

中国宏桥 China Hongqiao Group (1378 HK)

首次覆盖：一体化成本优势，电解铝行业的领军者

Integrated Cost Advantage, Leader of Electrolytic Aluminum Industry: Initiation

观点聚焦 Investment Focus

首次覆盖优于大市 Initiate with OUTPERFORM

评级	优于大市 OUTPERFORM
现价	HK\$7.58
目标价	HK\$14.51
HTI ESG	5.0-5.0-5.0
MSCI ESG 评级	B
来源: MSCI ESG Research LLC. Reproduced by permission; no further distribution	
市值	HK\$71.82bn / US\$9.19bn
日交易额 (3个月均值)	US\$13.09mn
发行股票数目	9,476mn
自由流通股 (%)	26%
1年股价最高最低值	HK\$11.58-HK\$5.57
注: 现价 HK\$7.58 为 2023 年 1 月 5 日收盘价	



资料来源: Factset

	1mth	3mth	12mth
绝对值	7.8%	25.1%	1.8%
绝对值 (美元)	7.3%	25.6%	1.5%
相对 MSCI China	-2.2%	5.6%	19.8%

(Rmb mn)	Mar-20A	Mar-21A	Mar-22A	Mar-23E
营业收入	114,491	129,619	141,067	145,168
(+/-)	33%	13%	9%	3%
净利润	16,073	14,543	15,231	17,237
(+/-)	53%	-10%	5%	13%
全面摊薄 EPS (Rmb)	1.70	1.53	1.61	1.82
毛利率	26.6%	24.1%	23.2%	24.4%
净资产收益率	19.8%	15.2%	13.7%	13.4%
市盈率	4	4	4	4

资料来源: 公司信息, HTI

(Please see APPENDIX 1 for English summary)

- 世界上最大的电解铝生产商，电解行业的领军者。**中国宏桥集团有限公司是一家集热电、采矿、氧化铝、液态铝合金、铝合金锭、铝合金铸轧产品、铝母线、高精铝板带箔、新材料于一体的全产业链特大型企业。目前公司电力自给率为 55.52%，氧化铝年设计产能为 1700 万吨/年，电解铝年产能合计 645.90 万吨/年，行业内排名前列。
- 一体化产业链带来稳定的成本优势。**电力和氧化铝占据电解铝制造成本的 70%，是企业能否盈利的决定性要素。目前公司在这两个板块均有完整布局，电力自给率 59%，氧化铝自给率 130%+，且 2014 年便开始涉足海外铝土矿资源。较高的原料和能源自给率保证公司在商品价格波动时的成本稳定性。
- “碳达峰、碳中和”背景下，电解铝行业总产能接近上线，未来电解铝供给将日趋紧张。**2018 年，随着国家四部委（包括国家发展改革委、工业和信息化部、国土资源部、生态环境部）提出的《清理整顿电解铝行业违法违规项目行动方案》的落实，电解铝产能无序扩张得到根本治理，电解铝总产能“天花板”（约为 4500 万吨/年）形成。截至 2021 年底，中国电解铝总产能为 4283.10 万吨/年，未来产能增长有限，新建产能需通过置换原有产能指标实现。在碳中和的长期战略背景下，电解铝作为高耗能行业之一更难有新增产能获得批准。而需求方面对铝的需求随着地产的复苏及汽车轻量化的需求将会有进一步的提升
- 盈利预测与评级。**我们预计公司 2022-2024 年 EPS 分别为 1.53 元、1.61 元、1.82 元。基于 2023 年 EPS，参考可比公司估值水平，给予 2023 年 7.93 倍 PE 估值，目标价 12.77 元，汇率假设为 0.88，折港币 14.51 元。首次覆盖给予“优于大市”评级。
- 风险提示。**电解铝价格下跌，煤炭价格上涨，成本费用控制不及预期。

Yijie Wu
lisa.yj.wu@htisec.com

一、公司基本情况

全球最大的电解铝供应商之一。中国宏桥集团有限公司成立于1994年，是全球最大的电解铝供应商之一。2011年于香港联交所主板上市，主要从事液态铝合金、铝合金锭、铝母线、铝合金加工产品及氧化铝产品的生产和销售。公司目前有九个生产基地，电解铝产能约为646万吨，并在国内和印尼分别拥有1,500万吨和200万吨氧化铝产能。

图表 1: 发展历程



资料来源：公司公告，海通国际

公司实际控制人为张氏家族，其通过家族信托基金士平兴旺私人信托公司持有中国宏桥控股有限公司100%股权，宏桥控股持有65.10%。第二大股东为中信集团，持股约8.60%。

图表 1 中国宏桥股权结构

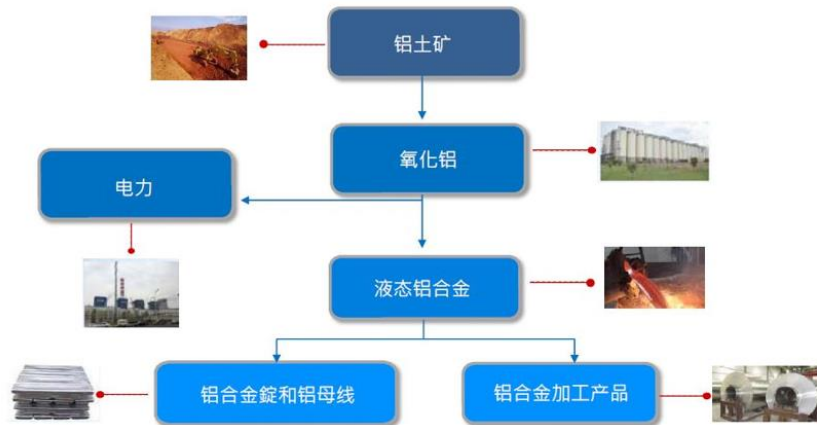


资料来源：公司年报，海通国际

二、一体化产业模式带来牢固的成本优势

公司作为全球最大的电解铝生产商之一，电解铝业务主要集中在山东地区。在几内亚布局铝土矿资源，并在印尼建设氧化铝工厂，做到“全球一体化”；在滨州拥有电力、氧化铝、电解铝及铝加工产业链，做到“铝电网及上下游一体化”，规模效应凸显。

图表 2：一体化商业模式



资料来源：公司公告，海通国际

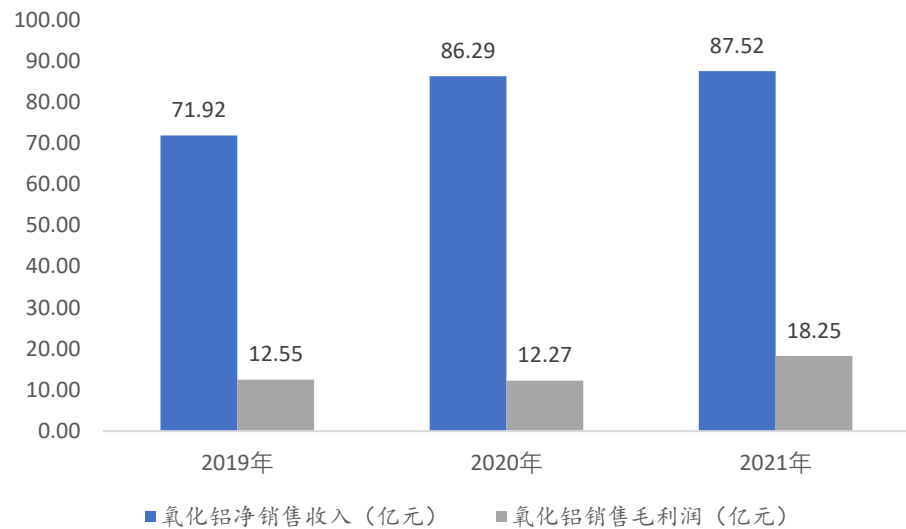
铝土矿：低成本、高品质铝矾土

打通上游原材料供应环节。公司于 2014 年开始布局几内亚铝土矿资源，与新加坡韦立国际集团、烟台港集团、几内亚 UMS 公司组成赢联盟（the SMB Winning Consortium），赢联盟在几内亚合资成立博凯矿业公司和赢联盟港口公司，为公司打造了一条自国外矿山到国内工厂、集多式联运为一体的完整产业链条。目前公司几内亚铝土矿项目年产能可在 4,500-5,000 万吨，且几内亚二期矿区已经投产，预计每年能有 1000 万吨左右的增量，预计到 2026 年，几内亚项目的总出矿量将达到 8000 万吨。

氧化铝：低成本，高自给率

公司目前拥有 1,700 万吨氧化铝产能，其中 1,500 万吨在山东，200 万吨在印尼，公司氧化铝自给率超 130%。自产氧化铝在进一步延伸产业链的同时有效降低了氧化铝的采购成本，从而提高公司成本控制能力。随着氧化铝产能逐步释放，公司从 2018 年起开始对外出售氧化铝，2021 年公司对外销售氧化铝 716.3 万吨，净销售收入达到 87.52 亿，成为公司营收的重要组成。

图表 3: 公司全球氧化铝销售收入及毛利润



资料来源: 公司公告, 海通国际

自备电厂成本显著低于外购电, 云南地区水电优势明显

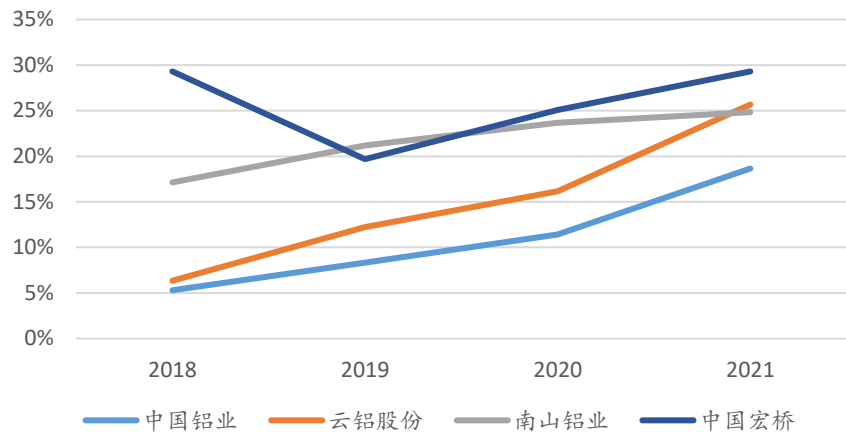
氧化铝和电解铝均是高耗能产业, 按照《铝行业规范条件》生产 1 吨电解铝最高消耗电力 13500 千瓦时, 电解铝的原料成本构成中, 电力约占 45%, 电力的价格很大程度上决定了电解铝企业的竞争力。目前中国宏桥在山东的基地中主要靠自备电厂供电, 云南地区的生产基地主要靠外购电力, 截至 2022 年 3 月底, 公司自备电厂装机容量达到 992 万千瓦, 电力自给率约 59%。2022 年 Q3, 公司自备电成本在 0.45-0.5 元/度, 相较于当地外购电价具有 0.05 元/度以上的成本优势。

在云南地区公司电解铝主要用水电, 具有电力价格优势, 丰水季含税电价为 0.3 元至 0.32 元/度, 枯水季含税电价为 0.46 元至 0.47 元/度, 全年平均含税电价 0.36 元/度左右。

电解铝: 原料及能源自给率高, 保证成本稳定性

一体化优势带来低成本电解铝。得益于公司一体化的产业模式以及滨州市铝产业集群带来的成本优势, 公司毛利率较行业平均水平显著较高。未来随着云南产能搬迁项目完成并投产, 当地低成本水电将使公司电解铝成本进一步下降, 毛利率有进一步上涨的空间。

图表 4: 不同企业电解铝毛利率

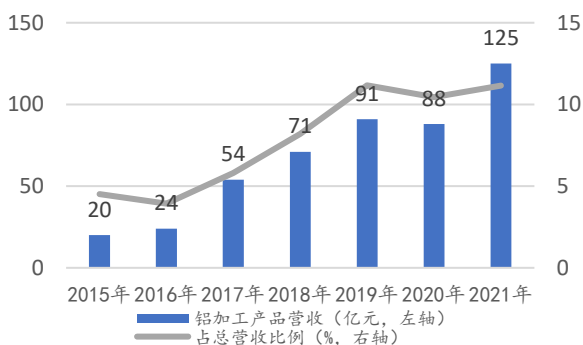


资料来源: wind, 海通国际

铝合金加工: 向下游产业链延申, 开拓新增长点

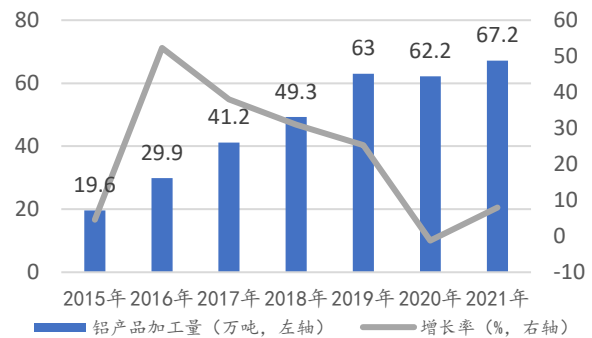
向铝产业链下游延申, 开拓新增长点。下游由于电解铝行业存在产能上限, 公司加大研发投入, 积极布局下游铝加工业务。目前公司拥有铝加工产能 99 万吨, 2022 年实现产量为 67.2 万吨。随着市场不断开拓, 铝深加工产品订单量增加, 带动铝深加工产品产量增长, 板块营业收入占比也持续提升, 2021 年占总营业收入达到 11.15%。

图表 5: 铝加工产品营业收入及占比



资料来源: 公司年报, 海通国际

图表 6: 铝产品加工加工量及增长率



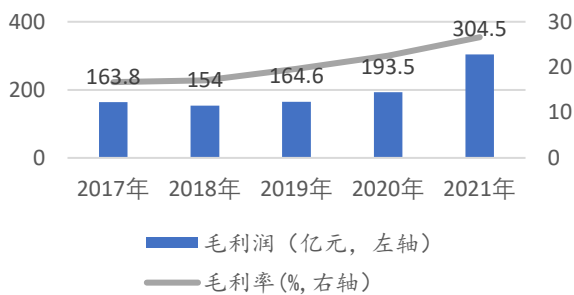
资料来源: 公司年报, 海通国际

汽车轻量化项目。公司围绕“三新一高”材料战略, 加快轻量化材料基地的建设, 在山东省建设世界领先的全流程汽车轻量化研发制造基地和世界级铝制轻量化材料研发中心。目前主要聚焦于汽车零配件、汽车车身、航空航天铝材及军工材料的生产研发。

中德废车处理项目。在“碳达峰”和“碳中和”的背景下，中国宏桥积极进行绿色转型。2020 年公司与德国 Scholz China GmbH 合作，引入德国技术，共同打造以再生铝、报废汽车回收以及再生技术研发为主的中德宏顺循环科技项目。该项目规划 4 年内投资 18 亿元，预计产能为 50 万吨。2021 年底首条铝回收生产线的安装已完成。

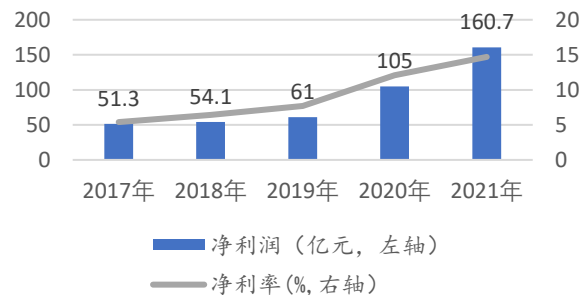
2021 年盈利创历史新高。公司近年来成本控制卓有成效，毛利、净利润均有大幅提升实现，2021 年实现归母净利润 160.7 亿元，创历史之最。

图表 7: 历年毛利润与增速



资料来源: 公司年报, 海通国际

图表 8: 历年净利润及增速

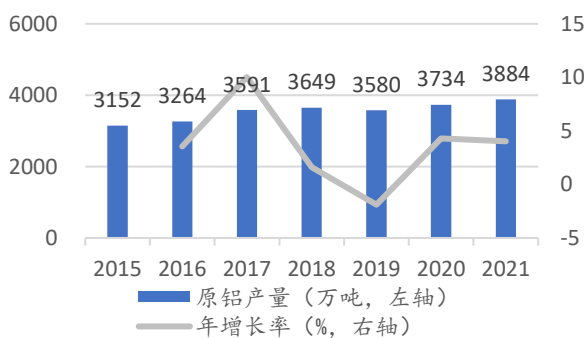


资料来源: 公司年报, 海通国际

三、“碳达峰、碳中和”背景下，电解铝行业总产能接近上线，未来电解铝供给将日趋紧张

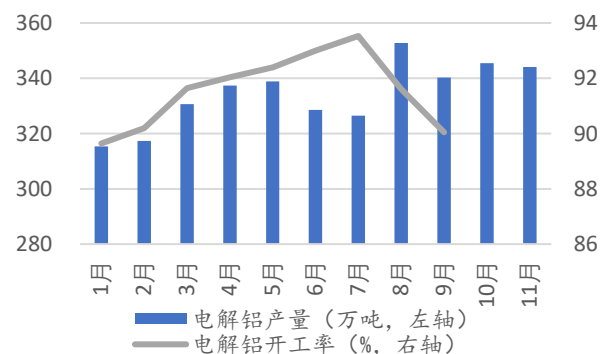
2017 年 4 月，我国出台《清理整顿电解铝行业违法违规项目专项行动方案》，方案要求立即停建停产违规电解铝生产项目，标志着我国电解铝行业的供给侧改革的开始。随后在 2018 年 1 月《关于电解铝企业通过兼并重组等方式实施产能置换有关事项的通知》中，要求在 2018 年 12 月 31 日前，完成电解铝产能置换。随后一系列的政策出台，国内电解铝产能上限 4500 万吨的供应天花板逐步明确。截至 2021 年，我国电解铝有效产能达 4485.9 万吨，同比增加 7.1%，实际产量达到近 3900 万吨，总产能接近上限，未来新项目审批或更加困难，行业供给侧增长有限。

图表 9: 中国原铝产量及增长率



资料来源: wind, 海通国际

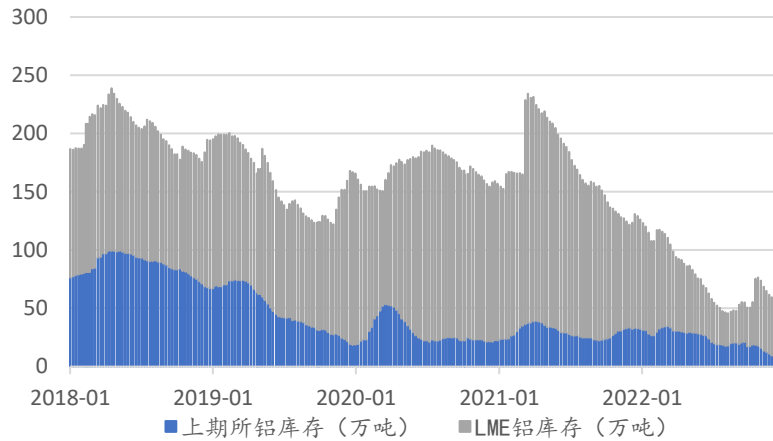
图表 10: 2021 年中国各月电解铝产量及开工率



资料来源: wind, 海通国际

铝库存趋势性下降。2018年以来,随着国内铝行业供给侧改革卓有成效,国内铝库存快速下降,上海期货交易所铝锭库存总量从2018年年中高点99.3万吨降至2022年12月的9.1万吨,较2021年同期下降72%。从LME铝库存看,自2021年3月铝库存达到近200万吨的高点之后,LME铝库存快速下降,截至2022年12月中旬,LME铝库存约为47万吨,较5年内历史最高点下降了约77%。库存的趋势性下降说明铝行业需求增长超过供给增加,行业处于紧缺状态。

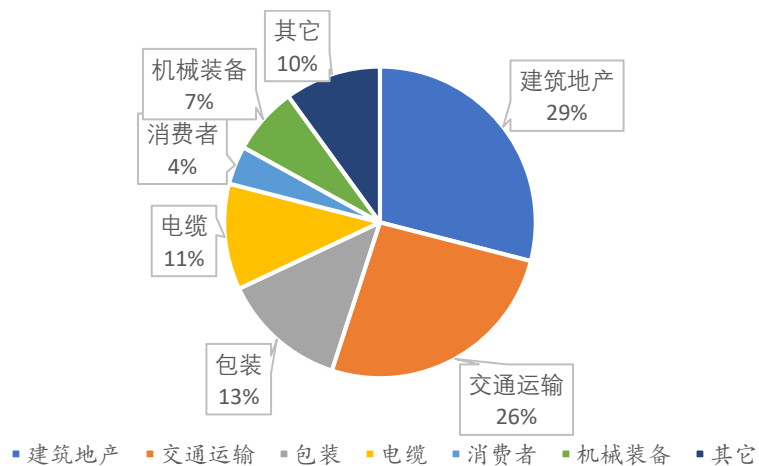
图表 11: 上期所和 LME 铝库存



资料来源: wind, 海通国际

需求方面,建筑地产仍是铝材最主要的消费领域,其次为交通运输、电线电缆和耐用消费品等工业领域。建筑行业用铝以竣工房屋的门窗、幕墙、装饰等场景为主;交通运输行业用铝以汽车、轨道交通为主。电子电力行业用铝以电源端和输电端为主。

图表 12: 2021 年中国电解铝下游需求结构

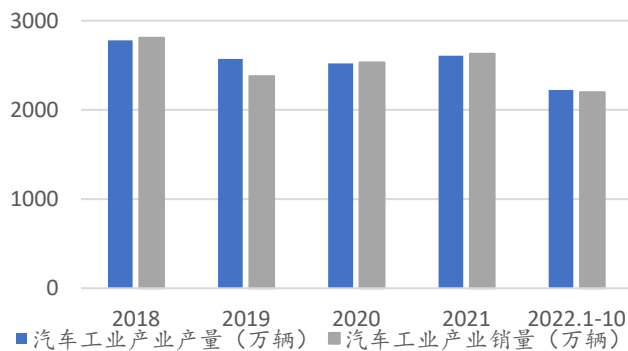


资料来源: wind, 海通国际

地产复苏，建筑用铝有望继续保持上升态势。2020年疫情对建筑地产冲击较大，全年地产新开工面积和竣工面积均同比有所下降；2021年以来各房企加快项目结转以回流资金，带动地产竣工面积同比大幅增长，地产用铝需求回升。从长期来看，“房住不炒”、“租购并举”及“第三支箭”等政策有利地产市场稳定发展，政策整体将逐步向好，同时，央行于2022年12月5日降低金融机构存款准备金率0.25%（不含已执行5%存款准备金率的金融机构），启动了第六轮的第四次全面降准。本次下调后，金融机构加权平均存款准备金率约为7.8%。这一举措推动了房企融资环境的改善，对未来行业资金面和销售有望产生一定积极影响，有利于促进行业逐步复苏，进而推动建筑用铝的上升。

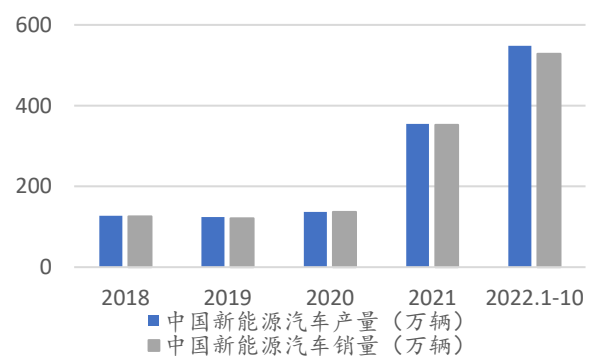
汽车轻量化长期趋势不改，单车用铝量持续上升。随着汽车工业的快速发展，汽车轻量化已成为全球汽车发展的趋势。随着“双碳”相关政策的落地实施，预计汽车轻量化进程将提速。2020年工信部及汽车工程学会编制的《汽车轻量化技术发展路线》预测到2025/2030年，我国乘用车单车用铝量将分别达到250/350千克。国际铝业协会（IAI）预计2022年我国内燃机乘用车单车用铝量154千克，纯电动乘用车单车用铝量188千克。截至2022年10月，2022年中国汽车工业产业销量分别达到2224.2万辆与2197.5万辆，其中新能源汽车累计产销量分别达到548.5万辆与528万辆，同比增长108.69%，相较2021年全年产销量增长率也分别达到54.7%与50.0%。随着新能源汽车对内燃车的不断替换以及汽车轻量化需求的长期趋势，未来汽车用铝合金的数量将保持稳步上升的趋势。

图表 5: 中国汽车产销量



数据来源：中汽协，海通国际

图表 6: 中国新能源汽车产销量



数据来源：中汽协，海通国际

光伏产业快速发展，成为铝需求端新增长点。光伏行业用铝主要为组件和装机所用支架两部分，我国出口光伏组件仅边框用铝，新增光伏装机用铝量则包括组件和支架两部分。据国际可再生能源署的数据，光伏边框用铝量约1.3万吨/GWh，光伏装机支架用铝量约0.6万吨/GWh。截止2022年11月，全球光伏发电新增装机容量容量呈现上升的良好态势。其中，中国自2015年起新增装机容量容量为世界首位，多年稳居；2021年为54.88GW，占全球增量的38.7%；近三年增量增长率均超30%，根据BNEF预测，中国今年新装机量将达到126.1GW，15-21年复合年增长率增长24%。美国和欧洲装机量于2021年分别达到26.9GW和26.8GW，据欧洲光伏产业协会公布的数据，预计今年欧洲将达到41.40GW，较2021年增长超过54%。印度今年预计将达到17GW。全球光伏年复合增长率2015-2021年为24%，发展前景可期。

图表 11: 主流国家及地区光伏新增装机量 (GW)

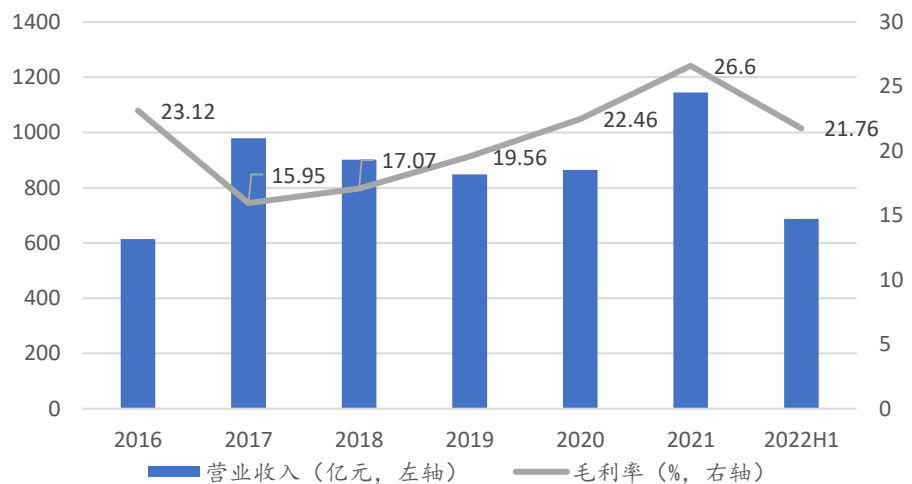
国家	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	15-21年cagr
中国	15.10	34.20	53.00	44.40	30.10	48.20	54.88	126.10	126.61	128.89	138.02	24%
美国	7.50	16.00	10.00	10.00	16.00	20.00	26.90	24.02	33.08	26.24	38.78	24%
欧洲	8.60	6.90	8.40	9.90	18.20	17.10	26.80	41.40	49.04	59.31	63.87	21%
印度	1.90	4.40	8.30	10.40	10.30	6.71	13.00	17.58	17.11	17.11	19.39	38%
亚洲其它地区	13.60	12.30	11.80	14.60	25.20	21.80	37.00	19.03	22.82	28.51	25.10	18%
拉丁美洲	1.10	1.10	2.40	3.90	7.00	6.70	9.60	20.53	14.82	9.13	12.54	43%
中东和北非	0.20	0.70	0.80	1.40	3.30	2.40	5.25	3.35	1.53	13.69	11.41	72%
其他国家	1.00	0.90	1.32	1.85	4.90	4.09	2.32	15.99	50.99	61.12	72.89	15%
总计	49.00	76.50	96.02	96.45	115.00	127.00	175.75	268.00	316.00	344.00	382.00	24%

数据来源: IEA,《2021年可再生能源报告》, BNEF, 欧洲光伏产业协会, 北极星, 能源网, 海通国际

四、财务对比

营业收入快速上升, 毛利率逐步提高。2017年供给侧改革后, 公司电解铝产量随产能一起减少, 叠加铝价下跌, 营收规模有所下降, 2020年后随着市场调整完毕, 一体化优势逐渐体现, 营业收入快速上升, 2021年营业收入达到1145亿元, 创历史新高, 同时毛利率逐步提升, 从2018年的17.7%提升至2021年的26.6%。

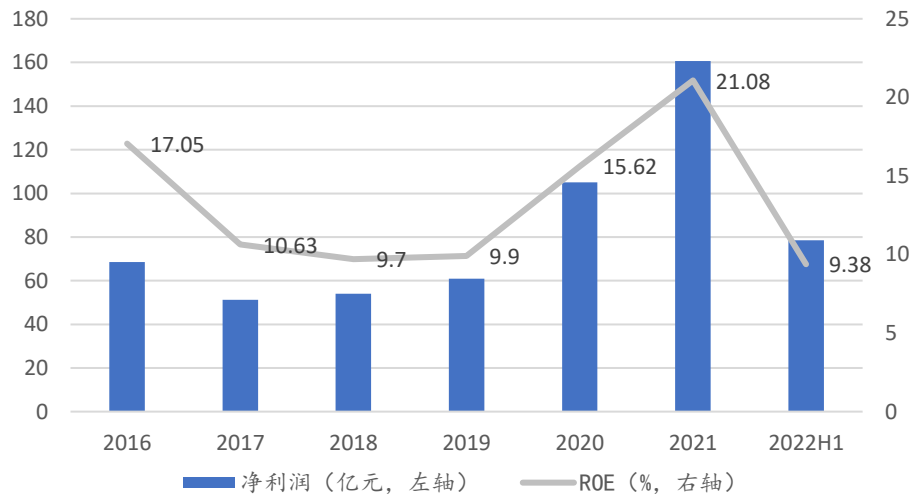
图表 13: 营业收入及毛利率



资料来源: 公司年报, 海通国际

净利润创新高, ROE 稳步提升。2017年后, 营业收入虽有所下滑, 但牢固的成本优势使净利润逐年上升。2021年净利润达历史新高的160.7亿元, 同比+53%, ROE为21.08%。主要得益于毛利的增加、减值亏损减少及财务费用的降低。

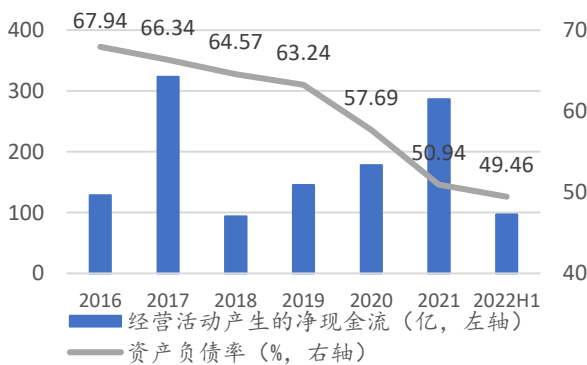
图表 14: 净利润及 ROE



资料来源: 公司年报, 海通国际

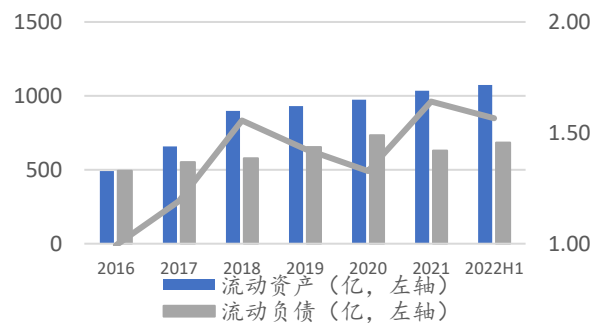
资产负债结构稳步改善。2017 年起资本开支大幅减少, 资本结构开始改善, 截至 2021 年底, 资产负债率由 2016 年高点 68% 下降 17pct 至 51%, 流动比率则从 2016 年的 0.98 上升至 1.64。

图表 15: 资产负债结构稳步改善



资料来源: 公司年报, 海通国际

图表 16: 流动资产、流动负债与流动比率



资料来源: 公司年报, 海通国际

五、盈利预测

根据公司未来两年的产能规划情况, 我们预计 2022-2024 年公司 2022 - 2024 年的归母净利润为 145.43、152.31 和 172.37 亿元。

我们预计公司 2022-2024 年 EPS 分别为 1.53 元、1.61 元、1.82 元。基于 2023 年 EPS, 参考可比公司估值水平, 给予 2023 年 7.93 倍 PE 估值, 目标价 12.77 元, 汇率假设为 0.88, 折港币 14.51 元。首次覆盖给予“优于大市”评级。

图表 10 可比公司估值表 (截至 2022 年 12 月 20 日)

代码	简称	EPS (元)			PE (倍)		
		2021A	2022E	2023E	2021A	2022E	2023E
600219.CH	南山铝业	0.29	0.32	0.36	16.5	10.3	9.13
000933.CH	神火股份	1.44	3.13	3.47	6.33	5.01	4.52
601600.CH	中国铝业	0.3	0.39	0.45	20.41	11.63	10.15
	均值	0.68	1.28	1.43	14.41	8.98	7.93

注：收盘价为 2022 年 12 月 20 日价格，EPS 为 wind 一致预期资料来源：Wind，海通国际

六、风险提示

电解铝价格下跌风险。公司作为世界最大电解铝生产商之一，其盈利水平对铝价十分敏感。我们预计未来电解铝价格在供给弹性不足，需求逐步增长的情况下有望维持高位。若铝需求增长不及预期导致铝价下跌，将使公司盈利能力受到影响。

煤炭价格上涨风险。公司目前自备电比率 59%，且电力成本占电解铝生产成本较高。若煤炭价格上涨，将使电力成本增长，减少成本优势，从而影响公司盈利能力。

成本费用控制不及预期。公司目前主要资本开支在云南产能搬迁项目、轻量化材料基地等。若这些项目建设中发生计划之外情况，导致成本费用控制不及预期，将使盈利能力受到影响。

财务报表分析和预测

资产负债表	2021A	2022E	2023E	2024E
流动资产	103,528	135,669	170,972	200,066
现金	49,227	70,063	104,907	130,715
应收账款及票据	19,203	24,607	23,072	25,993
存货	22,705	26,969	27,723	27,645
其他	12,393	14,030	15,269	15,713
非流动资产	84,892	78,511	72,768	67,599
固定资产	63,442	57,098	51,388	46,249
无形资产	370	333	300	270
其他	21,080	21,080	21,080	21,080
资产总计	188,421	214,181	243,740	267,665
流动负债	63,067	66,165	72,343	70,783
短期借款	29,377	30,463	31,549	32,636
应付账款及票据	18,735	18,866	22,533	19,377
其他	14,954	16,836	18,260	18,770
非流动负债	32,915	32,915	32,915	32,915
长期债务	30,973	30,973	30,973	30,973
其他	1,942	1,942	1,942	1,942
负债合计	95,982	99,081	105,258	103,699
普通股股本	595	595	595	595
储备	80,772	95,315	110,546	127,783
归属母公司股东权益	81,308	95,851	111,082	128,319
少数股东权益	11,131	11,833	12,567	13,399
股东权益合计	92,439	107,684	123,649	141,719
负债和股东权益	188,421	206,765	228,908	245,417

现金流量表	2021A	2022E	2023E	2024E
经营活动现金流	28,650	15,485	29,535	20,542
净利润	16,073	14,543	15,231	17,237
少数股东权益	775	702	735	832
折旧摊销	6,672	6,381	5,743	5,169
营运资金变动及其他	5,129	-6,141	7,826	-2,696
投资活动现金流	-5,463	6,391	6,391	6,391
资本支出	-6,661	7,013	7,013	7,013
其他投资	1,197	-622	-622	-622
筹资活动现金流	-19,396	-1,040	-1,083	-1,125
借款增加	-14,489	1,086	1,086	1,086
普通股增加	1,972	0	0	0
已付股利	-7,288	-2,530	-2,572	-2,614
其他	408	403	403	403
现金净增加额	3,762	20,836	34,844	25,808

利润表	2021A	2022E	2023E	2024E
营业收入	114,491	129,619	141,067	145,168
其他收入	2,252	0	0	0
营业成本	84,038	98,403	108,343	109,681
销售费用	526	595	648	667
管理费用	5,708	6,463	7,033	7,238
研发费用	851	963	1,048	1,079
财务费用	3,206	2,037	1,871	1,565
除税前溢利	22,554	20,407	21,372	24,187
所得税	5,705	5,162	5,406	6,118
净利润	16,849	15,245	15,966	18,069
少数股东损益	775	702	735	832
归属母公司净利润	16,073	14,543	15,231	17,237
EBIT	25,621	23,196	23,995	26,504
EBITDA	32,293	29,577	29,738	31,673
EPS (元)	1.76	1.53	1.61	1.82

主要财务比率	2021A	2022E	2023E	2024E
成长能力				
营业收入	32.91%	13.21%	8.83%	2.91%
归属母公司净利润	53.14%	-9.52%	4.73%	13.17%
获利能力				
毛利率	26.60%	24.08%	23.20%	24.45%
销售净利率	14.72%	11.76%	11.32%	12.45%
ROE	19.77%	15.17%	13.71%	13.43%
ROIC	12.53%	10.25%	9.63%	9.64%
偿债能力				
资产负债率	50.94%	46.26%	43.18%	38.74%
净负债比率	12.03%	-8.01%	-34.28%	-47.35%
流动比率	1.64	2.05	2.36	2.83
速动比率	1.26	1.62	1.95	2.41
营运能力				
总资产周转率	0.62	0.64	0.62	0.57
应收账款周转率	5.92	5.92	5.92	5.92
应付账款周转率	5.23	5.23	5.23	5.23
每股指标 (元)				
每股收益	1.76	1.53	1.61	1.82
每股经营现金流	3.14	1.63	3.12	2.17
每股净资产	8.91	10.12	11.72	13.54
估值比率				
P/E	4.67	4.89	4.67	4.13
P/B	0.92	0.74	0.64	0.55
EV/EBITDA	2.67	2.11	0.97	0.13

备注：(1) 表中计算估值指标的收盘价日期为 12 月 21 日；(2) 以上各表均为简表
资料来源：公司年报 (2021)，海通国际

APPENDIX 1**Summary**

The world's largest electrolytic aluminum producer and leader in the electrolytic industry. China Hongqiao Group Co., Ltd. is a large-scale enterprise integrating thermoelectricity, mining, aluminum oxide, liquid aluminum alloy, aluminum alloy ingots, aluminum alloy casting and rolling products, aluminum bus bars, high precision aluminum plates, strips and foils, and new materials. At present, the self-sufficiency rate of power of the company is 55.52%, the annual design capacity of aluminum oxide is 17 million tons/year, and the total annual capacity of electrolytic aluminum is 6.459 million tons/year, ranking top in the industry.

Integrated industrial chain brings stable cost advantage. Electricity and alumina account for 70% of the manufacturing cost of electrolytic aluminum, and are decisive factors for enterprises to make profits. At present, the company has a complete layout in these two sectors, with a self-sufficiency rate of 59% for electricity and 130%+ for alumina. In 2014, the company began to set foot in overseas bauxite resources. The high self-sufficiency rate of raw materials and energy ensures the cost stability of the company when commodity prices fluctuate.

Under the background of "carbon peaking and carbon neutralization", the total capacity of electrolytic aluminum industry is close to online, and the supply of electrolytic aluminum will become increasingly tight in the future. In 2018, with the implementation of the Action Plan for Clearing up and Rectifying Illegal Projects in the Electrolytic Aluminum Industry proposed by four ministries and commissions (including the National Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Land and Resources, and the Ministry of Ecology and Environment), the disorderly expansion of electrolytic aluminum capacity was fundamentally addressed, and the "ceiling" (about 45 million tons/year) of total electrolytic aluminum capacity was formed. By the end of 2021, the total capacity of China's electrolytic aluminum will be 42.831 million tons/year, with limited capacity growth in the future. New capacity needs to be achieved by replacing the original capacity indicators. In the context of carbon neutral long-term strategy, electrolytic aluminum, as one of the high energy consuming industries, is more difficult to obtain approval for new capacity. In terms of demand, the demand for aluminum will further increase with the recovery of real estate and the demand for lightweight automobiles.

The profit forecast and rating. We expect the company's 2022-2024 EPS to be 1.53 yuan, 1.61 yuan and 1.82 yuan respectively. Based on the EPS in 2023 and referring to the valuation level of comparable companies, we give a valuation of 7.93x 2023e PE, with a target price of 12.77 yuan, or HKD14.51 (at the exchange rate of 1HKD= 0.88RMB). We initiate with an "Outperform" rating.

Risks. The price of electrolytic aluminum fell, the price of coal rose, and the cost control was less than expected.

附录 APPENDIX

重要信息披露

本研究报告由海通国际分销，海通国际是由海通国际研究有限公司(HTIRL)，Haitong Securities India Private Limited (HSIPL)，Haitong International Japan K.K. (HTIJKK)和海通国际证券有限公司(HTISCL)的证券研究团队所组成的全球品牌，海通国际证券集团(HTISG)各成员分别在其许可的司法管辖区内从事证券活动。

IMPORTANT DISCLOSURES

This research report is distributed by Haitong International, a global brand name for the equity research teams of Haitong International Research Limited (“HTIRL”), Haitong Securities India Private Limited (“HSIPL”), Haitong International Japan K.K. (“HTIJKK”), Haitong International Securities Company Limited (“HTISCL”), and any other members within the Haitong International Securities Group of Companies (“HTISG”), each authorized to engage in securities activities in its respective jurisdiction.

HTIRL 分析师认证 Analyst Certification:

我，Yijie Wu，在此保证 (i) 本研究报告中的意见准确反映了我们对本研究中提及的任何或所有目标公司或上市公司的个人观点，并且 (ii) 我的报酬中没有任何部分与本研究报告中表达的具体建议或观点直接或间接相关；及就此报告中所讨论目标公司的证券，我们（包括我们的家属）在其中均不持有任何财务利益。I, Yijie Wu, certify that (i) the views expressed in this research report accurately reflect my personal views about any or all of the subject companies or issuers referred to in this research and (ii) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report; and that I (including members of my household) have no financial interest in the security or securities of the subject companies discussed.

利益冲突披露 Conflict of Interest Disclosures

海通国际及其某些关联公司可从事投资银行业务和/或对本研究中的特定股票或公司进行做市或持有自营头寸。就本研究报告而言，以下是有关该等关系的披露事项（以下披露不能保证及时无遗漏，如需了解及时全面信息，请发邮件至 ERD-Disclosure@htisec.com）

HTI and some of its affiliates may engage in investment banking and / or serve as a market maker or hold proprietary trading positions of certain stocks or companies in this research report. As far as this research report is concerned, the following are the disclosure matters related to such relationship (As the following disclosure does not ensure timeliness and completeness, please send an email to ERD-Disclosure@htisec.com if timely and comprehensive information is needed).

评级定义（从 2020 年 7 月 1 日开始执行）:

海通国际（以下简称“HTI”）采用相对评级系统来为投资者推荐我们覆盖的公司：优于大市、中性或弱于大市。投资者应仔细阅读 HTI 的评级定义。并且 HTI 发布分析师观点的完整信息，投资者应仔细阅读全文而非仅看评级。在任何情况下，分析师的评级和研究都不能作为投资建议。投资者的买卖股票的决策应基于各自情况（比如投资者的现有持仓）以及其他因素。

分析师股票评级

优于大市，未来 12-18 个月内预期相对基准指数涨幅在 10%以上，基准定义如下

中性，未来 12-18 个月内预期相对基准指数变化不大，基准定义如下。根据 FINRA/NYSE 的评级分布规则，我们会将中性评级划入持有这一类别。

弱于大市，未来 12-18 个月内预期相对基准指数跌幅在 10%以上，基准定义如下

各地股票基准指数：日本 – TOPIX, 韩国 – KOSPI, 台湾 – TAIEX, 印度 – Nifty100, 美国 – SP500; 其他所有中国概念股 – MSCI China.

Ratings Definitions (from 1 Jul 2020):

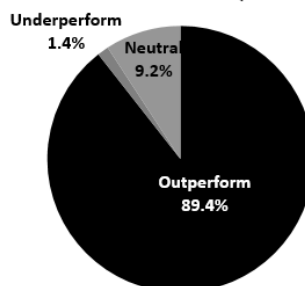
Haitong International uses a relative rating system using Outperform, Neutral, or Underperform for recommending the stocks we cover to investors. Investors should carefully read the definitions of all ratings used in Haitong International Research. In addition, since Haitong International Research contains more complete information concerning the analyst's views, investors should carefully read Haitong International Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Analyst Stock Ratings

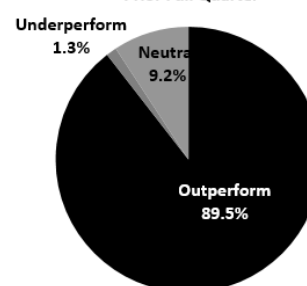
Outperform: The stock's total return over the next 12-18 months is expected to exceed the return of its relevant broad market benchmark, as

评级分布 Rating Distribution

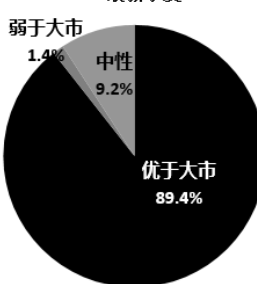
Most Recent Full Quarter



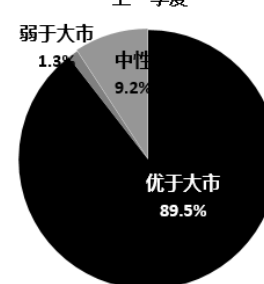
Prior Full Quarter



最新季度



上一季度



indicated below.

Neutral: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

Underperform: The stock's total return over the next 12-18 months is expected to be below the return of its relevant broad market benchmark, as indicated below.

Benchmarks for each stock's listed region are as follows: Japan – TOPIX, Korea – KOSPI, Taiwan – TAIEX, India – Nifty100, US – SP500; for all other China-concept stocks – MSCI China.

截至 2022 年 9 月 30 日海通国际股票研究评级分布

	优于大市	中性 (持有)	弱于大市
海通国际股票研究覆盖率	89.4%	9.2%	1.4%
投资银行客户*	5.5%	6.8%	4.5%

*在每个评级类别里投资银行客户所占的百分比。

上述分布中的买入，中性和卖出分别对应我们当前优于大市，中性和落后大市评级。

只有根据 FINRA/NYSE 的评级分布规则，我们才将中性评级划入持有这一类别。请注意在上表中不包含非评级的股票。

此前的评级系统定义（直至 2020 年 6 月 30 日）：

买入，未来 12-18 个月内预期相对基准指数涨幅在 10%以上，基准定义如下

中性，未来 12-18 个月内预期相对基准指数变化不大，基准定义如下。根据 FINRA/NYSE 的评级分布规则，我们会将中性评级划入持有这一类别。

卖出，未来 12-18 个月内预期相对基准指数跌幅在 10%以上，基准定义如下

各地股票基准指数：日本 – TOPIX, 韩国 – KOSPI, 台湾 – TAIEX, 印度 – Nifty100; 其他所有中国概念股 – MSCI China.

Haitong International Equity Research Ratings Distribution, as of Sep 30, 2022

	Outperform	Neutral (hold)	Underperform
HTI Equity Research Coverage	89.4%	9.2%	1.4%
IB clients*	5.5%	6.8%	4.5%

*Percentage of investment banking clients in each rating category.

BUY, Neutral, and SELL in the above distribution correspond to our current ratings of Outperform, Neutral, and Underperform.

For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category. Please note that stocks with an NR designation are not included in the table above.

Previous rating system definitions (until 30 Jun 2020):

BUY: The stock's total return over the next 12-18 months is expected to exceed the return of its relevant broad market benchmark, as indicated below.

NEUTRAL: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

SELL: The stock's total return over the next 12-18 months is expected to be below the return of its relevant broad market benchmark, as indicated below.

Benchmarks for each stock's listed region are as follows: Japan – TOPIX, Korea – KOSPI, Taiwan – TAIEX, India – Nifty100; for all other China-concept stocks – MSCI China.

海通国际非评级研究：海通国际发布计量、筛选或短篇报告，并在报告中根据估值和其他指标对股票进行排名，或者基于可能的估值倍数提出建议价格。这种排名或建议价格并非为了进行股票评级、提出目标价格或进行基本面估值，而仅供参考使用。

Haitong International Non-Rated Research: Haitong International publishes quantitative, screening or short reports which may rank stocks according to valuation and other metrics or may suggest prices based on possible valuation multiples. Such rankings or suggested prices do not purport to be stock ratings or target prices or fundamental values and are for information only.

海通国际 A 股覆盖：海通国际可能会就沪港通及深港通的中国 A 股进行覆盖及评级。海通证券（600837.CH），海通国际于上海的母公司，也会于中国发布中国 A 股的研究报告。但是，海通国际使用与海通证券不同的评级系统，所以海通国际与海通证券的中国 A 股评级可能有所不同。

Haitong International Coverage of A-Shares: Haitong International may cover and rate A-Shares that are subject to the Hong Kong Stock Connect scheme with Shanghai and Shenzhen. Haitong Securities (HS; 600837 CH), the ultimate parent company of HTISG based in Shanghai, covers and publishes research on these same A-Shares for distribution in mainland China. However, the rating system employed by HS differs from that used by HTI and as a result there may be a difference in the HTI and HS ratings for the same A-share stocks.

海通国际优质 100 A 股 (Q100) 指数：海通国际 Q100 指数是一个包括 100 支由海通证券覆盖的优质中国 A 股的计量产品。这些股票是通过基于质量的筛选过程，并结合对海通证券 A 股团队自下而上的研究。海通国际每季对 Q100 指数成分作出复审。

Haitong International Quality 100 A-share (Q100) Index: HTI's Q100 Index is a quant product that consists of 100 of the highest-quality A-shares under coverage at HS in Shanghai. These stocks are carefully selected through a quality-based screening process in combination with a review of the HS A-share team's bottom-up research. The Q100 constituent companies are reviewed quarterly.

MSCI ESG 评级免责声明条款: 尽管海通国际的信息供货商 (包括但不限于 MSCI ESG Research LLC 及其联属公司 (「ESG 方」)) 从其认为可靠的来源获取信息 (「信息」), ESG 方均不承担或保证此处在任何数据的原创性, 准确性和/或完整性, 并明确表示不作出任何明示或默示的担保, 包括可商售性和针对特定目的的适用性。该信息只能供阁下内部使用, 不得以任何形式复制或重新传播, 并不得用作任何金融工具、产品或指数的基础或组成部分。此外, 信息本质上不能用于判断购买或出售何种证券, 或何时购买或出售该证券。即使已被告知可能造成的损害, ESG 方均不承担与此处任何资料有关的任何错误或遗漏所引起的任何责任, 也不对任何直接、间接、特殊、惩罚性、附带性或任何其他损害赔偿 (包括利润损失) 承担任何责任。

MSCI ESG Disclaimer: Although Haitong International's information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or disseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

盟浪义利 (FIN-ESG) 数据通免责声明条款: 在使用盟浪义利 (FIN-ESG) 数据之前, 请务必仔细阅读本条款并同意本声明:

第一条 义利 (FIN-ESG) 数据系由盟浪可持续数字科技有限责任公司 (以下简称“本公司”) 基于合法取得的公开信息评估而成, 本公司对信息的准确性及完整性不作任何保证。对公司的评估结果仅供参考, 并不构成对任何个人或机构投资建议, 也不能作为任何个人或机构购买、出售或持有相关金融产品的依据。本公司不对任何个人或机构投资者因使用本数据表述的评估结果造成的任何直接或间接损失负责。

第二条 盟浪并不因此收到此评估数据而将收件人视为客户, 收件人使用此数据时应根据自身实际情况作出自我独立判断。本数据所载内容反映的是盟浪在最初发布本数据日期当日的判断, 盟浪有权在不发出通知的情况下更新、修订与发出其他与本数据所载内容不一致或有不同结论的数据。除非另行说明, 本数据 (如财务业绩数据等) 仅代表过往表现, 过往的业绩表现不作为日后回报的预测。

第三条 本数据版权归本公司所有, 本公司依法保留各项权利。未经本公司事先书面许可授权, 任何个人或机构不得将本数据中的评估结果用于任何营利性目的, 不得对本数据进行修改、复制、编译、汇编、再次编辑、改编、删减、缩写、节选、发行、出租、展览、表演、放映、广播、信息网络传播、摄制、增加图标及说明等, 否则因此给盟浪或其他第三方造成损失的, 由用户承担相应的赔偿责任, 盟浪不承担责任。

第四条 如本免责声明未约定, 而盟浪网站平台载明的其他协议内容 (如《盟浪网站用户注册协议》《盟浪网用户服务 (含认证) 协议》《盟浪网隐私政策》等) 有约定的, 则按其他协议的约定执行; 若本免责声明与其他协议约定存在冲突或不一致的, 则以本免责声明约定为准。

SusallWave FIN-ESG Data Service Disclaimer: Please read these terms and conditions below carefully and confirm your agreement and acceptance with these terms before using SusallWave FIN-ESG Data Service.

1. FIN-ESG Data is produced by SusallWave Digital Technology Co., Ltd. (In short, SusallWave)'s assessment based on legal publicly accessible information. SusallWave shall not be responsible for any accuracy and completeness of the information. The assessment result is for reference only. It is not for any investment advice for any individual or institution and not for basis of purchasing, selling or holding any relative financial products. We will not be liable for any direct or indirect loss of any individual or institution as a result of using SusallWave FIN-ESG Data.

2. SusallWave do not consider recipients as customers for receiving these data. When using the data, recipients shall make your own independent judgment according to your practical individual status. The contents of the data reflect the judgment of us only on the release day. We have right to update and amend the data and release other data that contains inconsistent contents or different conclusions without notification. Unless expressly stated, the data (e.g., financial performance data) represents past performance only and the past performance cannot be viewed as the prediction of future return.

3. The copyright of this data belongs to SusallWave, and we reserve all rights in accordance with the law. Without the prior written permission of our company, none of individual or institution can use these data for any profitable purpose. Besides, none of individual or institution can take actions such as amendment, replication, translation, compilation, re-editing, adaption, deletion, abbreviation, excerpts, issuance, rent, exhibition, performance, projection, broadcast, information network transmission, shooting, adding icons and instructions. If any loss of SusallWave or any third-party is caused by those actions, users shall bear the corresponding compensation liability. SusallWave shall not be responsible for any loss.

4. If any term is not contained in this disclaimer but written in other agreements on our website (e.g. *User Registration Protocol of SusallWave Website, User Service (including authentication) Agreement of SusallWave Website, Privacy Policy of Susallwave Website*), it should be executed according to other agreements. If there is any difference between this disclaimer and other agreements, this disclaimer shall be applied.

重要免责声明:

非印度证券的研究报告: 本报告由海通国际证券集团有限公司 (「HTISGL」) 的全资附属公司海通国际研究有限公司 (「HTIRL」) 发行, 该公司是根据香港证券及期货条例 (第 571 章) 持有第 4 类受规管活动 (就证券提供意见) 的持牌法团。该研究报告在 HTISGL 的全资附属公司 Haitong International (Japan) K.K. (「HTIJKK」) 的协助下发行, HTIJKK 是由日本关东财务局监管为投资顾问。

印度证券的研究报告: 本报告由从事证券交易、投资银行及证券分析及受 Securities and Exchange Board of India (「SEBI」) 监管的 Haitong Securities India Private Limited (「HTSIPL」) 所发行, 包括制作及发布涵盖 BSE Limited (「BSE」) 和 National Stock Exchange of India Limited (「NSE」) 上市公司 (统称为「印度交易所」) 的研究报告。HTSIPL 于 2016 年 12 月 22 日被收购并成为海通国际证券集团有限公司 (「HTISG」) 的一部分。

所有研究报告均以海通国际为名作为全球品牌, 经许可由海通国际证券股份有限公司及/或海通国际证券集团的其他成员在其司法管辖区发布。

本文件所载信息和观点已被编译或源自可靠来源, 但 HTIRL、HTISGL 或任何其他属于海通国际证券集团有限公司 (「HTISG」) 的成员对其准确性、完整性和正确性不做任何明示或暗示的

不应被解释为对证券买卖的明示或暗示地出价或征价。在某些司法管辖区，本文件中提及的证券可能无法进行买卖。如果投资产品以投资者本国货币以外的币种进行计价，则汇率变化可能会对投资产生不利影响。过去的表现并不一定代表将来的结果。某些特定交易，包括设计金融衍生工具的，有产生重大风险的可能性，因此并不适合所有的投资者。您还应认识到本文件中的建议并非为您量身定制。分析师并未考虑到您自身的财务情况，如您的财务状况和风险偏好。因此您必须自行分析并在适用的情况下咨询自己的法律、税收、会计、金融和其他方面的专业顾问，以期在投资之前评估该项建议是否适合于您。若由于使用本文件所载的材料而产生任何直接或间接的损失，HTISG 及其董事、雇员或代理人对此均不承担任何责任。

除对本文内容承担责任的分析师外，HTISG 及我们的关联公司、高级管理人员、董事和雇员，均可不时作为主事人就本文件所述的任何证券或衍生品持有长仓或短仓以及进行买卖。HTISG 的销售员、交易员和其他专业人士均可向 HTISG 的相关客户和公司提供与本文件所述意见相反的口头或书面市场评论意见或交易策略。HTISG 可做出与本文件所述建议或意见不一致的投资决策。但 HTIRL 没有义务来确保本文件的收件人了解到该等交易决定、思路或建议。

请访问海通国际网站 www.equities.htisec.com，查阅更多有关海通国际为预防和避免利益冲突设立的组织和行政安排的内容信息。

非美国分析师披露信息： 本项研究首页上列明的海通国际分析师并未在 FINRA 进行注册或者取得相应的资格，并且不受美国 FINRA 有关与本项研究目标公司进行沟通、公开露面和自营证券交易的第 2241 条规则之限制。

IMPORTANT DISCLAIMER

For research reports on non-Indian securities: The research report is issued by Haitong International Research Limited ("HTIRL"), a wholly owned subsidiary of Haitong International Securities Group Limited ("HTISGL") and a licensed corporation to carry on Type 4 regulated activity (advising on securities) for the purpose of the Securities and Futures Ordinance (Cap. 571) of Hong Kong, with the assistance of Haitong International (Japan) K.K. ("HTIJKK"), a wholly owned subsidiary of HTISGL and which is regulated as an Investment Adviser by the Kanto Finance Bureau of Japan.

For research reports on Indian securities: The research report is issued by Haitong Securities India Private Limited ("HSIPL"), an Indian company and a Securities and Exchange Board of India ("SEBI") registered Stock Broker, Merchant Banker and Research Analyst that, inter alia, produces and distributes research reports covering listed entities on the BSE Limited ("BSE") and the National Stock Exchange of India Limited ("NSE") (collectively referred to as "Indian Exchanges"). HSIPL was acquired and became part of the Haitong International Securities Group of Companies ("HTISG") on 22 December 2016.

All the research reports are globally branded under the name Haitong International and approved for distribution by Haitong International Securities Company Limited ("HTISCL") and/or any other members within HTISG in their respective jurisdictions.

The information and opinions contained in this research report have been compiled or arrived at from sources believed to be reliable and in good faith but no representation or warranty, express or implied, is made by HTIRL, HTISCL, HSIPL, HTIJKK or any other members within HTISG from which this research report may be received, as to their accuracy, completeness or correctness. All opinions expressed herein are as of the date of this research report and are subject to change without notice. This research report is for information purpose only. Descriptions of any companies or their securities mentioned herein are not intended to be complete and this research report is not, and should not be construed expressly or impliedly as, an offer to buy or sell securities. The securities referred to in this research report may not be eligible for purchase or sale in some jurisdictions. If an investment product is denominated in a currency other than an investor's home currency, a change in exchange rates may adversely affect the investment. Past performance is not necessarily indicative of future results. Certain transactions, including those involving derivatives, give rise to substantial risk and are not suitable for all investors. You should also bear in mind that recommendations in this research report are not tailor-made for you. The analyst has not taken into account your unique financial circumstances, such as your financial situation and risk appetite. You must, therefore, analyze and should, where applicable, consult your own legal, tax, accounting, financial and other professional advisers to evaluate whether the recommendations suits you before investment. Neither HTISG nor any of its directors, employees or agents accepts any liability whatsoever for any direct or consequential loss arising from any use of the materials contained in this research report.

HTISG and our affiliates, officers, directors, and employees, excluding the analysts responsible for the content of this document, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research report. Sales, traders, and other professionals of HTISG may provide oral or written market commentary or trading strategies to the relevant clients and the companies within HTISG that reflect opinions that are contrary to the opinions expressed in this research report. HTISG may make investment decisions that are inconsistent with the recommendations or views expressed in this research report. HTI is under no obligation to ensure that such other trading decisions, ideas or recommendations are brought to the attention of any recipient of this research report.

Please refer to HTI's website www.equities.htisec.com for further information on HTI's organizational and administrative arrangements set up for the prevention and avoidance of conflicts of interest with respect to Research.

Non U.S. Analyst Disclosure: The HTI analyst(s) listed on the cover of this Research is (are) not registered or qualified as a research analyst with FINRA and are not subject to U.S. FINRA Rule 2241 restrictions on communications with companies that are the subject of the Research; public appearances; and trading securities by a research analyst.

分发和地区通知:

除非下文另有规定，否则任何希望讨论本报告或者就本项研究中讨论的任何证券进行任何交易的收件人均应联系其所在国家或地区的海通国际销售人员。

香港投资者的通知事项： 海通国际证券股份有限公司("HTISCL")负责分发该研究报告，HTISCL 是在香港有权实施第 1 类受规管活动（从事证券交易）的持牌公司。该研究报告并不构成《证券及期货条例》（香港法例第 571 章）（以下简称"SFO"）所界定的要约邀请，证券要约或公众要约。本研究报告仅提供给 SFO 所界定的“专业投资者”。本研究报告未经过证券及期货事务监察委员会的审查。您不应仅根据本研究报告中所载的信息做出投资决定。本研究报告的收件人就研究报告中产生或与之相关的任何事宜请联系 HTISCL 销售人员。

美国投资者的通知事项： 本研究报告由 HTIRL, HSIPL 或 HTIJKK 编写。HTIRL, HSIPL, HTIJKK 以及任何非 HTISG 美国联营公司，均未在美国注册，因此不受美国关于研究报告编制和研究分析人员独立性规定的约束。本研究报告提供给依照 1934 年“美国证券交易法”第 15a-6 条规定的豁免注册的「美国主要机构投资者」（“Major U.S. Institutional Investor”）和「机构投资者」（“U.S. Institutional Investors”）。在向美国机构投资者分发研究报告时，Haitong International Securities (USA) Inc. (“HTI USA”) 将对报告的内容负责。任何收到本研究报告的美国投资者，希望根据本研究报告提供的信息进行任何证券或相关金融工具买卖的交易，只能通过 HTI USA。HTI USA 位于 340 Madison Avenue, 12th Floor, New York, NY 10173, 电话 (212) 351-6050。HTI USA 是在美国于 U.S. Securities and Exchange Commission (“SEC”) 注册的经纪商，也是 Financial Industry Regulatory Authority, Inc. (“FINRA”) 的成员。HTIUSA 不负责编写本研究报告，也不负责其中包含的分析。在任何情况下，收到本研究报告的任何美国投资者，不得直接与分析师直接联系，也不得通过 HSIPL, HTIRL 或 HTIJKK 直接进行买卖证券或相关金融工具的交易。本研究报告中出现的 HSIPL, HTIRL 或 HTIJKK 分析师没有注册或具备 FINRA 的研究分析师资格，因此可能不受 FINRA 第 2241 条规定的与目标公司的交流，公开露面和分析师账户持有的交易证券等限制。投资本研究报告中讨论的任何非美国证券或相关金融工具（包括 ADR）可能存在一定风险。非美国发行的证券可能没有注册，或不受美国法规的

约束。有关非美国证券或相关金融工具的信息可能有限制。外国公司可能不受审计和汇报的标准以及与美国境内生效相符的监管要求。本研究报告中以美元以外的其他货币计价的任何证券或相关金融工具的投资或收益的价值受汇率波动的影响，可能对该等证券或相关金融工具的价值或收入产生正面或负面影响。美国收件人的所有问询请联系：

Haitong International Securities (USA) Inc.

340 Madison Avenue, 12th Floor

New York, NY 10173

联系人电话：(212) 351 6050

DISTRIBUTION AND REGIONAL NOTICES

Except as otherwise indicated below, any Recipient wishing to discuss this research report or effect any transaction in any security discussed in HTI's research should contact the Haitong International salesperson in their own country or region.

Notice to Hong Kong investors: The research report is distributed by Haitong International Securities Company Limited ("HTISCL"), which is a licensed corporation to carry on Type 1 regulated activity (dealing in securities) in Hong Kong. This research report does not constitute a solicitation or an offer of securities or an invitation to the public within the meaning of the SFO. This research report is only to be circulated to "Professional Investors" as defined in the SFO. This research report has not been reviewed by the Securities and Futures Commission. You should not make investment decisions solely on the basis of the information contained in this research report. Recipients of this research report are to contact HTISCL salespersons in respect of any matters arising from, or in connection with, the research report.

Notice to U.S. investors: As described above, this research report was prepared by HTIRL, HSIPL or HTIJKK. Neither HTIRL, HSIPL, HTIJKK, nor any of the non U.S. HTISG affiliates is registered in the United States and, therefore, is not subject to U.S. rules regarding the preparation of research reports and the independence of research analysts. This research report is provided for distribution to "major U.S. institutional investors" and "U.S. institutional investors" in reliance on the exemption from registration provided by Rule 15a-6 of the U.S. Securities Exchange Act of 1934, as amended. When distributing research reports to "U.S. institutional investors," HTI USA will accept the responsibilities for the content of the reports. Any U.S. recipient of this research report wishing to effect any transaction to buy or sell securities or related financial instruments based on the information provided in this research report should do so only through Haitong International Securities (USA) Inc. ("HTI USA"), located at 340 Madison Avenue, 12th Floor, New York, NY 10173, USA; telephone (212) 351 6050. HTI USA is a broker-dealer registered in the U.S. with the U.S. Securities and Exchange Commission (the "SEC") and a member of the Financial Industry Regulatory Authority, Inc. ("FINRA"). HTI USA is not responsible for the preparation of this research report nor for the analysis contained therein. Under no circumstances should any U.S. recipient of this research report contact the analyst directly or effect any transaction to buy or sell securities or related financial instruments directly through HSIPL, HTIRL or HTIJKK. The HSIPL, HTIRL or HTIJKK analyst(s) whose name appears in this research report is not registered or qualified as a research analyst with FINRA and, therefore, may not be subject to FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. Investing in any non-U.S. securities or related financial instruments (including ADRs) discussed in this research report may present certain risks. The securities of non-U.S. issuers may not be registered with, or be subject to U.S. regulations. Information on such non-U.S. securities or related financial instruments may be limited. Foreign companies may not be subject to audit and reporting standards and regulatory requirements comparable to those in effect within the U.S. The value of any investment or income from any securities or related financial instruments discussed in this research report denominated in a currency other than U.S. dollars is subject to exchange rate fluctuations that may have a positive or adverse effect on the value of or income from such securities or related financial instruments. All inquiries by U.S. recipients should be directed to:

Haitong International Securities (USA) Inc.

340 Madison Avenue, 12th Floor

New York, NY 10173

Attn: Sales Desk at (212) 351 6050

中华人民共和国的通知事项：在中华人民共和国（下称“中国”，就本报告目的而言，不包括香港特别行政区、澳门特别行政区和台湾）只有根据适用的中国法律法规而收到该材料的人员方可使用该材料。并且根据相关法律法规，该材料中的信息并不构成“在中国从事生产、经营活动”。本文件在中国并不构成相关证券的公共发售或认购。无论根据法律规定或其他任何规定，在取得中国政府所有的批准或许可之前，任何法人或自然人均不得直接或间接地购买本材料中的任何证券或任何实益权益。接收本文件的人员须遵守上述限制性规定。

加拿大投资者的通知事项：在任何情况下该等材料均不得被解释为在任何加拿大的司法管辖区内出售证券的要约或认购证券的要约邀请。本材料中所述证券在加拿大的任何要约或出售行为均只能在豁免向有关加拿大证券监管机构提交招股说明书的前提下由 Haitong International Securities (USA) Inc. ("HTI USA") 予以实施，该公司是一家根据 National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations ("NI 31-103") 的规定得到「国际交易商豁免」("International Dealer Exemption") 的交易商，位于艾伯塔省、不列颠哥伦比亚省、安大略省和魁北克省。在加拿大，该等材料在任何情况下均不得被解释为任何证券的招股说明书、发行备忘录、广告或公开发行。加拿大的任何证券委员会或类似的监管机构均未审查或以任何方式批准该等材料、其中所载的信息或所述证券的优点，任何与此相反的声明即属违法。在收到该等材料时，每个加拿大的收件人均将被视为属于 National Instrument 45-106 Prospectus Exemptions 第 1.1 节或者 Securities Act (Ontario) 第 73.3(1) 节所规定的「认可投资者」("Accredited Investor")，或者在适用情况下 National Instrument 31-103 第 1.1 节所规定的「许可投资者」("Permitted Investor")。

新加坡投资者的通知事项：本研究报告由 Haitong International Securities (Singapore) Pte Ltd ("HTISSPL") [公司注册编号 201311400G] 于新加坡提供。HTISSPL 是符合《财务顾问法》(第 110 章) ("FAA") 定义的豁免财务顾问，可 (a) 提供关于证券、集体投资计划的部分，交易所衍生品合约和场外衍生品合约的建议 (b) 发行或公布有关证券、交易所衍生品合约和场外衍生品合约的研究分析或研究报告。本研究报告仅提供给符合《证券及期货法》(第 289 章) 第 4A 条项下规定的机构投资者。对于因本研究报告而产生的或与之相关的任何问题，本研究报告的收件人应通过以下信息与 HTISSPL 联系：

Haitong International Securities (Singapore) Pte. Ltd

50 Raffles Place, #33-03 Singapore Land Tower, Singapore 048623

电话：(65) 6536 1920

日本投资者的通知事项：本研究报告由海通国际证券有限公司所发布，旨在分发给从事投资管理的金融服务提供商或注册金融机构（根据日本金融机构和交易法 ("FIEL") 第 61 (1) 条，第 17-11 (1) 条的执行及相关条款）。

英国及欧盟投资者的通知事项: 本报告由从事投资顾问的 Haitong International Securities Company Limited 所发布, 本报告只面向有投资相关经验的专业客户发布。任何投资或与本报告相关的投资行为只面对此类专业客户。没有投资经验或相关投资经验的客户不得依赖本报告。Haitong International Securities Company Limited 的分支机构的净长期或短期金融权益可能超过本研究报告中提及的实体已发行股本总额的 0.5%。特别提醒有些英文报告有可能此前已经通过中文或其它语言完成发布。

澳大利亚投资者的通知事项: Haitong International Securities (Singapore) Pte Ltd, Haitong International Securities Company Limited 和 Haitong International Securities (UK) Limited 分别根据澳大利亚证券和投资委员会 (以下简称“ASIC”) 公司 (废除及过度性) 文书第 2016/396 号规章在澳大利亚分发本研究, 该等规章免除了根据 2001 年《公司法》在澳大利亚为批发客户提供金融服务时海通国际需持有澳大利亚金融服务许可的要求。ASIC 的规章副本可在以下网站获取: www.legislation.gov.au。海通国际提供的金融服务受外国法律法规规定的管制, 该等法律与在澳大利亚所适用的法律存在差异。

印度投资者的通知事项: 本报告由从事证券交易、投资银行及证券分析及受 Securities and Exchange Board of India (“SEBI”) 监管的 Haitong Securities India Private Limited (“HTSIPL”) 所发布, 包括制作及发布涵盖 BSE Limited (“BSE”) 和 National Stock Exchange of India Limited (“NSE”) (统称为「印度交易所」) 研究报告。

本项研究仅供收件人使用, 未经海通国际的书面同意不得予以复制和再次分发。

版权所有: 海通国际证券集团有限公司 2019 年。保留所有权利。

People's Republic of China (PRC): In the PRC, the research report is directed for the sole use of those who receive the research report in accordance with the applicable PRC laws and regulations. Further, the information on the research report does not constitute "production and business activities in the PRC" under relevant PRC laws. This research report does not constitute a public offer of the security, whether by sale or subscription, in the PRC. Further, no legal or natural persons of the PRC may directly or indirectly purchase any of the security or any beneficial interest therein without obtaining all prior PRC government approvals or licenses that are required, whether statutorily or otherwise. Persons who come into possession of this research are required to observe these restrictions.

Notice to Canadian Investors: Under no circumstances is this research report to be construed as an offer to sell securities or as a solicitation of an offer to buy securities in any jurisdiction of Canada. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by Haitong International Securities (USA) Inc., a dealer relying on the "international dealer exemption" under National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations ("NI 31-103") in Alberta, British Columbia, Ontario and Quebec. This research report is not, and under no circumstances should be construed as, a prospectus, an offering memorandum, an advertisement or a public offering of any securities in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon this research report, the information contained herein or the merits of the securities described herein and any representation to the contrary is an offence. Upon receipt of this research report, each Canadian recipient will be deemed to have represented that the investor is an "accredited investor" as such term is defined in section 1.1 of National Instrument 45-106 Prospectus Exemptions or, in Ontario, in section 73.3(1) of the Securities Act (Ontario), as applicable, and a "permitted client" as such term is defined in section 1.1 of NI 31-103, respectively.

Notice to Singapore investors: This research report is provided in Singapore by or through Haitong International Securities (Singapore) Pte Ltd ("HTISSPL") [Co Reg No 201311400G. HTISSPL is an Exempt Financial Adviser under the Financial Advisers Act (Cap. 110) ("FAA") to (a) advise on securities, units in a collective investment scheme, exchange-traded derivatives contracts and over-the-counter derivatives contracts and (b) issue or promulgate research analyses or research reports on securities, exchange-traded derivatives contracts and over-the-counter derivatives contracts. This research report is only provided to institutional investors, within the meaning of Section 4A of the Securities and Futures Act (Cap. 289). Recipients of this research report are to contact HTISSPL via the details below in respect of any matters arising from, or in connection with, the research report:

Haitong International Securities (Singapore) Pte. Ltd.

10 Collyer Quay, #19-01 - #19-05 Ocean Financial Centre, Singapore 049315

Telephone: (65) 6536 1920

Notice to Japanese investors: This research report is distributed by Haitong International Securities Company Limited and intended to be distributed to Financial Services Providers or Registered Financial Institutions engaged in investment management (as defined in the Japan Financial Instruments and Exchange Act ("FIEL") Art. 61(1), Order for Enforcement of FIEL Art. 17-11(1), and related articles).

Notice to UK and European Union investors: This research report is distributed by Haitong International Securities Company Limited. This research is directed at persons having professional experience in matters relating to investments. Any investment or investment activity to which this research relates is available only to such persons or will be engaged in only with such persons. Persons who do not have professional experience in matters relating to investments should not rely on this research. Haitong International Securities Company Limited's affiliates may have a net long or short financial interest in excess of 0.5% of the total issued share capital of the entities mentioned in this research report. Please be aware that any report in English may have been published previously in Chinese or another language.

Notice to Australian investors: The research report is distributed in Australia by Haitong International Securities (Singapore) Pte Ltd, Haitong International Securities Company Limited, and Haitong International Securities (UK) Limited in reliance on ASIC Corporations (Repeal and Transitional) Instrument 2016/396, which exempts those HTISG entities from the requirement to hold an Australian financial services license under the Corporations Act 2001 in respect of the financial services it provides to wholesale clients in Australia. A copy of the ASIC Class Orders may be obtained at the following website, www.legislation.gov.au. Financial services provided by Haitong International Securities (Singapore) Pte Ltd, Haitong International Securities Company Limited, and Haitong International Securities (UK) Limited are regulated under foreign laws and regulatory requirements, which are different from the laws applying in Australia.

Notice to Indian investors: The research report is distributed by Haitong Securities India Private Limited ("HSIPL"), an Indian company and a Securities and Exchange Board of India ("SEBI") registered Stock Broker, Merchant Banker and Research Analyst that, inter alia, produces and distributes research reports covering listed entities on the BSE Limited ("BSE") and the National Stock Exchange of India Limited ("NSE") (collectively referred to as "Indian Exchanges").

This research report is intended for the recipients only and may not be reproduced or redistributed without the written consent of an authorized signatory of HTISG.

Copyright: Haitong International Securities Group Limited 2019. All rights reserved.

