Goldman Sachs | Derivatives Research

11 April 2025 | 5:16AM EDT

Top 25 Tactical Trades for Earnings Season

We expect single stock call buying to be an unusually profitable strategy this earnings season for three reasons: (1) Put-buying pressure in single stocks remains at extreme levels despite Wednesday's equity rally and tends to be a signal that earnings-day relief rallies are likely, (2) Earnings-day implied moves near 15 year highs suggest investors are unusually nervous ahead of earnings events, and (3) The average upside to our analysts' price targets has reached its second highest level in 12 years, which tends to be associated with outsized earnings-season upside asymmetry. In short, due to bearish positioning in derivatives markets, equities are likely to rally if results are in-line with reduced expectations. **Top ideas:** We have spent the past two weeks collaborating with our equity analysts to identify the 25 most out-of-consensus opportunities from our Americas coverage. Our analysts see potential for upward earnings revisions to drive upside in 16 names including BAM, BAX, MO, TWLO and WWD; they expect downward earnings revisions to drive downside in 9 names including AAL, SMCI and WU.

With institutional investors de-risked, we expect individual investors will be the key market participants that decide the direction of the equity market over the coming months. Individual investors have remained net buyers of stocks and ETFs all year, including during the past week. We view individual investor equity buying decisions as more influenced by their employment status than their equity market view. If trade policy uncertainty eases, we would expect a variety of investors to buy equities. If trade policy uncertainty increases, we expect it would take time for job losses to occur and subsequent individual investor selling to materialize; this, combined with the elevated level of fear priced into derivatives markets (VIX, put-call skew and implied moves) suggests there is a window of several weeks when relief rallies are more likely than downside acceleration. We will be closely watching to see if job losses materialize as a warning sign for individual investor selling.

John Marshall
+1(212)902-6848 |
john.marshall@gs.com
Goldman Sachs & Co. LLC

Arun Prakash, CFA
+1(212)934-6218 | arun.prakash@gs.com
Goldman Sachs India SPL

Chandru Ravikumar
+1(212)934-7681 |
chandru.ravikumar@gs.com
Goldman Sachs India SPL

Rohith Medarametla
+1(212)934-5334 |
rohith.medarametla@gs.com
Goldman Sachs India SPL

Vaasu Gupta
+1(332)245-7522 |
vaasu.x.gupta@gs.com
Goldman Sachs India SPL

Deep Mehta
+1(212)357-8419 | deep.mehta@gs.com
Goldman Sachs & Co. LLC

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. This report is intended for distribution to GS institutional clients only.

Our 25 most differentiated ideas for the next 3 months of earnings

Exhibit 1: Companies where our analysts are most out-of-consensus for the coming quarter and expect shares to move
Goldman Sachs analyst estimates vs. consensus; options chosen are monthly expiry closest to first out of the money calls, puts

Upside to estimates

					EPS: GS vs Consensus		Chg in EPS consensus	Stock Move		Options : (buy calls)		
Company	Ticker	Sector	Earnings date (e)	GS Rating	Current Q	Next 4 Q's	vs 2 months ago	Implied Move %	8Q avg move %	Term	strike	cost
Installed Building	IBP	**Discretionary**	9-May	B	5%	2%	(2%)	11.4	5.4	May	180.00	5.3%
Universal Display	OLED	**Energy**	2-May	B	17%	8%	(2%)	15.7	9.7	May	110.00	10.7%
Brookfield Asset	BAM	**Financials**	6-May	B	5%	1%	(0%)	9.2	2.0	May	47.50	6.3%
Progressive	PGR	**Financials**	16-Apr	B	3%	5%	7%	7.6	1.8	April	280.00	2.5%
Baxter Intl	BAX	**Healthcare**	2-May	B*	2%	2%	0%	8.8	5.4	May	30.00	4.3%
Danaher	DHR	**Healthcare**	22-Apr	B	3%	3%	0%	9.6	5.9	May	190.00	4.8%
Intuitive Surgical	ISRG	**Healthcare**	22-Apr	B	1%	2%	(0%)	8.0	6.2	May	490.00	7.3%
AerCap	AER	**Industrials**	30-Apr	B	8%	6%	(1%)	7.0	1.3	May	95.00	3.9%
Lennox Intl	LII	**Industrials**	23-Apr	B	17%	3%	0%	10.3	5.4	May	560.00	6.2%
Woodward Inc.	WWD	**Industrials**	29-Apr	B*	5%	3%	0%	11.8	7.3	May	170.00	6.4%
Corteva Inc.	CTVA	**Materials**	7-May	B	6%	6%	0%	5.9	6.5	May	60.00	8.6%
Altria Group	MO	**Staples**	29-Apr	B	4%	3%	(0%)	5.8	3.4	May	57.50	3.6%
Arista Networks	ANET	**TMT**	6-May	B	5%	6%	1%	10.6	10.8	May	75.00	8.1%
Monday.com Ltd.	MNDY	**TMT**	15-May	B	11%	17%	0%	14.0	15.4	May	250.00	10.9%
Twilio	TWLO	**TMT**	7-May	B	5%	8%	(1%)	12.6	9.9	May	90.00	7.8%
Tyler Tech	TYL	**TMT**	24-Apr	B	3%	6%	0%	8.5	6.3	May	560.00	6.0%
Average					**6%**	**5%**	**0%**	**9.8**	**6.4**			**6.4%**

Downside to estimates

					EPS: GS vs Consensus		Chg in EPS consensus	Stock Move		Options : (buy puts)		
Company	Ticker	Sector	Earnings date (e)	GS Rating	Current Q	Next 4 Q's	vs 2 months ago	Implied Move %	8Q avg move %	Term	strike	cost
Genuine Parts	GPC	**Discretionary**	22-Apr	S	(1%)	(1%)	(3%)	4.6	5.2	May	110.00	5.8%
Lazard Inc.	LAZ	**Financials**	25-Apr	S	(10%)	< -20%	(11%)	12.1	4.3	May	30.00	5.3%
American Airlines	AAL	**Industrials**	25-Apr	S	(11%)	< -20%	(24%)	12.7	4.2	May	9.00	8.2%
A.O. Smith	AOS	**Industrials**	29-Apr	S	(5%)	(4%)	(0%)	8.1	4.2	May	60.00	3.7%
Clorox Co.	CLX	**Staples**	5-May	S	(2%)	(1%)	(0%)	6.9	5.9	May	140.00	6.0%
Hershey Co.	HSY	**Staples**	1-May	S	(5%)	(1%)	(0%)	5.5	2.8	May	160.00	4.0%
eBay Inc.	EBAY	**TMT**	1-May	S	(2%)	(1%)	0%	9.4	5.1	May	60.00	4.8%
Super Micro	SMCI	**TMT**	30-Apr	S	(2%)	(4%)	(3%)	19.9	14.1	May	30.00	8.6%
Western Union	WU	**TMT**	24-Apr	S	(4%)	(5%)	(1%)	8.1	5.7	May	9.00	3.7%
Average					**(5%)**	**(6%)**	**(5%)**	**9.7**	**5.7**			**5.6%**

BAX and WWD are on the Conviction List. See the following content for drivers of our analysts' views. Prices as of Apr 10, 2025. IBP, OLED, DHR, CTVA, TYL, AOS, EBAY & WU estimates are based on EBITDA.

Source: Goldman Sachs Global Investment Research, Thomson Reuters, Bloomberg

Options risks: Call buyers risk losing their premium paid if shares close below the strike price at expiration. Put buyers risk losing their premium paid if shares close above the strike price at expiration.

Options prices and volatility levels in this note are indicative only, and are based on our estimates of recent mid-market levels and exclude transaction costs, unless otherwise stated. Practical implementation of any trading strategy discussed herein may not be achievable and as a result, any projected results of any such trading strategy discussed herein may not be replicable.

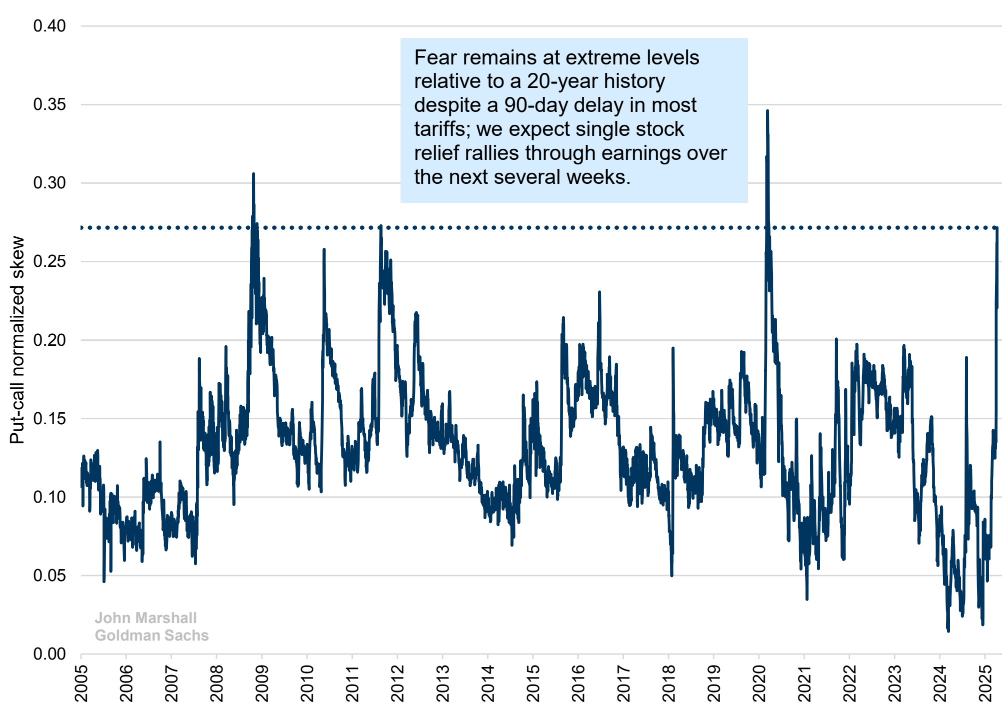
How are investors positioned ahead of earnings?

For weekly updates on our favorite positioning indicators across stocks and macro markets, subscribe to our Weekend Cross-asset Charts within our Custom Research Services here.

Professional investors have significantly de-risked, but individual investor remain steadfastly long equities. For many years, we have held the view that individual investors buy equities when they have jobs and sell equities when they face unemployment. We expect equities to see relief if policy news-flow is generally neutral over the next several weeks. Individual investors have demonstrated a willingness to own stocks through the volatility and professional investors will likely be compelled to re-risk if companies guide consistent with already lowered investor expectations. If economic uncertainty turns into job losses, further equity downside is likely (i.e. individual investors would start selling); however, we would see hypothetical job losses as several weeks away as we expect that companies will take time to assess the direct and indirect impact of proposed policies and would be reluctant to take actions prior to a better understanding of the balance of tariff policy and a potential tax cut bill.

Fear dominates positioning among short-term traders in stocks. We find that put-call skew on S&P 500 single stocks is a useful way to gauge positioning among short-term traders in single stocks. Put-call skew in the average S&P 500 stock has jumped from moderate levels last week to levels that show extreme fear relative to history. Our analysis shows that when investors are buying single stock puts (i.e. put-call skew is high), it shows sentiment is too bearish and likely to be a tailwind for stocks as they report earnings.

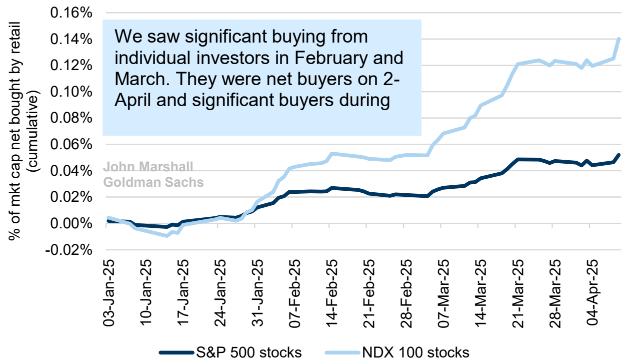
Exhibit 2: Single stock options prices suggest investors are bearishly positioning
Average S&P 500 single stock 1-month put-call normalized skew



Source: Goldman Sachs FICC and Equities

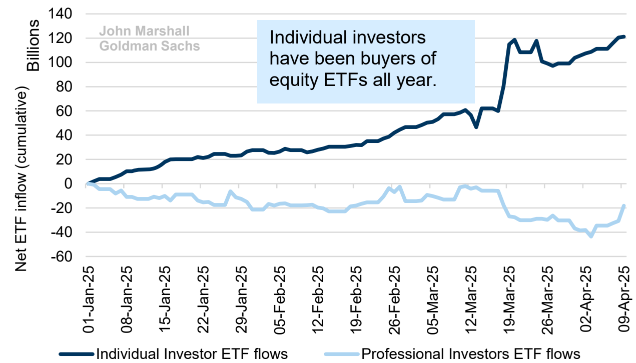
Individual investors didn't lose faith in equities during the recent volatility. We aggregate the net buying flow across all stocks in the SPX and NDX using analysis of public trade level data from Goldman Sachs Electronic Trading (GSET). GSET analyzes the size and direction of trades that received price improvement (i.e. retail trades) allowing us to understand aggregate buying/selling trends over time. Retail investors were sellers of stocks during the decline of 2022, but have been buyers during the recent equity volatility. Individual investors bought both stocks and ETFs in the Apr- 9 rally.

Exhibit 3: Individual investors continue to buy single stock shares
Net daily buying of single stocks in each index based on trades that go through PFOF



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

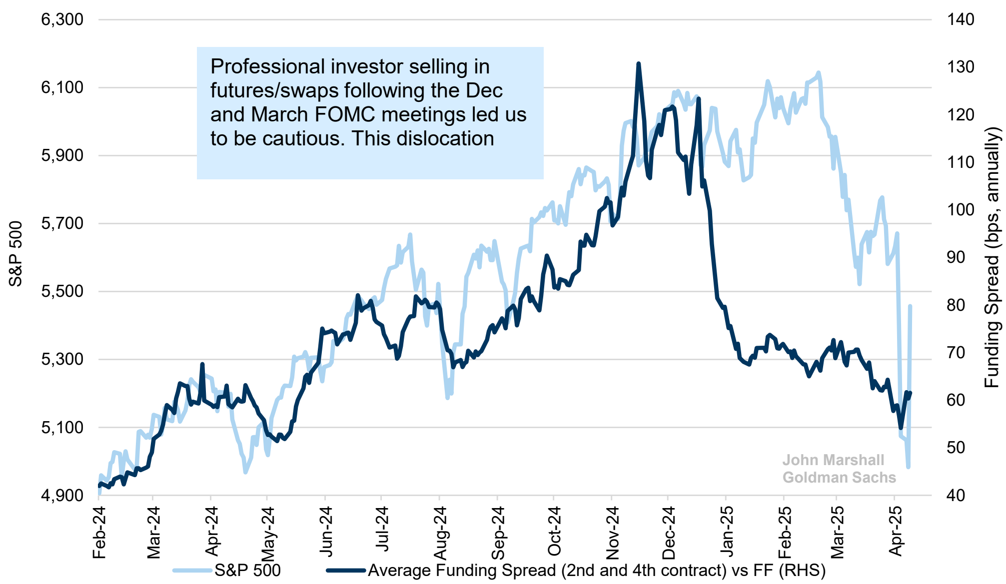
Exhibit 4: Individual investors have been buyers of ETFs all year
Net buying/selling of ETFs



Source: Goldman Sachs Global Investment Research, Bloomberg

The negative signal from futures funding spreads has been fully realized by recent equity declines (a view that we have held since 5-April). The equity market has caught down to the extremely negative signal coming into the year. We believe asset allocators that transact in the futures/swaps/options markets reduced their exposure to US equities in the two weeks following the December FOMC meeting and again more modestly over the past month. As of 5-April, the SPX was down 15% since this negative signal was observed on 29-Dec and down 17% from its 19-Feb peak. We no longer see this signal from funding spreads as a negative signal for equities and in-fact see it as a potential cohort for re-risking when a more favorable monetary and fiscal policy environment returns.

Exhibit 5: The equity market has declined to reflect the decrease in demand for equities from investors in futures/swaps/options
S&P futures funding spreads (2nd and 4th contract average)



Source: Goldman Sachs FICC and Equities

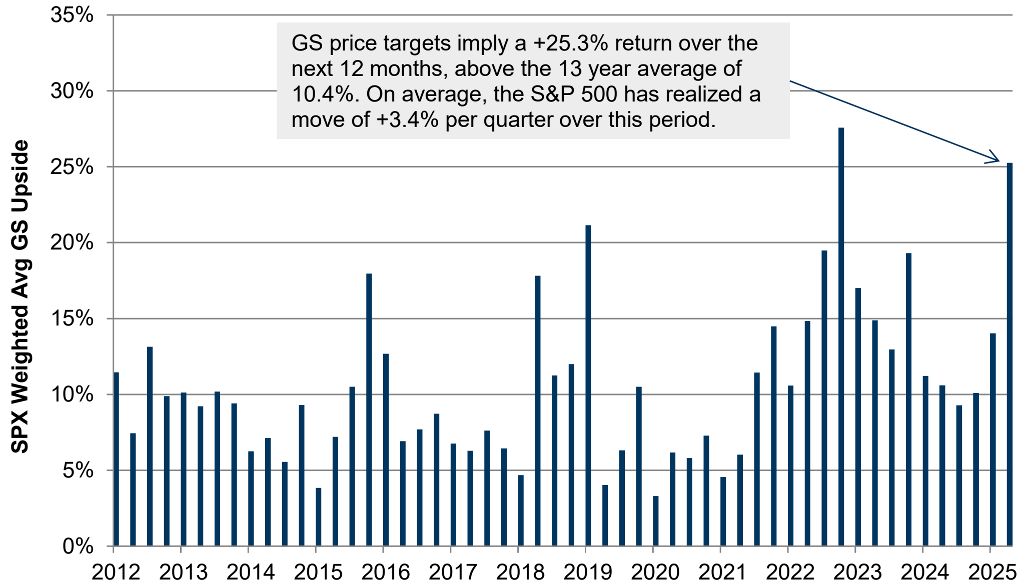
GS Price Targets suggest average upside for S&P 500 names

Our single stock analysts' price targets imply 25.3% upside over the next year for the weighted average of S&P 500 companies in our coverage, above all but one quarter over the past 12 years. All else equal, this would suggest a significantly above average return for the S&P 500 over the next 3 months (the average 3-month return for the S&P 500 over the past 13 years has been +3.4%).

We find the bottom up calculation of the weighted average upside to the S&P 500 (based on individual stock price targets from our analysts) has been a useful guide for assessing the potential for upside in the broad equity market ahead of earnings season. This has been particularly true for quarters where upside to price target was at extreme levels.

Over the past three months, Goldman Sachs price targets have risen by 0.6% while the S&P 500 has declined by 10.7%. Stocks appear significantly more attractive ahead of this quarter than last quarter.

Exhibit 6: S&P 500 weighted average price target ahead of earnings season is significantly above its average level over the past 13 years
Weighted average price target for S&P 500 companies (bottom up)



Source: Goldman Sachs Global Investment Research

The Biotech Sector stands out with the most elevated upside relative to July 2025 call prices. We compare the weighted average single stock price targets of sector and factor ETFs to July 2025 call prices to identify attractive risk-adjusted upside opportunities. For example, our analysts cover 61% of the weight of the SPDR S&P Biotech ETF (XBI) and have a weighted average upside to price target of +61.2%; this implies a return of 534% on buying an XBI Jul-2025 at-the-money call for 7.7%. While this would be a shorter time-frame than implied by the 12-month single stock price targets, it helps to give perspective on risk-adjusted return expectations.

The upside implied by our analysts' price targets is low relative to the cost of options for Consumer Staples (XLP), Financials (XLF) and Low volatility stocks (SPLV).

Exhibit 7: Biotech and Materials ETFs have the highest implied call return based on our analysts' single stock price targets
Weighted average valuation for major ETFs and implied return on buying Jul-2025 ATM calls if ETFs reach their implied valuation

						Jul-2025 OTC ATM call	
ETF Type	Name	Ticker	Implied wgted upside	% of ETF wgt covered by analysts	Current ETF Price	Cost of call	Implied call return
Sector	iShares NASDAQ Biotechnology	IBB	49.0%	75%	113.06	7.7%	**537%**
Sector	SPDR S&P Biotech	XBI	61.2%	60%	71.61	9.7%	**534%**
Sector	Materials SPDR	XLB	30.3%	69%	78.18	6.4%	**374%**
Sector	SPDR S&P Oil & Gas E&P	XOP	48.9%	69%	104.39	11.0%	**344%**
Sector	Health Care SPDR	XLV	24.4%	72%	134.89	5.6%	**339%**
Smart Beta	Invesco S&P 500 Equal Weight	RSP	25.0%	69%	159.60	5.7%	**335%**
Sector	Communication Services SPDR	XLC	25.4%	81%	90.50	6.3%	**304%**
Sector	Energy SPDR	XLE	33.4%	91%	76.98	8.4%	**299%**
Broad Index	Vanguard Total Stock Market	VTI	25.9%	73%	257.43	6.5%	**298%**
Broad Index	SPDR S&P 500	SPY	25.3%	76%	524.58	6.6%	**286%**
Sector	Technology Select Sector SPDR	XLK	30.6%	63%	194.37	8.2%	**272%**
Broad Index	Invesco QQQ	QQQ	26.7%	72%	446.19	7.5%	**255%**
Sector	Industrial SPDR	XLI	22.4%	83%	123.49	6.4%	**248%**
Sector	Utilities SPDR	XLU	15.2%	73%	75.40	4.8%	**214%**
Sector	Consumer Discretionary SPDR	XLY	24.1%	96%	187.90	7.8%	**210%**
Smart Beta	iShares Select Dividend	DVY	21.5%	61%	122.35	7.0%	**208%**
Sector	Financial SPDR	XLF	20.8%	77%	45.91	7.1%	**191%**
Sector	SPDR S&P Retail	XRT	24.3%	56%	66.07	8.5%	**187%**
Sector	Consumer Staples SPDR	XLP	10.2%	90%	79.35	4.8%	**111%**
Smart Beta	Invesco S&P 500 Low Volatility	SPLV	11.1%	72%	70.41	6.4%	**72%**

Pricing as of 10-Apr-25 close

Source: Goldman Sachs Global Investment Research, Bloomberg

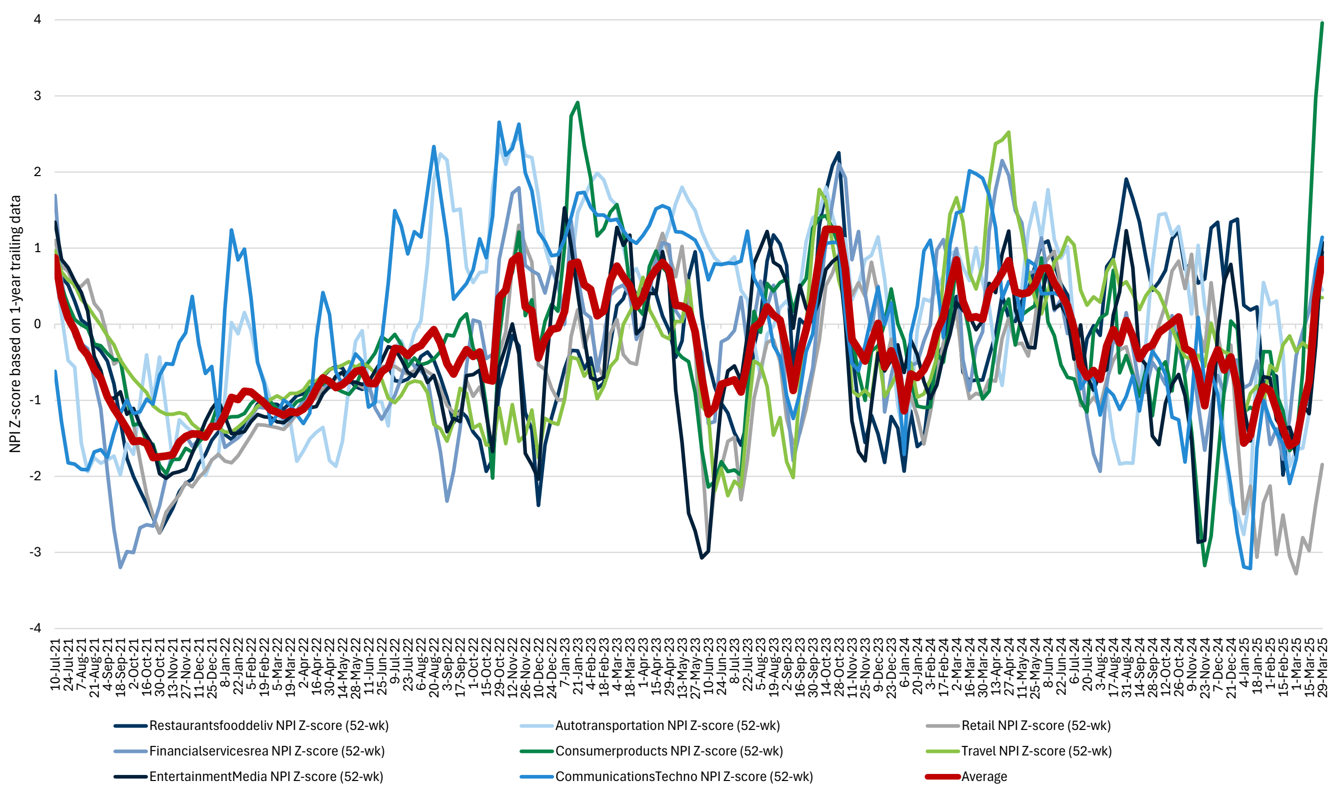
Methodology: We calculate the sum of the weight of each stock in each index that underlies each ETF and multiply by the upside to price target and divide by the total weight that is covered by our analysts.

Consumer spending intentions rebounded prior to tariff announcements

Aggregate HundredX data suggests that consumer spending trends were more resilient than investors assumed in the lead up to the tariff announcement (data below is as of 29-March). Similar to the individual investor buying trends in stocks and ETFs that we observed, HundredX data suggests that consumer spending trends may be more resilient than recent equity performance suggests. Net Purchase Intent (NPI) across the respondents surveyed by HundredX improved significantly over the 5 weeks ending 29-March. The 1-year trailing z-score bottomed at -1.6 in the week ending 22-Feb and has risen to 0.8 for the week ending 29-March. We will closely monitor these trends as data becomes available for the post-tariff announcement period.

What is HundredX? HundredX is a mission-based data and insights company that takes an innovative approach to monitoring consumer perceptions and gathering consumer feedback to understand trends across 80+ industries and 3,000+ brands. HundredX analyzes collective opinions of everyday customers and evaluates how their priorities influence purchasing decisions and attitudes toward businesses and brands.

Exhibit 8: Prior to the Tariff announcements Consumer spending expectations had rebounded
HundredX Net Purchase Intent 1-year z-score by sector (last data 29-March)



Source: HundredX

GS-EQMOVE: probability of upside is still underestimated by options markets

What is GS-EQMOVE? The GS-EQMOVE model estimates the probability of a large SPX up or down move separately. Our research shows that in certain fundamental environments, the equity market was more or less likely to see asymmetry in a particular direction. For example, when free cash flow yield was high for the average stock in the S&P 500, the index had a lower probability of making a large downside move. Conceptually, this makes sense as high free-cash-flow means that companies are de-levering their balance sheets at a rapid pace (all else equal). Separately, when return-on-equity is high, it suggests an unusually high probability of large upside moves. We include variables such as ISM New Orders and US Capacity Utilization which help to calibrate the broad volatility expectations (i.e. these have similar upside and downside coefficients). The model is designed to predict the probability of a 5% up or down move in the S&P 500 over a 1-month period. We compare this modeled probability with the probability priced into binary options to assess whether upside/downside asymmetry is overpriced/underpriced.

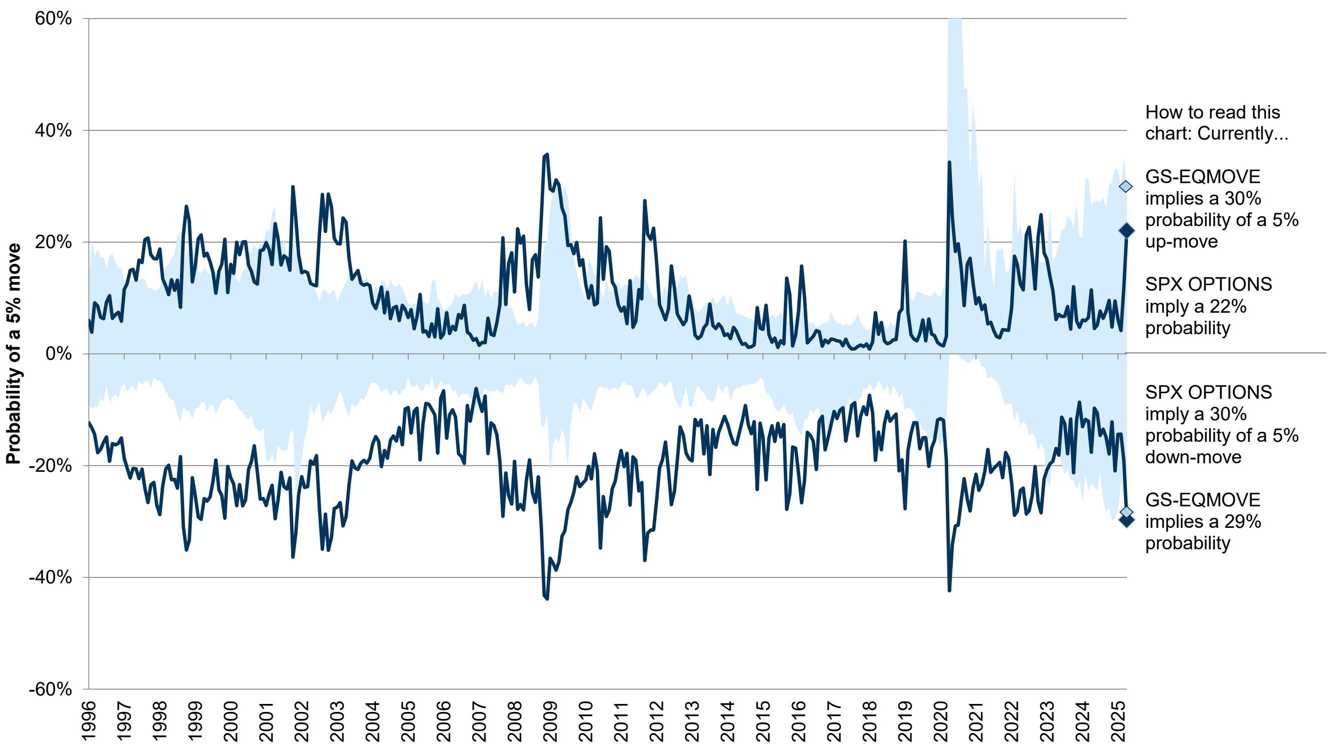
Based on our GS-EQMOVE models, we see upside asymmetry as attractive: Our model estimates a 30% probability that the SPX trades up more than 5% in the next month while options are pricing in only a 22% probability of that size up-move.

Downside asymmetry appears to be fairly priced: Our model estimates a 29% probability that the SPX trades down more than 5% in the next month while options are pricing in an 30% probability of that size down-move. This suggests that SPX put options are also very slightly overpriced.

For more context on this model and our views on harnessing volatility within your portfolio, see our 70+ page report from April 10, 2023 titled "New Models for Asymmetric Investing: a 27-year Asset Allocation Perspective".

Exhibit 9: Probability of 1-month 5%-move implied by GS-EQMOVE compared to SPX options implied probability

Light blue = probability of a 5% up/down move over the next month; dark blue = probability of a 5% up/down move implied by options

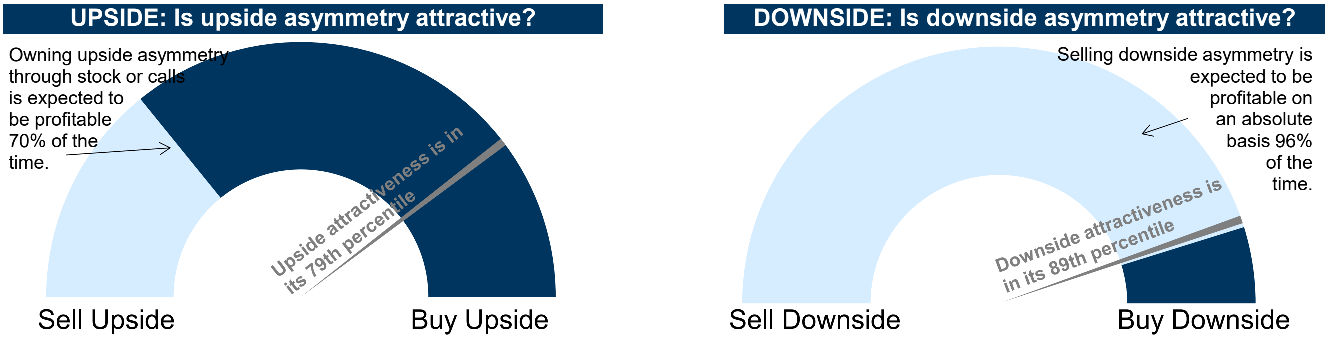


Pricing as of 9-Apr close.

Source: Goldman Sachs FICC and Equities, Goldman Sachs Global Investment Research

Exhibit 10: Where is options attractiveness now? SPX 1-month call and put buying appear unusually attractive

Call and put buying attractiveness vs history and absolute profitability expectations



Source: Goldman Sachs Global Investment Research

Options liquidity remains elevated in specific stocks

Daily options volumes in SPX, SPY, NDX and QQQ are significantly higher than any single stock; however, the notional value traded in the top single stocks is remarkable. TSLA, NVDA, META and AAPL options are all more liquid than Russell 2000 index options. We believe it is critical to monitor options positioning for stocks on the first list below as they represent a large percentage of risk traded in the stock on a daily basis. For interested investors, we provide weekly updates on positioning ahead of Catalysts and when retail/options activity suggests elevated short-squeeze potential.

Exhibit 11: Mega Cap Tech stocks have the most liquid options market

Top 20 single stocks by 3m average daily notional trading volume ($ mn)

Ticker	Name	Mktcap ($bn)	3m avg notional volume ($ mn)
TSLA	Tesla Inc	876	79,999
NVDA	Nvidia Corp	2,790	50,278
META	Meta Platforms Inc-Class A	1,283	32,128
AAPL	Apple Inc	2,987	23,092
MSTR	Microstrategy Inc-CL A	73	17,788
MSFT	Microsoft Corp	2,903	13,766
AMZN	Amazon.com Inc	2,025	13,258
NFLX	Netflix Inc	404	13,011
PLTR	Palantir Technologies Inc-A	207	8,009
GOOGL	Alphabet Inc-CL A	926	6,587
AVGO	Broadcom Inc	871	6,380
AMD	Advanced Micro Devices	157	6,332
COIN	Coinbase Global Inc -Class A	37	5,471
BABA	Alibaba Group Holding-SP Adr	250	4,890
COST	Costco Wholesale Corp	428	4,503
TSM	Taiwan Semiconductor-SP Adr	823	3,603
LLY	Eli Lilly & Co	715	3,505
GOOG	Alphabet Inc-CL C	885	3,208
APP	Applovin Corp-Class A	85	2,581
SMCI	Super Micro Computer Inc	22	2,380

Source: Goldman Sachs Global Investment Research, Bloomberg, OptionMetrics

Exhibit 12: Most of the options trading is concentrated in SPX, NDX and RUT

Top 5 indexes by 3m average daily notional trading volume ($ mn)

Ticker	Name	Index Mktcap ($bn)	3m avg notional volume ($ mn)
SPX	S&P 500 Index	43,874	2,153,595
NDX	Nasdaq 100 Index	21,132	134,105
RUT	Russell 2000 Index	2,457	15,655
XSP	S&P 500 Mini	43,874	6,338
VIX	VIX Index	--	2,314

Source: Goldman Sachs Global Investment Research, Bloomberg, OptionMetrics

Exhibit 13: Broad-based ETFs have the most liquid options market

Top 20 ETFs by 3m average daily notional trading volume ($ mn)

Ticker	Name	AUM ($bn)	3m avg notional volume ($ mn)
SPY	SPDR S&P 500 ETF Trust	573	562,169
QQQ	Invesco QQQ Trust Series 1	293	232,656
IWM	iShares Russell 2000 ETF	60	32,901
GLD	SPDR Gold Shares	93	7,858
TLT	iShares 20 Year Treasury Bond ETF	49	5,610
HYG	iShares iBoxx $ HY Corp Bond Fund	15	4,231
SMH	VanEck Semiconductor ETF	19	2,547
TQQQ	ProShares UltraPro QQQ	22	2,324
DIA	SPDR DJIA ETF Trust	36	2,111
XLI	Industrial Select Sector SPDR Fund	19	1,656
XLF	Financial Select Sector SPDR Fund	48	1,315
SLV	iShares Silver Trust	14	1,151
XLE	Energy Select Sector SPDR Fund	28	1,052
EEM	iShares MSCI Emerging Mkts ETF	16	845
KWEB	KraneShares CSI China Internet ETF	7	824
FXI	iShares China Large-Cap ETF	6	757
KRE	SPDR KBW Regional Banking ETF	3	622
GDX	VanEck Gold Miners ETF	14	545
ARKK	ARK Innovation ETF	5	513
SOXL	Direxion Daily Semiconductor Bull 3X S	9	500

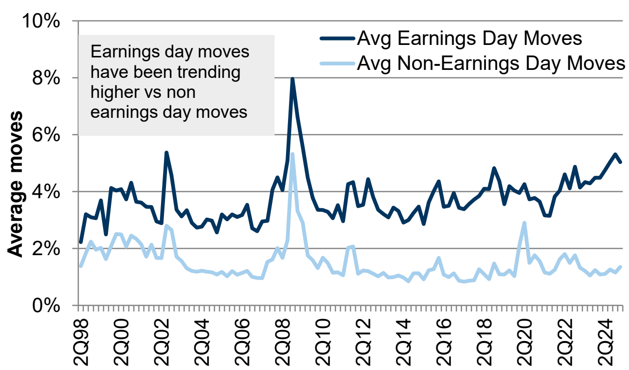
Source: Goldman Sachs Global Investment Research, Bloomberg, OptionMetrics

Earnings day moves remain large

Single stock volatility on earnings events were near a 14-year high again last quarter. We expect earnings day moves to remain elevated as most of the key debates for the market have winners and losers in the equity market (Tariffs, AI, Rates, Government Policy). We continue to see option buying strategies as attractive ahead of earnings events and option selling strategies as attractive between earnings events. Earnings-day moves were 3.7 times the size of non-earnings-day moves last quarter; stock volatility is clearly more concentrated on earnings-days, increasing the potential for idiosyncratic alpha around earnings events.

Exhibit 14: Earnings day moves continue to trend higher vs Non-Earnings day moves

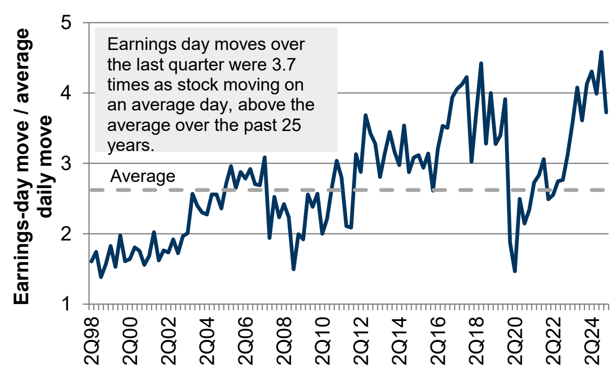
Average earnings day move; Average daily move for 1 month before and after the earnings event; S&P 500 stocks



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 15: Earnings day moves were 3.7 times an average daily move last quarter, above the long term average

Average earnings day move / Average daily move 1-month before and after earnings; S&P 500 stocks



Source: Bloomberg, Goldman Sachs Global Investment Research

Timing of earnings reports by sector

For investors that aim to trade earnings revisions at the sector level with options, it is important to be aware of the timing of reports within the sector. Below, we highlight the percentage of market cap reporting in each week of this earnings season; at the top of the list are the sectors with the highest concentration of earnings reports early in this season.

Exhibit 16: Financials and Health Care are the most concentrated early reporters, while Consumer earnings are well spread over earnings season
% of index weight reporting in each week (weeks with >20% of ETF weight reporting are highlighted); Apr options expire Thursday Apr 17th

Late <------------> Early

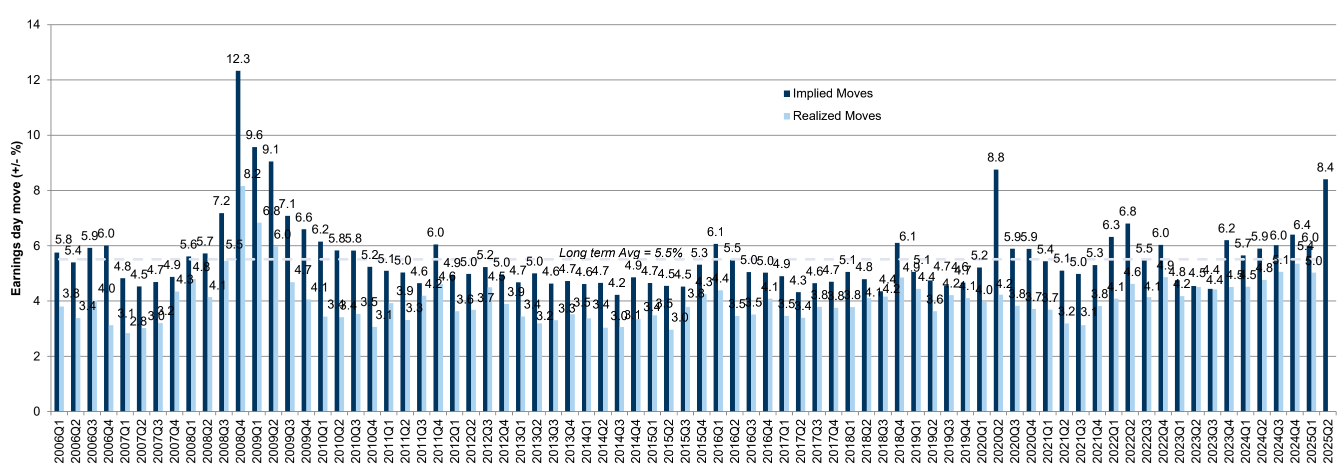
Sector/Wk Ending	11-Apr	18-Apr	25-Apr	2-May	9-May	later
Financials (XLF)	18%	21%	15%	42%	4%	1%
Health Care (XLV)	0%	22%	34%	33%	8%	3%
Communication Services (XLC)	0%	10%	41%	21%	24%	5%
Industrials (XLI)	1%	3%	45%	29%	12%	9%
Materials (XLB)	0%	0%	22%	64%	11%	3%
Information Technology (XLK)	0%	0%	28%	23%	6%	43%
Energy (XLE)	0%	4%	19%	53%	24%	0%
Real Estate (XLRE)	0%	9%	11%	70%	10%	0%
Utilities (XLU)	0%	0%	29%	39%	31%	0%
Consumer Staples (XLP)	0%	0%	30%	30%	5%	35%
Consumer Discretionary (XLY)	0%	1%	23%	43%	5%	26%

Source: Bloomberg, StreetEvents, Goldman Sachs Global Investment Research

Implied earnings-day moves are in line vs history

The average implied earnings day move ahead of this earnings season is +/-8.4%, higher than all but four quarters over the past 20 years. This metric suggests investors are extremely nervous and avoiding earnings-day risk in stocks. We expect stocks to see relief rallies on earnings days as companies discuss with investors how they are adapting to the new environment.

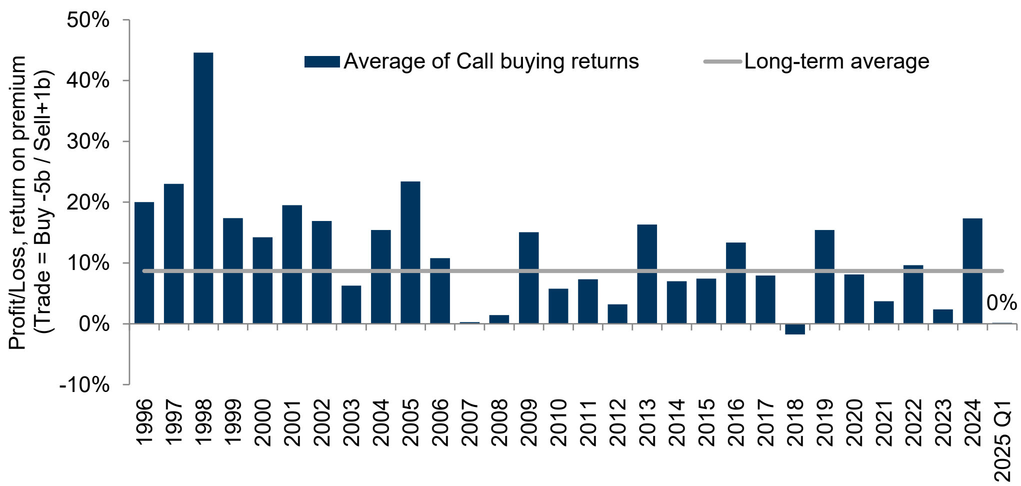
Exhibit 17: The average stock is implying an earnings-day-move of 8.4%, much above its long term average
S&P 500 average stock implied and realized earnings day moves; based on index members in each quarter



Source: Bloomberg, Goldman Sachs FICC and Equities

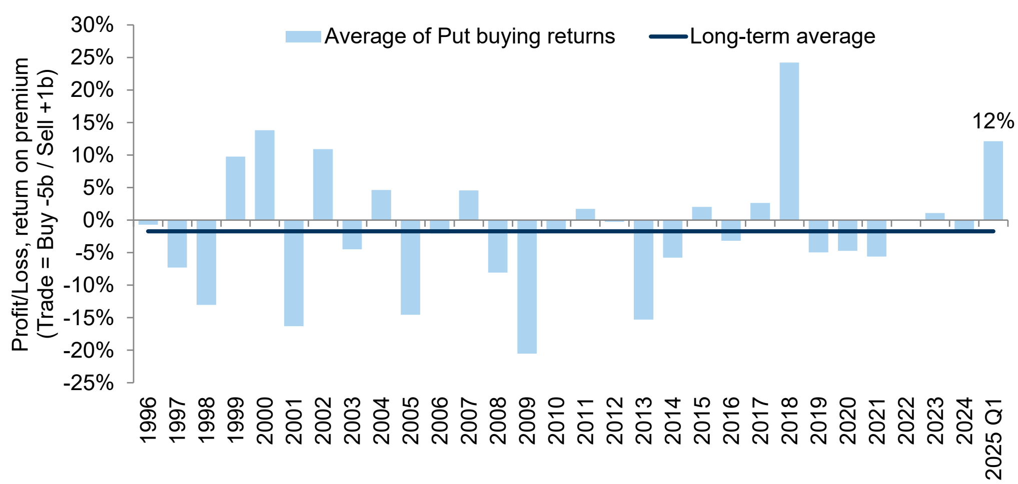
Call buying strategies where breakeven last quarter, but put buying was profitable. We expect call buying to be profitable this quarter given the potential for relief rallies.

Exhibit 18: Buying calls ahead of last quarter's earnings yielded a +0% return on premium
Profit at mid-market for buying first OTM calls, five days before earnings event and selling one day after



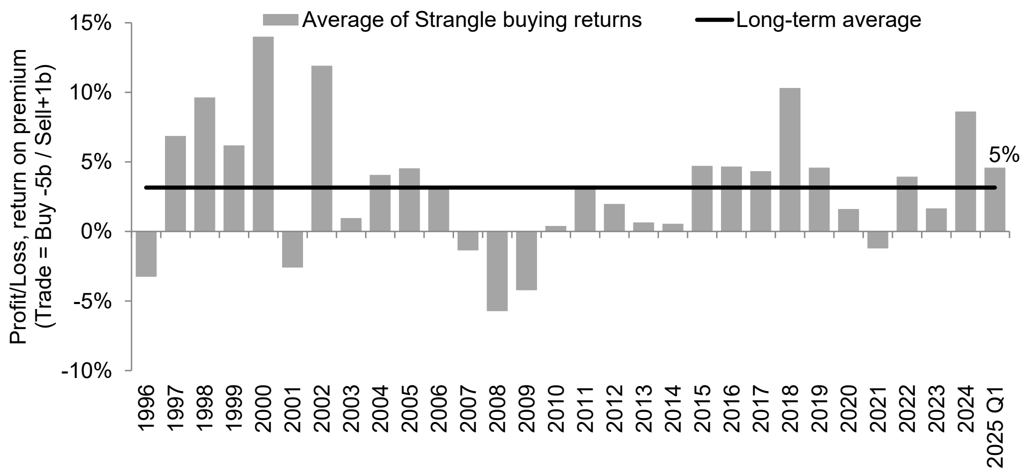
Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 19: Buying puts ahead of last quarter's earnings yielded a 12% return on premium
Profit at mid-market for buying first OTM puts, five days before earnings event and selling one day after



Source: Goldman Sachs FICC and Equities, OptionMetrics

Exhibit 20: Buying strangles ahead of last quarter's earnings yielded a 5% return on premium
Profit at mid-market for buying closest to ATM strangles 5 days before earnings event and selling one day after



Source: Goldman Sachs Global Investment Research, OptionMetrics

Upside to consensus: Fundamental ideas in brief

Our investment process: We screened for the top 25 opportunities out of the entire Goldman Sachs US coverage universe of approximately 1,000 companies. We focused our analysis on stocks with liquid options to improve the tradability of the view. We generally only considered companies where earnings are greater than $0.05 per share for the next four quarters. These first two criteria reduced the tradable events to 453 stocks. We only considered stocks where our analysts are above/below Refinitiv/LSEG consensus for the upcoming quarter and for the year on a key financial metric. All of the criteria combined narrowed the list of potential opportunities to 227 stocks.

Discussions with our analysts were the key to narrowing the list of 227 down to 25. We spoke with each analyst to understand their reasons for being above or below consensus. We then selected those stocks that our analysts believe are most likely to react in the direction of their earnings view.

Below are brief summaries of the drivers of our analysts' out-of-consensus earnings views for the companies highlighted with "upside to estimates". Please refer to each analyst's recent research for more details.

Discretionary: IBP

Installed Building Products Inc. (IBP): Upside from Idiosyncratic factors and residential construction exposure

Goldman Sachs Homebuilders & Building Products analyst Susan Maklari sees 20% upside to Buy-rated IBP over the next 12 months. Susan believes IBP is among the best positioned names in her coverage given its greater exposure to the new construction end-market which she believes has a relative advantage over Repair & Remodel activity (R&R) in the near-term. Susan remains confident that the company can continue to execute well and outperform the industry despite near-term uncertainty given its operating acumen, deep customer relationships, and margin focused initiatives. During 4Q earnings, management detailed their continued focus on aligning price to the value brought to customers given the impact of higher rates and an uncertain macro on prospective buyers' confidence. She notes that the company also commented on the development of an internal distribution network to drive savings over time. Overall, Susan sees upside from both idiosyncratic factors and the company's exposure to the residential construction market and views current valuations as an attractive entry point into the stock. She is 5%/2% above consensus EBITDA for the current/next four quarters.

Energy: OLED

Universal Display Corp. (OLED): Growth through Blue material commercialization and capacity investments

Goldman Sachs Clean Energy analyst Brian Lee sees >20% upside to Buy-rated OLED over the next 12 months. He expects 2025 revenues to grow close to 8% as OLED stated its blue phosphorescent materials commercialization timeline was in the next few months and not years. He also notes that OLED is seeing a normal buying pattern/inventory level heading into 2025, with a projected square area growth of 3.5% during the year. Additionally, Samsung, BOE, and Visionox have collectively announced nearly ~$20bn in capacity investments for Gen 8.6 fabs which are expected to ramp in 2026. Brian anticipates this will serve as a tailwind to set OLED up for a year of reaccelerated growth. He is 17% and 8% above consensus EBITDA for the current and next four quarters.

Financials: BAM, PGR

Brookfield Asset Management (BAM): Most resilient amid Macro uncertainty

Goldman Sachs Asset Managers & Capital Markets analyst Alexander Blostein sees 24% upside to Buy-rated BAM over the next 12 months. He believes BAM is among the best-positioned among US Alt Managers even in a recession induced stress scenario. He sees BAM's earnings screen as the most resilient in the group, with a technical tailwind from index inclusion providing further support. Following his investor meeting with BAM, Alex noted that management anticipates a stronger fundraising outlook for 2025, exceeding the 2024 total of ~$85 billion, with healthy LP sentiment for multiple asset classes. They also see an improving monetization backdrop across BAM's portfolios, particularly in Real Estate and rapidly evolving opportunities in Private Credit, with BAM well-positioned to tap into its unique origination capabilities across a wide range of hard-asset portfolios. Combined, Alex sees BAM as well positioned to generate a durable 15%-20% Fee-related earnings (FRE) / Distributable Earnings (DE) per share growth over the course of 2025-2027E, with incremental upside potential from acquisitions. Alex is 5%/1% above consensus EPS for the current/next four quarters.

Progressive Corp. (PGR): Improving market share and Underwriting Strength

Goldman Sachs Insurance analyst Robert Cox sees 11% upside to Buy-rated PGR over the next 12 months. He has a favorable outlook for PGR in the short term based on expectations for a re-acceleration in Policies in Force (PIF) growth and continued strong core underwriting performance. Over the longer term, Robert believes PGR is a market share winner that is likely to outperform competitors due to its agile business model. Robert also indicates that if tariffs work into claim costs, PGR could likely start to raise prices in 2H25 and thinks this industry event could extend the duration of PGR's above-average market share gains versus peers. He anticipates PGR's PIF growth will re-accelerate as a result of increased advertising expenditures coupled with favorable 1H seasonality. As he considers PGR's strong YTD underlying loss ratio results and favorable YTD physical damage severity data, he expects PGR to be well positioned to deliver a better than-street personal auto underlying loss ratio in 1Q25. His EPS estimate is 3% and 5% above consensus for the current and next four quarters.

Healthcare: BAX, DHR, ISRG

Baxter International (BAX): Optimizing a profitable footprint

Goldman Sachs Medical Technology analyst David Roman sees >20% upside to

Buy-rated Baxter (BAX; also on Americas Conviction List) over the next 12 months. He believes BAX is well positioned to deliver stable mid-single-digit revenue growth augmented by significant operating margin expansion and free cash flow growth. Further, he notes that the current valuation likely considers significant tariff-related downside risk, David believes that this concern is overblown. Beyond macro considerations, he sees a scenario where the company can de-lever faster, start returning more cash to shareholders, or identify discrete drivers to accelerate revenue growth and potentially drive a valuation re-rating and yield further upside (beyond compounding with teens earnings growth). Additionally, David notes that the spin-off of BAX's kidney business (Vantive) could be an opportunity to realize substantially higher margins than were realized in 2024. Overall, he continues to see Baxter offering exposure to a cyclical margin recovery story against a stable top-line outlook and meaningful EPS upside potential. David is 2% above consensus EPS for the current/next four quarters.

Danaher Corp (DHR): Bioprocessing recovery beneficiary at a more attractive valuation

Goldman Sachs Life Sciences Tools & Services analyst Matthew Sykes sees >20% upside to Buy-rated DHR over the next 12 months. He believes the bioprocessing market is poised for recovery presenting a long-term opportunity for DHR especially given its attractive valuations. He believes their 2025 guide of ~3% growth along with an eventual recovery in bioprocessing market (~25% of overall revenue for DHR) have realigned growth expectations. This should allow the company to get back to their historical beat and raise dynamic creating a catalyst for stock outperformance. He also highlights the current valuation of 17.4x FY2 EV/EBITDA offers a more attractive entry point than when they downgraded to Neutral in December 2023 when it was trading at 21.6x. Overall, Matt sees a recovery in the biotech segment along with current valuations as an attractive entry point into a stock which he believes is a long-term compounder. His EPS estimate is 3% above consensus for the current quarter and the next four quarters.

Intuitive Surgical Inc. (ISRG): Strong underlying Momentum to drive growth

Goldman Sachs Medical Technology analyst David Roman sees 20% upside to Buy-rated ISRG over the next 12 months. He believes that ISRG has significant market opportunity still ahead for robotic-assisted surgery with dv5 momentum extending their market leading position. His above street 2025 outlook for Worldwide procedure volume growth (16.6% y/y versus Street of 15.0%) is driven by his 13% y/y growth estimate in total system placements in 2025 (~1,700 versus ~1,500 for GSe 2024) and stable to increasing utilization. He believes ISRG's 4Q24 EPS beat was particularly driven by dv5 robotic surgical system sales and believes their initial 2025 guidance which includes a sizable step-down y/y in gross margin at 67-68% versus 69.1% in 2024 could set the bar for beat-and-raises throughout the year. Overall, he sees strong underlying fundamental drivers with some transient macro and P&L headwinds near term and continues to see Intuitive driving mid-teens long-term revenue growth with significant P&L leverage.

Industrials: AER, LII, WWD

Aercap. (AER): Lower Interest Expense and Share Repurchases as key tailwinds

Goldman Sachs Airlines and Aircraft Lessors analyst Catherine O'Brien sees 34% upside to Buy-rated AER over the next 12 months. She anticipates interest expense to decline slightly year over year vs. the company's expectation of ~$100 million higher expense. This outlook is based on a modestly lower average cost of debt, attributed to the roll-off of relatively higher rates on 2025 maturities and an essentially flat level of outstanding debt. Share repurchases are the second driver of her bullish outlook. Catherine notes that management expects the 2025 gain on sale margin to remain above the historical average (~10%), driven by demand from financial investors focused on young-to-midlife aircraft/engines. Additionally, she highlights that management extending/re-leasing aircraft in today's leasing environment would provide a revenue tailwind for the company. She is 8%/6% above consensus EPS for the current/next four quarters.

Lennox International (LII): New products to drive market share and margins

Goldman Sachs Multi-Industry analyst Joe Ritchie sees 20% upside to Buy-rated LII over the next 12 months. He anticipates that LII's new product lineup will enable them to expand market share in both national accounts and in the emergency replacement market. Joe notes that only two national accounts have secured the new A2L Model L product (HVAC) due to capacity constraints and expects this will ramp up in the coming months, thereby driving higher dollar margins. He further highlights that LII has significant upside to earnings given stronger residential heating, ventilation and air conditioning (HVAC) trends to the start of the year. Additionally, he notes that emergency replacement is about 30% of the total rooftop market of which LII has <5% and that the management has ambitions to grow this to mid to high-teens % over the next 3 years. His EPS estimate is 17%/3% above consensus for the current and next four quarters.

Woodward (WWD): Content Gains & Aftermarket Growth driving margins upside

Goldman Sachs Aerospace & Defense analyst Noah Poponak sees 27% upside to Buy-rated Woodward (WWD; also on Americas Conviction List) over the next 12 months. Noah believes that WWD is poised to deliver more products to planes just as the Original Equipment (OE) airplane cycle takes off. He also sees a path for WWD to follow these content gains with a higher participation in high margin after-market activity as planes are serviced. F1Q25 earnings results where WWD delivered above consensus EBIT and EPS and largely reiterated full-year guidance bolster his view. In the short term, he continues to see a strong aerospace aftermarket growth, a recovery in aerospace OE, the capture of latent pricing power, and margin upside. He expects WWD to beat and raise through the remainder of FY2025. In the medium-to-long term, he continues to see content gains on the LEAP engine, as the most differentiated product cycle in the aerospace supply chain, in addition to the powerful cash flow compounding of the aerospace aftermarket. Noah is 5%/3% above consensus EPS for the current/next four quarters.

Materials: CTVA

Corteva Inc. (CTVA): High-Quality Seed and Crop Protection Businesses

Goldman Sachs Chemicals analyst Duffy Fischer sees 26% upside to Buy-rated CTVA over the next 12 months. He notes that CTVA is a high-quality Seed and Crop protection business that is IP protected and R&D heavy, with formidable barriers to entry and EBITDA margins in the low 20s. Duffy highlights that roughly 2/3s of CTVA's EBITDA comes from Seed business, which is more R&D intense than crop protection and has significant pricing power as a result, enabling it to maintain pricing effectively during downturns. He expects that CTVA will benefit from larger tailwinds arising from increased corn acreage in the United States. He thinks the Crop protection markets have reached a bottom and that business continues to realize benefits from productivity initiatives that can cushion the impact of reduced price, thereby driving EBITDA margins in the high teens. Duffy is also optimistic about CTVA's management and expects them to sustain their solid track record of execution. Compared to its peers, he believes CTVA has room to trade at a higher multiple as margins improve over the next twelve months. His EBITDA estimate is 6% above consensus for the current and next four quarters.

Staples: MO

Altria Group (MO): Smoke-free growth ambitions funded by a stable and highly profitable core tobacco business

Goldman Sachs Beverages, HPC, Tobacco & C-Stores analyst Bonnie Herzog sees 8% upside to Buy-rated MO over the next 12 months. Bonnie believes MO will retain its leadership position in the total nicotine market and continue to drive long-term sustainable profitable growth given management's deliberate and disciplined strategy to maximize profitability while balancing investments. She expects the company to leverage its strong pricing power to offset accelerated decline in cig volumes and expects MO's pricing strategy to translate into a healthy +240bp/+160bp increase in adj Smokeable operating margin and very LSD operating income growth in 2025/26E. On smoke-free, Bonnie notes that volume growth in this category has more than offset cig industry vol declines, and she expects MO to continue investing behind its smoke-free growth ambitions. She believes the company's core tobacco business remains strong, stable, and highly profitable with >$1bn in FCF generation per year (after dividends) which management leverages to fund buybacks and its growth investments. She also highlights the company's attractive dividend yield of 7% as favorable in the current market environment. Bonnie is 4%/3% above consensus EPS for the current/next four quarters.

TMT: ANET, MNDY, TWLO, TYL

Arista Networks Inc. (ANET): Durable growth driven by strong momentum in AI networking

Goldman Sachs Hardware, Media and SMID Fintech analyst Michael Ng sees >20% upside to Buy-rated ANET over the next 12 months. Michael expects ANET to deliver strong double-digit annual revenue and EPS growth over the coming years driven by ongoing momentum in its portfolio of AI, traditional cloud, and enterprise networking solutions. In particular, ANET's AI business should benefit from continued strength in hyperscale demand for AI buildouts due to its best-of-breed Ethernet solutions and differentiated EOS platform. Michael expects investor focus to remain on its expectations for $750 mn in back-end 2025 AI revenue and competitive dynamics versus whitescale players. He is 6% above consensus EPS for 2025.

Monday.Com Ltd. (MNDY): Emerging product traction and enterprise execution to support growth

Goldman Sachs Software analyst Kash Rangan sees >20% upside to Buy-rated MNDY over the next 12 months. Monday.com is a unique work operating system product cutting across operational silos built on a low-code no-code platform. The low-code no-code technology, intuitive interface, robust integrations and network effects of the platform continue to drive customer growth. As Monday.com continues to execute in the face of macro uncertainty while exhibiting strong pricing power, durable new customer demand, and traction within enterprise, Kash believes the company is executing in front of a significant TAM, with potential to reach +$3bn in revenue by FY30. Though no AI revenue is baked into the company's FY25 guidance, Kash sees meaningful long-term upside potential from Monday's AI roadmap. Notably, the 500 AI credit threshold is set to maximize adoption and AI actions have spiked significantly since reporting 10mn AI actions at the end of FY24 (~3x qoq). His EPS estimate is 11% above consensus for the current quarter and 17% above for the next four quarters.

Twilio. (TWLO): Cleaner narrative and execution ahead

Goldman Sachs Software analyst Kash Rangan sees >20% upside to Buy-rated TWLO over the next 12 months. Twilio is the leader in its core CPaaS market with 22.3% market share (as of CY23), ~2x its nearest competitor Sinch (per Gartner). We view the company's deep technology stack and developer ecosystem (10m+) as a significant competitive advantage. Following multiple years of growth compression and several strategic actions, Kash believes Twilio is now hitting an inflection point both in terms of narrative and fundamentals. He notes that Twilio's major cost reduction initiatives and ongoing efficiency measures support strong FCF generation ahead, complemented by his view for an inflecting growth profile. Overall, Kash believes Twilio's turnaround story is firmly underway and see solid upside to Revenue/FCF in FY25. His EPS estimate is 5% above consensus for the current quarter and 8% above for the next four quarters.

Tyler Technologies Inc. (TYL): Benefiting from technology upgrades and cloud migrations

Goldman Sachs Emerging Software analyst Gabriela Borges sees 31% upside to Buy-rated TYL over the next 12 months. She believes that Tyler is well positioned to benefit from the ongoing government modernization efforts, and is several years (2027/2028) from seeing a peak in maintenance conversions to SaaS. While there has been increasing investor concern around potential implications of funding freezes at the state and local government, Gabriela notes that Tyler's demand is driven by governments replacing end of life or failing systems and should there be a push for efficiency, she sees a scenario where this replacement cycle is accelerated. She also notes that Tyler continues to make progress on its cloud transition, driving an accelerated pace of conversions with larger clients flipping. Overall, she believes that continued revenue mix shift to SaaS and benefits of cloud optimization and version consolidation could be key drivers of margin expansion over the next 2 years. Her EBITDA estimate is 3% above consensus for the current quarter and 6% above for the next four quarters.

All EPS consensus estimates are from Refinitiv/LSEG and EBITDA consensus estimates are from Bloomberg unless stated otherwise.

Downside to consensus: Fundamental ideas in brief

Below are brief summaries of the drivers of our analysts' out-of-consensus earnings views for the companies highlighted with "downside to estimates". Please refer to each analyst's recent research for more details.

Discretionary: GPC

Genuine Parts Co. (GPC): Weakening Business Segments and Challenging Environment

Goldman Sachs Retail and Hardlines analyst Kate McShane believes that Sell-rated GPC is positioned less defensively in the current environment than peers due to recent underperformance in its NAPA Auto parts business, slowing trends at their European Automotive business, and concerns that their Industrial segment could be exposed to an uncertain macro environment. She also highlights that comps are currently running at or below GPC management's expected rates for FY25 which increases downside risk. She notes that GPC's US automotive business remains heavily skewed to independently-operated stores which purchase inventory from the company's distribution centers —a strategy that could prove challenging if local market demand weakens or if independents reduce inventory purchases. Additionally, she observes that both GPC's European Automotive business and Industrial segment have softened over the past year and anticipates that these trends may persist in the near term.

Financials: LAZ

Lazard Inc. (LAZ): Headwinds from slowing IBanking activity and higher comp ratios

Goldman Sachs Banks and Advisors analyst James Yaro sees downside to Sell-rated LAZ over the next 12 months. James sees a slowing M&A backlog trend driven by the continued weakening of leading indicators including lower GDP growth forecasts, higher market volatility, equity market sell-off and diminishing CEO/consumer confidence. In a downside scenario with deteriorating IBanking environment, James sees no growth in M&A for 2025 (vs. ~5% yoy growth in his base case). Given this backdrop, he remains cautious on LAZ and lowered his revenue estimates for the next 3 years (reduced by ~14%/10%/7% for 2025E/26E/27E vs. ~10%/6%/4% for industry). He also notes that IBanks have lost M&A market share to US bulge brackets in 1Q25 based on Dealogic data. James also sees risk to profitability as he expects a larger increase in the comp ratio relative to the industry average (2.66pp change in 2025E comp ratio vs. 1.44pp for industry) and estimates LAZ to have the highest % of fixed compensation as a % of revenue in 2025E. James is 19%/11% below consensus 2025E/26E EPS.

Industrials: AAL, AOS

American Airlines Group (AAL): Elevated leverage and Reduced Profitability for 2025

Goldman Sachs Airlines and Aircraft Lessors analyst Catherine O'Brien sees 16%

downside to Sell-rated AAL over the next 12 months. She expects AAL's higher operating leverage and a weaker balance sheet to drive a significantly larger impact on the bottom line vs industry peers if macroeconomic and geopolitical uncertainties intensify and weigh on demand. Given her reduced outlook, she now expects 2025 free cash flow to be more than cut in half, which combined with lower 2025 profitability will drive net debt-to-EBITDAR higher year-over-year to 5.0x vs. 4.2x previously. The primary driver of her lower-than-consensus outlook is revenue, where she is 2% below consensus in 2025 and 1% below in 2026.

A.O. Smith Corp. (AOS): Persistent macro uncertainty across regions pressuring profitability

Goldman Sachs Homebuilders & Building Products analyst Susan Maklari sees downside to Sell-rated AOS over the next 12 months. Susan maintains a cautious view on AOS as she sees incremental pressures in 1H25 driven by persistent macro uncertainty across regions, restructuring headwinds and challenging comparisons. Susan expects a challenging 1H comp for the core North America Water Heater business given the 4% residential price increase during last spring, and she notes the company's expectation for a flat residential and commercial water heater demand in 2025 relative to her expectations for a contraction in residential volumes this year. On China, Susan believes a broader shift in the macro is likely necessary to see a larger and more sustained improvement in performance given the ongoing weakness in the real estate sector and uncertainty around the future of government stimulus. She is 5%/4% below consensus EBITDA for the current/next four quarters.

Staples: CLX, HSY

Clorox Co. (CLX): Headwinds from soft end-market demand and volatility from upcoming ERP transition

Goldman Sachs Beverages, HPC, Tobacco & C-Stores analyst Bonnie Herzog sees downside to Sell-rated CLX over the next 12 months. Bonnie expects promotional intensity to remain elevated in the near-term given a soft end-market demand backdrop (as suggested by recent scanner data) and notes that the company also called out heightened competition within certain categories such as litter and trash bags. Bonnie lowered her EPS estimates for CLX as she sees pressures to gross margins from a potential volume de-leverage given broad-based consumption slowdown. She notes that the company remains committed towards its investment levels, which along with fixed costs could suggest potential downside risks to her current operating margin estimates for the quarter. She also sees idiosyncratic headwinds for the company from its upcoming ERP transition as she expects volatility around this to result in lower visibility into its underlying growth momentum and normalized earnings power until 2H26.

Hershey Co. (HSY): Soft category and market share trends

Goldman Sachs Packaged Food & Food Retail analyst Leah Jordan is cautious on Sell-rated HSY, as she sees near-term headwinds such as increased competition and soft trends for the sweet snacking category broadly. Although HSY has had strong pricing power historically, she notes that competition from smaller brands and private label has increased which may constrain the company in the near-term. She notes that investor concerns on the sweet snacking category could continue to weigh on shares as consumption trends shift toward better-for-you products. Additionally, she sees ongoing pressure tied to cocoa volatility, noting costs remain historically elevated. These factors combined with an elevated valuation keeps her bearish on the stock. Her EPS estimate is 5% below consensus for the current quarter.

TMT: EBAY, SMCI, WU

eBay Inc. (EBAY): Challenging operating environment driven by macro and idiosyncratic factors

Goldman Sachs Internet analyst Eric Sheridan sees 10% downside to Sell-rated EBAY over the next 12 months. Eric believes growth will remain a key investor debate for EBAY in the near-term and notes that the company reduced their Q1 guide below expectations on the back of a challenging operating environment driven by macro uncertainty and revenue pressure from the phased ramp of the UK C2C initiative (Consumer to Consumer). Based on his more recent investor conversations, he believes there is a rising debate about whether tariffs might push the US consumer away from goods towards more services and notes the continued softening of the lower end consumer with respect to discretionary eCommerce goods. Beyond the near-term, Eric sees investor debates around the company's competitive positioning within the wider eCommerce and Consumer Internet landscape (especially outside of focus categories) that inform his framing of a more negative risk/reward. Eric is 2% below consensus EBITDA for the current quarter.

Super Micro Computer Inc. (SMCI): Margin pressures from intensifying competition and uncertain tariff environment

Goldman Sachs Hardware, Media and SMID Fintech analyst Michael Ng sees 17% downside to Sell-rated SMCI over the next 12 months. Michael recently downgraded SMCI to Sell from Neutral due to growing competition within the AI server market and gross margin compression. First, growing competition from OEM and ODM suppliers has intensified, which has resulted in less differentiation and greater pricing pressure. As such, gross margins have declined over time (Non-GAAP gross margins of 13.9% in F2024 v. 18.1% in F2023), and should continue to be pressured through its position as a price taker due to high supplier and customer concentration. Lastly, Michael notes that SMCI trades at a premium relative to other server OEMs like DELL and HPE, but sees convergence over time given lack of product differentiation and customer & supplier concentration risks. In a more recent note, Michael reduced his target multiple for SMCI to 8X (v. 9X prior) to reflect increased uncertainty given ongoing tariff rollouts. He is 4% below consensus EPS for F2025.

Western Union Co. (WU): Macro trends to weigh on revenue

Goldman Sachs Payment and Financial Technology analyst Will Nance is cautious on Sell-rated WU over the next 12 months as he continues to see their retail business declining and digital revenue growth decelerating modestly. He sees further deceleration of the U.S. outbound revenues to -5%, combined with the commentary around recent immigration trends. He believes these factors are likely to weigh on sentiment given market focus on the potential ramifications of changes to immigration policy in US, as well as the related border policies in several Central American corridors. Additionally, on Tariff impact he notes that given WU's entire business is cross border, the company is likely to be negatively impacted by the scrutiny of cash remittance channels. Overall, Will believes underlying macro trends combined with the stalling out of transaction/revenue spread sets the company up for a challenging quarter. His EBITDA estimate is 4% below consensus for the current quarter and 5% below for the next four quarters.

All EPS consensus estimates are from Refinitiv/LSEG and EBITDA consensus estimates are from Bloomberg unless stated otherwise.

A list of the investment recommendations of the author(s) disseminated during the preceding 12 months is available upon request.

Our studies of options trading around events

"Trading Events: Earnings Volatility (Part 1)", July 14, 2011.

"Trading Events: Earnings Volatility (Part 2); Options Sticker Shock", July 19, 2011.

"Trading Events: Earnings (Part 3); Conditional on VIX", October 5, 2011.

"Trading Events: Earnings Volatility (Part 4); Consistent Winners", October 12, 2011.

"The case for owning stocks on earnings day," May 23, 2012.

"Trading Events: Analyst Days", May 2, 2013.

"The Anatomy of Preannouncements," July 7, 2014.

"Trading Events: Analyst Days 2002-2015", June 9, 2015.

"Trading Events: European Earnings: 14 Year Study", September 9, 2016.

"Trading Events: Asia Earnings and Preannouncements, a 15 year study", January 16, 2018.

"Trading Events: European Analyst Days, a 10-year study of 3,000+ events", March 5, 2018.

"Predicting Earnings Day Direction: a 20-year Study", July 9, 2018.

"The Earnings Liquidity Wave: a 12-year study", March 28, 2019.

"New Models for Asymmetric Investing: a 27-year Asset Allocation Perspective", April 10, 2023

"Trading Events: Earnings Season: Added Volatility or Fundamental Opportunity?", October 7, 2024

Disclosure Appendix

Reg AC

We, John Marshall and Arun Prakash, CFA, 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.

Disclosures

Rating and pricing information

A.O. Smith Corp. (Sell, $62.87), AerCap (Buy, $90.37), Altria Group (Buy, $56.38), American Airlines Group (Sell, $9.51), Arista Networks Inc. (Buy, $72.65), Baxter International Inc. (Buy, $28.14), Brookfield Asset Management (Buy, $46.08), Clorox Co. (Sell, $140.90), Corteva Inc. (Buy, $57.94), Danaher Corp. (Buy, $180.76), Genuine Parts Co. (Sell, $113.29), Hershey Co. (Sell, $164.09), Installed Building Products Inc. (Buy, $170.37), Intuitive Surgical Inc. (Buy, $489.52), Lazard Inc. (Sell, $34.97), Lennox International Inc. (Buy, $550.29), Monday.Com Ltd. (Buy, $243.65), Progressive Corp. (Buy, $273.18), Super Micro Computer Inc. (Sell, $33.68), Twilio (Buy, $85.73), Tyler Technologies Inc. (Buy, $557.59), Universal Display Corp. (Buy, $108.11), Western Union Co. (Sell, $9.49), Woodward Inc. (Buy, $166.35) and eBay Inc. (Sell, $62.47).

ETF Risks

Exchange Traded Funds (ETFs) are redeemable only in specified units and only through a broker that is an authorized participant in that ETF program; redemptions are for the underlying securities. The public trading price of a redeemable unit of an ETF may be different from its net asset value; an ETF can trade at a discount or premium to the net asset value. There is always a fundamental risk of declining stock prices, which can cause investment losses.

Investors should consider the investment objectives, risks, and charges and expenses of an ETF carefully before investing. Each ETF prospectus contains such information about the ETF, and it is recommended that investors review carefully such prospectus before investing. A copy of the prospectus for all ETFs mentioned in this material can be obtained by investors from their Goldman Sachs sales representative, or from the offices of Goldman, Sachs & Co., 200 West Street, New York, NY, 10282, Attn: Prospectus Dept. (1-212-902-1394). Prospectuses are also available from ETF distributors.

Professionals who authored this material have no financial interest in any ETF mentioned in this material.

Goldman Sachs is an authorized participant in IBB, XLP, XLF, XBI, XLB, SPY, QQQ and participates in the creation and redemption of shares of those ETFs. Goldman Sachs, as an authorized participant or otherwise, acquires securities from the issuers of the ETFs mentioned in this material for the purposes of resale.

Goldman Sachs beneficially owned 1% or more of IBB, XLP, XLF, XBI, XLB, SPY (excluding positions managed by GSAM and derivatives) as of December 31, 2024.

Option Specific Disclosures

Price target methodology: Please refer to the analyst's previously published research for methodology and risks associated with equity price targets.

Pricing Disclosure: Option prices and volatility levels in this note are indicative only, and are based on our estimates of recent mid-market levels(unless otherwise noted). All prices and levels exclude transaction costs unless otherwise stated.

General Options Risks – The risks below and any other options risks mentioned in this research report pertain both to specific derivative trade recommendations mentioned and to discussion of general opportunities and advantages of derivative strategies. Unless otherwise noted, options strategies mentioned in this report may be a combination of the strategies below and therefore carry with them the risks of those strategies.

Buying Options - Investors who buy call (put) options risk loss of the entire premium paid if the underlying security finishes below (above) the strike price at expiration. Investors who buy call or put spreads also risk a maximum loss of the premium paid. The maximum gain on a long call or put spread is the difference between the strike prices, less the premium paid.

Selling Options - Investors who sell calls on securities they do not own risk unlimited loss of the security price less the strike price. Investors who sell covered calls (sell calls while owning the underlying security) risk having to deliver the underlying security or pay the difference between the security price and the strike price, depending on whether the option is settled by physical delivery or cash-settled. Investors who sell puts risk loss of the strike price less the premium received for selling the put. Investors who sell put or call spreads risk a maximum loss of the difference between the strikes less the premium received, while their maximum gain is the premium received.

For options settled by physical delivery, the above risks assume the options buyer or seller, buys or sells the resulting securities at the settlement price on expiry.

Company-specific regulatory disclosures

Compendium report: please see disclosures at https://www.gs.com/research/hedge.html. Disclosures applicable to the companies included in this compendium can be found in the latest relevant published research

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	49%	34%	17%	63%	57%	42%

As of April 1, 2025, Goldman Sachs Global Investment Research had investment ratings on 3,016 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)

Compendium report: please see disclosures at https://www.gs.com/research/hedge.html. Disclosures applicable to the companies included in this compendium can be found in the latest relevant published research

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 subject company, public appearances and trading securities held 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, 951-A, Rational House, Appasaheb Marathe Marg, Prabhadevi, 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. Investment in securities market are subject to market risks. Read all the related documents carefully before investing. 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 can be found at this link: https://publishing.gs.com/disclosures/hedge.html - /general/equity. **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, The Investment Trusts Association, Japan, and Japan Investment Advisers Association. 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 neither has 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: GSI, authorised by the PRA and regulated by the FCA and the PRA, disseminates research in the following jurisdictions within the European Economic Area: the Grand Duchy of Luxembourg, Italy, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Norway, the Republic of Finland and the Republic of Ireland; GSI - Succursale de Paris (Paris branch) which is authorised by the French Autorité de contrôle prudentiel et de resolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de resolution and the Autorité des marches financiers ("AMF") disseminates research in France; GSI - Sucursal en España (Madrid branch) authorized in Spain by the Comisión Nacional del Mercado de Valores disseminates research in the Kingdom of Spain; GSI - Sweden Bankfilial (Stockholm branch) is authorized by the SFSA as a "third country branch" in accordance with Chapter 4, Section 4 of the Swedish Securities and Market Act (Sw. lag (2007:528) om värdepappersmarknaden) disseminates research in the Kingdom of Sweden; 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 in the Federal Republic of Germany and those jurisdictions within the European Economic Area where GSI is not authorised to disseminate research and additionally, GSBE, Copenhagen Branch filial af GSBE, Tyskland, supervised by the Danish Financial Authority disseminates research in the Kingdom of Denmark; GSBE - Sucursal en España (Madrid branch) subject (to a limited extent) to local supervision by the Bank of Spain disseminates research in the Kingdom of Spain; GSBE - Succursale Italia (Milan branch) to the relevant applicable extent, subject to local supervision by the Bank of Italy (Banca d'Italia) and the Italian Companies and Exchange Commission (Commissione Nazionale per le Società e la Borsa "Consob") disseminates research in Italy; GSBE - Succursale de Paris (Paris branch), supervised by the AMF and by the ACPR disseminates research in France; and GSBE - Sweden Bankfilial (Stockholm branch), to a limited extent, subject to local supervision by the Swedish Financial Supervisory Authority (Finansinpektionen) disseminates research in the Kingdom of Sweden.

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.fiadocumentation.org/fia/regulatory—disclosures/fia—uniform—futures—and—options—on—futures—risk—disclosures—booklet—pdf—version—2018. 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.

© 2025 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.