

中国汽车 China Autos

富士康：与 INDIEV 签署谅解备忘录，代工业务再下一城

Foxconn: Signed MOU with INDIEV, Another Move for Vehicle OEM Business

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热点速评 Flash Analysis

(Please see APPENDIX 1 for English summary)

事件

10月7日，富士康宣布与总部位于洛杉矶的电动汽车新势力 INDIEV（成立于2017年）签署谅解备忘录，将在其近期收购的俄亥俄工厂，协助为其制第一辆量产车 INDI ONE 原型车。

点评

与 INDIEV 合作制造“INDI ONE”原型车，北美业务再下一城。“INDI ONE”是 INDIEV 首款车型，于去年10月发布，根据官网资料，标准版将配备75度电池包，续航里程230mile（370km），6秒级零百加速，定价USD45k（约Rmb319k），公司预计2Q23交付，对标特斯拉Model Y。INDIEV 专注车载区块链技术，其每辆车配备车辆集成计算机，可作为区块链节点形成新型移动区块链，使车主可以在区块链交易中被被动获得收入。根据公司公告，此次谅解备忘录仅包括测试所需的原型车制造，尚未涉及成品车型量产代工。

力争“电动汽车领域 Android”，生态伙伴快速扩张。富士康最早通过收购台湾四大汽车线束厂之一“安泰电业”进入汽车行业，2019年富士康宣布“电动汽车、数字医疗、机器人”三大战略目标，正式下场造车。在电动汽车领域，基于其 MIH 开放平台，富士康逐步走出了平台授权、代工制造和自有品牌三条业务路线：

- 1) “MIH EV”平台是一个包括电动汽车软硬件的通用架构，具有模块化、定制化特点，借由开放的平台 IP、技术规格和基于此建立起的产业链生态，主机厂可以根据自身产品需求快速实现设计开发和量产，并提供组件 OTA 服务。根据鸿海披露，截止2022年3月，MIH 联盟成员超2200家，来自全球62个国家/地区的产业链玩家参与到其平台生态的建设之中。
- 2) 在代工制造领域，富士康已陆续与吉利、Fisker、Monarch Tractor、Lordstown Motors、INDIEV 签署合作协议，后4家均为美国电动汽车新势力品牌。
- 3) 在自有品牌上，2020年11月，富士康与裕隆汽车成立 Foxtron（鸿华先进）汽车品牌；2021年鸿海科技日（HHTD21）上，Foxtron 发布三款原型纯电汽车 Model C、E 和 T，分别定位 SUV、豪华轿车和电动巴士。其中 Model C 零百加速约3.8秒，零售价或低于NT\$1m（~Rmb225k），计划明年开启交付。近日，富士康发布两厢车 Model B 官方图，新车将于今年科技日与其首款皮卡车型同步发布并计划明年量产。

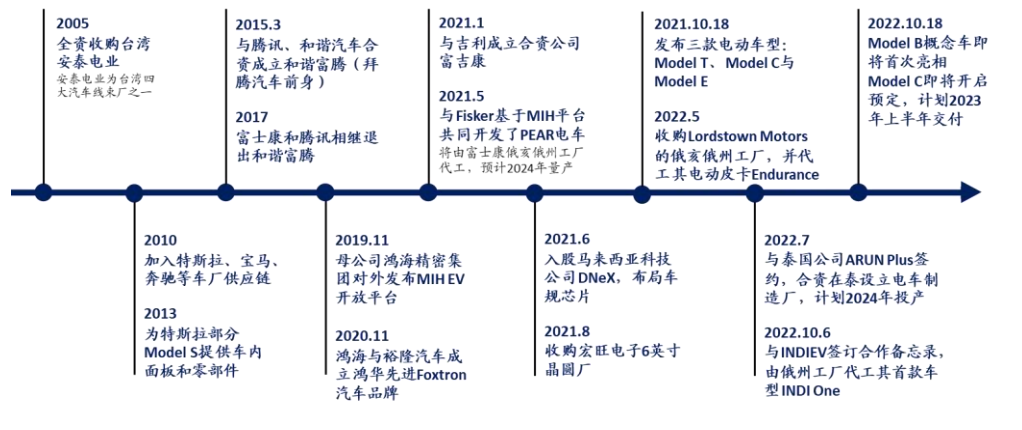
稳步推进产能和核心零部件全球布局。2021年9月，富士康与泰国 PTT 签署合资协议成立 Horizon Plus 建立电动汽车生产基地，计划2024年开始在泰国投产；2022年5月，公司以2.3亿美元收购 Lordstown Motors 位于俄亥俄州的工厂，作为其北美电动汽车生产基地；2022年9月，公司宣布与 Indika Energy 在印尼成立合资公司 Foxconn Indika Motor，负责电动汽车和电池的生产与销售。同时，在电池领域，富士康与 Gogoro、IBC、Indika、硕禾电子材料等公司建立合作；在芯片领域，2021年6月，富士康入股马来西亚科技公司 DNeX，间接拥有8英寸芯片工厂；同年8月，富士康收购宏旺电子6英寸晶圆厂。

智能电动汽车革命加速产业链重塑。新能源汽车的发展不仅带来车载智能化的快速落地和能源体系的变革，也引领了汽车产业链的重塑，ICT 产业的加入进一步加速这个进程。一方面英伟达、高通等厂商推动了芯片等智能化零部件供应商进入 Tier1 甚至 Tier0.5，另一方面代工巨头富士康借由其先进的终端制造经验和 MIH EV 开放平台，旨在为主机厂提供通用的车辆开发架构和产业生态。我们认为，MIH 联盟是汽车行业产业生态模式的一次积极探索，对于全产业链的降本提效具有正面意义；随新能源汽车竞争加剧，代工生产提供了全新的业态模式，有望加速新势力品牌量产落地，公司有望长期受益。

风险

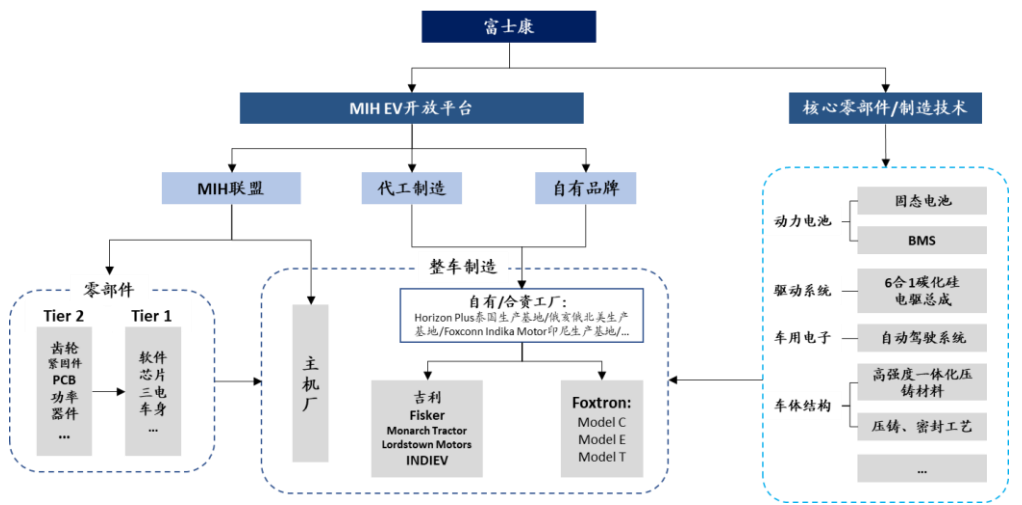
芯片及零部件短缺风险；原材料涨价风险；业务扩张不及预期等。

图表1 富士康汽车业务发展时间轴



资料来源：公司公告，海通国际整理

图表2 富士康汽车业务模式与 MIH 生态



资料来源：公司公告，HHTD20，海通国际整理

MIH 开放平台硬件架构特色：模组弹性客制、轻量一体成型、强大 EEA 架构、。

(1) 模组弹性客制:

- 3 种驱动模式：依据需求可搭载后驱、前驱、四驱 3 种驱动模式；
- 3 种电池包：电量可依据需求最佳化配置；
- 4 种级距：轴距范围 2750~3100mm，轮距范围 1590~1700mm，底盘高度 126-211mm，适应掀背、轿车、SUV、LSUV、MPV 各类车型。

图表3 MIH 模组弹性化客制

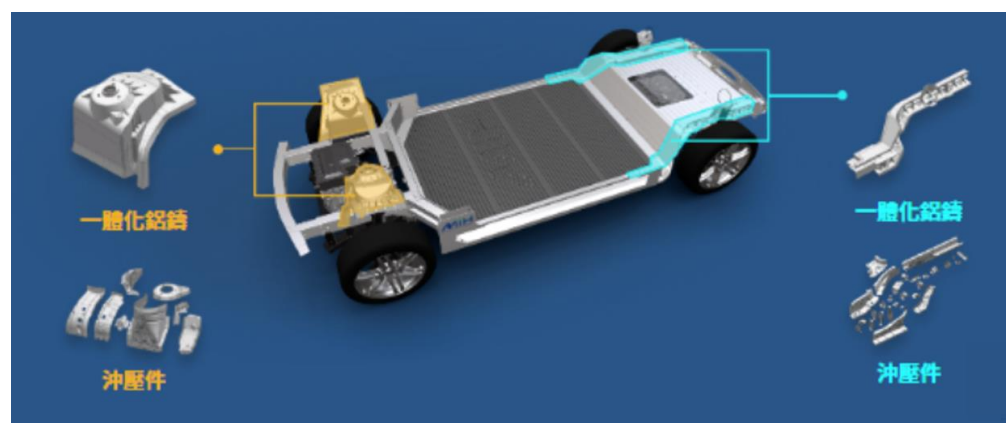
4种级距	级距	B+	C	D	E
	轴距 (mm)	2750	2860	2950	3100
3种驱动	前驱	●	○	●	●
	后驱	○	●	●	●
	四驱	○	●	●	●
3种电池包	小 ~93kWh	●			
	中 ~100kWh		●	●	
	大 ~116kWh				●
前悬挂		麦弗逊	双叉臂	双叉臂	双叉臂
后悬挂		拖曳臂	多连杆	多连杆	多连杆
电机规格		前电机单速95kW~200kW, 后电机单速150kW~240kW及2速340kW			

资料来源: HHTD20, 海通国际

(2) 轻量一体化成型:

前/后车身分别采用高张力钢板/铝金属设计, 利用一体化压铸工艺实现前减震塔零件“7合1”、后大梁零件“27合1”, 可以 1) 大幅减轻成本、重量; 2) 降低轮胎震动、噪音; 3) 优化操控体验

图表4 MIH 轻量一体化成型



资料来源: HHTD20, 海通国际

(3) 集成式 EEA 架构:

- 符合 AUTOSAR/ ISO 26262
- Ethernet 开放架构 + 5G/6G
- 整合 BCM (车身控制)、ADAS、VCU、IVI 四大域

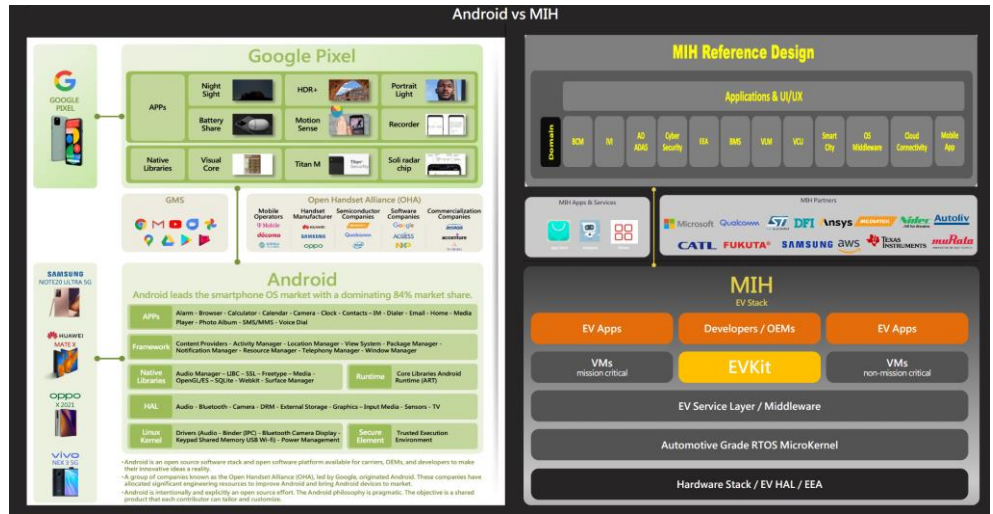
(4) 自动驾驶平台:

- 开放性: 实现共同开发
- 人本设计: 兼顾安全和操控

MIH 开放平台软件架构特色:

类比谷歌 Android 系统, MIH 平台提供车规级微内核实时操作系统和全套开发套件。基于底层硬件抽象层, 系统采用微内核实时操作系统, 在中间件之上运行至少两个虚拟机系统 (通常为涉及功能安全的 ADAS 系统和非功能安全的 IVI 智能座舱系统)。开发者在此架构之上, 利用 MIH 开发套件对不同功能进行独立设计开发和升级, 从而实现“软件定义汽车”, 并在此平台上串联起所有供应商体系, 降低全链条的开发成本和难度。

图表5 MIH 软件架构 vs 谷歌 Android



资料来源: HHTD20, 海通国际

2021年鸿海科技日, Foxtron 发布三款纯电车型 Model C、E、T。三款电动车均以 MIH EV 开放平台为核心, 注重高性能、高效能和高智能。其中 Model C 定位高性价比 SUV, 设 5-7 座, 宽敞空间充分满足家庭需求, 700 公里续航解决续航焦虑, 预计 2023 年上市交付。Model E 为 Foxtron 的豪华旗舰轿车, 与 Pininfarina 合作设计造型, 主打高端商务人群, 零百加速仅需 2.8 秒, 续航高达 750 公里, 其车身 Smart Surface 更增添人车交互感。Model T 作为纯电巴士则侧重智能应用, 外观简约, 采用一流三电系统, 最高续航 400 公里, 同时配有内轮差和盲区警示系统保障行车安全。

图表6 Model C、E、T 对比

车型	Model C	Model E	Model T
技术理念	以 MIH EV 开放平台为核心, 注重高性能、高效能、高智能		
产品概念	侧重电动车本质	侧重创新	侧重智能应用
定位	纯电平价 SUV	纯电豪华旗舰轿车	纯电巴士
外观	极简时尚、动态美感	造型设计由 Pininfarina 负责, 车头、车侧及车尾配有智能显示屏	简约科技, 侧面黑色玻璃, 节能 LED 车灯, 电子后视镜
内饰	对称式仪表盘、悬浮式中控屏	整合式屏幕, Ottoman 座椅, 注重乘客隐私	三个显示屏, 大型整合式屏幕, 48 寸信息屏幕
空间	车长 4640mm, 轴距 2860mm, 最多可 7 座, 力求舒适宽敞	车长 5100mm, 车宽 2000mm, 轴距 3100mm	车长 12 米, 内部空间宽敞
动力	总功率 300kW, 四轮驱动, 零百加速 3.8 秒	总功率 550kW (前驱 150kW+后驱 400kW), 零百加速 2.8 秒, 采用主动式悬架系统	采用世界一流三电系统, 最高时速 120km/h
能耗	百公里能耗 13.4 千瓦时, 700 公里续航, 低风阻系数 0.27	750 公里续航, 刹车能量回充, 低风阻系数 0.22	400 度电池容量, 400 公里续航, 高效温控管理系统
智能化	-	采用 Fusion Domain EEA 架构, 面部识别智能迎宾, 定制化车身 Smart Surface	配有内轮差警示系统、盲区警示系统
上市交付	2023	2024	-

资料来源: 富士康, HHTD21, 海通国际

图表7 Model C、E、T外形



Model C



Model E



Model T

资料来源: Foxtron 官网, 海通国际

首款两厢车 Model B 官图发布, 将于今年鸿海科技日发布。近日, 富士康发布新车型 Model B 官方图, 新车定位两厢车, 由富士康与 Pininfarina 联合设计。新车将在 10 月 18 日鸿海科技日与首款皮卡车型同步发布, 并计划明年量产, 在中国、德国和美国同步发售。

图表8 Model B 官图



资料来源: Pininfarina, 海通国际

APPENDIX 1

Summary

Event

On October 7, Foxconn announced that it had signed a memorandum of understanding with Los Angeles-based EV start-up INDIEV (founded in 2017) to assist in manufacturing the prototype of its first production vehicle, the INDI ONE, at Foxconn's recently acquired Ohio plant.

Comments

Collaboration with INDIEV to produce the INDI ONE prototype, Foxconn's next step in its North American business. "INDI ONE" is the first model of INDIEV, released in October last year. According to public information, the standard version will be equipped with a 75kWh-battery pack, a range of 230mile (370km), 6.7s to reach 60mph, with price of USD45k (~Rmb319k), expected to be delivered in 2Q23. INDIEV focuses on in-vehicle blockchain technologies, with each vehicle equipped with a vehicle-integrated computer that can be used as a blockchain node to form a new mobile blockchain, allowing vehicle owners to passively earn revenue in blockchain transactions. According to Foxconn, the MOU only includes the manufacturing of prototypes for testing purposes and does not yet involve the mass production of finished models for OEMs.

Striving to become the "Android in the field of EVs" and rapidly expanding ecological partners. Foxconn first entered the automotive industry by acquiring one of the four largest automotive wire harness factories in Taiwan, An Tec Electric. In 2019, Foxconn announced its three strategic goals of "EVs, digital healthcare, and robotics" and officially entered the car industry. In the field of EVs, based on its "MIH EV" open platform, Foxconn has gradually formed three business lines: platform licensing, OEM, and original branding.

- 1) The "MIH EV" platform is a common architecture including EV hardware and software. With the platform IP and industry chain ecology, OEMs can quickly realize design development and mass production based on their own product needs, and provide component OTA services. As Foxconn disclosed, as of March 2022, MIH Consortium members exceeded 2,200, and industry chain players from 62 countries/regions around the world participated in the construction of its platform ecology.
- 2) In OEM manufacturing, Foxconn has reached cooperation agreements with Geely, Fisker, Monarch Tractor, Lordstown Motors, and INDIEV; the latter four are all US electric vehicle startup brands.
- 3) As for its original brand, Foxconn and Yulon Motor established the Foxtron brand in November 2020. On HHTD21, Foxtron launched three prototypes of BEVs: Model C, E, and T, positioned as SUVs, luxury cars, and electric buses. The Model C will retail for less than NT\$1m (~Rmb225k) and is expected to start deliveries next year according to the company. Recently, Foxtron released the official image of its first hatchback, Model B. This new car will be released simultaneously with its first pickup truck model on HHTD22 and plans to mass production in 2023.

Steadily promote the global layout of production capacity and core components. In recent years, Foxconn has laid out production bases and sales centres in Thailand, Indonesia, and North America respectively. The company has also established cooperation in the battery field and chip field.

Intelligent electric vehicle revolution accelerates industry chain reshaping. The development of new energy vehicles not only brings the rapid implementation of on-board intelligence and the change of the energy system, but also leads to the reshaping of the automotive industry chain, and the addition of players in the field of consumer electronics further accelerates this process. On one hand, Nvidia, Qualcomm and other manufacturers have pushed intelligent component suppliers such as chips into Tier 1 or even Tier 0.5; While on the other hand, the OEM giant Foxconn, with its advanced terminal manufacturing experience and MIH EV open platform, aims to provide other OEMs with a common vehicle development architecture and industrial ecology. **We believe that MIH Consortium is a positive exploration of the automotive industry's industrial ecology model, which has positive implications for the whole industry's cost reduction and efficiency improvement. As competition in new energy vehicles intensifies, the OEM production model is expected to accelerate the mass production of new power brands. We expect Foxconn to benefit from it in the long term.**

Risks

Chip and component shortage; Raw material price increase; Business expansion is not as expected, etc.

附录 APPENDIX

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Haitong received in the past 12 months compensation for investment banking services provided to 002594.CH, 1958.HK, 2618.HK and 600699.CH.

海通预计将(或者有意向)在未来三个月内从002594.CH, 0175.HK, 1958.HK, 0020.HK, 2618.HK 及 9868.HK 获得投资银行服务报酬。

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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.

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Analyst Stock Ratings

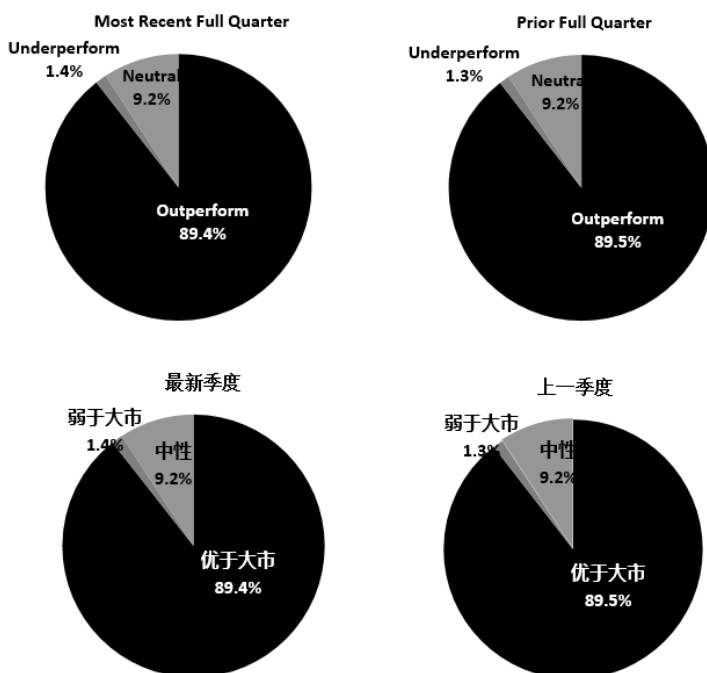
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Neutral: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls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

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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.

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