

Japan Technology: Hardware – Industrial Electronics: CARR 2Q: Favorable implications for MELCO and Pana, cost rises bear watching

Carrier (covered by our US Multi-Industry sector analyst Joe Ritchie) announced 2Q26 results on July 28 (JST). **Key takeaways were as follows. 1) In the Americas, channel inventory is down -25% yoy, and the company expects strong demand to continue into 2H. 2) In Europe, heat pumps remain strong, growing +20% yoy. 3) Asia is also performing well, excluding China. From a sales perspective, we see positive implications for earnings at Mitsubishi Electric and Panasonic Holdings.**

On the other hand, for Carrier, rising raw material costs and other factors are impacting profit margins. **We are upbeat about both Mitsubishi Electric and Panasonic Holdings working to reduce fixed costs, but the impact of high costs also needs to be kept in mind.** Additionally, regarding Mitsubishi Electric, we think the earnings outlook is positive for its Factory Automation (FA) business, as **the group's specialized trading company RYODEN raised its full-year earnings guidance on July 28.**

Carrier's results also confirmed strong data center demand, particularly in the Americas. In the DC air conditioning space, Mitsubishi Electric develops chillers mainly in Europe, but is looking to expand its business to the US, and we see potential for positive developments on this front.

Ryo Harada

+81(3)4587-9865 | ryo.harada@gs.com
Goldman Sachs Japan Co., Ltd.

Hiroki Muramatsu

+81(3)4587-9872 | hiroki.muramatsu@gs.com
Goldman Sachs Japan Co., Ltd.

Key takeaways from Carrier's results briefing

- 2Q sales came to US\$6,351 mn (Bloomberg consensus: US\$6,021 mn), with organic growth of +3% yoy.
- 2Q adjusted operating profits finished at US\$1,095 mn (consensus: US\$1,041 mn), down -6% yoy. The adjusted operating profit margin was 17.2% (-190 bps yoy). Higher volumes and productivity improvements contributed, but this was offset by rising raw material costs and an unfavorable business mix.
- 2Q orders were up by +40% yoy. Commercial HVAC was strong at +65% yoy, with particularly strong demand seen in data center-related business, up over +300% yoy. Carrier guides for FY26 data center sales of US\$2.0 bn, an upward revision from previous guidance of US\$1.5 bn. The product portfolio for CDUs (coolant distribution units) is expanding, and orders for CARR's QuantumLeap cooling solution are increasing.
- The order backlog at the end of 2Q was over USD8 bn, up +40% yoy and +20% qoq.

Goldman Sachs does and seeks to do business with companies 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. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

- **Climate Solutions Americas (CSA) business:** 2Q sales were US\$3,372 mn (consensus: US\$3,138 mn), with organic growth of +4% yoy. Residential (+9% yoy) and Light Commercial (+10% yoy) were strong. Residential channel inventory was down -25% yoy, and the company expects strong growth in 2H. Commercial was down -8% yoy due to shipment timing, but the company expects expansion in data center-related business in 2H26. Commercial orders doubled yoy, driven by data center-related orders, which were up over +300% yoy.
- **Climate Solutions Europe (CSE) business:** 2Q sales were US\$1,324 mn (consensus: US\$1,307 mn), with organic growth of +3% yoy. Residential & Light Commercial (RLC) saw positive high-single-digit % growth yoy. The electrification trend continues, and heat pump sales performed well, up +20% yoy. While Commercial saw a mid-single-digit % decline, CARR expects a recovery in 2H26 on data center-related demand.
- **Climate Solutions Asia Pacific Middle East & Africa (CSAME) business:** 2Q sales were US\$917 mn (consensus: US\$867 mn), with organic growth of +4% yoy. In China, RLC remained weak, down -25% yoy. However, other regions excluding China were strong, with positive growth in India (+35% yoy), the Middle East (+35% yoy), Southeast Asia (+20% yoy), and Australia (+30% yoy).
- The company raised its FY26 full-year guidance. Sales guidance was raised from US\$22 bn to US\$23 bn, and adjusted operating profit guidance from US\$3.4 bn to US\$3.5 bn.

Price Target Risks and Methodology - Panasonic Holdings

We are Buy rated. Our 12-month target price is ¥5,000. We apply an EV/EBITDA multiple of 9.0X (FY3/28E base year, based on the historical correlation between EV/EBITDA and EBITDA margin). Risks: **Companywide:** (1) Weaker-than-expected progress with fixed-cost reductions or insufficiently realized benefits from business reforms across the company as a whole, (2) weaker growth prospects due to the loss of key personnel during the fixed-cost reduction process, (3) slower-than-expected progress in revamping the business portfolio as a result of delays selecting buyers, (4) additional investment and depreciation burdens arising due to increased demand for cylindrical batteries, and (5) forex trends (we estimate that every ¥1 appreciation vs. the USD/EUR/CNY impacts annual adjusted operating profits by -¥0.9 bn/-¥1.0 bn/+¥4.7 bn, respectively). **Lifestyle updates business:** Weaker demand for residential/commercial air conditioners due to a downturn in the global economy, or the loss of market share to more popular or cheaper products at competitors. **Panasonic Connect:** (1) A slump in the company's aircraft services business if the "bring your own devices" trend were to become more common for in-flight entertainment on commercial aircraft, (2) weaker-than-expected sales growth at acquired company Blue Yonder (standalone basis), (3) major impairment losses on Blue Yonder if the calculation of its present value were to require a higher WACC due to rising interest rates or other factors (indication of impairment is checked every quarter), and (4) longer-than-anticipated decline in demand for various mounting systems. **Energy:** Tesla opting to increase its use of batteries made by other companies, or stronger pricing pressures, a further slowdown in the EV market, or i



competition in the generative AI-related battery backup unit (BBU) business. **Panasonic Industry:** Weaker-than-expected factory automation-related demand, stiffer competition in the generative AI-related hybrid capacitor and circuit board material businesses, or a longer-than-expected downturn in demand for smartphones and other consumer electronics.

Price Target Risks and Methodology - Mitsubishi Electric

Valuation methodology: We are Buy rated. Our 12-month target price of ¥7,400 is based on an FY3/28E EV/EBITDA of 14X (based on the correlation between EV/EBITDA and EBITDA margins of global competitors).

Key downside risks: **Industrial automation systems (FA):** Marginal profit growth on top-line expansion failing to offset higher depreciation from the company's new production facilities if the slowdown in orders is prolonged. **Industrial automation systems (automotive equipment):** A lack of progress exiting from the car multi-media business, challenges finding partners in the CASE business, or a sharp slowdown in production at client automakers. **Home appliances (HVAC):** Challenges achieving production scale due to difficulties procuring components and other factors, or deteriorating margins in the ATW business in a stronger competitive landscape. **Power semiconductors:** Inability to secure sufficient sales/orders to cover new capex, or more intense price competition on significant investment by Chinese companies and other rivals. **Elevator & escalator business:** Stalled new construction demand in China and other markets, or the outflow to third parties of high-margin maintenance contracts in the domestic business. **Infrastructure systems:** Project delays or larger-than-expected losses generated in the defense & space systems business. **Companywide:** Weaker prospects for synergies realized between businesses, and yen appreciation.

Disclosure Appendix

Reg AC

We, Ryo Harada and Hiroki Muramatsu, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Contributing Authors: Ryo Harada Goldman Sachs Japan Co., Ltd., Hiroki Muramatsu Goldman Sachs Japan Co., Ltd..

Unless otherwise stated, the individuals listed in the Contributing Authors disclosure of this report are analysts in Goldman Sachs' Global Investment Research division.

GS Factor Profile

The Goldman Sachs Factor Profile provides investment context for a stock by comparing key attributes to the market (i.e. our universe of rated stocks) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g. valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

Growth is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

M&A Rank

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign a M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability and 3 representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

Disclosures

The rating(s) for Mitsubishi Electric and Panasonic Holdings is/are relative to the other companies in its/their coverage universe: Anritsu, Daihen, Fuji Electric Co., Fujikura, Furukawa Electric, Hitachi, Meidensha, Mitsubishi Electric, Panasonic Holdings, SWCC, Sumitomo Electric Industries

The rating(s) for Carrier Global Corp. is/are relative to the other companies in its/their coverage universe: 3M Co., ATS Corp., Allegion Plc, Carrier Global Corp., Cognex Corp., Core & Main Inc., Dover Corp., DuPont de Nemours Inc., EquipmentShare, Flowserve Corp., Forgent Power Solutions Inc., GE Vernova, Graco Inc., Honeywell International Inc., INNIO, ITT Inc., Illinois Tool Works, Ingersoll Rand Inc., Johnson Controls International Plc, Kennametal Inc., Lennox International Inc., Madison Air Solutions, Mirion Technologies Inc., Parker Hannifin Corp., RBC Bearings Inc., Regal Rexnord Corp., Rockwell Automation Inc., Roper Technologies Inc., Stanley Black & Decker Inc., Timken Co., Trane Technologies Plc, Vontier Corp., Zurn Elkay Water Solutions Corp., nVENT Electric Plc.

Company-specific regulatory disclosures

The following disclosures relate to relationships between The Goldman Sachs Group, Inc. (with its affiliates, "Goldman Sachs") and companies covered by Goldman Sachs Global Investment Research and referred to in this research.

Goldman Sachs beneficially owned 1% or more of common equity (excluding positions managed by affiliates and business units not required to be aggregated under US securities law) as of the month end preceding this report: Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs has received compensation for investment banking services in the past 12 months: Carrier Global Corp. (\$69.33), Mitsubishi Electric (¥5,319), Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs expects to receive or intends to seek compensation for investment banking services in the next 3 months: Carrier Global Corp. (\$69.33), Mitsubishi Electric (¥5,319), Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs has received compensation for non-investment banking services during the past 12 months: Carrier Global Corp. (\$69.33)

Goldman Sachs had an investment banking services client relationship during the past 12 months with: Carrier Global Corp. (\$69.33), Mitsubishi Electric (¥5,319), Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs had a non-investment banking securities-related services client relationship during the past 12 months with: Carrier Global Corp. (\$69.33), Mitsubishi Electric (¥5,319), Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs had a non-securities services client relationship during the past 12 months with: Carrier Global Corp. (\$69.33), Mitsubishi Electric (¥5,319), Panasonic Corp. (\$7.24) and Panasonic Holdings (¥3,604)

Goldman Sachs makes a market in the securities or derivatives thereof: Carrier Global Corp. (\$69.33)

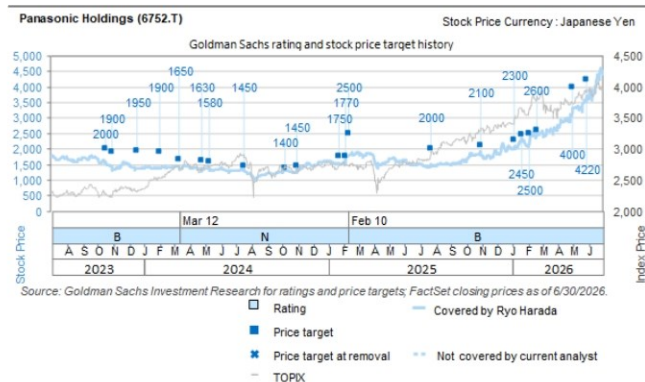
Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global Equity coverage universe

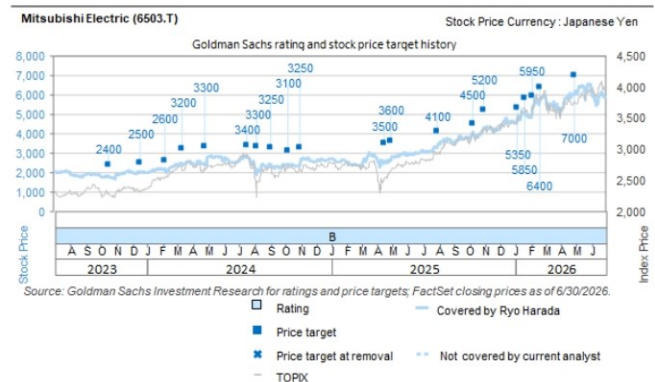
	Rating Distribution				Investment Banking Relationships		
	Buy	Hold	Sell		Buy	Hold	Sell
Global	50%	34%	16%		65%	59%	43%

As of July 1, 2026, Goldman Sachs Global Investment Research had investment ratings on 3,104 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by the FINRA Rules. See 'Ratings, Coverage universe and related definitions' below. The Investment Banking Relationships chart reflects the percentage of subject companies within each rating category for whom Goldman Sachs has provided investment banking services within the previous twelve months.

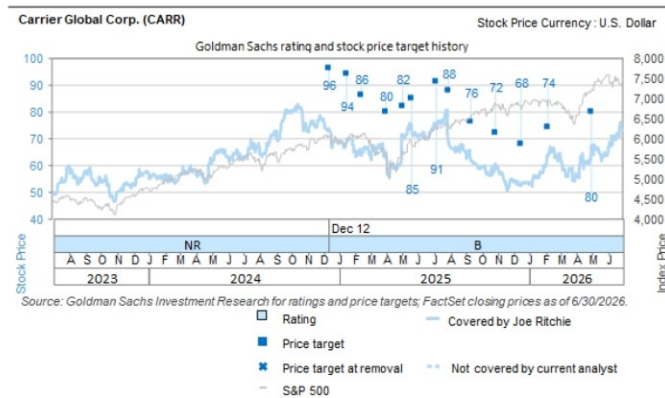
Price target and rating history chart(s)



The price targets shown should be considered in the context of all prior published Goldman Sachs research, which may or may not have included price targets, as well as developments relating to the company, its industry and financial markets.



The price targets shown should be considered in the context of all prior published Goldman Sachs research, which may or may not have included price targets, as well as developments relating to the company, its industry and financial markets.



The price targets shown should be considered in the context of all prior published Goldman Sachs research, which may or may not have included price targets, as well as developments relating to the company, its industry and financial markets.

Target price history table(s)

Carrier Global Corp. (CARR)

Date of report	Target price (\$)	Closing price (\$)
10-Jul-26	85.00	69.34
30-Apr-26	80.00	67.17
06-Feb-26	74.00	63.92
16-Dec-25	68.00	53.44
28-Oct-25	72.00	58.74
11-Sep-25	76.00	62.30
30-Jul-25	88.00	68.20
07-Jul-25	91.00	74.64
21-May-25	85.00	72.09

Panasonic Holdings (6752.T)

Date of report	Target price (¥)	Closing price (¥)
07-Jul-26	5,000	4,400
29-May-26	4,220	3,700
30-Apr-26	4,000	3,203
19-Feb-26	2,600	2,525
04-Feb-26	2,500	2,194
19-Jan-26	2,450	2,351
05-Jan-26	2,300	2,079
30-Oct-25	2,100	1,924
23-Jul-25	2,000	1,506

Carrier Global Corp. (CARR)

Date of report	Target price (\$)	Closing price (\$)
05-May-25	82.00	70.81
02-Apr-25	80.00	65.04
12-Feb-25	86.00	63.60
16-Jan-25	94.00	69.74
12-Dec-24	96.00	73.54

Panasonic Holdings (6752.T)

Date of report	Target price (¥)	Closing price (¥)
10-Feb-25	2,500	1,784
04-Feb-25	1,770	1,530
23-Jan-25	1,750	1,548
31-Oct-24	1,450	1,238
07-Oct-24	1,400	1,318
18-Jul-24	1,450	1,318
09-May-24	1,580	1,387
24-Apr-24	1,630	1,393
12-Mar-24	1,650	1,394
02-Feb-24	1,900	1,383
19-Dec-23	1,950	1,370
30-Oct-23	1,900	1,437
17-Oct-23	2,000	1,585

Mitsubishi Electric (6503.T)

Date of report	Target price (¥)	Closing price (¥)
07-Jul-26	7,400	5,947
28-Apr-26	7,000	6,078
19-Feb-26	6,400	5,731
03-Feb-26	5,950	5,000
19-Jan-26	5,850	5,100
05-Jan-26	5,350	4,790
31-Oct-25	5,200	4,317
08-Oct-25	4,500	4,089
31-Jul-25	4,100	3,342
28-Apr-25	3,600	2,620
16-Apr-25	3,500	2,493
31-Oct-24	3,250	2,388
07-Oct-24	3,100	2,461
02-Sep-24	3,250	2,461
07-Aug-24	3,300	2,161
18-Jul-24	3,400	2,804
26-Apr-24	3,300	2,393
12-Mar-24	3,200	2,416
05-Feb-24	2,600	2,214
19-Dec-23	2,500	2,001
17-Oct-23	2,400	1,815

Price targets shown in table(s) are unadjusted for corporate actions.

Regulatory disclosures**Disclosures required by United States laws and regulations**

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with a subject company, public appearances and trading in securities covered by the analysts.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of Global Investment Research of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been

prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Brazil:** Disclosure information in relation to CVM Resolution n. 20 is available at <https://www.gs.com/worldwide/brazil/area/gir/index.html>. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Resolution n. 20, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** This information is being provided to you for information purposes only and is not, and under no circumstances should be construed as, an advertisement, offering or solicitation by Goldman Sachs & Co. LLC for purchasers of securities in Canada to trade in any Canadian security. Goldman Sachs & Co. LLC is not registered as a dealer in any jurisdiction in Canada under applicable Canadian securities laws and generally is not permitted to trade in Canadian securities and may be prohibited from selling certain securities and products in certain jurisdictions in Canada. If you wish to trade in any Canadian securities or other products in Canada please contact Goldman Sachs Canada Inc., an affiliate of The Goldman Sachs Group Inc., or another registered Canadian dealer. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst – SEBI Registration Number INH000001493, 10th Floor, Ascent-Worli, Sudam Kalu Ahire Marg, Worli, Mumbai-400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Goldman Sachs (India) Securities Private Limited compliance officer and investor grievance contact details, a copy of the annual compliance audit report and other relevant information and disclosures can be found at this link: <https://www.goldmansachs.com/worldwide/india/research-analyst>. **Japan:** See below. **Korea:** This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. **Singapore:** Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union and United Kingdom: Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at <https://www.gs.com/disclosures/europeanpolicy.html> which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan Type II Financial Instruments Firms Association, and Investment Management Association of Japan. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Ratings, coverage universe and related definitions

Buy (B), Neutral (N), Sell (S) Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's total return potential relative to its coverage universe. Any stock not assigned as a Buy or a Sell on an Investment List with an active rating (i.e., a stock that is not Rating Suspended, Not Rated, Early-Stage Biotech, Coverage Suspended or Not Covered), is deemed Neutral. Each region manages Regional Conviction Lists, which are selected from Buy rated stocks on the respective region's Investment Lists and represent investment recommendations focused on the size of the total return potential and/or the likelihood of the realization of the return across their respective areas of coverage. The addition or removal of stocks from such Conviction Lists are managed by the Investment Review Committee or other designated committee in each respective region and do not represent a change in the analysts' investment rating for such stocks.

Total return potential represents the upside or downside differential between the current share price and the price target, including all paid or anticipated dividends, expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The total return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

Coverage Universe: A list of all stocks in each coverage universe is available by primary analyst, stock and coverage universe at <https://www.gs.com/research/hedge.html>.

Not Rated (NR). The investment rating, target price and earnings estimates (where relevant) are removed pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or in a strategic transaction involving this company, when there are legal, regulatory or policy constraints due to Goldman Sachs' involvement in a transaction, and in certain other circumstances. **Early-Stage Biotech (ES).** An investment rating and a target price are not assigned pursuant to Goldman Sachs policy when this company has neither a drug, treatment or medical device that has passed a Phase II clinical trial nor a license to distribute a post-Phase II drug, treatment or medical device. **Rating Suspended (RS).** Goldman Sachs Research has suspended the investment rating and price target for this stock, because there is not a sufficient fundamental basis for determining an investment rating or target price. The previous investment rating and target price, if any, are no longer in effect for this stock and should not be relied upon. **Coverage Suspended (CS).** Goldman Sachs has suspended coverage of this company. **Not Covered (NC).** Goldman Sachs does not cover this company.

Global product; distributing entities

Goldman Sachs Global Investment Research produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Public Communication Channel Goldman Sachs Brazil: 0800 727 5764 and / or contatogoldmanbrasil@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Canal de Comunicação com o Público Goldman Sachs Brasil: 0800 727 5764 e/ou contatogoldmanbrasil@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom.

Goldman Sachs International (“GSI”), authorised by the Prudential Regulation Authority (“PRA”) and regulated by the Financial Conduct Authority (“FCA”) and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: Goldman Sachs Bank Europe SE (“GSBE”) is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research within the European Economic Area.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst’s judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by Global Investment Research. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (<https://www.sipc.org>).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst’s published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst’s fundamental equity rating for such stocks, which rating reflects a stock’s return potential relative to its coverage universe as described herein.

We and our affiliates, officers, directors, and employees will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research, unless otherwise prohibited by regulation or Goldman Sachs policy.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at <https://www.theocc.com/about/publications/character-risks.jsp> and https://www.goldmansachs.com/disclosures/cftc_fcm_disclosures. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by Goldman Sachs Global Investment Research may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts’ fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst’s fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to <https://research.gs.com>.

Disclosure information is also available at <https://www.gs.com/research/hedge.html> or from Research Compliance, 200 West Street, New York, NY 10282.

© 2026 Goldman Sachs.

You are permitted to store, display, analyze, modify, reformat, and print the information made available to you via this service only for your own use. You may not resell or reverse engineer this information to calculate or develop any index for disclosure and/or marketing or create any other derivative works or commercial product(s), data or offering(s) without the express written consent of Goldman Sachs. You are not permitted to publish, transmit, or otherwise reproduce this information, in whole or in part, in any format to any third party without the express written consent of Goldman Sachs. This foregoing restriction includes, without limitation, using, extracting, downloading or retrieving this information, in whole or in part, to train or finetune a machine learning or artificial intelligence system, or to provide or reproduce this information, in whole or in part, as a prompt or input to any such system.