

## 德邦科技 Darbond Technology (688035 CH)

### 深耕高端电子封装材料，扩产动力电池等封装材料强化领先优势

### Deeply Cultivate High-End Electronic Packaging Materials, Expand Production of Power Batteries and Other Packaging Materials to Strengthen the Leading Edge

刘威 Wei Liu

wei.liu@htisec.com

热点速评 Flash Analysis

(Please see APPENDIX 1 for English summary)

- 公司深耕高端电子封装材料行业，下游应用领域广泛。**公司主要产品包括集成电路封装材料、智能终端封装材料、新能源应用材料、高端装备应用材料四大类别，产品形态主要有电子级粘合剂和功能性薄膜材料。公司的芯片固晶材料和晶圆 UV 膜等产品已实现对国内多家知名集成电路封测企业批量供应，聚氨酯热熔胶、共型覆膜、紫外光固化胶等是歌尔股份、立讯精密、华勤技术等知名 OEM/ODM 厂商的核心供应商，光伏叠晶材料是通威太阳能等知名光伏组件制造企业的批量供应商，双组份聚氨酯结构胶是宁德时代等知名动力电池制造商采购量处于前列的供应商。
- 公司营业收入及净利润实现快速增长。**2018-2022H1 年公司营业收入分别为 1.97、3.27、4.17、5.84、3.76 亿元，2019-2022H1 同比增长 65.92%、27.51%、40.07%、59.69%。2018-2022H1 年公司实现归母净利润为 -0.02、0.36、0.5、0.76、0.44 亿元，2019-2020 年同比增长 2212.36%、40.33%、51.32%、81.22%。同时公司预计 2022 年 1-9 月营业收入 6.2-6.5 亿元，同比增长 59.23%至 66.89%；公司预计 2022 年 1-9 月归母净利润 8000 万元至 9100 万元，同比增长 60.35%至 82.40%。公司营业收入快速增长主要得益于下游行业客户需求不断增长，对公司产品的采购额大幅增长所致，特别是随着下游新能源汽车行业的持续快速发展，公司动力电池封装材料产品销售收入实现较快增长。
- 公司同时受益于下游需求持续增长及进口替代加速进行。**新能源汽车动力电池领域，双组份聚氨酯结构胶等动力电池封装材料主要用于电池电芯、电池模组、电池 Pack 起到粘接固定、导热散热、绝缘保护等作用，在动力电池大模组化、无模组化的发展趋势下，传统结构件已不再适用，动力电池封装材料是取代传统结构件实现动力电池轻量化、高可靠性的关键材料之一。公司动力电池封装材料已陆续通过宁德时代、比亚迪、中航锂电、国轩高科、蜂巢能源等众多动力电池头部企业验证测试，并持续配合下游客户前沿性的应用技术需求，快速迭代研发，产品具有较强的竞争优势、市场份额处于前列。
- 公司募集资金 16.4 亿元用于扩产高端电子封装材料，强化行业领先优势。**2022 年公司募集资金 16.4 亿元用于高端电子专用材料生产项目、年产 35 吨半导体电子封装材料建设项目、新建研发中心建设项目。1) 高端电子专用材料生产总投资 3.87 亿元，项目实施完成后，可实现年产封装材料 8800 吨动力电池封装材料、200 吨集成电路封装材料、350 万平方米集成电路封装材料、2000 卷导热材料的生产能力。2) 年产 35 吨半导体电子封装材料建设项目总投资 1.33 亿元，项目实施完成后，可实现年产半导体芯片与系统封装用电子封装材料 15 吨、光伏叠晶材料 20 吨的产能。
- 风险提示：**宏观经济环境变化风险；下游需求低于预期；公司新产能扩产低于预期。

一、公司深耕高端电子封装材料行业，是国家级专精特新重点“小巨人”企业

公司深耕高端电子封装材料行业，下游应用领域广泛。公司主要产品包括集成电路封装材料、智能终端封装材料、新能源应用材料、高端装备应用材料四大类别，产品形态主要有电子级粘合剂和功能性薄膜材料，广泛应用于集成电路封装、智能终端封装和新能源应用等新兴产业领域。公司销售的产品类型多达上百种类别、约五千种型号。公司的芯片固晶材料和晶圆 UV 膜等产品已实现对国内多家知名集成电路封测企业批量供应，聚氨酯热熔胶、共型覆膜、紫外光固化胶等是歌尔股份、立讯精密、华勤技术等知名 OEM/ODM 厂商的核心供应商，光伏叠晶材料是通威太阳能等知名光伏组件制造企业的批量供应商，双组份聚氨酯结构胶是宁德时代等知名动力电池制造商采购量处于前列的供应商。

图1 公司主要产品布局情况



资料来源：公司招股书，海通国际

公司成立于 2003 年，2003-2010 年，公司主要经营工业制造、汽车、矿山等领域的配套粘接材料。2011-2016 年，公司引入以陈田安为首的核心研发团队及国家大基金后逐步战略转型，布局新产品领域，科研实力及市场环境大幅加强，逐步与高端客户接触并送样测试。2017 年至今，公司在 LED 封装材料、通讯应用材料及高端装备应用材料等产品的基础上不断研发新的产品，开发新的应用领域，从新能源逐步拓展到集成电路、智能终端领域，形成完善的产品应用体系，形成了覆盖晶圆加工、芯片级封装、功率器件封装、板级封装、模组及系统集成封装等不同的封装工艺环节和应用场景的全产品体系。

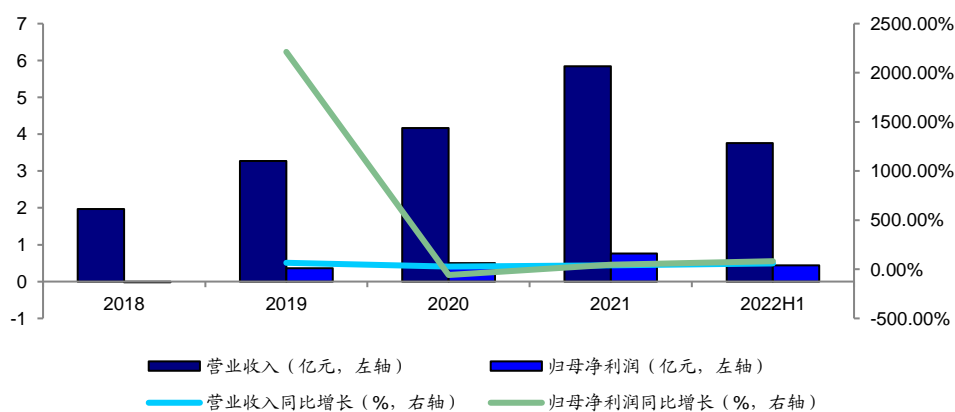
图2 公司发展历程



资料来源：公司招股书，海通国际

公司营业收入及净利润实现快速增长。2018-2022H1 年公司营业收入分别为 1.97、3.27、4.17、5.84、3.76 亿元，2019-2022H1 同比增长 65.92%、27.51%、40.07%、59.69%。2018-2022H1 年公司实现归母净利润为-0.02、0.36、0.5、0.76、0.44 亿元，2019-2020 年同比增长 2212.36%、40.33%、51.32%、81.22%。同时公司预计 2022 年 1-9 月营业收入 6.2-6.5 亿元，同比增长 59.23%至 66.89%；预计 2022 年 1-9 月归母净利润 8000 万元至 9100 万元，同比增长 60.35%至 82.40%。公司营业收入快速增长主要得益于下游行业客户需求不断增长，对公司产品的采购额大幅增长所致，特别是随着下游新能源汽车行业的持续快速发展，公司动力电池封装材料产品销售收入实现较快增长。

图3 营业收入与归母净利润实现快速增长

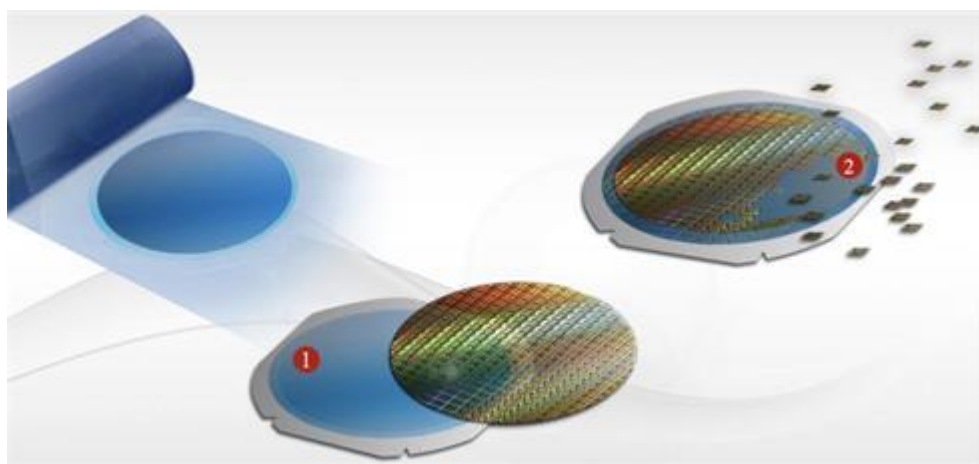


资料来源：Wind，海通国际

## 二、公司同时受益于下游需求持续增长及进口替代加速进行

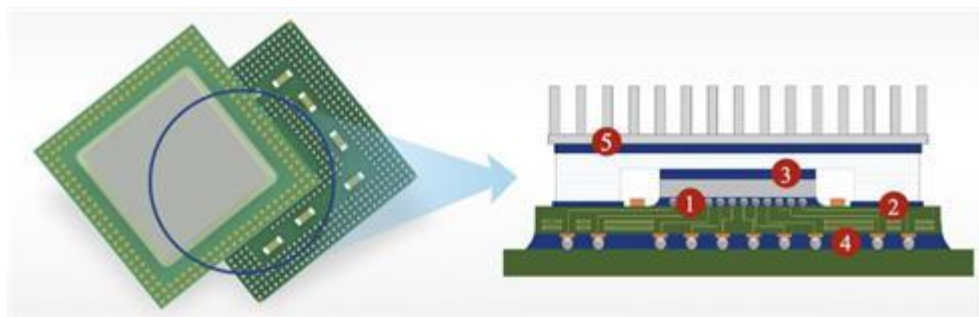
**集成电路封装材料有望逐步实现进口替代。**公司集成电路封装材料主要包括芯片级封装系列产品、晶圆级封装系列产品、板级封装系列产品。公司芯片级封装系列产品主要为芯片固晶导电胶、芯片固晶绝缘胶等芯片固晶材料；公司晶圆级封装系列产品主要为晶圆 UV 膜，是用于半导体晶圆制造过程中切割、划片的关键材料之一；公司板级封装系列产品主要为板级封装用导热垫片等导热界面材料、SMT 贴片胶、板级底部填充胶等。公司的芯片固晶导电胶等芯片固晶材料产品，覆盖 MOS、QFN、QFP、BGA 和存储器等多种封装形式，已通过华天科技、长电科技等国内多家知名集成电路封测企业验证测试，并实现批量供货。公司的晶圆 UV 膜产品从制胶、基材膜到涂覆均拥有完全自主知识产权，亦已在华天科技、长电科技、日月新等国内多家知名集成电路封测企业通过产品认证并批量供货。公司的芯片级底部填充胶、Lid 框粘接材料、芯片级导热界面材料等产品目前正在配合国内领先芯片半导体企业进行验证测试。

图4 晶圆级封装材料



资料来源：公司招股书，海通国际

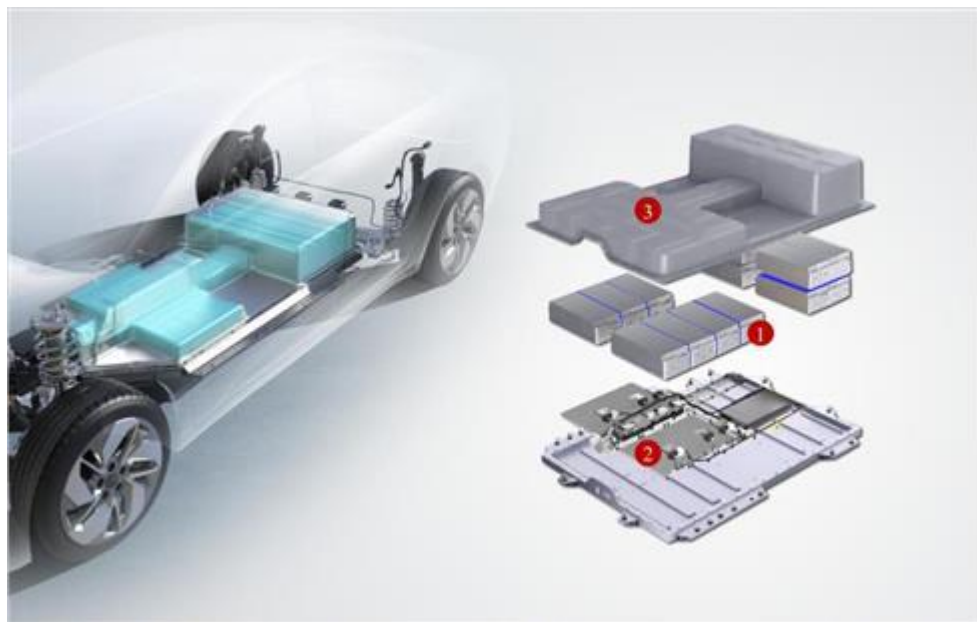
图5 芯片级封装材料及板级封装材料应用示意



资料来源：公司招股书，海通国际

**动力电池封装材料需求持续快速增长。**新能源汽车动力电池领域，双组份聚氨酯结构胶等动力电池封装材料主要用于电池电芯、电池模组、电池 Pack 起到粘接固定、导热散热、绝缘保护等作用，在动力电池大模组化、无模组化的发展趋势下，传统结构件已不再适用，动力电池封装材料是取代传统结构件实现动力电池轻量化、高可靠性的关键材料之一。公司动力电池封装材料已陆续通过宁德时代、比亚迪、中航锂电、国轩高科、蜂巢能源等众多动力电池头部企业验证测试，并持续配合下游客户前沿性的应用技术需求，快速迭代研发，产品具有较强的竞争优势、市场份额处于前列。

图6 动力电池封装材料



资料来源：公司招股书，海通国际



### 三、公司募集资金 16.4 亿元用于扩产高端电子封装材料，强化行业领先优势

**公司募集资金 16.4 亿元用于扩产高端电子封装材料，强化行业领先优势。**2022 年公司募集资金 16.4 亿元用于高端电子专用材料生产项目、年产 35 吨半导体电子封装材料建设项目、新建研发中心建设项目。1) 高端电子专用材料生产总投资 3.87 亿元，项目实施完成后，可实现年产封装材料 8800 吨动力电池封装材料、200 吨集成电路封装材料、350 万平方米集成电路封装材料、2000 卷导热材料的生产能力。2) 年产 35 吨半导体电子封装材料建设项目总投资 1.33 亿元，项目实施完成后，可实现年产半导体芯片与系统封装用电子封装材料 15 吨、光伏叠晶材料 20 吨的产能。公司对动力电池用聚氨酯复合材料和晶圆 UV 膜等封装材料进行扩产，将进一步提升公司产品生产质量及供货能力，从而提高公司产品市场占有率和盈利能力

**表 1 募集资金投资项目**

项目名称	项目内容	项目总投资
高端电子专用材料生产项目	实现年产封装材料 8800 吨动力电池封装材料、200 吨集成电路封装材料、350 万平方米集成电路封装材料、2000 卷导热材料的生产能力	3.87 亿元
年产 35 吨半导体电子封装材料建设项目	实现年产半导体芯片与系统封装用电子封装材料 15 吨、光伏叠晶材料 20 吨的产能	1.34 亿元

资料来源：公司招股书，海通国际

## APPENDIX 1

## Summary

- The company is deeply engaged in the high-end electronic packaging materials industry, and has a wide range of downstream applications.** The company's main products include integrated circuit packaging materials, intelligent terminal packaging materials, new energy application materials, high-end equipment application materials four categories, product forms mainly electronic grade adhesives and functional thin film materials. The company's chip solid crystal materials and wafer UV film and other products have achieved batch supply to many well-known domestic integrated circuit packaging and testing enterprises, polyurethane hot melt adhesive, co-type laminated film, UV curing adhesive, etc. are the core suppliers of Goertek, Luxshare Precision Industry, Huaqin Technology and other well-known OEM/ODM manufacturers, photovoltaic stacking materials are the batch suppliers of well-known photovoltaic module manufacturing enterprises such as Tongwei Solar, and two-component polyurethane structural adhesives are the suppliers of well-known power cell manufacturers such as Contemporary Amperex Technology in the forefront of procurement.
- The company's operating income and net profit achieved rapid growth.** From 2018 to 2022H1, the company's operating income was Rmb197, 327, 417, 584 and 376mn, respectively, and from 2019 to 2022H1, the company's operating income increased by 65.92%, 27.51%, 40.07% and 59.69% year-on-year respectively. From 2018 to 2022H1, the company's net profit was Rmb-2, 36, 50, 76 and 44mn, an increase of 2212.36%, 40.33%, 51.32% and 81.22% year-on-year from 2019 to 2020. At the same time, the company expects the operating income of Rmb620-650mn from January to September 2022, an increase of 59.23% to 66.89% year-on-year. It is expected that the net profit from January to September 2022 will be Rmb80 – 91mn, an increase of 60.35% to 82.40% year-on-year. The rapid growth of the company's operating income is mainly due to the growing customer demand in the downstream industry, the purchase of the company's products has increased significantly, especially with the sustained and rapid development of the downstream new energy automobile industry, the company's power battery packaging materials sales revenue has achieved rapid growth.
- The Company also benefits from continued growth in downstream demand and accelerated import substitution.** In the new energy vehicle power battery field, two-component polyurethane structural adhesive and other power battery packaging materials are mainly used for battery cells, battery modules, battery packs play a role in bonding and fixing, thermal conductivity, heat dissipation, insulation protection, etc., under the development trend of power battery large module, no module, the traditional structural parts are no longer applicable, power battery packaging materials are one of the key materials to replace the traditional structural parts to achieve power battery lightweight, high reliability. The company's power battery packaging materials have successively passed the verification test of many power battery head enterprises such as Contemporary Amperex Technology, BYD, AVIC Lithium Battery, Gotion High-Tech, Hive Energy, etc., and continue to cooperate with the cutting-edge application technology needs of downstream customers, rapid iterative research and development, and the products have strong competitive advantages and market share are in the forefront.
- The company raised funds of Rmb1.64bn for the expansion of high-end electronic packaging materials, strengthening the industry's leading edge.** In 2022, the company raised funds of Rmb1.64bn for high-end electronic special materials production projects, annual output of 35 tons of semiconductor electronic packaging materials construction projects, new research and development center construction projects. 1) The total investment in the production of high-end electronic special materials is Rmb387mn, and after the completion of the project, the annual output of packaging materials 8800 tons of power battery packaging materials, 200 tons of integrated circuit packaging materials, 3.5 million square meters of integrated circuit packaging materials, 2000 volumes of thermal conductive materials can be realized. 2) The total investment of the construction project of semiconductor electronic packaging materials with an annual output of 35 tons is Rmb133mn, and after the completion of the project, the annual output of electronic packaging materials for semiconductor chips and system packaging is 15 tons, and the production capacity of photovoltaic stacked crystal materials is 20 tons.
- Risk:** Changes in the macroeconomic environment; Downstream demand is lower than expected; The company's new capacity expansion was lower 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，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。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.

### 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).

海通证券股份有限公司和/或其子公司（统称“海通”）在过去 12 个月内参与了 002594.CH 的投资银行项目。投资银行项目包括：1、海通担任上市前辅导机构、保荐人或主承销商的首次公开发行项目；2、海通作为保荐人、主承销商或财务顾问的股权或债务再融资项目；3、海通作为主经纪商的新三板上市、目标配售和并购项目。

Haitong Securities Co., Ltd. and/or its subsidiaries (collectively, the "Haitong") have a role in investment banking projects of 002594.CH within the past 12 months. The investment banking projects include 1. IPO projects in which Haitong acted as pre-listing tutor, sponsor, or lead-underwriter; 2. equity or debt refinancing projects of 002594.CH for which Haitong acted as sponsor, lead-underwriter or financial advisor; 3. listing by introduction in the new three board, target placement, M&A projects in which Haitong acted as lead-brokerage firm.

作为回报，海通拥有 002074.CH 一类普通股证券的 1%或以上。

The Haitong beneficially owns 1% or more of a class of common equity securities of 002074.CH.

002594.CH 及 002074.CH 目前或过去 12 个月内是海通的投资银行业务客户。

002594.CH and 002074.CH are/were an investment bank clients of Haitong currently or within the past 12 months.

江西一诺新材料有限公司目前或过去 12 个月内是海通的客户。海通向客户提供非证券业务服务。

江西一诺新材料有限公司 is/was a client of Haitong currently or within the past 12 months. The client has been provided for non-securities services.

海通在过去 12 个月中获得对 002594.CH 提供投资银行服务的报酬。

Haitong received in the past 12 months compensation for investment banking services provided to 002594.CH.

海通预计将（或者有意向）在未来三个月内从 002594.CH 及 002074.CH 获得投资银行服务报酬。

Haitong expects to receive, or intends to seek, compensation for investment banking services in the next three months from 002594.CH and 002074.CH.

海通在过去的 12 个月中从江西一诺新材料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 江西一诺新材料有限公司.

海通担任 002594.CH 有关证券的做市商或流动性提供者。

Haitong acts as a market maker or liquidity provider in the securities of 002594.CH.



## 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

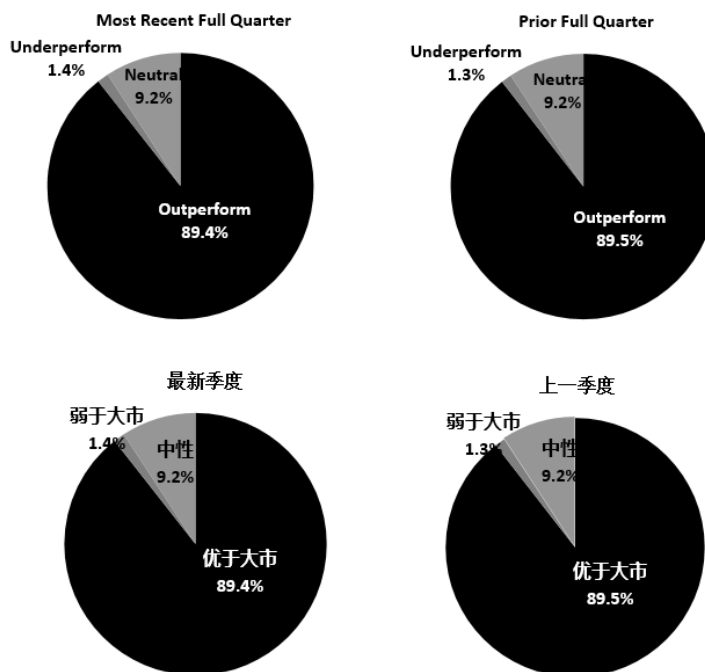
**Outperform:** The stock's total return over the next 12-18 months is expected to exceed the return of its relevant broad market benchmark, as indicated below.

**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.**

## 评级分布 Rating Distribution



## 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 及其附属公司 (「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. (“HTIJK”) 的协助下发行, HTIJK 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 (“HSIPL”) 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。HSIPL 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](http://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。

#### 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. (“HTIJK”), 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, HTISGL, HSIPL, HTIJK 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](http://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。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, 12<sup>th</sup> 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](http://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](http://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.

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

---