



Global Investment Research

The Goldman Sachs Group, Inc.

US Equity Market Update

Fivefold path to 5600

June 2024

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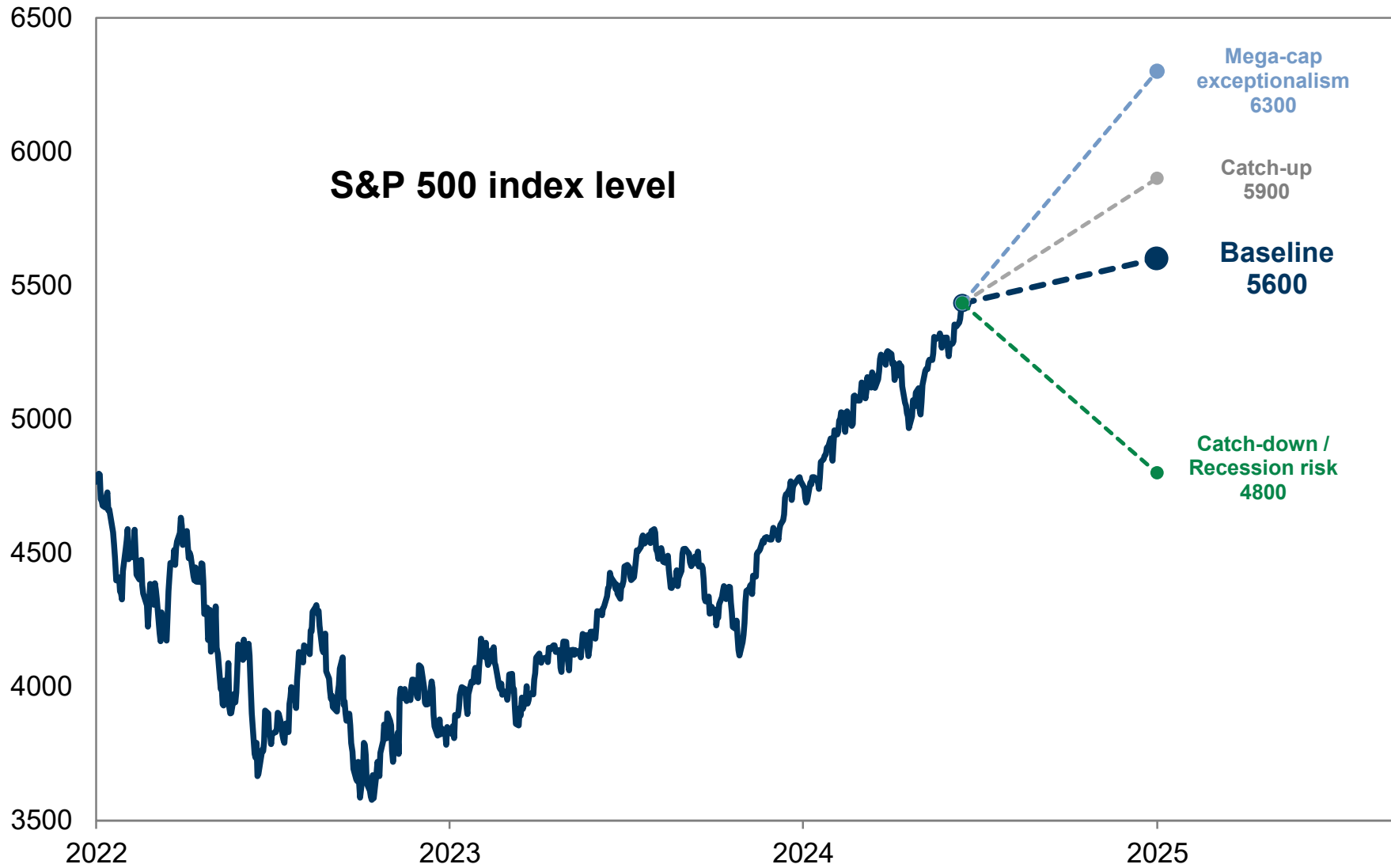
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S&P 500 index path to 5600 at year-end 2024

We expect EPS will rise by 8% and the index will end the year at 5600



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5 stocks account for 60% of S&P 500 return YTD

AI-related firms drive 15% YTD rise in cap-weight SPX vs. 4% gain for SPW

Top 10 contributors to YTD S&P 500 return

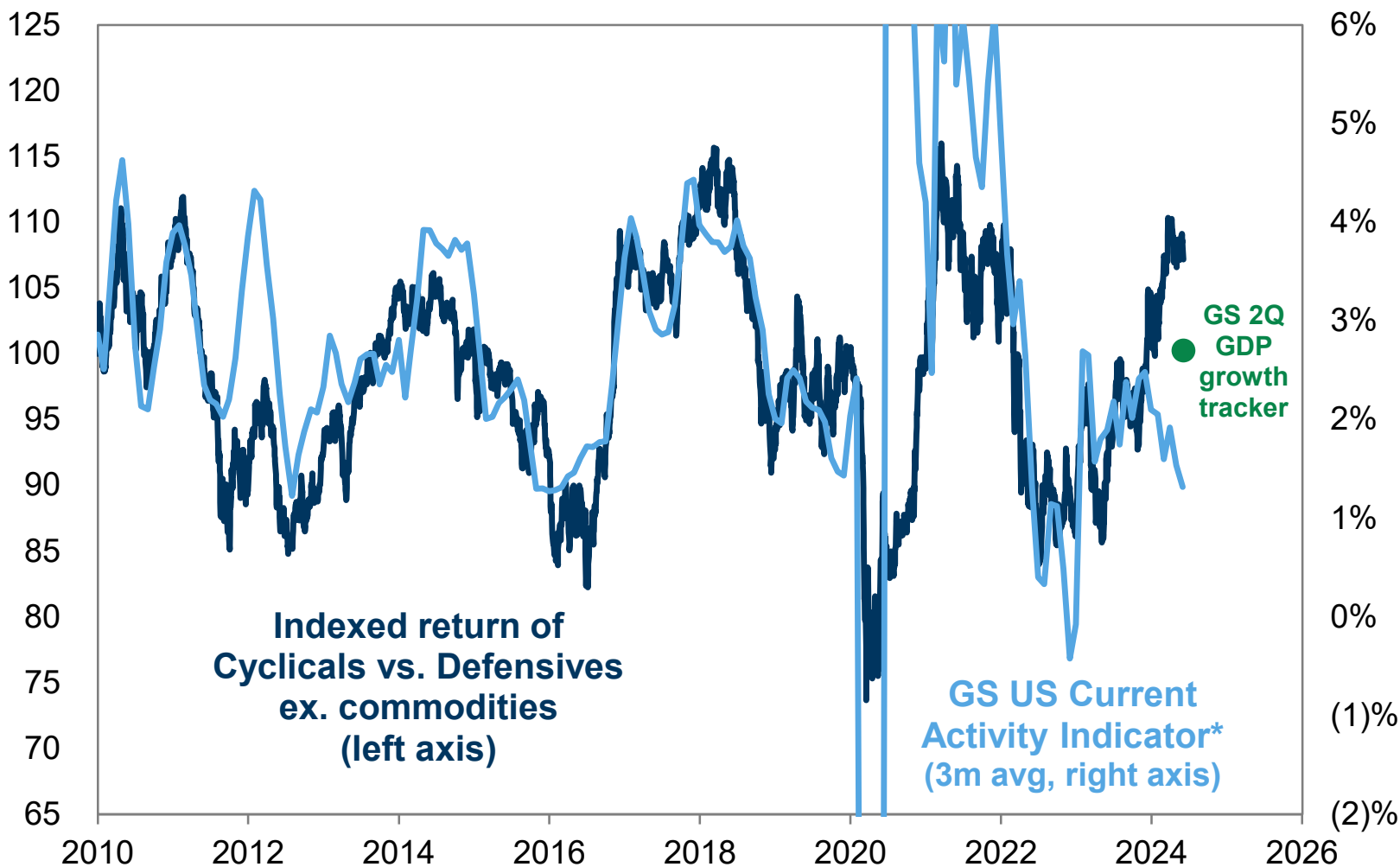
Ticker	Company	Sector	Starting mkt cap weight	Total return	Contribution to index return
NVDA	NVIDIA Corp.	Information Technology	3.1 %	162 %	494 bp
MSFT	Microsoft Corp.	Information Technology	7.0	18	124
GOOGL	Alphabet Inc.	Communication Services	3.8	26	97
META	Meta Platforms Inc.	Communication Services	2.0	43	84
AAPL	Apple Inc.	Information Technology	7.0	12	81
AMZN	Amazon.com Inc.	Consumer Discretionary	3.5	21	72
AVGO	Broadcom Inc.	Information Technology	1.2	51	62
LLY	Eli Lilly & Co.	Health Care	1.2	52	60
BRK.B	Berkshire Hathaway	Financials	1.6	14	22
QCOM	QUALCOMM Inc.	Information Technology	0.4	52	21
Top 5 contributors			23 %	39 %	881 bp
Top 10 contributors			31	36	1119

Bottom 10 contributors to YTD S&P 500 return

TSLA	Tesla Inc.	Consumer Discretionary	1.7 %	(27)%	(46)bp
INTC	Intel Corp.	Information Technology	0.5	(39)	(21)
ADBE	Adobe Inc.	Information Technology	0.7	(23)	(16)
BA	Boeing Co.	Industrials	0.4	(31)	(11)
ACN	Accenture Plc	Information Technology	0.6	(19)	(10)
CRM	Salesforce Inc.	Information Technology	0.6	(13)	(8)
MCD	McDonald's Corp.	Consumer Discretionary	0.5	(13)	(7)
UNH	UnitedHealth Group	Health Care	1.2	(5)	(6)
LULU	lululemon athletica inc.	Consumer Discretionary	0.1	(40)	(6)
CMCSA	Comcast Corp.	Communication Services	0.4	(13)	(6)
Bottom 5 contributors			4 %	(27)%	(104)bp
Bottom 10 contributors			7	(20)	(137)
S&P 500			100	15	1465

Equity market pricing of US economic growth

Cyclicals vs. Defensives performance consistent with 3%+ real US GDP growth



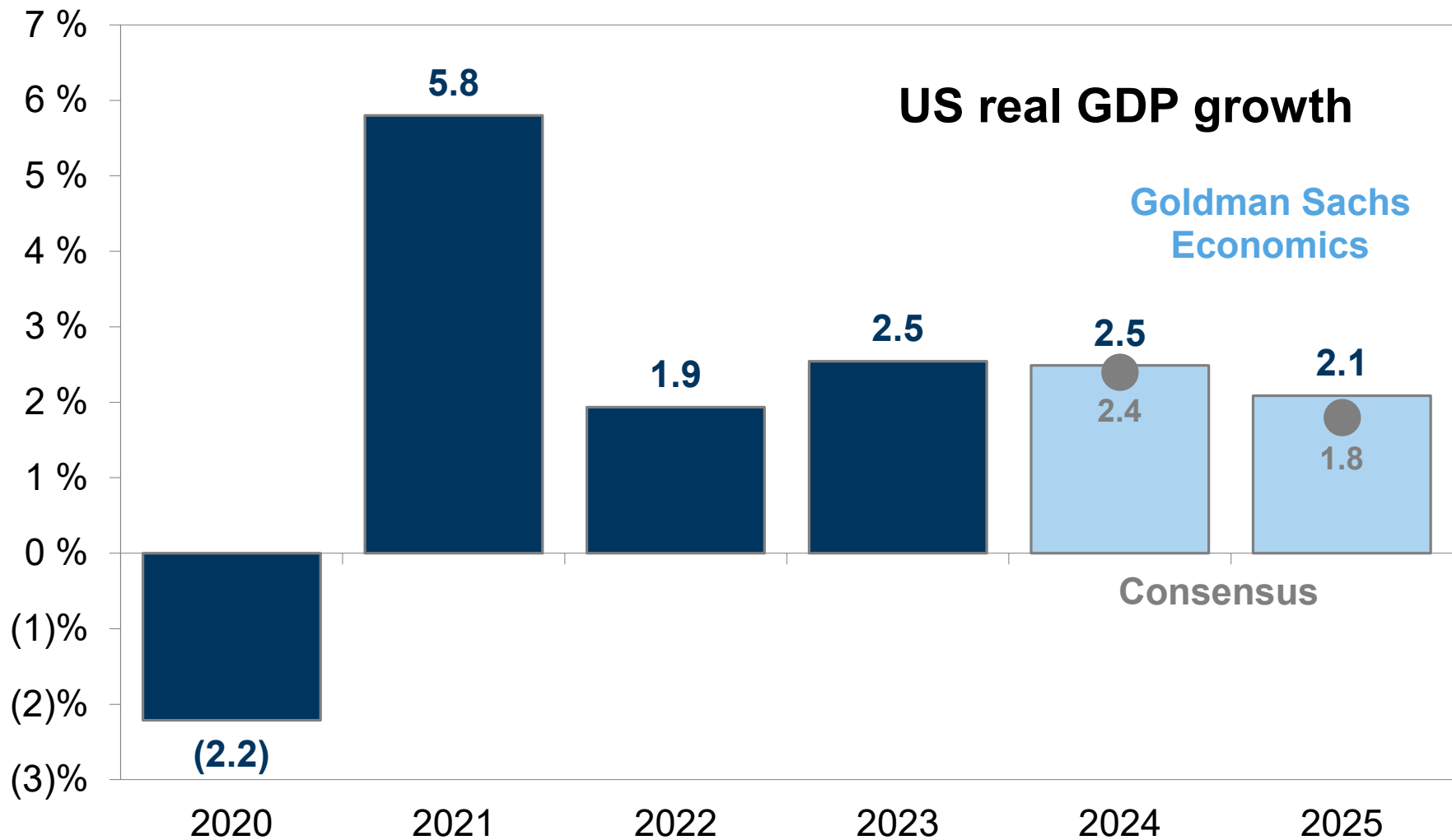
* Hard CAI data only since 2023

Cyclicals: S&P 500 stocks with beta to US GDP growth (via US MAP score of economic data surprises) greater than the S&P 500 beta, excluding Energy and Materials.

Defensives: S&P 500 stocks with beta to US GDP growth lower than the S&P 500 beta excluding commodity input cost and other equities impacted by the macro environment.

US economic outlook: GS Economics vs. consensus

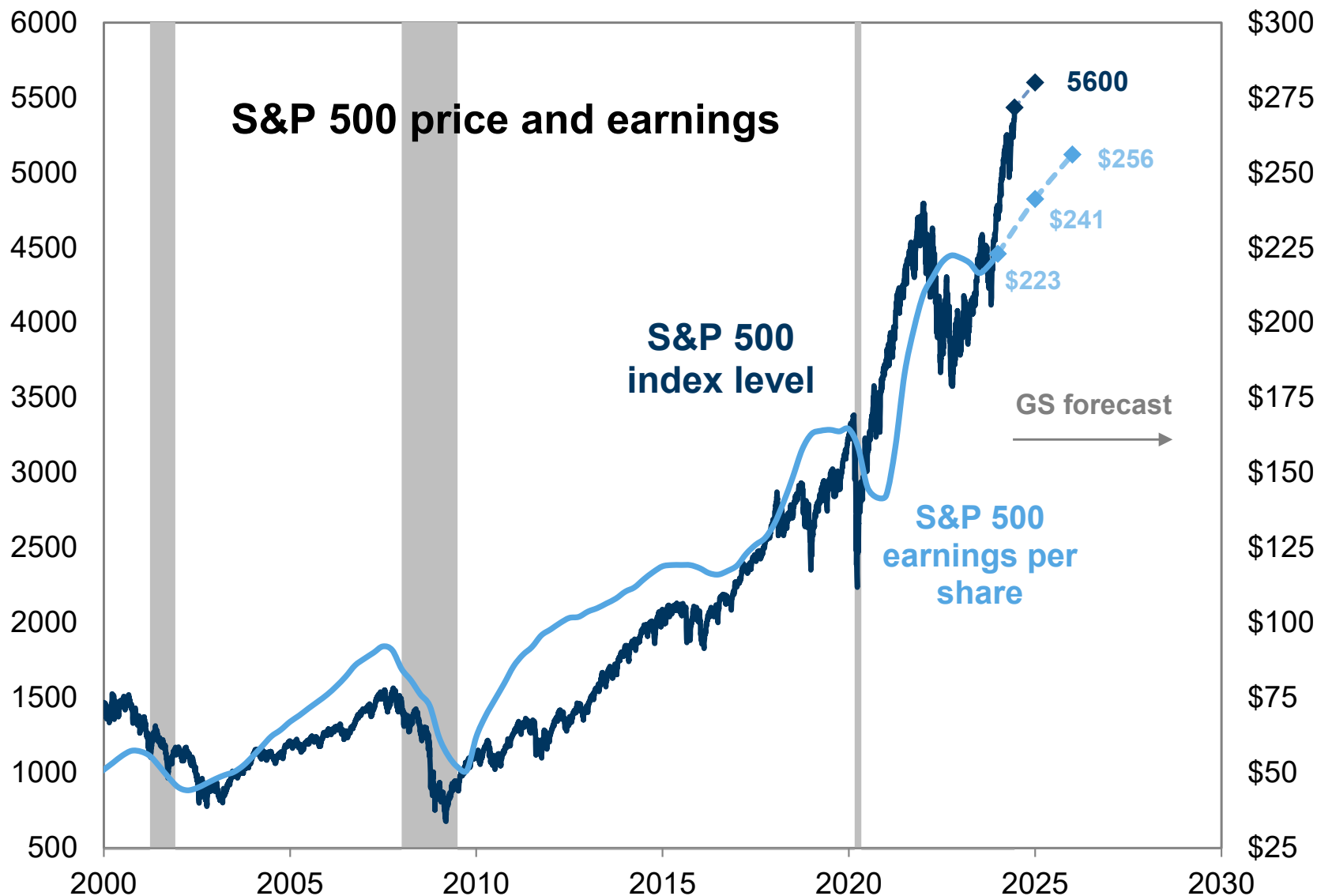
GS Economics forecasts 2024 growth of 2.5% vs. consensus estimate of 2.4%



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Earnings drive stock prices over time

We forecast 8% EPS growth in 2024 and 6% in 2025 (consensus 10% and 14%)



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S&P 500 EPS will grow by 8% in 2024 and 6% in 2025

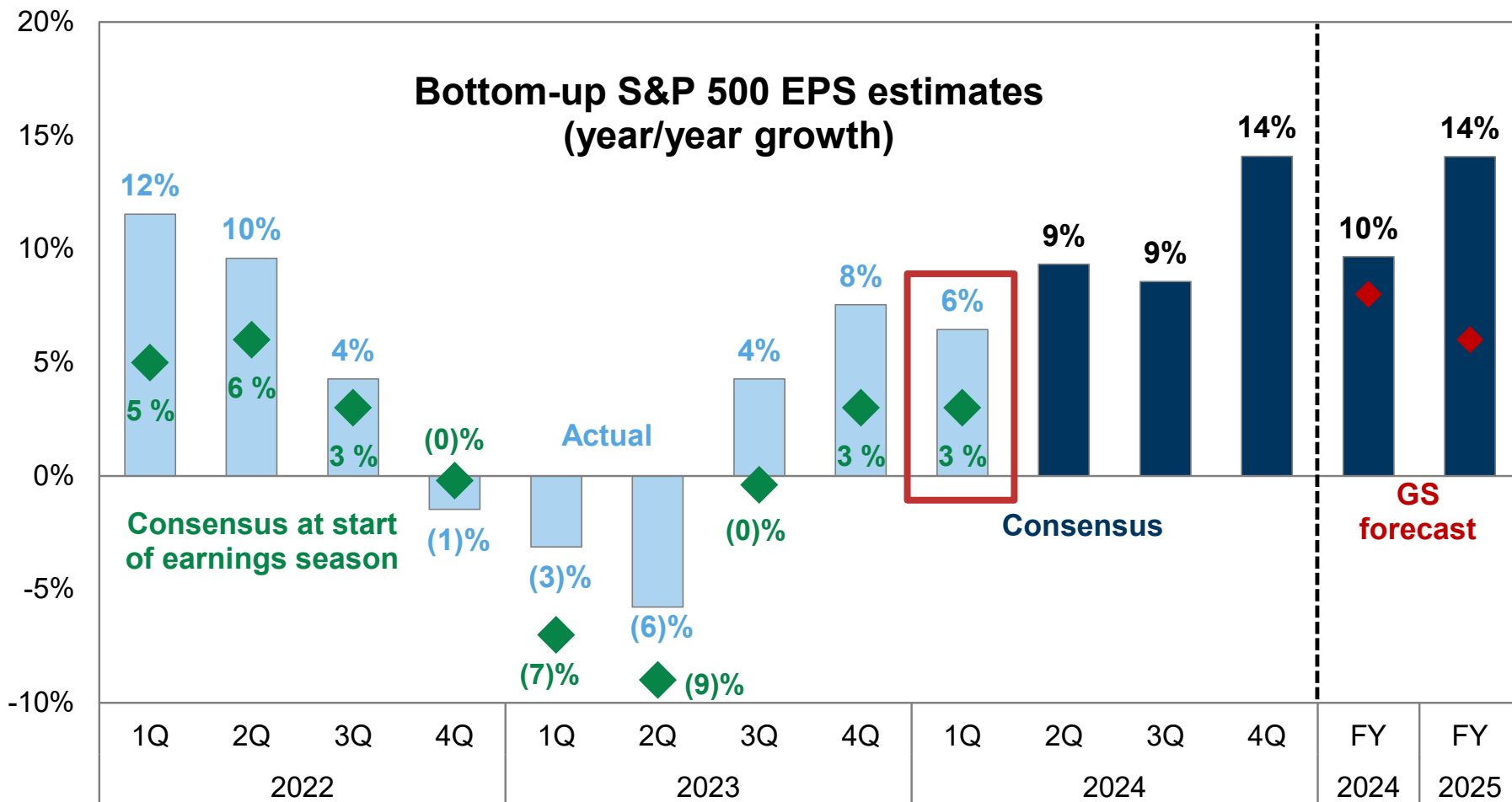
Goldman Sachs top-down EPS forecast vs. top-down and bottom-up consensus

	2022	GS top-down			Cons. BOTTOM-UP	
		2023E	2024E	2025E	2024E	2025E
S&P 500 ex. Fin, RE, Utils						
<i>Sales growth</i>	13 %	3 %	6 %	4 %	5 %	5 %
Profit Margin	11.6%	11.1%	11.5%	11.7%	11.7%	12.9%
<i>Year/Year growth</i>	(21)bp	(53)bp	39 bp	24 bp	58 bp	117 bp
S&P 500 adjusted EPS	\$222	\$223	\$241	\$256	\$244	\$279
<i>Year/Year growth</i>	6 %	0 %	8 %	6 %	10 %	14 %
					Cons. TOP-DOWN	
					2024E	2025E
					\$240	NA
					8 %	NA

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Quarterly path of S&P 500 EPS year/year growth

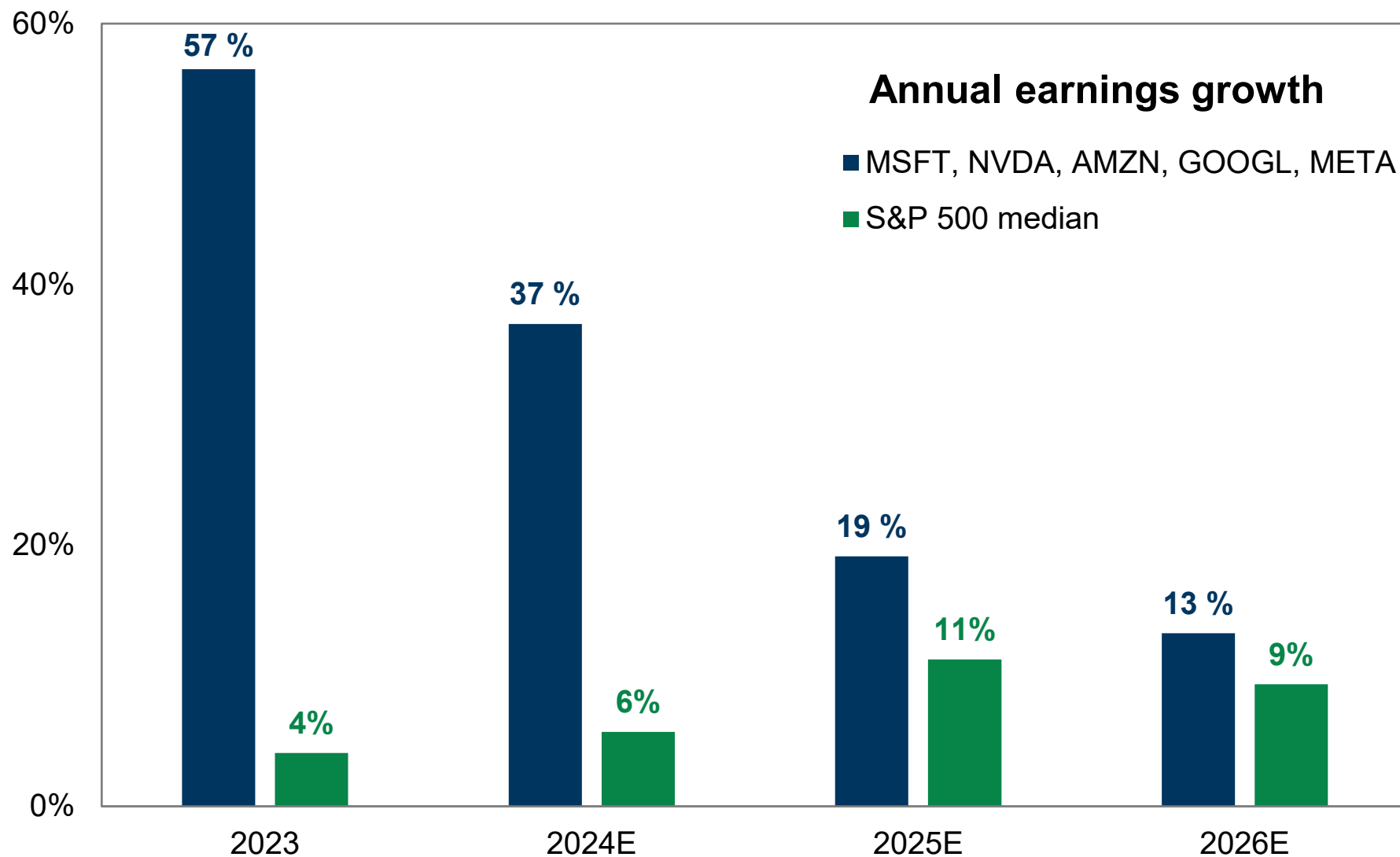
Positive EPS surprises averaged 4 pp during the past 4 quarters



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Mega-cap tech EPS growth premium will narrow

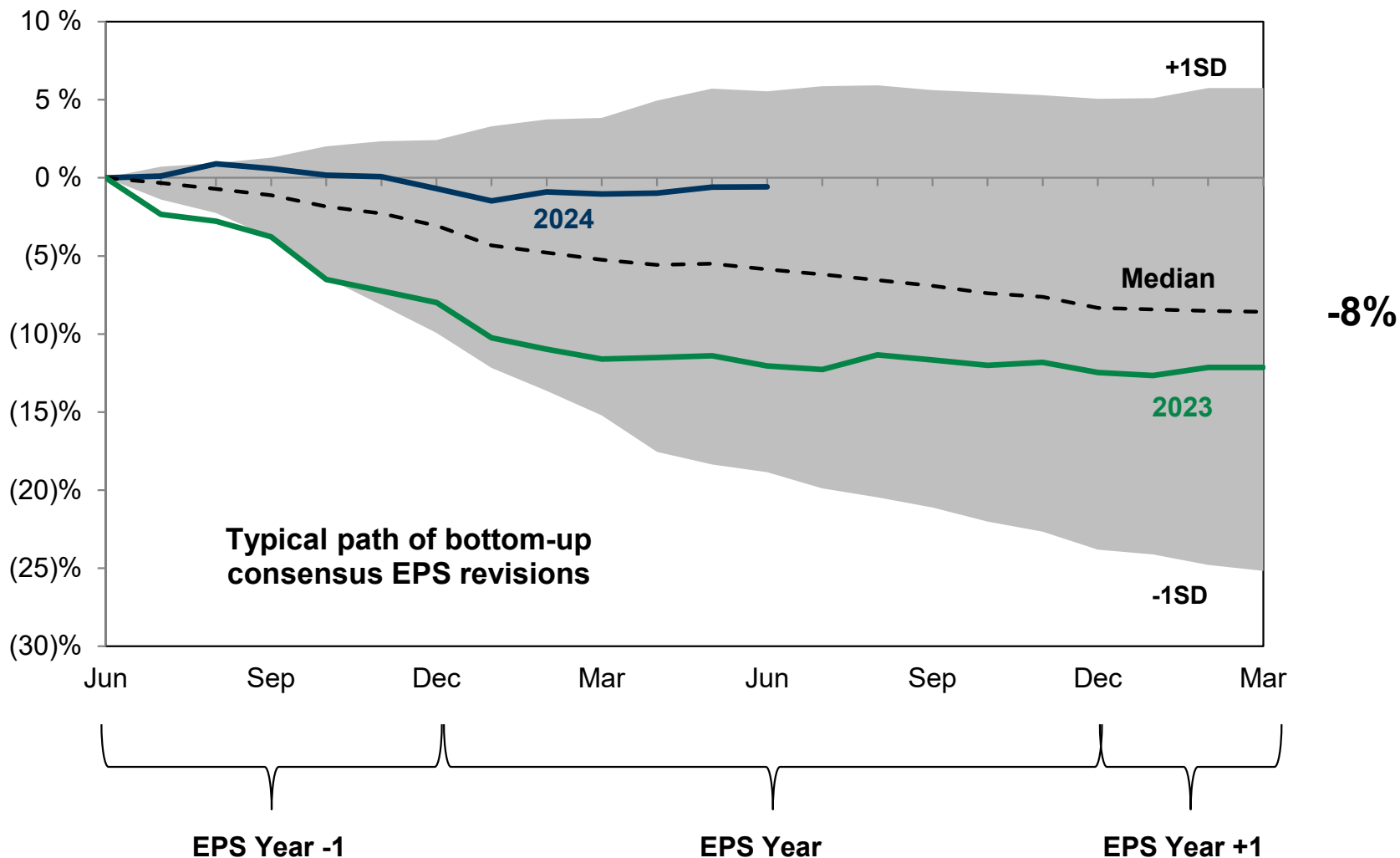
31 percentage point gap in 2024 will compress to 8pp in 2025 and 4 pp in 2026



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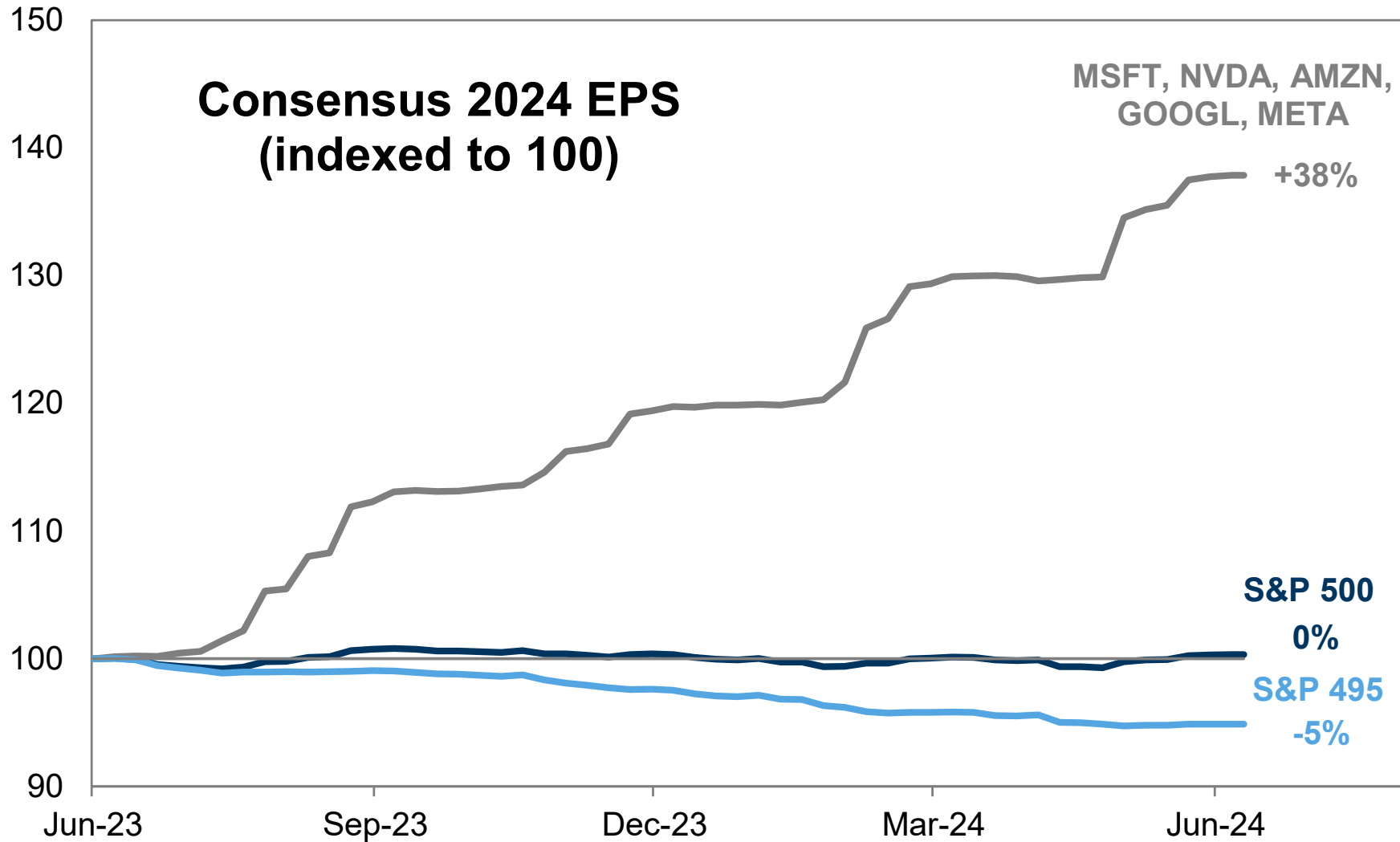
Typical path of S&P 500 consensus EPS revisions

2024 negative EPS revisions tracking better than 2023 and historical median



Positive EPS revisions for 5 mega-cap tech stocks

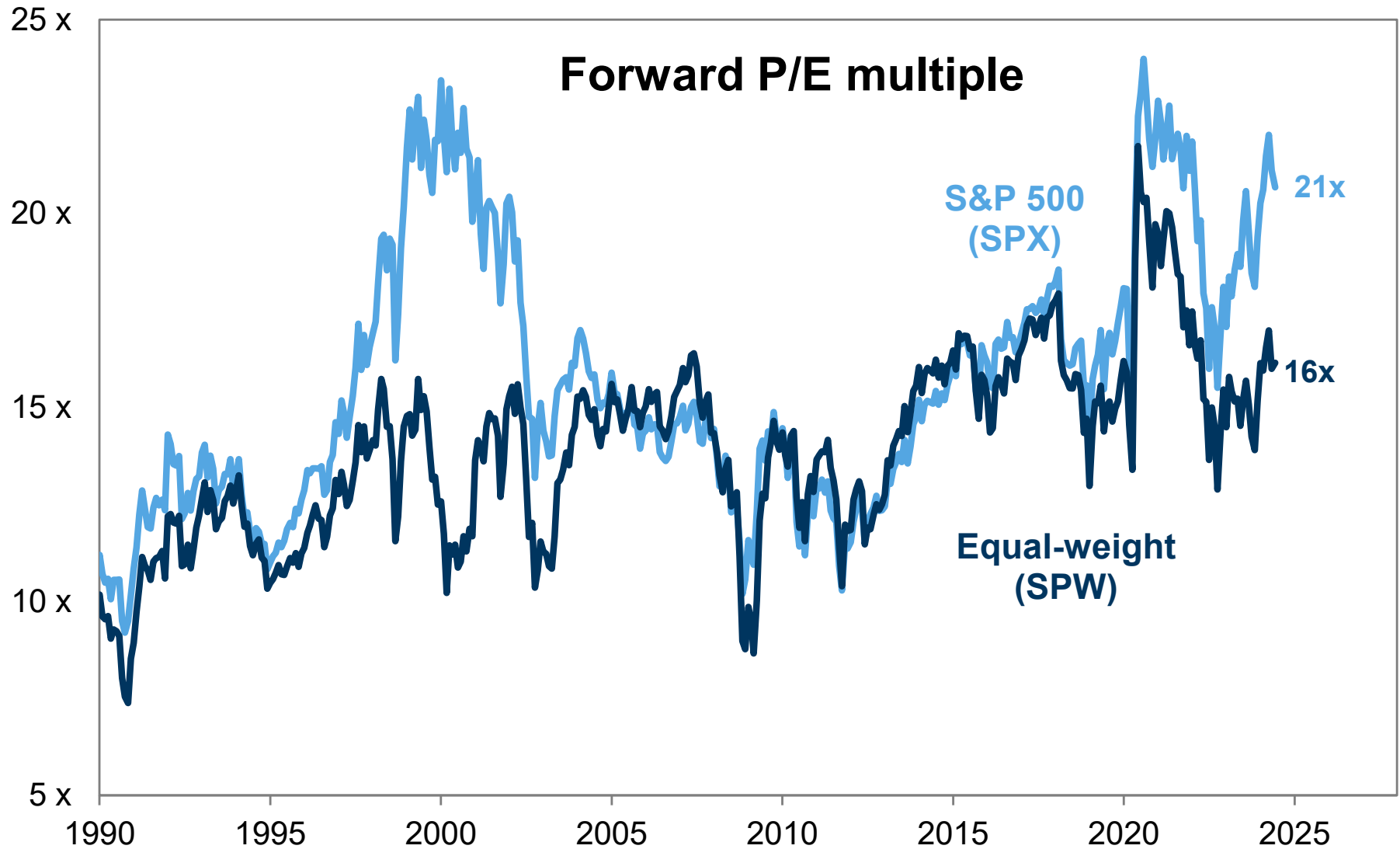
Negative 5% revisions for S&P 495 and flat for the aggregate S&P 500 index



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S&P 500 P/E multiple: aggregate vs. equal weight

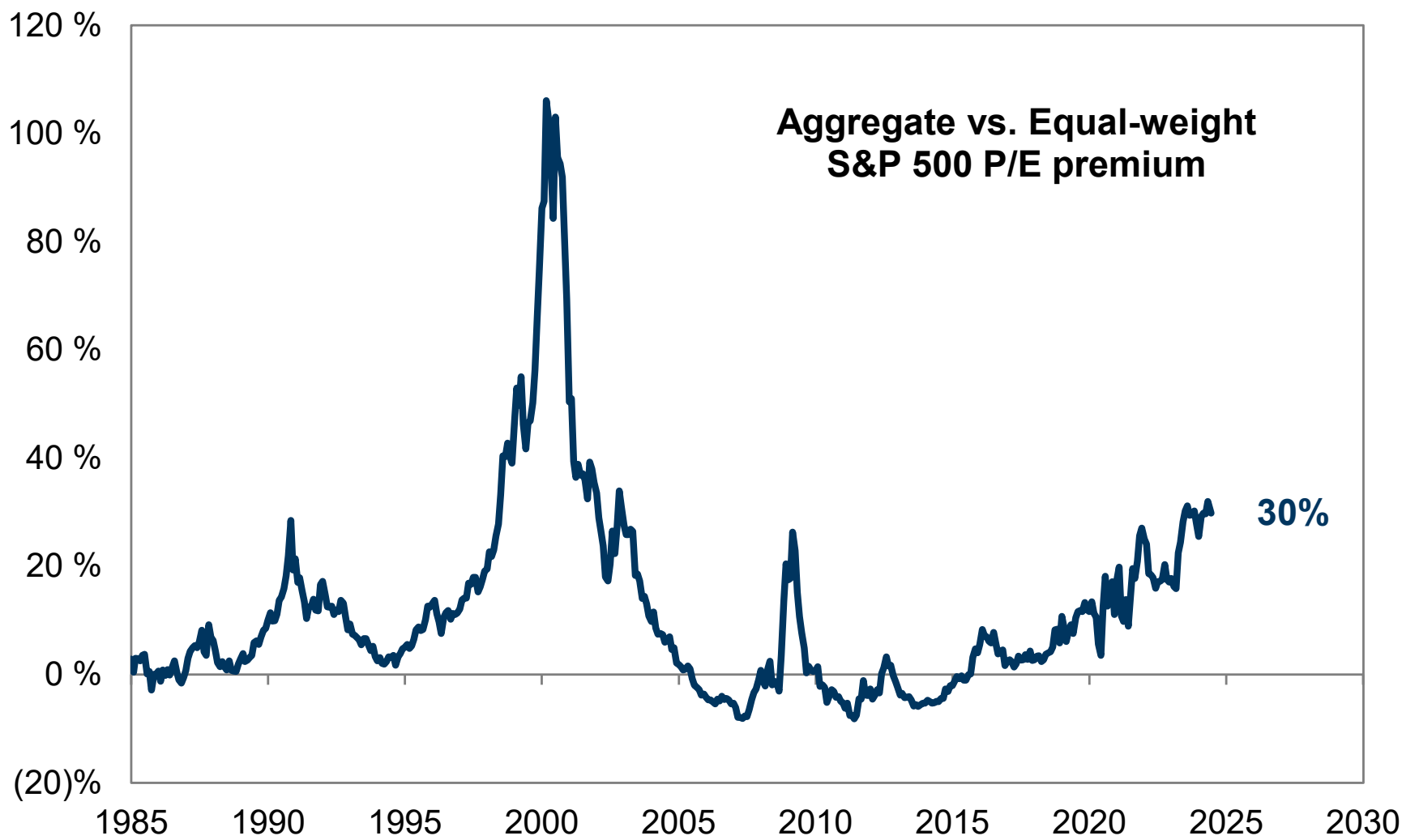
Aggregate index (SPX) trades at P/E of 21x vs. 16x for equal-weight index (SPW)



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P/E premium of aggregate vs. equal-weight S&P 500

Aggregate S&P 500 trades at a 30% P/E premium to the equal-weight index



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S&P 500 baseline forecast: 5600 at year-end 2024

Baseline, “catch-up,” “catch-down,” mega-cap exceptionalism, recession risk

Current: SPX = 5432

Equal-weight P/E of 16x, aggregate premium of 30% → SPX P/E of 21x

Baseline year-end 2024 forecast = 5600 (+3%)

Equal-weight P/E of 15x and aggregate premium of 36% → SPX P/E of 20x

Four alternative scenarios:

1. **“Catch up,”** the S&P 500 would end the year at **5900 (+9% from today)**
2. **“Catch-down,”** the S&P 500 would fall to **4700 (-13%)**
3. **Continued mega-cap exceptionalism** would lift the index to **6300 (+16%)**
4. **Recession fears** would push the index down to **4800 (-12%)**

S&P 500 year-end 2024 valuation matrix

Baseline, “catch-up,” “catch-down,” mega-cap exceptionalism, recession risk

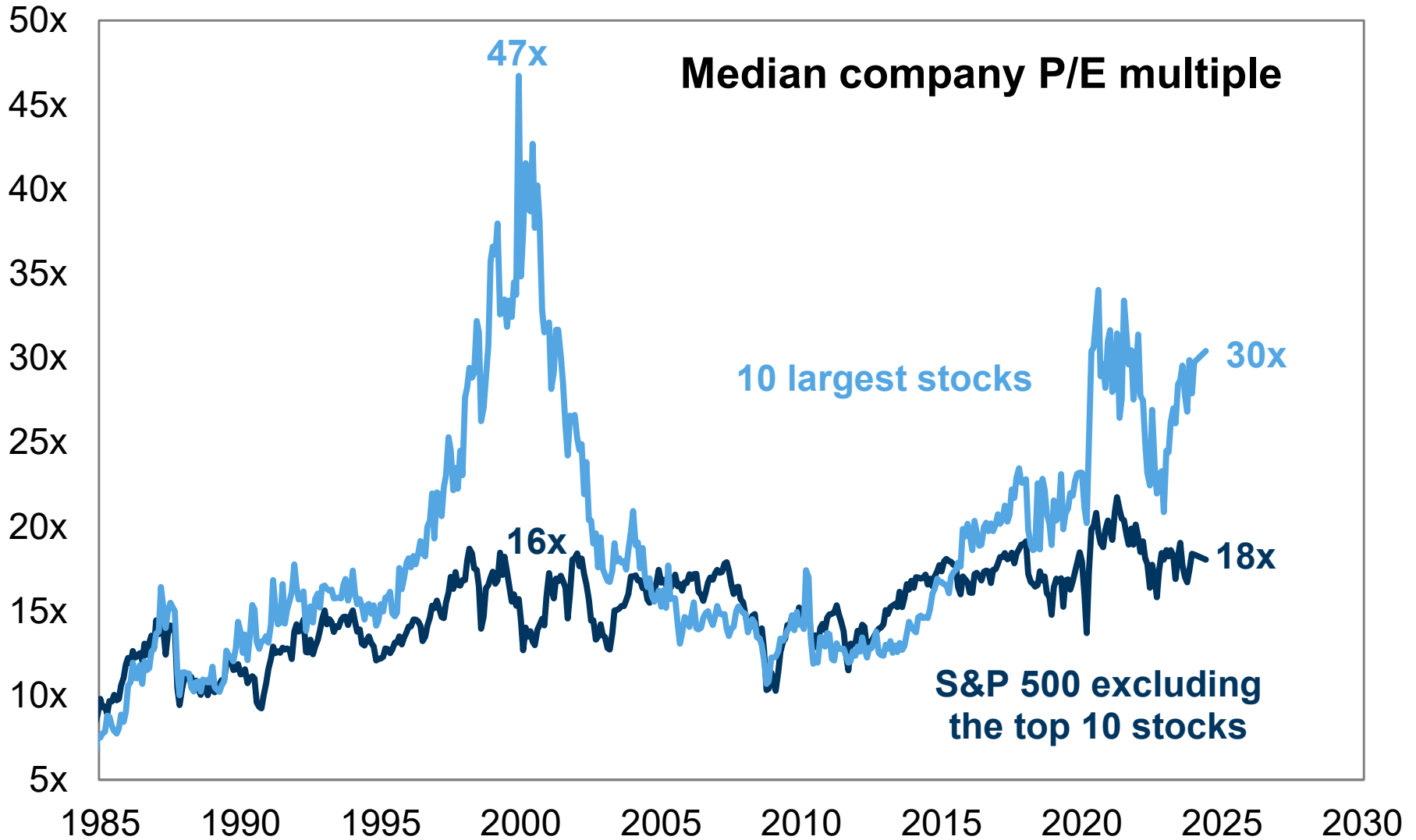
S&P 500 aggregate P/E

		S&P 500 equal-weight P/E							
		13 x	14 x	15 x	16 x	17 x	18 x	19 x	
		%ile	36%	47%	66%	85%	93%	96%	97%
Aggregate vs. equal-weight P/E premium	50%	96%	20 x	21 x	23 x	24 x <i>Mega-cap exceptionalism</i>	26 x	27 x	29 x
	45%	94%	19 x	20 x	22 x	23 x 6300	25 x	26 x	28 x
	40%	93%	18 x	20 x	21 x	22 x	24 x	25 x	27 x
	35%	90%	18 x	19 x	20 x 5600	22 x	23 x	24 x	26 x
	30%	88%	17 x	18 x	20 x	21 x 5432	22 x	23 x	25 x
	25%	83%	16 x	18 x 4800	19 x	20 x	21 x	22 x	24 x
	20%	79%	16 x	17 x	18 x	19 x	20 x	22 x 5900	23 x
	15%	68%	15 x	16 x	17 x 4700	18 x	20 x	21 x	22 x

Note: For price levels in scenario matrix we apply each scenario specific P/E to 2025 EPS of \$274 of which represents a -2% revision to the current consensus estimate for 2025 S&P 500 EPS of \$279.

Valuation of largest stocks today is below DotCom peak

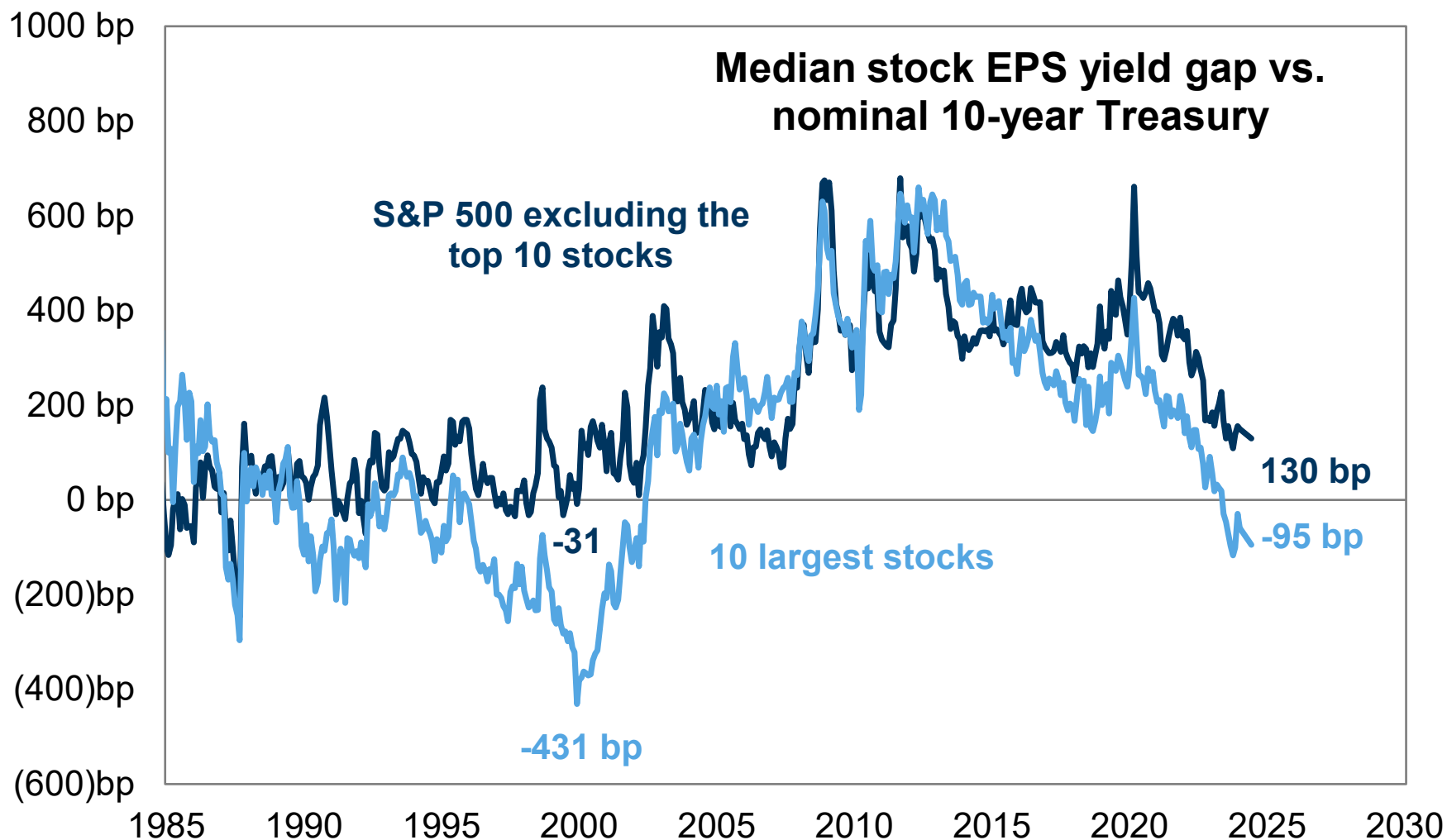
10 largest stocks trade at P/E of 30x vs. 47x at peak of DotCom bubble in 2000



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Relative valuation of 10 largest stocks vs. S&P 495

Current yield gap of largest stocks equals -95 bp vs. -431 bp in 2000



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2000 Dot Com bubble vs. 2023 AI euphoria

Failure to meet lofty growth expectations ended the Dot Com valuation boom

Dot Com Boom beneficiaries						
Company	Ticker	Sales CAGR (as of Jan. 2000)		NTM P/E		
		1999-2001	Realized	Jan. 2000	Jan. 2001	Change
Cisco	CSCO	28 %	11 %	97 x	43 x	(55)%
Microsoft Corp	MSFT	16	10	65	22	(66)
Intel	INTC	17	(5)	31	19	(40)

AI Adoption beneficiaries						
Company	Ticker	Sales CAGR		NTM P/E		
		2023E-2025E	Realized	May-24	Jan. 2025	Change
NVIDIA Corp	NVDA	80 %		43 x		
Microsoft Corp	MSFT	14		33		
Amazon.com, Inc.	AMZN	11		36		
Alphabet Inc.	GOOGL	11		22		

Concentration of S&P 500 capex and R&D spending

Top 10 firms spending the most on Capex and R&D account for 35% of total

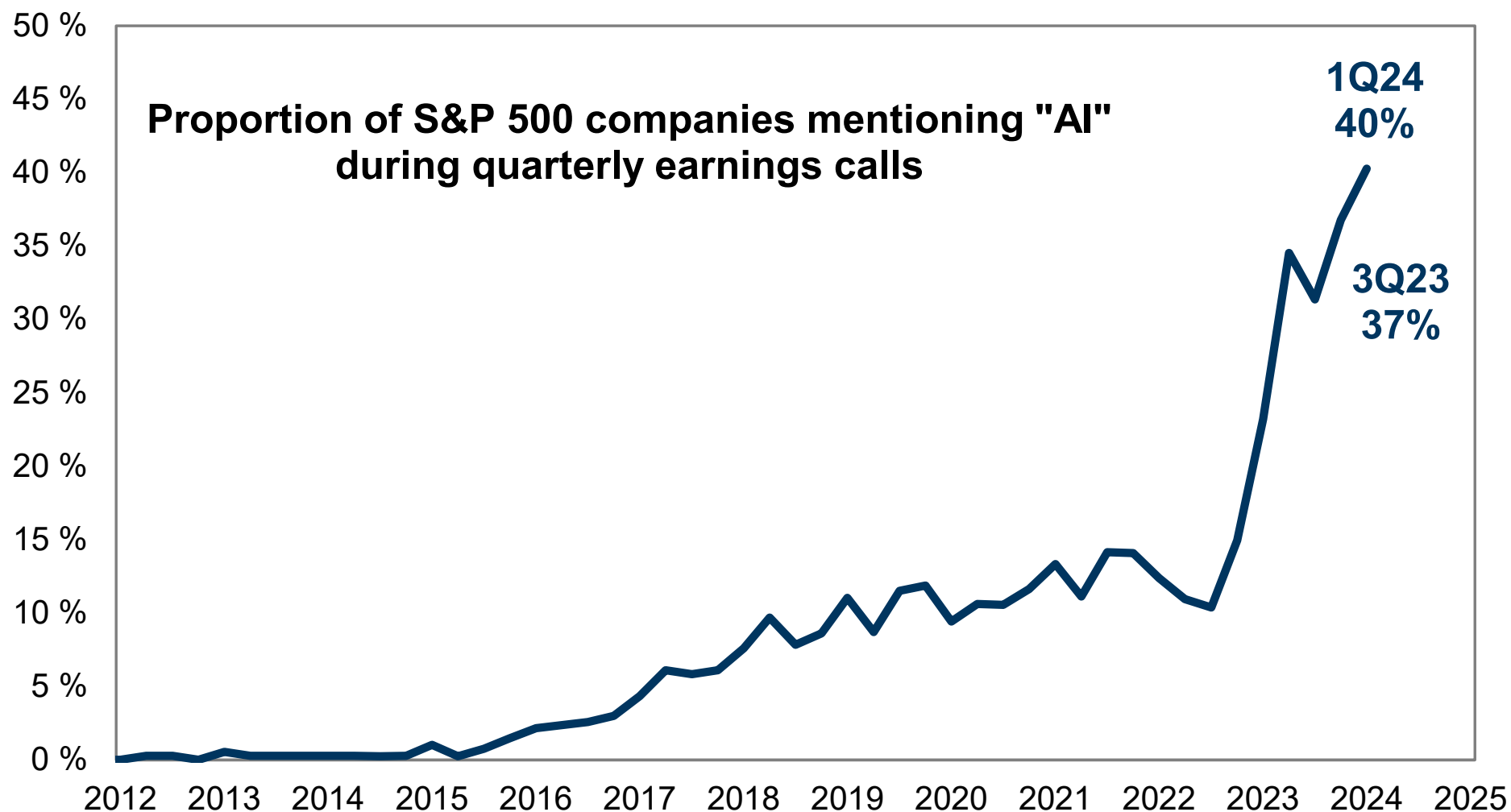
Ticker	2023 annual spending			
	CAPEX \$ billion	R&D \$ billion	CAPEX + R&D \$ billion	% of SPX
AMZN	53	86	138	9 %
GOOGL	32	45	78	5
META	27	38	66	4
MSFT	28	27	55	4
INTC	26	16	42	3
AAPL	11	30	41	3
GM	25	10	35	2
MRK	4	31	34	2
XOM	22	1	23	2
WMT	21	0	21	1
Top 10	248	284	532	35 %
S&P 500	933	578	1,510	100 %

Note: In 2023, NVDA capex totaled \$1 billion and R&D totaled \$9 billion for a total of \$10 billion.in 2023

Share of S&P 500 firms mentioning AI on 1Q calls

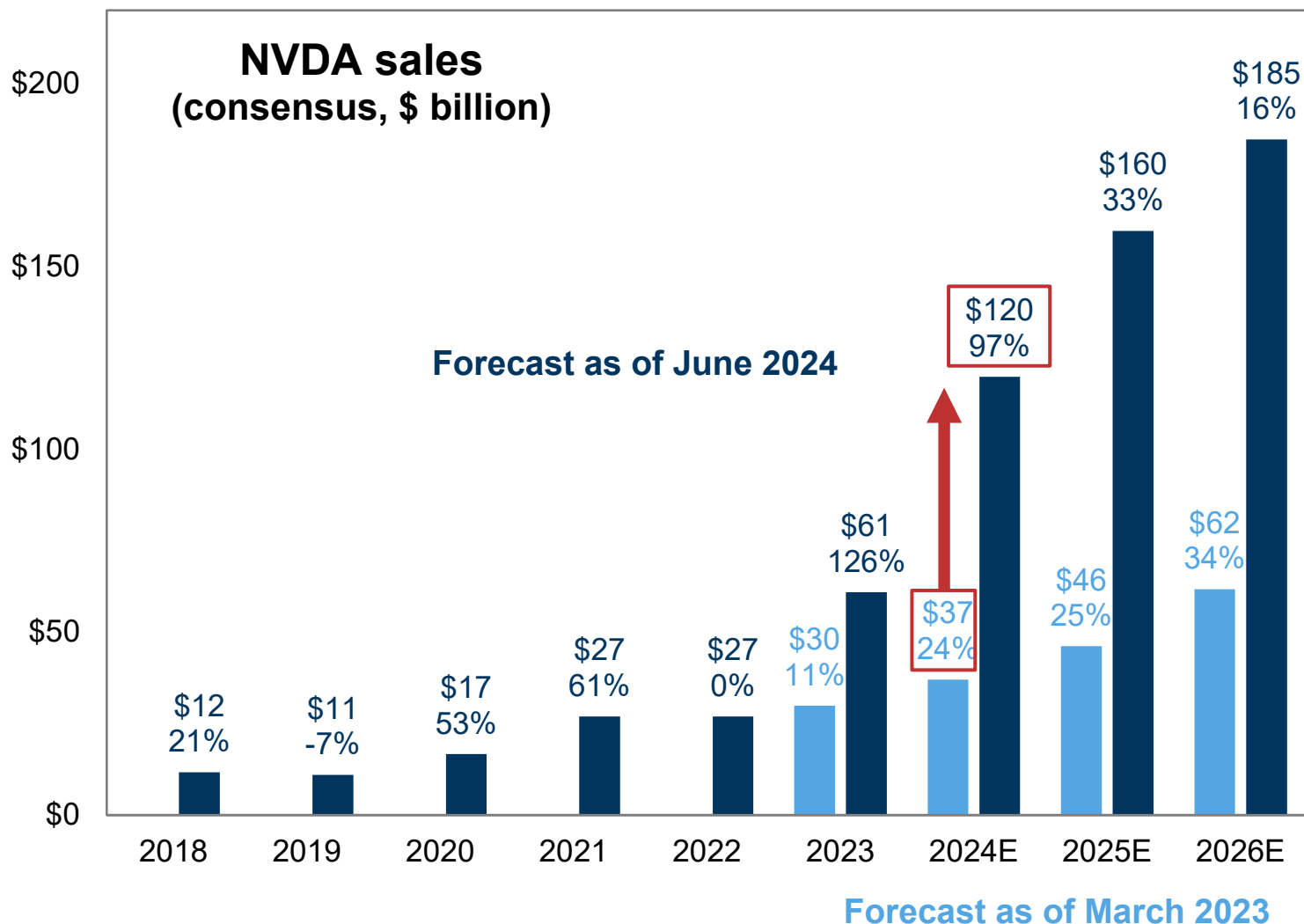
Surge in management teams mentioning AI during quarterly earnings calls

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NVDA sales expectations have soared in past year

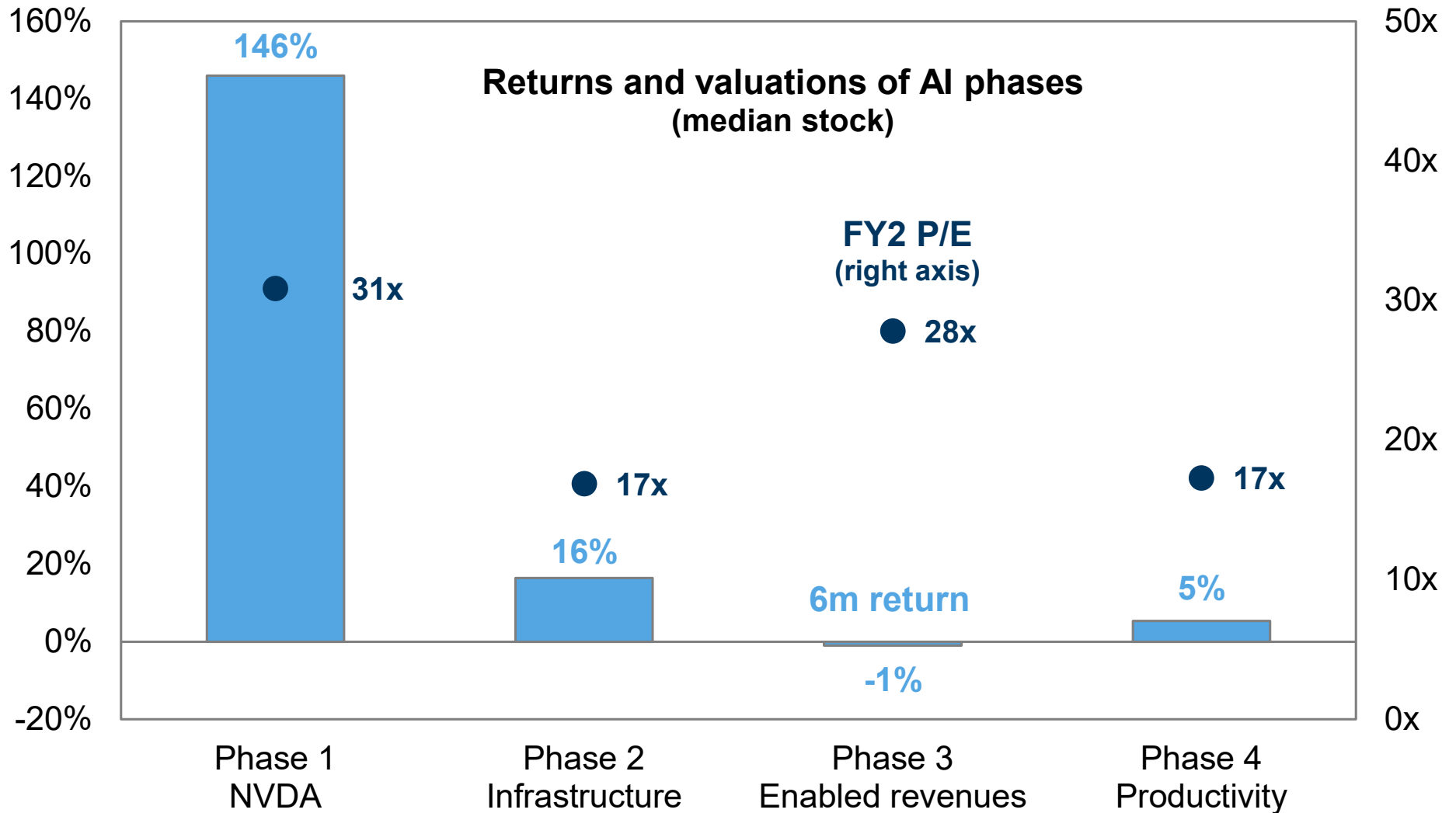
Current 2024 sales forecast of \$120 billion compares with \$37 billion a year ago



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GS Portfolio Strategy phases of the AI adoption trade

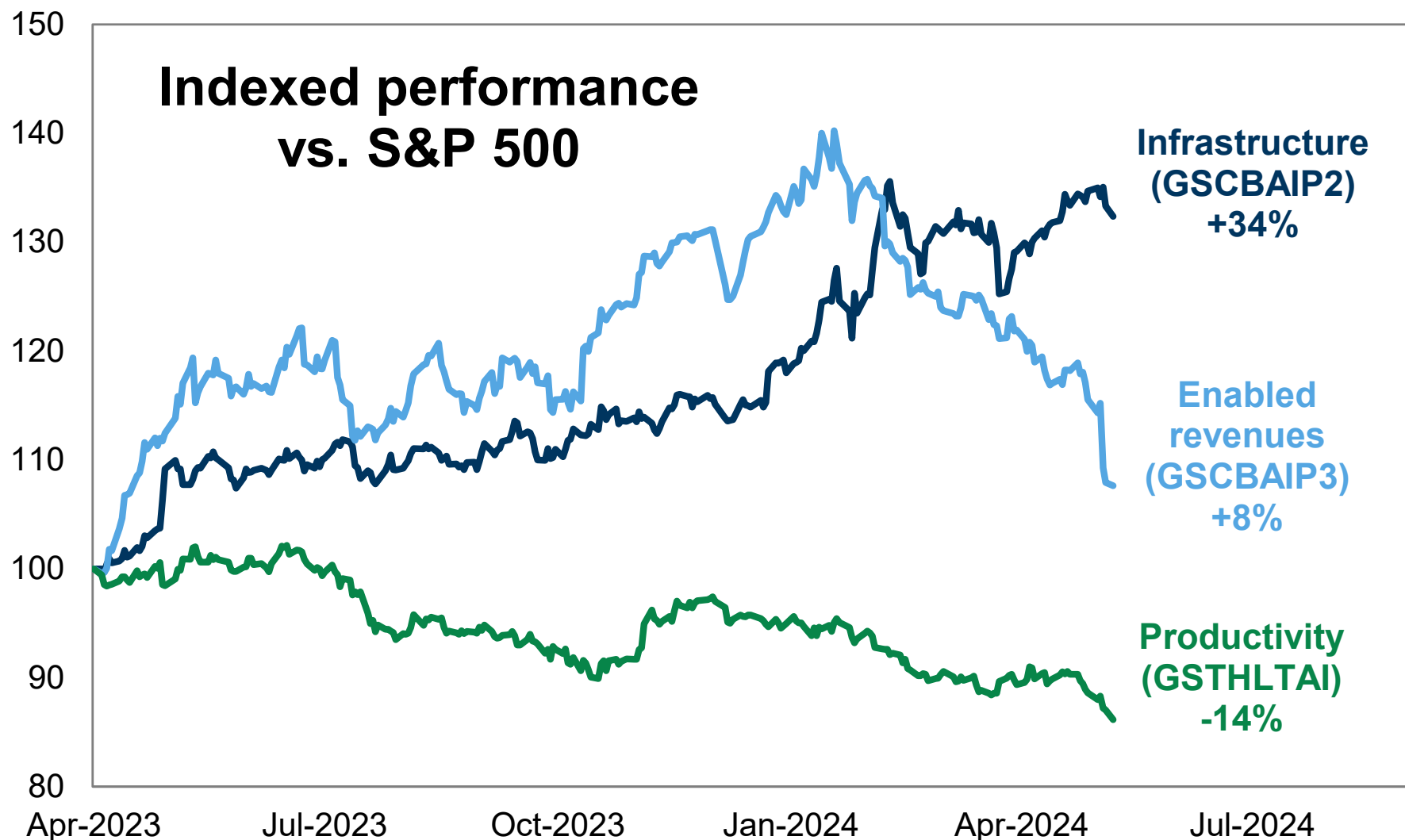
Trailing 6-month returns and P/E multiple for median stock in each AI category



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Relative performance of our AI baskets vs. S&P 500

Infrastructure (Phase 2), Enabled revenues (Phase 3), Productivity (Phase 4)



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Phase 2: AI infrastructure companies (GSCBAIP2)

Semiconductors, Data Centers, Servers & Networking, Utilities, Cloud, Security

Category	Description	Companies (ranked by market cap)	Average correlation with NVDA
Semiconductors			
Design	Firms that own the IP and Electronic Design Automation software used to design and analyze integrated circuits and printed circuit boards.	ARM, SNPS, CDNS	0.49
Fabless Designer (ex-NVDA)	The design, but not the manufacturing, of semiconductor chips.	AVGO, AMD, QCOM, MRVL, 2454 (TW), MPWR, LSCC, CRDO	0.48
Foundry & Integrated Device Manufacturer (IDM)	The manufacturing of semiconductor chips.	2330 (TW), INTC, GFS	0.27
Memory	Companies that manufacture memory units that are critical components of processors.	005930 (KR), MU, 000660 (KR), WDC	0.29
Manufacturing Equipment	Companies that provide equipment needed to manufacture semiconductor chips.	ASML-NL, AMAT, LRCX, 8035 (JP), KLAC, TER, ONTO, MKSI, AEIS, ACLS, FORM, KLIC, UCTT, VECO	0.45
Data Centers (Real Estate)	Companies that own and operate physical data centers that are required to house servers needed to train and run AI models.	AMT, EQIX, DLR, DBRG	0.19
Servers and Networking	To build and operate data centers and fit companies to use AI, various hardware and equipment will be required.	CSCO, ANET, APH, SMCI, GLW, VRT, KEYS, HPE, NTAP, JBL, PSTG, NVT, COHR, SNX, FN, LFUS, SANM, BDC, LITE, VIAV, PLUS	0.32
Utilities	Demand from data centers will require increased electricity.	NEE, SO, DUK, CEG, SRE, AEP, D, EXC, PCG, PEG, XEL, WEC, ETR, FE, VST, PPL, AEE, CMS, AGR, NRG, EVRG, AES, BEPC, PNW, OGE, IDA, POR, BKH	-0.05
Cloud Provider	Cloud companies are required to train, run, and maintain AI models through their computing and data storage solutions.	MSFT, AMZN, GOOGL, ORCL	0.50
Security	Companies will need to rely on software companies for endpoint security.	PANW, CRWD, PLTR, S	0.33

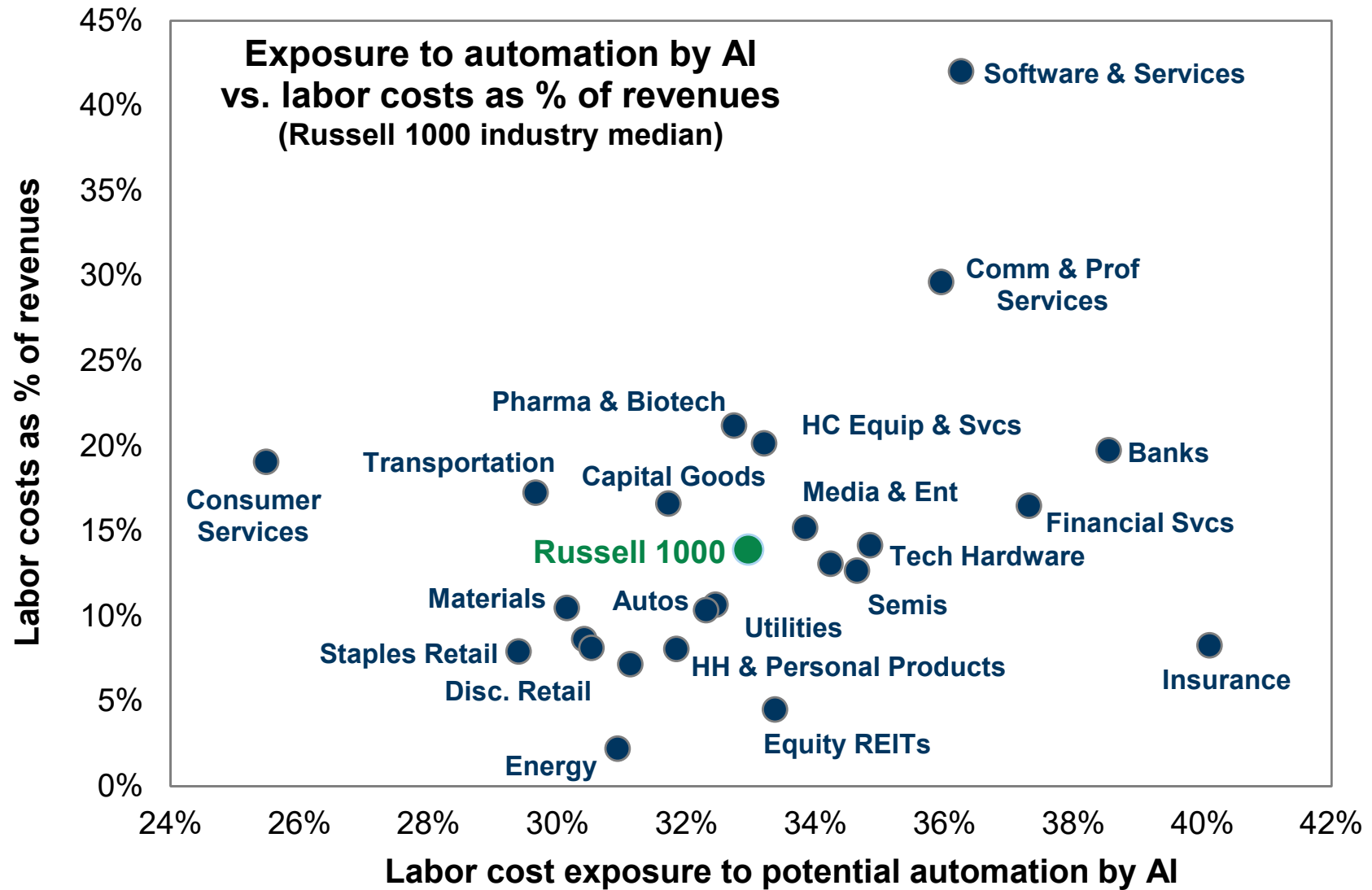
Phase 3: Stocks with revenue enhancement from AI

Firms that can incorporate AI in product offerings to boost sales (GSCBAIP3)

Ticker	Name	Industry	Mkt cap (\$ billion)	YTD return	Forward P/E	Sensitivity to NVDA (t-stat)
META	Meta Platforms Inc	Interactive Media & Services	1,199	35 %	19 x	5.7
MDB	MongoDB, Inc.	IT Services	26	(43)	99	5.3
INTU	Intuit Inc.	Software	177	(8)	30	5.1
NTNX	Nutanix, Inc.	Software	16	13	37	4.9
NOW	ServiceNow, Inc.	Software	148	(6)	41	4.7
ACN	Accenture Plc	IT Services	196	(17)	22	2.8
ACVA	ACV Auctions, Inc.	Commercial Services & Supplies	3	16	28	4.0
ADBE	Adobe Inc.	Software	219	(25)	23	3.7
Q TWO	Q2 Holdings, Inc.	Software	4	40	32	3.7
NET	Cloudflare Inc	IT Services	25	(18)	89	3.7
UBER	Uber Technologies, Inc.	Ground Transportation	138	4	28	3.6
ADSK	Autodesk, Inc.	Software	46	(13)	23	3.5
ZS	Zscaler, Inc.	Software	26	(24)	43	3.4
MA	Mastercard Inc.	Financial Services	423	4	26	3.4
DT	Dynatrace, Inc.	Software	14	(16)	29	3.3
CRM	Salesforce, Inc.	Software	271	(11)	24	3.3
AAPL	Apple Inc.	Tech Hardware	2,802	1	24	3.3
HUBS	HubSpot, Inc.	Software	30	5	64	3.2
BOX	Box, Inc.	Software	4	8	14	3.2
IT	Gartner, Inc.	IT Services	34	(5)	32	3.1
BASE	Couchbase, Inc.	IT Services	1	(6)	NM	3.0
DOCN	DigitalOcean Holdings, Inc.	IT Services	3	0	17	2.9
YEXT	Yext, Inc.	Software	1	(17)	12	2.9
CARG	CarGurus, Inc.	Interactive Media & Services	2	(1)	13	2.8
CVLT	Commvault Systems, Inc.	Software	5	37	28	2.8
SNOW	Snowflake, Inc.	IT Services	53	(32)	109	2.8
FTNT	Fortinet, Inc.	Software	46	1	29	2.8
WK	Workiva Inc.	Software	4	(26)	43	2.8
GTLB	GitLab, Inc.	Software	9	(29)	100	2.7
SQSP	Squarespace, Inc.	IT Services	5	32	28	2.6
DDOG	Datadog Inc	Software	39	(10)	56	2.6
List median			26	(6)%	29 x	3.3

Phase 4: Potential productivity gains from AI adoption

Labor cost exposure to automation by AI and labor costs as a percent of sales



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Long-term AI Beneficiaries basket (GSTHLTAI)

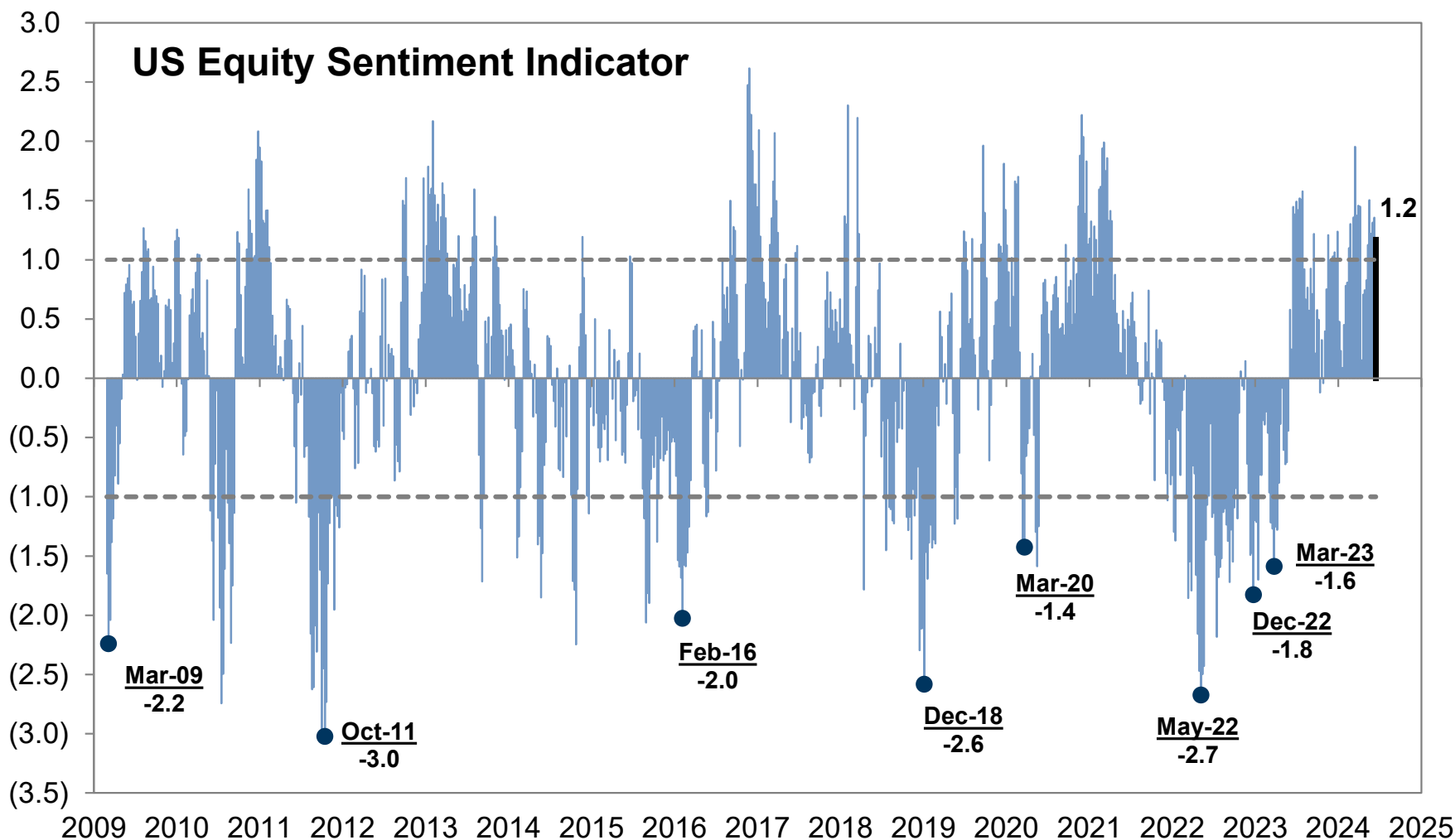
Phase 4: Long-term AI beneficiaries from AI adoption via labor productivity

Ticker	Name	Mkt cap (\$ bn)	YTD total return	NTM P/E	Share of wage bill exposed to AI	Labor costs as % sales	Potential chg to baseline earnings from AI
Communication Services							
PINS	Pinterest, Inc.	\$28	11 %	26x	35 %	34 %	162 %
NYT	New York Times Company	8	5	28	36	43	67
NWSA	News Corp.	16	12	33	36	19	63
ZI	ZoomInfo Technologies Inc	4	(35)	11	35	46	58
Consumer Discretionary							
HRB	H&R Block, Inc.	\$7	4 %	11x	41 %	52 %	57 %
KSS	Kohl's Corp.	3	(15)	12	32	7	49
CPNG	Coupage, Inc.	39	39	65	35	9	49
KMX	CarMax, Inc.	11	(8)	22	33	5	42
AMZN	Amazon.com, Inc.	1,862	17	35	33	10	39
LEA	Lear Corp.	7	(10)	8	33	7	30
Consumer Staples							
WMT	Walmart Inc.	\$535	26 %	26x	31 %	9 %	44 %
WBA	Walgreens Boots Alliance, Inc.	14	(37)	5	36	6	38
COST	Costco Wholesale Corp.	366	24	48	31	6	31
Energy							
OXY	Occidental Petroleum Corp.	\$53	2 %	15x	31 %	6 %	9 %
WMB	Williams Companies, Inc.	50	19	22	32	6	9
Financials							
KMPR	Kemper Corp	\$4	22 %	12x	42 %	11 %	42 %
BRO	Brown & Brown, Inc.	26	25	24	39	41	40
FAF	First American Financial Corp.	6	(14)	13	43	16	38
WTW	Willis Towers Watson	26	6	15	39	34	36
MMC	Marsh & McLennan Companies, Inc.	103	10	23	39	28	30
FNF	Fidelity National Financial, Inc.	14	0	10	42	15	30
VOYA	Voya Financial, Inc.	8	6	9	39	18	30
Health Care							
THC	Tenet Healthcare Corp.	\$13	77 %	15x	33 %	31 %	135 %
DVA	DaVita Inc.	13	39	14	34	41	105
UHS	Universal Health Services, Inc.	12	23	13	33	35	91
IQV	IQVIA Holdings Inc	39	(6)	18	38	61	77
RCM	R1 RCM Inc	5	21	51	38	23	77
EHC	Encompass Health Corp.	9	26	20	34	34	68
ILMN	Illumina, Inc.	16	(26)	69	34	33	54

Ticker	Name	Mkt cap (\$ bn)	YTD total return	NTM P/E	Share of wage bill exposed to AI	Labor costs as % sales	Potential chg to baseline earnings from AI
Industrials							
CLVT	Clarivate PLC	\$4	(37)%	7x	38 %	23 %	232 %
RHI	Robert Half Inc.	7	(26)	19	38	85	150
CDAY	Ceridian HCM Holding, Inc.	8	(26)	28	38	43	125
TTEK	Tetra Tech, Inc.	11	25	30	35	72	122
SAIC	Science Applications International Corp.	6	(4)	14	36	33	115
Information Technology							
GWRE	Guidewire Software, Inc.	\$9	1 %	67x	37 %	80 %	388 %
AYX	Alteryx, Inc.	NM	NM	NM	36	74	203
MDB	MongoDB, Inc.	17	(43)	92	36	83	193
NTNX	Nutanix, Inc.	13	11	39	36	70	177
SMAR	Smartsheet, Inc.	5	(22)	31	36	75	171
SNOW	Snowflake, Inc.	46	(31)	180	36	90	154
TWLO	Twilio, Inc.	10	(25)	17	37	60	138
DXC	DXC Technology Co.	3	(31)	6	38	40	95
BILL	BILL Holdings, Inc.	5	(37)	22	38	60	93
HUBS	HubSpot, Inc.	31	3	77	36	66	91
ACN	Accenture Plc	181	(19)	22	37	60	80
ESTC	Elastic NV	10	(9)	69	36	46	76
CTSH	Cognizant Technology Solutions Corp.	33	(12)	14	38	58	76
Materials							
IP	International Paper Company	\$15	29 %	19x	31 %	16 %	41 %
Real Estate							
JLL	Jones Lang LaSalle Incorporated	\$9	5 %	14x	35 %	30 %	120 %
Utilities							
HE	Hawaiian Electric Industries, Inc.	\$1	(25)%	5x	33 %	12 %	26 %
List median		\$12	2 %	20x	36 %	34 %	72 %
Russell 1000 median		14	4	18	33	14	19

US equity Sentiment Indicator

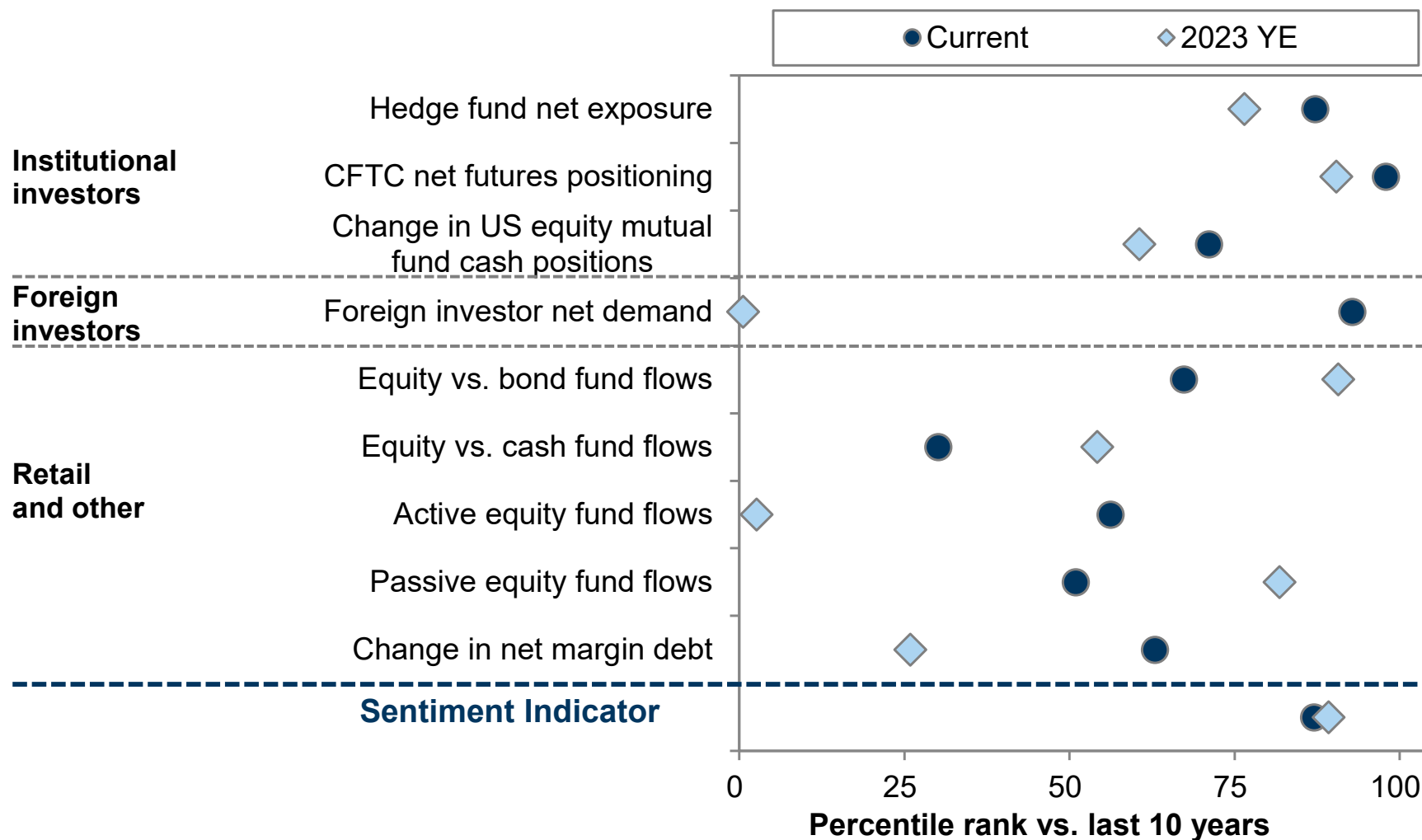
Near-term investor positioning across various ownership categories is elevated



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Institutional positioning remains elevated in 2023

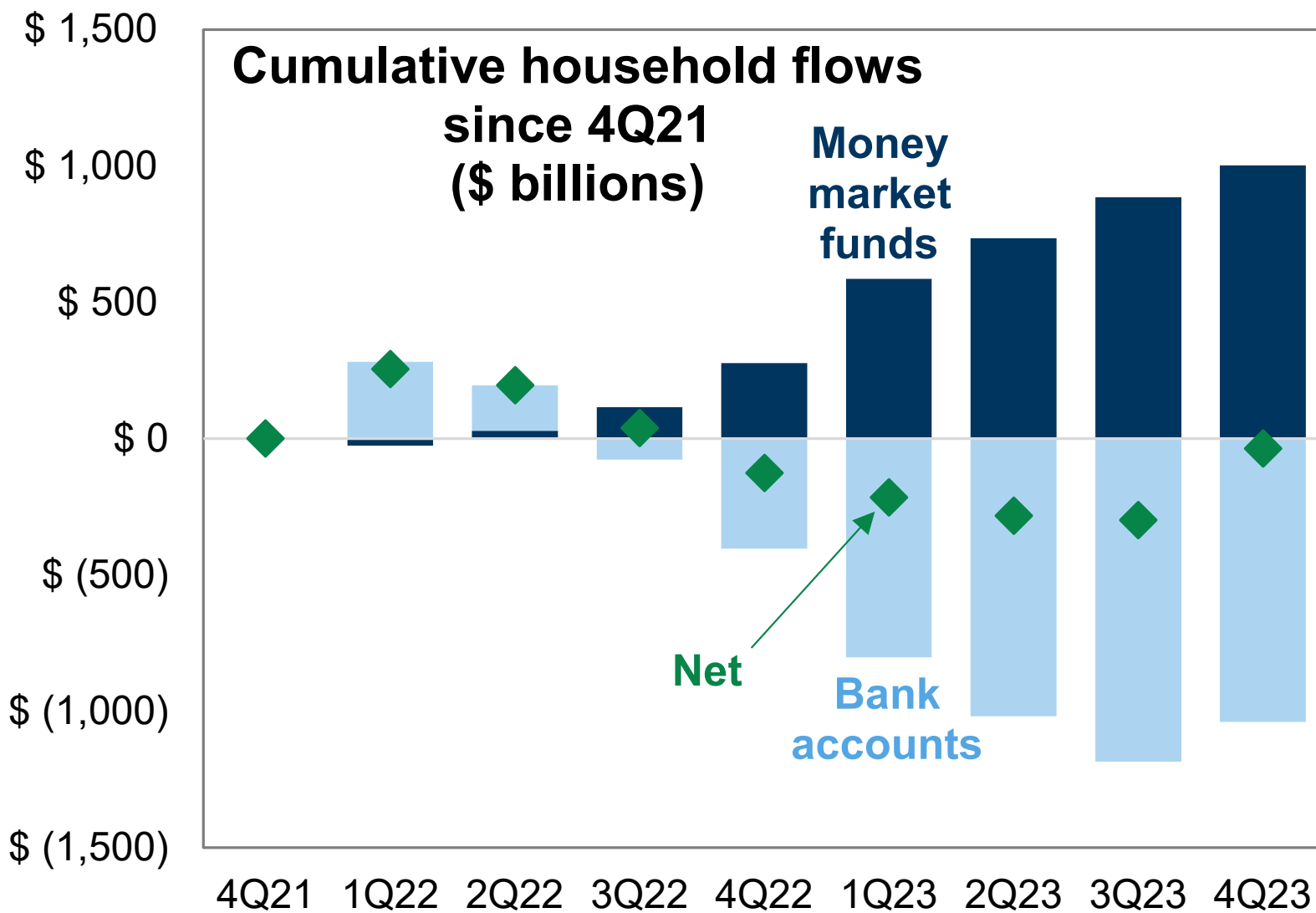
Hedge fund net exposure and net futures positioning in top quartile



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Money market inflows in 2023 reflected deposit flight

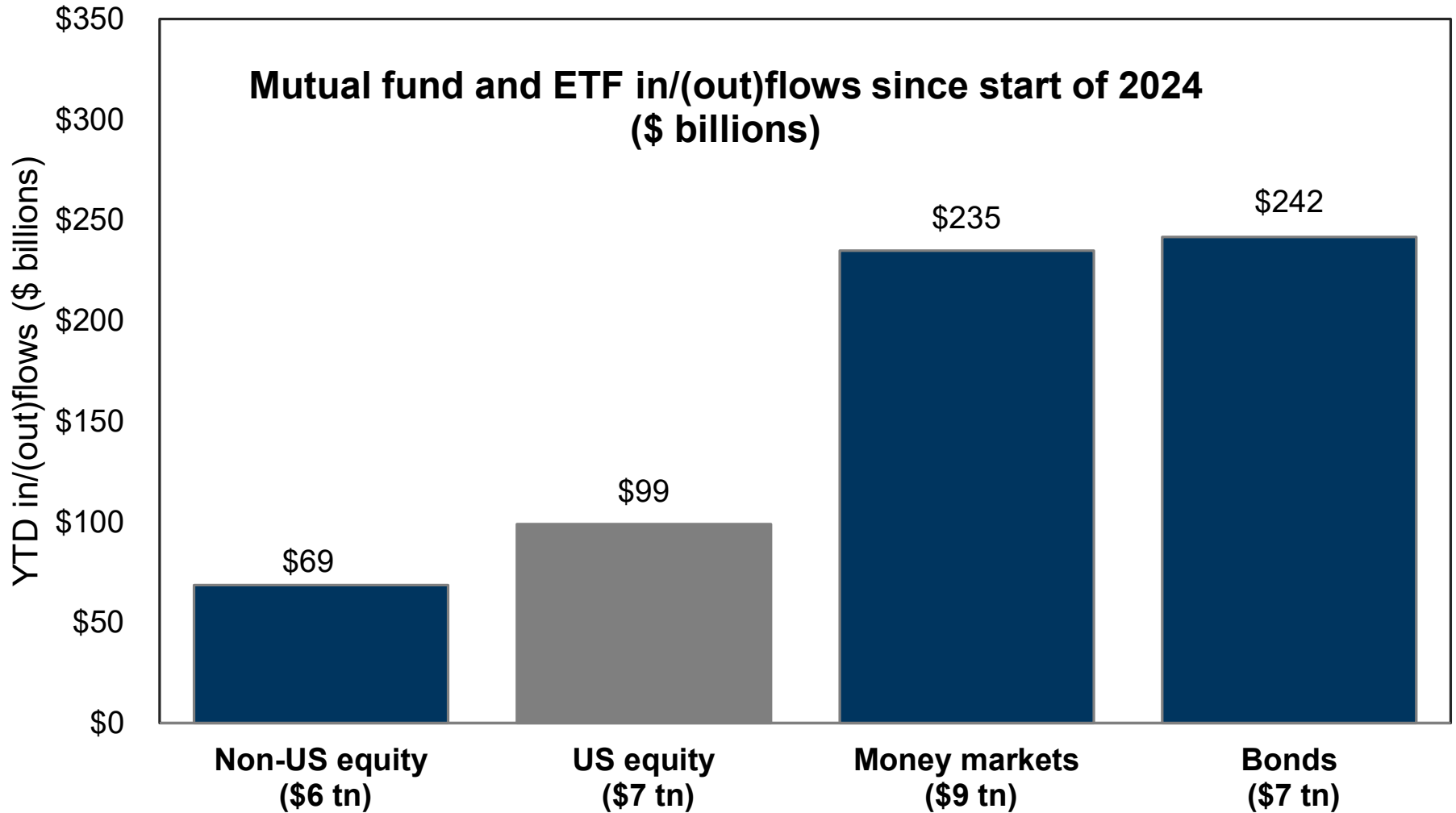
Rotation toward money market funds was funded by traditional bank accounts



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Money market inflows total \$235 billion year-to-date

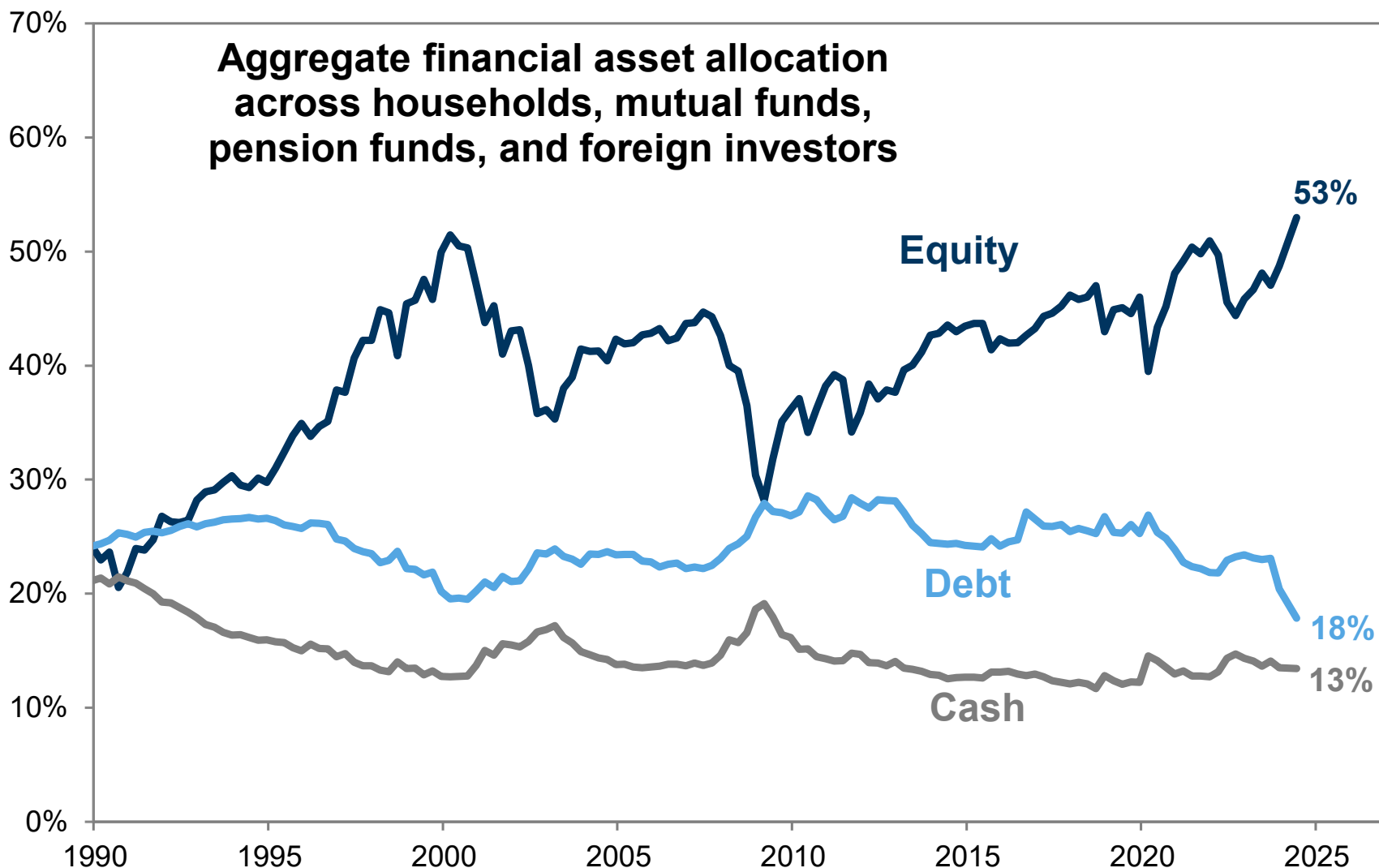
US equity inflows total only \$99 billion while Bonds purchases total \$242 billion



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Investor allocations to equity remain elevated

Regime change from “TINA” to “TARA” supports household asset rotation



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Equity allocations relative to history since 1952

Real money investor allocations to equities generally remain elevated

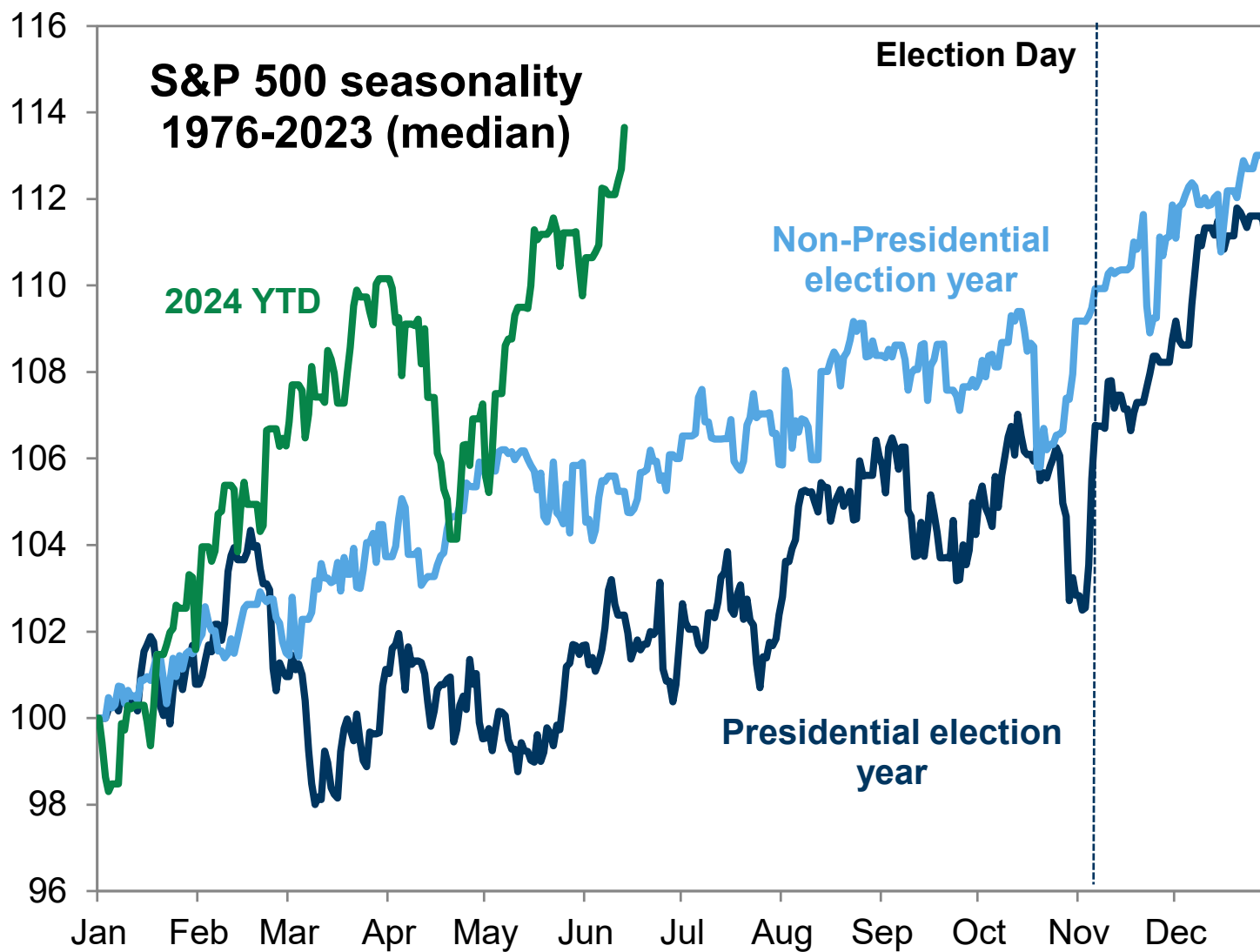
Holder	EQUITY		DEBT		CASH	
	% of total assets		% of total assets		% of total assets	
	Current	%-ile since '52	Current	%-ile since '52	Current	%-ile since '52
Foreign investors	60 %	100 %	26 %	5 %	8 %	5 %
Mutual funds	56	55	19	48	24	61
Pension funds	60	100	15	2	2	10
Households	48	100	15	42	15	16
Total	53 %	100 %	18 %	42 %	13 %	15 %



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Presidential election year seasonality

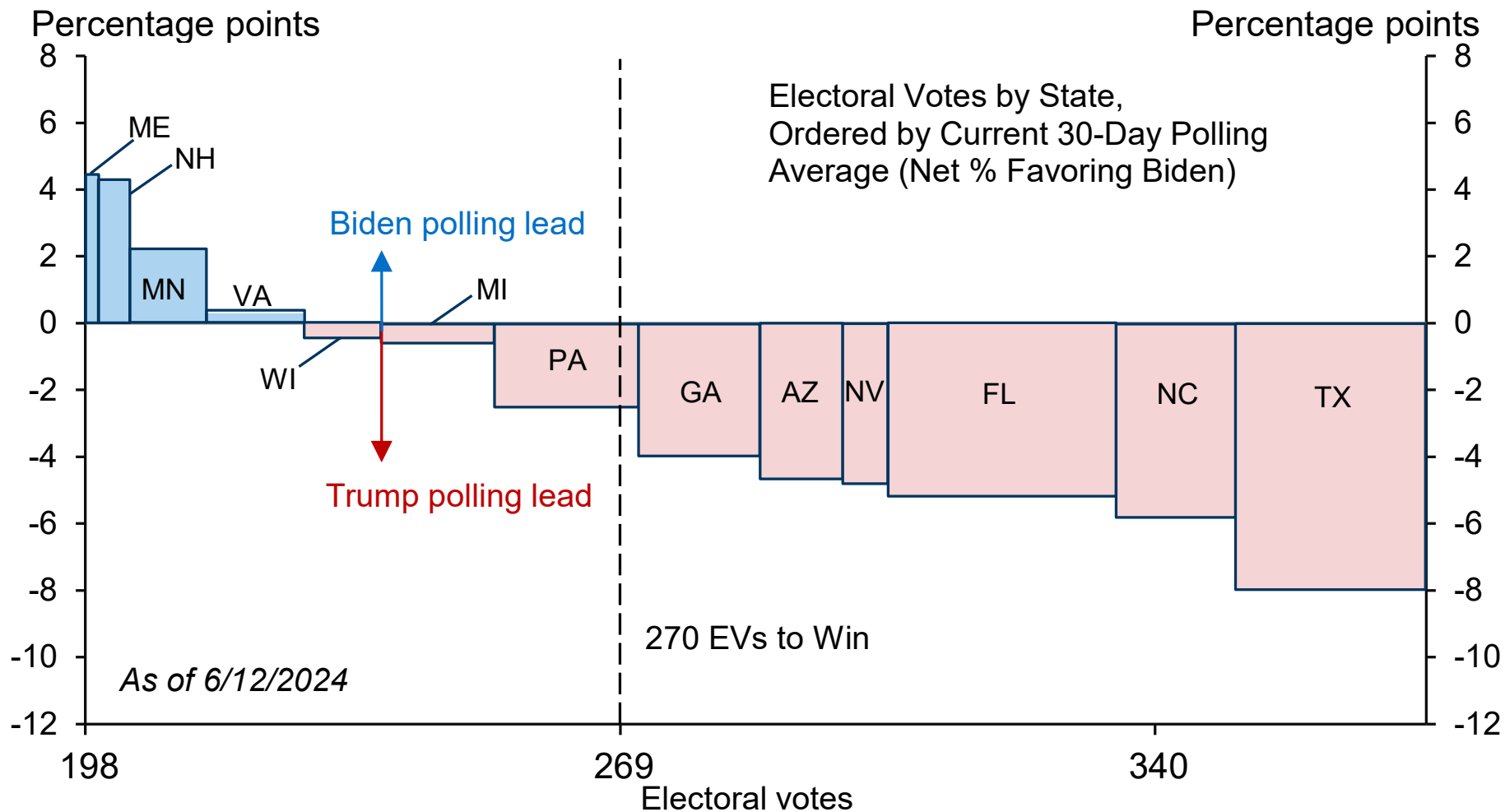
Equities typically rally following Election Day as policy uncertainty is resolved



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Electoral votes by state ordered by polling average

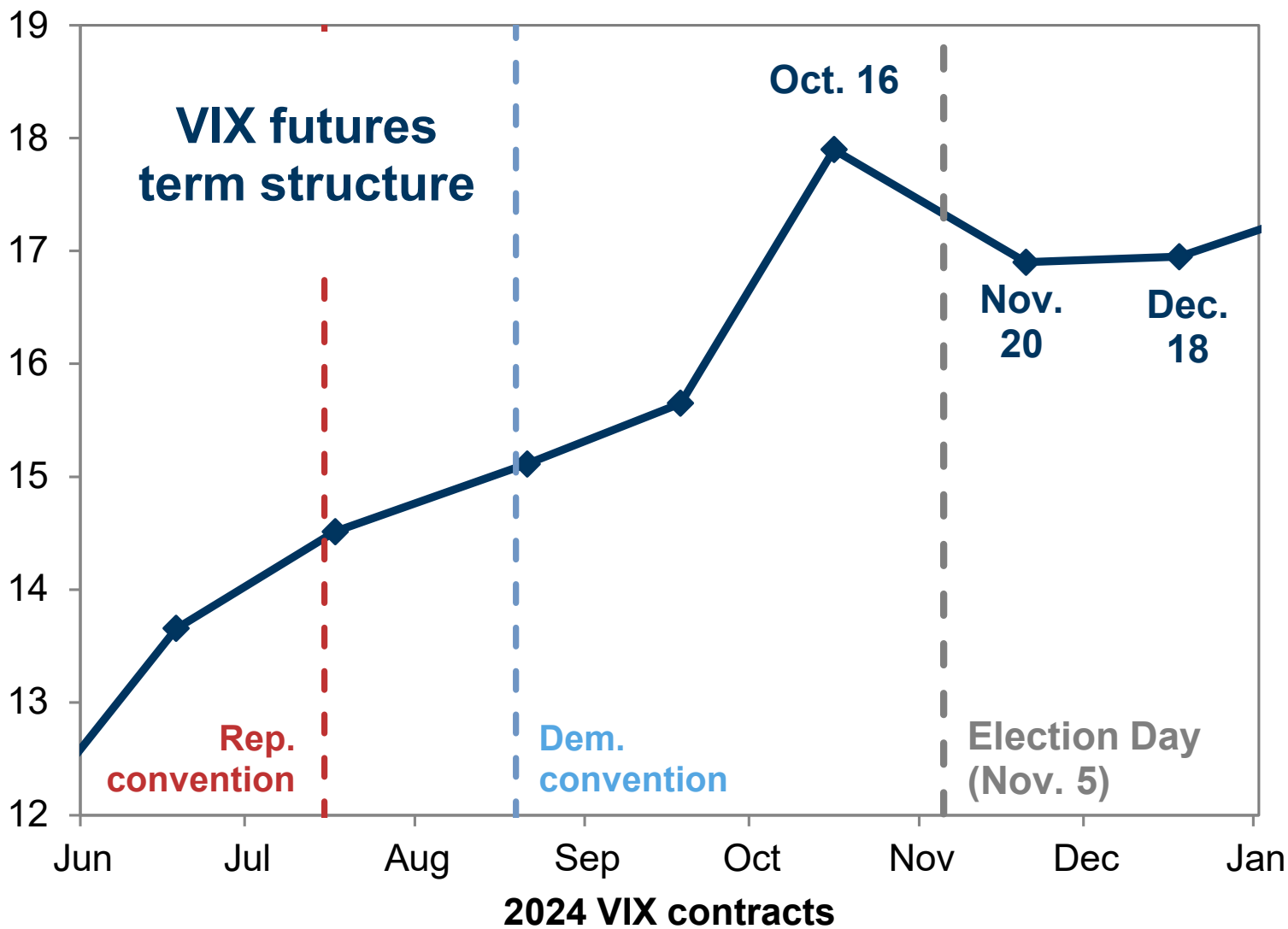
Biden trails by around 2 pp in the states most likely to decide the election



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VIX futures term structure around election events

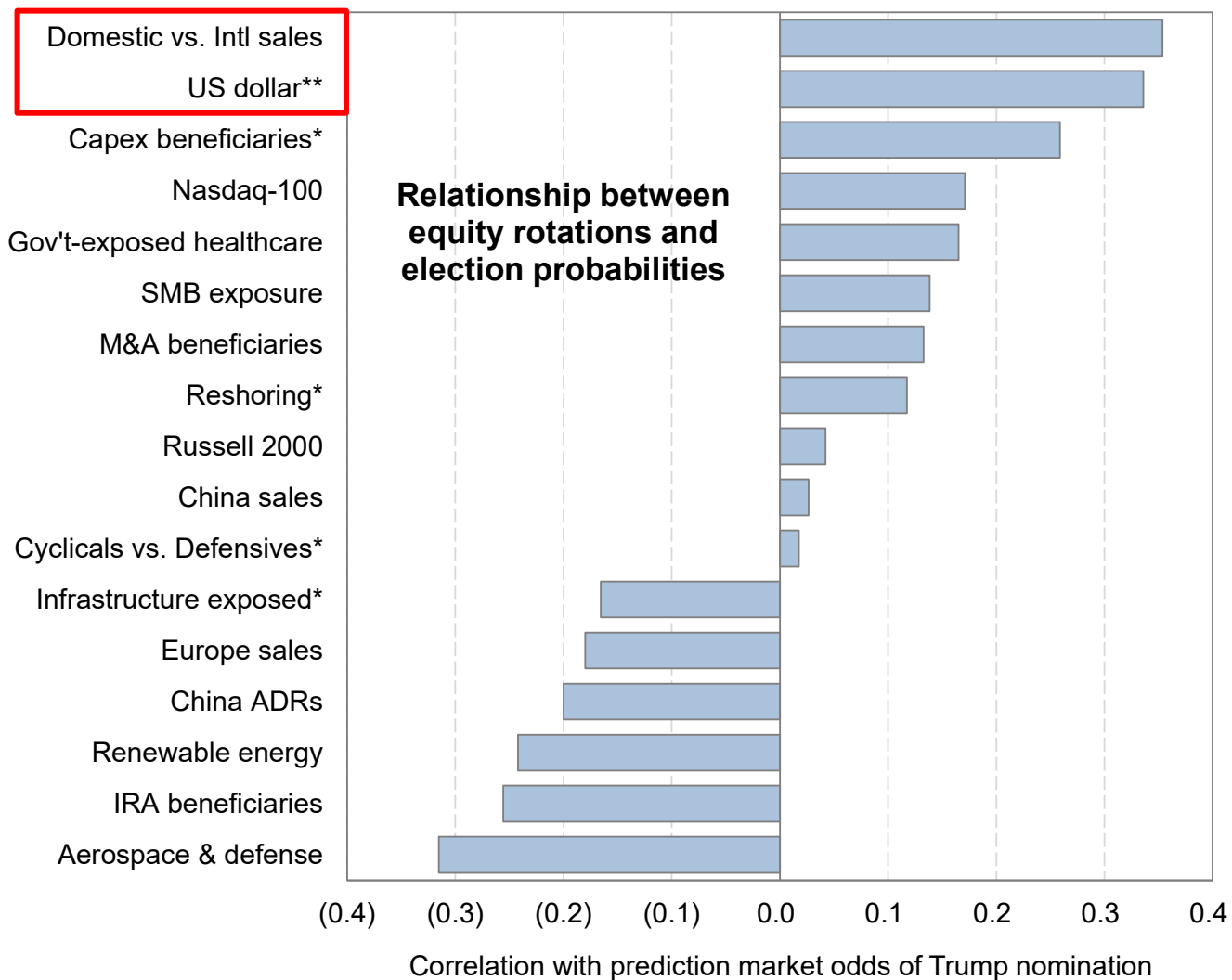
Implied volatility highest in October contract



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Pockets of the equity market reflecting election risk

Domestic Sales and USD strength are the clearest consensus “Trump trades”



* Indicates equity baskets evaluated as long/short basket pairs.

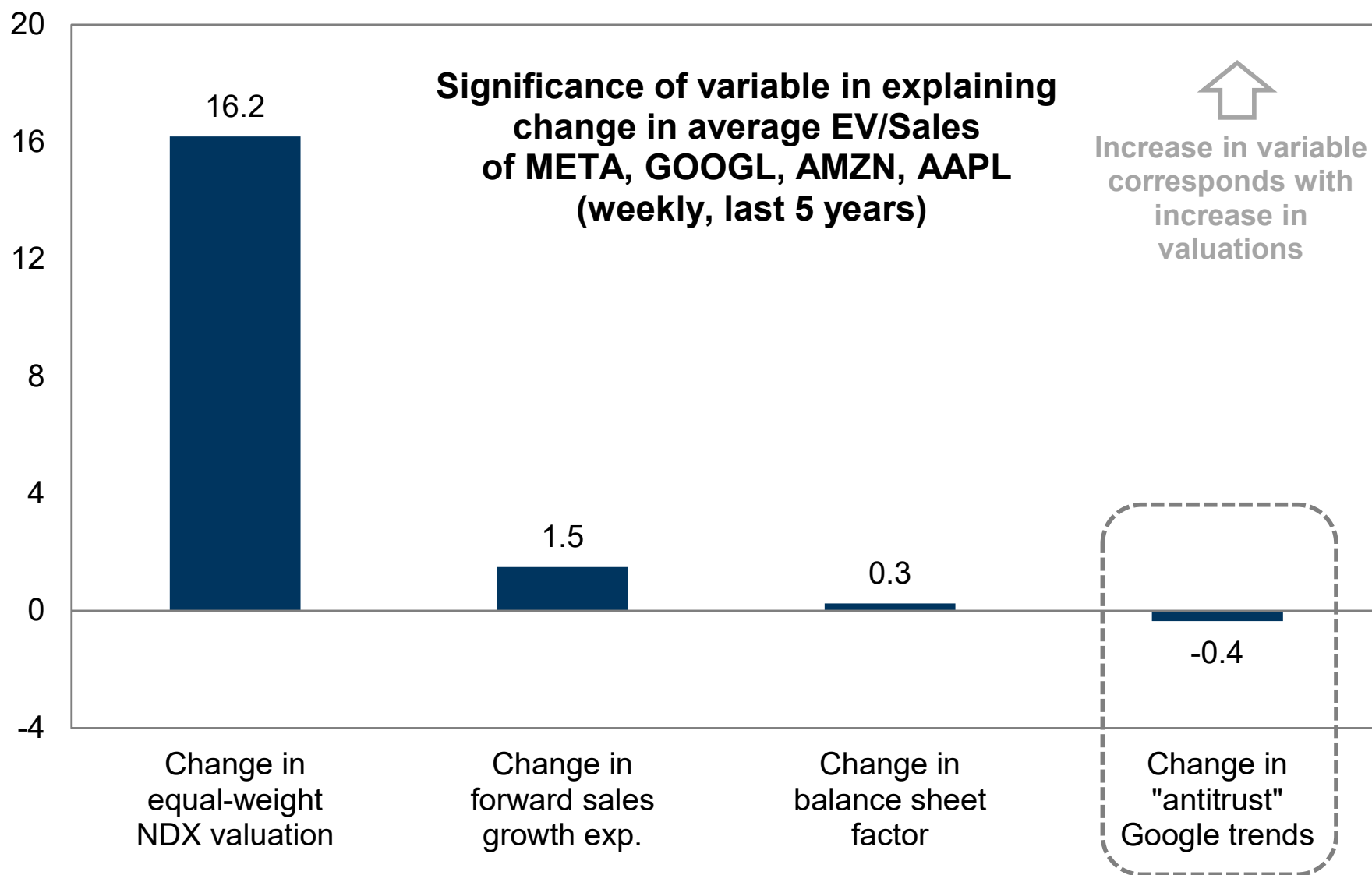
Partial list of DOJ and FTC lawsuits against “Big Tech”

Google, Meta, Amazon, and Apple face antitrust litigation from US (and Europe)

Lawsuit	Date	Market in focus
United States et al. vs. Google LLC	Oct-20	Search
Federal Trade Commission vs. Meta Platforms, Inc.	Dec-20	Social networking
United States et al. vs. Google LLC	Jan-23	Digital advertising
Federal Trade Commission et al. vs. Amazon.com Inc.	Sep-23	Online retailing
United States et al. vs. Apple Inc.	Mar-24	Smartphone market

Changes in NDX valuation explains Tech P/E changes

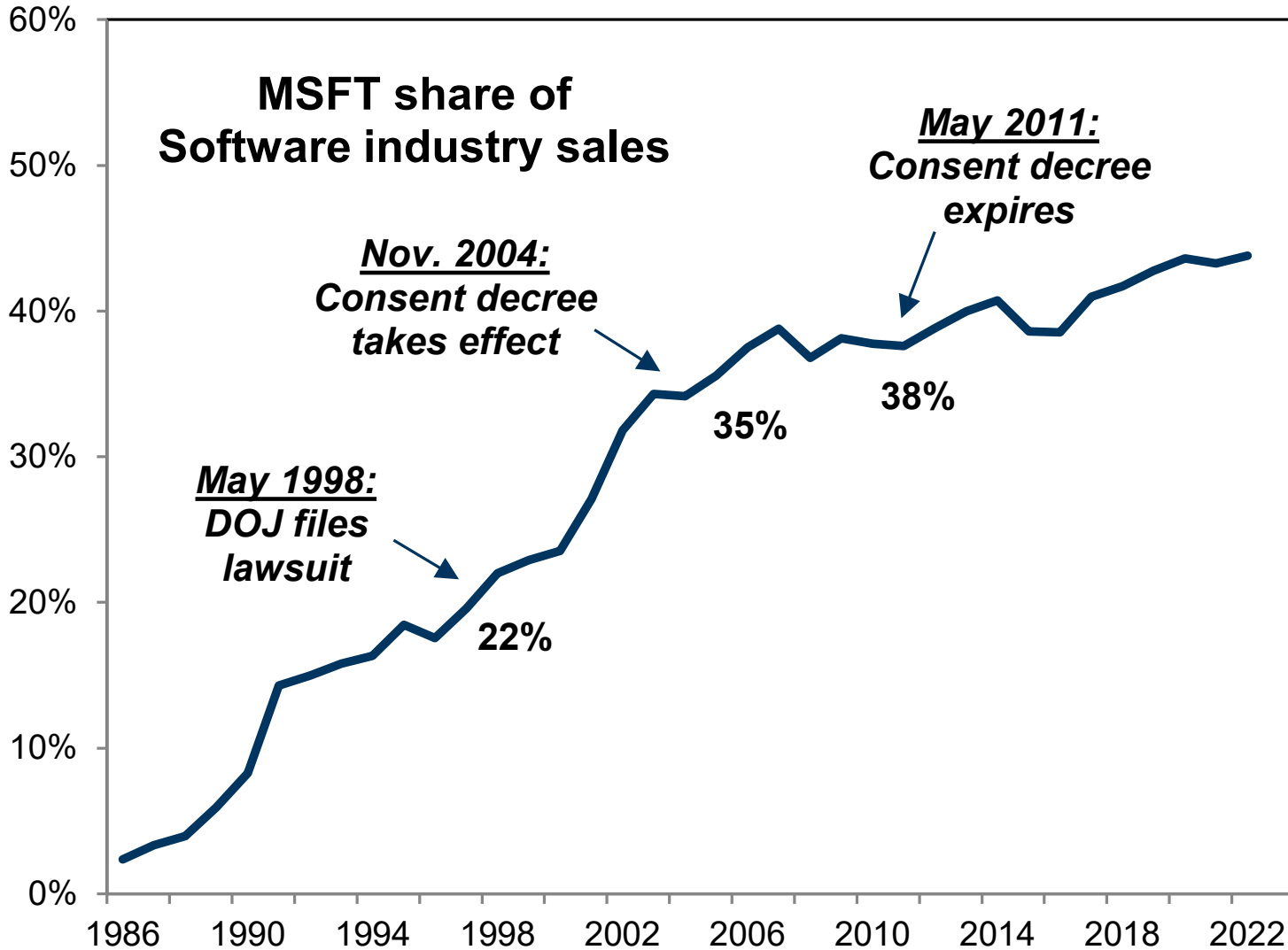
Little observed impact of antitrust risk on changes in Tech stock valuations



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MSFT market share gains slowed after consent decree

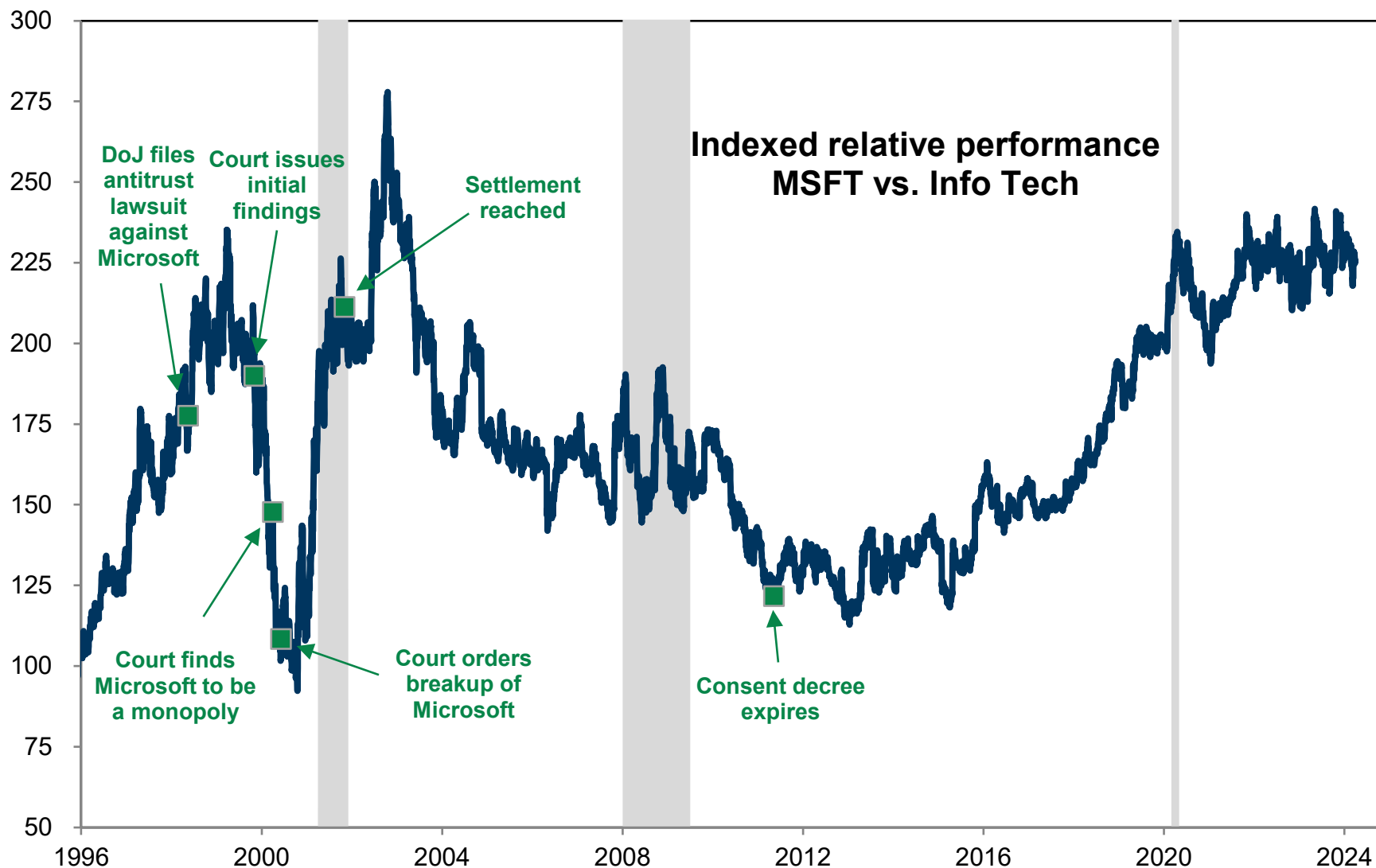
Year/year sales growth decelerated from 40% (1988-2000) to 10% (2001-2023)



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MSFT vs. Info Tech: Indexed relative performance

MSFT P/E relative to Info Tech declined during 2001-11 “consent decree era”

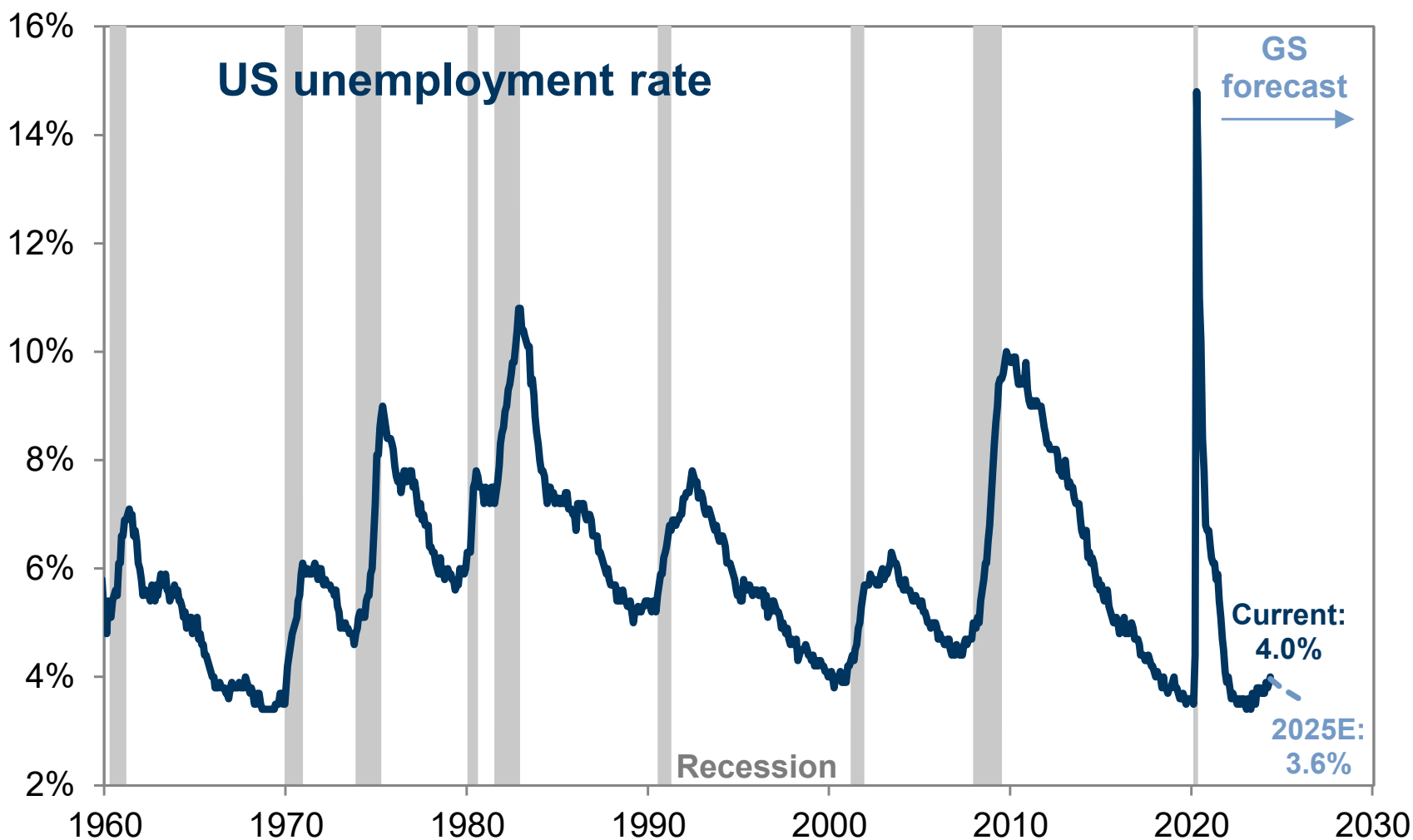


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1. Economy: growth and disinflation

US unemployment rate currently registers 4.0%

GS Economics expects the unemployment rate to remain below 4% into 2025



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Real wage growth will stay elevated

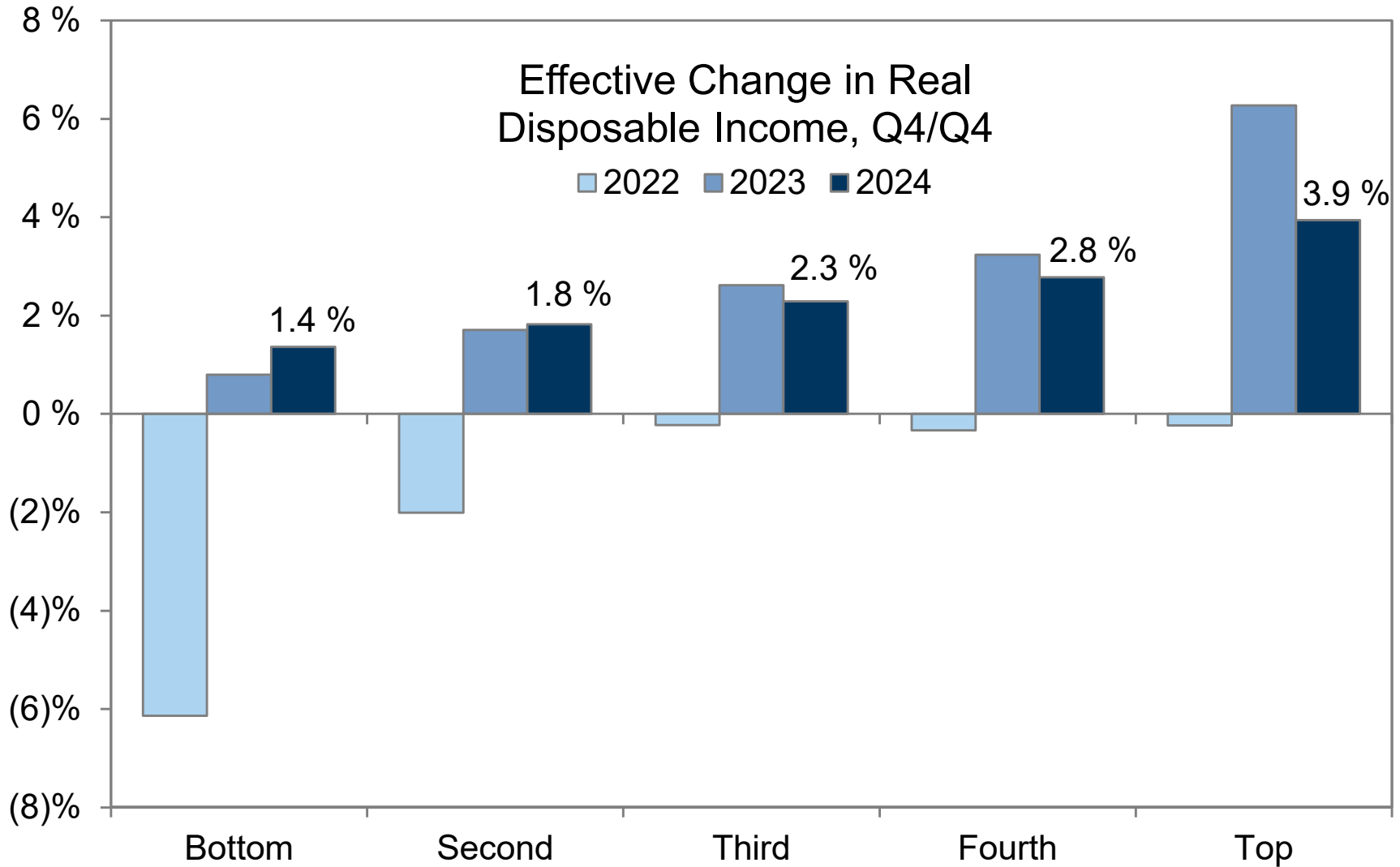
2024 nominal wage growth will equal 3.75%; real wage growth will exceed 1%



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Real disposable income growth by quintile, 2022-24E

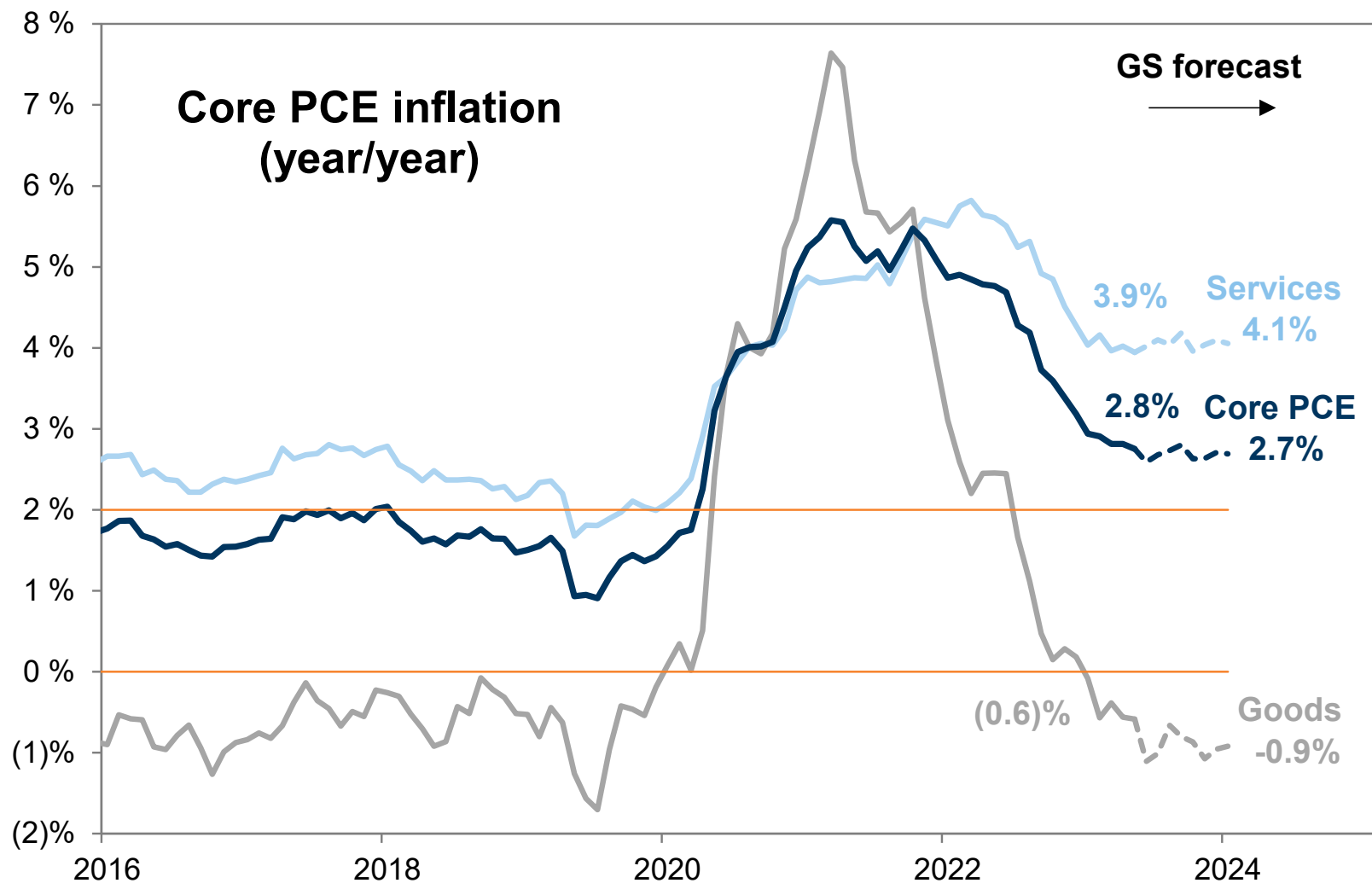
2024 growth: weaker for lower-income and stronger for high-income households



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Core PCE will fall; Services inflation will stay elevated

GS Economics expects core PCE will decelerate to 2.7% by the end of 2024



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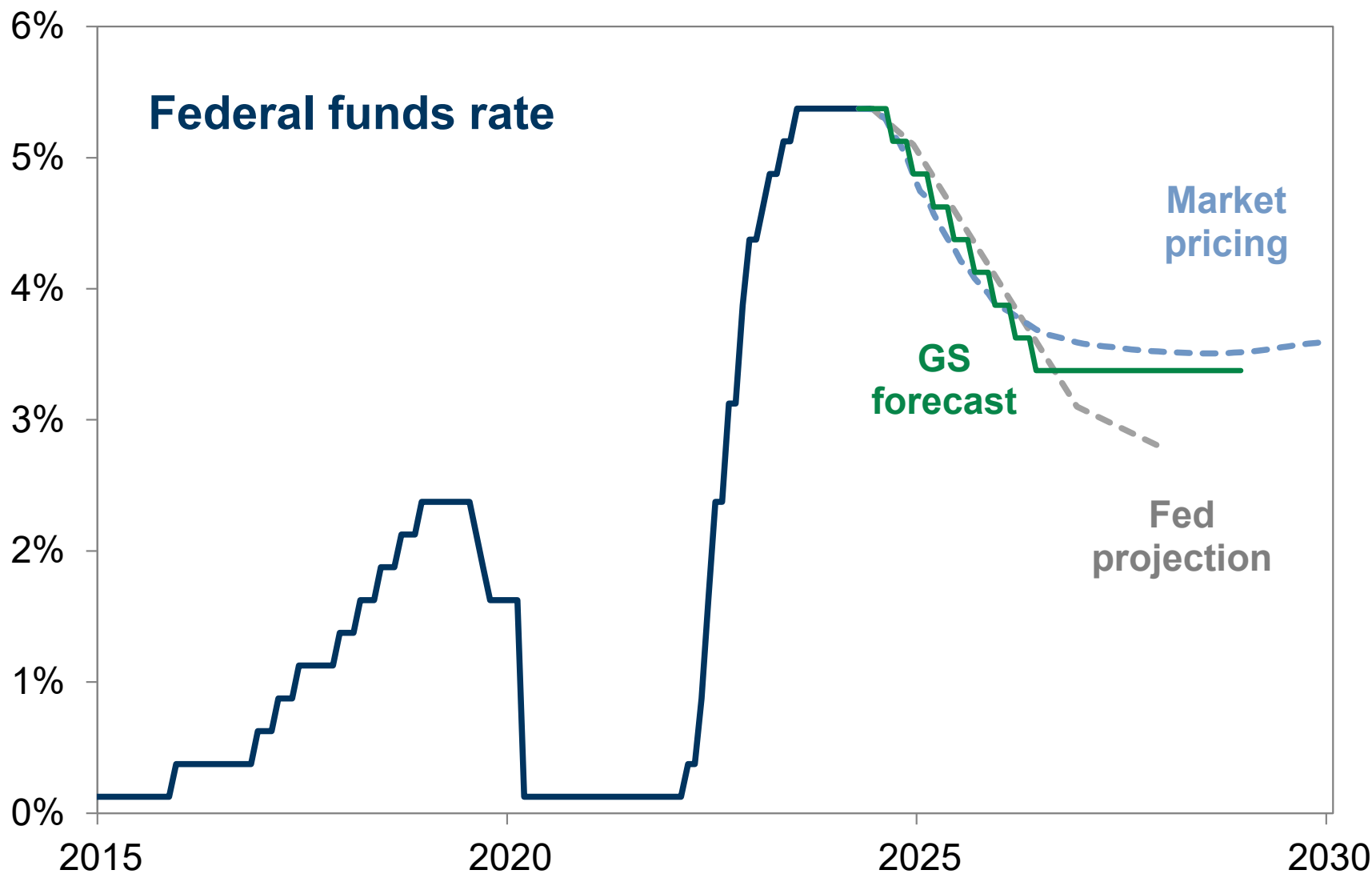
Core PCE inflation will slow to 2.7% by year-end 2024

GS forecasts disinflation in Services (75% weight) and deflation in Goods (25%)

Core PCE	Weight	GS Economics Core PCE Forecast (Year/Year)		
		Dec. 2021	Dec. 2024	Dec. 2025
Core PCE	100.0	4.9	2.7	2.1
Core Services	74.8	4.2	4.1	2.8
Medical Services	18.8	2.7	3.0	2.7
Housing	17.6	3.7	4.9	3.7
Food Services & Accommodation	8.3	6.2	3.5	3.6
Financial Services & Insurance	8.3	3.5	5.7	1.8
Foreign Travel	1.4	3.7	7.8	3.3
Air Transportation	1.2	24.0	0.6	(2.0)
Ground Transportation	0.4	3.4	1.2	2.5
Residual Core Services	18.8	5.1	4.0	3.8
Core Goods	25.2	6.8	(0.9)	0.1
Pharma & Medical	3.9	0.0	1.6	3.8
Clothing & Footwear	3.1	5.0	1.1	0.8
Video, Audio, Computers	2.5	(0.6)	(4.1)	(4.9)
New Vehicles	2.2	11.9	(2.5)	(0.3)
Used Vehicles	1.3	48.4	(7.2)	(3.3)
Pets Products	0.7	2.7	0.6	1.9
Recreational Vehicles	0.6	6.2	2.1	1.6
Jewelry, Watches	0.6	8.8	0.1	1.5
Household Appliances	0.5	8.0	(5.6)	0.4
Expenditures Abroad	0.1	2.2	5.2	3.3
Residual Core Goods	9.8	4.9	(0.6)	(0.2)

Fed will cut rates twice in 2024 starting in September

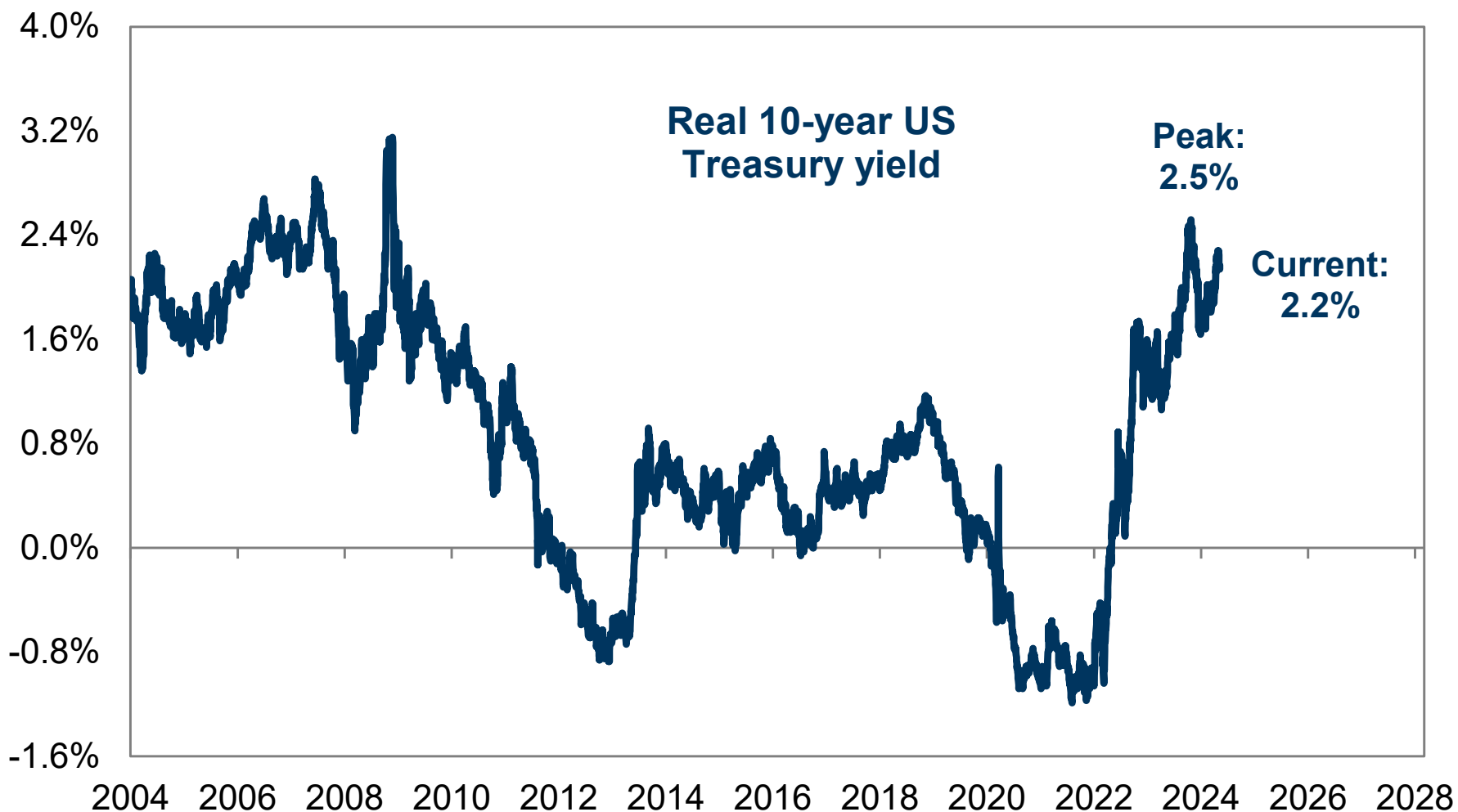
GS Economics forecasts 4 cuts in 2025 and a terminal rate of 3.25-3.5%



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Real 10-year US Treasury yield

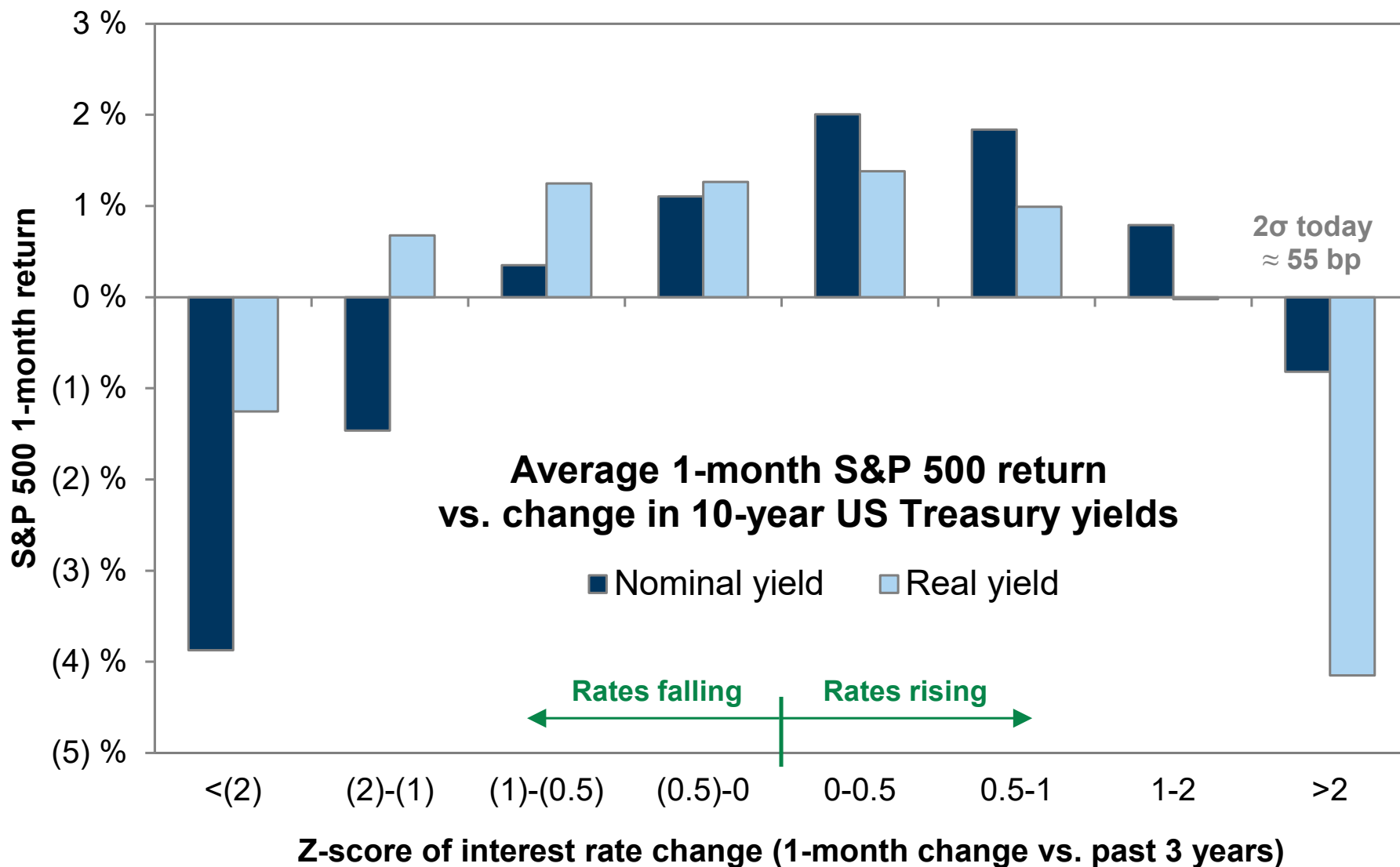
Real rates peaked at 2.5% in Oct, fell to 1.6% in Dec, and now equals 2.2%



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Equities struggle when interest rates rise sharply

+/- 1 standard deviation in 10-year US Treasury monthly volatility equals ≈ 55 bp

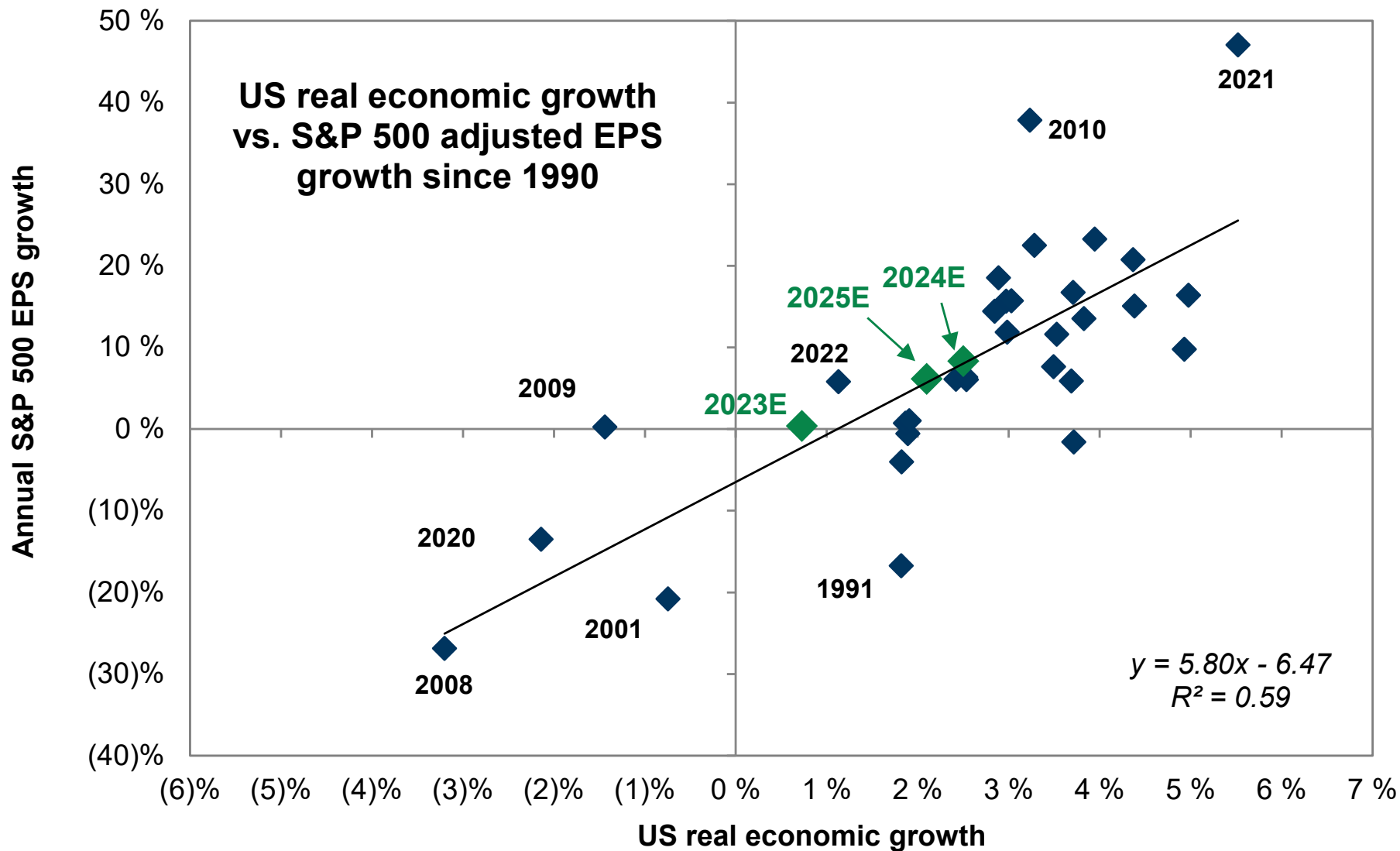


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2. Earnings: +8% EPS growth in 2024

We forecast S&P 500 EPS growth of 8% in 2024

In our model, GDP growth explains more than 50% of variability in EPS growth



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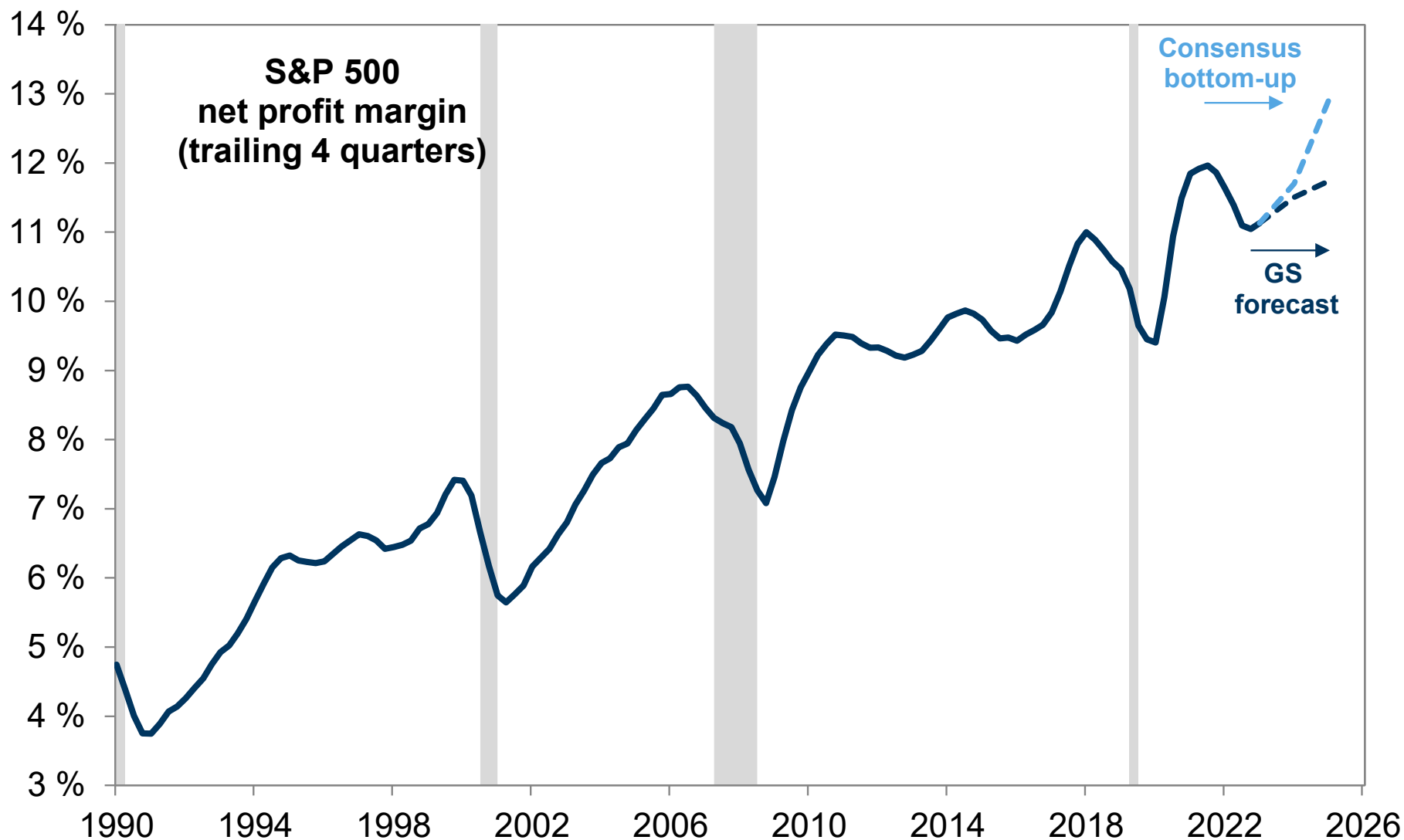
Sensitivity around Goldman Sachs EPS estimates

Upside potential from faster GDP growth, lower inflation, and weaker USD

Variable	2024E	Chg from baseline	Sensitivity	
			\$	%
US GDP growth	2.4 %	+100 bp	+\$8	3.4%
World GDP growth	2.8 %	+100 bp	+2.2	1.0
Core CPI inflation	2.9 %	+100 bp	+0	0.1
10-year UST yield	4.0 %	+100 bp	+0.6	0.3
Brent crude oil	\$81	+10 %	+1.8	0.8
Trade-weighted US dollar	(2)%	+10 pp	-5	-2.0
GS EPS estimate	\$241			

Path of S&P 500 margins: up and to the right

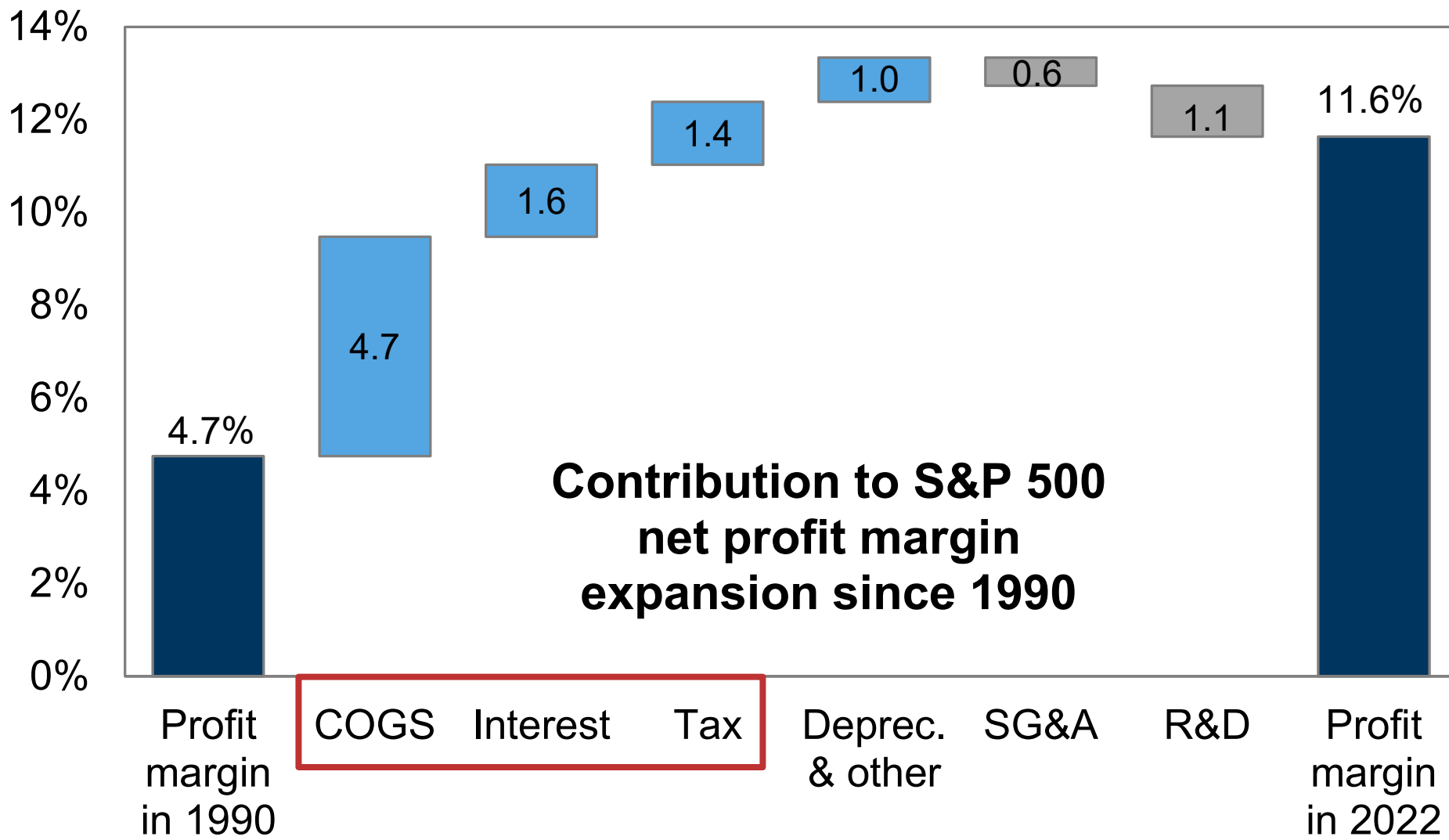
We forecast limited margin expansion in 2024 and 2025



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Building blocks of net margin expansion since 1990

Lower Cost of Goods Sold (COGS), Interest Expense, and Taxes lifted margins



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S&P 500 sector net margin estimates

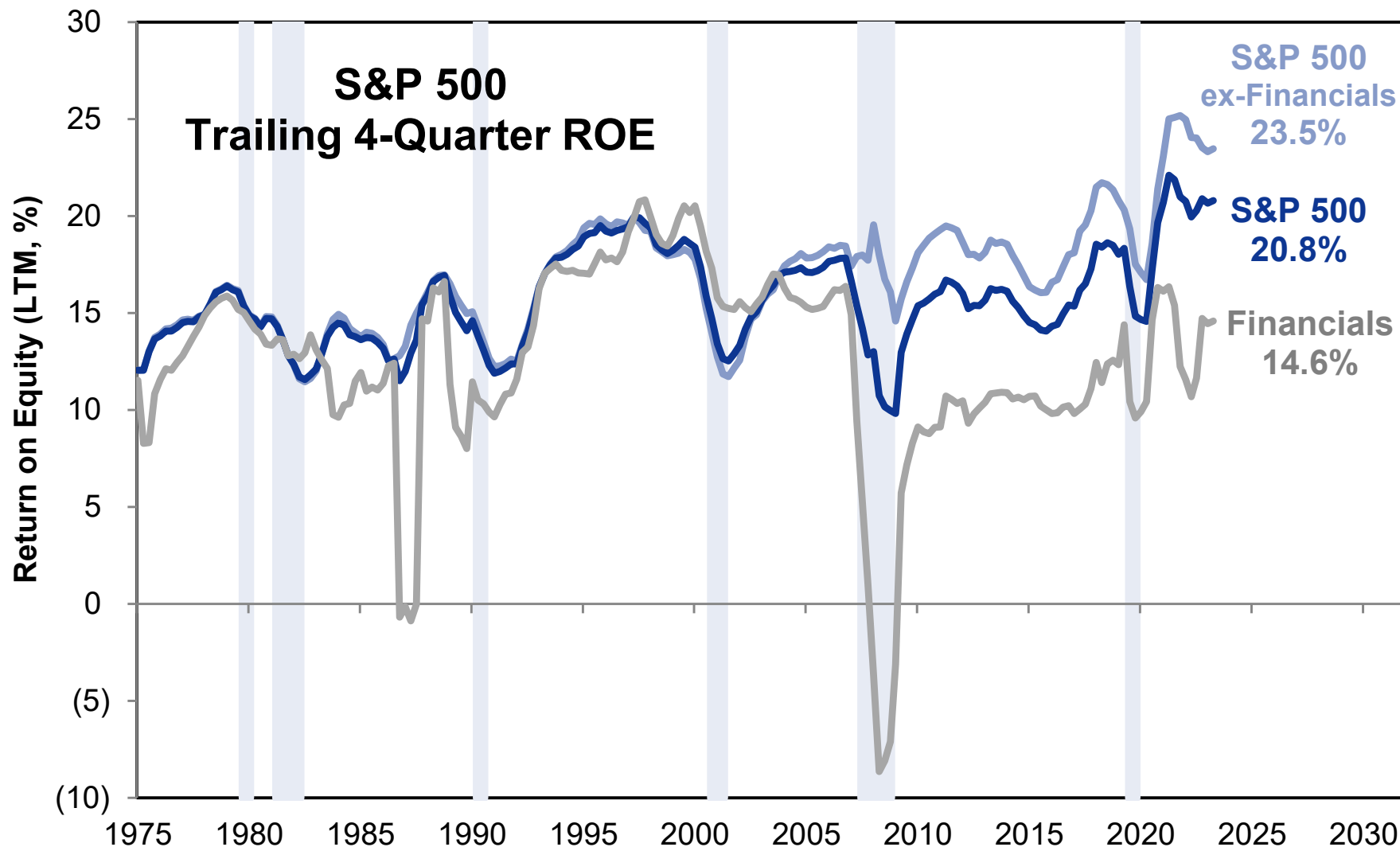
Goldman Sachs top-down vs. consensus bottom-up for 2024 and 2025

Sector	2022A	GS Top-Down						Consensus	
		Margin			Change			Margin	
		2023E	2024E	2025E	2023E	2024E	2025E	2024E	2025E
Information Technology	23.5 %	24.6 %	25.5 %	25.8 %	108 bp	90 bp	31 bp	26.4 %	28.3 %
Communication Services	13.3	14.9	15.8	16.2	162	95	36	16.8	18.0
Materials	12.6	10.5	10.5	10.4	(204)	(7)	(10)	10.5	11.8
Energy	13.2	11.0	10.3	10.3	(225)	(69)	4	10.4	11.5
Industrials	9.6	10.2	10.3	10.3	60	10	(0)	10.2	11.2
Consumer Discretionary	6.6	8.1	8.5	8.7	149	40	20	8.7	9.5
Health Care	10.9	8.1	8.4	8.6	(276)	33	18	8.2	9.1
Consumer Staples	6.7	6.6	6.7	6.8	(9)	12	7	6.8	7.3
S&P 500	11.6 %	11.1 %	11.5 %	11.7 %	(53)bp	39 bp	24 bp	11.7 %	12.9 %
S&P 500 ex. Energy	9.6 %	8.6 %	8.7 %	8.8 %	(100)bp	12 bp	10 bp	8.9 %	9.5 %

3. Valuation: S&P 500 trades at P/E of ~20x

S&P 500 ex-Financials ROE ranks at 96th %-ile

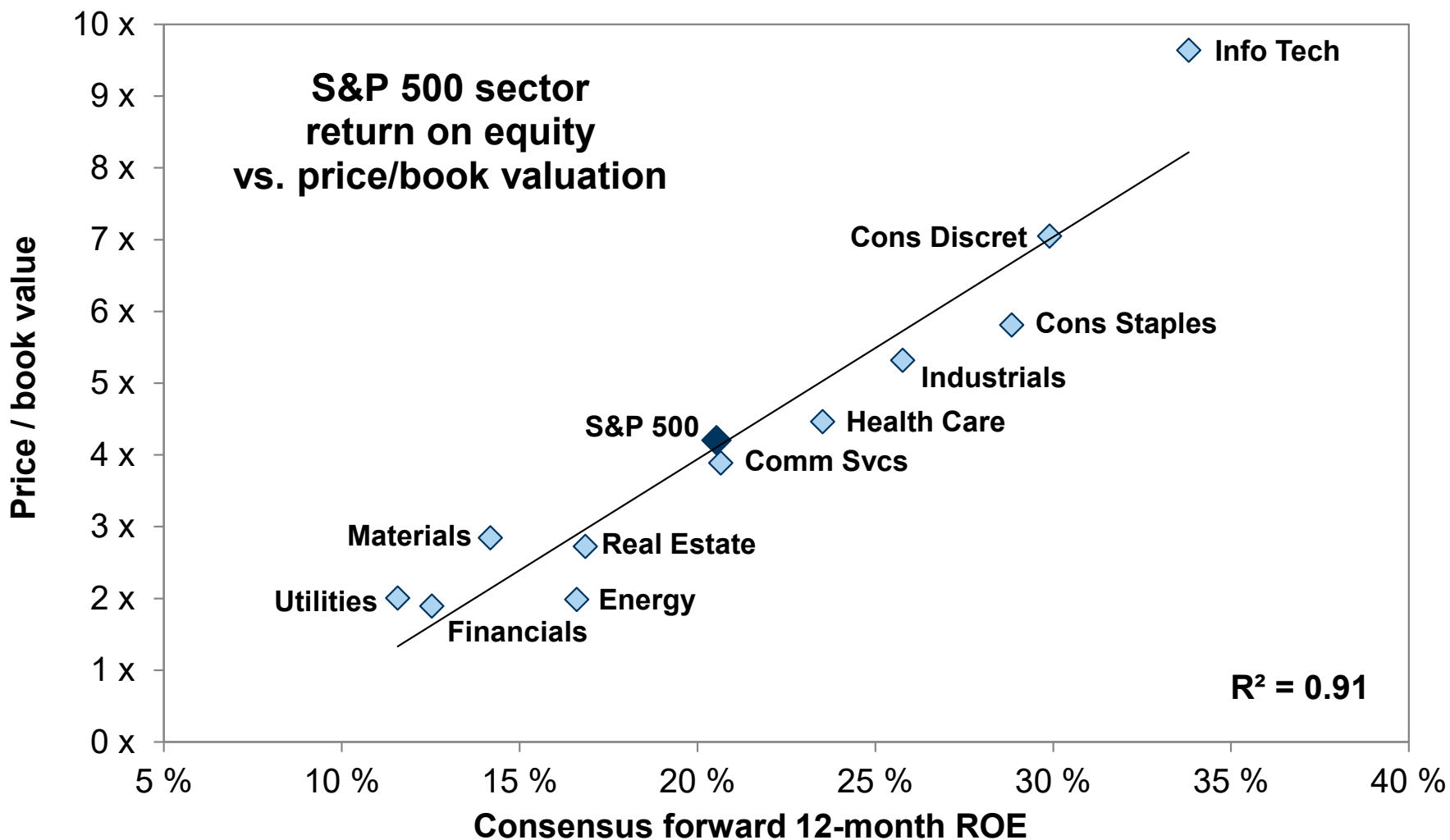
S&P 500 ex-Financials ROE has fallen by 171 since peaking in 2Q 2022



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Sector P/B valuation vs. expected ROE

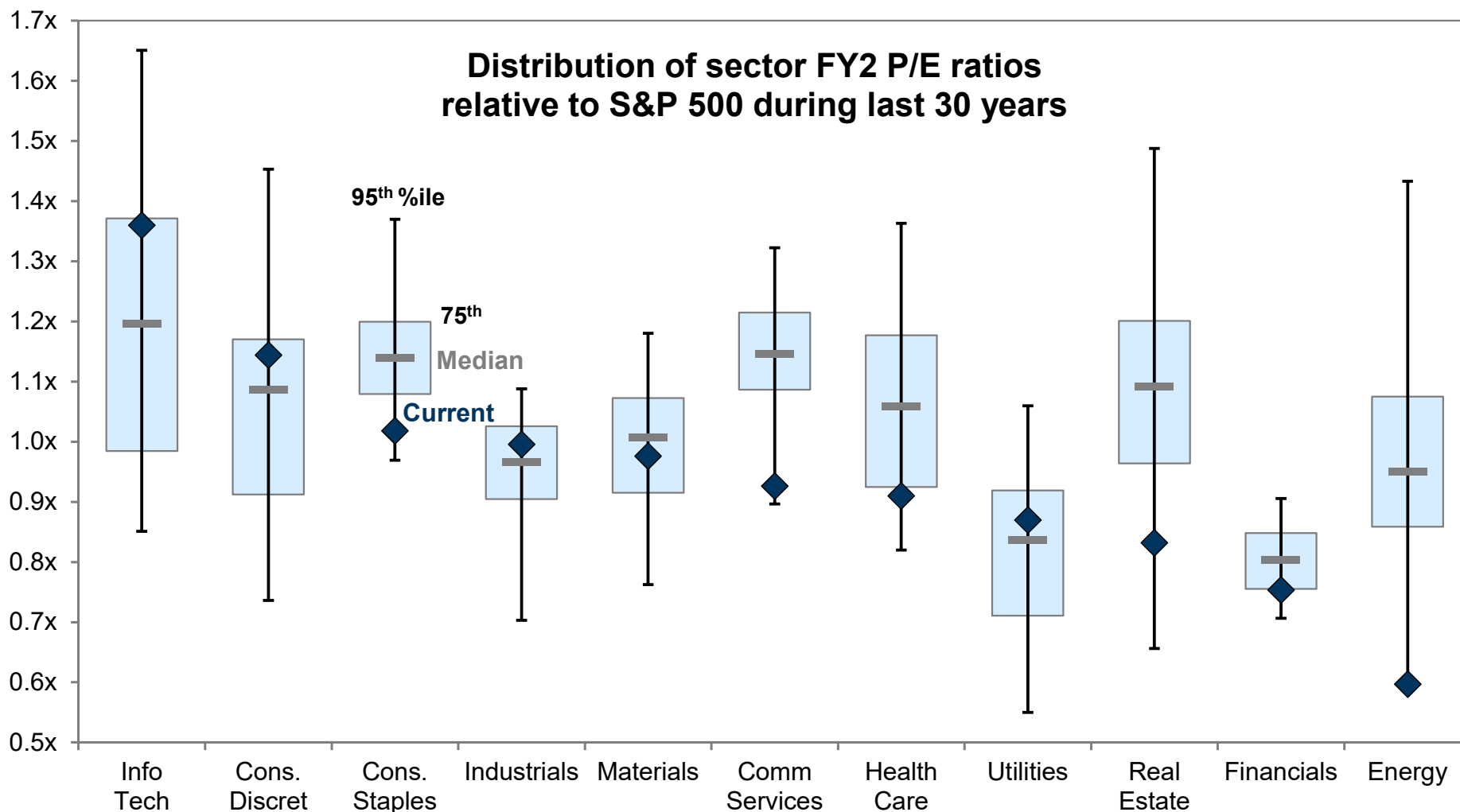
Sector valuations are generally consistent with forward ROE estimates



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Distribution of sector historical relative P/E multiples

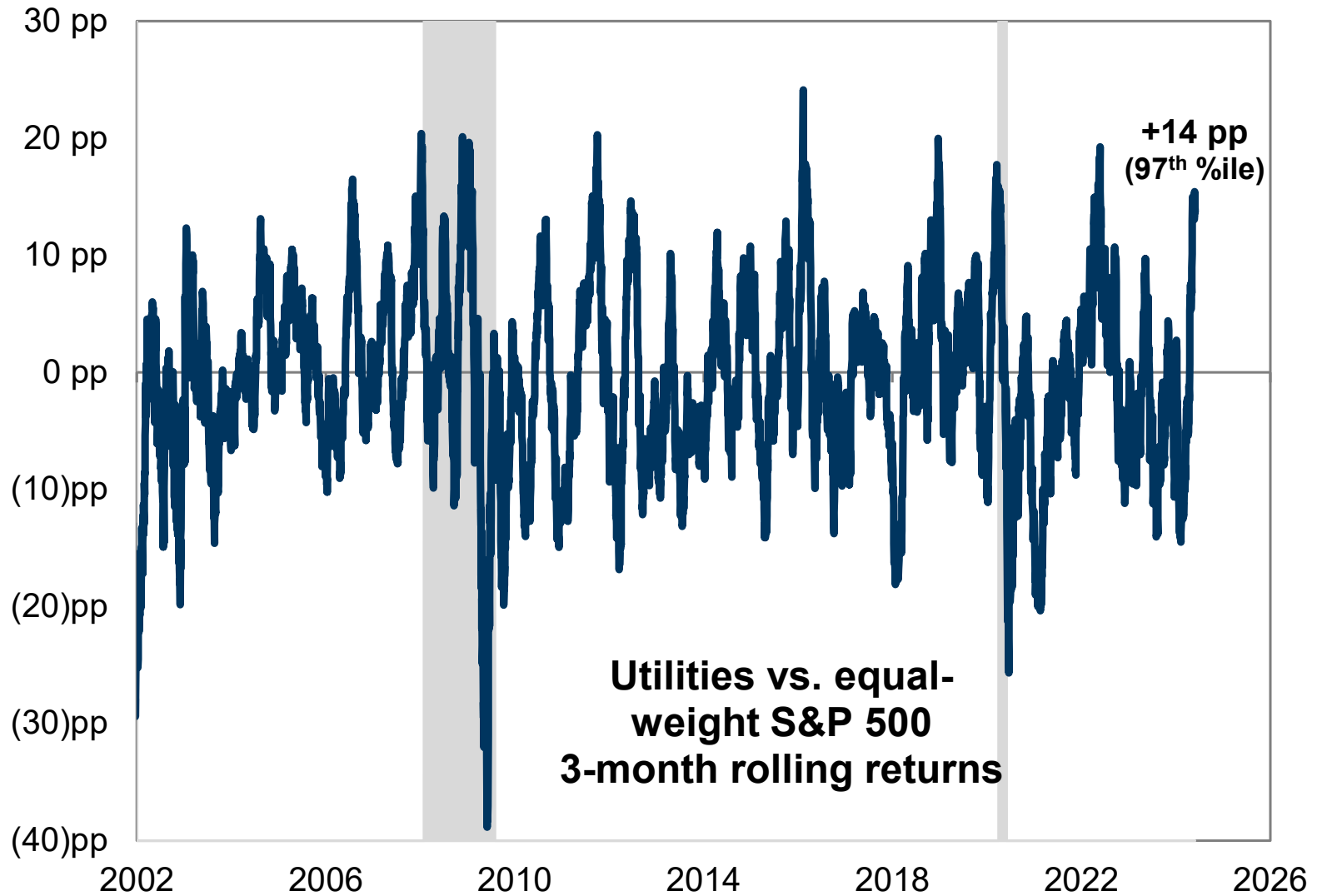
Wide variation in current index-relative valuations vs. history



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3-month relative return of Utilities vs. S&P 500

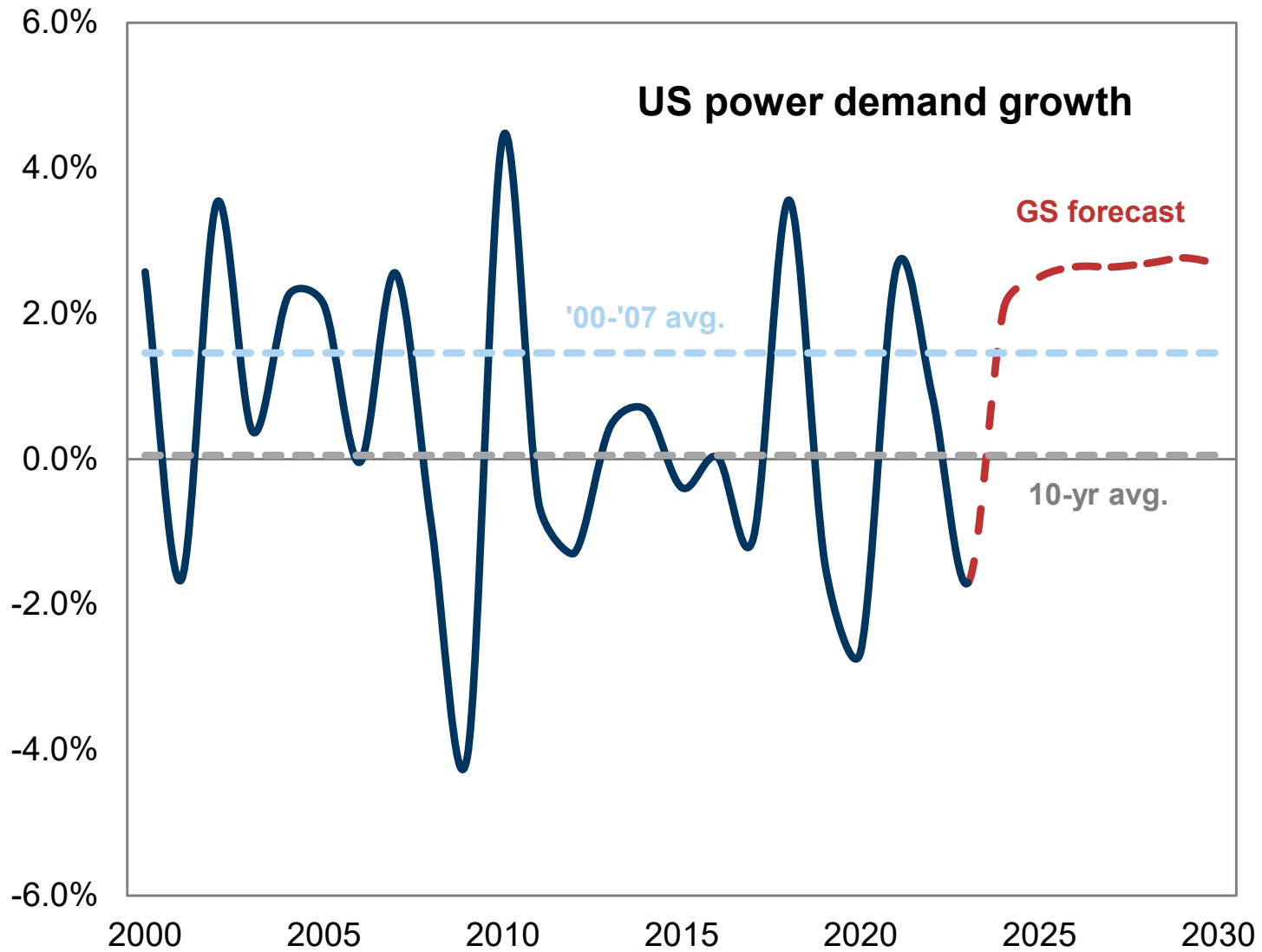
14 percentage point outperformance ranks in the 97th percentile vs. history



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2.4% annualized power demand growth through 2030

GS equity analysts forecast above-average power demand for next decade



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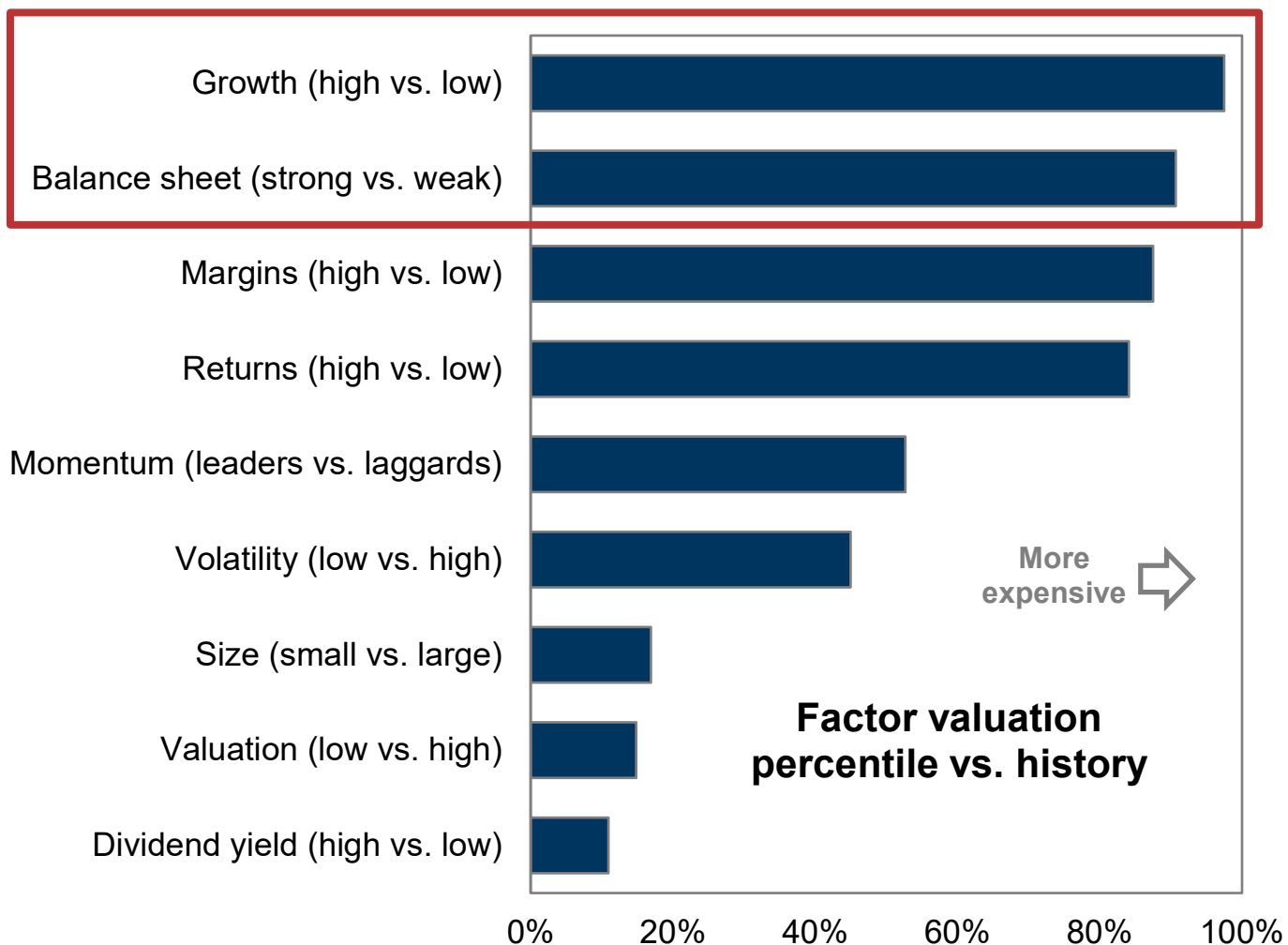
Utilities stock growth expectations and valuations

Median stock has 2025 and 2026 CAGR in EPS growth of 5% and P/E of 16x

Ticker	Name	Mkt cap \$ billion	YTD return	Cons. EPS				2026 EPS GS vs. consensus	12m forward P/E	PEG P/E to 2026 growth
				2025	2026	Growth	LTG			
VST	Vistra Corp.	37	177 %	6.2	8.2	33 %	NA	NA	19x	0.6x
CEG	Constellation Energy Corporation	73	98	8.4	9.0	7	19	NA	29	3.9
NRG	NRG Energy, Inc.	17	64	6.8	7.8	14	11	NA	13	0.9
NEE	NextEra Energy, Inc.	159	29	3.7	4.0	8	8	4	22	2.7
PEG	Public Service Enterprise Group Inc	37	23	4.0	4.3	6	6	(1)	20	3.3
D	Dominion Energy Inc	44	14	3.4	3.6	6	22	NA	17	3.1
SO	Southern Company	85	13	4.3	4.6	6	6	5	19	3.0
AES	AES Corporation	15	12	2.1	2.1	3	NA	NA	11	4.3
AEP	American Electric Power Company, Inc.	47	11	6.0	6.3	6	6	4	15	2.5
PNW	Pinnacle West Capital Corporation	9	9	4.9	5.3	8	8	NA	16	1.9
ETR	Entergy Corporation	23	9	7.7	8.3	7	7	NA	15	2.0
FE	FirstEnergy Corp.	22	8	2.9	3.1	7	7	7	14	2.0
CMS	CMS Energy Corporation	18	7	3.6	3.9	7	8	NA	18	2.4
NI	NiSource Inc	13	7	1.8	2.0	7	7	NA	16	2.3
DUK	Duke Energy Corporation	78	6	6.3	6.7	6	7	(1)	17	2.6
PPL	PPL Corporation	21	6	1.8	2.0	7	7	NA	16	2.3
EIX	Edison International	29	5	5.6	6.0	6	8	(1)	14	2.3
CNP	CenterPoint Energy, Inc.	19	5	1.7	1.9	8	8	NA	18	2.4
EXC	Exelon Corporation	37	5	2.6	2.8	6	6	(1)	15	2.6
EVRG	Evergy, Inc.	12	5	4.1	4.3	5	5	NA	14	2.5
ED	Consolidated Edison, Inc.	32	4	5.6	5.9	5	5	(1)	17	3.2
DTE	DTE Energy Company	23	3	7.2	7.7	8	9	NA	16	2.1
SRE	Sempra	48	2	5.2	5.5	7	4	5	15	2.2
PCG	PG&E Corporation	39	1	1.5	1.6	9	10	3	13	1.5
AEE	Ameren Corporation	19	(1)	4.9	5.2	7	6	(1)	15	2.2
LNT	Alliant Energy Corp	13	(1)	3.3	3.5	7	7	NA	16	2.4
ATO	Atmos Energy Corporation	17	(2)	7.2	7.7	7	7	NA	16	2.3
AWK	American Water Works Company, Inc.	25	(3)	5.7	6.1	8	8	NA	23	3.1
WEC	WEC Energy Group Inc	25	(3)	5.2	5.6	7	8	(1)	16	2.4
ES	Eversource Energy	20	(6)	4.8	5.1	6	5	2	12	2.0
XEL	Xcel Energy Inc.	30	(12)	3.8	4.1	7	6	2	15	2.0
Utilities median		25	6 %	4.8	5.1	7 %	7 %	2 %	16x	2.4x

What investors pay for

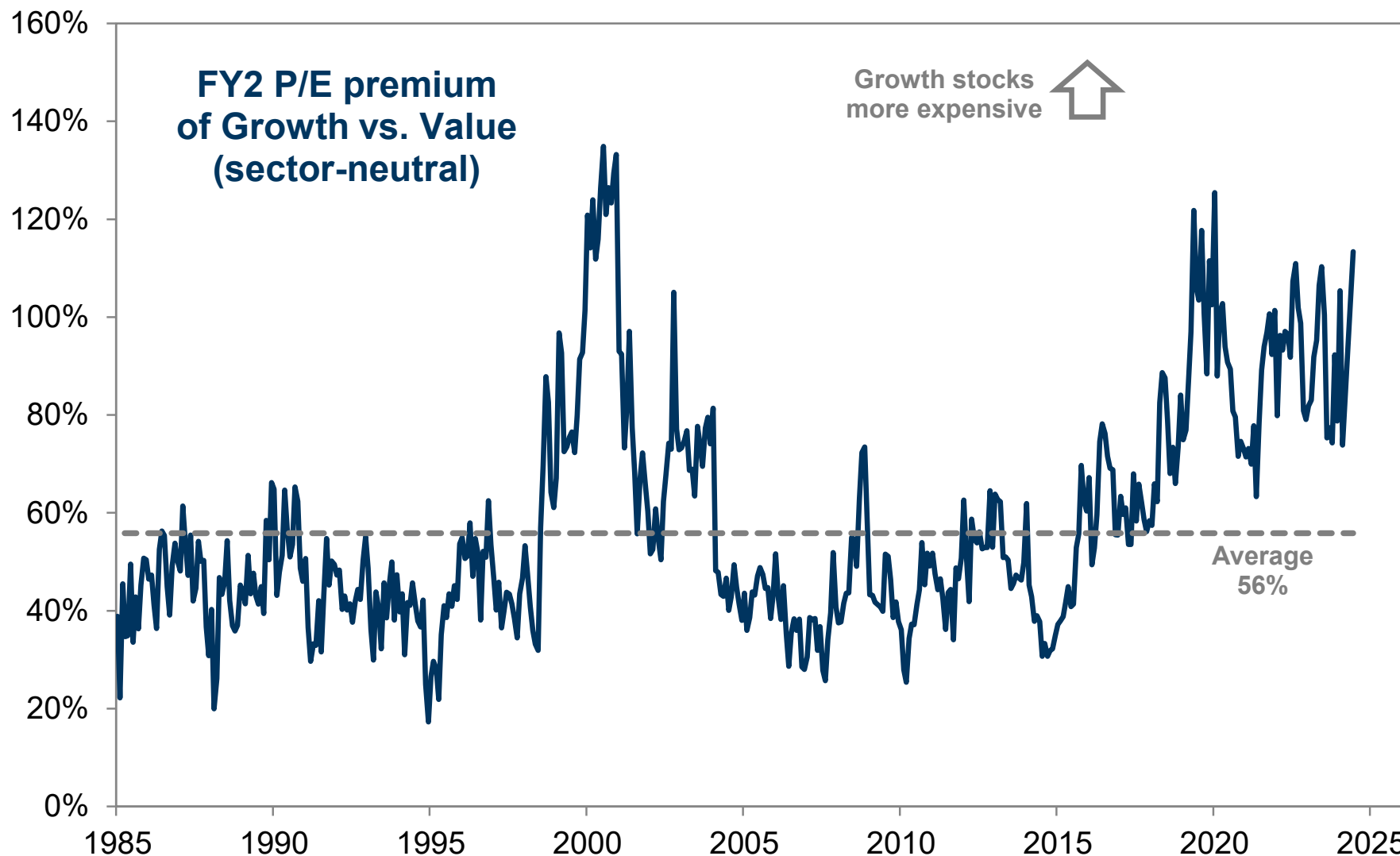
Growth and balance sheet strength valued above 90th percentile since 1980



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Growth vs. Value

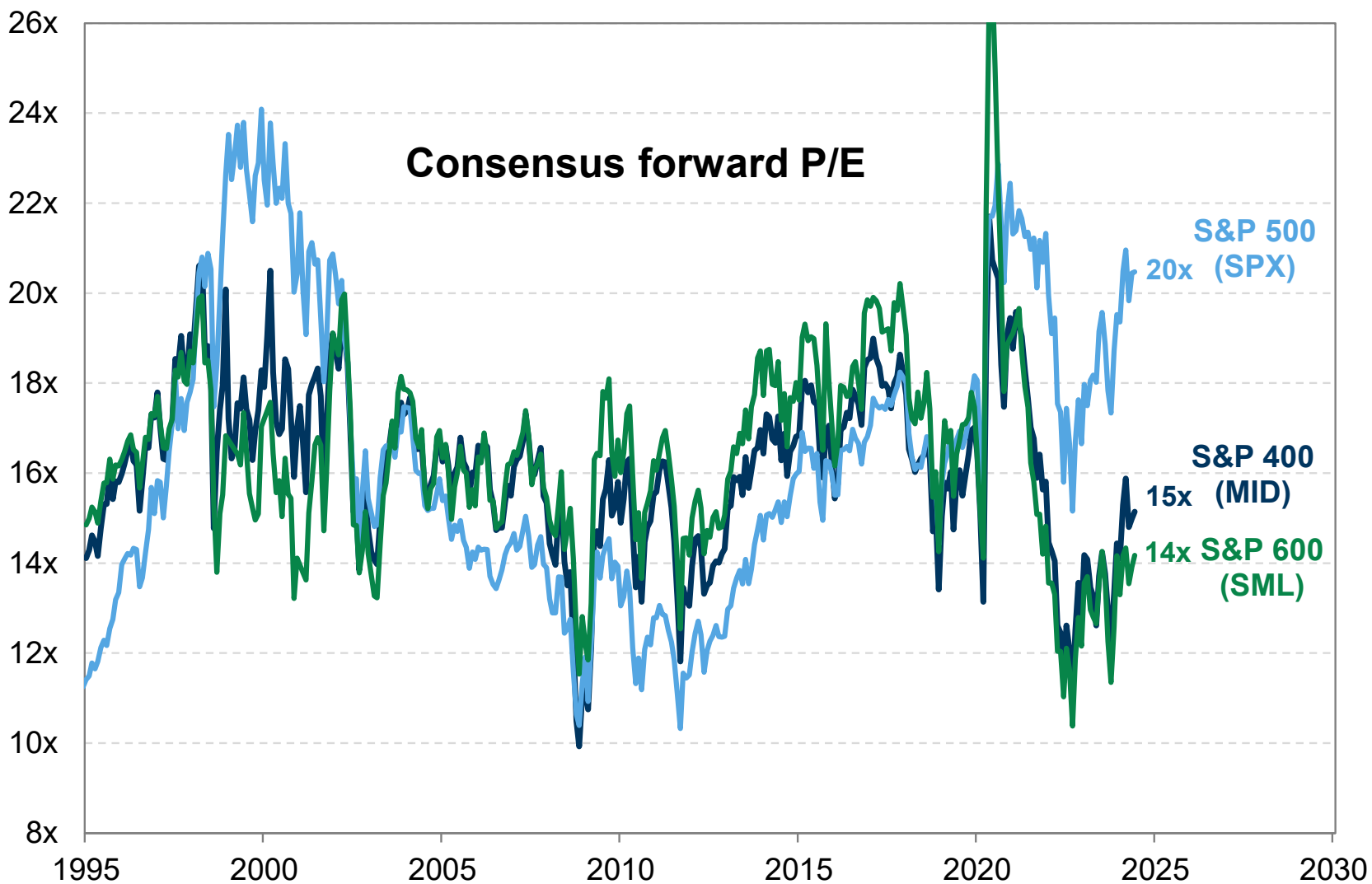
Valuation of high-growth stocks is elevated compared with history



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Large-cap vs. Mid-cap vs. Small-cap

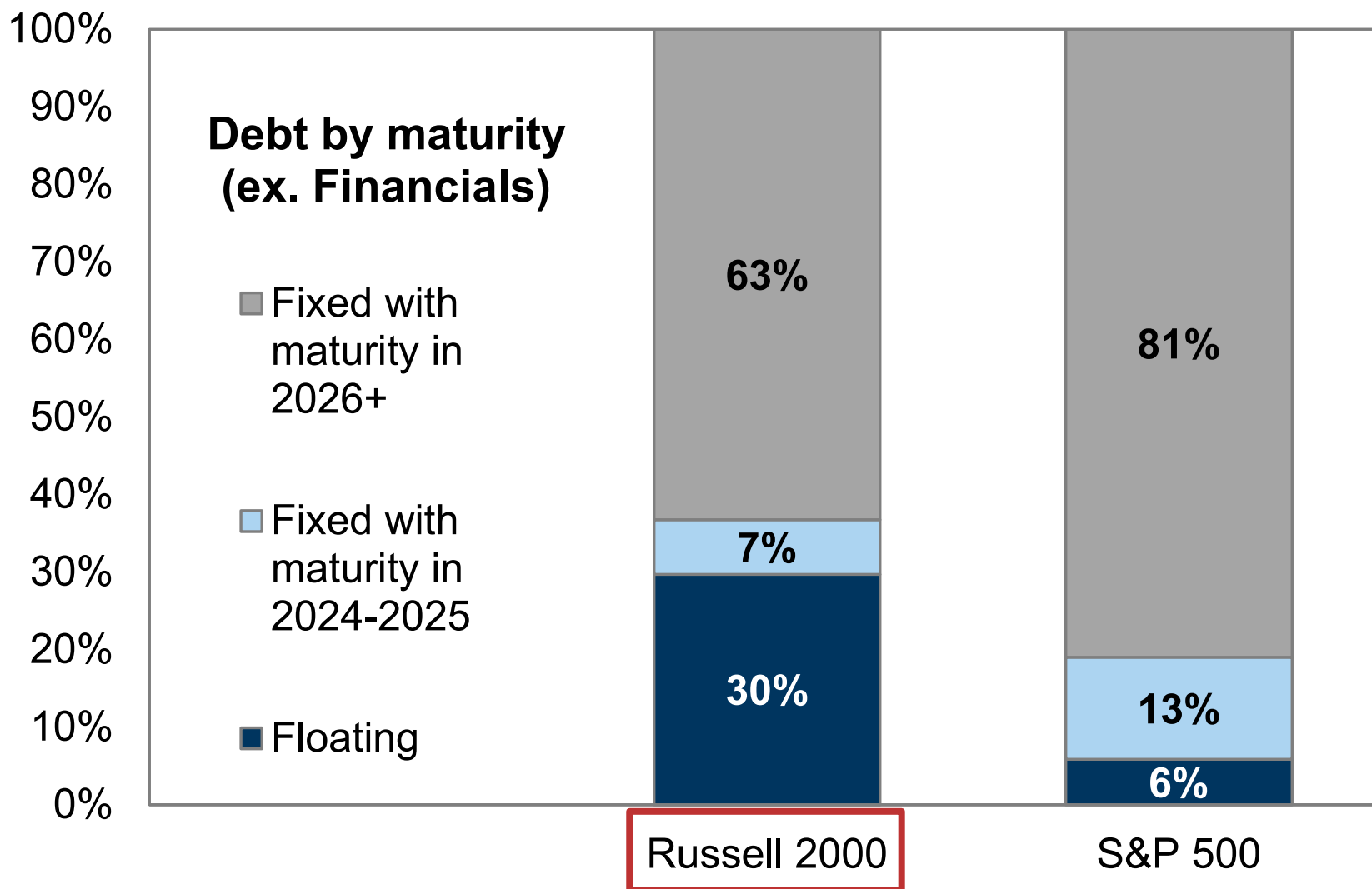
Valuation of small-caps and mid-caps remain below historical averages



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Russell 2000 more exposed to changes in rates

30% of outstanding Russell 2000 debt is floating rate vs. 6% for S&P 500 firms



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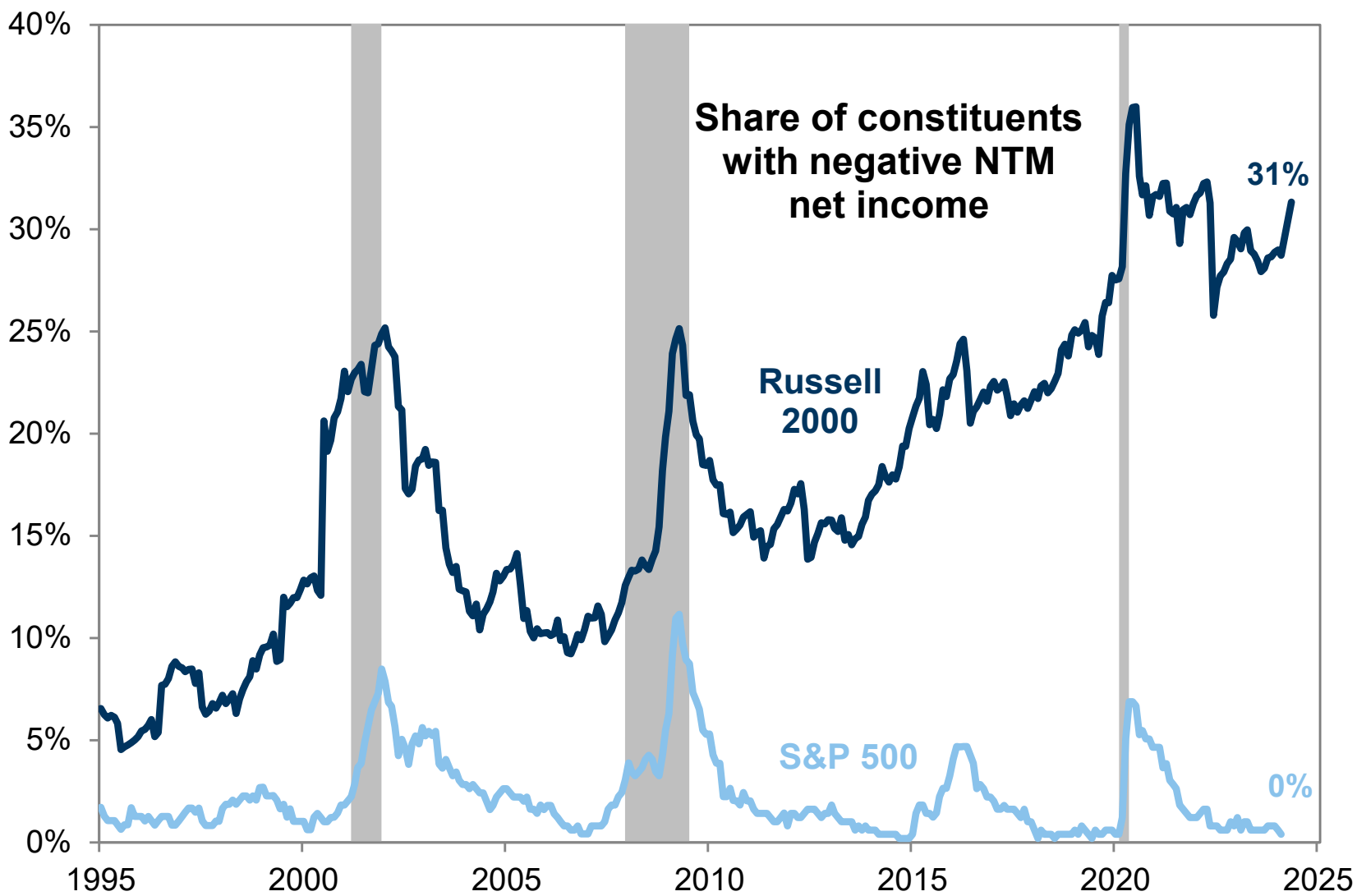
Russell 2000 and S&P 500 sector weights

The Russell 2000 index carries large weights in Banks and Biotech

Sector	Weight in index		
	Russell 2000	S&P 500	Difference
Industrials	17 %	9 %	9 pp
Financials	16	13	3
Health Care	15	12	3
Info Tech	15	29	(15)
Cons Discretionary	11	10	0
Energy	7	4	4
Real Estate	6	2	3
Materials	5	2	2
Consumer Staples	3	6	(3)
Utilities	3	2	0
Comm Services	2	9	(7)
Total	100 %	100 %	0 pp

Negative net income for Russell 2000 vs. S&P 500

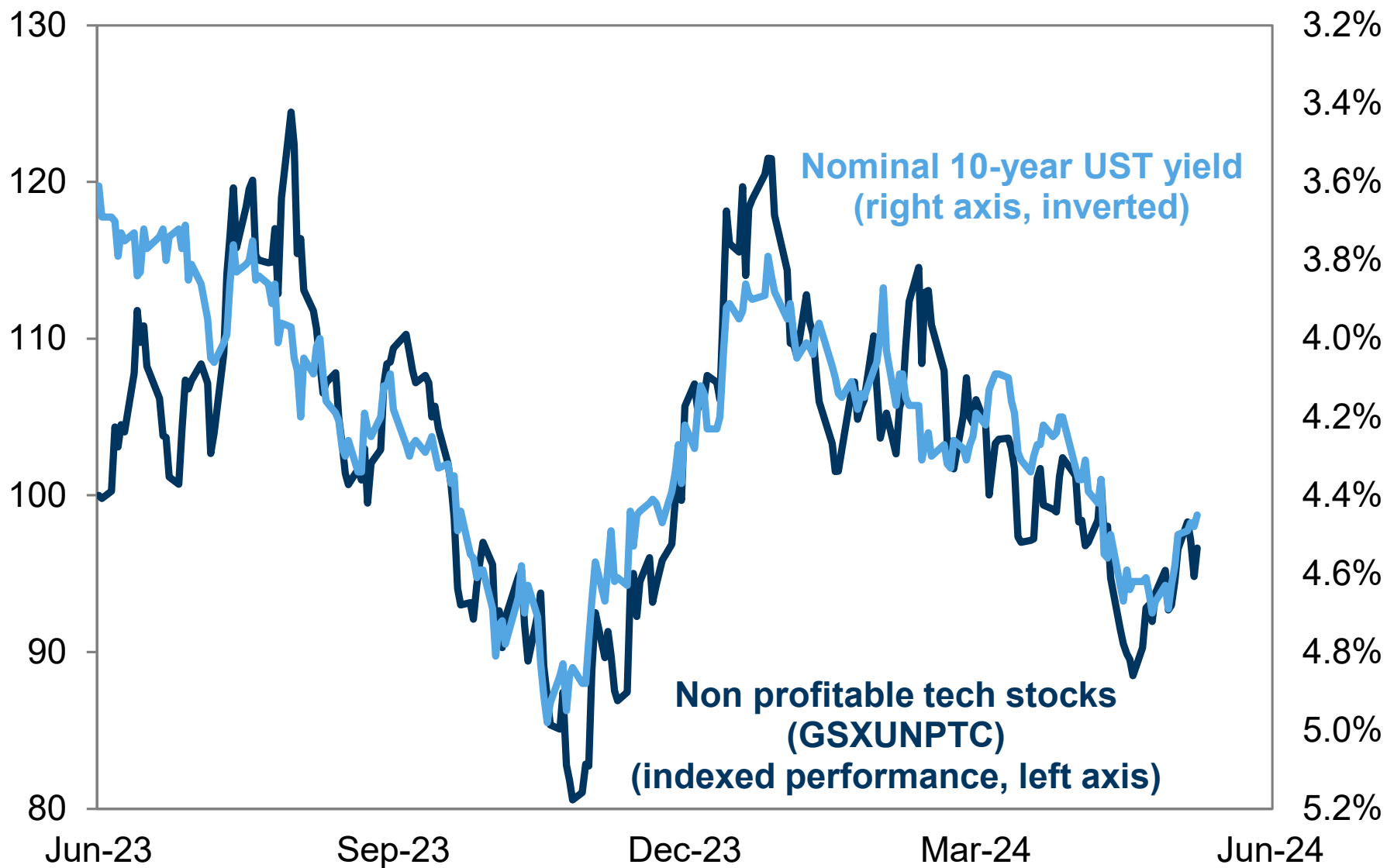
31% of Russell 2000 stocks have negative NTM net income vs. 0% for S&P 500



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Performance of unprofitable stocks and rates

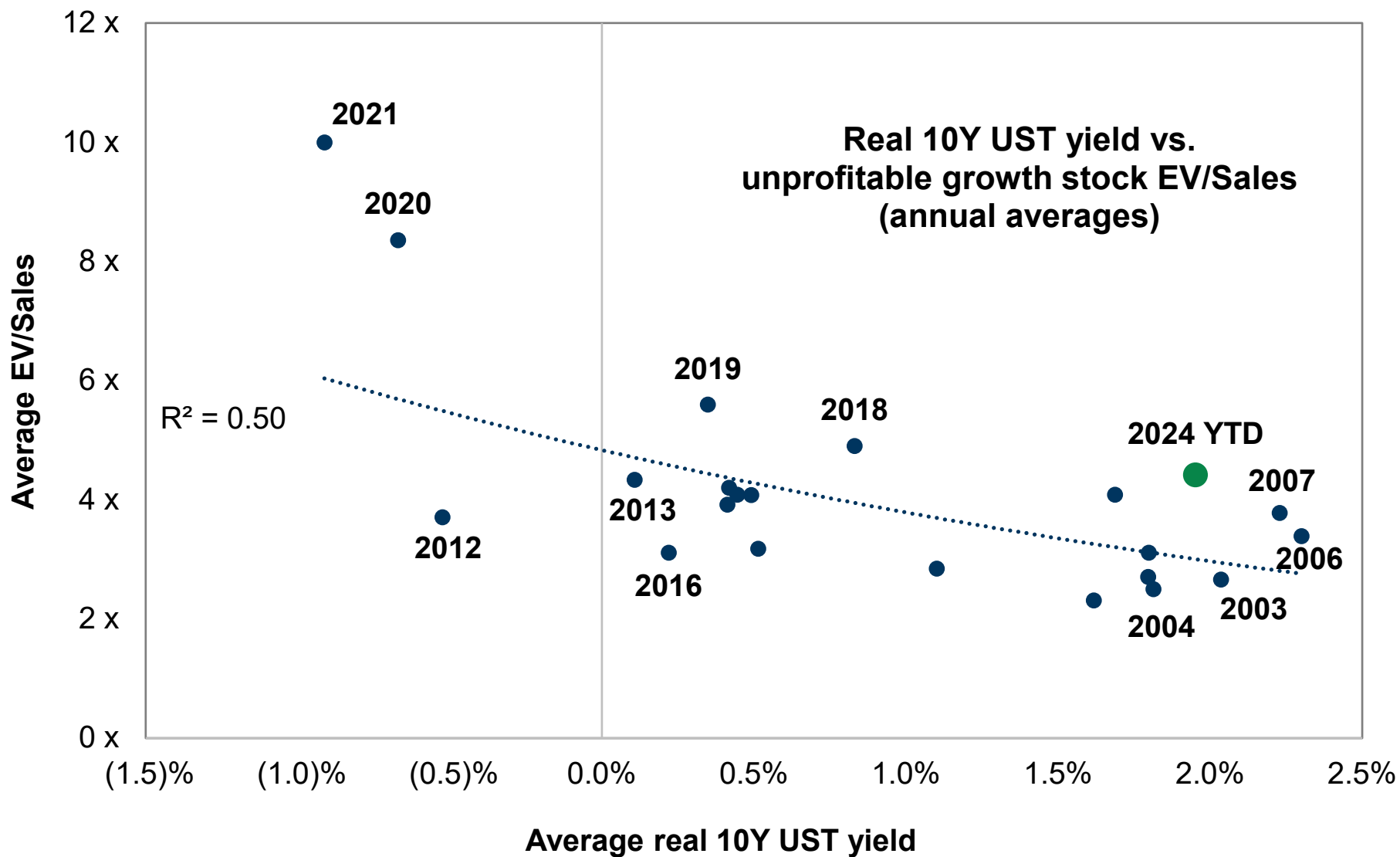
Non-profitable tech stocks (GSXUNTPC) underperform when rates rise



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Unprofitable growth stock valuation and rates

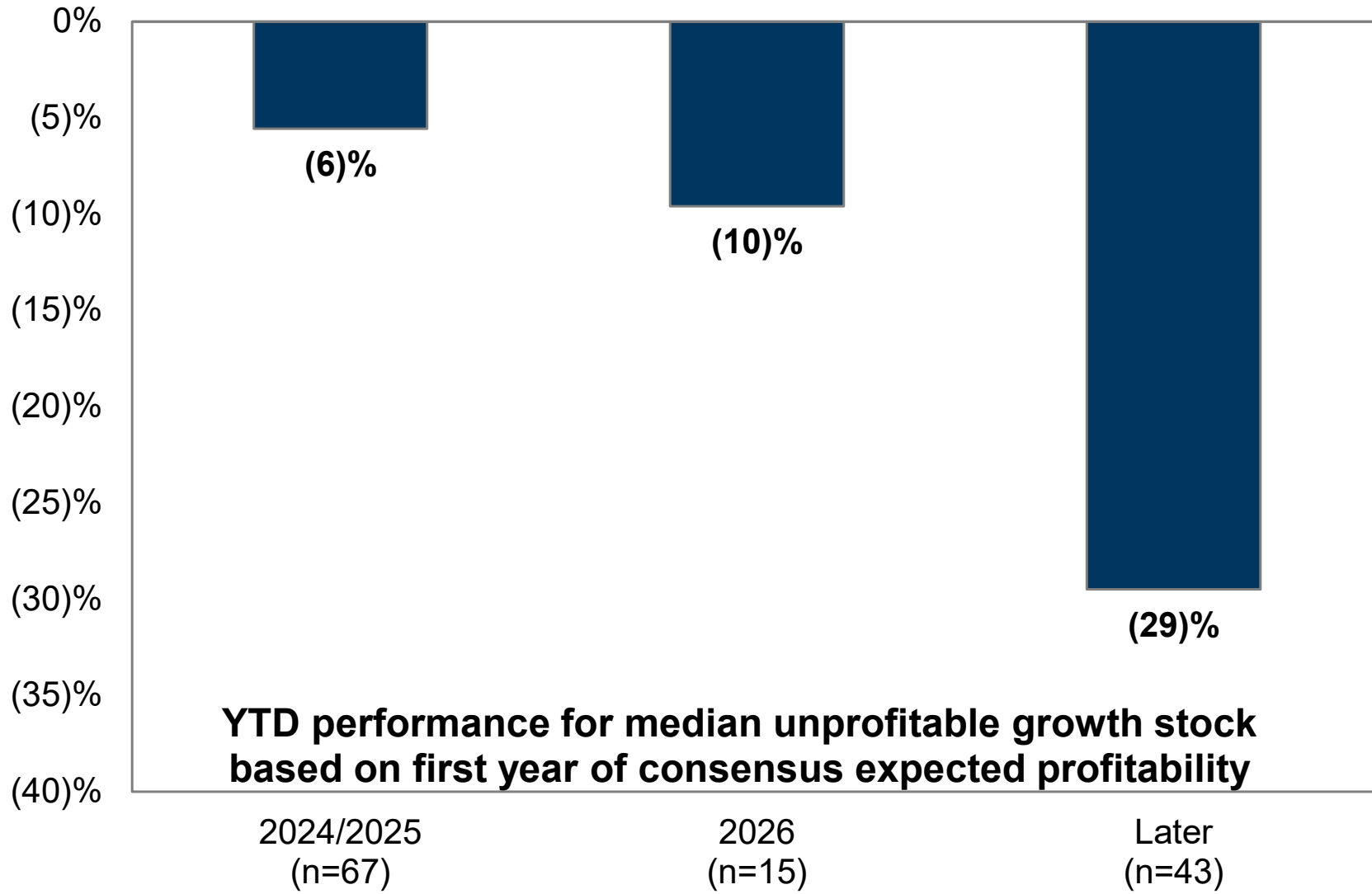
EV/Sales multiples are typically low when the real 10Y yield is high



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Performance of unprofitable stocks in 2024 YTD

Stocks expected to become profitable beyond 2026 have struggled the most



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Unprofitable growth stocks with a path to profitability

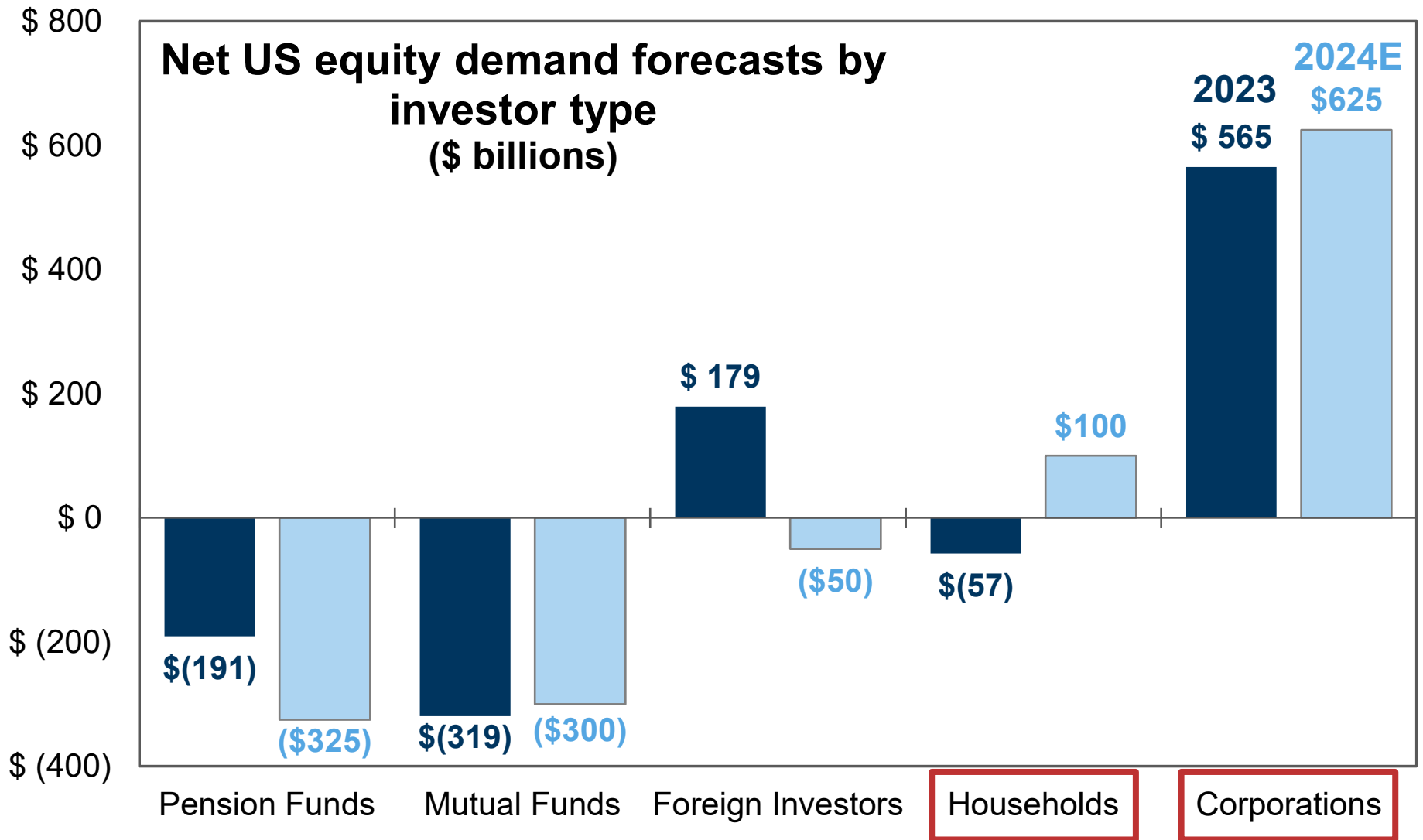
Growth stocks unprofitable in 2023, path to profitability by 2025, EV/Sales < 5x

Ticker	Name	Sector	Mkt cap \$ billion	YTD return	Sales growth		Consensus EPS			FY2 EV/Sales
					2024	2025	2023	2024	2025	
CIFR	Cipher Mining Inc	Information Technology	1.2	(12)%	30 %	84 %	(\$0.1)	\$0.0	\$0.3	2.9 x
INDI	indie Semiconductor, Inc.	Information Technology	1.1	(7)	27	48	(0.3)	(0.2)	0.2	2.3
WULF	TeraWulf Inc.	Information Technology	0.7	(15)	147	48	(0.4)	0.1	0.3	2.3
ASPN	Aspen Aerogels Inc	Materials	2.0	89	64	44	(0.7)	0.1	0.7	3.5
FLNC	Fluence Energy, Inc.	Industrials	2.4	2	34	30	(0.4)	0.4	0.9	0.6
ACVA	ACV Auctions, Inc.	Industrials	2.9	18	28	26	(0.1)	0.0	0.4	3.4
HIMS	Hims & Hers Health, Inc.	Health Care	2.8	130	40	25	(0.1)	0.2	0.4	1.7
WEST	Westrock Coffee Company	Consumer Staples	0.9	2	14	25	(0.2)	(0.1)	0.2	1.3
BE	Bloom Energy Corporation	Industrials	2.7	6	12	24	(0.1)	0.1	0.4	2.0
MAX	MediaAlpha, Inc.	Communication Services	1.0	56	43	24	(0.9)	(0.2)	0.0	1.5
INSP	Inspire Medical Systems, Inc.	Health Care	5.2	(27)	26	21	(0.7)	0.1	0.8	4.8
XMTR	Xometry, Inc.	Industrials	0.8	(57)	17	20	(0.4)	(0.1)	0.4	1.2
DKNG	DraftKings, Inc.	Consumer Discretionary	21.0	1	34	20	(1.7)	(0.1)	0.8	3.5
EVER	EverQuote, Inc.	Communication Services	0.8	81	31	19	(1.5)	(0.0)	0.1	1.7
SPR	Spirit AeroSystems Holdings, Inc.	Industrials	3.6	(2)	20	17	(4.0)	(3.2)	1.7	0.8
DASH	DoorDash, Inc.	Consumer Discretionary	47.5	12	20	17	(1.4)	0.2	1.4	3.5
ZETA	Zeta Global Holdings Corp.	Information Technology	3.5	81	24	15	(1.2)	(0.4)	0.3	2.5
WEAV	Weave Communications, Inc.	Information Technology	0.6	(27)	16	15	(0.1)	(0.0)	0.1	2.6
PAR	PAR Technology Corporation	Information Technology	1.4	1	15	14	(1.5)	(0.8)	0.1	2.7
FSLY	Fastly, Inc.	Information Technology	1.2	(57)	11	13	(0.2)	(0.1)	0.1	1.9
RSI	Rush Street Interactive, Inc.	Consumer Discretionary	0.7	94	21	12	(0.1)	0.1	0.3	0.6
List median			1.4	2 %	26 %	21 %				2.3 x
Russell 3000 median			2.5	(1)	4	7				1.9

4. Money Flow

Corporations & Households to be net buyers in 2024

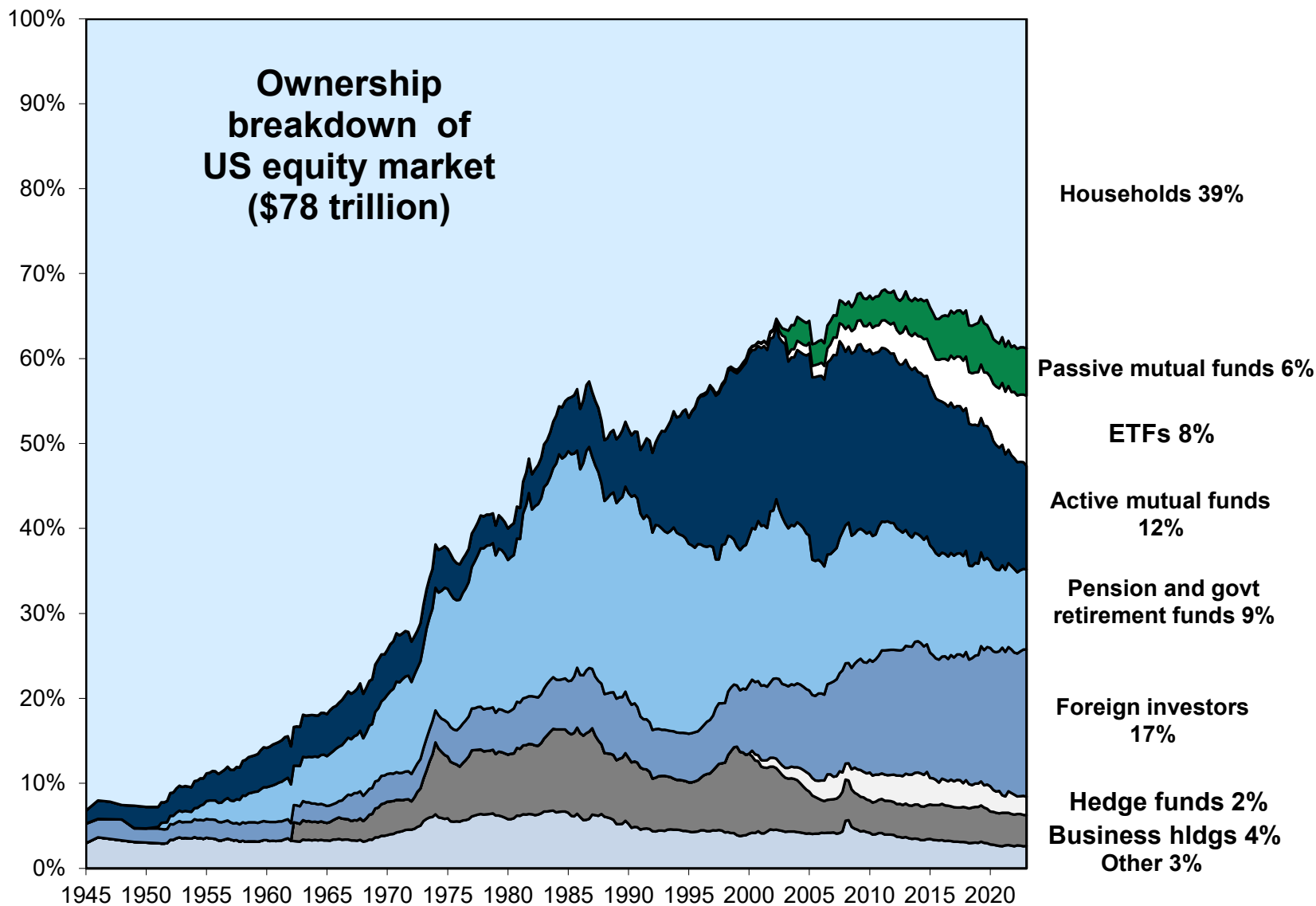
Pensions, mutual funds, and foreign investors will be net sellers of US stocks



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Households directly own 39% of US equities market

Indirectly own shares through mutual fund, ETF and pension categories



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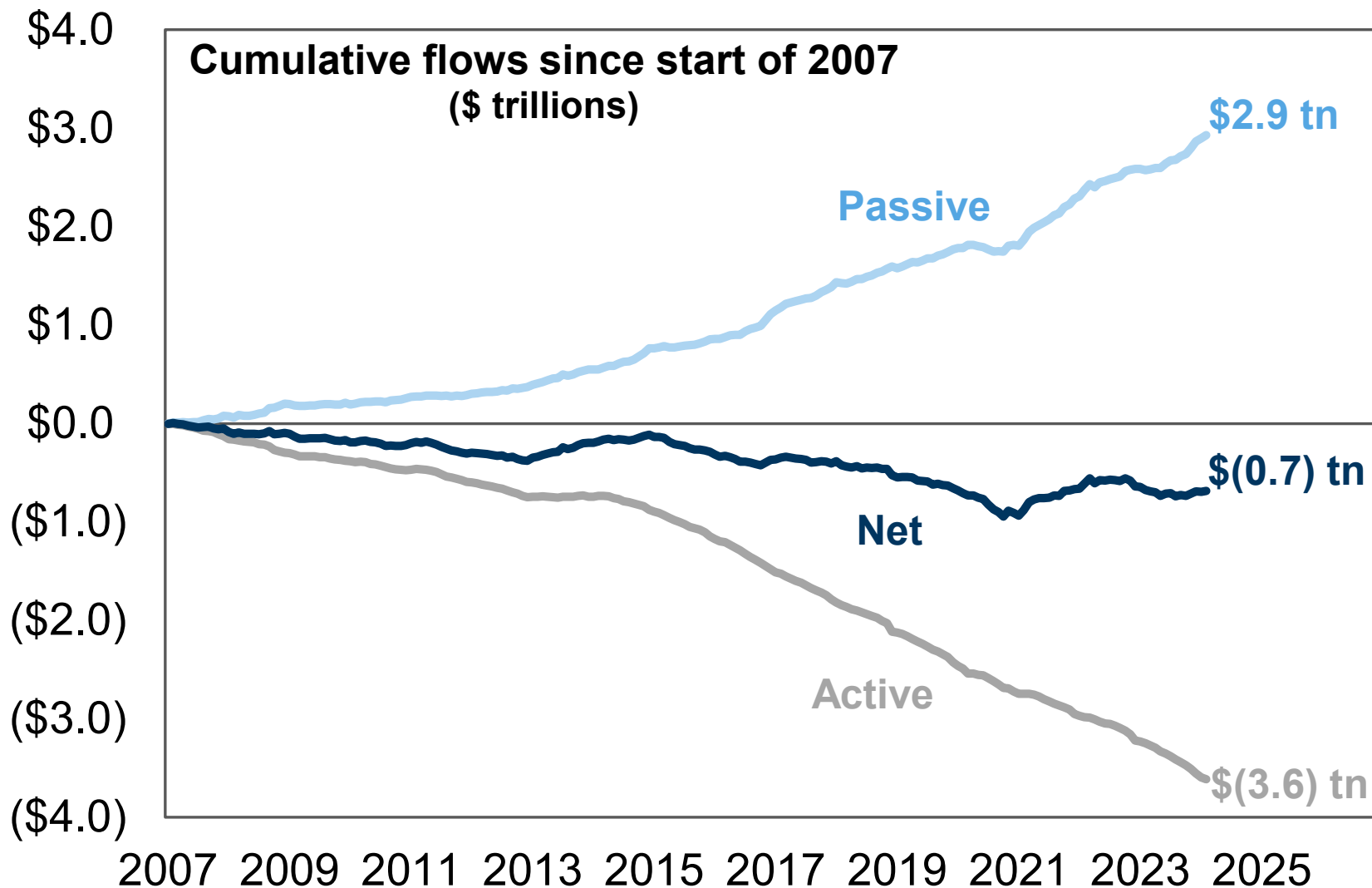
GS portfolio strategy net equity demand forecasts

Net buyers: Corporations & Households; net sellers: Pensions, MFs, foreign

Category	Net US equity demand (\$ billions)					
	2019	2020	2021	2022	2023	2024E
Corporations	\$ 506	\$ (2)	\$ 253	\$ 520	\$ 565	\$ 625
Households	346	625	1103	590	(57)	100
Foreign Investors	(249)	669	(112)	(177)	179	(50)
Mutual Funds	(219)	(481)	(317)	(388)	(319)	(300)
Pension Funds	(219)	(165)	(398)	(183)	(191)	(325)
Life Insurance	(3)	(1)	(78)	(3)	(29)	-
Other	(30)	(8)	(50)	20	38	-
<i>Equity ETF net purchases</i>	<i>\$ 166</i>	<i>\$ 260</i>	<i>\$ 732</i>	<i>\$ 416</i>	<i>\$ 393</i>	-
less						
Credit ETFs	157	241	204	193	204	200
US purchases of foreign stocks	(25)	396	197	186	(18)	(150)

Secular shift from active to passive continuing

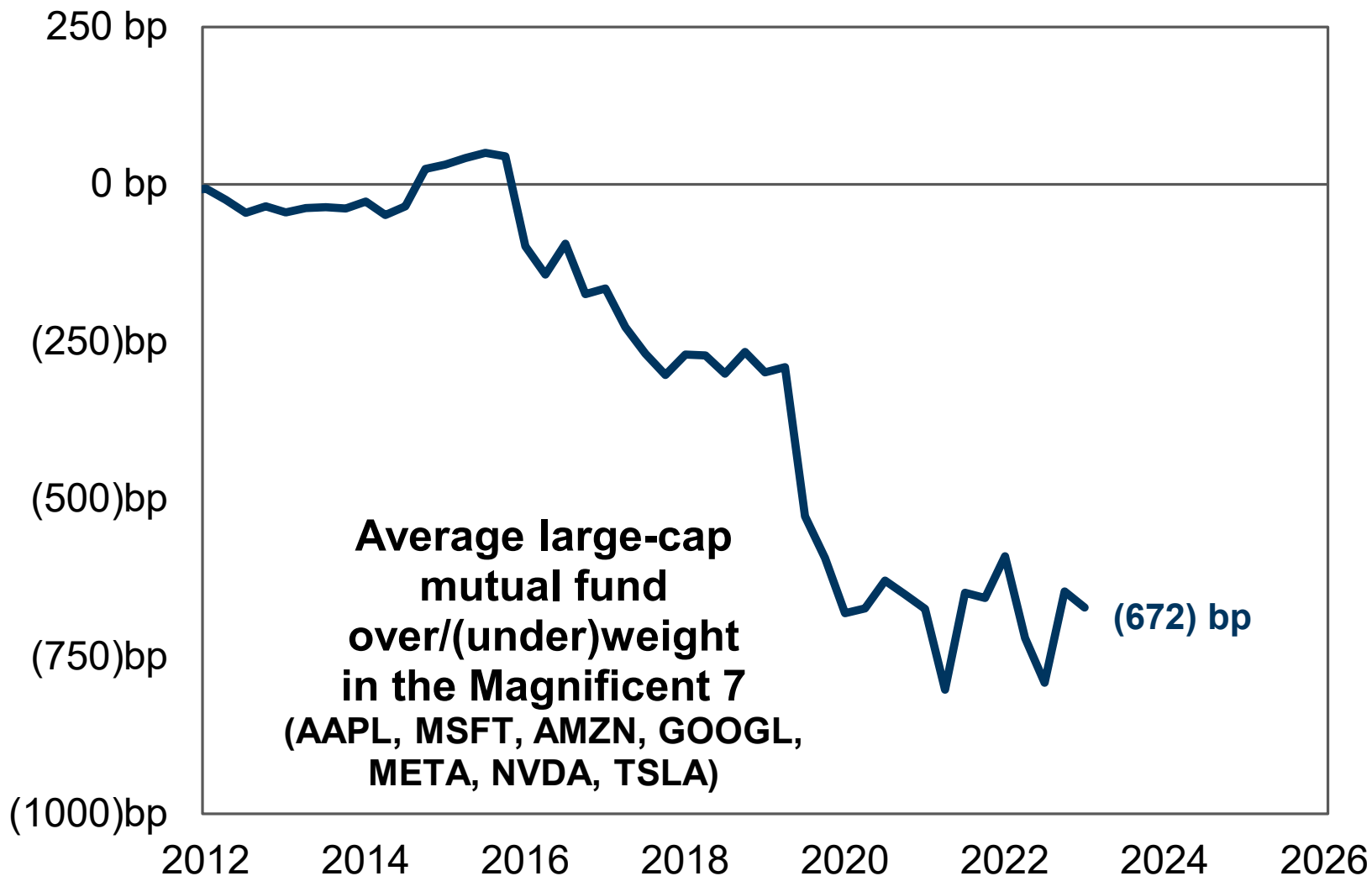
About \$3 trillion has flowed out of active funds and into passive since 2007



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Flows from active (underweight) to passive (neutral)

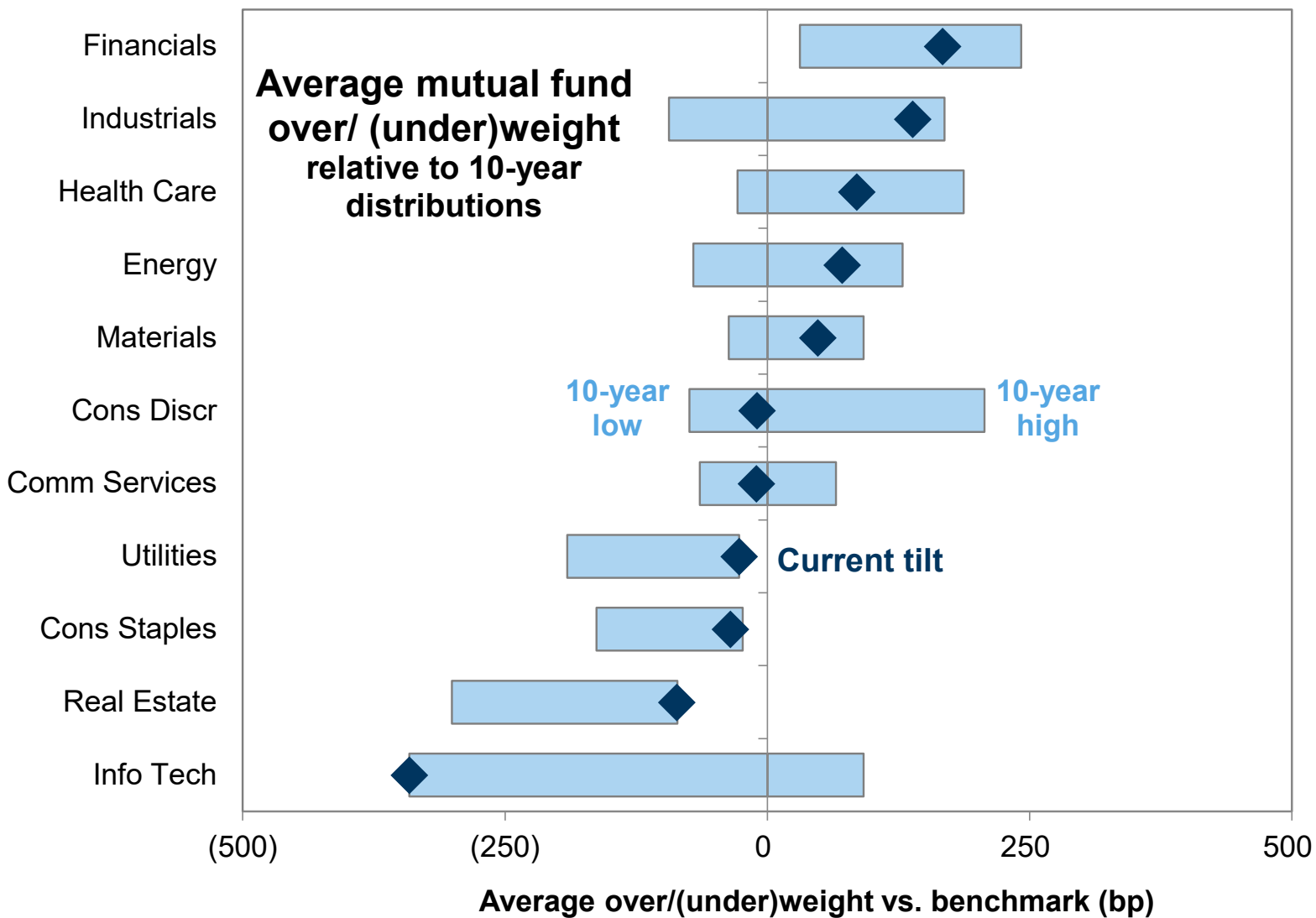
Average large-cap mutual fund is 672 bp underweight the 'Magnificent 7' stocks



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Mutual fund sector positioning relative to history

Overweight Financials vs. benchmark and underweight Information Technology



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HF sector weights: \$1.8 trillion long, \$965 billion short

47% of net portfolio in Tech (18%), Health Care (16%), and Financials (13%)

Sector	Aggregate hedge fund asset allocation				vs. Russell 3000	
	Long portfolio (\$1.8 tn)	Short portfolio (\$965 bn)	Allocation difference	Net weight	Russell 3000 weight	Hedge fund net tilt
Health Care	14.6 %	13.5 %	101 bp	15.8 %	12.0 %	375 bp
Comm Services	8.7	6.8	193	11.0	8.8	226
Industrials	11.5	11.0	49	12.1	9.9	222
Materials	3.9	3.2	73	4.8	2.7	205
Energy	5.7	6.4	(66)	4.9	3.8	109
Consumer Discretionary	13.3	14.4	(110)	11.9	10.8	107
Utilities	2.5	2.3	24	2.8	2.1	76
Financials	12.5	11.8	64	13.3	14.2	(98)
Real Estate	2.5	3.4	(85)	1.5	2.6	(114)
Consumer Staples	4.6	5.1	(47)	4.0	6.0	(196)
Information Technology	20.3	22.2	(196)	17.9	27.0	(913)
Total	100.0	100.0	0	100.0	100.0	0

Overlap in our hedge fund and mutual fund baskets

Hedge fund long and short vs. mutual fund overweight and underweight baskets

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		Overlap with our MUTUAL FUND baskets								
		Overweight Mutual Fund Overweight Positions <GSTMFOV>				Underweight Mutual Fund Underweight Positions <GSTMFUW>				
Overlap with our HEDGE FUND baskets	Long	Hedge Fund VIP List <GSTHHVIP>	DHR UBER	FI V	KKR VRT	MA	AAPL BRK.B LLY	AMD GE META	AMZN GOOGL MSFT	AVGO JPM NVDA
	Short	Hedge Fund concentrated short positions	DASH MRVL	GM	GPN	LULU	BX TSLA	CVX	DLR	F

Hedge Fund very important position list (GSTHHVIP)

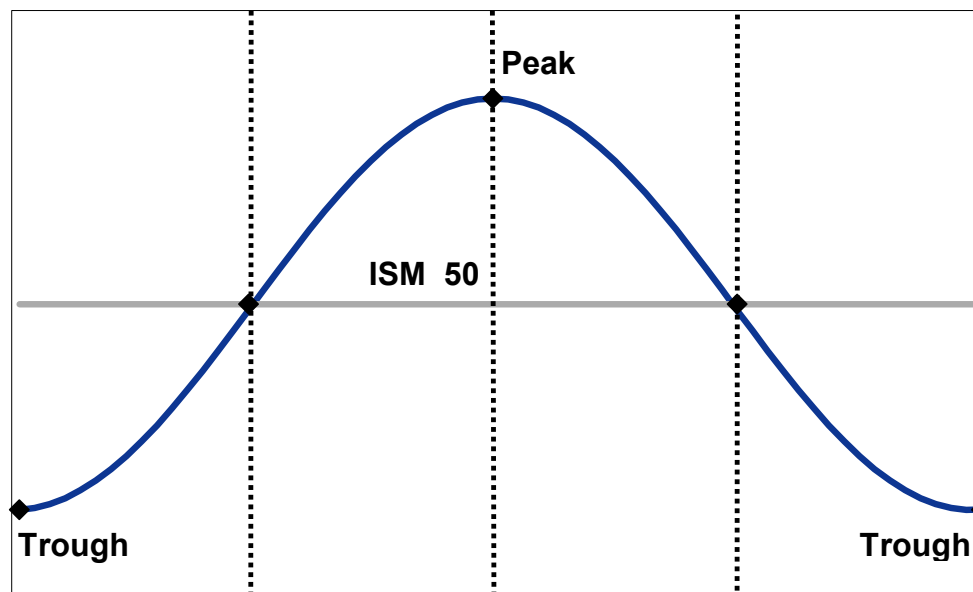
50 stocks that “matter most” to the performance of long/short hedge funds

Hedge Fund Very Important Position (VIP) Basket <GSTHHVIP>

Company	Ticker	Sub-sector	Total Return YTD	No. of funds with stock as top 10 holding	Percent of equity cap owned by hedge funds	Company	Ticker	Sub-sector	Total Return YTD	No. of funds with stock as top 10 holding	Percent of equity cap owned by hedge funds
				31-Mar-24	31-Mar-24					31-Mar-24	31-Mar-24
Amazon.com Inc.	AMZN	Broadline Retail	21 %	108	2 %	Progressive Corp.	PGR	Property & Casualty Insurance	29%	13	3%
Microsoft Corp.	MSFT	Systems Software	18	88	1	United States Steel	X	Steel	(24)	13	26
Meta Platforms Inc.	META	Interactive Media & Services	43	77	3	Micron Technology	MU	Semiconductors	68	13	3
Alphabet Inc.	GOOGL	Interactive Media & Services	26	58	2	MercadoLibre Inc.	MELI	Broadline Retail	1	12	3
NVIDIA Corp.	NVDA	Semiconductors	162	47	1	First Citizens BancShares	FCNCA	Diversified Banks	16	12	8
Apple Inc.	AAPL	Technology Hardware Storage & Peripherals	12	30	1	WillScot Mobile Mini Hldgs	WSC	Construction & Engineering	(13)	12	8
Salesforce Inc.	CRM	Application Software	(13)	25	4	TransDigm Group	TDG	Aerospace & Defense	31	12	9
Taiwan Semiconductor Manufacturing, (ADR)	TSM	Semiconductors	67	25	1	GoDaddy Inc.	GDDY	Internet Services & Infrastructure	30	12	16
Hess Corp.	HES	Oil & Gas Exploration & Production	0	20	16	SharkNinja Inc.	SN	Household Appliances	54	12	14
Mastercard Inc.	MA	Transaction & Payment Processing Services	5	18	2	Discover Financial Svc.	DFS	Consumer Finance	10	12	9
Eli Lilly & Co.	LLY	Pharmaceuticals	52	18	1	Fiserv Inc.	FI	Transaction & Payment Processing Services	12	11	3
Berkshire Hathaway	BRK.B	Multi-Sector Holdings	14	18	1	Capri Holdings Limited	CPRI	Apparel Accessories & Luxury Goods	(36)	11	19
Advanced Micro Devices	AMD	Semiconductors	8	18	2	KKR & Co Inc.	KKR	Asset Management & Custody Banks	32	11	4
Western Digital	WDC	Technology Hardware Storage & Peripherals	52	18	13	Energy Transfer LP	ET	Oil & Gas Storage & Transportation	16	11	2
Uber Technologies	UBER	Passenger Ground Transportation	15	16	5	NextEra Energy Inc.	NEE	Electric Utilities	22	11	2
Visa Inc.	V	Transaction & Payment Processing Services	5	16	2	Dell Technologies	DELL	Technology Hardware Storage & Peripherals	78	11	10
CRH public limited company	CRH	Construction Materials	16	16	6	Wix.com Ltd.	WIX	Internet Services & Infrastructure	34	11	21
Tenet Healthcare	THC	Health Care Facilities	85	16	21	Albertsons Companies	ACI	Food Retail	(11)	10	10
GE Aerospace	GE	Aerospace & Defense	53	16	3	Danaher Corp.	DHR	Life Sciences Tools & Services	10	10	2
Broadcom Inc.	AVGO	Semiconductors	51	16	1	JPMorgan Chase	JPM	Diversified Banks	15	10	1
Netflix Inc.	NFLX	Movies & Entertainment	34	15	3	Sea (ADR)	SE	Interactive Home Entertainment	84	10	9
Vertiv Holdings	VRT	Electrical Components & Equipment	99	14	12	AppLovin Corp.	APP	Application Software	90	10	14
Alibaba Group Hldg (ADR)	BABA	Broadline Retail	(0)	14	1	Citigroup Inc.	C	Diversified Banks	19	9	3
Alight Inc.	ALIT	Human Resource & Employment Services	(14)	14	28						
Vistra Corp.	VST	Independent Power Producers & Energy Traders	130	14	12						
Apollo Global Mgmt	APO	Diversified Financial Services	26	13	6						
AerCap Holdings	AER	Trading Companies & Distributors	22	13	15						
GSTHHVIP Average									31%	20	7%
Median									21	14	4

Economic cycle and how cash spending is rewarded

Investors reward balance sheet strength, returning cash late in the economic cycle



✓ indicates outperformance
 ✗ indicates underperformance

Median relative performance of stocks during the economic cycle

	Rebound	Expansion	Slowdown	Recession
Balance Sheet Strength	✗	✗	✓	✓
Returning Cash to Shareholders	=	✓	✓	=
Investing for Growth	✓	✓	✗	✗

Investors rewarding strong balance sheet stocks

Strong Balance Sheets have beat Weak by 30 pp in 18 months (45% vs. 15%)



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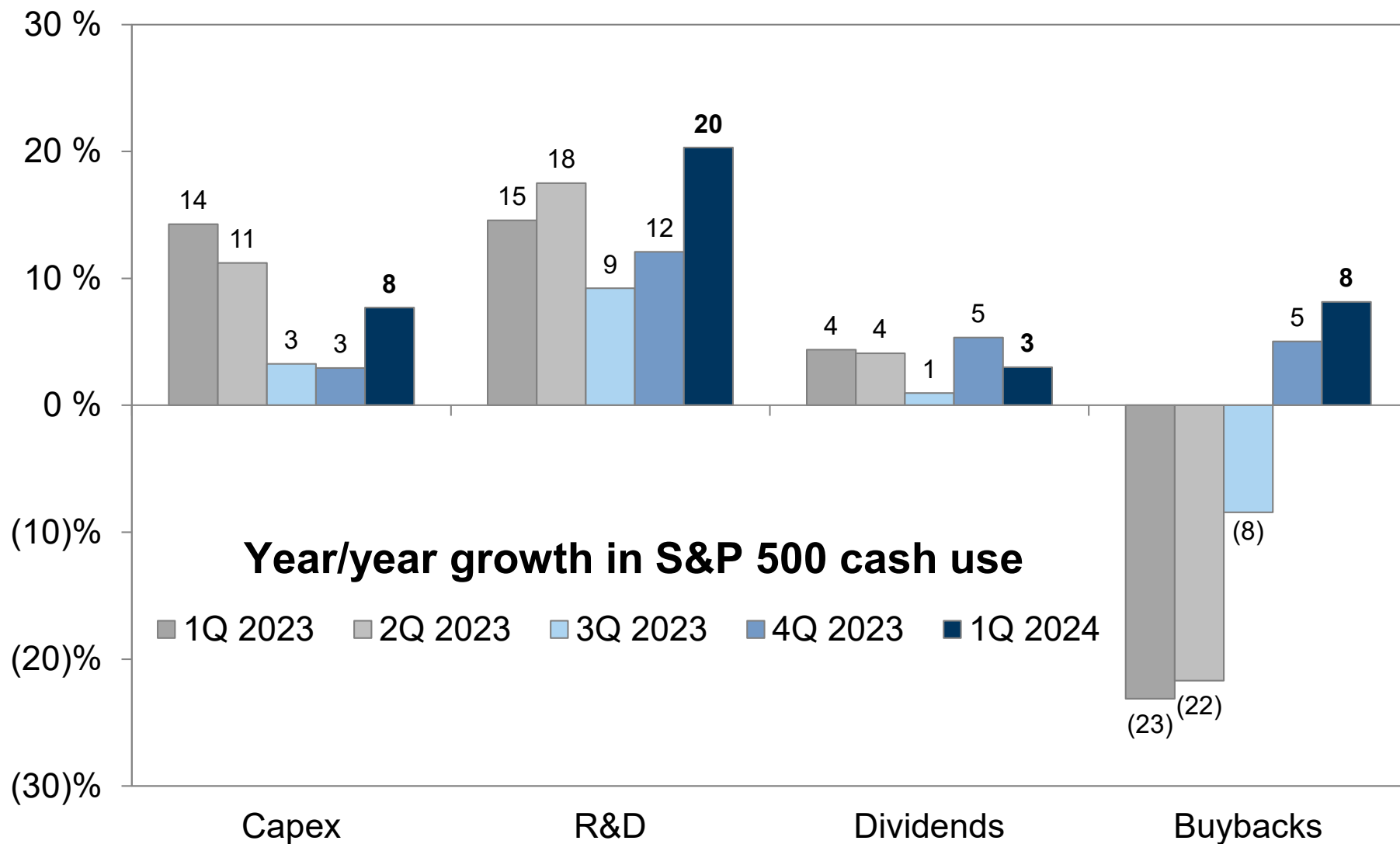
S&P 500 cash spending will increase by 9% in 2024

Companies will boost cash M&A spending by 15% and Buybacks by 13%

Cash Use (\$ billion)	2020	2021	2022	2023	2024E
Capital Expenditures	\$667	\$739	\$892	\$958	\$1,015
Share Buybacks	538	919	950	827	934
Dividends	520	548	598	621	658
R&D	401	453	516	584	637
Cash Acquisitions	224	349	288	384	442
Total Cash Use	\$2,351	\$3,007	\$3,244	\$3,374	\$3,687
% year/year growth					
Capital Expenditures	(9)%	11 %	21 %	7 %	6 %
Share Buybacks	(28)	71	3	(13)	13
Dividends	1	5	9	4	6
R&D	12	13	14	13	9
Cash Acquisitions	(15)	56	(17)	34	15
Total Cash Use	(10)%	28 %	8 %	4 %	9 %

Buyback growth in past 2 quarters (year/year basis)

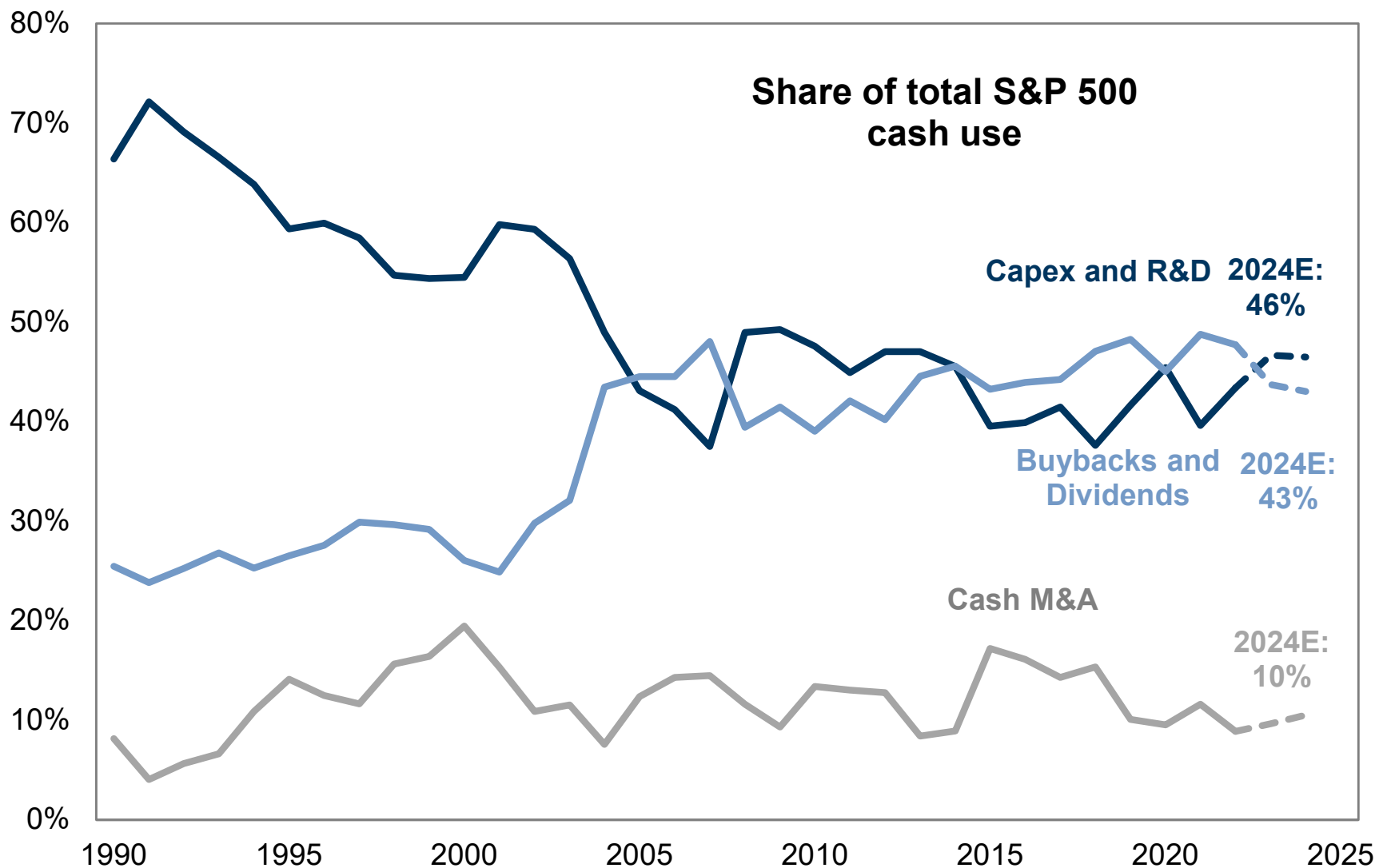
Companies pulled back on capex, buybacks in 1H23 but have since resumed



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Buybacks & dividends will comprise 43% of cash use

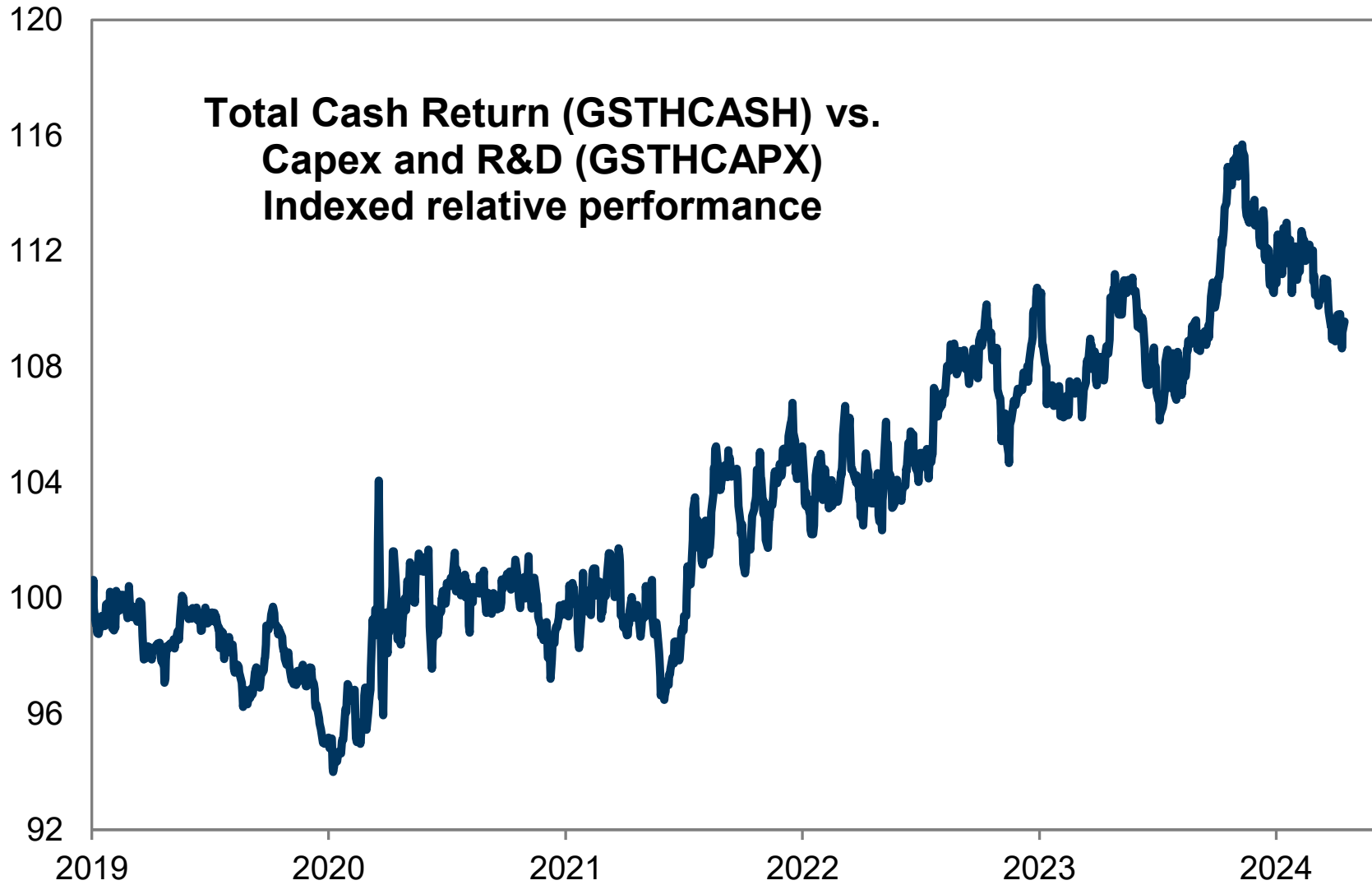
Capex and R&D will account for 45% of total cash spending in 2024



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How investors reward various uses of cash

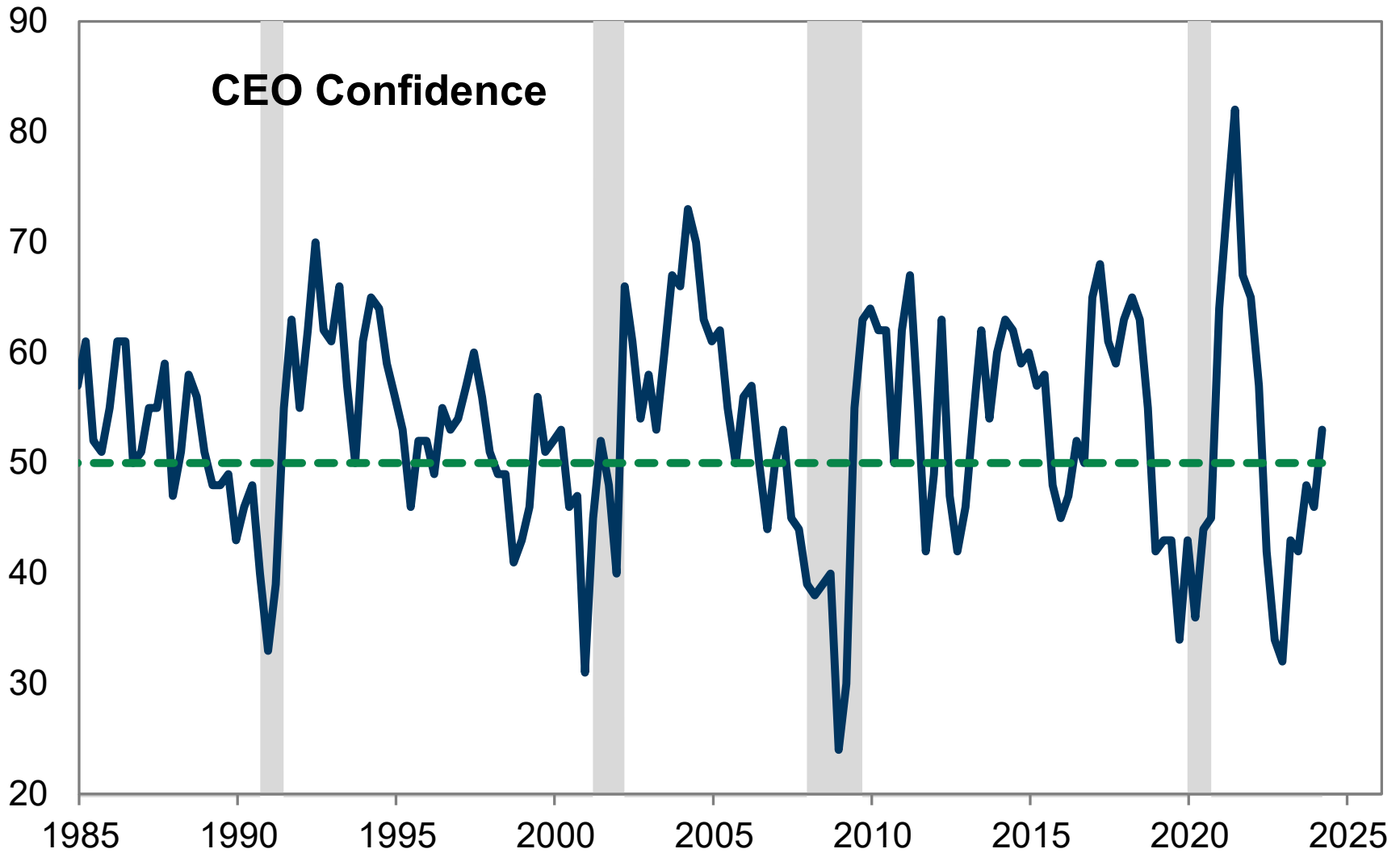
Stocks prioritizing spending on capex and R&D have recently outperformed



**Total Cash Return (GSTHCASH) vs.
Capex and R&D (GSTHCAPX)
Indexed relative performance**

CEO confidence has rebounded back above 50

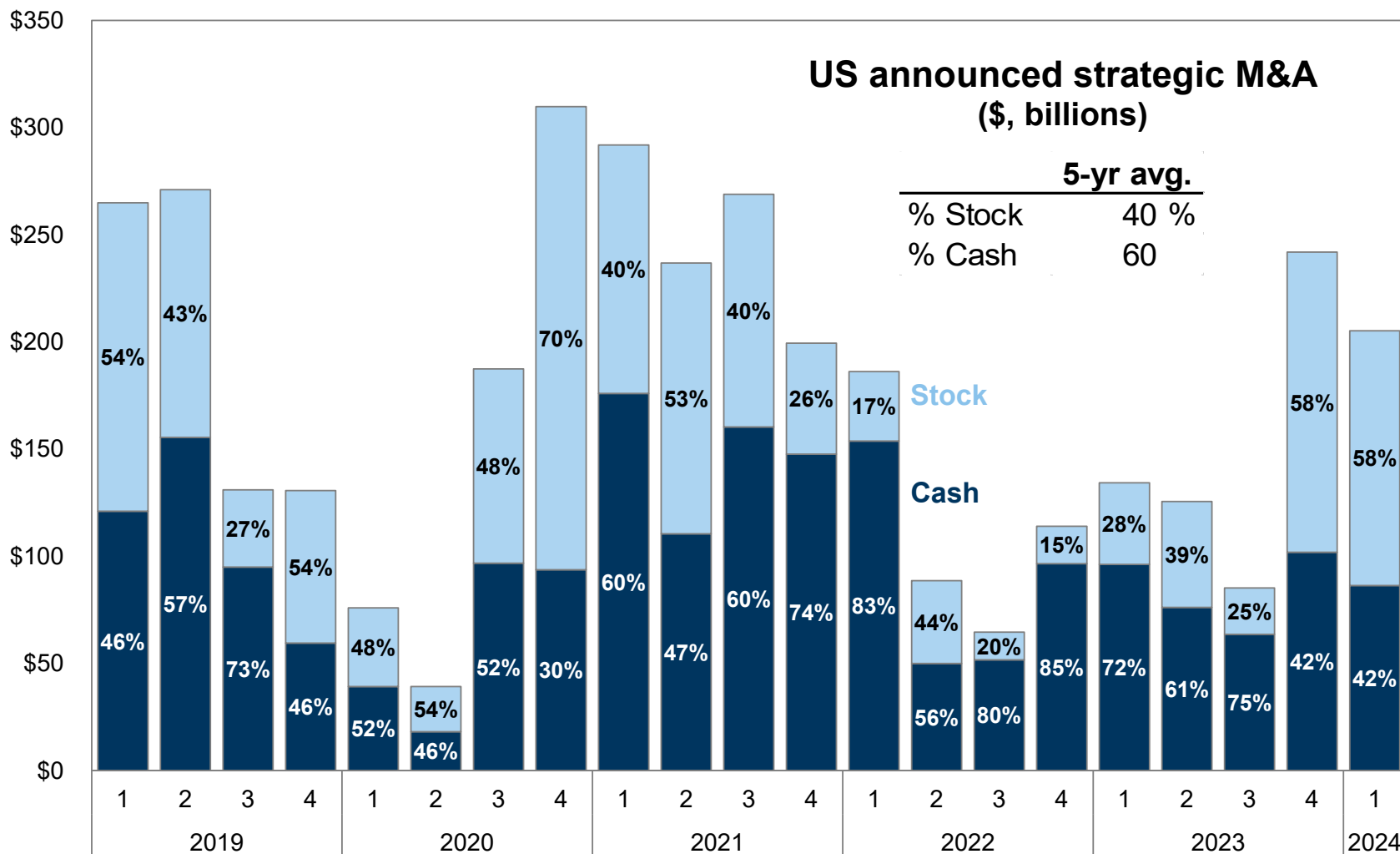
50+ level indicates positive sentiment



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Announced M&A has relied on stock more than cash

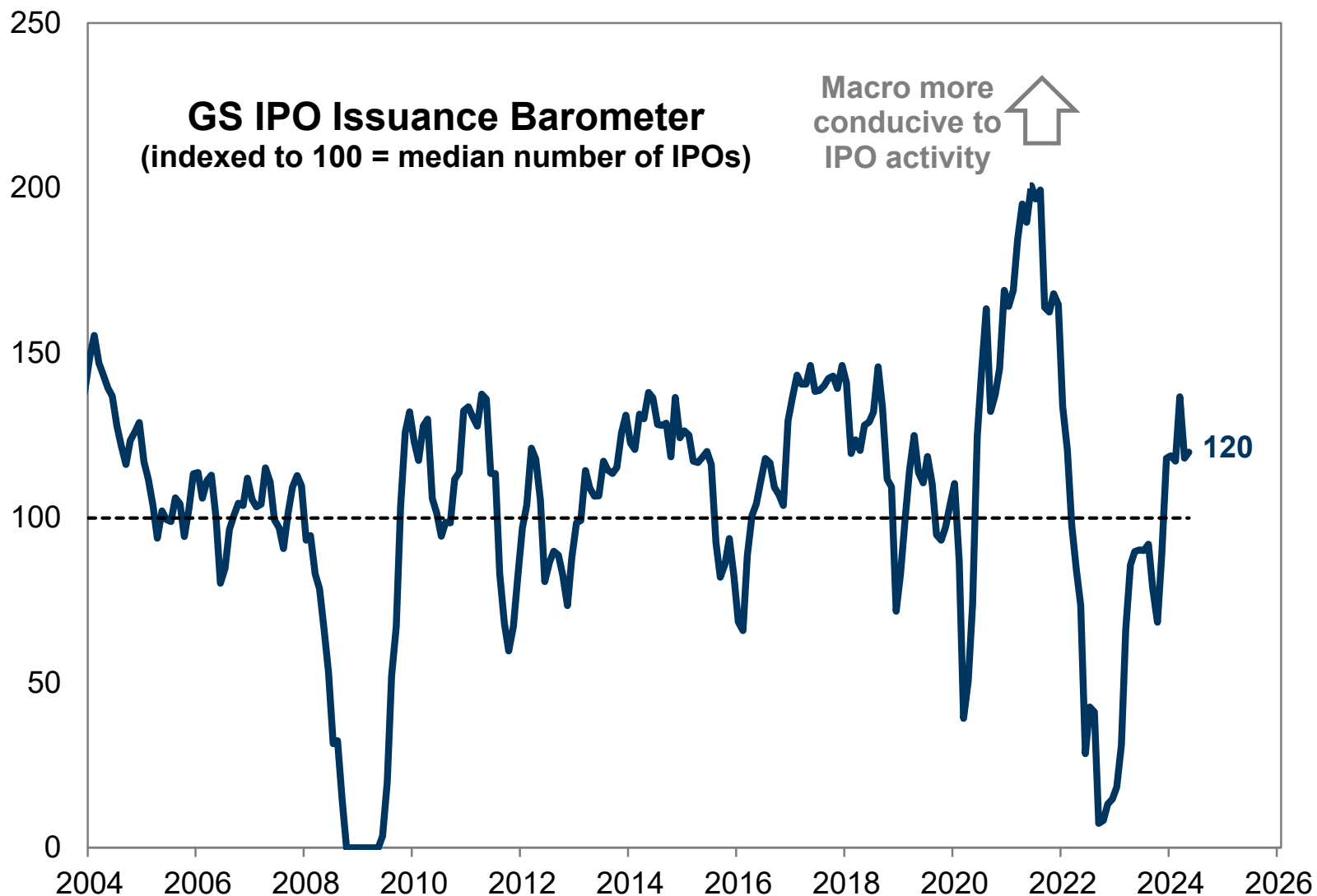
Announced M&A remains healthy, but cash component relatively low



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The GS IPO Issuance Barometer is above average

100 = a macro environment consistent with the typical frequency of IPOs



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Components of our GS IPO issuance barometer

5 statistically significant metrics which indicate how open market is to IPOs

GS IPO Issuance Barometer			
Indicator	Std. dev. change in IPO activity from 1 std. dev. increase in variable	Percentile rank since 2003	
		Current	2003
S&P 500 drawdown	1.4	(4)%	55 %
CEO Confidence	0.7	52	43
ISM Manufacturing Index	0.7	49	19
Change in 2-year UST yield	-0.6	0.2 pp	35
S&P 500 EV/sales	0.5	3.1 x	96
GS IPO Issuance Barometer		120	69 %

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5. Global equity markets

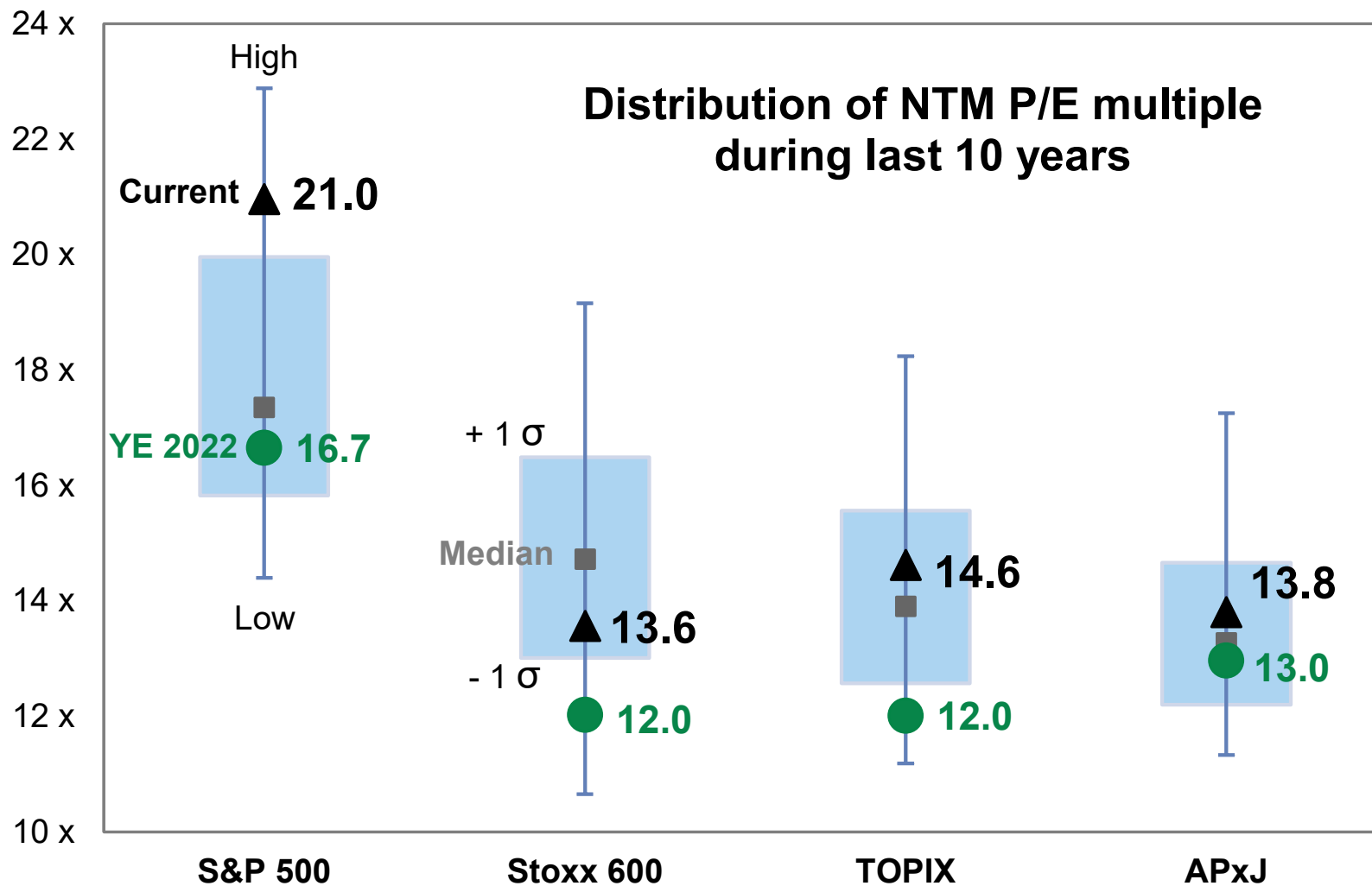
Global equity market returns, valuation, and growth

Local currency return: MXAPJ (+12%), Japan (+9%), Europe (+8%), US (+6%)

	INDEX		EARNINGS		VALUATION			RETURN	
	Index level		Adjusted		P/E multiple		Div Yield	Forecast total return	
	Current	12 month target	EPS Growth 2024	2025	Current price/ Consensus NTM EPS	12m GS price target/ GS 2025 EPS		Local	USD
MXAPJ	564	615	17 %	12 %	13.8 x	13.9 x	2.8 %	12 %	12 %
TOPIX	2732	2900	11	6	14.6	14.7	2.4	9	13
STOXX Europe 600	516	540	6	4	13.6	14.0	3.4	8	8
S&P 500	5434	5700	8	6	21.0	22.3	1.4	6	6

Global equity market valuation vs. history

US trades above historical median valuation while Europe trades below



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Disclosure Appendix

June 17, 2024

Reg AC

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