

China Hongqiao (1378 HK)

Market leader in the aluminum industry

China Hongqiao is the world's largest electrolytic aluminum producer. We believe that CHQ will benefit from the global aluminum boom cycle, and will outperform the industry through 1) cross-regional replacement of production capacity; 2) industrial chain integration; 3) self-provided power plants; and 4) downstream extension and other advantages. We maintain BUY rating and raise our TP to HK\$15.6 (based on 6.2x 2022E P/E) with 64.5% upside. Reiterate BUY.

- The electrolytic aluminum industry is expected to maintain a cyclical upward trend.** We believe that the overall aluminum industry demand is expected to maintain a cyclical upward trend in 2022E, benefiting from 1) the marginal relaxation of real estate policies and 2) the introduction of incentive measures for downstream industries such as automobile purchase tax reduction. Meanwhile, due to the industrial policy, the electrolytic aluminum industry is expected to continue to outperform the alumina industry in the medium term. We believe that CHQ, as the world's largest electrolytic aluminum company, will make full use of the advantages of the integrated value chain and maintain its leading position in the industry.
- Both short-term performance and long-term growth curve are promising.** Benefiting from the rise in aluminum prices since 2022E, CHQ subsidiary's Shandong Hongqiao achieved operating income of RMB32.3bn in 1Q22, an increase of 28.2% YoY and bottom-line of RMB5.9bn, an increase of 59.9% YoY. We expect CHQ to achieve a net profit of RMB17,897mn in 2022E, an increase of 11.3% YoY. In the long run, we believe that 1) the capacity replacement in Yunnan will be gradually completed; and 2) the scale of recycled aluminum and aluminum deep processing in Shandong will gradually expand, further expanding its competitive advantage. Meanwhile, we believe that the Company will strengthen its ESG attributes and expand the scope of potential investors.
- Reinforced the attractive valuation.** The Company is currently trading at 3.7x 2022E P/E, which we believe is undervalued with limited downside risks given 1) its cyclical upward trend in 2022E; and 2) long-term transformation arising from cross-regional replacement of production capacity. We also believe that the sector sentiment in capital market will rebound significantly in 2022E given persistent global inflation and geographic policy disturbance. Therefore, we adjusted our TP to HK\$15.6 (based on new 6.2x 2022E P/E) from HK\$15.3 (based on initial 6.0x 2022E P/E). **Reiterate BUY rating.**

Earnings Summary

(YE 31 Dec)	FY20A	FY21A	FY22E	FY23E	FY24E
Revenue (RMB mn)	86,145	114,491	121,617	118,479	122,603
YoY (%)	2.33	32.91	6.22	-2.58	3.48
Net Income (RMB mn)	10,496	16,073	18,997	19,737	21,427
EPS (RMB)	1.22	1.77	2.08	2.16	2.35
EPS CHG (%)	72.3	45.1	17.5	3.9	8.6
Consensus EPS (RMB)	NA	NA	2.25	2.35	2.44
PE (x)	6.4	4.4	3.7	3.6	3.3
PB (x)	0.80	0.72	0.63	0.57	0.51
Yield (%)	6.87	11.1	13.4	13.9	15.1
ROE (%)	15.2	19.9	20.5	19.2	18.7
Net gearing (%)	39.7	7.7	2.1	NC	NC

Source: Company data, Bloomberg, CMBIGM estimates

BUY (Maintain)

Target Price	HK\$15.6
(Previous TP)	HK\$15.3)
Up/Downside	+64.5%
Current Price	HK\$9.5

China Aluminum Sector

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Stock Data

Mkt Cap (HK\$ mn)	87,545
Avg 3 mths t/o (HK\$ mn)	225.07
52w High/Low (HK\$)	10.02/6.46
Equity share – 1378.HK	9,254

Source: Wind

Shareholding Structure

Hongqiao Holdings	66.62%
CITIC Group	11.48%

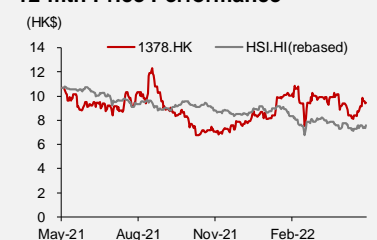
Source: HKEx, Bloomberg

Share Performance

	Absolute	Relative
1-mth	3.2%	-0.6%
3-mth	-6.0%	3.4%
6-mth	34.4%	56.4%

Source: Wind

12-mth Price Performance



Source: Wind

Auditor: Shinewing (HK)

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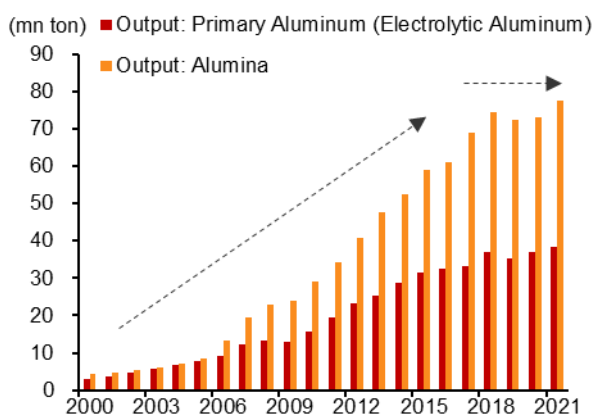
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Aluminum market review and outlook

As an important global commodity, the production-sales volume and the price of aluminum are affected by multiple factors such as the COVID-19 situation, geopolitical conflict, industrial policies, and downstream demand. In 2021, the global alumina production volume was about 138.66mn tons and the consumption volume was about 137.61mn tons, an increase of 4.2% and 3.6% YoY respectively. In 2021, the global primary aluminum production was about 67.78mn tons and the consumption volume was about 69.15mn tons, up 3.8% and 9.1% YoY respectively.

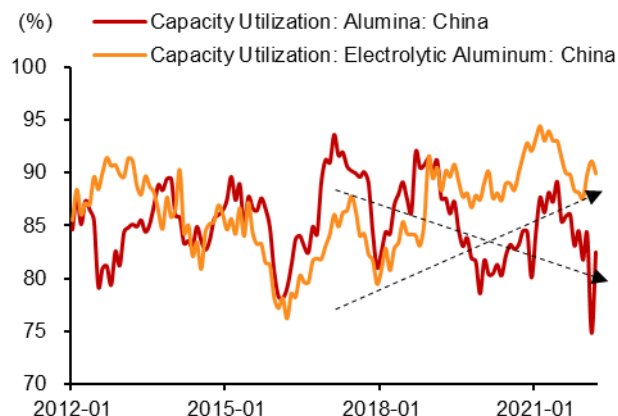
China is the world's largest aluminum producer and consumer, accounting for more than half of the world's production/sales volume for both alumina and primary aluminum. In 2021, China's primary aluminum production was approximately 38.9mn tons and the consumption was approximately 40.55mn tons, up 4.3% and 5.7% YoY, accounting for approximately 57.39% and 58.64% of global production and consumption, respectively. China's alumina production volume was about 75.2mn tons and the consumption was about 77.99mn tons, up 5.9% and 4.3% YoY, accounting for 54.24% and 56.67% of global production and consumption, respectively.

Figure 1: China aluminum production: primary aluminum, alumina



Source: Wind, CMBIGM

Figure 2: China's aluminum industry capacity utilization rate



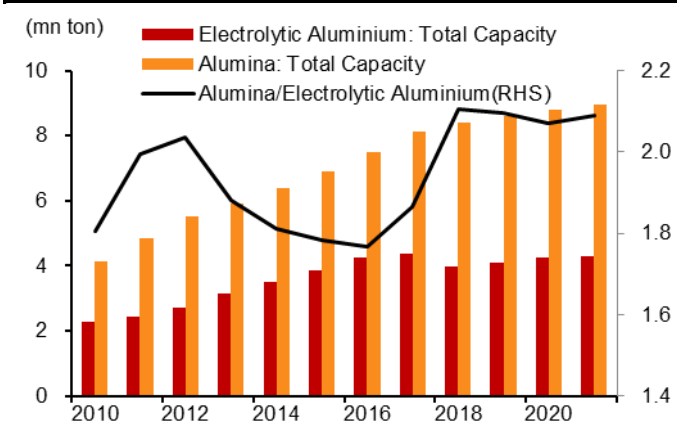
Source: Aladinny, Wind, CMBIGM

Benefiting from the overall economic growth, China's aluminum production and sales have maintained rapid growth since the 2000s. In 1H17, the National Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Land and Resources and the Ministry of Environmental Protection have jointly issued the "Special Action Work Plan for Rectifying Illegal and Irregular Projects in the Electrolytic Aluminum Industry" (清理整顿电解铝行业违法违规项目专项行动工作方案), marking the official start of the supply-side reform of China's electrolytic aluminum industry. We observed that such supply-side reform on the aluminum industry is still affecting the current industry landscape.

In 2021, China's electrolytic aluminum production capacity was about 42.83mn tons, close to the capacity ceiling of 45mn tons. At the same time, the distribution of production capacity of electrolytic aluminum has been gradually transferred to the regions with low carbon emissions and low production costs, including North China and Southwest/Northwest regions. By end-2021, although benefiting from the advantages of coal resources and low electricity prices, the northwest region, especially Xinjiang, Inner Mongolia and other places, slowed down the acceptance of production capacity given the

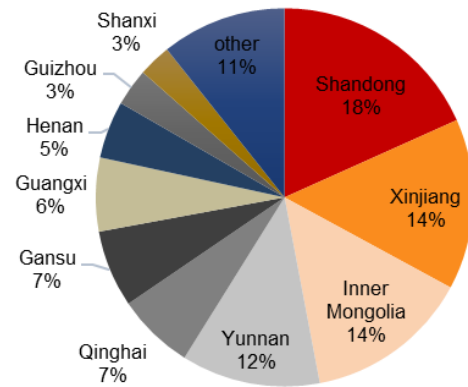
constraints from carbon emission goal. We expect that southwestern regions such as Yunnan and Guangxi will still benefit from the advantages of hydropower and will continue to accept the transfer of electrolytic aluminum production capacity.

Figure 3: China's aluminum production capacity



Source: Aladinny, Wind, CMBIGM

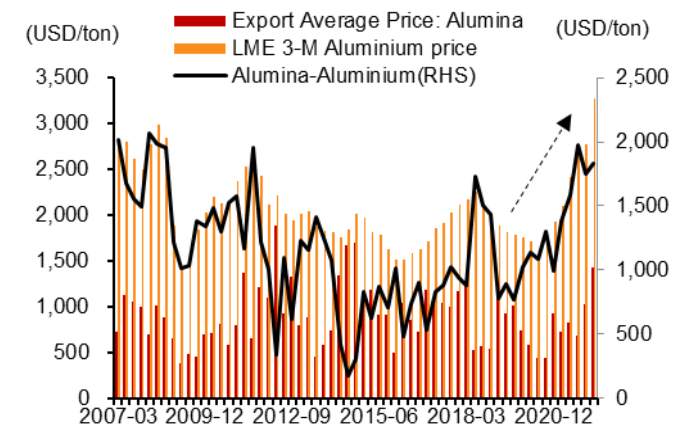
Figure 4: Industry capacity geographical distribution



Source: Antaiko, CMBIGM

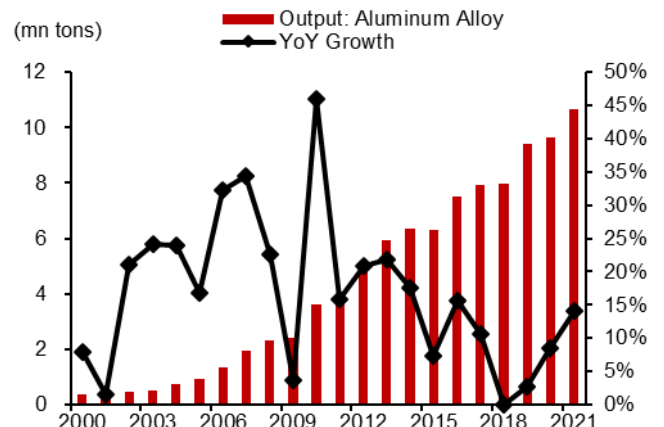
At the same time, China's alumina production capacity maintained a slight expansion trend. According to the data of China Nonferrous Metals Industry Association, China's existing alumina production capacity is about 90.15mn tons in 2021. In addition, a capacity of approximately 9.4mn tons is under construction while the planned construction capacity reaches about 20.2mn tons in 2021. In the context of the supply-side reform of electrolytic aluminum, alumina production capacity remained relatively surplus, thus the gap in the utilization rate between electrolytic aluminum and alumina capacity continued to expand.

Figure 5: Primary Aluminum-Alumina Spread



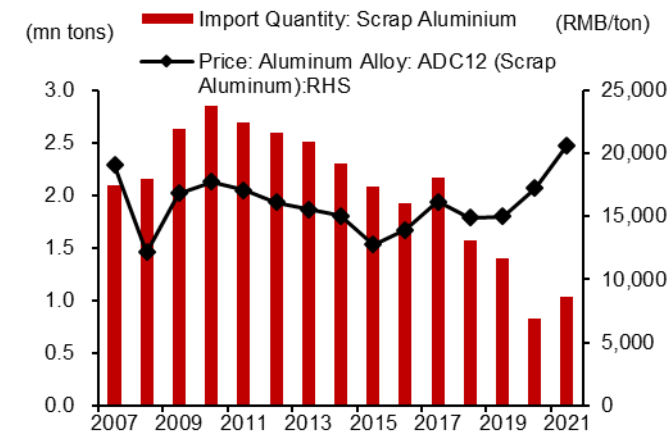
Source: Aladinny, Wind, CMBIGM

Figure 6: China's Output: Aluminum Alloy



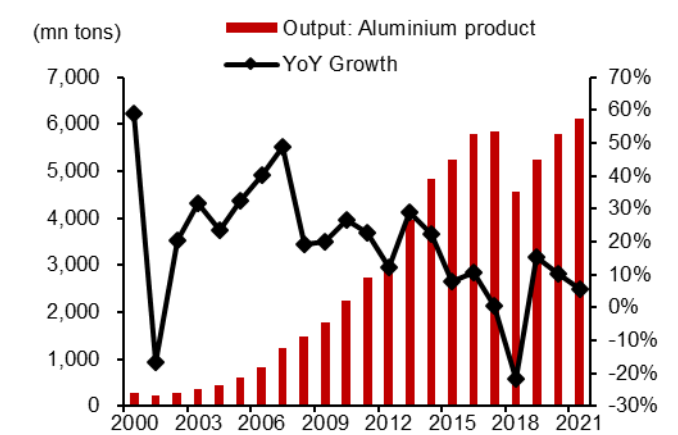
Source: Company data, CMBIGM

Figure 7: Scrap aluminum: import & price



Source: Wind, CMBIGM

Figure 8: China's output: aluminum product



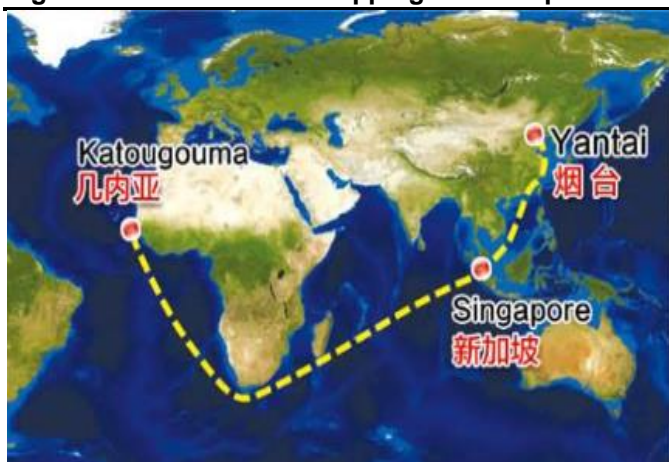
Source: Wind, CMBIGM

Industrial chain summary

The electrolytic aluminum industry chain is mainly composed of upstream mining, midstream smelting, downstream processing and final consumption. As an important non-ferrous metal, aluminum is widely used in real estate, automobile, industrial manufacturing fields with a strong cyclical price pattern.

As alumina raw material, China relies heavily on imported resources of bauxite. According to the data of Antaike, in 2021, the demand for imported ore was 117mn tons while the demand for domestic ore was 110mn tons. The imported ore accounted for 52% of total demand while the domestic supply accounted for 48%. In 2021, China has imported a total of 107.37mn tons of bauxite, of which the import from Guinea accounted for 51%. Since 2014, four companies including China Hongqiao (under China Shandong Weiqiao Venture Group), Yantai Port Group, Guinea UMS (United Mining Supply) (a French investment company in Guinea), and Singapore Winning International Group, have formed **SMB Winning Consortium**, which in turn drove the number of imported bauxite from Guinea to China to increase year by year and turned Guinea into the main supplier of bauxite raw materials to China.

Figure 9: Guinea-Yantai shipping route map



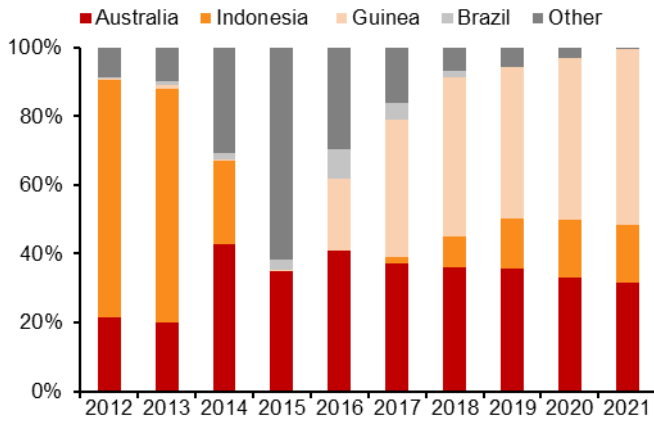
Source: Winning International, CMBIGM

Figure 10: Bauxite loading and unloading in Yantai



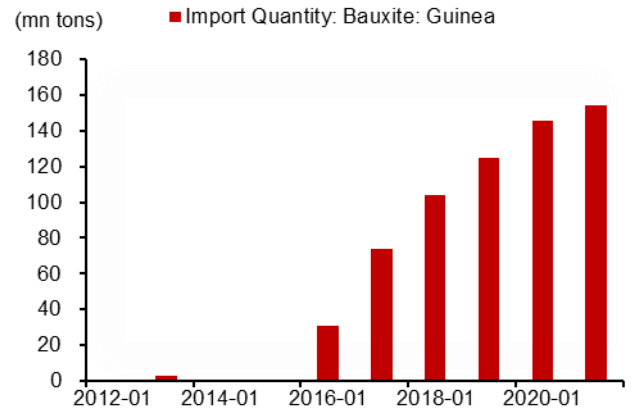
Source: Yantai Port, CMBIGM

Figure 11: Import quantity: bauxite



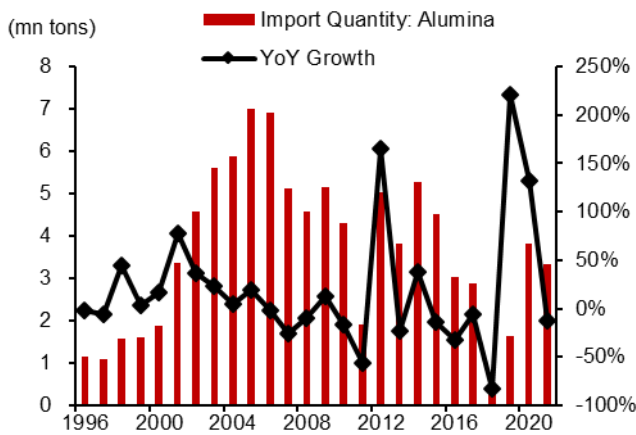
Source: GACC, Wind, CMBIGM

Figure 12: Import quantity: bauxite: guinea



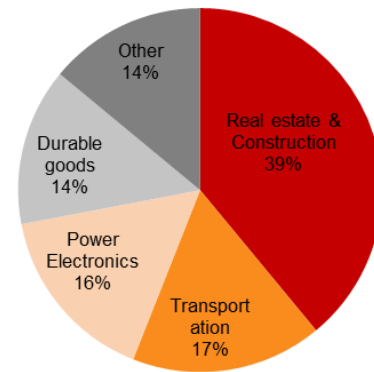
Source: Wind, CMBIGM

Figure 13: Import quantity: alumina



Source: Wind, CMBIGM

Figure 14: Downstream application



Source: Aladinny, CMBIGM

Real estate market – market enthusiasm will pose a V-shape round in 2H22E

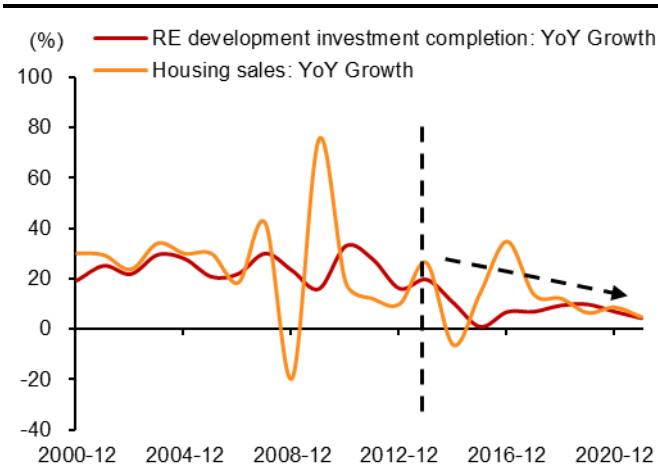
Aluminum is widely used in real estate and construction fields, such as roofs, walls, doors and windows, skeletons, interior and exterior decorative panels, etc. The real estate and construction industries account for nearly 40% of the total aluminum demand. Therefore, the prosperity of the real estate industry is highly correlated to the aluminum industry as the real estate demand plays a role as a ballast for the overall aluminum demand.

According to NBS, the national real estate development investment in 1Q22 was RMB2,776.5bn, an increase of 0.7%YoY. The cumulative area of new housing construction decreased by 17.5% YoY, while the cumulative area of construction increased by 1.0% YoY. In addition, the cumulative area of completion decreased by 11.5% YoY. Under the guidance of the overall industry policy, real estate development enterprises maintained the deleveraging trend and the willingness of land acquisition remained weakened.

However, under the general guidance of "Houses are built to be lived in, not for speculation", real estate policies in various provinces and cities have diverged since 2Q22. According to our statistics, more than 50 cities across the country have issued different types of real estate policies. Based on resource endowment, many cities have introduced relevant measures on housing subsidies, down payment ratios, mortgage limits or relieve of sales

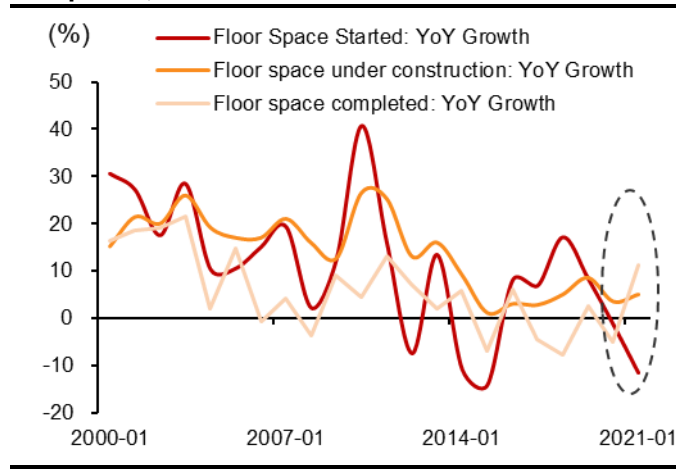
restrictions, so as to promote a stable and healthy development of the real estate market. We expect the real estate market to pose an upward trend in the rest of 2022E given 1) low base effect; 2) marginal policy shift; and 3) COVID-19 mitigation. We expect the drag from the real estate industry on the aluminum industry demand to ease in 2H22E.

Figure 15: Housing investment vs sales, YoY growth



Source: Wind, CMBIGM

Figure 16: Floor started, under construction and completed, YoY Growth



Source: Wind, CMBIGM

Changes in the automotive industry lead to an increase in aluminum consumption

In 2021, China's aluminum alloy output reached a record high of 1.07mn tons, an increase of 14% YoY. With the rapid development of the automobile industry, the lightweight of automobiles has become a global automobile development trend. On the premise of ensuring the strength and safety performance of automobiles, lightweight structural parts can reduce vehicle curb weight, improve vehicle power, reduce fuel consumption, and reduce exhaust pollution. It is one of the effective ways to achieve energy conservation and emission reduction in the automotive industry.

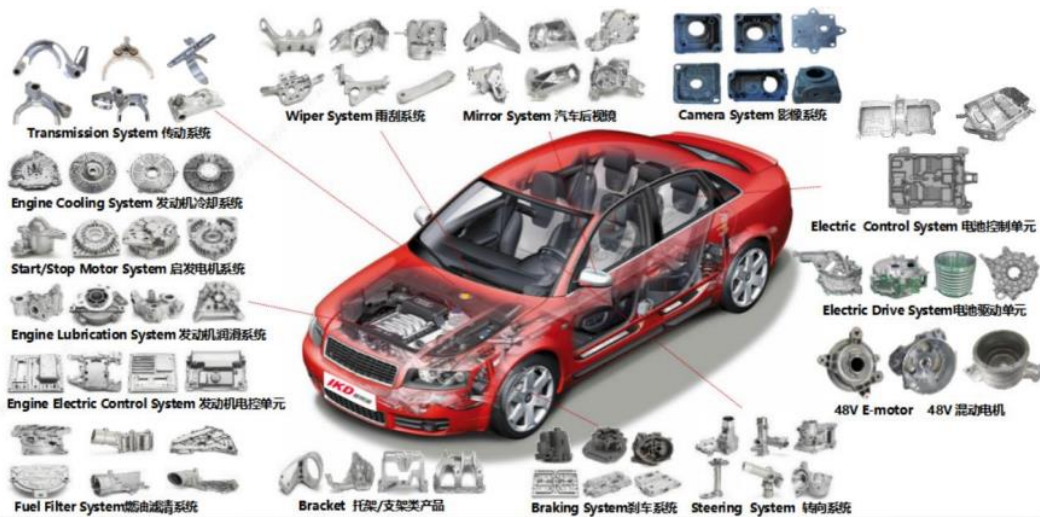
China is the world's largest auto market, with production and sales ranking first in the world for 13 consecutive years. According to the data of the CAAM, China's automobile production and sales volume achieved 26.08mn and 26.28mn respectively, an increase of 3.4% and 3.8% YoY in 2021. At the same time, China continues to play a leading role in the development of new energy vehicles globally. In 2021, the production and sales of new energy vehicles in China recorded 3.55mn and 3.52mn respectively, an increase of 160% YoY. The market penetration rate reached 13.4%, up by 8 ppt.

According to the MIIT, 137 passenger car companies in China produced/imported a total of 19.83 mn PV (including new energy passenger cars, excluding exported passenger cars) in 2020 with the average vehicle curb weight of 1,510 kg. The industry-wide actual average fuel consumption was 5.61 liters/100 km. Driven by the CAFC/NEV policy and the market demand, the trend of lightweight automobiles will increase the amount of aluminum used.

Aluminum has obvious advantages in lightweight materials for automobiles that one ton of aluminum can replace two tons of steel, so as to reduce the weight of the whole vehicle. For every 10% reduction in the weight of a traditional vehicle, the fuel consumption is reduced by 6%-8% while for every 10% reduction in the weight of a new energy vehicle, the cruising range can be increased by 5%-6%. We estimate that the current consumption of aluminum alloys for automobile in China is around 120kg, and there is still room for improvement compared to 150kg usage amount in the European and American auto

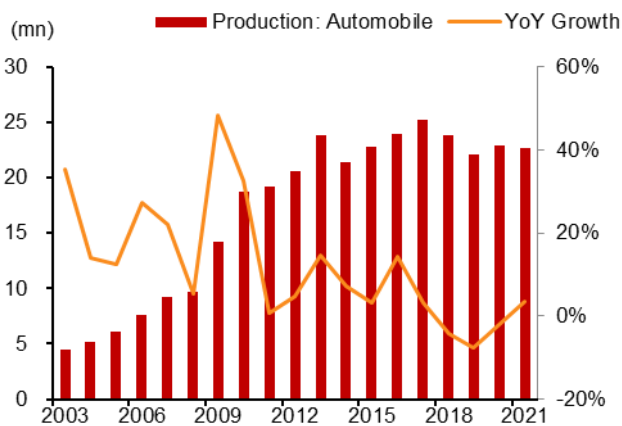
markets. According to the "Roadmap for Energy-Saving and New Energy Vehicles" issued by the Society of Automotive Engineers of China, in 2025E, the weight of the whole vehicle will be reduced by 20% compared with that in 2015, and the amount of aluminum used in a single vehicle will reach 250kg. By 2030E, the weight will be reduced by 35% compared with 2015 and the amount of aluminum used in bicycles may reach 350kg. We expect that the amount of aluminum alloy used in automobiles will maintain a steady upward trend in the future.

Figure 17: Application of aluminum alloy in automobile



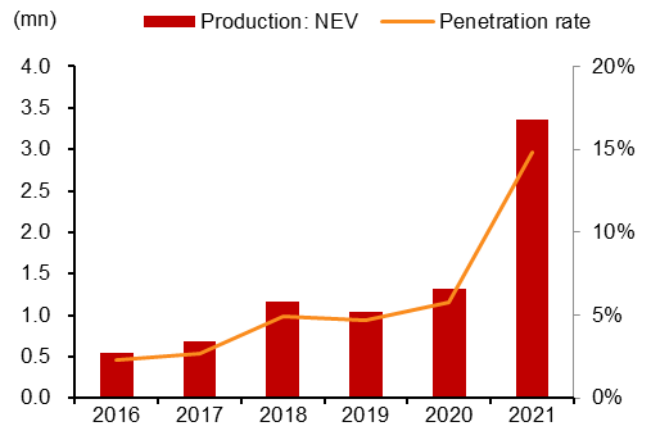
Source: IKD, CMBIGM

Figure 18: China's auto production



Source: Wind, CMBIGM

Figure 19: China's NEV production and penetration rate



Source: Wind, CMBIGM

Company background

China Hongqiao is a leading global aluminum manufacturer, covering the entire aluminum industry chain. The Company is mainly involved in producing and selling molten aluminum alloy, aluminum alloy ingots, aluminum fabrication products, and alumina. By the end of 2021, the Company's total output of aluminum alloy products and aluminum fabrication products achieved approximately 5.633mn tons and 0.672mn tons, respectively.

Figure 20: Milestone of China Hongqiao

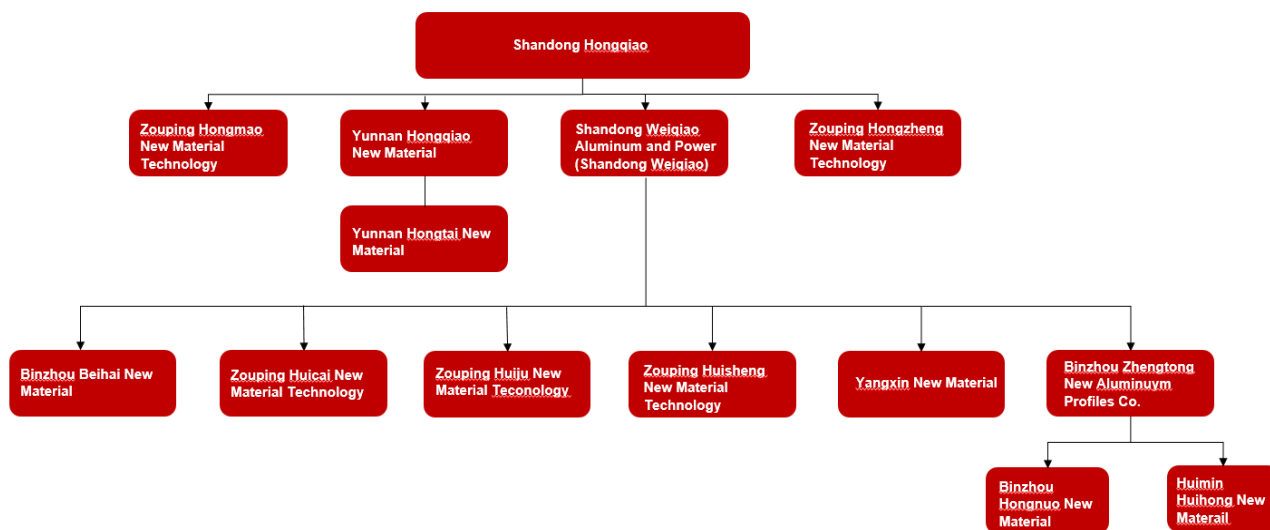
1994-Jul	Shandong Hongqiao was established and was mainly engaged in the production and distribution of jeans (堅固尼) and yarn-dyed denim (依織布) at the time of its establishment.
2002-Dec	Aluminum & Power was established, the business scope of which included thermal power generation.
2006-Jun	Shandong Hongqiao acquired the entire equity interests of Aluminum & Power and became the sole beneficial owner of Aluminum & Power.
2006-Sep	Aluminum & Power acquired from Chuangye Group the aluminum products manufacturing facilities with an aggregate designed annual production capacity of approximately 156,000 tons and started engaging in the production of aluminum products
2010-Jan	Shandong Hongqiao acquired from Chuangye Group the aluminum production facilities with an aggregate designed annual production capacity of approximately 160,000 tons and the aggregate designed annual aluminum products manufacturing capacity of our Group was increased to approximately 916,000 tons.
2010-Mar	Aluminum & Power acquired the entire equity interests of Zhengtong.
2010-Apr	Shandong Hongqiao obtained the ISO 9001 Certification and the ISO 14001 Certification
2011-Mar	China Hongqiao was listed on the HKSE
2012-Dec	China Hongqiao announced the establishment of an alumina production company in Indonesia with three miners and shippers, investing US\$1 billion to build and operate an alumina production plant with a designed annual capacity of 2 mn tons
2014-May	The company acquired 90% stake in a mining company in Guinea for US\$121 mn. The company owns 2.2 bn tons of bauxite resources, of which 624 mn tons have been proven and controlled
2014-Dec	The company joins hands with Winning International, Yantai Port Group and Guinea International Mining to form a "Winning Alliance" to develop a new bauxite supply base with the innovative model of "mining + river transportation + shipping" in the Boca mining area of Guinea
2017-Dec	Affected by the industry supply-side reform in the 2H17, the company's total annual production capacity of aluminum products was reduced to 6.46 mn tons and ranked 1st in the industry
2018-Sep	The founder of the company Mr. Zhang Shiping resigned, and his son Mr. Zhang Bo took over as the chairman of the board of directors
2018-Oct	Winning Alliance Ports SA ("WAP") signed three major conventions with the Guinean government, covering mining, railway construction, alumina refinery projects, etc.
2019-Dec	Weiqiao Aluminum announced to withdraw its 203-ton electrolytic aluminum production capacity in Binzhou and transfer it to Yunnan
2020	Yunnan Hongtai's green electrolytic aluminum project with an annual production capacity of 2.03 million tons has begun the first phase of relocation of 1mn tons in 2020. It has joined hands with Germany's Scholz China GmbH to set up a joint venture to actively develop recycled aluminum and circular economy project
2021	The construction of the Group's lightweight base, built with the strategy of "Three New and One High" materials, have been completed and put into production The construction of the SinoGerman Hongshun Circular Technology Industrial Park project was accelerated to complete the installation of the first aluminum recycling production line by the end of 2021

Source: The Company, CMBIGM

Meanwhile, the Company has an electrolytic aluminum capacity of 6.46mtpa with nine production bases. Its eight production bases are distributed in Zouping, Binzhou, Weiqiao, Huiming, Yangxin, Zhanhua, Boxing, and Beihai, where aluminum industrial clusters gathered. Besides, the Company has one production site in Wenshan, Yunnan and expects to add another one in Honghe, Yunnan.

The alumina capacity of China Hongqiao was 17mtpa by the end of 2021. In particular, the Shandong area produced 15mtpa, and the rest of 2mtpa was built in Indonesia. In addition, the aluminum fabrication products were mainly produced in Shandong.

Figure 21: Aluminum production sites

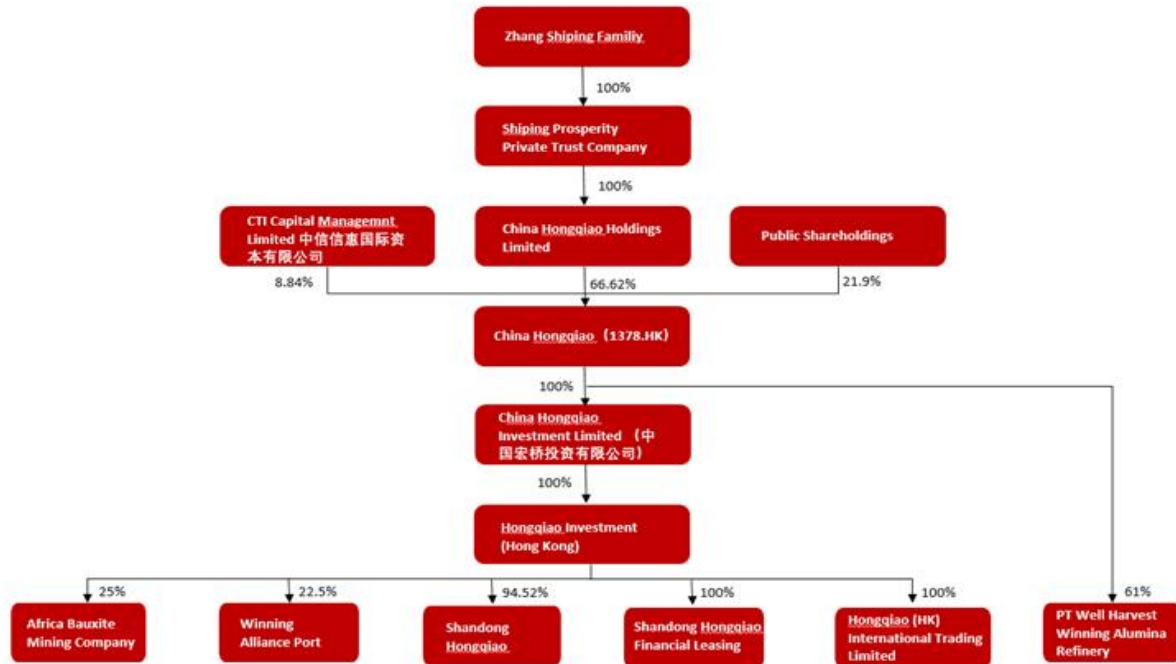


Source: The Company, CMBIGM

China Hongqiao (1378.HK)'s core business entity is Shandong Hongqiao. Shandong Hongqiao, formerly known as the sino-foreign joint venture called Weiqiao Textile Group (山东魏桥纺织), was established in 1994 by Shandong Weiqiao Chuangye Group and Hong Kong Zhongda Huiwen. In Jan 2010, Chuangye Group signed an asset replacement agreement with Shandong Hongqiao; afterwards, Chuangye Group replaced its 160,000-ton aluminum extrusion production line with Weiqiao Textile Group's textile assets. In Feb 2010, the founder of China Hongqiao Mr. Zhang Shiping established China Hongqiao Holdings Co. Then, China Hongqiao Holdings Co. registered and launched China Hongqiao. In Mar 2011, China Hongqiao was listed on HKSE mainboard.

In Aug 2017, CTI Capital Management, as a subsidiary of CITIC Group, participated in China Hongqiao's share placement at HK\$6.8 per share. After the share placement, CTI Capital Management held 807mn shares of the company and became the second largest shareholder of the Group. China Hongqiao obtained capital from CITIC Group and optimized its shareholding structure through share replacement. By 2021, China Hongqiao held 6.077bn shares of the company, representing 66.62% of total shares while CTI Capital Management held 807mn shares of the company, accounting for 8.84%.

Figure 22: Shareholding structure



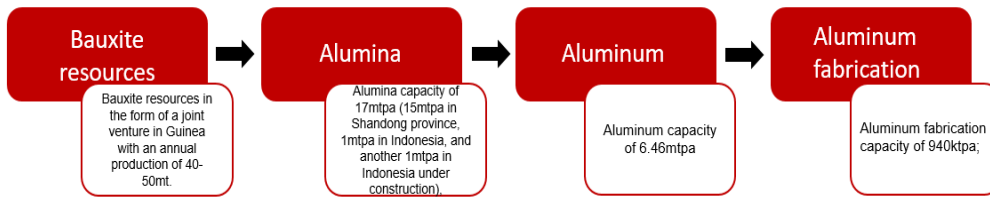
Source: The Company, CMBIGM

In early 2021, Shandong Hongqiao started to increase registered capital and shares by attracting three external investment institutions' capital of RMB3.8bn. Then, Hongqiao Investment (Hong Kong) held 94.52% shares, Sanya Changzhe Hongji Venture Capital Fund owned a 3.25% proportion, CCB Financial Assets held 1.44% shares, and Hongye Venture Capital Fund (Limited Partnership) had 0.79% shares.

China Hongqiao owned an advanced business model on the aluminum industry chain

CHQ had completed layout in the aluminum industry, including: 1) bauxite resources in Guinea with an annual production capacity of 40-50mt. 2) 17mtpa alumina capacity (15mtpa in Shandong province, rest capacity in Indonesia), 3) 6.46mtpa aluminum capacity, while 2.03mtpa in the process of relocation to Yunnan; and 4) 940ktpa aluminum fabrication capacity.

Figure 23: China Hongqiao’s completed aluminum industrial layout



Source: the Company, CMBIGM

China Hongqiao owned prior cost advantages over industry peers, leveraging its unique integrated business model :

1) Upstream: The prominent upstream industrial chain cluster with a leading cost advantage

-China Hongqiao achieved lower production cost for a high self-sufficiency rate in alumina

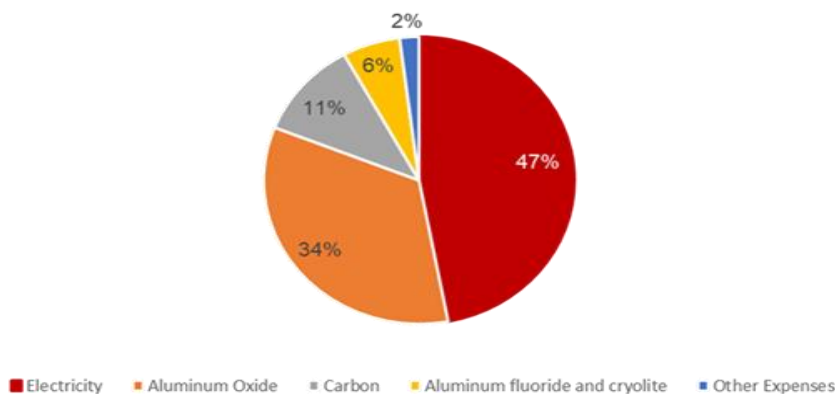
China Hongqiao achieved a self-produced rate in alumina to nearly 90% in 2021. Thus, the Company can effectively control its unit production costs. Besides, as the rest outsourcing alumina primarily came from the suppliers within industrial clusters, its transportation cost tended to shrink which can also lead to minimal alumina production cost.

-China Hongqiao also owned low cost merits of aluminum production.

The cost of aluminum production mainly consisted of electricity cost, alumina cost, anodic carbon cost, etc.

The stable bauxite supply guarantees the low cost of alumina production. Furthermore, the reasonable alumina costs may benefit the production cost of aluminum and other aluminum fabrication.

Figure 24: Alumium cost structure

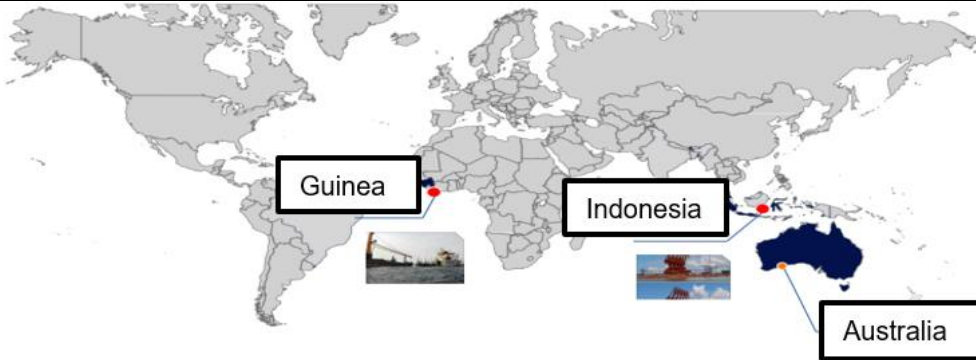


Source: the Company, CMBIGM

Bauxite: China Hongqiao mainly imported bauxite from Guinea. Abundant bauxite resources in Guinea offered great support to alumina’s production. Regarding overseas business, the bauxite project in Guinea continued to progress, and the second phase of

the alumina project in Indonesia was put into production by end-2021. Thanks to the solid supply of bauxite offered at a reasonable price, the Group can smoothly increase the alumina sales to around 7.16mn tons, which was 0.43mn tons higher than last year.

Figure 25: China Hongqiao’s bauxite resources layout

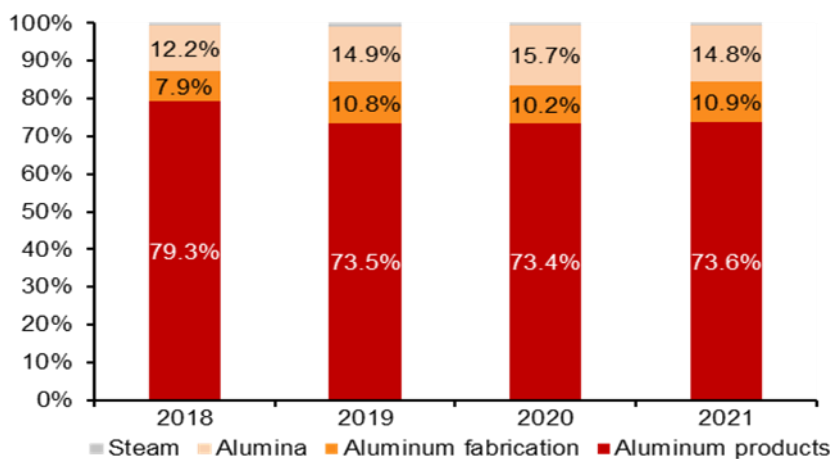


Source: the Company, CMBIGM

Alumina: As we know that steady bauxite supply was the merit of alumina production, lower alumina and alumina fabrication costs also played a crucial role in the cost control of aluminum production. For instance, the Groups self-owned steam and self-generation technology can also enhance the efficiency of alumina production.

Anodic carbon: Anodic carbon was also an essential ingredient for aluminum production. The anodic carbon produced by petroleum coke and coal pitch. Given Shandong Province was a strong petroleum chemical industry base, the Group could easily achieved the raw materials of anodic carbon. Otherwise, the Aluminum Oxide production process typically involves steam and caustic soda. The steam can be produced from the self-own power generation procedure, and the caustic soda can be purchased locally. Therefore, the aluminum production will be cost-effective.

Figure 26: Historical cost structure



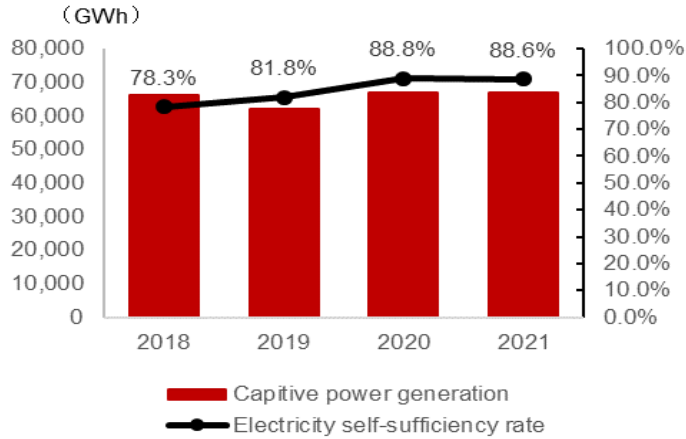
Source: The Company, CMBIGM

-Outstanding cost control ability for effective self-powered operation

China Hongqiao has nine production bases connected with its self-own power grid. The self-own power grid lifted the effectiveness of the company for centralized electricity

purchasing and electricity supply. Typically, the captive power plant was mainly used to satisfy the Group's production. Compared with outsourcing purchased electricity, the cost of self-power had a leading edge.

Figure 27: Captive power generation and electricity self-sufficiency rate



Source: The Company, CMBIGM

2) Downstream: Strategic location reflected the cluster effect of the industrial chain and reinforced business efficiency

China Hongqiao is strategically located in Shandong Zouping, one of the typical aluminum production bases in China. Since there are several downstream aluminum producers in Shandong, the Company enjoys lower production costs situated in such a decent location.

As the Group's production base layout is mainly established in the East China market, where most aluminum processing producers are around, the Group can easily offer molten aluminum to aluminum fabrication producers. Such locations enabled the Group to achieve aluminum fabrication products in a preferential price and further strengthened its capacity utilization rate.

The close cooperation between China Hongqiao's aluminum smelters and downstream users enables molten aluminum to be delivered without complicated processes, saving processing and transportation costs for both the Company and downstream users.

Although China Hongqiao's 2.03mtpa capacity relocation to Yunnan province in these years may result in small alumina transportation costs increase and power tariff uncertainty, the negative impacts were still limited.

China Hongqiao created the most eco-friendly aluminum value chain to realize the green transformation

1) China Hongqiao increased the use of renewable energy, sending positive response to the national call to optimize the energy consumption mix

Previously, the Company's energy consumption relied heavily on coal-fired power generation, and actively adjusted its energy structure. Given that coal power generation caused high carbon emissions and fluctuated coal prices led to energy consumption cost instability, the Group continued to optimize its energy mix.

The Company improved the energy mix by developing solar energy and utilizing water energy in the Yunnan area. Through cross-regional replacement of production capacity, China Hongqiao will increase the use of renewable energy and reduce the reliance on traditional fossil energy consumption.

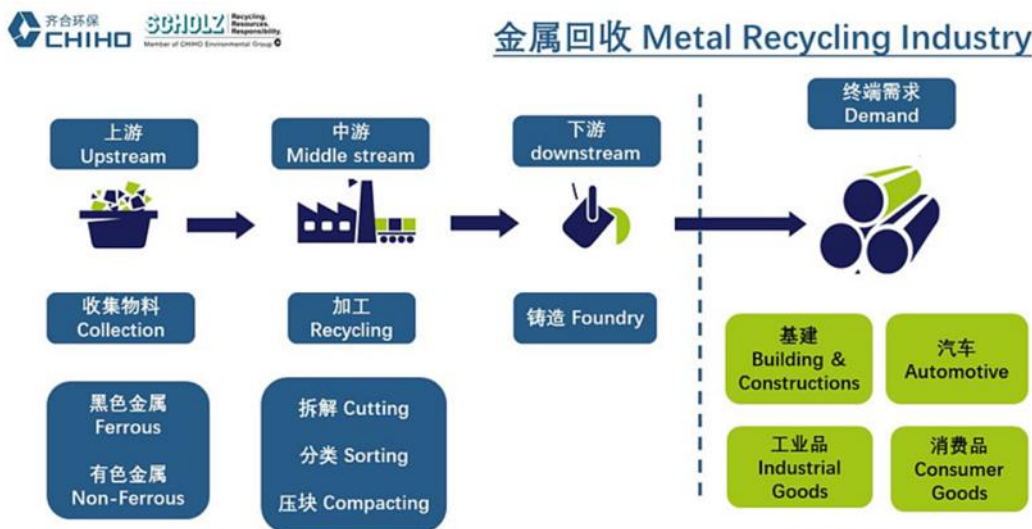
2) *China Hongqiao propelled the Yunnan Green Aluminum Innovation Park establishment*

China Hongqiao has been dedicated to developing a more sustainable energy structure, increasingly relying on solar energy and hydropower. With the recent launch of the green aluminum innovation industrial park powered by clean hydroelectricity in Yunnan Province, the Group has formed an energy consumption pattern highlighting green power and hydropower. The related Capex involvement continued to surge.

3) *China Hongqiao actively developed aluminum recycling and the Circular Economy*

China Hongqiao accelerated the construction of Sino German Hongshun Circular Technology Industrial Park project to complete the installation of the first aluminum recycling production line by the end of 2021. The Group was also positively involved in the research and production of aluminum, scrap car, and home appliance recycling. In details, the Group also built a partnership with Scholz China GmbH to establish a Joint Venture Company to make an effort toward further aluminum recycling and Circular Economy development.

Figure 28: The metal recycling business of Scholz China GmbH



Source: the Company, CMBIGM

4) *China Hongqiao eyed on lightweight material production and research.*

Rising energy prices and more stringent carbon emissions regulations will propel a more wide application of lightweight metals like aluminum. As a substitute for steel in the automotive sector, aluminum was widely valued. Therefore, the Group established related production bases of lightweight materials on automobile. China Hongqiao also cooperated with Guangzhou He De and Suzhou Aojie to be in charge of the lightweight related projects.

Figure 29: China Hongqiao's lightweight metals production base

Source: The Company, CMBIGM

-China Hongqiao continued technology innovation and strengthened technological competitiveness

The Group continued to accelerate scientific and technological innovation investment, concentrating on carbon emission and environmentally friendly devotion. China Hongqiao increased its investment in technological innovation and liaised with national research institutes to further enhance the technological content of aluminum products.

In 2021, China Hongqiao received numerous industry and international recognition awards based on its critical technological competitiveness as follows: 1) a subsidiary of the Company Weiqiao Aluminum (山东魏桥铝电有限公司) successfully passed the National Standards Committee's acceptance of its "Demonstration Creation of Energy Saving in Electrolytic Aluminum Production" project. 2) Shandong Hongqiao (山东宏桥新型材料有限公司) was awarded the first batch of provincial-level green factories and was included in the list of national-level green factories. 3) The Republic of Indonesia ("Indonesia") alumina project won the "ASEAN Coal Award 2021 for Industry Application of Clean Coal Technology in the Medium Industrial Category" from the ASEAN Centre for Energy.

Investment Highlight

We believe that CHQ has become the world's largest electrolytic aluminum producer thanks to its multiple competitive advantages. We summarize its investment highlights as follows:

1) Capacity replacement

The Company plans to relocate part of its production capacity to Yunnan to realize cross-regional replacement of production capacity. The phase I of the Company's electrolytic aluminum plant in Wenshan, Yunnan has been put into operation while the phase II is expected to be completed by end-2022E, with a total production capacity of 2mn tons. At the same time, the Company signed an agreement with Honghe, Yunnan with a production capacity of 1.93mn tons. According to the agreement, CHQ will gradually complete the transfer of production capacity based on the company's own plan. After completing the transfer of production capacity, CHQ will achieve a total production capacity of nearly 4mn tons in Yunnan.

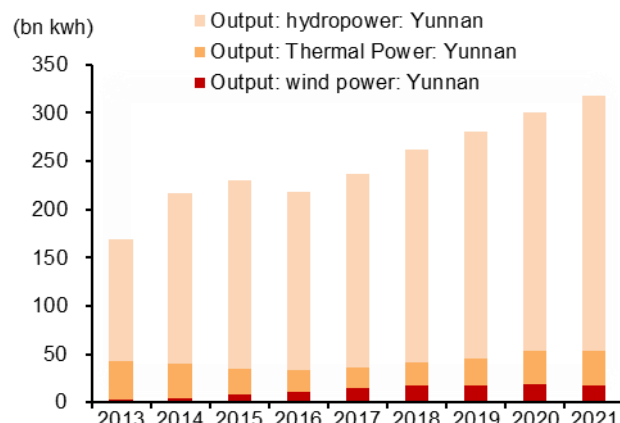
We observed that the electricity price in Yunnan was 30% off than that of Shandong even after factoring the cancellation of preferential tariff, giving CHQ a cost saving opportunity for its electrolytic aluminum production. In addition, we expect the Company to further expand its cost advantage and enhance its ESG attributes after the completion of production capacity relocation.

Figure 30: Yunnan Green Aluminum Innovation Industrial Park, Wenshan



Source: Company data, CMBIGM

Figure 31: Electric power structure, Yunnan



Source: Wind, CMBIGM

2) Integration advantage

CHQ obtains a stable supply of upstream bauxite through the SMB Winning Consortium and is able to maintain the stable raw material costs. The Company also has alumina production capacity in Shandong and Indonesia, meeting most of its raw material needs for electrolytic aluminum.

On the downstream side, CHQ has bind the downstream users through the aggregation effect of the aluminum industrial park located in Binzhou, Shandong. It has formed a stable supply-demand relationship with major downstream users and has built a strong user stickiness. CHQ also replicated its integrated business model of the industrial chain in Shandong to Yunnan, proving its absolute competitive advantage on industrial integration.

We believe that CHQ's industrial chain integration strategy will help the Company maintain its cost advantage and leadership in the industry.

3) Advantages of self-provided power plants

Due to historical reasons, the Company uses its own power plant for power supply. We expect the Company's comprehensive electricity cost to be 10% lower than the outsourced electricity cost, creating a cost advantage for the Company. Taking into account the cross-regional replacement of electrolytic aluminum production capacity, the Company's Shandong self-provided power plant will continue to meet the electricity demand of the recycled aluminum industrial park and downstream aluminum processing plant, maintaining the company's competitive advantage.

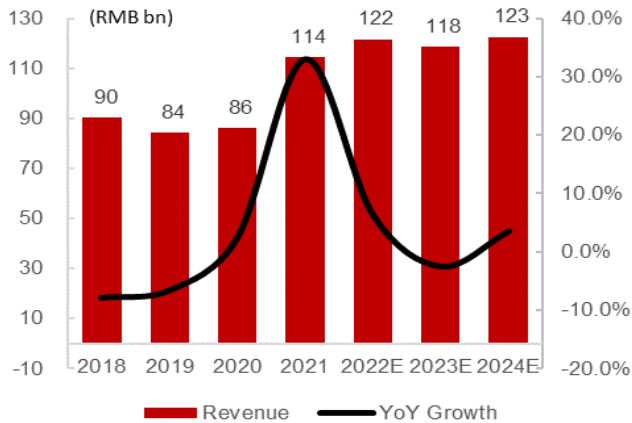
4) Aluminum processing and recycling business

China Hongqiao has adopted world-leading manufacturing techniques for aluminum deep processing and production. The Company further extended to downstream aluminum processing, and further increased the Company's profit share in the overall industrial chain. Encouraged by industrial policies at a national level, the Company's aluminum processing business has great prospects for future development in the medium term. At the same time, the Company actively deploys automobile dismantling and scrap aluminum recycling business, and lays out a new growth curve.

Financial review and forecast

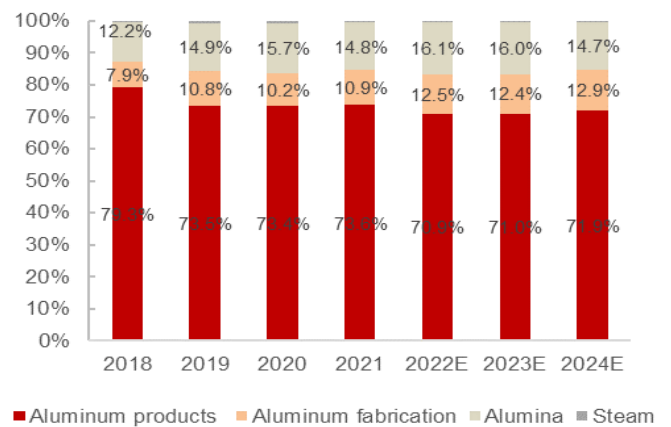
Under the influence of the aluminum industry policy, the Company's overall production capacity remained stable while the production and sales volume remained volatile in a narrow range. Benefiting from the rise in aluminum prices, CHQ achieved total revenue of RMB84.2bn/RMB86.1bn/RMB114.4bn in 2019/2020/2021 respectively, representing a growth rate of -6.7%/2.3%/32.9%YoY. Among them, aluminum products including molten aluminum alloy and aluminum alloy ingots accounted for 73.5%/73.4%/73.6% in 2019/2020/2021, which became the biggest contributor to the Company's revenue.

Figure 32: Total revenue



Source: Company data, CMBIGM estimates

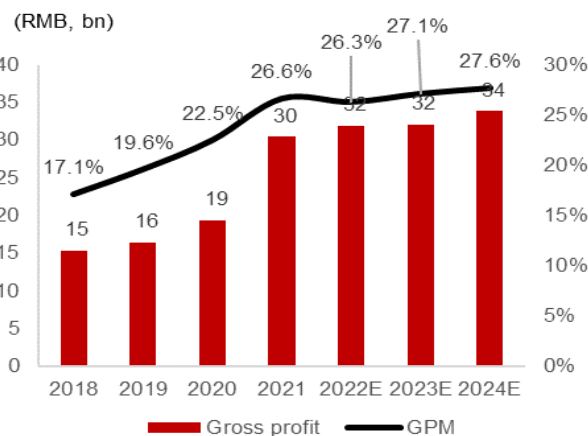
Figure 33: Sales mix



Source: Company data, CMBIGM estimates

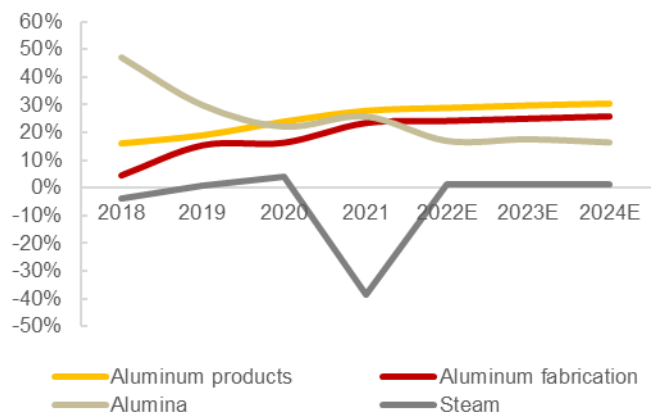
The Company's gross profit margin remains excellent. CHQ achieved gross profit margins of 19.6%/22.5%/26.6% in 2019/2020/2021, respectively. We believe that CHQ is able to maintain a slight upward trend on GPM, mainly due to: 1) rising aluminum prices; 2) cross-regional replacement of production capacity; 3) improved industrial chain integration advantages. However, the uptrend may partially offset by 1) rising energy prices and 2) the deterioration of supply and demand in alumina industry.

Figure 34: GP vs GPM



Source: Company data, CMBIGM estimates

Figure 35: Segment GPM

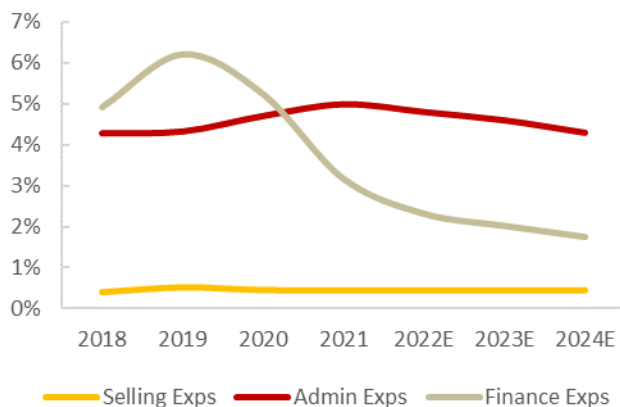


Source: Company data, CMBIGM estimates

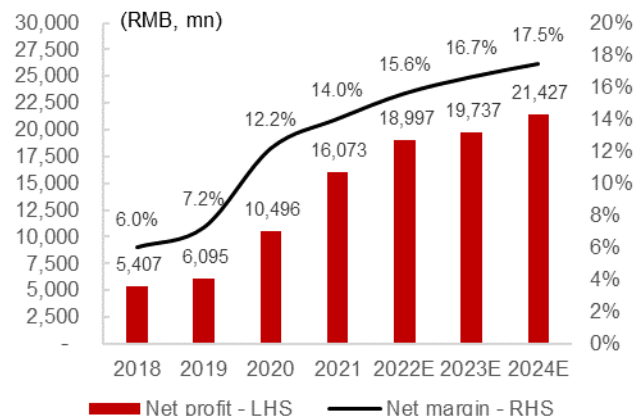
The Company has a good tracking record on expense management, in which the sales expense ratio and the management expense ratio maintain a small fluctuation. CHQ took the initiative to reduce the scale of interest-bearing liabilities, thereby driving the continuous

improvement of the financial expense ratio. As a result, the Company's overall expense ratio continued to decrease, achieving 11.1% / 10.4% / 8.6% in 2019/2020/2021, respectively.

The Company's net profit has maintained rapid growth, achieving RMB6,095mn/ RMB10,496mn/RMB16,073mn with a net profit margin of 7.2%/12.2%/14.0% in 2019/2020/2021 respectively.

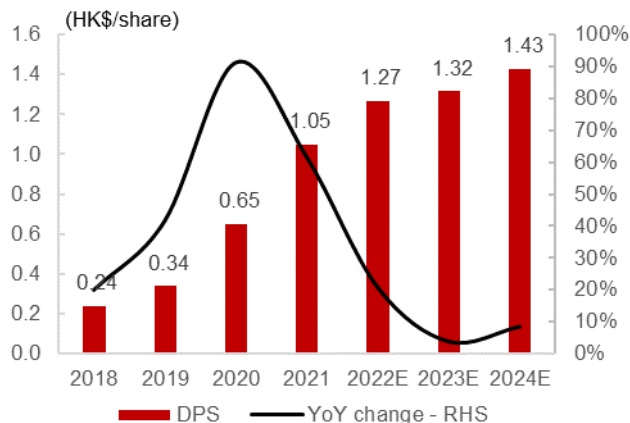
Figure 36: Major exps as % to total revenue


Source: Company data, CMBIGM estimates

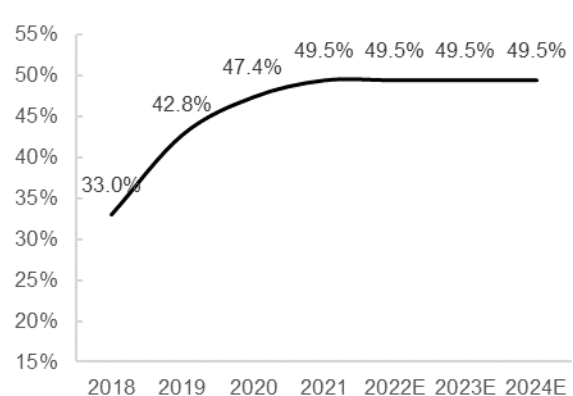
Figure 37: Net profit vs. Net margin


Source: Company data, CMBIGM estimates

The Company continues to maintain a high dividend payout ratio and returns to its shareholders. In 2019, 2020 and 2021, the Company distributed a dividend per share of HK\$0.34/HK\$0.65/HK\$1.05, with a dividend payout ratio of 43%/48%/50% respectively.

Figure 38: Dividend per share


Source: Company data, CMBIGM estimates

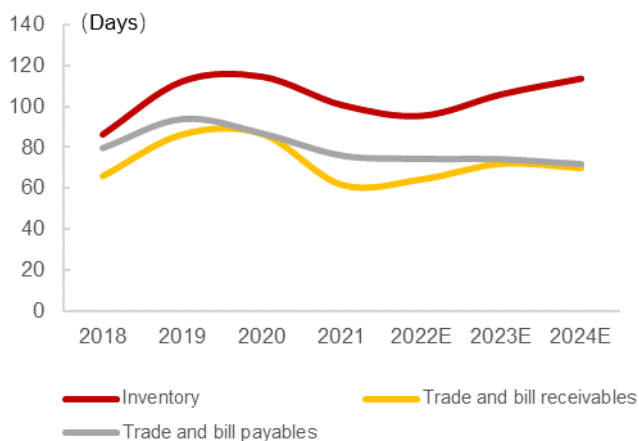
Figure 39: Dividend payout ratio


Source: Company data, CMBIGM estimates

Forecast

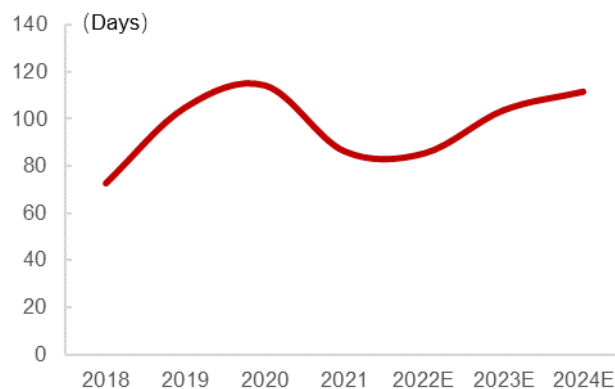
Benefiting from changes in real estate policies and the demand for resumption of automobile production and production throughout the year, we expect the price of electrolytic aluminum to remain high in 2022. We highlight our key assumptions and projections in the below table. Specifically, we expect the Company to deliver a revenue of RMB117,054mn in 2022E, with an increase of 2.2% YoY. At the same time, we forecast that the Company's net profit to be RMB19,276mn in 2022E, an increase of 19.9% YoY. We also expect CHQ to achieve higher efficiency given the market uptrend.

Figure 40: Turnover days forecast



Source: Company data, CMBIGM estimates

Figure 41: Cash conversion cycle forecast



Source: Company data, CMBIGM estimates

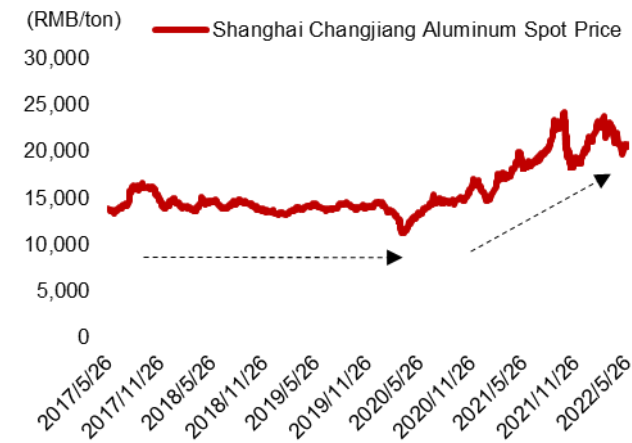
Figure 42: Our key assumptions and projections

	2020	2021	2022E	2023E	2024E
Aluminum product					
Production (k tonnes)	5,622	5,633	5,850	6,200	6,460
Sales (k tonnes)	5,060	5,020	5,311	5,756	6,187
Sales to production rate	90%	89%	91%	93%	96%
ASP (RMB/t, VAT excl.)	12,501	16,795	17,836	15,717	14,834
Revenue (RMB mn)	63,257	84,313	86,197	84,132	88,113
Aluminum fabrication					
Production (k tonnes)	622	672	739	813	877
Sales (k tonnes)	601	659	724	797	877
Sales to production rate	98%	98%	98%	98%	98%
ASP (RMB/t, VAT excl.)	14,877	19,315	20,512	18,075	17,653
Revenue (RMB mn)	8,781	12,524	15,162	14,697	15,789
Alumina					
Production (k tonnes)	14,650	15,625	16,375	16,625	16,625
Sales (k tonnes)	6,734	7,163	7,521	7,672	7,672
ASP (RMB/t, VAT excl.)	2,078	2,168	2,257	2,168	2,124
Revenue (RMB mn)	13,487	16,967	19,597	18,989	18,040
Internal consumption(k tonnes)	9,715	9,638	10,196	11,051	11,880
External procurement(k tonnes)	828	213	323	992	1,738
Self-sufficiency rate	90.0%	90.0%	90.0%	90.0%	90.0%
Material costs					
Coal costs(RMB/t VAT excl.)	509	664	841	664	575
Blended Bauxite costs (RMB/t VAT excl.)	353	396	384	358	358
Pre-cultured anode (RMB/t, VAT excl.)	2,676	3,163	3,340	2,986	2,986
Aluminum costs structure (RMB/tonne)					
Electricity costs	3,814	4,608	5,295	4,311	3,934
Alumina costs	3,372	3,589	3,602	3,437	3,412
Pre-cultured anode	1,285	1,518	1,603	1,433	1,433
Others	981	994	1,035	1,078	1,123

Source: Company data, CMBIGM estimates

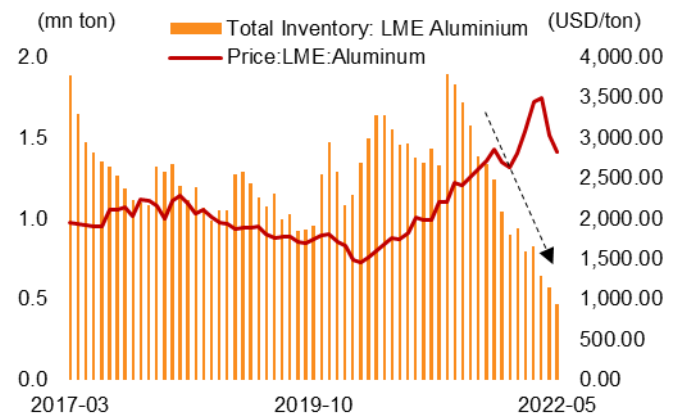
Focus chart

Figure 43: Spot price remained at higher level



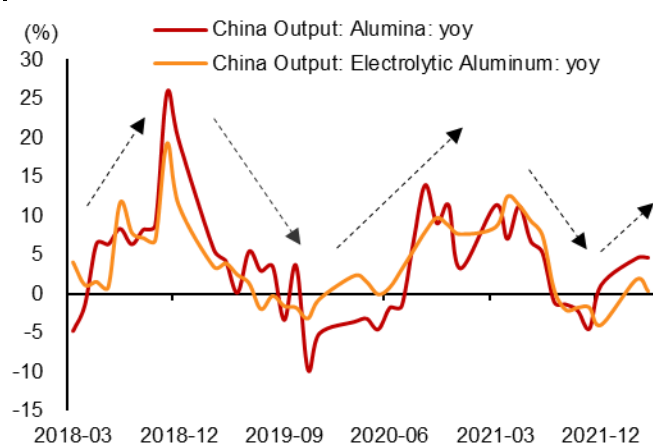
Source: Wind, CMBIGM

Figure 44: Global inventory continued to decline



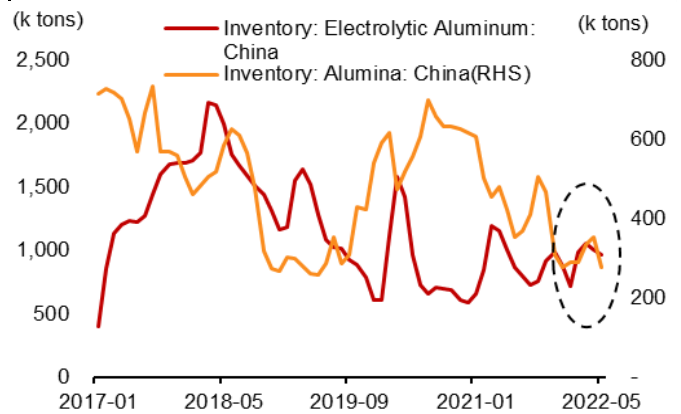
Source: Wind, CMBIGM

Figure 45: Output rebound given strong demand



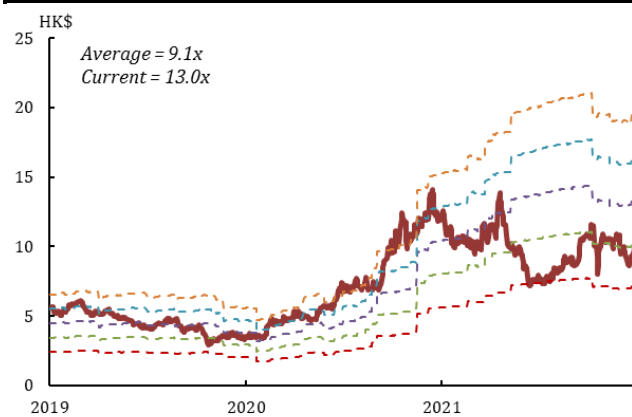
Source: Wind, CMBIGM

Figure 46: Expect re-inventory in 2022E



Source: Wind, CMBIGM

Figure 47: PE Chart



Source: Company data, CMBIGM

Figure 48: PE band – trading below 3yr av minus 1sd



Source: Company data, CMBIGM

Financial Summary

Income statement

YE 31 Dec (RMB mn)	FY20A	FY21A	FY22E	FY23E	FY24E
Revenue	86,145	114,491	121,617	118,479	122,603
Aluminum products	63,257	84,313	86,197	84,132	88,113
Aluminum fabrication	8,781	12,524	15,162	14,697	15,789
Alumina	13,487	16,967	19,597	18,989	18,040
Steam	619	687	661	661	661
COGS	(66,789)	(84,038)	(89,681)	(86,390)	(88,720)
Gross profit	19,355	30,453	31,935	32,089	33,883
Other income and gains	2,701	3,707	3,589	3,615	3,777
S&D expenses	(400)	(526)	(558)	(544)	(563)
Admin expenses	(4,052)	(5,708)	(5,838)	(5,450)	(5,272)
Other expenses	(617)	(1,691)	(420)	(415)	(422)
Financial costs	(4,506)	(3,626)	(2,814)	(2,391)	(2,143)
Change in fair value	(291)	(117)	130	130	130
Share profits	515	62	639	666	684
Subsidy disposal loss	-	-	-	-	-
Profit Before Tax	12,704	22,554	26,662	27,700	30,074
Income tax	(2,260)	(5,705)	(6,666)	(6,925)	(7,518)
Less: Minority Interest	(51)	775	1,000	1,039	1,128
Net profit	10,496	16,073	18,997	19,737	21,427

Cash flow Summary

YE 31 Dec (RMB mn)	FY20A	FY21A	FY22E	FY23E	FY24E
Profit before tax	12,704	22,554	26,662	27,700	30,074
Interest payment	4,506	3,626	2,814	2,391	2,143
DD&A	6,904	6,717	7,573	7,833	8,074
Change in WC	(5,372)	(176)	(6,244)	2,754	(3,020)
Tax adjustments	(2,882)	(5,522)	(7,929)	(6,906)	(7,704)
Others	1,919	2,457	(2,107)	(3,026)	48
Net cash from operation	17,779	28,650	20,769	30,746	29,615
Capex & investments	(5,260)	(4,869)	(6,289)	(6,377)	(6,011)
Others	(1,714)	(425)	-	-	-
Net cash from investment	(6,974)	(5,102)	(6,289)	(6,377)	(6,011)
Equity raised	1,007	1,183	-	-	-
Change of Debts	(3,831)	(18,195)	(8,000)	(5,000)	(2,000)
Dividend paid	(3,833)	(7,145)	(7,786)	(9,400)	(9,766)
Interest payment	(4,506)	(3,626)	(2,814)	(2,391)	(2,143)
Others	4,014	5,526	1,000	1,039	1,128
Net cash from financing	(7,150)	(19,758)	(17,599)	(15,752)	(12,781)
Net change in cash	3,655	3,790	(3,120)	8,617	10,822
Cash at beginning	41,857	44,887	48,677	45,557	54,175
FX change	(625)	-	-	-	-
Cash at the end	45,465	49,227	45,557	54,175	64,997
Less: pledged cash	-	-	-	-	-
Cash at balance sheet	45,465	49,227	45,557	54,175	64,997

Balance sheet

YE 31 Dec (RMB mn)	FY20A	FY21A	FY22E	FY23E	FY24E
Non-current Assets	84,097	84,892	84,831	83,348	81,551
Fixed Assets	64,750	63,442	61,364	58,843	55,798
Right-of-use assets	5,647	5,718	6,333	6,733	7,033
Interests in associates	6,681	6,065	6,245	6,911	7,595
Others	7,019	9,667	10,890	10,862	11,125
Current Assets	97,434	103,528	108,535	116,650	130,292
Cash and cash	45,465	49,227	45,557	54,175	64,997
Trade and bills	19,493	19,203	23,715	23,103	23,908
Prepayments	9,126	10,768	13,378	11,848	11,647
Inventories	19,718	22,705	24,214	25,917	29,278
Others	3,631	1,624	1,670	1,608	462
Current Liabilities	73,351	61,158	57,927	41,670	41,684
Account Payables	13,377	18,735	17,936	17,278	17,744
Other payables	12,106	11,480	13,452	15,550	15,970
ST borrowings	45,577	26,120	21,686	3,961	3,059
Others	2,291	4,823	4,852	4,881	4,911
Non-Current Liabilities	30,163	31,284	30,791	42,305	41,346
LT borrowings	28,131	29,393	28,346	39,812	38,714
Derivative component of CB	550	241	253	266	279
Deferred income	582	835	877	921	967
Others	900	814	1,314	1,306	1,386
Total net assets	76,802	92,439	104,648	116,023	128,813
Minority Interests	5,606	11,131	12,131	13,170	14,297
Shareholder's equity	71,196	81,308	92,517	102,854	114,515

Key ratios

YE 31 Dec	FY20A	FY21A	FY22E	FY23E	FY24E
Sales mix (%)					
Aluminum products	73.4%	73.6%	70.9%	71.0%	71.9%
Aluminum fabrication	10.2%	10.9%	12.5%	12.4%	12.9%
Alumina	15.7%	14.8%	16.1%	16.0%	14.7%
Steam	0.7%	0.6%	0.5%	0.6%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
P&L ratios (%)					
Gross profit margin	22.5	26.6	26.3	27.1	27.6
Operating margin	20.0	22.9	24.2	25.4	26.3
Net margin	12.2	14.0	15.6	16.7	17.5
Effective tax rate	17.8	25.3	25.0	25.0	25.0
Balance sheet ratios					
Current ratio (x)	1.33	1.64	1.86	2.76	3.12
Inventory turnover days	114.5	100.7	95.5	105.9	113.5
Creditor's turnover	86.7	61.7	64.4	72.1	70.0
Debtors turnover days	87.0	76.2	74.6	74.4	72.0
Liabilities/Assets (%)	57.7	50.9	46.1	42.3	39.3
Net gearing ratio (%)	39.7	7.7	2.1	NC	NC
Returns (%)					
ROE	14.7	19.8	20.5	19.2	18.7
ROA	5.8	8.5	9.9	9.9	10.1
Per share					
EPS (RMB)	1.22	1.77	2.08	2.16	2.35
DPS (HK\$)	0.65	1.05	1.27	1.32	1.43
BVPS (RMB)	8.02	8.91	10.14	11.28	12.55

Source: Company data, CMBIGM estimates

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