Hon Precision

Strong 2Q26 sales with sustained growth in 2026/27

Maintain Rating: BUY | PO: 7,800 TWD | Price: 5,750 TWD

29 July 2026

Equity

Haas Liu >>
Research Analyst
Merrill Lynch (Taiwan)
+886 2 2376 3727
haas.liu@bofa.com

Mike Yang >>
Research Analyst
Merrill Lynch (Taiwan)
mike.c.yang@bofa.com

Cathy Hsu >>
Research Analyst
Merrill Lynch (Taiwan)
cathy.hsu3@bofa.com

2Q26 sales strength on solid cold plate/handler demand

Hon Precision 2Q26 sales were +29% QoQ, reaching record high and beating BofAe/Street expectations of +13%/+16% QoQ, supported by particularly strong June monthly sales of +28% MoM. We attribute the sales strength to smoother-than-expected handler qualification, coupled with robust demand for cold plate ahead of the ramp of Nvidia's Rubin GPU in 2H26. On favorable mix shift toward margin accretive cold plate products, we think 2Q26 GM could be lifted to 57.6% (vs. 56.2% in 1Q26).

Concerns on GPU/CPO delay should be manageable

Despite recent market concerns on delayed production ramp of Nvidia's Rubin GPU, we keep our 2H26 sales estimates of +12% HoH, as we believe the impact to Hon Precision's shipment delivery should be manageable with diverse and solid handler demand from other customers, such as AMD, Google, China customer, and US auto customer. For CPO insertion 4 O/E testing equipment, we believe customer's qualification remains on track, and late-3Q26 through year-end should be the key watch point for clearer equipment configuration and order visibility.

Margin improvement on equipment dollar content gain

We model Hon Precision's handler system sales could grow at +48% CAGR from '26-'28 on +36%/+9% shipment/ASP CAGR as customers continue to migrate toward high-end specifications, including higher-power density ATC and build-in AOI. Spec upgrade along with sustained full utilization should lift GMs to 60% level in 2028. (BofAe 57.8% in '26)

Clear EPS growth trajectory underpins higher valuation

We maintain our Buy rating with NT$7,800 PO based on 36x 2H27-1H28 P/E, and keep our '26/'27/'28 EPS estimates at NT$114.39/180.02/243.88. We see strong multi-year growth ahead with decent sales/earnings CAGR at 44%/46% over '26-'28E.

Estimates (Dec) (NT$)	**2024A**	**2025A**	**2026E**	**2027E**	**2028E**
Net Income (Adjusted - mn)	5,286	12,362	20,607	32,431	43,937
EPS	32.73	75.71	114.39	180.02	243.88
EPS Change (YoY)	NA	131.3%	51.1%	57.4%	35.5%
Dividend / Share	22.50	65.00	100.00	145.00	190.00
Free Cash Flow / Share	13.56	97.37	59.16	114.35	204.21
Valuation (Dec)					
P/E	175.69x	75.95x	50.27x	31.94x	23.58x
Dividend Yield	0.391%	1.13%	1.74%	2.52%	3.30%
EV / EBITDA*	155.01x	64.92x	39.46x	24.58x	18.09x
Free Cash Flow Yield*	0.210%	1.54%	1.03%	1.99%	3.55%

* For full definitions of *iQmethod*[SM] measures, see page 6.

Stock Data

Price	5,750 TWD
Price Objective	7,800 TWD
Date Established	24-Jun-2026
Investment Opinion	C-1-7
52-Week Range	1,400 TWD-8,465 TWD
Mrkt Val / Shares Out (mn)	31,900 USD / 179.9
Market Value (mn)	1,034,598 TWD
Average Daily Value (mn)	119.42 USD
Free Float	44.6%
BofA Ticker / Exchange	XXPIF / TAI
Bloomberg / Reuters	7769 TT / 7769.TW
ROE (2026E)	33.0%
Net Dbt to Eqty (Dec-2025A)	-93.4%

iQprofile℠ Hon Precision

Key Income Statement Data (Dec)	2024A	2025A	2026E	2027E	2028E
(NT$ Millions)					
Sales	13,992	30,271	48,376	75,365	100,855
Gross Profit	7,700	17,114	27,960	44,761	60,744
Sell General & Admin Expense	(778)	(1,028)	(1,413)	(2,421)	(3,277)
Operating Profit	6,285	15,046	24,753	39,803	54,125
Net Interest & Other Income	398	538	1,148	966	1,108
Associates	NA	NA	NA	NA	NA
Pretax Income	6,683	15,584	25,902	40,769	55,233
Tax (expense) / Benefit	(1,397)	(3,222)	(5,294)	(8,338)	(11,296)
Net Income (Adjusted)	5,286	12,362	20,607	32,431	43,937
Average Fully Diluted Shares Outstanding	162	163	180	180	180
Key Cash Flow Statement Data					
Net Income	5,286	12,362	20,607	32,431	43,937
Depreciation & Amortization	46	69	115	115	115
Change in Working Capital	(3,509)	(3,998)	(8,091)	(9,986)	(5,327)
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	485	7,753	(47)	(47)	(47)
Cash Flow from Operations	2,308	16,186	12,584	22,513	38,678
Capital Expenditure	(133)	(286)	(1,940)	(1,940)	(1,940)
(Acquisition) / Disposal of Investments	(1,343)	1,127	(7,888)	0	0
Other Cash Inflow / (Outflow)	153	(272)	389	(29)	(5)
Cash Flow from Investing	(1,322)	569	(9,440)	(1,969)	(1,945)
Shares Issue / (Repurchase)	894	34,466	0	0	0
Cost of Dividends Paid	(4,800)	(3,636)	(11,695)	(17,993)	(26,090)
Cash Flow from Financing	(3,759)	30,650	(11,702)	(17,993)	(26,090)
Free Cash Flow	2,175	15,900	10,644	20,573	36,738
Net Debt	(7,888)	(54,228)	(53,528)	(56,079)	(66,722)
Change in Net Debt	2,925	(47,554)	8,550	(2,550)	(10,644)
Key Balance Sheet Data					
Property, Plant & Equipment	1,888	2,106	3,842	5,678	7,515
Other Non-Current Assets	441	969	851	822	817
Trade Receivables	2,913	2,935	4,754	7,389	8,932
Cash & Equivalents	8,045	54,228	53,528	56,079	66,722
Other Current Assets	8,579	13,033	20,266	30,284	35,544
Total Assets	21,866	73,270	83,242	100,253	119,532
Long-Term Debt	0	0	0	0	0
Other Non-Current Liabilities	106	211	221	215	213
Short-Term Debt	157	0	0	0	0
Other Current Liabilities	7,871	15,028	16,302	19,647	21,567
Total Liabilities	8,134	15,239	16,523	19,862	21,780
Total Equity	13,732	58,031	66,719	80,391	97,752
Total Equity & Liabilities	21,866	73,270	83,242	100,253	119,532
iQ*method℠ - Bus Performance					
Return On Capital Employed	NA	33.7%	32.7%	43.9%	49.2%
Return On Equity	77.0%	34.5%	33.0%	44.1%	49.3%
Operating Margin	44.9%	49.7%	51.2%	52.8%	53.7%
EBITDA Margin	45.2%	49.9%	51.4%	53.0%	53.8%
iQ*method℠ - Quality of Earnings					
Cash Realization Ratio	0.4x	1.3x	0.6x	0.7x	0.9x
Asset Replacement Ratio	3.0x	4.6x	18.8x	18.8x	18.8x
Tax Rate (Reported)	20.9%	20.7%	20.4%	20.5%	20.5%
Net Debt-to-Equity Ratio	-57.4%	-93.4%	-80.2%	-69.8%	-68.3%
Interest Cover	NM	NM	NM	NA	NA

Key Metrics

* For full definitions of *iQmethod*℠ measures, see page 6.

Company Sector

Semiconductor Capital Equipment

Company Description

Hon Precision is a Taiwan-based semiconductor equipment supplier specializing in test handler system for FT and SLT across a wide range of applications, including AI/HPC, automotive, memory, and consumer electronics. Founded in 2025, with roots tracing back to Hon Technology established in 1999, the company's core strength lies in its turnkey service offering, delivering comprehensive, on-step test handler systems integrated with ATC solutions and cold plate technologies.

Investment Rationale

We have a Buy rating on Hon Precision, in view of its strong technology leadership in the semiconductor back-end testing equipment. It has a solid market position with around 70% share in FT handler market and close to 50% share in SLT handler market. Longer-term, the company could ride on the AI-driven structural back-end testing demand and dollar content gain from chips migration toward more complicated designs.

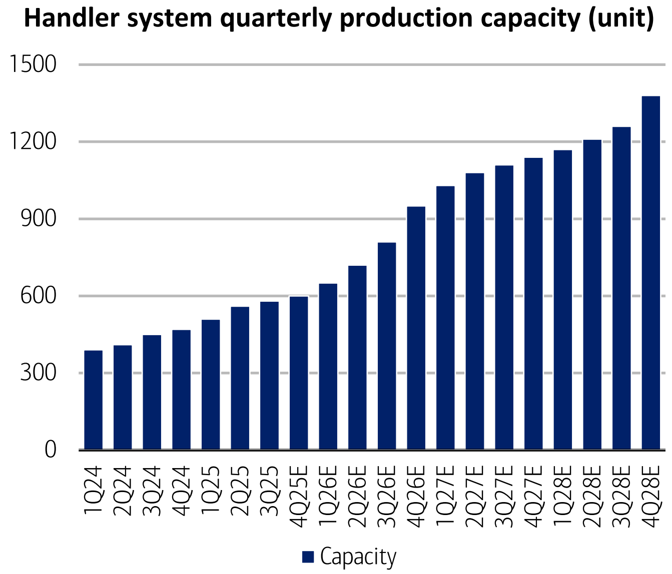
Stock Data

Price to Book Value	15.5x

Focus charts and tables

Exhibit 1: Hon precision handler system quarterly production capacity

We expect Hon Precision to expand capacity by +39%/+39% YoY in '26/'27

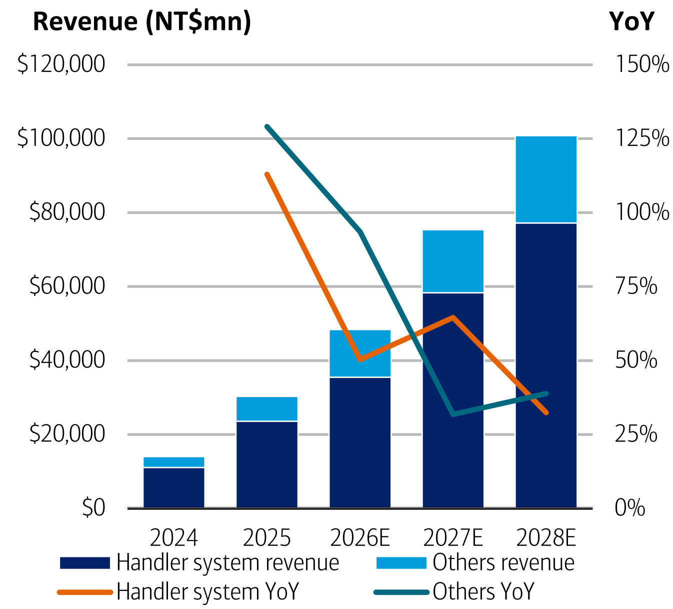


Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 2: Hon Precision revenue and YoY

We expect its sales to grow at 44% CAGR over 2026-2028



Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 3: Terms and definitions

Glossary of abbreviations/acronyms

Term	Definition
AMD	Advanced Micro Devices
AOI	Automated Optical Inspection
ATC	Active Thermal Control
CPO	Co-Packaged Optics
FT	Final test
GPU	Graphic Processing Unit
O/E	Optical to electrical
SLT	System level test

Source: BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Hon Precision (XXPIF)

Our PO of NT$7,800 is based on 36x 2027E P/E, positioned at the upper half of its historical trading range of 8-56x. We believe a P/E based valuation is appropriate given Hon Precision's consistent profitability profile and structurally improving earnings quality through industry cycle, and the valuation multiple is underpinned by: 1) 44%/46% CAGR in sales and operating profit over 2025-27E, and 2) sustained ROE in the 30-40% range.

Downside risks are: 1) slowdown in back-end testing capacity expansion and 2) mis-execution on equipment development and production ramp.

Analyst Certification

I, Haas Liu, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Special Disclosures

Information on securities which are listed on the exchanges where ML Securities (Taiwan) Limited is not permitted to trade or solicit trades for clients is for informational purposes only and is not a recommendation or a solicitation to trade such securities. ML Securities (Taiwan) Limited will not execute transactions for nor accept orders from clients to trade such securities. Foreign investment in Taiwan securities is regulated and restricted. Currently, foreign investment in Taiwan securities is permitted by investment through: (1) global depository receipts, (2) convertible bonds, (3) mutual funds issued offshore of Taiwan, and (4) a special foreign institutional investors (FINIs) and foreign individual investors (FIDIs) program supervised by the Taiwan SFB whereunder FINIs/FIDIs may apply for investment ID to invest in Taiwan securities by registration with Taiwan Stock Exchange. FINIs will additionally need consent from the foreign exchange authority, ie, the Central Bank of China. In addition to the limitations above, various industry-specific percentage-based limitations on foreign ownership of Taiwan companies (and in some cases prohibitions) may apply. Investments are subject to exchange rate and currency conversion restrictions and risks. Dividends and interest earned by foreign investors' Taiwan securities/instruments are generally subject to a 20% withholding tax. Ordinary shares are not available to ML private client accounts in the U.S.

This report is distributed in Taiwan by Merrill Lynch Securities (Taiwan) Limited, which is regulated by the Taiwan SFB.

APR - Semiconductor Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Alchip	ALCPF	3661 TT	Haas Liu
	All Ring	XNQNF	6187 TT	Haas Liu
	AMEC	XRTOF	688012 CH	Dai Shen
	ASE Technology Holding	XSRIF	3711 TT	Haas Liu
	ASE Technology Holding -ADR	ASX	ASX US	Haas Liu
	ASMPT	ASMVF	522 HK	Simon Woo, CFA
	Aspeed	XLKMF	5274 TT	Mike Yang
	Chroma ATE	CRMJF	2360 TT	Haas Liu
	eMemory	XYLWF	3529 TT	Mike Yang
	GigaDevice	XGXIF	603986 CH	Daley Li, CFA
	Global Unichip Corp.	GBUHF	3443 TT	Haas Liu
	Grand Process Technology Corp	XZOWF	3131 TT	Haas Liu

APR - Semiconductor Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Hanmi Semiconductor	HNSIF	042700 KS	Simon Woo, CFA
	Hon Precision	XXPIF	7769 TT	Haas Liu
	Horizon Robotics	HRZRF	9660 HK	Daley Li, CFA
	Iluvatar CoreX	XSIBF	9903 HK	Daley Li, CFA
	Ingenic	XISCF	300223 CH	Dai Shen
	InnoScience Technology	XSCHF	2577 HK	Daley Li, CFA
	JCET Group Co Ltd	XJIEF	600584 CH	Dai Shen
	King Yuan Electronics Corp.	KYUFF	2449 TT	Haas Liu
	Kinik	KIKCF	1560 TT	Haas Liu
	MediaTek	MDTKF	2454 TT	Haas Liu
	Montage Technology	XRDFF	688008 CH	Daley Li, CFA
	MPI Corporation	XMJCF	6223 TT	Mike Yang
	Nanya Technology	NNYAF	2408 TT	Simon Woo, CFA
	NCE Power	XVFFF	605111 CH	Daley Li, CFA
	OmniVision	XXHQF	603501 CH	Dai Shen
	Phison Electronics	PISNF	8299 TT	Simon Woo, CFA
	Powerchip Semiconductor Manufacturing Co	XCHPF	6770 TT	Haas Liu
	Powertech Technology	PWOGF	6239 TT	Simon Woo, CFA
	Rockchip	XRPXF	603893 CH	Daley Li, CFA
	Samsung C&T	XCDTF	028260 KS	Simon Woo, CFA
	Samsung Elec -G	SSNHZ	SMSN LI	Simon Woo, CFA
	Samsung Electronics	SSNLF	005930 KS	Simon Woo, CFA
	Samsung Electronics Preferred	SSNNF	005935 KS	Simon Woo, CFA
	Silergy Corp.	SLEGF	6415 TT	Mike Yang
	Silicon Motion	SIMO	SIMO US	Simon Woo, CFA
	SK Square	SKSQF	402340 KS	Simon Woo, CFA
	Taiwan Semiconductor Manufacturing Co.	TSM	TSM US	Haas Liu
	Taiwan Semiconductor Manufacturing Co.	TSMWF	2330 TT	Haas Liu
	Vanguard International Semiconductor Co	VGILF	5347 TT	Haas Liu
	Winbond Electronics	WBEKF	2344 TT	Dai Shen
	WinWay Technology	XWCLF	6515 TT	Mike Yang
	WT Microelectronics	XZOPF	3036 TT	Mike Yang
NEUTRAL				
	ASMedia Technology Inc.	XZSFF	5269 TT	Mike Yang
	Black Sesame Intl Holding	BSIHF	2533 HK	Daley Li, CFA
	Hangzhou Silan Microelectronics	XDFRF	600460 CH	Daley Li, CFA
	Lion Electronics	XDHFF	605358 CH	Dai Shen
	MetaX	XMEZF	688802 CH	Daley Li, CFA
	Novatek	NVKMF	3034 TT	Mike Yang
	Realtek	RLTKF	2379 TT	Mike Yang
	Shenzhen Goodix	XQPLF	603160 CH	Daley Li, CFA
UNDERPERFORM				
	Crystal Clear	XPPTF	300655 CH	Dai Shen
	Faraday	FDYTF	3035 TT	Haas Liu
	GlobalWafers	XWLFF	6488 TT	Mike Yang
	Hua Hong Semi	HHUSF	1347 HK	Dai Shen
	LX Semicon	XLXSF	108320 KS	Simon Woo, CFA
	M31 Technology	XMTZF	6643 TT	Mike Yang
	Macronix International	MXICF	2337 TT	Dai Shen
	Maxscend	XMXSF	300782 CH	Daley Li, CFA
	Parade	PRDWF	4966 TT	Mike Yang
	Soulbrain	XSBOF	357780 KS	Simon Woo, CFA
	United Microelectronics Corp.	XUMIF	2303 TT	Haas Liu
	United Microelectronics Corp.	UMC	UMC US	Haas Liu
	VeriSilicon	XMLZF	688521 CH	Daley Li, CFA
	Win Semiconductors	WSMIF	3105 TT	Haas Liu
	Wonik IPS	XRHQF	240810 KS	Simon Woo, CFA
RSTR				
	SK Hynix	HXSCF	000660 KS	Simon Woo, CFA

*iQ*method℠ Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization	Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5 Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations – Total Capex	N/A

Quality of Earnings	Numerator	Denominator
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt – Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense

Valuation Toolkit	Numerator	Denominator
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations – Total Capex	Market Cap = Current Share Price × Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price × Current Shares + Minority Equity + Net Debt + Other LT Liabilities	Sales
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

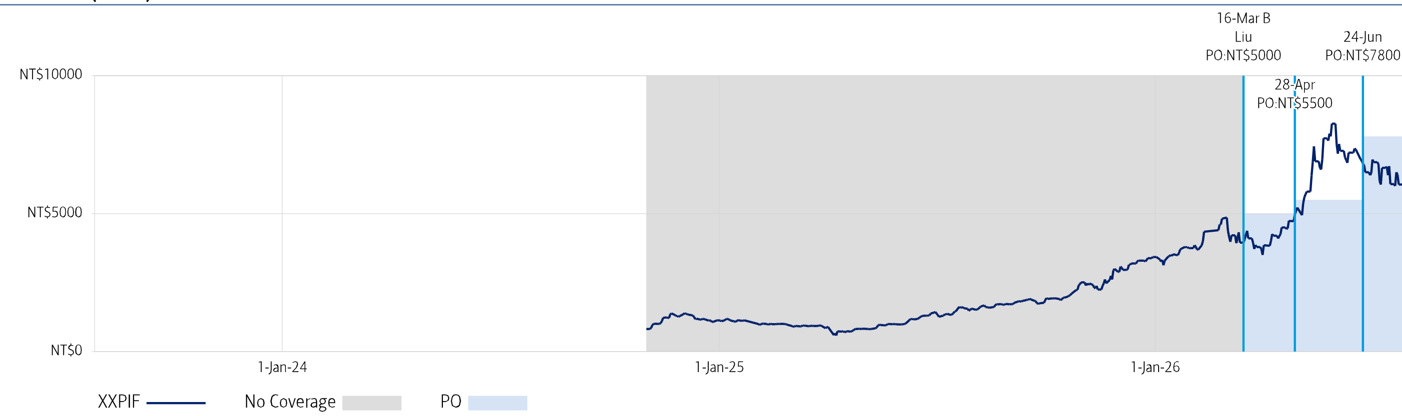
iQmethod℠ is the set of BofA Global Research standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

iQdatabase® is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

Disclosures

Important Disclosures

Hon Precision (XXPIF) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

Equity Investment Rating Distribution: Technology Group (as of 30 Jun 2026)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	243	60.60%	Buy	123	50.62%
Hold	87	21.70%	Hold	45	51.72%
Sell	71	17.71%	Sell	21	29.58%

Equity Investment Rating Distribution: Global Group (as of 30 Jun 2026)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1987	56.11%	Buy	1190	59.89%
Hold	797	22.51%	Hold	496	62.23%
Sell	757	21.38%	Sell	391	51.65%

[R1] Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster[R2]
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

[R2]Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. *Coverage Cluster* is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.
In the US, retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale: Hon Precision.
The country in which this issuer is organized has certain laws or regulations that limit or restrict ownership of the issuer's shares by nationals of other countries: Hon Precision.
BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel

expenses from the issuer for such visits.
Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.
The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.
Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.
Refer to BofA Global Research policies relating to conflicts of interest.

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by the Financial Sector Conduct Authority; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Zurich): Bank of America Europe Designated Activity Company, Zurich Branch, regulated by the Swiss Financial Market Supervisory Authority FINMA, the ECB and CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.
This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the Electronic Communications Disclaimers for further information.
This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities.
This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.
Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.
This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may

be more or less positive than a stock's fundamental equity rating.
BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.
Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.
BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.
BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.
In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel’s knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.
This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.
Any information relating to sustainability in this material is limited as discussed herein and is not intended to provide a comprehensive view on any sustainability claim with respect to any issuer or security.
Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.
The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.
All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.
Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.
Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.
In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.
Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.