

万华化学 (600309 CH): 新材料专题研究 (2) : 高端新材料及精细化学品不断突破, 电池材料打造第二增长曲线—维持优于大市; 下调目标价4% (Wanhua Chemical Group: Continuous Breakthroughs in Advanced Materials and Fine Chemicals, with Cell Materials Shaping a Second Growth Trajectory—Maintain OP & Cut TP by 4%)

刘威 Wei Liu wei.liu@htisec.com

庄怀超 Huaichao Zhuang hc.zhuang@htisec.com

10 Mar 2024

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, 海通证券印度私人有限公司, 海通国际株式会社和海通国际证券集团其他各成员单位的证券研究团队所组成的全球品牌, 海通国际证券集团各成员分别在其许可的司法管辖区内从事证券活动。关于海通国际的分析师证明, 重要披露声明和免责声明, 请参阅附录。(Please see appendix for English translation of the disclaimer)

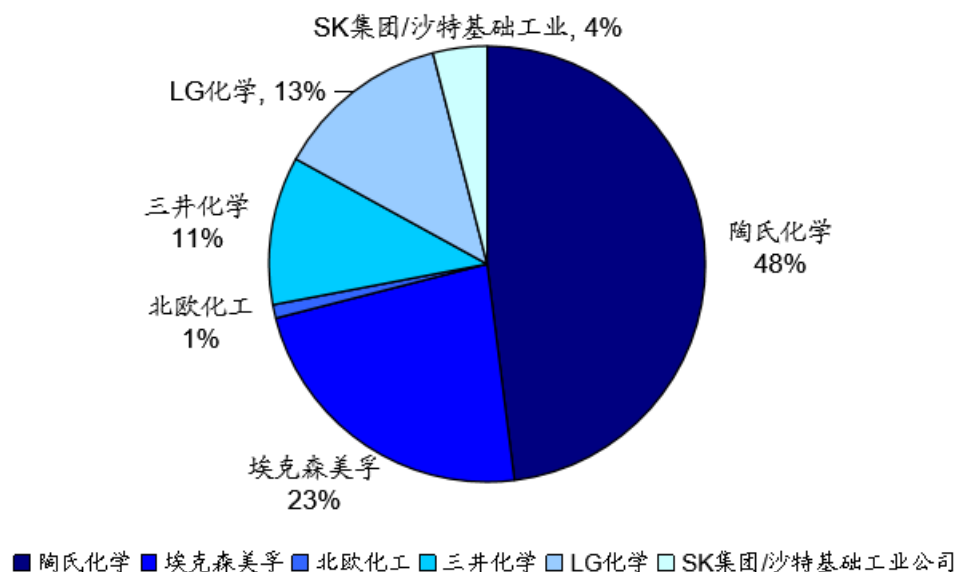
- 万华化学目前已形成产业链高度整合，深度一体化的聚氨酯、石化、精细化学品、新兴材料四大产业集群。公司持续发挥技术创新和迭代优势，重点面向高端化工新材料和精细化学品领域，开展高端聚烯烃、高性能工程塑料、可降解塑料、电子化学品等产品攻关。我们认为公司在高端新材料及精细化学品领域不断突破，电池材料有望打造公司第二增长曲线。
- 盈利预测及投资建议：根据公司2023年度业绩快报公告，我们调整公司2023-2025年归母净利润分别为168.14、226.57、255.43亿元（原值分别为175.67、236.04、276.37亿元），对应EPS分别为5.36、7.22、8.14元/股，给予2024年14.1倍PE，目标价101.84元，维持“优于大市”评级。
- 风险提示：产品价格大幅下跌；新建项目进度不及预期。

1. POE: 国产化突破在即
2. PC: 高端差异化及产业链一体化是发展趋势
3. 柠檬醛: 下游香精香料市场长期稳定增长
4. 可降解塑料: 可降解塑料是未来发展方向
5. 电池材料: 打造公司第二增长曲线
6. 盈利预测及投资建议
7. 风险提示

POE:我国产品以进口为主

- 聚烯烃弹性体（POE）是由乙烯与丙烯或其他 α -烯烃（如1-丁烯、1-己烯、1-辛烯等）共聚而得到的一类聚烯烃。我国所需的POE产品大都依赖进口；
- 聚合单体高碳 α -烯烃技术、茂金属催化剂技术以及高温溶液聚合技术是目前POE工业化的主要壁垒。

图：世界POE产能分布



表：2016-2021年国内POE供需情况

年份/年	消费量/kt	进口量/kt	需求量年均增长率, %	自给率
2016	149	149	0	0
2017	186	186	24.9	0
2018	198	198	6.5	0
2019	218	218	10.1	0
2020	234	234	7.3	0
2021	277	277	18.4	0

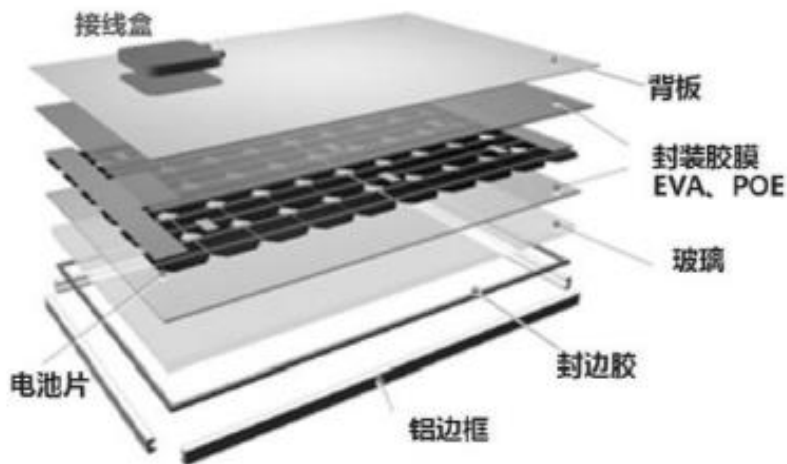
资料来源：《国内外POE市场分析及预测》，张瑞等；《光伏电池封装胶膜材料发展现状与前景分析》，黄格省等；HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

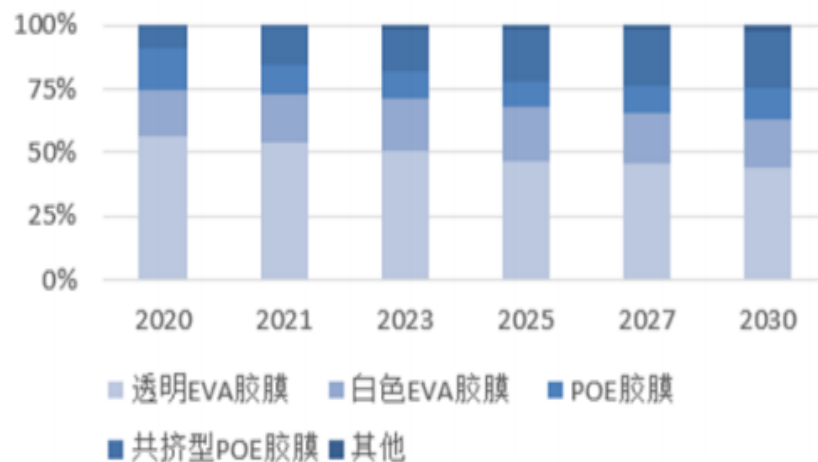
新型电池技术发展带来POE需求增长

- 全球光伏装机有望维持高增长，新型电池技术发展有望带来POE需求增长。Perc电池封装以EVA胶膜为主；而新型太阳能电池技术（如Topcon、异质结等）大多采用N型硅片，具有更高的抗PID性能要求，POE胶膜潜在需求增加；
- 如果我们按照TOPCon双面均用POE胶膜封装计算，2022-2025年光伏POE需求分别为19/45/75/103万吨。

图：光伏组件及胶膜结构示意图



图：2020-2030年不同封装材料市场占比趋势



资料来源：海优新材2022年年报，HTI

资料来源：海优新材2022年年报援引中国光伏行业协会，HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

- 根据2022年年报，万华化学规划在烟台实施的120万吨/年乙烯及下游高端聚烯烃项目已于2022年8月通过核准；
- 根据2023年半年报，公司稳步推进POE等新兴业务产业化进程。

- 2022年底国内PC合计产能约327万吨/年，新增产能70万吨。在国内产能增长下，结构性供应不平衡态势、市场低端价格竞争局面仍存；
- 2022年，PC在行业扩能的过程中，也呈现产业链一体化加快发展的态势，推动产品多元化生产，满足细分市场的需求。

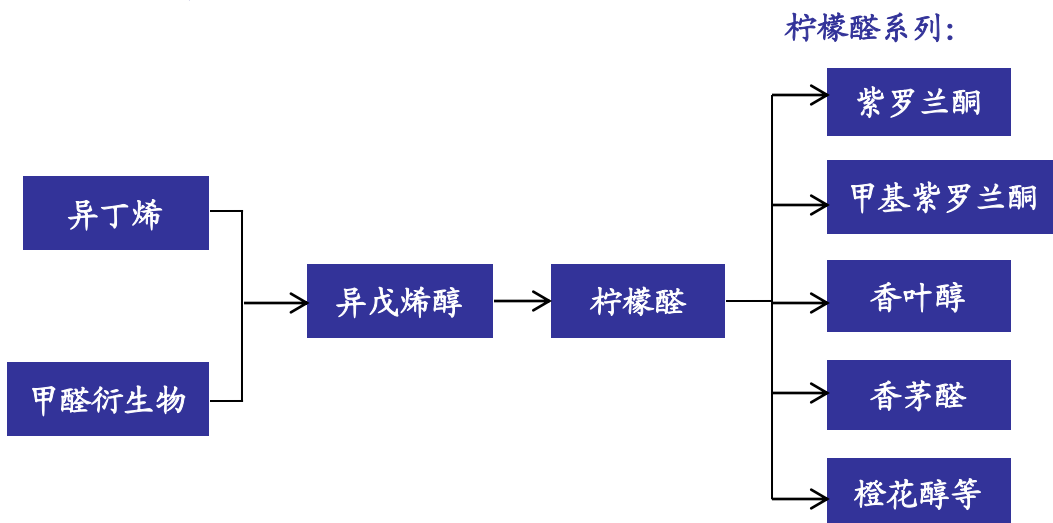
万华双酚A投产，高端占比进一步提升

- 根据万华化学2022年年报，烟台工业园PC项目产能24万吨/年。根据2023年半年报，随着公司双酚A项目的投产，万华化学PC产业链配套更加完善，市场份额和盈利能力进一步提升；
- 根据万华化学2022年年报，PC产业链高端产品占比进一步提升。硅共聚PC等自主研发装置一次性开车成功，新推出高端医疗级PC。

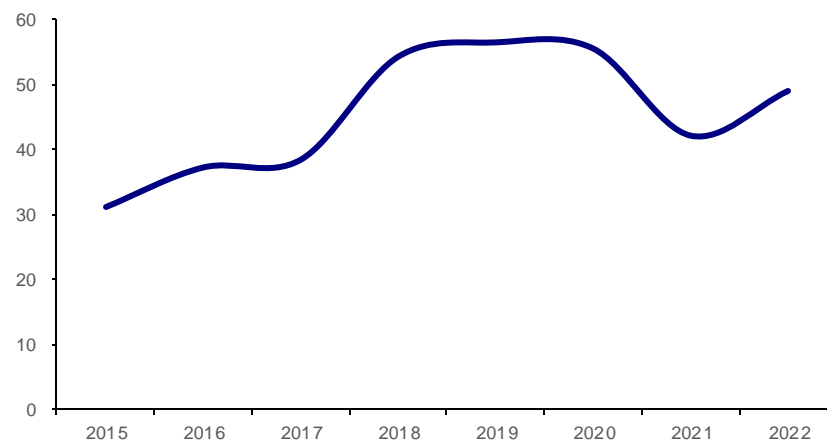
柠檬醛系列应用广泛，生产壁垒较高

- 柠檬醛系列（包括柠檬醛、紫罗兰酮、甲基紫罗兰酮、香叶醇、香茅醛、橙花醇）是典型的大宗香料，在日化和食品领域应用广泛；
- 这类大宗香料基本上由化学合成得到，由于合成路线长，产品质量容易波动；重要中间体合成难度大，生产成本不易控制；关键反应选择性差，香气品质难以调控。

图：新和成柠檬醛合成路线



图：新和成香精香料2015-2022年毛利率（%）



资料来源：中国轻工业联合会，HTI

资料来源：Wind，HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

- 根据新和成2022年年报，香精香料包括香料（合成香料、天然香料）和香精（日化香精、食用香精、烟用香精等），应用于个人护理、家庭护理、食品、饮料等各种日常生活场景。全球市场规模约350亿美元，行业保持长期稳定增长；
- 根据新和成2022年年报，中国香料香精市场规模占全球市场约五分之一，已成为全球最主要的香料供应国和香精消费国及生产基地，这也为我国香料香精行业的发展注入了动力和活力。

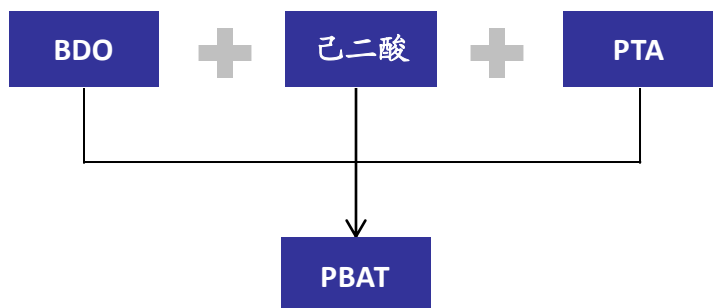
资料来源：新和成2022年年报，HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

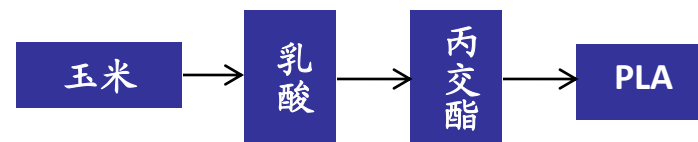
- 根据2021年烟台市生态环境局【万华化学集团股份有限公司柠檬醛及其衍生物一体化项目】环评公示，万华化学新建12.4万吨/年异戊烯醇装置、3.0万吨/年异戊烯醛装置、4.8万吨/年柠檬醛装置和2.5万吨/年柠檬醛衍生物装置。根据2023年半年报公司稳步推进柠檬醛、香精香料等新兴业务产业化进程；
- 香精香料和营养化学品货值高，但客户需求量小，对于业务产线健全，能够提供尽可能一站式供货能力的企业更有利于维护客户的稳定性和产品协同性带来的经济效益，具有更强的竞争优势。

- 万华化学董事长廖增太在2023年全国两会提出建议：
 - 1、建立全生物可降解塑料白名单，健全行业标准体系，规范行业监管标准；
 - 2、扩大试点地区及领域，加强生物可降解材料推广力度；
 - 3、建立完善生物可降解塑料废弃物收运处置体系。

图：PBAT产业链



图：PLA产业链



资料来源：万华化学官网，百川盈孚，HTI

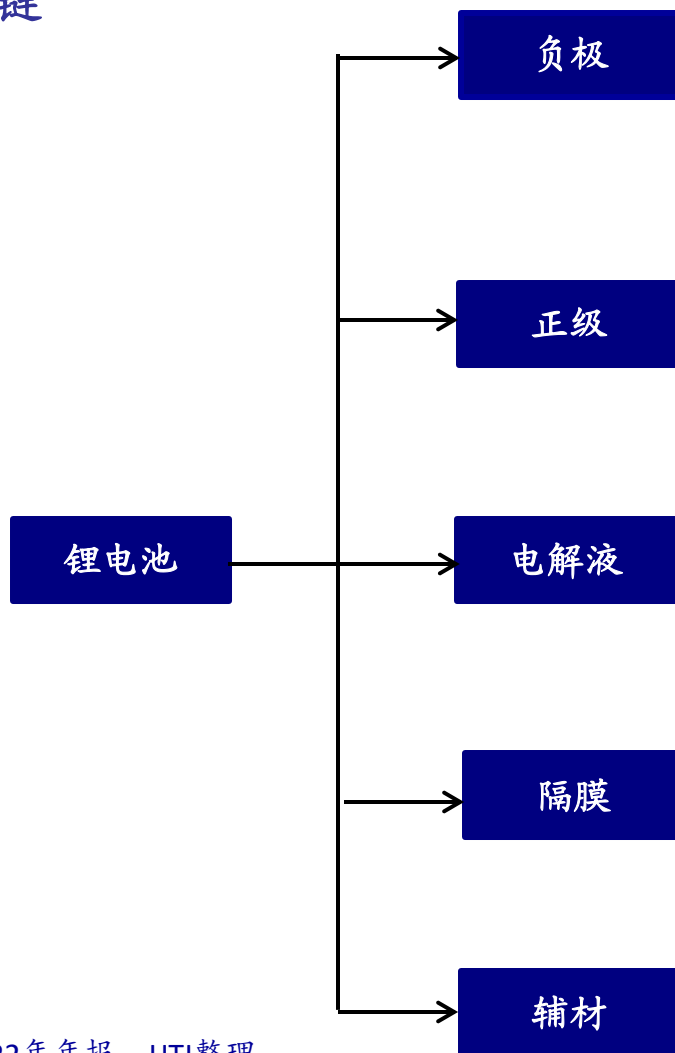
- 2022年，四川基地克服多重困难，项目建设稳步推进。9月工业园首套一体化、大规模BDO装置成功产出合格产品，为四川工业园可降解材料产业提供了原料保障；
- 在低碳技术开发方面，推动可降解地膜与苹果反光膜等可降解材料的示范工程的实施。

- (1) 监管政策不确定；
- (2) 生产成本过高；
- (3) 不具备成熟的可降解条件。

资料来源：《可降解塑料发展现状及趋势研究》，王维；HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

图：电池材料产业链



资料来源：星源材质2022年年报，HTI整理

- 根据2022年度股东大会会议资料，通过六氟磷酸锂等一系列项目建设，万华化学将发挥自身的化学品制造优势，抢抓电池材料行业发展机遇，2023年电池材料项目计划投资33.4亿元；
- 2024年2月26日，根据万华化学《股权变更框架协议》进展公告，公司通过万华化学全资子公司直接受让铜化集团所持有的安纳达部分股权，交易总金额4.15亿元。本次交易完成后，万华电池将完善上游原料产业链，增强在电池产业尤其是磷酸铁锂产业的核心竞争力；
- 电池材料通过不断工艺优化和新技术、新产品开发，打造公司第二增长曲线。

- 根据公司2023年度业绩快报公告，我们调整公司2023-2025年归母净利润分别为168.14、226.57、255.43亿元（原值分别为175.67、236.04、276.37亿元），对应EPS分别为5.36、7.22、8.14元/股，由于公司为MDI行业龙头给予一定估值溢价，给予2024年14.1倍PE，目标价101.84元，维持“优于大市”评级。
- 盈利预测主要假设：
 - （1）万华福建40万吨/年MDI装置于2022年12月22日一次开车成功，装置生产平稳运行；120万吨/年二期乙烯项目正在建设并向下游高端聚烯烃延伸。假设从2023年起逐步贡献盈利，公司聚氨酯、石化、精细化学品及新材料板块收入提升；
 - （2）假设随着下游需求逐步改善和公司一体化降本增效，公司聚氨酯、石化、精细化学品及新材料毛利率逐步提升；
 - （3）假设在建项目2023-2025年逐步投产。

资料来源：Wind，HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

盈利预测及投资建议

表：公司业绩拆分

产品	项目	2022	2023E	2024E	2025E
聚氨酯系列	营业收入（百万元）	62896	62267	71519	80152
	营业成本（百万元）	47518	44521	48725	53440
	毛利（百万元）	15377	17745	22794	26711
	毛利率	24.45%	28.50%	31.87%	33.33%
石化系列	营业收入（百万元）	69635	71428	71814	79027
	营业成本（百万元）	67032	65778	65108	71182
	毛利（百万元）	2603	5650	6706	7844
	毛利率	3.74%	7.91%	9.34%	9.93%
精细化学品及新材料系列	营业收入（百万元）	20124	19800	29400	33325
	营业成本（百万元）	14563	15642	22932	25660
	毛利（百万元）	5561	4158	6468	7665
	毛利率	27.63%	21.00%	22.00%	23.00%
其他	营业收入（百万元）	25478	21866	24052	26458
	营业成本（百万元）	21689	18652	20685	23018
	毛利（百万元）	3789	3214	3367	3439
	毛利率	14.87%	14.70%	14.00%	13.00%

资料来源：Wind，HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

表：可比公司估值

代码	公司名称	股价（元）	EPS（元）			PE（倍）		
			2022	2023E	2024E	2022	2023E	2024E
600426.SH	华鲁恒升	27.22	2.96	2.04	2.85	11.19	13.37	9.55
600486.SH	扬农化工	54.13	5.79	3.88	4.66	17.95	13.94	11.61
	均值						13.66	10.58

资料来源：Wind，HTI，股价为2024年3月4日收盘价，每股收益为Wind一致预期

财务报表分析和预测

主要财务指标	2022	2023E	2024E	2025E
每股指标 (元)				
每股收益	5.17	5.36	7.22	8.14
每股净资产	24.47	28.23	35.45	43.58
每股经营现金流	11.57	9.60	11.41	15.24
每股股利	1.60	1.80	1.80	1.80
价值评估 (倍)				
P/E	14.73	14.22	10.55	9.36
P/B	3.11	2.70	2.15	1.75
P/S	1.44	1.36	1.21	1.09
EV/EBITDA	11.39	9.43	7.47	6.57
股息率%	2.1%	2.4%	2.4%	2.4%
盈利能力指标 (%)				
毛利率	16.6%	17.5%	20.0%	20.9%
净利润率	9.8%	9.6%	11.5%	11.7%
净资产收益率	21.1%	19.0%	20.4%	18.7%
资产回报率	8.1%	7.4%	8.7%	8.8%
投资回报率	11.9%	11.3%	12.9%	12.6%
盈利增长 (%)				
营业收入增长率	13.8%	5.9%	12.2%	11.3%
EBIT 增长率	-34.6%	9.3%	33.7%	11.8%
净利润增长率	-34.1%	3.6%	34.8%	12.7%
偿债能力指标				
资产负债率	59.5%	58.5%	55.0%	50.7%
流动比率	0.54	0.40	0.43	0.45
速动比率	0.32	0.21	0.21	0.26
现金比率	0.20	0.07	0.05	0.11
经营效率指标				
应收账款周转天数	19.25	18.37	18.68	18.67
存货周转天数	47.52	43.52	45.14	45.00
总资产周转率	0.85	0.82	0.81	0.79
固定资产周转率	2.30	1.98	1.88	1.87

利润表 (百万元)	2022	2023E	2024E	2025E
营业总收入	165565	175361	196786	218961
营业成本	138132	144593	157451	173301
毛利率%	16.60%	17.50%	20.00%	20.90%
营业税金及附加	913	1106	1180	1318
营业税金率%	0.60%	0.60%	0.60%	0.60%
营业费用	1153	1347	1449	1621
营业费用率%	0.70%	0.80%	0.70%	0.70%
管理费用	1966	2806	3149	4379
管理费用率%	1.20%	1.60%	1.60%	2.00%
EBIT	20600	22521	30110	33665
财务费用	1235	2276	2904	3103
财务费用率%	0.70%	1.30%	1.50%	1.40%
资产减值损失	-192	-389	-385	-344
投资收益	408	485	545	595
营业利润	19839	20348	27377	30828
营业外收支	-298	-331	-335	-325
利润总额	19541	20018	27042	30503
EBITDA	29953	33032	42585	47848
所得税	2499	2596	3542	3966
有效所得税率%	12.80%	13.00%	13.10%	13.00%
少数股东损益	808	608	843	994
归属母公司所有者净利润	16234	16814	22657	25543

资料来源: Wind, HTI,

备注: 表中计算估值指标的股价为2024年3月4日收盘价

财务报表分析和预测

现金流量表 (百万元)	2022	2023E	2024E	2025E
净利润	16234	16814	22657	25543
少数股东损益	808	608	843	994
非现金支出	9610	10900	12860	14527
非经营收益	864	2589	2864	2973
营运资金变动	8821	-776	-3396	3799
经营活动现金流	36337	30136	35828	47836
资产	-32614	-42861	-37577	-39003
投资	-2144	-2240	-2323	-2291
其他	434	485	545	595
投资活动现金流	-34325	-44617	-39355	-40700
债权募资	-6310	10500	5551	3021
股权募资	850	0	0	0
其他	-11727	-7774	-3085	-3258
融资活动现金流	-17188	2726	2466	-237
现金净流量	-15202	-11755	-1061	6899

资产负债表 (百万元)	2022	2023E	2024E	2025E
货币资金	18989	7234	6173	13072
应收账款及应收票据	9060	8834	11591	11123
存货	18185	16772	22715	20607
其它流动资产	5298	9791	9923	10218
流动资产合计	51532	42631	50403	55020
长期股权投资	6229	8469	10792	13083
固定资产	78558	98668	111232	123499
在建工程	37064	43109	49718	56323
无形资产	9980	12489	14590	16809
非流动资产合计	149311	183189	209905	236362
资产总计	200843	225820	260308	291383
短期借款	44019	54019	59019	61019
应付票据及应付账款	24205	23883	28561	28838
预收账款	0	0	0	0
其它流动负债	26792	29192	29952	31192
流动负债合计	95017	107095	117532	121050
长期借款	15968	16469	17020	18040
其它长期负债	8521	8521	8521	8521
非流动负债合计	24489	24989	25540	26561
负债总计	119506	132084	143072	147610
实收资本	3140	3140	3140	3140
归属于母公司所有者权益	76845	88635	111293	136835
少数股东权益	4492	5100	5943	6937
负债和所有者权益合计	200843	225820	260308	291383

资料来源: Wind, HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

- 风险提示:

产品价格大幅下跌；新建项目进度不及预期。

APPENDIX 2

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，刘威，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。我和我的家属（我已经告知他们）将不会在本研究报告发布后的3个工作日内交易此研究报告所讨论目标公司的证券。I, Wei Liu, 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. I and my household, whom I have already notified of this, will not deal in or trade any securities in respect of the issuer that I review within 3 business days after the research report is published.

我，庄怀超，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。我和我的家属（我已经告知他们）将不会在本研究报告发布后的3个工作日内交易此研究报告所讨论目标公司的证券。I, Huaichao Zhuang, 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. I and my household, whom I have already notified of this, will not deal in or trade any securities in respect of the issuer that I review within 3 business days after the research report is published.

APPENDIX 2

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).

688680.CH, 新和成控股集团有限公司 及 600486.CH 目前或过去12个月内是海通的客户。海通向客户提供非投资银行业务的证券相关业务服务。

688680.CH, 新和成控股集团有限公司 and 600486.CH are/were a client of Haitong currently or within the past 12 months. The client has been provided for non-investment-banking securities-related services.

海通在过去的12个月中从688680.CH 及 新和成控股集团有限公司 获得除投资银行服务以外之产品或服务的报酬。

Haitong has received compensation in the past 12 months for products or services other than investment banking from 688680.CH and 新和成控股集团有限公司.

APPENDIX 2

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 indicated below.

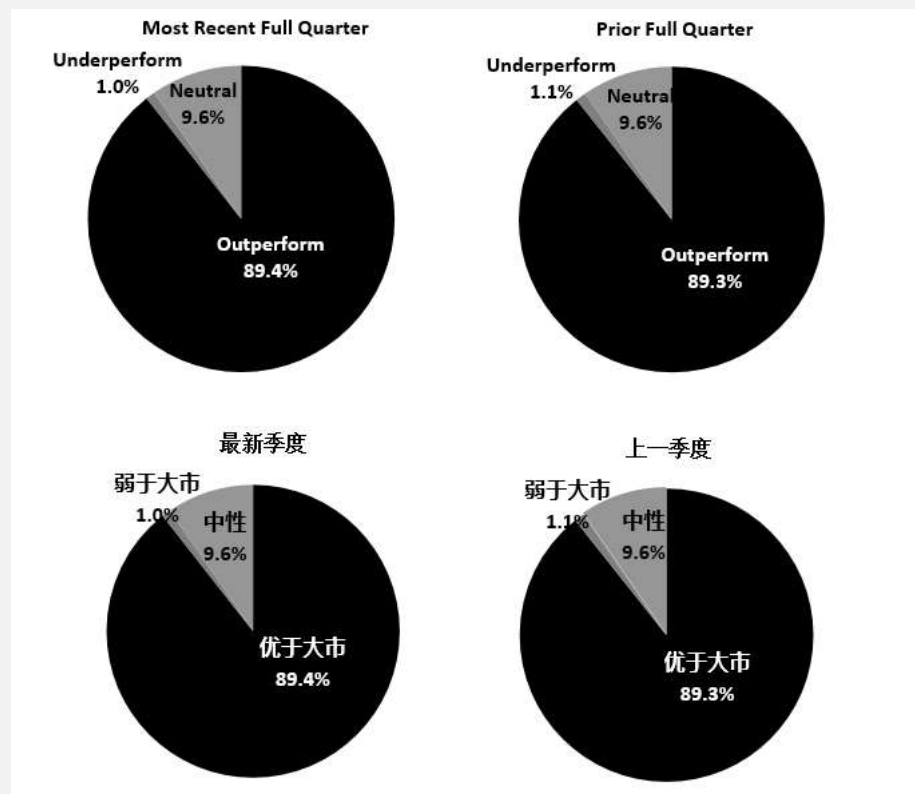
Neutral: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

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.

APPENDIX 2

评级分布 Rating Distribution



APPENDIX 2

截至2023年12月31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%	9.6%	1.0%
投资银行客户*	3.9%	5.1%	5.6%

*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 December 31, 2023

	Outperform	Neutral (hold)	Underperform
HTI Equity Research Coverage	89.4%	9.6%	1.0%
IB clients*	3.9%	5.1%	5.6%

*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.

APPENDIX 2

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.

APPENDIX 2

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.

APPENDIX 2

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声明或保证。本文件中所有观点均截至本报告日期，如有更改，恕不另行通知。本文件仅供参考使用。文件中提及的任何公司或其股票的说明并非意图展示完整的内容，本文件并非/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除外，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 and 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。

APPENDIX 2

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.

APPENDIX 2

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.

APPENDIX 2

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

APPENDIX 2

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:

APPENDIX 2

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、广告或公开发售。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

APPENDIX 2

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”）第03/1102、03/1103或03/1099号规章在澳大利亚分发本项研究，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。

研究机构名称: Haitong Securities India Private Limited

SEBI 研究分析师注册号: INH000002590

地址: 1203A, Floor 12A, Tower 2A, One World Center

841 Senapati Bapat Marg, Elphinstone Road, Mumbai 400 013, India

CIN U74140MH2011FTC224070

电话: +91 22 43156800 传真: +91 22 24216327

合规和申诉办公室联系人: Prasanna Chandwaskar ; 电话: +91 22 43156803; 电子邮箱: prasanna.chandwaskar@htisec.com

“请注意，SEBI 授予的注册和 NISM 的认证并不保证中介的表现或为投资者提供任何回报保证”。

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。

APPENDIX 2

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:

APPENDIX 2

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 Class Order 03/1102, 03/1103 or 03/1099, respectively, 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").

Name of the entity: Haitong Securities India Private Limited
SEBI Research Analyst Registration Number: INH000002590

APPENDIX 2

Address : 1203A, Floor 12A, Tower 2A, One World Center

841 Senapati Bapat Marg, Elphinstone Road, Mumbai 400 013, India

CIN U74140MH2011FTC224070

Ph: +91 22 43156800 Fax:+91 22 24216327

Details of the Compliance Officer and Grievance Officer : Prasanna Chandwaskar : Ph: +91 22 43156803; Email id: prasanna.chandwaskar@htisec.com

“Please note that Registration granted by SEBI and Certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors”.

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.

<http://equities.htisec.com/x/legal.html>