

Novatek

Enhanced margin profile and share gain offset by still muted consumer demand

Reiterate Rating: NEUTRAL | PO: 550.00 TWD | Price: 543.00 TWD

2Q26 margin beat on more favorable mix and pricing

2Q26 sales were bolstered by customers' pull-in demand across DDIC and SoC, ahead of anticipated component price hike. 2Q26 GM improved by 340 bps QoQ to 42.4% (vs. BofAe 39.5%) on inflationary costs pass through, more favorable product mix, and benefit from low-cost inventory. Strong sales and solid GM took 2Q26 EPS to NT\$10.40 (vs. BofAe/street of NT\$7.66/7.65)

3Q26 sales driven by smartphone replenishment

The company guided 3Q26 sales to +7% QoQ at the mid-point, with strong growth in smartphone driver IC replenishment demand and solid edge AI related SoC shipment partly offsetting by soft demand in large driver IC. Components order pull-in from NB brands in 1H26 should lead to moderation in procurement activity in 2H26. 3Q26 GMs midpoint of 40% slightly down from 2Q26 as tailwind from low-cost inventory fade.

iPhone share gain and higher SoC mix support 2026/27

We now forecast Novatek's sales to grow +10%/+10% YoY in 2026/27, mainly supported by share gain in iPhone OLED DDIC supply (see Korea analyst [Simon Woo's report](#)), steady ramp in edge AI vision related SoC. With successful pricing adjustments to reflect rising manufacturing costs across all product line, coupled with mix shift toward margin accretive SoC segment, GMs should lift to 40.7%/39.5% in 2026/27. (vs. 37.7% in 2025)

Stay Neutral on mixed demand outlook

We lift our 2026/27/28 EPS estimates from NT\$29.17/34.08/36.57 to NT\$34.63/37.03/38.90, to factor in better pricing and margin assumptions. We raise our PO from NT\$460 to NT\$550, now based on 15x 2027 P/E (was 13x 2027 P/E), given enhanced margin profile and market position, but stay Neutral given demand softness in consumer electronic still lingers.

Estimates (Dec) (NT\$)	2024A	2025A	2026E	2027E	2028E
Net Income (Adjusted - mn)	20,342	16,348	21,076	22,533	23,671
EPS	33.43	26.87	34.63	37.03	38.90
EPS Change (YoY)	-12.8%	-19.6%	28.9%	6.9%	5.0%
Consensus EPS (Visible Alpha)			30.25	33.33	35.45
Dividend / Share	28.00	23.00	23.00	27.00	27.00
Free Cash Flow / Share	25.27	20.41	42.92	32.25	39.06
Valuation (Dec)					
P/E	16.24x	20.21x	15.68x	14.66x	13.96x
Dividend Yield	5.16%	4.24%	4.24%	4.97%	4.97%
EV / EBITDA*	12.45x	14.73x	11.83x	10.74x	10.20x
Free Cash Flow Yield*	4.65%	3.76%	7.90%	5.94%	7.19%

* For full definitions of *IQmethod*SM measures, see page 7.

This research report provides general information only. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or other persons without the express written consent of BofA Securities.

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 8 to 10. Analyst Certification on page 5. Price

06 August 2026

Equity

Key Changes

(NT\$)	Previous	Current
Price Obj.	460.00	550.00
2026E EPS	29.17	34.63
2027E EPS	34.08	37.03
2028E EPS	36.57	38.90
2026E EBITDA (m)	20,695.6	24,125.8
2027E EBITDA (m)	24,042.0	26,584.9
2028E EBITDA (m)	25,829.3	27,977.9

Mike Yang >>
Research Analyst
Merrill Lynch (Taiwan)
+886 2 2376 3729
mike.c.yang@bofa.com

Haas Liu >>
Research Analyst
Merrill Lynch (Taiwan)
haas.liu@bofa.com

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

Stock Data

Price	543.00 TWD
Price Objective	550.00 TWD
Date Established	6-Aug-2026
Investment Opinion	B-2-7
52-Week Range	352.00 TWD-606.00 TWD
Mkt Val / Shares Out (mn)	10,229 USD / 608.5
Market Value (mn)	330,422 TWD
Average Daily Value (mn)	97.47 USD
Free Float	90.2%
BofA Ticker / Exchange	NVKMF / TAI
Bloomberg / Reuters	3034 TT / 3034.TW
ROE (2026E)	29.6%
Net Dbt to Eqty (Dec-2025A)	-62.0%

iQprofileSM Novatek

Key Income Statement Data (Dec)	2024A	2025A	2026E	2027E	2028E
(NT\$ Millions)					
Sales	102,788	100,663	110,626	122,104	129,980
Gross Profit	41,472	37,908	44,999	48,176	50,371
Sell General & Admin Expense	(2,859)	(2,946)	(3,256)	(3,234)	(3,317)
Operating Profit	21,806	18,237	22,602	25,030	26,496
Net Interest & Other Income	2,228	1,203	2,641	1,795	1,690
Associates	92	94	0	0	0
Pretax Income	24,126	19,534	25,243	26,825	28,185
Tax (expense) / Benefit	(3,784)	(3,186)	(4,168)	(4,292)	(4,515)
Net Income (Adjusted)	20,342	16,348	21,076	22,533	23,671
Average Fully Diluted Shares Outstanding	609	609	609	609	609

Key Cash Flow Statement Data

Net Income	20,342	16,348	21,076	22,533	23,671
Depreciation & Amortization	1,127	1,143	1,523	1,555	1,482
Change in Working Capital	(5,433)	(2,047)	4,595	(1,470)	1,503
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	617	(1,814)	122	(1,795)	(1,690)
Cash Flow from Operations	16,652	13,629	27,317	20,823	24,967
Capital Expenditure	(1,276)	(1,211)	(1,200)	(1,200)	(1,200)
(Acquisition) / Disposal of Investments	0	0	0	0	0
Other Cash Inflow / (Outflow)	427	(20)	311	0	0
Cash Flow from Investing	(849)	(1,232)	(889)	(1,200)	(1,200)
Shares Issue / (Repurchase)	0	0	0	0	0
Cost of Dividends Paid	NA	NA	NA	NA	NA
Cash Flow from Financing	(20,956)	(18,741)	(14,039)	(13,996)	(16,430)
Free Cash Flow	15,377	12,417	26,117	19,623	23,767
Net Debt	(48,318)	(41,987)	(54,403)	(60,030)	(67,367)
Change in Net Debt	5,119	6,352	(12,414)	(5,627)	(7,337)

Key Balance Sheet Data

Property, Plant & Equipment	6,032	6,219	7,078	6,695	6,395
Other Non-Current Assets	17,327	17,607	21,263	20,927	20,906
Trade Receivables	20,274	21,099	22,417	25,723	26,974
Cash & Equivalents	48,771	42,419	54,832	60,460	67,797
Other Current Assets	9,996	10,022	9,702	10,302	9,853
Total Assets	102,401	97,366	115,293	124,106	131,924
Long-Term Debt	452	432	430	430	430
Other Non-Current Liabilities	9,661	9,343	9,472	9,458	9,459
Short-Term Debt	0	0	0	0	0
Other Current Liabilities	24,364	19,851	30,499	34,125	36,605
Total Liabilities	34,477	29,627	40,401	44,013	46,494
Total Equity	67,923	67,739	74,892	80,092	85,430
Total Equity & Liabilities	102,401	97,366	115,293	124,106	131,924

iQmethodSM - Bus Performance*

Return On Capital Employed	24.9%	20.7%	24.2%	24.9%	24.8%
Return On Equity	30.1%	24.1%	29.6%	29.1%	28.6%
Operating Margin	21.2%	18.1%	20.4%	20.5%	20.4%
EBITDA Margin	22.3%	19.3%	21.8%	21.8%	21.5%

iQmethodSM - Quality of Earnings*

Cash Realization Ratio	0.8x	0.8x	1.3x	0.9x	1.1x
Asset Replacement Ratio	1.1x	1.1x	0.8x	0.8x	0.8x
Tax Rate (Reported)	15.7%	16.3%	16.5%	16.0%	16.0%
Net Debt-to-Equity Ratio	-71.1%	-62.0%	-72.6%	-75.0%	-78.9%
Interest Cover	NM	NM	NM	NM	NM

Key Metrics

* For full definitions of iQmethodSM measures, see page 7.

Company Sector

Semiconductors

Company Description

Founded in 1997, Novatek is a worldwide leading display driver IC design company. Its product offering encompasses flat panel display driver ICs (DDI), timing controller ICs (T-CON), video processing SoC such as LCD monitor scaler, TV SoC, DSC, STB controller IC, TDDI and OLED drivers. The company has over 30% market share in large-size driver IC market and 10+% market share in small-to-medium display driver IC market.

Investment Rationale

We rate Novatek as Neutral as we like its resilience in gross margin, dividend yield and position in high-end (OLED) DDIC market, vs the cautiousness held for the demand outlook and lack of spec upgrades in most of the consumer products (TV, PC, smartphone).

Stock Data

Price to Book Value

4.4x



Focus tables

Exhibit 1: 2Q26 result review

2Q26 GM beat on better pricing and product mix

(NT\$m)	2Q25A	1Q26A	2Q26A	QoQ %	YoY %	BofAe	Diff (%)	Consensus	Diff (%)
Revenue	26,152	23,145	28,660	23.8%	9.6%	28,155	1.8%	28,174	1.7%
Gross profit	9,494	9,040	12,157	34.5%	28.1%	11,129	9.2%	11,166	8.9%
Gross margin (%)	36.3%	39.1%	42.4%	3.4ppt	6.1ppt	39.5%	2.9ppt	39.6%	2.8ppt
Operating income	4,823	4,028	6,466	60.5%	34.1%	5,146	25.6%	5,216	24.0%
Operating margin (%)	18.4%	17.4%	22.6%	5.2ppt	4.1ppt	18.3%	4.3ppt	18.5%	4.0ppt
Pre-tax income	4,602	4,389	7,782	77.3%	69.1%	5,615	38.6%	5,646	37.8%
Pre-tax margin (%)	17.6%	19.0%	27.2%	8.2ppt	9.6ppt	19.9%	7.2ppt	20.0%	7.1ppt
Net income	3,739	3,767	6,328	68.0%	69.2%	4,660	35.8%	4,641	36.3%
Net margin (%)	14.3%	16.3%	22.1%	5.8ppt	7.8ppt	16.6%	5.5ppt	16.5%	5.6ppt
EPS - Diluted (NT\$)	6.14	6.19	10.40	68.0%	69.2%	7.66	35.8%	7.65	35.9%

Source: BofA Global research estimates, Bloomberg, company data

BofA GLOBAL RESEARCH

Exhibit 2: BofAe vs. consensus

We are 8-19% ahead of consensus given higher sales and margin assumptions

(NT\$m)	2026E			2027E			2028E		
	BofAe	Consensus	Diff (%)	BofAe	Consensus	Diff (%)	BofAe	Consensus	Diff (%)
Revenue	110,626	107,356	3.0%	122,104	116,832	4.5%	129,980	124,536	4.4%
Gross profit	44,999	42,100	6.9%	48,176	45,484	5.9%	50,371	48,859	3.1%
Gross margin (%)	40.7%	39.2%	1.5ppt	39.5%	38.9%	0.5ppt	38.8%	39.2%	-0.5ppt
Operating income	22,602	19,996	13.0%	25,030	22,386	11.8%	26,496	24,755	7.0%
Operating margin (%)	20.4%	18.6%	1.8ppt	20.5%	19.2%	1.3ppt	20.4%	19.9%	0.5ppt
Pre-tax income	25,243	21,402	17.9%	26,825	23,834	12.5%	28,185	26,102	8.0%
Pre-tax margin (%)	22.8%	19.9%	2.9ppt	22.0%	20.4%	1.6ppt	21.7%	21.0%	0.7ppt
Net income	21,076	17,816	18.3%	22,533	19,869	13.4%	23,671	21,789	8.6%
Net margin (%)	19.1%	16.6%	2.5ppt	18.5%	17.0%	1.4ppt	18.2%	17.5%	0.7ppt
EPS (NT\$)	34.63	29.03	19.3%	37.03	32.22	14.9%	38.90	35.80	8.6%

Source: BofA Global research estimates, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 3: Earnings estimate change

We raise our 2026/27/28 EPS by 6-19% on higher sales assumptions and GM/OpM improvement

(NT\$m)	2026E			2027E			2028E		
	New	Old	Diff (%)	New	Old	Diff (%)	New	Old	Diff (%)
Revenue	110,626	107,571	2.8%	122,104	119,150	2.5%	129,980	125,258	3.8%
Gross profit	44,999	42,085	6.9%	48,176	46,136	4.4%	50,371	48,210	4.5%
Gross margin (%)	40.7%	39.1%	1.6ppt	39.5%	38.7%	0.7ppt	38.8%	38.5%	0.3ppt
Operating income	22,602	19,324	17.0%	25,030	22,727	10.1%	26,496	24,538	8.0%
Operating margin (%)	20.4%	18.0%	2.5ppt	20.5%	19.1%	1.4ppt	20.4%	19.6%	0.8ppt
Pre-tax income	25,243	21,106	19.6%	26,825	24,564	9.2%	28,185	26,362	6.9%
Pre-tax margin (%)	22.8%	19.6%	3.2ppt	22.0%	20.6%	1.4ppt	21.7%	21.0%	0.6ppt
Net income	21,076	17,753	18.7%	22,533	20,737	8.7%	23,671	22,254	6.4%
Net margin (%)	19.1%	16.5%	2.5ppt	18.5%	17.4%	1.0ppt	18.2%	17.8%	0.4ppt
EPS (NT\$)	34.63	29.17	18.7%	37.03	34.08	8.7%	38.90	36.57	6.4%

Source: BofA Global research estimates

BofA GLOBAL RESEARCH

Exhibit 4: Income statement

Quarterly and annual income statement

(NT\$mnn)	1Q26	2Q26	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	1Q28E	2Q28E	3Q28E	4Q28E	2025	2026E	2027E	2028E
Revenue	\$23,145	\$28,660	\$30,588	\$28,233	\$28,276	\$29,895	\$32,874	\$31,058	\$30,777	\$33,413	\$33,451	\$32,339	\$100,663	\$110,626	\$122,104	\$129,980
COGS	-\$14,105	-\$16,503	-\$18,206	-\$16,813	-\$16,921	-\$17,996	-\$20,076	-\$18,935	-\$18,767	-\$20,418	-\$20,571	-\$19,852	-\$62,755	-\$65,628	-\$73,928	-\$79,609
Gross profit	\$9,040	\$12,157	\$12,382	\$11,420	\$11,355	\$11,899	\$12,799	\$12,123	\$12,010	\$12,995	\$12,880	\$12,486	\$37,908	\$44,999	\$48,176	\$50,371
Operating expenses	-\$5,012	-\$5,691	-\$6,072	-\$5,621	-\$5,460	-\$5,718	-\$6,045	-\$5,924	-\$5,746	-\$5,984	-\$6,103	-\$6,042	-\$19,671	-\$22,396	-\$23,146	-\$23,876
SG&A	-\$736	-\$841	-\$883	-\$795	-\$779	-\$802	-\$835	-\$818	-\$793	-\$833	-\$850	-\$841	-\$2,946	-\$3,256	-\$3,234	-\$3,317
R&D	-\$4,276	-\$4,850	-\$5,189	-\$4,826	-\$4,681	-\$4,915	-\$5,210	-\$5,106	-\$4,953	-\$5,151	-\$5,254	-\$5,201	-\$16,725	-\$19,141	-\$19,912	-\$20,558
Operating income	\$4,028	\$6,466	\$6,309	\$5,800	\$5,895	\$6,182	\$6,754	\$6,200	\$6,264	\$7,011	\$6,776	\$6,444	\$18,237	\$22,602	\$25,030	\$26,496
Non-operating income	\$362	\$1,316	\$483	\$480	\$454	\$455	\$445	\$440	\$423	\$424	\$418	\$425	\$1,296	\$2,641	\$1,795	\$1,690
Interest income	\$228	\$223	\$224	\$225	\$219	\$223	\$222	\$222	\$218	\$221	\$220	\$219	\$1,028	\$900	\$886	\$878
Investment income	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$94	\$0	\$0	\$0
Others	\$133	\$1,093	\$259	\$255	\$235	\$232	\$223	\$219	\$206	\$203	\$198	\$206	\$174	\$1,741	\$909	\$812
Pre-tax profit	\$4,389	\$7,782	\$6,792	\$6,280	\$6,349	\$6,637	\$7,200	\$6,640	\$6,687	\$7,435	\$7,194	\$6,869	\$19,534	\$25,243	\$26,825	\$28,185
Tax	-\$622	-\$1,454	-\$1,087	-\$1,005	-\$1,003	-\$1,075	-\$1,152	-\$1,062	-\$1,070	-\$1,193	-\$1,152	-\$1,100	-\$3,186	-\$4,168	-\$4,292	-\$4,515
Net income	\$3,767	\$6,328	\$5,706	\$5,275	\$5,346	\$5,562	\$6,048	\$5,578	\$5,618	\$6,242	\$6,042	\$5,769	\$16,348	\$21,076	\$22,533	\$23,671
Diluted EPS (NT\$)	\$6.19	\$10.40	\$9.38	\$8.67	\$8.79	\$9.14	\$9.94	\$9.17	\$9.23	\$10.26	\$9.93	\$9.48	\$26.86	\$34.63	\$37.03	\$38.90
% of Sales																
Gross margin	39.1%	42.4%	40.5%	40.5%	40.2%	39.8%	38.9%	39.0%	39.0%	38.9%	38.5%	38.6%	37.7%	40.7%	39.5%	38.8%
Operating margin	17.4%	22.6%	20.6%	20.5%	20.8%	20.7%	20.5%	20.0%	20.4%	21.0%	20.3%	19.9%	18.1%	20.4%	20.5%	20.4%
Pre-tax margin	19.0%	27.2%	22.2%	22.2%	22.5%	22.2%	21.9%	21.4%	21.7%	22.3%	21.5%	21.2%	19.4%	22.8%	22.0%	21.7%
Net margin	16.3%	22.1%	18.7%	18.7%	18.9%	18.6%	18.4%	18.0%	18.3%	18.7%	18.1%	17.8%	16.2%	19.1%	18.5%	18.2%
QoQ growth %																
Revenue	1.4%	23.8%	6.7%	-7.7%	0.2%	5.7%	10.0%	-5.5%	-0.9%	8.6%	0.1%	-3.3%	-2.1%	9.9%	10.4%	6.4%
Gross profit	3.8%	34.5%	1.9%	-7.8%	-0.6%	4.8%	7.6%	-5.3%	-0.9%	8.2%	-0.9%	-3.1%	-8.6%	18.7%	7.1%	4.6%
Operating profit	4.3%	60.5%	-2.4%	-8.1%	1.6%	4.9%	9.3%	-8.2%	1.0%	11.9%	-3.4%	-4.9%	-16.4%	23.9%	10.7%	5.9%
Pre-tax profit	-0.6%	77.3%	-12.7%	-7.5%	1.1%	4.5%	8.5%	-7.8%	0.7%	11.2%	-3.2%	-4.5%	-19.0%	29.2%	6.3%	5.1%
Net profit	2.1%	68.0%	-9.8%	-7.5%	1.3%	4.0%	8.7%	-7.8%	0.7%	11.1%	-3.2%	-4.5%	-19.6%	28.9%	6.9%	5.0%
YoY growth %																
Revenue	-14.7%	9.6%	24.5%	23.7%	22.2%	4.3%	7.5%	10.0%	8.8%	11.8%	1.8%	4.1%	-2.1%	9.9%	10.4%	6.4%
Gross profit	-16.2%	28.1%	38.8%	31.1%	25.6%	-2.1%	3.4%	6.2%	5.8%	9.2%	0.6%	3.0%	-8.6%	18.7%	7.1%	4.6%
Operating profit	-29.3%	34.1%	63.6%	50.2%	46.4%	-4.4%	7.1%	6.9%	6.3%	13.4%	0.3%	3.9%	-16.4%	23.9%	10.7%	5.9%
Pre-tax profit	-28.5%	69.1%	55.2%	42.2%	44.6%	-14.7%	6.0%	5.7%	5.3%	12.0%	-0.1%	3.5%	-19.0%	29.2%	6.3%	5.1%
Net profit	-28.4%	69.2%	56.1%	43.0%	41.9%	-12.1%	6.0%	5.7%	5.1%	12.2%	-0.1%	3.4%	-19.6%	28.9%	6.9%	5.0%

Source: BofA Global research estimates, Company data

BofA GLOBAL RESEARCH

Exhibit 5: Terms and definitions

Glossary of abbreviations/acronyms

Term	Definition
DDIC	Display driver IC
LDDIC	Large Display driver IC
NB	Notebook
OLED	Organic Light-Emitting Diode
PC	Personal Computer
SoC	System-on-Chip
TDDI	Touch and Display Driver Integration
TV	Television

Source: BofA Global research

BofA GLOBAL RESEARCH



Price objective basis & risk

Novatek (NVKMF)

Our PO of NT\$550 is based on 15x 2027E P/E, which is in the upper half of the historical trading range of 5-21x over the past ten years, with firmer recovery from the cycle bottom in the foreseeable future. The 15x target multiple is underpinned by (1) its market-share gain across most of its product lines, including TV SoC, LDDIC and OLED DDI, (2) solid position in high-end TDDI, (3) new business opportunities like ASIC, and (4) solid cashflow generation and balance sheet, with NT\$80+ net cash/share on hand.

Upside risks to our PO are 1) better-than-expected demand in smartphone/PC/TV end-markets, 2) faster progress into the new businesses with higher ASP.

Downside risks to our PO are 1) tougher-than-expected competition in OLED DDI as competitors catch up in technology, 2) faster-than-expected commoditization of TDDI squeezing profit margins.

Analyst Certification

I, Mike Yang, 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	XSRI	3711 TT	Haas Liu
	ASE Technology Holding -ADR	ASX	ASX US	Haas Liu
	ASMPT	ASMFV	522 HK	Simon Woo, CFA



APR - Semiconductor Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	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
	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
	Macronix International	MXICF	2337 TT	Dai Shen
	MediaTek	MDTKF	2454 TT	Haas Liu
	Montage Technology	XRDF	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	XRPF	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 Hynix	HXSCF	000660 KS	Simon Woo, CFA
	SK Hynix ADR	SKHY	SKHY 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	XDFFF	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
	Maxscend	XMVSF	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

APR - Semiconductor Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Wonik IPS	XRHQF	240810 KS	Simon Woo, CFA

iQmethodSM Measures Definitions

Business Performance

Return On Capital Employed

Return On Equity
Operating Margin
Earnings Growth
Free Cash Flow

Quality of Earnings

Cash Realization Ratio
Asset Replacement Ratio
Tax Rate
Net Debt-To-Equity Ratio
Interest Cover

Valuation Toolkit

Price / Earnings Ratio
Price / Book Value
Dividend Yield
Free Cash Flow Yield
Enterprise Value / Sales

EV / EBITDA

Numerator

NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization

Net Income
Operating Profit
Expected 5 Year CAGR From Latest Actual
Cash Flow From Operations – Total Capex

Numerator

Cash Flow From Operations
Capex
Tax Charge
Net Debt = Total Debt – Cash & Equivalents
EBIT

Numerator

Current Share Price
Current Share Price
Annualised Declared Cash Dividend
Cash Flow From Operations – Total Capex
EV = Current Share Price × Current Shares + Minority Equity + Net Debt + Other LT Liabilities
Enterprise Value

Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill
Amortization
Shareholders’ Equity
Sales
N/A
N/A

Denominator

Net Income
Depreciation
Pre-Tax Income
Total Equity
Interest Expense

Denominator

Diluted Earnings Per Share (Basis As Specified)
Shareholders’ Equity / Current Basic Shares
Current Share Price
Market Cap = Current Share Price × Current Basic Shares
Sales

Basic EBIT + Depreciation + Amortization

iQmethodSM 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.

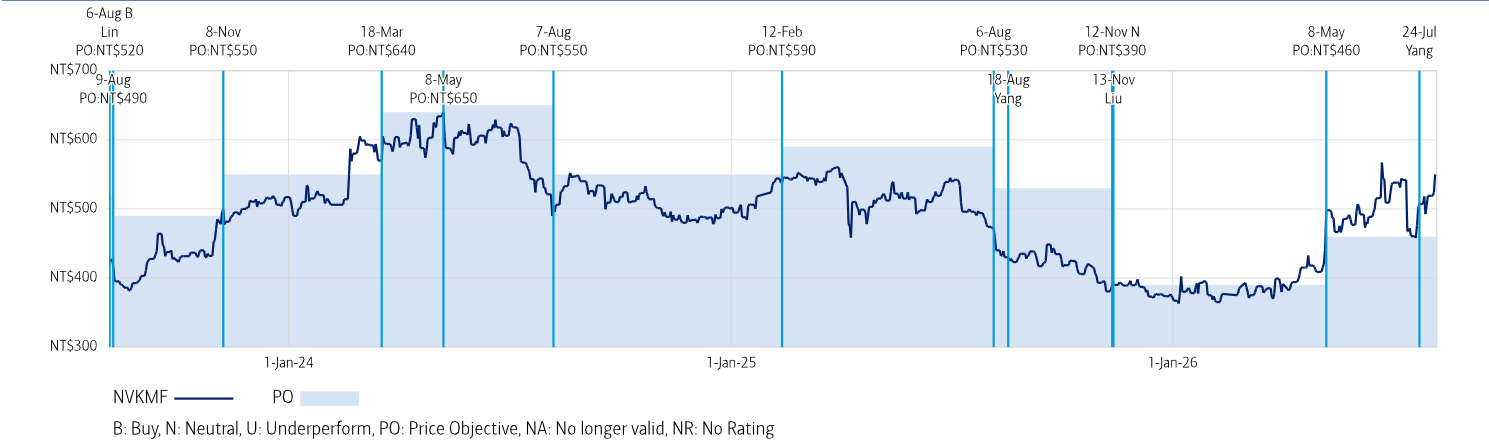
iQprofileSM, iQmethodSM are service marks of Bank of America Corporation. iQdatabase[®] is a registered service mark of Bank of America Corporation.



Disclosures

Important Disclosures

Novatek (NVKMF) Price Chart



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: Novatek. 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: Novatek. 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 BofA 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.bofam.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 (HKSCF); 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 HKSCF; 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:

Copyright 2026 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. This document and its content is provided solely for informational purposes and cannot be used for training or developing artificial intelligence (AI) models or as an input in any AI application (collectively, an AI tool). Any attempt to utilize this document or any of its content in connection with an AI tool without explicit written permission from BofA Global Research is strictly prohibited. BofA Global Research utilizes AI, including machine learning and other technologies, to enhance the services we provide to our clients. These technologies assist our analysts in various aspects of their work, including but not limited to data analysis, content extraction, content creation, data aggregation and summarization and identifying relevant information from diverse sources. All AI-driven processes are subject to review by BofA Global Research employees. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

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.