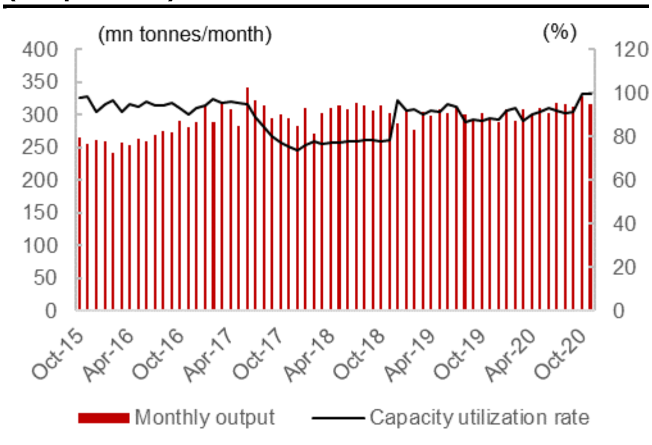
Source: Wind, CMBIS

Figure 20: We expect passenger vehicle sales to rebound strongly in China in 2021E



Source: CAAM, CMBIS estimates

Figure 21: Monthly aluminum output vs. capacity (in operation) utilization rate



Source: CAAM, CMBIS estimates

Figure 22: Aluminum costs structure in different production region in Dec 2020

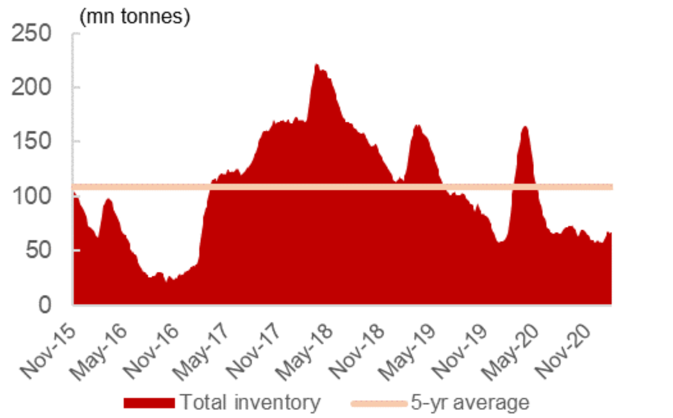
Product region	Capacity in operation (mn tonnes/yr)	Accumulated capacity (mn tonnes/yr)	Capacity quantile measure by costs (%)	Costs (RMB/t VAT incl.)
Yunnan	3.38	3.38	8.8%	10,734
Xinjiang	6.08	9.46	24.7%	11,342
Shaanxi	0.9	10.36	27.0%	11,653
Shandong	8.3	18.66	48.6%	12,007
Guangxi	2.355	21.02	54.8%	12,538
Inner Mongolia	5.945	26.96	70.3%	12,694
Gansu	2.38	29.34	76.5%	12,731
Sichuan	0.95	30.29	78.9%	12,843
Guizhou	1.36	31.65	82.5%	12,908
Shanxi	0.527	32.18	83.8%	13,386
Qinghai	2.437	34.61	90.2%	13,530
Hubei	0.093	34.71	90.4%	13,587
Chongqing	0.5	35.21	91.7%	13,696
Ningxia	1.14	36.35	94.7%	13,765
Liaoning	0.4	36.75	95.8%	13,867
Henan	1.555	38.30	99.8%	14,404
Fujian	0.075	38.38	100.0%	15,119
Total	**38.377**		**Average**	**12,989**
			Capacity weighted average	**12334.21**

Source: SCI99, CMBIS

Inventory level below 5-yr average

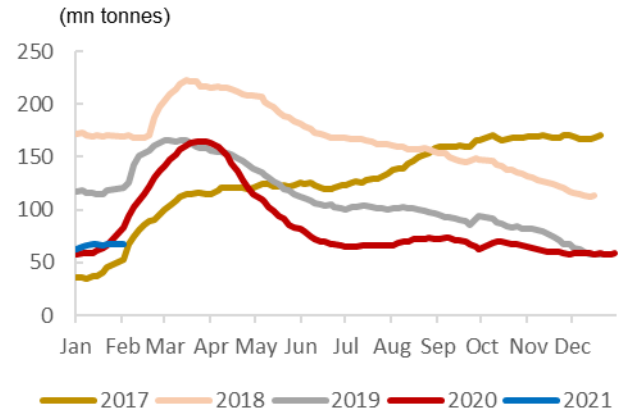
We believe inventory movement is also a key indicators of supply demand balance. China aluminum inventory was only 0.67mn tonnes in late Jan 2021. Inventory level was significantly lower than 5-yr average of 1.08mn tonnes. Based on historical seasonal pattern, inventory level will be build up in Jan-Mar, which is low demand season for Chinese New Year break. We expect there is as inventory restocking for 40-50mn tonnes to resume 5-yr average level in 2021E, brining ~1% demand in 2021E.

Figure 23: China aluminum inventory is significantly lower than 5-yr average level.



Source: Wind, CMBIS

Figure 24: Monthly inventory movement exhibited seasonal pattern



Source: Wind, CMBIS

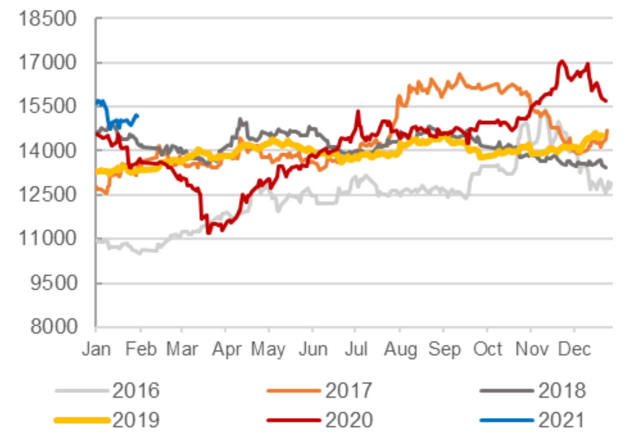
Aluminum average price to increase 6.5% YoY

In 2020, China aluminum spot price experienced sharp decline to a year low of RMB11,210/tonne in Mar due to pandemic impacts, and rebounded to a 5-yr high of RMB17,070/tonne in Nov. Based on the pricing movement trend in the past few years, we think the seasonal pattern of aluminum pricing is not significant. With reference to our supply-demand balance and inventory movement outlook, we expect China aluminum price to stay high in 2021-22E. We project average aluminum spot price to increase 6.5% YoY from RMB14,214/tonne in 2020 to RMB15,138 in 2021E, and stay high at RMB15,000 in 2022E.

Figure 25: China Shanghai Changjiang Aluminum Spot Price

Source: Antaike, Bloomberg, CMBIS

Figure 26: Monthly inventory movement exhibited seasonal pattern

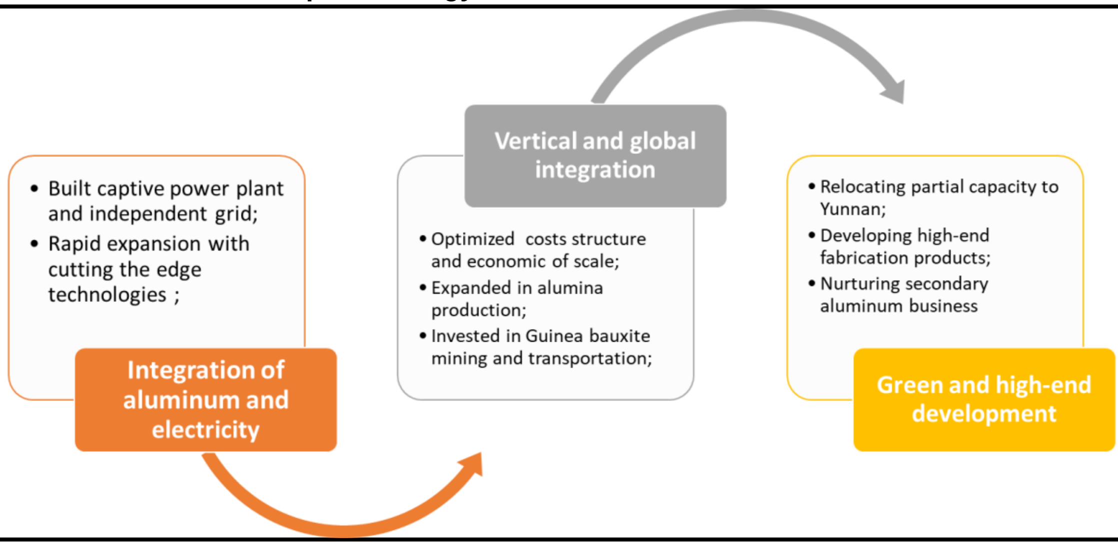


Source: Antaike, Bloomberg, CMBIS

Business development trilogy

Throughout CHQ's development history, we summarize three major development phases. In early development stage, CHQ adopted "integration of aluminum and electricity (铝电网一体化)" strategy to boost aluminum capacity growth and established costs leadership. To optimize costs structure, economies of scale, and secure long-term bauxite supply, CHQ enforced "vertical and global integration (上下游和全球一体化)" strategy in 2015-2019. During the period, CHQ expanded alumina capacity in both China and Indonesia, and made significant investment in Guinea bauxite mining and transportation assets. CHQ had become the largest aluminum in the world with 6.46mtpa approved capacity from 2017. In view of aluminum supply side reform and carbon intensity control in China, we think the Company entered "green and high-end development (绿色和高端化发展)" phases to have capacity relocation to Yunnan, and nurture new growth from high-end fabrication as well as secondary aluminum business.

Figure 27: Business development trilogy



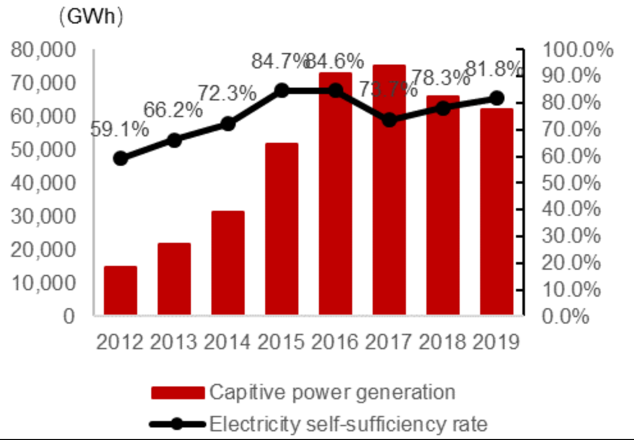
Source: CMBIS

Integration of aluminum and electricity

CHQ was the first in the China aluminum industry to have high ratio of captive power plant. We believe that CHQ's captive power plants development was unique and non-replicable in China. It was originated in the period when tight power supply in Shandong met CHQ's massive power demand growth. Through unprecedented captive power capacity and independent grid, CHQ was able to obtain significant electricity costs saving from cross subsidy and government funding charges from tariff surcharges, grid charges, as well as higher efficiencies in captive power plants' operation (higher utilization hours vs. national average). We estimate CHQ's per tonne aluminum comprehensive electricity costs was RMB631-1,356 (VAT excl.) lower compared with out sourced electricity costs in 2012-19, which constituted CHQ's core competency.

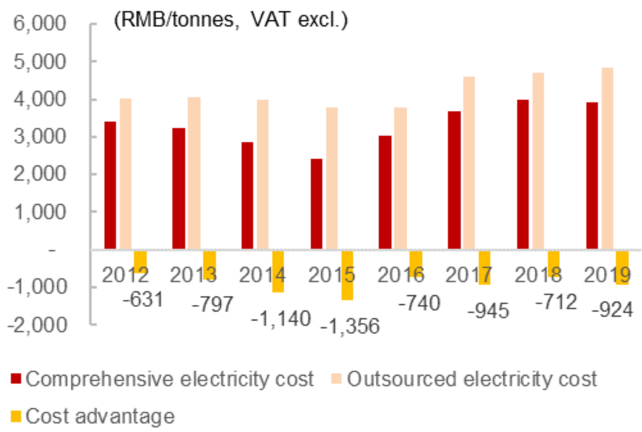
Other than electricity costs, CHQ was also leading in the wave of adopting large high current electrolyzers (400-600KA), which bring energy saving in aluminum production processes. Taking costs advantages, CHQ accelerated capacity expansion in 2012-16, until government's initiatives for supply side reform. CHQ's total aluminum capacity once reached 9.14mtpa in 2017 but cut by 2.68mtpa during the year. By end-2017, CHQ had become the largest aluminum producer in the world, with approved capacity of 6.46mtpa. We expect the capacity to stay stable in the coming few years.

Figure 28: CHQ's electricity self-sufficiency rate for aluminum production and captive power generation



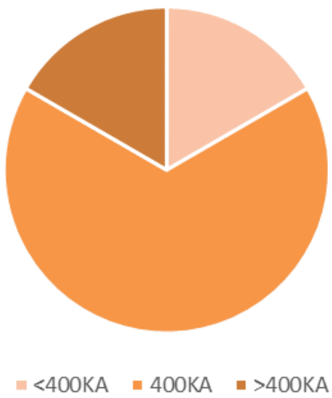
Source: Company data, CMBIS estimates
Note: Electricity self-sufficiency rates were extract from CHQ's credit rating report. Captive power generation figures are based on CMBIS estimates

Figure 29: CHQ's captive power plant helped generated significant electricity cost advantages for each tonnes of aluminum sales



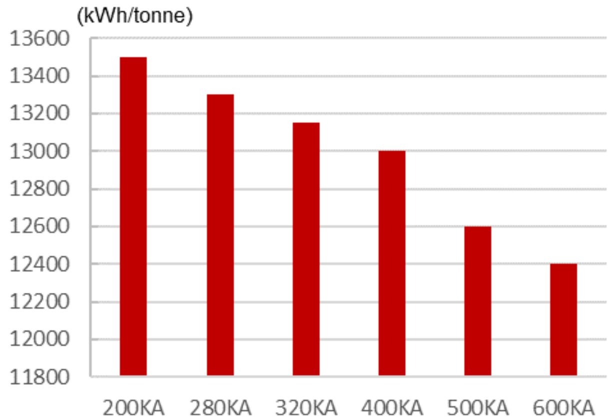
Source: CMBIS estimates

Figure 30: CHQ's aluminum capacity structure



Source: Company data, CMBIS estimates

Figure 31: Power consumption for different types of electrolyzer

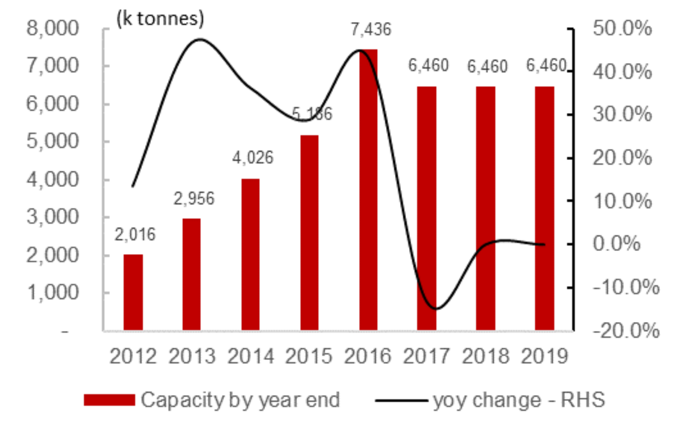


Source: CMBIS

Formed an industrial cluster and unique molten aluminum sales model

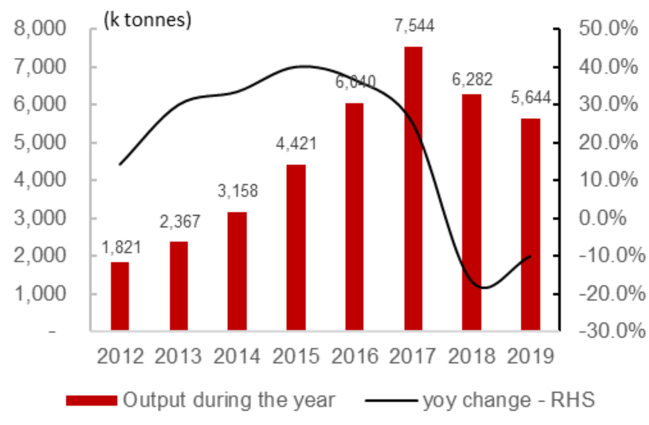
Supported by CHQ's rapid increasing aluminum supply, an aluminum fabrication industrial cluster was shaped in Binzhou City. According to Binzhou Daily, the city had gathered more than 60 aluminum related manufacturers with fabrication capacity above 7mtpa and had products coverages of various aluminum applications such as piston, wheel hub and automotive lightweight materials. Since most of downstream clients were located within 30km radius, CHQ was able to create a unique aluminum sales model through molten aluminum alloy. CHQ's molten aluminum was popular for downstream clients, since it could help clients save ~RMB2-300/tonne re-melting costs, while it also can help CHQ to save ~RMB40/tonne ingot casting fee compared with aluminum ingot sales. As a result, CHQ realized most of sales through molten aluminum alloy, and recorded high sales to production ratio in 2012-19. Sales to production rate decline in 2018-19 was mainly due to CHQ's higher consumption of aluminum for its own fabrication business. Summing up those fabrication output, we calculated sales to production rate reaching close to 100%.

Figure 32: CHQ's aluminum capacity by year end



Source: Company data, CMBIS

Figure 33: CHQ's aluminum output

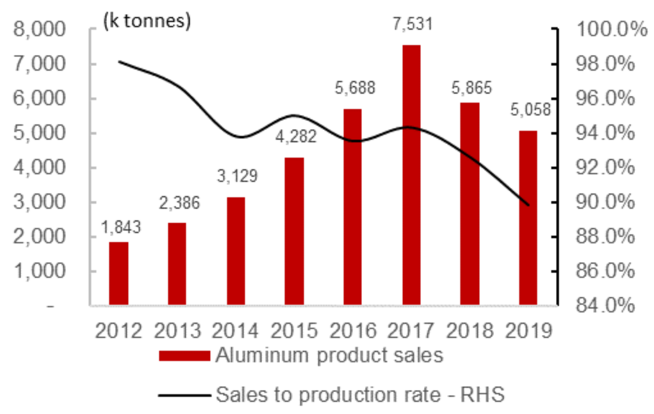


Source: Company data, CMBIS

Figure 34: Molten aluminum can be shipped through specialized tea-pot shaped container

Source: http://www.hydeb.com/product/3.html , CMBIS

Figure 35: CHQ's aluminum sales to production rate was high

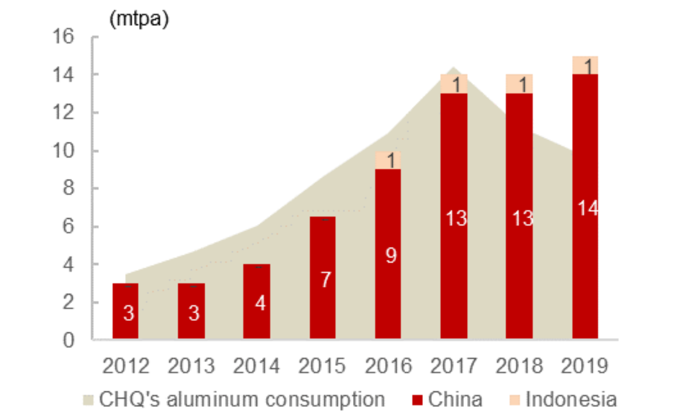


Source: Company data, CMBIS

Vertical and global integration

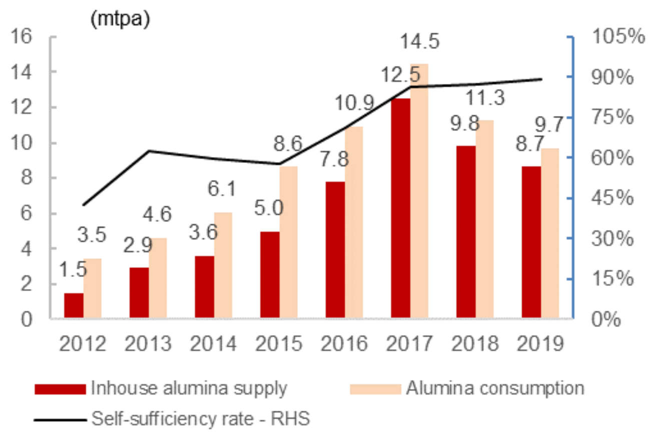
Alumina is a key upstream material with a consumption rate of 1.92 tonnes for each tonne of aluminum production, and its production process requires heat sources from steam. Alumina production can utilize CHQ's steam supply as a byproduct of captive power plant, which can bring significant costs saving in alumina material. To optimize costs structure and enhance economies of scale, CHQ launched its vertical integration strategy since 2014. The Company expanded its alumina capacity in Shandong and Indonesia. By end-2020, CHQ had 15mpta/1mpta aluminum capacity in Shandong China/West Kalimantan Province in Indonesia, respectively. We expect the Company to have Shandong alumina capacity to stay stable at 15mpta, and have another 1mpta alumina capacity to commence operation in 2021E.

Figure 36: CHQ's alumina capacity is enough to cover its own consumption



Source: Company data, CMBIS estimates
Note: Alumina consumption volume figures are estimated by CMBIS.

Figure 37: CHQ's maintain alumina self-sufficiency rate at ~90% to optimize costs structure

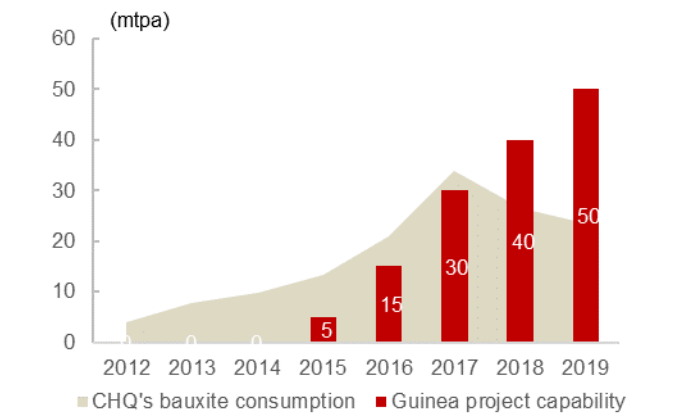


Source: CMBIS estimates
Note: Self-sufficiency rate is extracted from CHQ's credit rating report, and in-house supply and alumina consumption volume figures are estimated by CMBIS.

Bauxite is a further extend of raw material for alumina, with a consumption rate of 2.7tonnes for each tonne of alumina production. In China, domestic bauxite supply is only enough to cover ~35% of aluminum production, which makes bauxite import a core issue to support capacity expansion. To secure core bauxite supply, CHQ in conjunction with China Yantai Port Group, Singapore Weili Group and Guinea UMS Company, formed the winning alliance SMB Winning Consortium to develop bauxite mining, railway and port infrastructure, and bauxite shipping in Guinea. The project hit capacity milestone of 15mpta/30mpta/40mpta/50mpta in 2016-19, and had majority output shipped to CHQ's Shandong alumina refining plants.

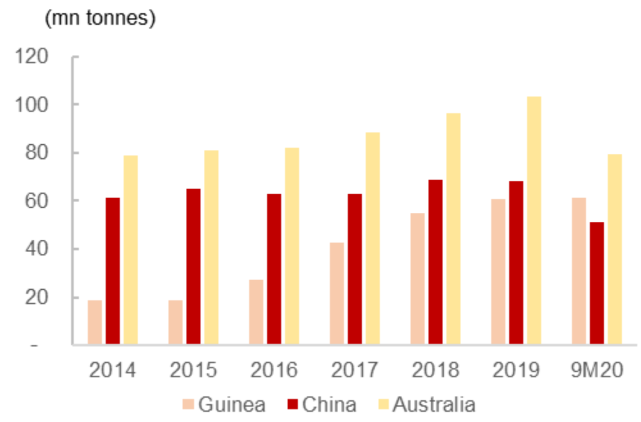
As the Company successfully implemented its vertical and global integration strategy, CHQ can be able to reach 100% self-sufficiency rate for both alumina and bauxite. Considering flexible material supply and maximize costs structure, however, CHQ maintains 10%/20% external procurement for alumina/bauxite respectively.

Figure 38: Guinea SMB Winning Consortium bauxite capability is well enough to cover CHQ's alumina consumption demand.



Source: Company data, CMBIS estimates

Figure 39: Bauxite output by country: domestic supply growth in China is limited.

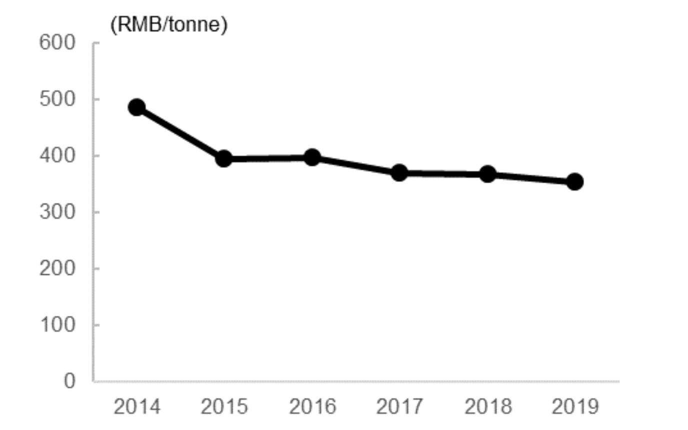


Source: Wind, CMBIS

CHQ has relatively stable pricing formula for Guinea bauxite import. We expect bauxite ore price is largely fixed at US$35/tonne, while key variance likely to come from shipping costs fluctuating with oil price. In 2019-20E, we estimate Guinea bauxite import at CIF US$48-51/tonne. We think CHQ's bauxite costs is more stable comparing with peers.

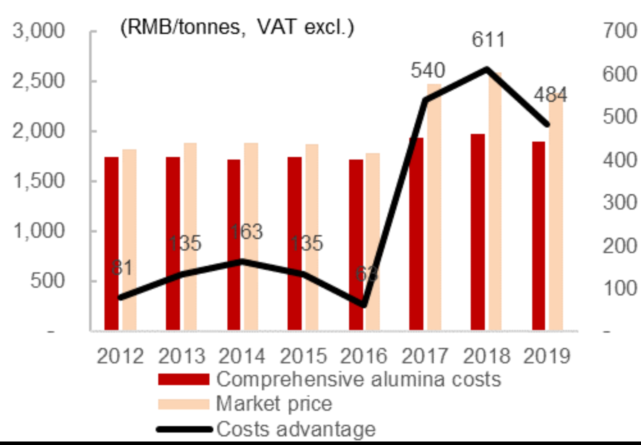
We estimate CHQ's comprehensive range from RMB1,741 – 1,933/tonne in 2012-19, and we think believe the comprehensive alumina costs was RMB63 – 611/tonne lower than market reverence prices. Translating to aluminum costs, we estimate CHQ's in-house alumina supply brought about RMB121 - RMB1,172 (VAT excl.) in 2012-19, compared to our reference market price.

Figure 40: We estimate CHQ's comprehensive bauxite costs (VAT excl.) was stable



Source: CMBIS estimates

Figure 41: Alumina costs analysis: CHQ's alumina costs advantage has enlarged with increasing bauxite and alumina capacity.



Source: CMBIS estimates

Green and high-end development

Relocating capacity to Yunnan

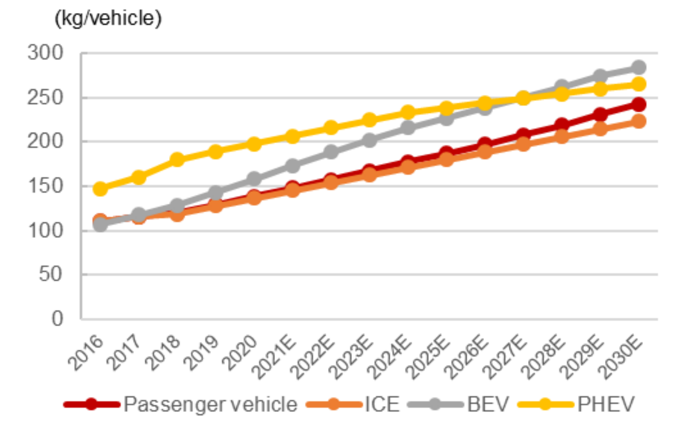
Considering tightening environmental control and local government's potential enforcement of carbon intensity limit, CHQ actively adjusted and optimized its energy structure. The Company planned to transfer 2.03mpta aluminum capacity from Shandong to Yunnan by phases. Yunnan province has abundant hydro power resources, and it offers favorable hydro power tariff to CHQ at only RMB0.25/kWh (VAT incl.) in the first five years, and has slight adjustment YoY with a cap of RMB0.3/kWh thereafter. Yunnan's hydro power costs is more competitive than CHQ's Shandong captive power plants, and the capacity relocation can make utilize of CHQ's idle capacity after supply side reform in 2017, which means limit capacity impact for its annual aluminum output in Shandong. By end-2020, CHQ had moved 1mpta aluminum capacity to Yunnan for phase 1 relocation, and had 330k tonnes commenced operation. We expect the Company to release more capacity to coordinate with downstream fabrication demand.

Once Yunnan project reach full production, CHQ will have more than 31.4% aluminum capacity covered by renewables power, which will significantly ease investor concerns for the Company's carbon intensity. Leveraging Yunnan's low hydro power tariff, we think CHQ's overall electricity costs advantages can be enhanced.

Nurturing new growth

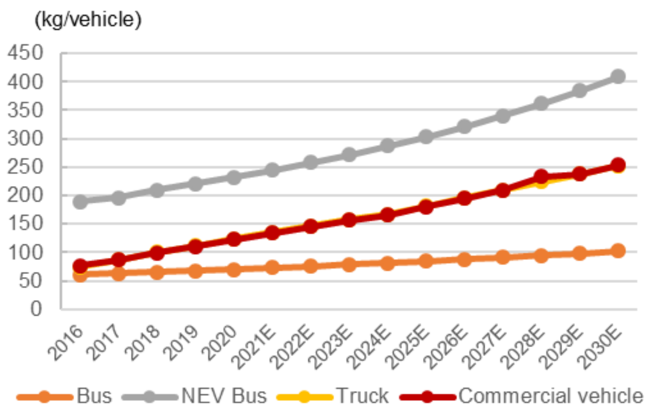
Since CHQ's aluminum capacity is capped at 6.46mtpa in China, the Company chooses to go downstream to develop high value-added fabrication products. Lightweight aluminum alloy products for vehicle use will be one of a key product focus of CHQ. The Company had attracted market attention by launching several lightweight vehicle-use products in 2019 and signed strategic cooperation agreements with key auto makers such as FAW Group and Foton Motor. By end-2020, CHQ had ~1mtpa aluminum fabrication capacity and 600-700k tonnes product outputs. As China is promoting NEV with increasing lightweight aluminum product demand, we expect the aluminum fabrication product category to have product sales volume and ASP growth in the coming future.

Figure 42: Aluminum consumption per passenger vehicle



Source: SMM, Nanshan Aluminum Co., Ltd, CMBIS

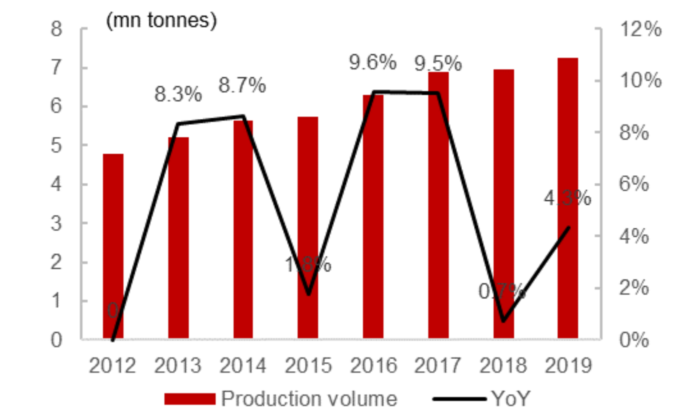
Figure 43: Aluminum consumption per commercial vehicle



Source: SMM, Nanshan Aluminum Co., Ltd, CMBIS

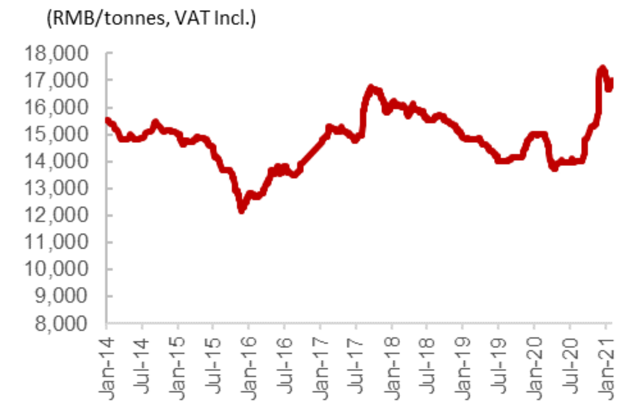
CHQ is also entering secondary aluminum business to increase its overall product supply. We think the business would be a response to government's call for environmental and low-carbon development. China has more than 7mtpa secondary aluminum demand (17% of total aluminum demand) with a market size of ~RMB70bn. According to FINET, the market is fragmented, as top 5 players aggregated had less than 25% market share in 2019.

Figure 44: Secondary aluminum production volume in China



Source: SMM, Nanshan Aluminum Co., Ltd, CMBIS

Figure 45: Secondary aluminum ADC12 price experienced a surge in 2H20



Source: Wind, CMBIS

Come out of the quagmire

CHQ met a few obstacles from 2017 due to series impacts brought by short selling report and government enforced aluminum capacity cut. We think the Company had made proper responses and gained back market recognition. In 2021, we expect a short-term market focus would be CHQ's debt repayment. We think CHQ has sufficient financial resources to bridge over debt repayment pressures. As we think China aluminum sector to enter up cycle, we expect CHQ to fully come out of the quagmire.

Short selling and capacity reduction concern

CHQ's rapid development trend was blocked in 2017, due to 1) Emerson Analytics' short selling report questioning about CHQ's electricity costs advantage and hiding alumina costs through related transaction; and 2) Shandong government's enforcement of aluminum capacity reduction measures and cut CHQ's aluminum capacity by 2.68mtpa. The Company suffered concentrated pressures in both operation and financial perspective, as the Company accumulated considerable debt burden after years of rapid expansion while market tightened liquidity support caused by government attitude change and the short selling report.

The Company made calm and transparent response to both the short selling report as well as government enforced capacity cut, in our view.

On one hand, CHQ halted stock trading and appointed independent third party RT Risk Assurance for investigating the allegations in short selling report. The Company released persuasive clarification (details in link) and explained a lot of operating details and the source of its costs advantages. On the other hand, CHQ obtained default waiver for its US$700mn debt during the investigation period, and introduced CITIC Group as a strategic shareholder (holding 9.88% share by end-2020 at costs of HK$6.80/share) to enhance market confidence. Controlling shareholders also increased shareholdings for various time in the year to boost shareholder confidence. For capacity reduction, CHQ complied fully to Shandong government's requirement, and achieved capacity replacement for old capacity with new capacity with larger current.

Cross subsidy and government tariff surcharge

CHQ was criticized for avoiding cross subsidy and government tariff surcharges from its captive power plant and which help the Company accumulate electricity costs advantages. Peers have been following CHQ's captive power plant practice, until government called for a stop for capacity expansion. Market has been long concerning about government policy change, as Shandong government had released a policy in 2018, specifying 1) government tariff surcharge of RMB2.91cent/kWh and 2) cross subsidy of RMB10.16cent/kWh for captive power plants. For cross subsidy, Shandong's policy has a grace period in Jul 2018 – Dec 2019 for RMB5cent/kWh. If all surcharge and cross subsidy were fully charged, we estimate CHQ's comprehensive aluminum costs will increase by RMB1,249/tonne, which will reduce the Company's costs advantage significantly.

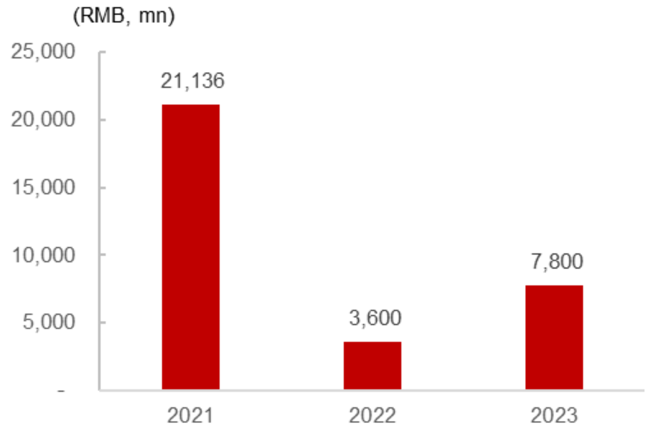
In practice, however, those surcharges and cross subsidy were never actually charged, as local government strive to sustain the competitive edges of local economies, while other provinces offered preferential electricity tariff to attract companies with capacity quota when central government set aluminum capacity ceiling. CHQ is one of the vital private enterprises in Shandong Province with considerable contribution for taxes and employment contribution. The Company had fully complied to Shandong government's aluminum and captive power plants' capacity cut and paid huge price. Given that CHQ had decided to move 2.03mtpa aluminum capacity to Yunnan, we don't expect local government to impose further measures to diminish the Company's competitive edge.

Debt repayment pressure in 2021

CHQ has medium term note and corporate bond maturity concentrated in 2021E. Affected by recent default cases of other companies in domestic bond market, CHQ's refinancing through domestic market become uncertain. The Company had early redemption of ~RMB6bn corporate bond in Dec 2020 and Jan 2021 to boost market confidence. By 5 Feb 2020, we estimate CHQ had ~RMB32.5bn MTN and corporate bond outstanding, of which ~RMB21.1bn will mature in 2021 indicating quite substantial repayment pressures, and we think 1Q21E will be critical with highest repayment amount.

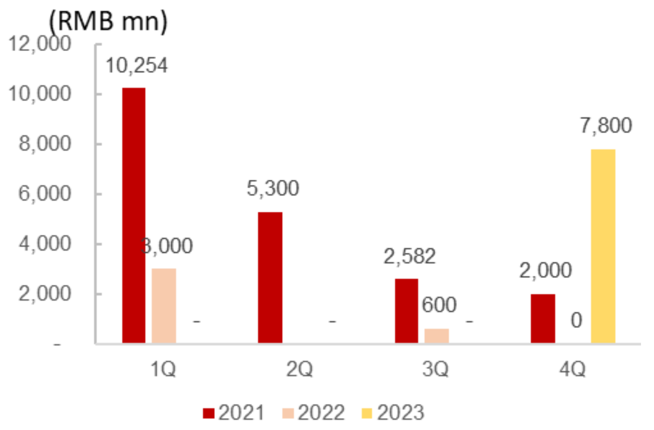
We think CHQ is prepared for the debt repayment peak in 2021. The Company had increased cash reserve level from 2017, and had more than RMB41bn cash by 1H20. Secondly, in a sector up cycle with well performing aluminum pricing, we expect CHQ to generate RMB15.4bn/RMB23.5bn operating cash flow in 2021/22E respectively, while the Company also has CAPEX significantly reduced to ~RMB4bn level. Moreover, CHQ raised HK$1.9bn/US$300mn in offshore market through share placement/CB respectively to enhance capital strength. We think CHQ has sufficient financial resources to bridge over the debt repayment peak year.

Figure 46: CHQ will have MTN and corporate bond maturity concentrated in 2021.



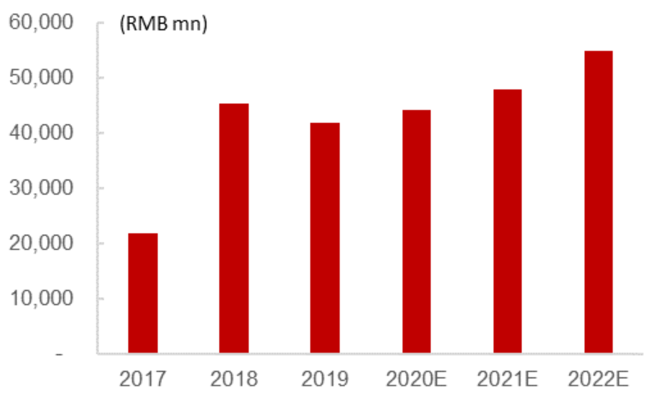
Source: Company data, CMBIS estimates

Figure 47: 1Q21 will be critical for MTN and corporate bond repayment.



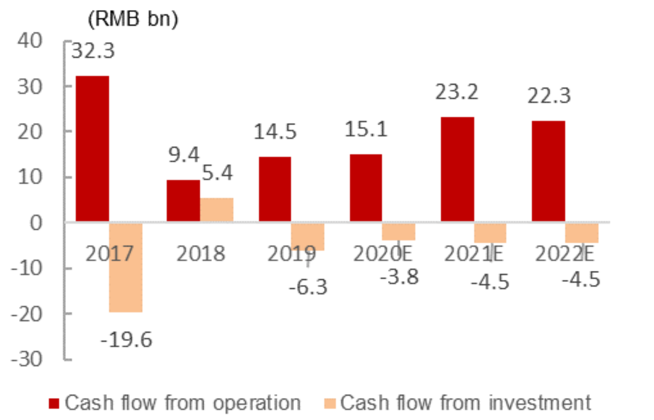
Source: Company data, CMBIS estimates

Figure 48: CHQ increase cash reserve level after 2017



Source: Company data, CMBIS estimates

Figure 49: CHQ's operating cash inflow vs. investment cash outflow



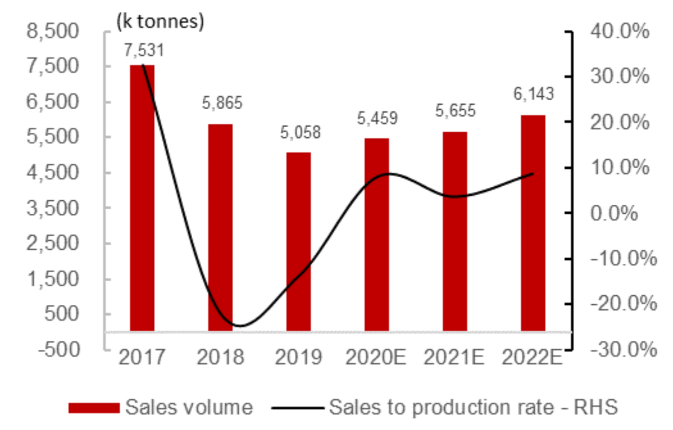
Source: Company data, CMBIS estimates
Note: CHQ recognized net investment cash inflow in 2018

Business and financial projections

Revenue to increase with aluminum volume and ASP growth

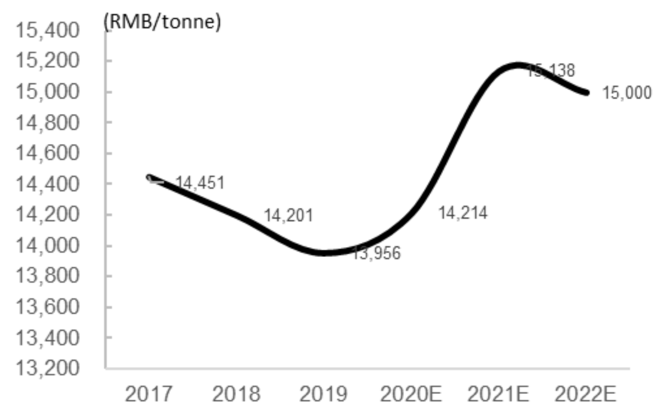
CHQ experienced aluminum sales volume decline in 2017-19 due to capacity cut in 2017, and Typhoon Lekima brought supply disruption in 2019. In 2020, despite impacts from COVID-19 during 1H20, we expect aluminum product sales volume to rebound to 5.46mn tonnes. As we expect aluminum demand to maintain decent growth and CHQ to gradually boost Yunnan project's capacity output, we expect aluminum product sales to increase 3.6%/8.6% YoY in 2021/22E respectively to 5.66/6.14mn tonnes. For ASP projection, with reference to Changjiang Aluminum Price Index, we expect VAT included ASP in 2020-22E to be RMB14,214/15,138/15,000 per tonne respectively.

Figure 50: Aluminum sales volume and growth



Source: Company data, CMBIS estimates

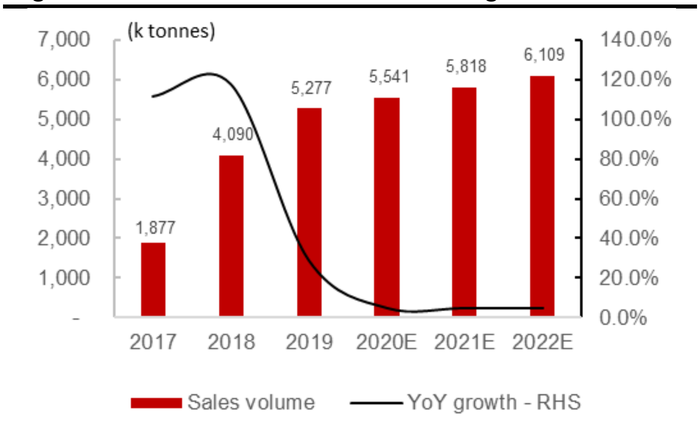
Figure 51: Aluminum sales ASP(VAT incl.)



Source: Company data, CMBIS estimates

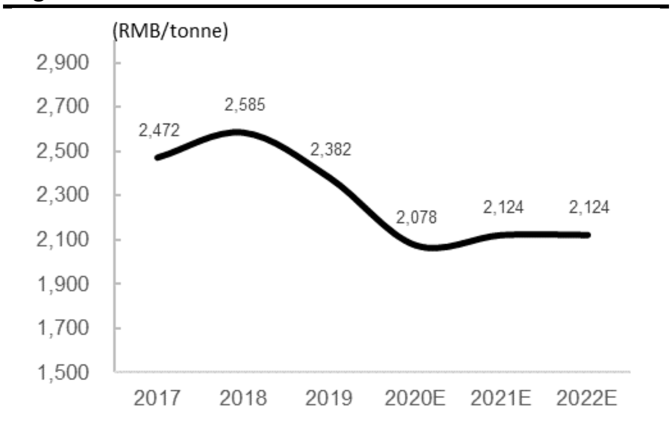
CHQ has excess alumina to support external sales with its continuously expanding alumina capacity. In 2020-22E, since alumina capacity tends to be stable while aluminum output need to consume more internal alumina supply, we expect alumina sales volume growth to slow down. As the alumina remains in oversupply status in China, we expect ASP to stay low ranging at RMB2,300-2,400 tonne in 2020-22E.

Figure 52: Alumina sales volume and growth



Source: Company data, CMBIS estimates

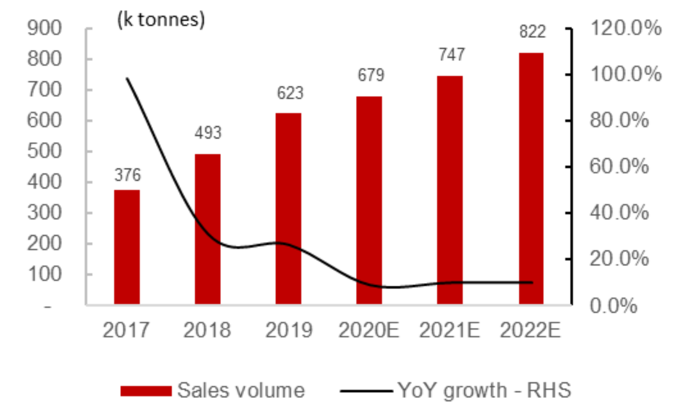
Figure 53: Alumina ASP



Source: Company data, CMBIS estimates

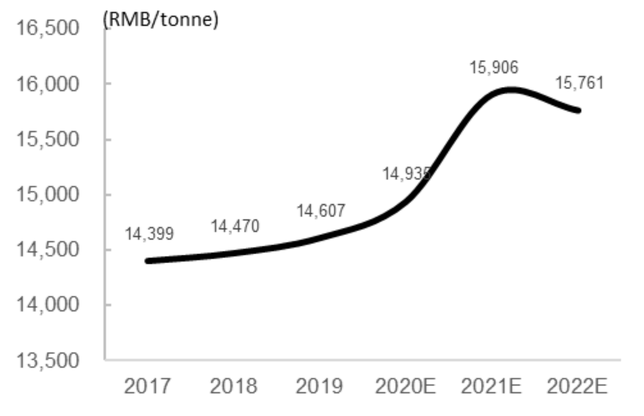
CHQ's aluminum fabrication product sales volume exhibited increasing trend in 2017-19. The Company has ~1mpta fabrication capacity by end-2020. As the Company chooses to extend business development toward lightweight auto parts in the coming future, we expect fabrication product sales to continue with growing trend. We project aluminum fabrication sales to reach 679/747/822k tonnes in 2020-22E respectively. Other than aluminum fabrication.

Figure 54: Aluminum fabrication sales volume and growth



Source: Company data, CMBIS estimates

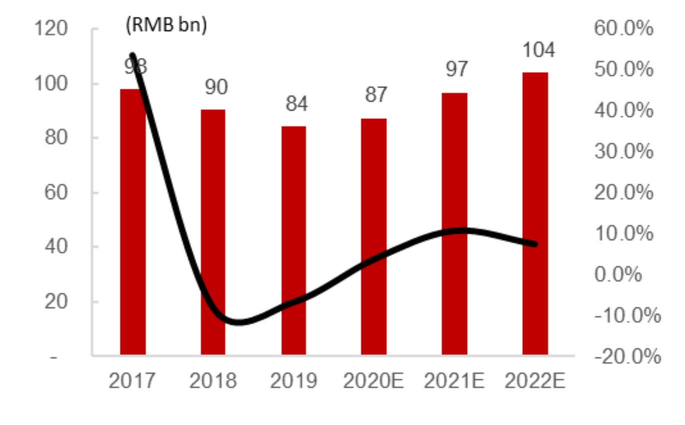
Figure 55: Aluminum fabrication ASP



Source: Company data, CMBIS estimates

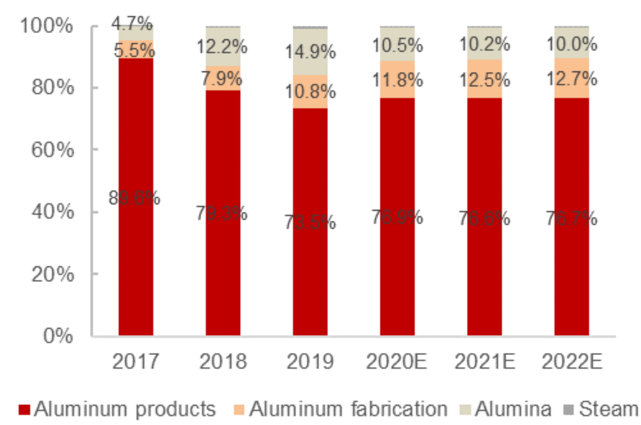
We estimate CHQ's overall revenue to have mild growth in 2020-22E, and the Company will have largely stable revenue mix for aluminum, aluminum fabrication, alumina as well as steam sales. We project revenue in 2020-22E will be RMB87.4/96.7/104.0bn respectively, with a 3-year revenue CAGR of 7%.

Figure 56: CHQ's revenue and revenue growth



Source: Company data, CMBIS estimates

Figure 57: CHQ's revenue mix



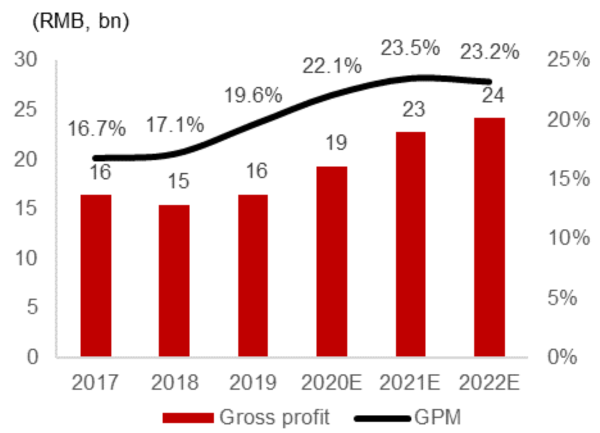
Source: Company data, CMBIS estimates

Gross profit to be boost on high aluminum price

CHQ's overall GPM increased with aluminum ASP in 2017-19. Based on our estimates of CHQ's electricity and alumina costs advantages, we expect comprehensive aluminum costs in 2020/21E to be RMB9,449/9,852 (VAT excl.) per tonne, which will indicate a costs advantage of ~RMB1,500-1,600/tonne benchmarking with national capacity weighted average costs calculated by SCI99 in Dec 2020. We expect major costs variance will come from coal price hike, since recent thermal coal price in Shandong exhibited a surge due to tightened supply. On the back of high aluminum ASP, we estimate aluminum products GPM to be 23.2/24.8%/24.3% in 2020-22E.

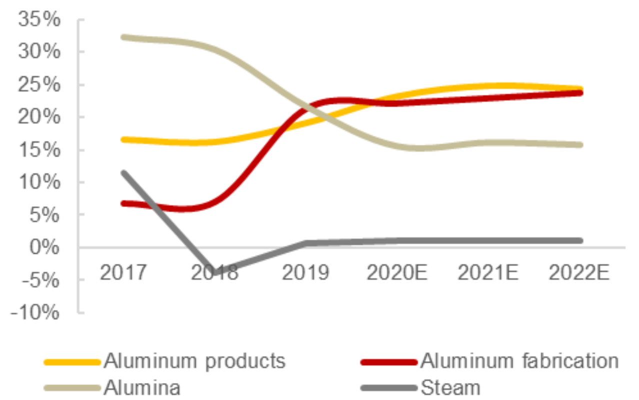
For aluminum fabrication products, as the Company intends to develop high-end lightweight auto parts, we expect GPM to also follow a graduate increasing trend. For Alumina sales, we expect ASP and costs structure to remain largely stable, which will lead to a flat GPM curve in 2020-22E.

Figure 58: CHQ's gross profit and gross profit margin



Source: Company data, CMBIS estimates

Figure 59: CHQ's segment gross profit margin



Source: Company data, CMBIS estimates

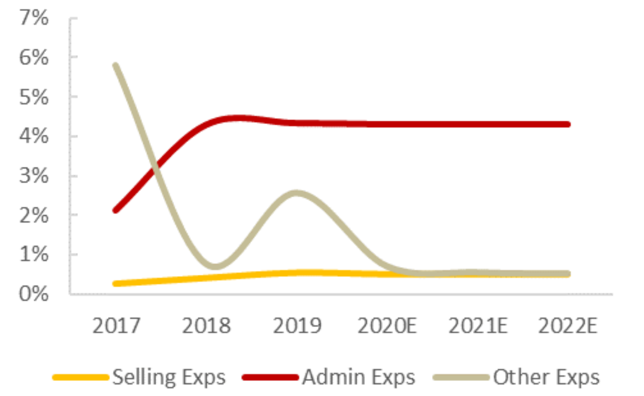
Assets impariment losses come to an end

CHQ has stable selling and distributing costs to revenue ratio since core molten aluminum alloy product is popular in Binzhou City, and downstream clients mostly have manufacturing facilities within 50km radius of CHQ's aluminum production bases.

Administrative expenses to costs ratio exhibited a jump in 2018 due to CHQ reclassified FX related expenses into administrative costs. In 2019, the expenses to revenue ratio stabilized to ~4.3%, and we expect ratio to be stable in 2020-22E.

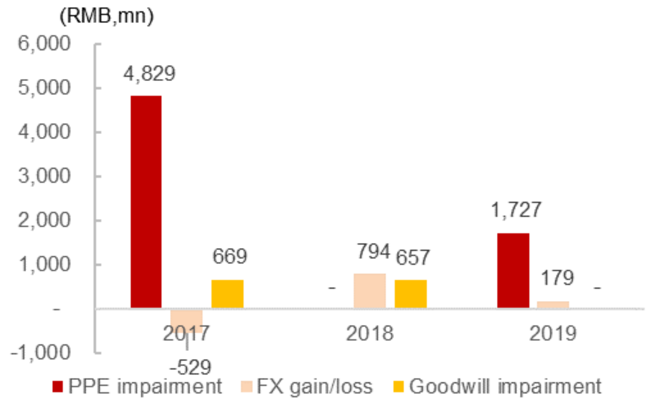
Other expense was substantially high in 2017 and 2019, as CHQ recognized significant assets provision of RMB4.83bn and RMB1.73bn for capacity cut in 2017 and typhoon Lekima's impacts in 2019. The Company also recognized goodwill impairment of RMB669/657mn in 2017/2018 in associated with capacity reduction. Looking ahead in 2020-22E, as CHQ had largely finished aluminum and captive power asset reduction, we expect assets impairment losses to come to an end.

Figure 60: Major expenses as % to total revenue



Source: Company data, CMBIS estimates

Figure 61: CHQ's non-recurring P&L items summary in 2017-19

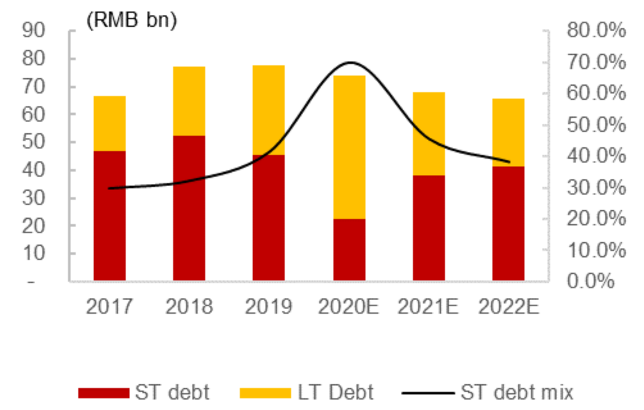


Source: Company data, CMBIS estimates

Interest expenses to have improvement room

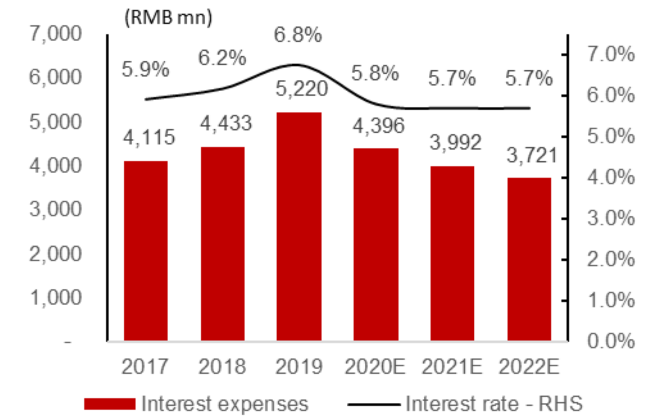
CHQ's total borrowings was RMB66.5/77.0/77.5bn in 2017-19. Overall interest experienced hike of ~60bps in 2019, due to a one-off costs incurred associated with a puttable bond roll over with higher coupon in domestic market. In 1H20, interest expenses resumed normal with significant decline YoY from RMB2.9bn in 1H19 to RMB2.2bn in 1H20. We estimate interest expense in 2020E to be RMB4,396mn with a comprehensive interest rate of 5.8%. We think CHQ will have room to improve interest expenses, as the Company intends to bring total borrowing down by ~RMB10bn in 2021E, and we expect CHQ to have funding costs decline with substantially improved financial health.

Figure 62: CHQ's ST and LT borrowings



Source: Company data, CMBIS estimates

Figure 63: Interest expenses and comprehensive interest rate

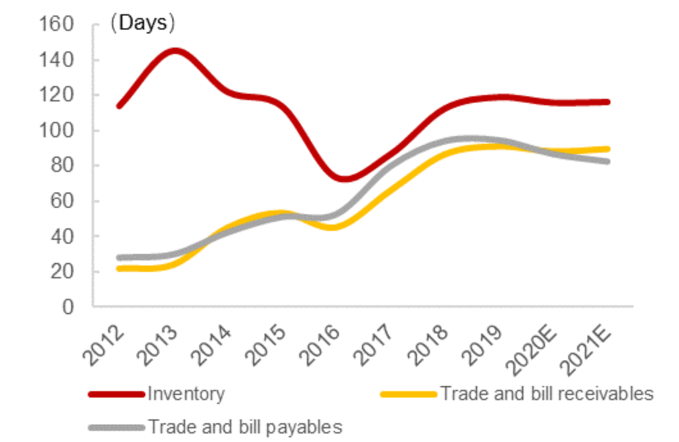


Source: Company data, CMBIS estimates
Note: Interest expenses included capitalized interests

Receivables turnover to be stable in 2020-22E

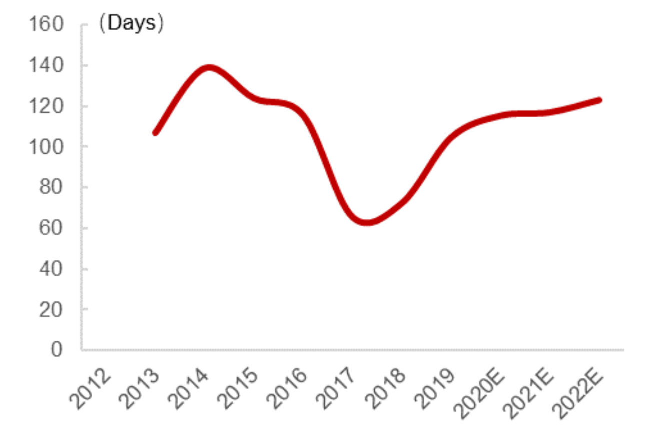
As CHQ's molten aluminum product is popular in Binzhou, historically the Company adopted short credit sales or even cash in advance sales terms. Receivables turnover days ranged from 21.6 – 45.1 in 2012-2017. From 2018, however, CHQ had more product sales in alumina and aluminum fabrication products and the Company also extended credit terms for aluminum customers, receivables days increased to 66.0 and 86.6 in 2018/19 respectively. We are not particularly concerned on the growing receivable days, as we see ~90 days' credit sales normal in the business, while CHQ also had extended payable days matching with receivables trends. Based on 1H20 financial data, we expect CHQ's receivables and payables turnover to stay stable.

Figure 64: Inventory, receivables, and payable turnover days



Source: Company data, CMBIS estimates

Figure 65: CHQ's cash conversion cycle

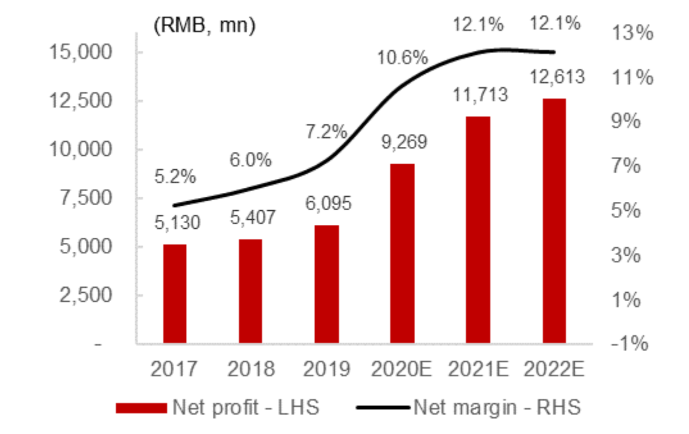


Source: Company data, CMBIS estimates

Net profit CAGR in 2020-22E to reach 16.7%

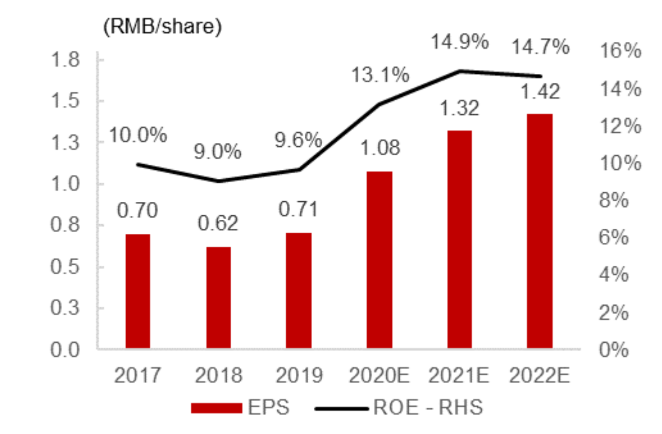
CHQ had released positive profit alert stating net profit to surge more than 50% in 2020E. We estimate 2020E net profit to reach RMB9,269mn. In 2021-22E, on the back of 1) growing aluminum sales volume and ASP, 2) declining interests expenses, we expect net profit to increase to RMB11,713mn/12,613mn respectively. Our earnings projection reflects a net profit CAGR of 16.7% in 2020-22E.

Figure 66: Net profit and net profit margin



Source: Company data, CMBIS estimates

Figure 67: EPS vs. ROE

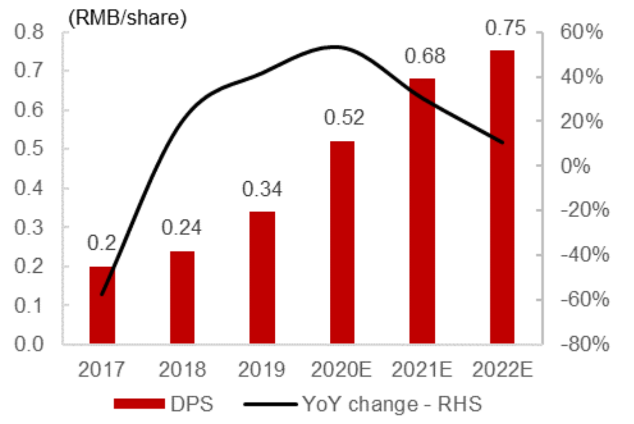


Source: Company data, CMBIS estimates

Generous dividend payout

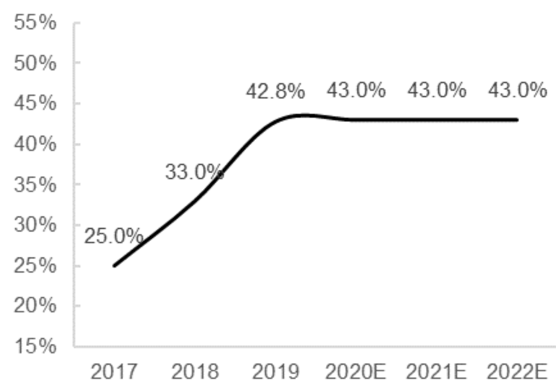
CHQ leaves capital market generous dividend payout impressions. In 2018-19, the Company boosted dividend payout ratio from 25% in 2017 to 33.0/42.8% in 2018/19 respectively. In 2020, CHQ changed dividend distribution scheme from one-off final dividend payout to separately through interim and final dividend distribution. We expect the Company to maintain generous dividend payout at ~43% in 2020-22E. As the Company pay down borrowings with increasing cash reserve in the coming few years, we expect CHQ to have room to increase dividend payout.

Figure 68: CHQ's dividend per share and YoY change



Source: Company data, CMBIS estimates

Figure 69: Dividend pay-out ratio



Source: Company data, CMBIS estimates

Key assumptions

Figure 70: Our key assumptions and projections

	2017	2018	2019	2020E	2021E	2022E
Aluminum product						
Production (k tonnes)	7,544	6,282	5,644	5,600	5,800	6,300
Sales (k tonnes)	7,531	5,865	5,058	5,459	5,655	6,143
Sales to production rate	100%	93%	90%	97%	97%	98%
ASP (RMB/t, VAT excl.)	11,647	12,194	12,236	12,551	13,367	13,245
Revenue (RMB mn)	87,721	71,516	61,891	67,142	74,073	79,737
Aluminum fabrication						
Production (k tonnes)	376	493	623	679	747	822
Sales (k tonnes)	376	493	623	679	747	822
Sales to production rate	91%	98%	99%	98%	98%	98%
ASP (RMB/t, VAT excl.)	14,399	14,470	14,607	14,935	15,906	15,761
Revenue (RMB mn)	5,417	7,135	9,105	10,350	12,125	13,216
Aluimina						
Production (k tonnes)	13,814	14,403	14,650	14,650	15,150	15,650
Sales (k tonnes)	1,877	4,090	5,277	5,541	5,818	6,109
ASP (RMB/t, VAT excl.)	2,466	2,700	2,373	2,078	2,124	2,124
Revenue (RMB mn)	4,629	11,045	12,521	9,210	9,885	10,380
Internal consumption(k tonnes)	14,460	11,261	9,711	10,481	10,857	11,795
External procurement(k tonnes)	1,081	451	284	324	439	1,074
Self-sufficiency rate	86.6%	87.2%	89.1%	90.0%	90.0%	90.0%
Material costs						
Coal costs(RMB/t VAT excl.)	505	543	515	509	566	566
Blended Bauxite costs (RMB/t VAT excl.)	419	418	403	353	361	364
Pre-cultured anode (RMB/t, VAT excl.)	3,360	3,151	2,868	2,676	2,986	2,986
Aluminum costs structure (RMB/tonne)	**9,723**	**10,223**	**9,901**	**9,449**	**9,852**	**9,826**
Electricity costs	3,670	3,995	3,912	3,812	4,002	3,950
Alumina costs	3,711	3,791	3,643	3,372	3,422	3,437
Pre-cultured anode	1,613	1,512	1,377	1,285	1,433	1,433
Others	730	925	969	981	994	1,006

Source: Company data, CMBIS estimates

Financial Statments

Income statement

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue	**90,195**	**84,179**	**87,362**	**96,745**	**103,994**
Aluminum products	71,516	61,891	67,142	74,073	79,737
Aluminum fabrication	7,135	9,105	10,350	12,125	13,216
Alumina	11,045	12,521	9,210	9,885	10,380
Steam	499	663	661	661	661
COGS	**(74,794**	**(67,715**	**(68,082**	**(74,009**	**(79,851**
Gross profit	15,401	16,464	19,280	22,735	24,142
Other income and gains	2,135	3,141	2,225	2,293	2,406
S&D expenses	(371)	(449)	(437)	(484)	(520)
Admin expenses	(3,867)	(3,646)	(3,757)	(4,160)	(4,472)
Other expenses	(707)	(2,167)	(630)	(545)	(556)
Financial costs	(4,433)	(5,220)	(4,396)	(3,992)	(3,721)
Change in fair value	398	138	130	130	130
Share profits	430	509	593	637	674
Subsidy disposal loss	(649)	-	-	-	-
Profit Before Tax	8,336	8,771	13,009	16,615	18,084
Income tax	(2,549)	(2,316)	(3,252)	(4,154)	(4,521)
Less: Minority Interest	379	360	488	748	949
Net profit	**5,407**	**6,095**	**9,269**	**11,713**	**12,613**

Cash flow Summary

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Profit before tax	**8,336**	**8,771**	**13,009**	**16,615**	**18,084**
Interest payment	4,433	5,220	4,396	3,992	3,721
DD&A	7,347	7,413	7,565	7,743	7,954
Change in WC	(5,299)	1,323	(5,124)	(3,043)	(3,881)
Tax adjustments	(2,465)	(2,484)	(3,515)	(4,521)	(4,607)
Others	(2,992)	(5,701)	(1,578)	1,244	(1,553)
Net cash from operation	**9,360**	**14,541**	**14,753**	**22,029**	**19,719**
Capex & investments	421	(11,912	(4,436)	(4,861)	(5,483)
Others	(446)	4,216	590	-	-
Net cash from investment	**5,449**	**(6,263)**	**(3,847)**	**(4,861)**	**(5,483)**
Equity raised	5,096	(379)	1,905	-	-
Change of Debts	10,505	511	(3,500)	(8,000)	(1,500)
Dividend paid	(1,698)	(1,921)	(3,833)	(3,860)	(4,903)
Interest payment	(4,433)	(5,220)	(4,396)	(3,992)	(3,721)
Others	(867)	(4,808)	488	748	949
Net cash from financing	**8,603**	**(11,816**	**(9,337)**	**(15,105**	**(9,175)**
Net change in cash	23,412	(3,537)	1,570	2,063	5,061
Cash at beginning	21,948	45,380	41,857	43,427	45,490
FX change	21	13	-	-	-
Cash at the end	**45,380**	**41,857**	**43,427**	**45,490**	**50,551**
Less: pledged cash	-	-	-	-	-
Cash at balance sheet	**45,380**	**41,857**	**43,427**	**45,490**	**50,551**

Balance sheet

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Non-current Assets	**86,927**	**86,416**	**83,635**	**81,100**	**78,751**
Fixed Assets	76,361	71,019	67,156	63,458	60,112
Right-of-use assets	-	5,152	5,347	5,549	5,750
Interests in associates	1,895	4,723	5,264	5,879	6,553
Others	8,671	5,521	5,867	6,214	6,336
Current Assets	**89,800**	**92,657**	**98,403**	**105,067**	**114,154**
Cash and cash	45,380	41,857	43,427	45,490	50,551
Trade and bills	18,477	21,451	22,190	24,573	26,518
Prepayments	4,747	6,075	8,736	9,191	9,879
Inventories	19,806	21,847	22,467	24,423	26,351
Others	1,389	1,427	1,583	1,390	854
Current Liabilities	**54,669**	**65,319**	**84,123**	**63,995**	**58,744**
Account Payables	16,661	18,216	17,021	18,132	17,967
Other payables	11,841	13,380	13,616	14,062	14,373
ST borrowings	24,686	31,971	51,714	30,009	24,593
Others	1,480	1,753	1,772	1,792	1,811
Non-Current Liabilities	**53,981**	**47,119**	**24,071**	**39,727**	**43,057**
LT borrowings	52,341	45,568	22,325	37,959	41,206
Derivative component of	415	280	294	309	324
Deferred income	554	549	577	605	636
Others	671	722	876	854	891
Total net assets	**62,619**	**66,016**	**73,844**	**82,445**	**91,104**
Minority Interests	**2,654**	**2,852**	**3,340**	**4,087**	**5,037**
Shareholder's equity	**59,965**	**63,164**	**70,504**	**78,357**	**86,068**

Key ratios

YE 31 Dec	FY18A	FY19A	FY20E	FY21E	FY22E
Sales mix (%)					
Aluminum products	79.3%	73.5%	76.9%	76.6%	76.7%
Aluminum fabrication	7.9%	10.8%	11.8%	12.5%	12.7%
Alumina	12.2%	14.9%	10.5%	10.2%	10.0%
Steam	0.6%	0.8%	0.8%	0.7%	0.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
P&L ratios (%)					
Gross profit margin	17.1	19.6	22.1	23.5	23.2
Operating margin	14.2	16.6	19.9	21.3	21.0
Net margin	6.0	7.2	10.6	12.1	12.1
Effective tax rate	30.6	26.4	25.0	25.0	25.0
Balance sheet ratios					
Current ratio (x)	1.56	1.43	1.17	1.64	1.94
Inventory turnover days	86.4	112.3	118.8	115.6	116.0
Creditor's turnover	66.0	86.6	91.2	88.2	89.7
Debtors turnover days	79.8	94.0	94.5	86.7	82.5
Liabilities/Assets (%)	64.6	63.2	59.4	55.7	52.8
Net gearing ratio (%)	52.8	56.5	43.4	26.2	16.3
Returns (%)					
ROE	9.0	9.6	13.1	14.9	14.7
ROA	3.1	3.4	5.1	6.3	6.5
Per share					
EPS (RMB)	0.62	0.71	1.08	1.32	1.42
DPS (RMB)	0.24	0.34	0.52	0.68	0.75
BVPS (RMB)	6.91	7.37	7.94	8.83	9.69

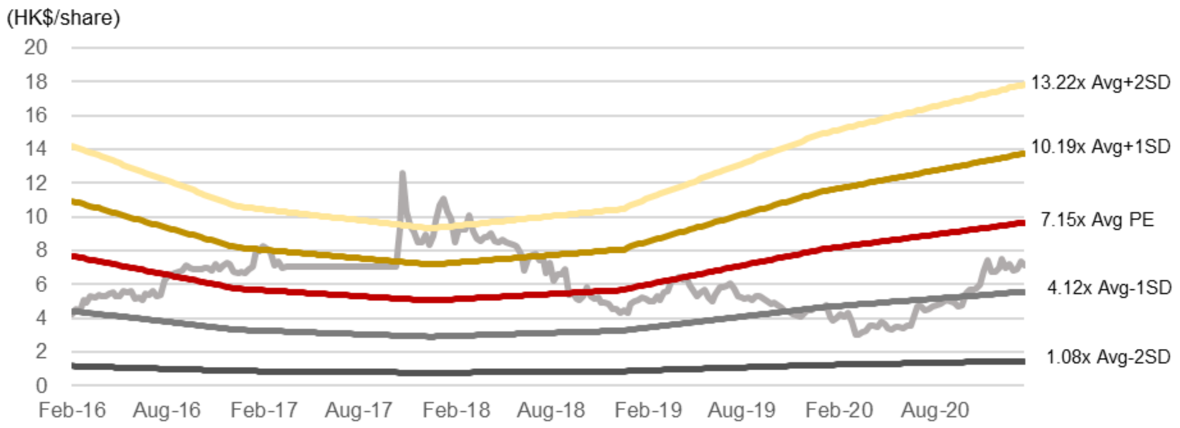
Source: Company data, CMBIS estimates

Valuation

Initiate BUY with TP of HK$11.37 per share

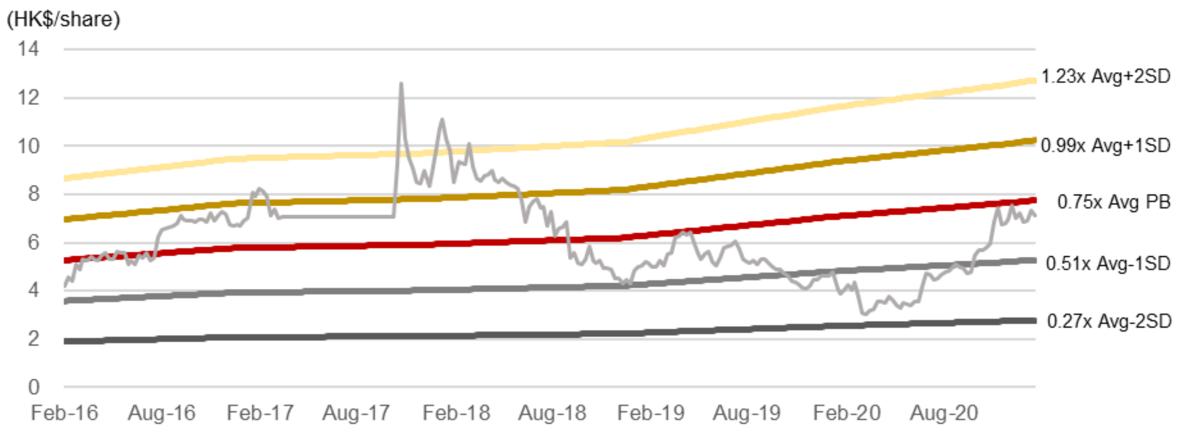
In the past five years, CHQ was trading with average PER/PBR of 7.15x/0.75x with standard deviation of 3.05x/0.24x respectively. Compared with peers valuation, the Company was trading at significant discount. We think CHQ's valuation was mainly dragged by short selling report and supply side reform triggered capacity cut. Today, as we believe the Company had come out of the quagmire, we expect the Company is embracing a rerating opportunity driven by high standing aluminum price. Based on 7.15x forward PE, we derive CHQ's TP at HK$11.37 per share. **We initiate coverage on the Company and recommend BUY rating. Our TP reflects 41.9% upside.**

Figure 71: CHQ's 5-yr PE band



Source: Company data, CMBIS estimates

Figure 72: CHQ's 5-yr PB band



Source: Company data, CMBIS estimates

Figure 73: Peers valuation

Company	Ticker	Closing Price (HK$)	Mkt cap (HK$m	EPS 19A	EPS 20E	EPS 21E	19-21E CAGR	PER FY0	PER FY1	PER FY2	PB Ratio FY0	PB Ratio FY1	PB Ratio FY2
CHINA HONGQIAO	1378 HK	7.93	70,760	0.71	0.96	1.14	26.6%	8.8	6.9	5.8	0.90	0.84	0.77
RUSAL	486 HK	3.53	53,479	0.06	0.05	0.16	58.4%	n/a	9.1	2.9	n/a	0.98	0.75
ALUMINUM CORP-H	2600 HK	2.50	61,856	0.04	0.05	0.12	77.1%	389.5	41.8	18.0	0.72	0.64	0.61
ALUMINUM CORP-A	601600 CH	3.33	61,856	0.04	0.05	0.11	74.0%	n/a	62.8	29.7	1.14	1.02	0.99
SHANDONG NANSH-A	600219 CH	3.78	53,950	0.14	0.16	0.18	11.8%	25.8	23.9	21.6	1.13	1.11	1.06
HENAN SHENHUO-A	000933 CH	6.62	17,663	0.71	0.33	0.49	-16.7%	n/a	20.1	13.4	2.68	1.51	1.40
Average								**141.4**	**27.4**	**15.2**	**1.3**	**1.0**	**0.9**

Source: Company data, CMBIS estimates

Risks factors

Aluminum price movement

CHQ's earnings is sensitive to aluminum price movement. In 2020-22E, we project aluminum ASP to be RMB14,214/15,138/15,000 per tonne respectively. If aluminum price deviate from our projection from weaker-than-expected economy recovery or COVID-19's impacts getting serious, CHQ's profitability will be affected.

Government policy on cross subsidy and government surcharge

Although we expect Shandong government is unlikely to have cross subsidy and government surcharge on CHQ's captive power capacity, we believe the overhang is still there. If central government decides to enforce those extra costs measures, we estimate CHQ's comprehensive aluminum costs will increase by RMB1,249/tonne, which will reduce the Company's costs advantage significantly.

Potential charges for carbon emission

Chinese government is undertaking ambitious path towards carbon emission peak and aiming for carbon-neutral by 2060. The Country is about to launch carbon emission trading mechanism in 2021, starting from power generating sector. Aluminum manufacturing as a high energy loading industry with high captive power support rate is obviously a key market focus for carbon emission trading. Currently, the trading mechanism details and potential impacts are unclear yet, but we suggest investors to put the factor into observing list as it could bring additional costs to the industry.

Disclosures & Disclaimers

Analyst Certification

The research analyst who is primary responsible for the content of this research report, in whole or in part, certifies that with respect to the securities or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about the subject securities or issuer; and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific views expressed by that analyst in this report.

Besides, the analyst confirms that neither the analyst nor his/her associates (as defined in the code of conduct issued by The Hong Kong Securities and Futures Commission) (1) have dealt in or traded in the stock(s) covered in this research report within 30 calendar days prior to the date of issue of this report; (2) will deal in or trade in the stock(s) covered in this research report 3 business days after the date of issue of this report; (3) serve as an officer of any of the Hong Kong listed companies covered in this report; and (4) have any financial interests in the Hong Kong listed companies covered in this report.

Disclosure

CMBIS or its affiliate(s) have investment banking relationship with the issuers covered in this report in preceding 12 months.

CMBIS Ratings

BUY	: Stock with potential return of over 15% over next 12 months
HOLD	: Stock with potential return of +15% to -10% over next 12 months
SELL	: Stock with potential loss of over 10% over next 12 months
NOT RATED	: Stock is not rated by CMBIS
OUTPERFORM	: Industry expected to outperform the relevant broad market benchmark over next 12 months
MARKET-PERFORM	: Industry expected to perform in-line with the relevant broad market benchmark over next 12 months
UNDERPERFORM	: Industry expected to underperform the relevant broad market benchmark over next 12 months

CMB International Securities Limited

Address: 45/F, Champion Tower, 3 Garden Road, Hong Kong, Tel: (852) 3900 0888 Fax: (852) 3900 0800

CMB International Securities Limited ("CMBIS") is a wholly owned subsidiary of CMB International Capital Corporation Limited (a wholly owned subsidiary of China Merchants Bank)

Important Disclosures

There are risks involved in transacting in any securities. The information contained in this report may not be suitable for the purposes of all investors. CMBIS does not provide individually tailored investment advice. This report has been prepared without regard to the individual investment objectives, financial position or special requirements. Past performance has no indication of future performance, and actual events may differ materially from that which is contained in the report. The value of, and returns from, any investments are uncertain and are not guaranteed and may fluctuate as a result of their dependence on the performance of underlying assets or other variable market factors. CMBIS recommends that investors should independently evaluate particular investments and strategies, and encourages investors to consult with a professional financial advisor in order to make their own investment decisions.

This report or any information contained herein, have been prepared by the CMBIS, solely for the purpose of supplying information to the clients of CMBIS or its affiliate(s) to whom it is distributed. This report is not and should not be construed as an offer or solicitation to buy or sell any security or any interest in securities or enter into any transaction. Neither CMBIS nor any of its affiliates, shareholders, agents, consultants, directors, officers or employees shall be liable for any loss, damage or expense whatsoever, whether direct or consequential, incurred in relying on the information contained in this report. Anyone making use of the information contained in this report does so entirely at their own risk.

The information and contents contained in this report are based on the analyses and interpretations of information believed to be publicly available and reliable. CMBIS has exerted every effort in its capacity to ensure, but not to guarantee, their accuracy, completeness, timeliness or correctness. CMBIS provides the information, advices and forecasts on an "AS IS" basis. The information and contents are subject to change without notice. CMBIS may issue other publications having information and/ or conclusions different from this report. These publications reflect different assumption, point-of-view and analytical methods when compiling. CMBIS may make investment decisions or take proprietary positions that are inconsistent with the recommendations or views in this report.

CMBIS may have a position, make markets or act as principal or engage in transactions in securities of companies referred to in this report for itself and/or on behalf of its clients from time to time. Investors should assume that CMBIS does or seeks to have investment banking or other business relationships with the companies in this report. As a result, recipients should be aware that CMBIS may have a conflict of interest that could affect the objectivity of this report and CMBIS will not assume any responsibility in respect thereof. This report is for the use of intended recipients only and this publication, may not be reproduced, reprinted, sold, redistributed or published in whole or in part for any purpose without prior written consent of CMBIS.

For recipients of this document in the United Kingdom

This report has been provided only to persons (I)falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended from time to time)("The Order") or (II) are persons falling within Article 49(2) (a) to (d) ("High Net Worth Companies, Unincorporated Associations, etc.,) of the Order, and may not be provided to any other person without the prior written consent of CMBIS.

For recipients of this document in the United States

CMBIS is not a registered broker-dealer in the United States. As a result, CMBIS is not subject to U.S. rules regarding the preparation of research reports and the independence of research analysts. The research analyst who is primary responsible for the content of this research report is not registered or qualified as a research analyst with the Financial Industry Regulatory Authority ("FINRA"). The analyst is not subject to applicable restrictions under FINRA Rules intended to ensure that the analyst is not affected by potential conflicts of interest that could bear upon the reliability of the research report. This report is intended for distribution in the United States solely to "major US institutional investors", as defined in Rule 15a-6under the US, Securities Exchange Act of 1934, as amended, and may not be furnished to any other person in the United States. Each major US institutional investor that receives a copy of this report by its acceptance hereof represents and agrees that it shall not distribute or provide this report to any other person. Any U.S. recipient of this report wishing to effect any transaction to buy or sell securities based on the information provided in this report should do so only through a U.S.-registered broker-dealer.

For recipients of this document in Singapore

This report is distributed in Singapore by CMBI (Singapore) Pte. Limited (CMBISG) (Company Regn. No. 201731928D), an Exempt Financial Adviser as defined in the Financial Advisers Act (Cap. 110) of Singapore and regulated by the Monetary Authority of Singapore. CMBISG may distribute reports produced by its respective foreign entities, affiliates or other foreign research houses pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the report is distributed in Singapore to a person who is not an Accredited Investor, Expert Investor or an Institutional Investor, as defined in the Securities and Futures Act (Cap. 289) of Singapore, CMBISG accepts legal responsibility for the contents of the report to such persons only to the extent required by law. Singapore recipients should contact CMBISG at +65 6350 4400 for matters arising from, or in connection with the report.

Additional information on recommended securities is available upon request.