

## GOAL Kickstart

## Market repricing of US recession and exceptionalism risks

Last week, US existing home sales came in below expectations. Euro area composite PMIs declined below expectations. For this week, our economists expect NFPs rose 140k in April, above consensus.

Financial markets have been caught between the repricing of a US recession and US exceptionalism. Following April 2nd, markets began to price in higher recession risks – US cyclicals sold-off vs. defensives and credit spreads widened. Initially the repricing was broad across regions, with US equities relatively flat against non-US equities (Exhibit 1). After the announcement of a 90-day pause in US tariffs, risky assets rebounded sharply at first. After that, concerns about US exceptionalism weighed on US assets broadly: US equities underperformed non-US equities and the Dollar weakened, while cyclicals were relatively flat vs. defensives.

Last week, equity markets rallied supported by easing global growth concerns and more dovish monetary policy expectations (Exhibit 12). US cyclicals vs defensives and US vs. non-US stocks reversed some of the underperformance. Tech stocks in particular led, with the Nasdaq outperforming the S&P 500 equal weight. Compared to the rebound from April 8 to 21, the performance since April 21 saw more pronounced outperformance of US equities, credit and

10-year bonds, while Asian markets, particularly China, lagged (Exhibit 2). Consequently, high-frequency correlations between US and non-US equities started to decline again (Exhibit 3). The reversal spilled over to FX, with the Dollar strengthening vs. more defensive crosses. Despite these shifts, the Dollar underperformed relative to its historical beta to cross-asset growth and monetary policy pricing (Exhibit 4) – our FX team continues to believe that the Dollar has further to fall. Our US strategists estimate foreign investors sold roughly \$60 bn of US stocks since March 1.

In our last allocation update, we remained defensive tactically (OW bonds/cash, N credit, UW equities/ commodities for 3m) with near-term risks skewed to the downside due to our economists' cautious macro baseline - they expect more downside risk if US/China tariff rates are not scaled back. Our European strategists recommend focusing on Domestic Defensive slices. We recommend taking advantage of re-sets in cross-asset volatility to add selective overlay hedges. Selling calls to buy puts or put spreads on equity could help lower the cost of downside protection - our RAI is already at more neutral levels suggesting a limit to further sharp sentiment-driven

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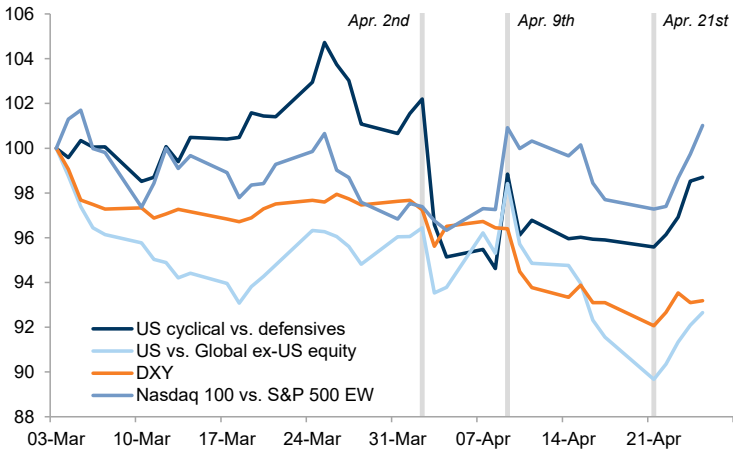
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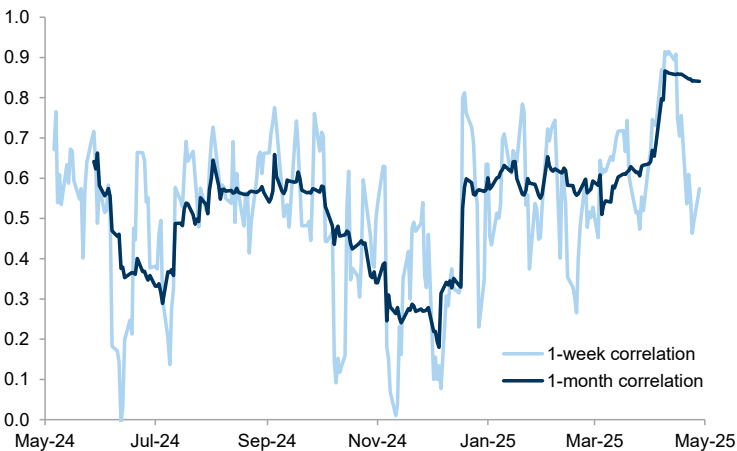
rebounds.

**Exhibit 1: Markets have repriced US recession and exceptionalism risks**  
Performance indexed to 100 (in USD)



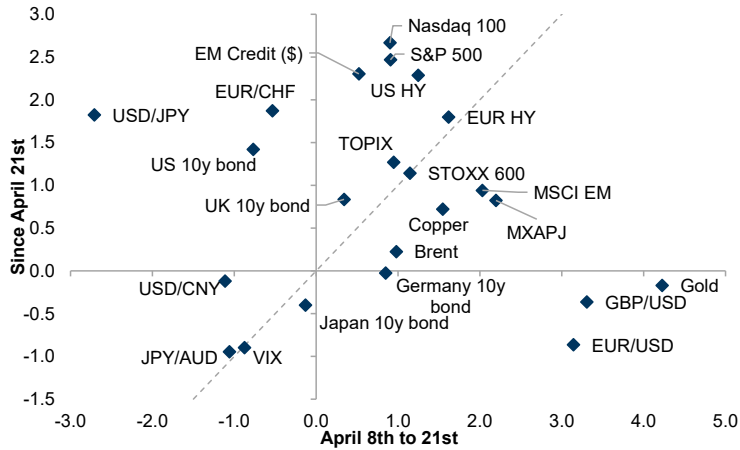
Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 3: The correlation between US and non-US equities has started to re-set**  
US vs. Global ex-US correlation



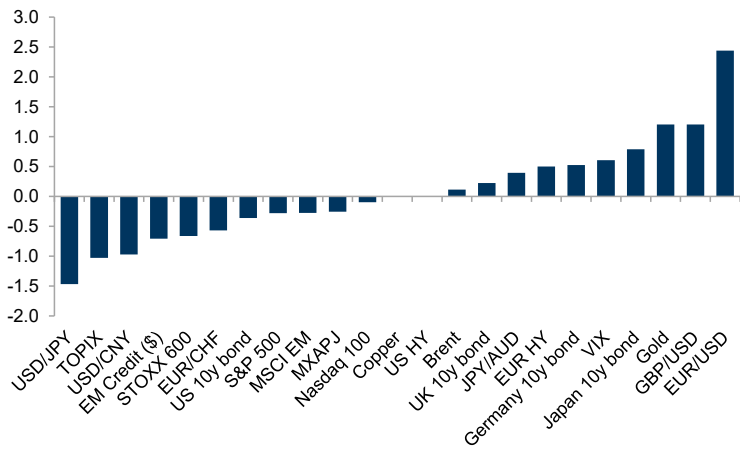
Source: Refinitiv Eikon, Goldman Sachs Global Investment Research

**Exhibit 2: US equities, Nasdaq in particular, have led the recent rebound**  
Total return in standard deviation terms (local currency)



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 4: Local currency return since April 8th vs. implied by beta to PC1 “Global growth” and PC2 “Monetary policy” (st. deviation terms)**



Source: Datastream, Goldman Sachs Global Investment Research

## Cross-asset: Forecasts

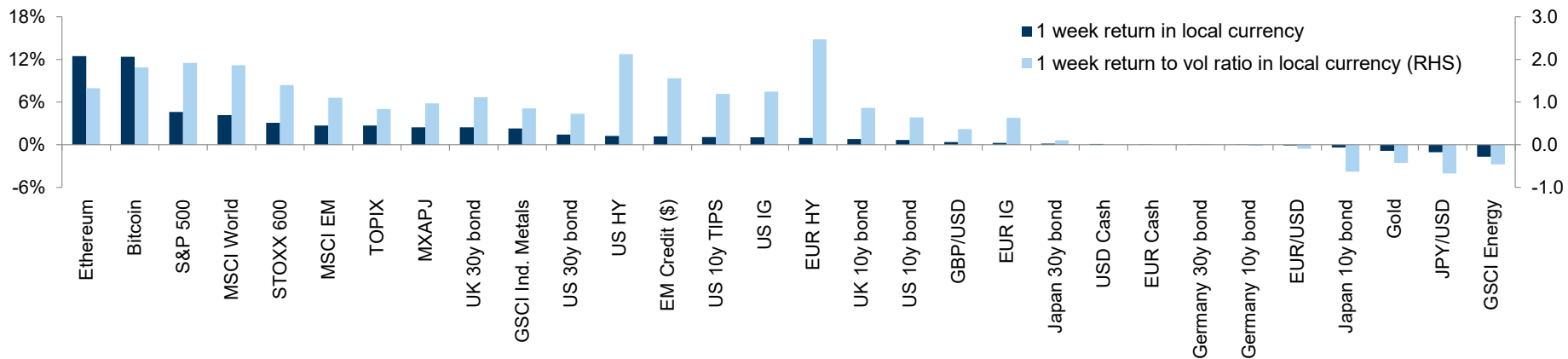
Exhibit 5: GOAL asset allocation recommendations and GS cross-asset forecasts

	Allocation Weighting		Current Level	Forecasts			Forecast Upside/Downside (%)		
	3m	12m		3m	6m	12 m	3m	6m	12 m
<b>Equities</b>	<b>UW</b>	<b>N</b>			<b>Index level</b>			<b>Total Return</b>	
S&P 500 (\$)	N	N	5525	5300	5500	5900	-3.7	0.3	8.2
Stoxx Europe 600 (€)	N	N	520	470	490	520	-8.8	-4.1	3.5
MSCI Asia-Pacific ex. JP (\$)	N	N	571	520	540	580	-7.2	-2.8	6.0
Topix (¥)	N	N	2628	2500	2600	2775	-4.7	-0.7	6.3
<b>10 Year Government Bonds</b>	<b>OW</b>	<b>N</b>			<b>Yield (%)</b>			<b>Total Return</b>	
US	OW	OW	4.26	3.94	3.93	4.19	4.3	5.4	5.4
Germany	OW	OW	2.47	2.80	2.80	2.93	-1.1	-0.5	-0.3
Japan	UW	UW	1.34	1.41	1.46	1.63	0.8	0.6	-0.2
UK	OW	OW	4.48	4.37	4.29	4.25	3.0	4.9	7.4
<b>Corporate Bonds</b>	<b>N</b>	<b>N</b>			<b>Spread</b>			<b>Total Return</b>	
Bloomberg Barclays US IG	N	N	101	114	122	115	3.1	3.9	5.3
Bloomberg Barclays US HY	UW	UW	360	396	429	400	1.7	2.3	5.6
iBoxx EUR IG	OW	OW	116	106	109	105	0.1	0.8	2.0
BAML EUR HY	UW	UW	354	355	373	355	0.4	1.0	3.4
EM Hard Currency Sovereign	UW	UW	356			500	1.9	1.2	-1.4
<b>Commodities</b>	<b>UW</b>	<b>N</b>			<b>Spot price</b>			<b>Spot Return</b>	
WTI (\$/bbl)	-	-	64	60	59	56	-6.0	-7.6	-12.3
Brent (\$/bbl)	-	-	67	64	63	60	-4.4	-5.9	-10.4
Copper (\$/mt)	-	-	9,376	8,450	8,600	10,000	-9.9	-8.3	6.7
Gold (\$/troy oz)	-	-	3,273	3,370	3,580	3,920	3.0	9.4	19.8
<b>FX</b>	<b>-</b>	<b>-</b>			<b>Spot rate</b>			<b>Spot Return</b>	
EUR/USD	-	-	1.14	1.12	1.15	1.20	-1.5	1.2	5.6
USD/JPY	-	-	144.0	138	136	135	-4.2	-5.5	-6.2
GBP/USD	-	-	1.33	1.32	1.35	1.39	-0.8	1.4	4.4
AUD/USD	-	-	0.64	0.60	0.60	0.60	-6.1	-6.1	-6.1
USD/BRL	-	-	5.68	5.80	5.70	5.70	2.1	0.4	0.4
USD/INR	-	-	85.4	87.5	88.0	89.0	2.4	3.0	4.2
USD/CNY	-	-	7.28	7.30	7.35	7.35	0.2	0.9	0.9
<b>Cash</b>	<b>OW</b>	<b>OW</b>			<b>Spot rate</b>			<b>Total Return</b>	
US 3-month Tbill	-	-	-	-	-	-	1.08	2.11	3.98
Germany 3-month Bubills	-	-	-	-	-	-	0.47	0.94	1.77

Source: Bloomberg, Datastream, Bloomberg-Barclays, ICE-BAML, iBoxx, Goldman Sachs Global Investment Research

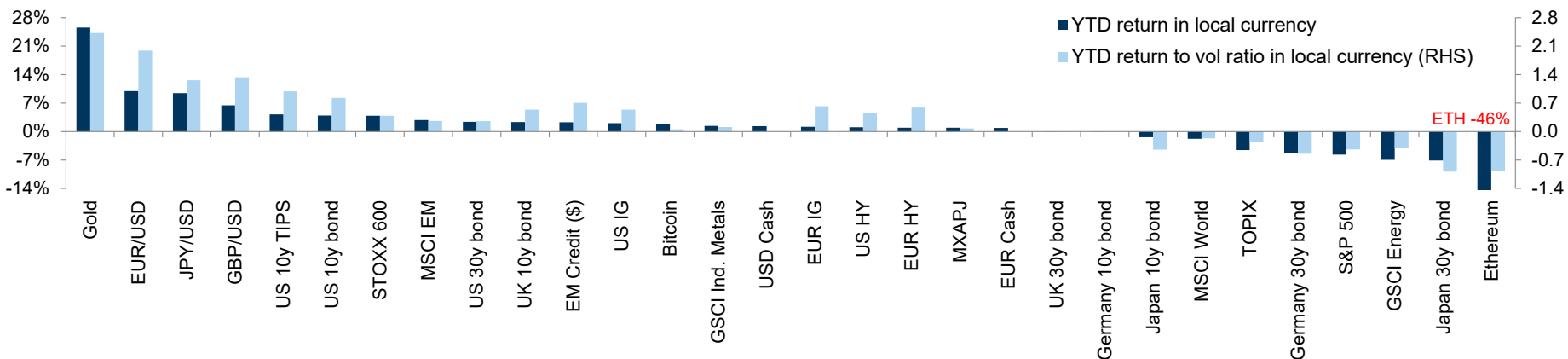
# Cross-asset: Weekly and YTD performance, absolute and risk-adjusted

**Exhibit 6: Local currency returns and return to vol ratios**  
1 week returns. Volatility of weekly returns in the previous 12m



Source: Datastream, Bloomberg, Haver Analytics, Goldman Sachs Global Investment Research

**Exhibit 7: Local currency returns and return to vol ratios**  
YTD returns

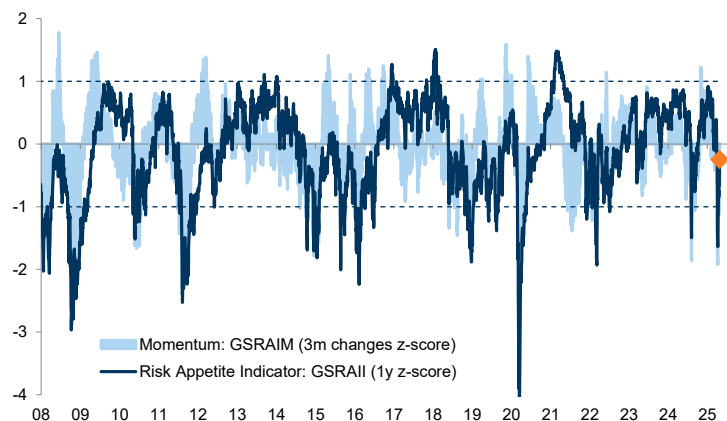


Source: Datastream, Bloomberg, Haver Analytics, Goldman Sachs Global Investment Research

# Cross-asset: Risk appetite indicator

## Exhibit 8: Risk appetite indicator level and momentum factors

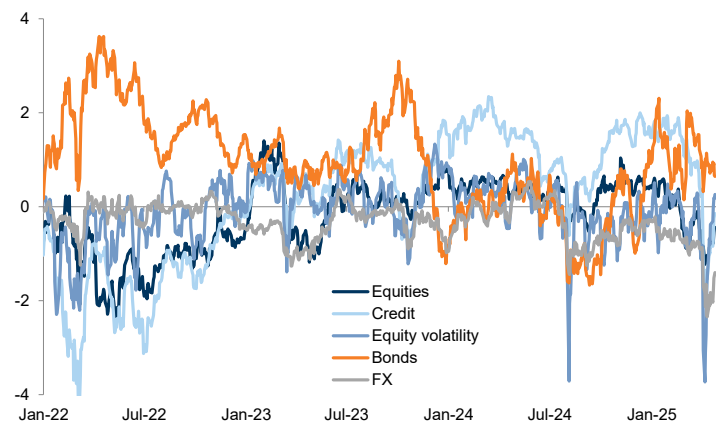
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

## Exhibit 9: Risk appetite indicators for different asset classes

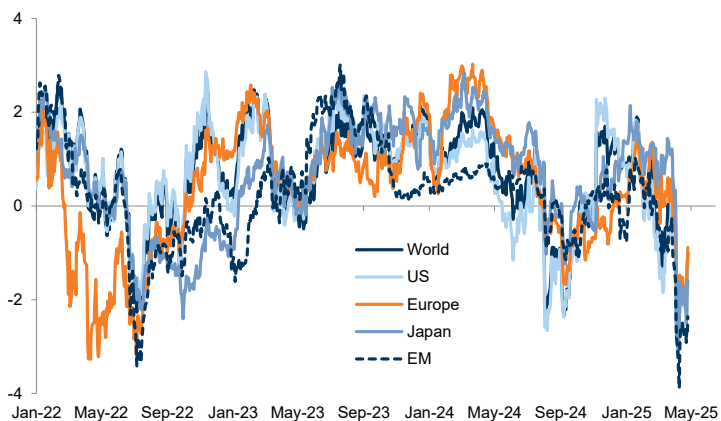
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

## Exhibit 10: Cyclical vs. defensives 1-year rolling z-score across regions

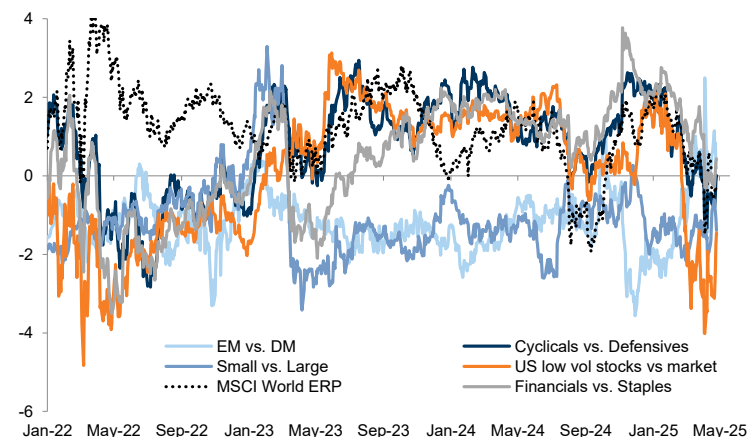
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

## Exhibit 11: Sub-components of equity risk appetite indicator

See July 2016 GOAL for construction details

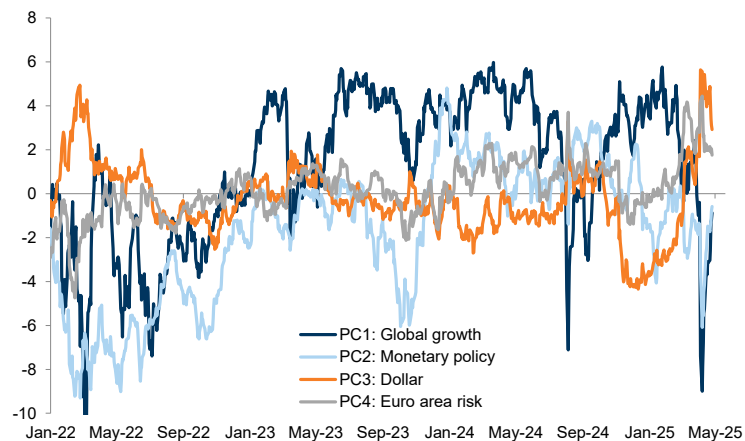


Source: Goldman Sachs Global Investment Research

# Cross-asset: Risk Appetite principal component analysis

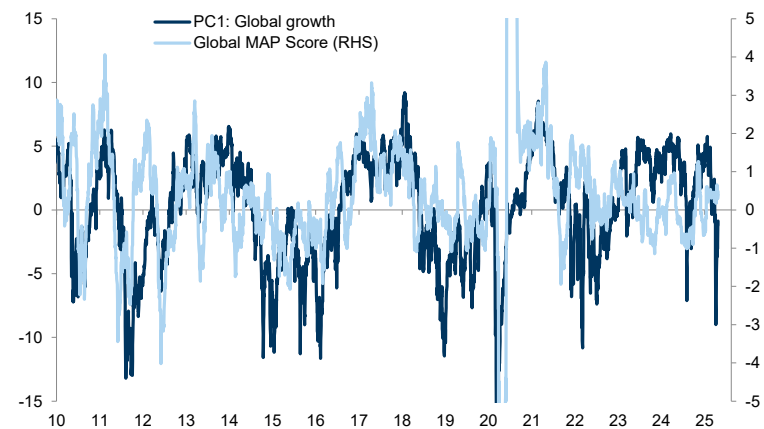
## Exhibit 12: GS RAI principal component

See April 2019 GOAL for construction details



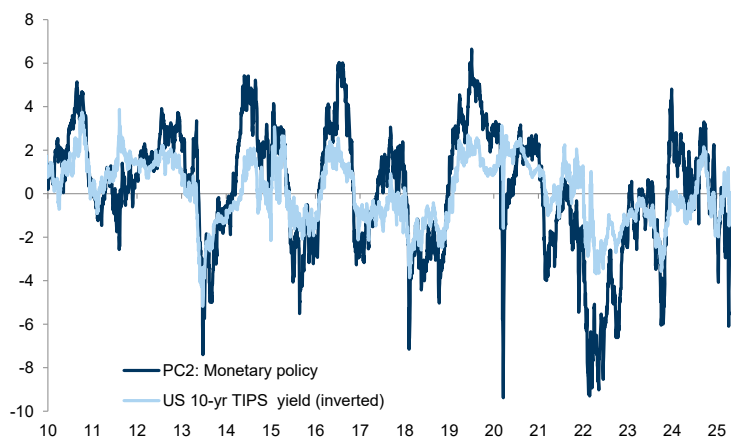
Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 13: PC1: Global growth factor vs. Global MAP Score



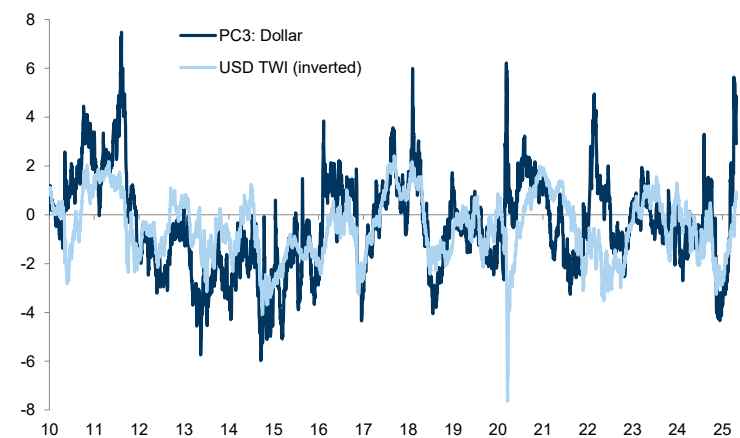
Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 14: PC2: Monetary policy factor vs. US 10-year TIPS yield



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 15: PC3: Dollar factor vs. USD TWI

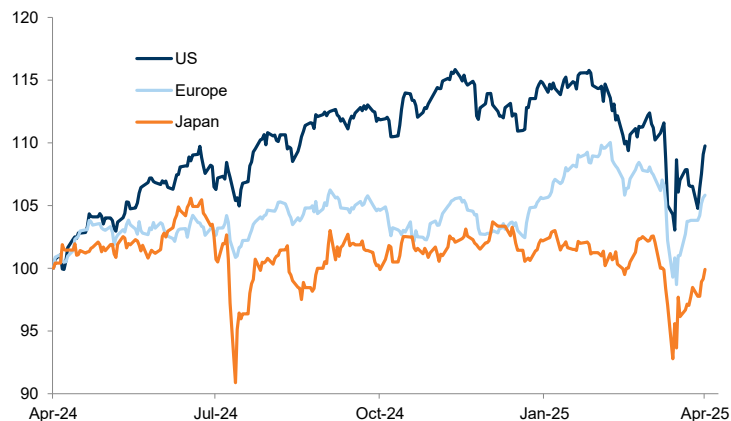


Source: Datastream, Goldman Sachs Global Investment Research

## Cross-asset: Balanced portfolios and dynamic allocation strategies performance

**Exhibit 16: 60/40 equity/bond portfolio performance across regions last 12m**

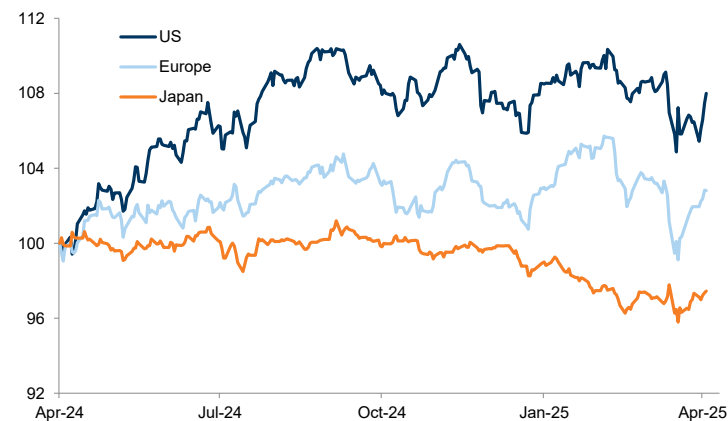
Relative total return performance indexed to 100 12m ago



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 17: Risk parity portfolio performance across regions last 12m**

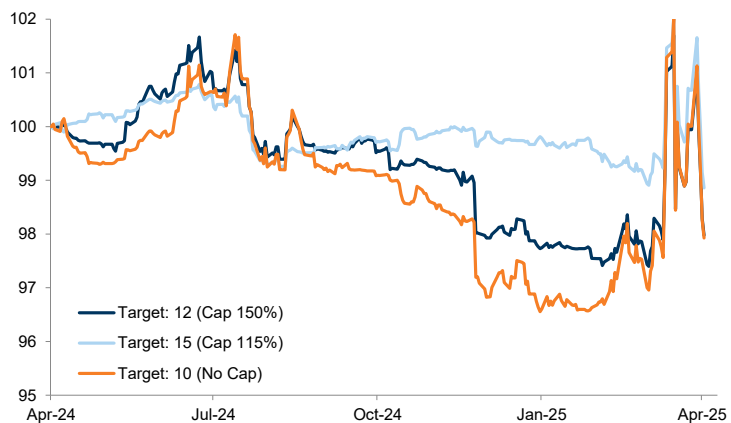
Weighted inversely by 3m realised volatility of equity and 10y bonds



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 18: 60/40 portfolio with volatility target strategies overlay vs. US 60/40 portfolio**

60% S&P 500, 40% US 10y bond; based on 1m realised S&P 500 volatility



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 19: 60/40 portfolio with volatility target strategies and momentum overlay vs. US 60/40**

60% S&P 500, 40% US 10y bond; Strategy methodology see: GOAL: The Balanced Bear - Part 2

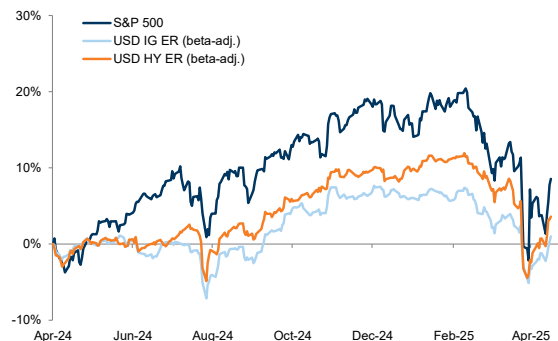


Source: Datastream, Goldman Sachs Global Investment Research

# Cross-asset: Equity vs. credit monitor

## Exhibit 20: USD cash credit vs. US equity

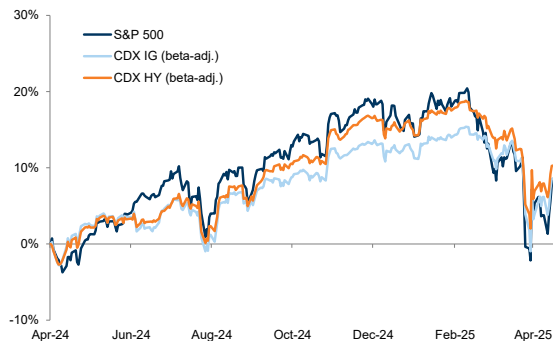
Cash credit excess returns (beta-adjusted) vs. S&P 500 total returns



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 21: USD synthetic credit vs. US equity

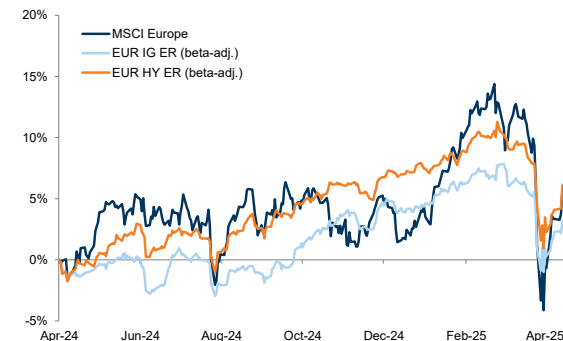
Synthetic credit excess returns (beta-adjusted) vs. S&P 500 total returns



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 22: EUR cash credit vs. European equity

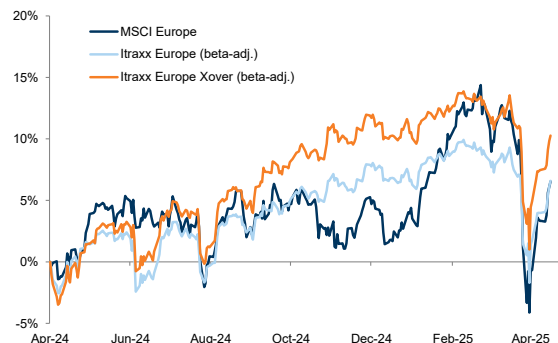
Cash credit excess returns (beta-adjusted) vs. MSCI Europe total returns



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 23: EUR synthetic credit vs. European equity

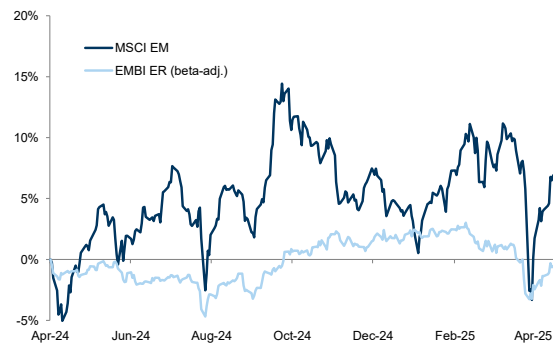
Synthetic credit excess returns (beta-adjusted) vs. MSCI Europe total returns



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 24: EM cash credit vs. EM equity

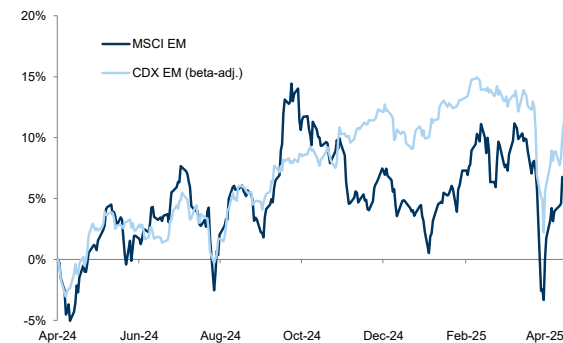
Cash credit excess returns (beta-adjusted) vs. MSCI EM total returns



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 25: EM synthetic credit vs. EM equity

Synthetic credit excess returns (beta-adjusted) vs. MSCI EM total returns



Source: Datastream, Goldman Sachs Global Investment Research



# Cross-asset: Valuation and risk premia

## Exhibit 26: Cross-asset valuation table

A higher percentile means more expensive relative to 10y history

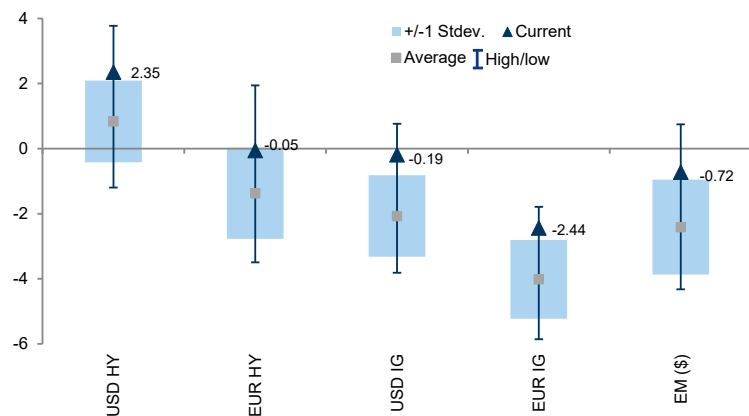
	Equity					Government bonds				Credit					FX	
	S&P 500	Stoxx 600	MXAPJ	Topix	MSCI EM	US 10y	German 10y	Japan 10y	UK 10y	US IG	US HY	EUR IG	EUR HY	EM (\$)	EUR/USD	USD/JPY
<b>Valuation metric</b>	<b>12m forward P/E ratio</b>					<b>Yield</b>				<b>Spread</b>					<b>Actual - GS fair value</b>	
<b>Current:</b>	20.1x	13.6x	13.1x	12.9x	11.9x	4.3%	2.4%	1.3%	4.5%	113bp	367bp	116bp	354bp	356bp	-0.06 €/ \$	49.8 \$/¥
<b>Expensiveness (last 10y percentile):</b>	<b>71%</b>	<b>35%</b>	<b>43%</b>	<b>29%</b>	<b>40%</b>	<b>10%</b>	<b>10%</b>	<b>2%</b>	<b>5%</b>	<b>77%</b>	<b>64%</b>	<b>70%</b>	<b>62%</b>	<b>56%</b>	<b>77%</b>	<b>16%</b>
<b>3M change:</b>	-2.2x	-0.1x	-0.3x	-0.9x	-0.1x	-0.4%	-0.1%	0.1%	-0.2%	22bp	107bp	10bp	58bp	40bp	0.09 €/ \$	-12.3 \$/¥
<b>Average:</b>	18.5x	14.3x	13.4x	13.9x	12.2x	2.6%	0.7%	0.2%	1.9%	140bp	429bp	137bp	399bp	-2bp	-0.10 €/ \$	23.5 \$/¥
<b>95th:</b>	22.2x	17.4x	16.2x	17.3x	14.8x	4.4%	2.5%	1.0%	4.5%	192bp	693bp	203bp	583bp	509bp	-0.02 €/ \$	59.1 \$/¥
<b>5th:</b>	15.6x	11.9x	11.6x	12.0x	10.6x	0.7%	-0.5%	-0.1%	0.3%	98bp	305bp	96bp	277bp	293bp	-0.16 €/ \$	7.2 \$/¥

Note: GSDEER is our fair value macro model for exchange rates. US IG spread is from iBoxx.

Source: Datastream, I/B/E/S, iBoxx, Goldman Sachs Global Investment Research

## Exhibit 27: Credit spread minus equity risk premium estimates across markets

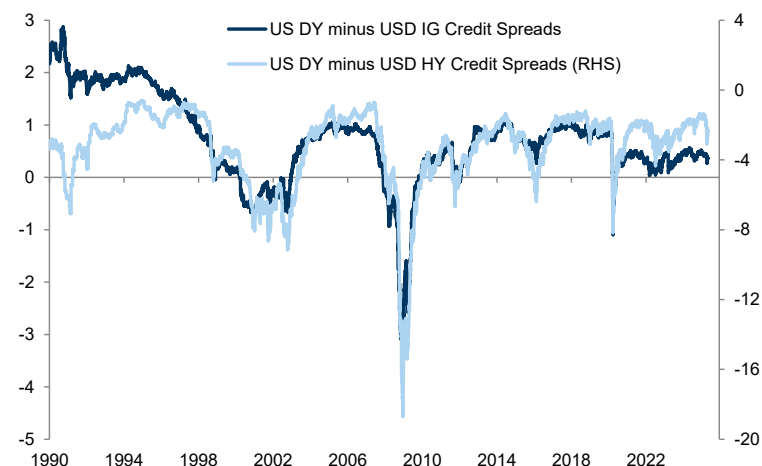
Equity risk premia based on 1-stage DDM using local 10-year yields and LT GDP consensus estimates. Using past 10 years of data.



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

## Exhibit 28: Equity vs. credit relative valuation

US Dividend Yield minus Credit spreads



Source: Datastream, Goldman Sachs Global Investment Research

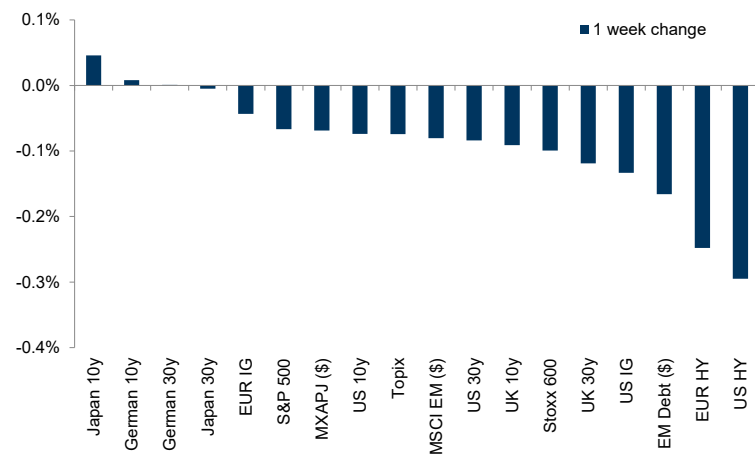
## Cross-asset: Yields

Exhibit 29: Current yields across assets and their percentile to the past 10 years

	Equity					Government bonds				Credit				
	S&P 500	Stoxx 600	MXAPJ (\$)	Topix	MSCI EM (\$)	US 10y	German 10y	Japan 10y	UK 10y	US IG	EUR IG	US HY	EUR HY	EM Debt (\$)
<b>Valuation metric</b>	<b>Dividend Yield (NTM)</b>					<b>Yield</b>				<b>Yield</b>				
<b>Current:</b>	1.5%	3.6%	2.9%	2.8%	3.0%	4.3%	2.4%	1.3%	4.5%	4.9%	3.2%	7.9%	6.0%	7.8%
<b>Percentile (-10y):</b>	<b>16%</b>	<b>48%</b>	<b>28%</b>	<b>98%</b>	<b>55%</b>	<b>91%</b>	<b>92%</b>	<b>98%</b>	<b>96%</b>	<b>80%</b>	<b>76%</b>	<b>74%</b>	<b>75%</b>	<b>79%</b>
<b>Average:</b>	1.9%	3.6%	3.0%	2.4%	3.0%	2.6%	0.7%	0.2%	1.9%	3.4%	1.7%	7.0%	4.8%	6.4%
<b>95th:</b>	2.3%	4.0%	3.6%	2.7%	3.4%	4.5%	2.5%	1.0%	4.4%	5.7%	4.3%	9.0%	7.5%	8.5%
<b>5th:</b>	1.4%	3.0%	2.4%	2.0%	2.5%	0.8%	-0.5%	-0.1%	0.3%	1.4%	0.3%	4.8%	3.0%	4.8%
<b>3m real. ret. vol:</b>	31.7%	23.0%	33.2%	24.5%	22.9%	7.6%	7.4%	6.4%	7.4%	6.3%	3.4%	5.1%	4.2%	6.2%
<b>Percentile (-10y):</b>	<b>97%</b>	<b>87%</b>	<b>93%</b>	<b>96%</b>	<b>94%</b>	<b>71%</b>	<b>76%</b>	<b>100%</b>	<b>65%</b>	<b>75%</b>	<b>76%</b>	<b>73%</b>	<b>80%</b>	<b>77%</b>
<b>Yield/vol ratio</b>	0.05	0.16	0.09	0.11	0.13	0.56	0.33	0.20	0.61	0.78	0.93	1.55	1.45	1.26

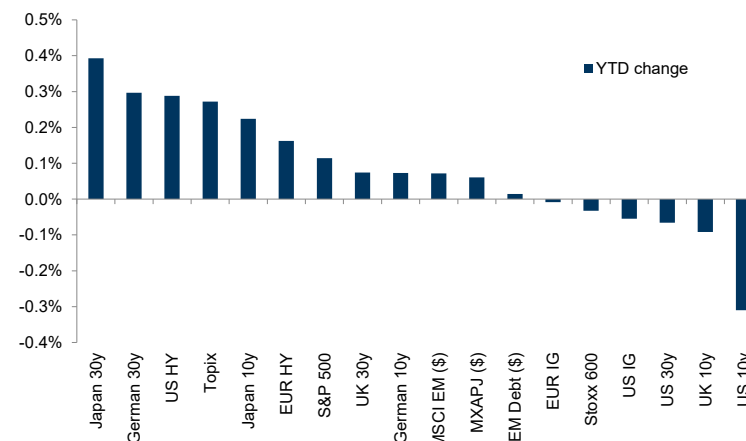
Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 30: Past week change in yields across assets



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 31: YTD change in yields across assets

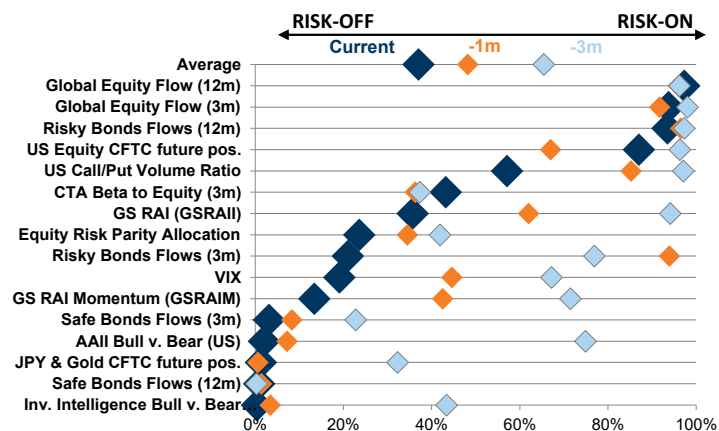


Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

# Cross-asset: Sentiment and Positioning

**Exhibit 32: Percentile of sentiment indicators**

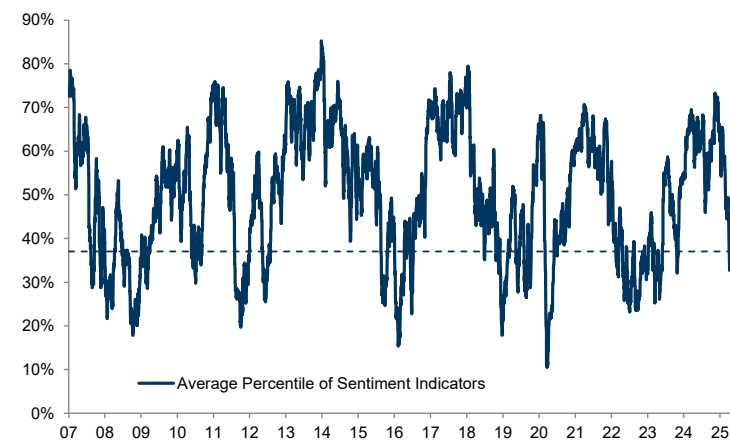
Data since 2007



Source: Datastream, Haver Analytics, EPFR, Goldman Sachs Global Investment Research

**Exhibit 33: Average percentile of sentiment indicators**

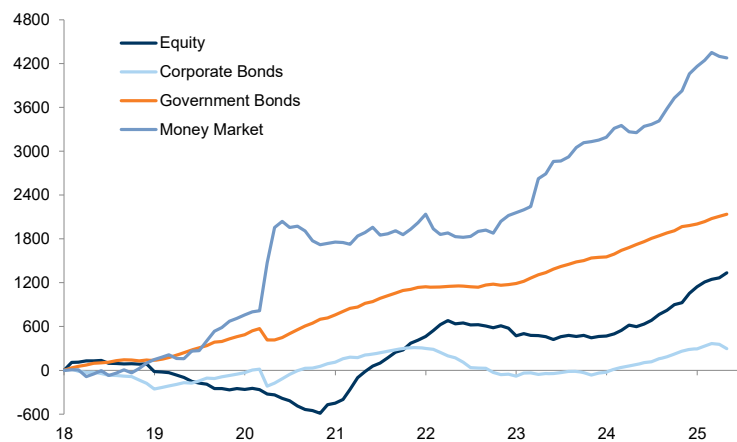
Data since 2007



Source: Datastream, Haver Analytics, EPFR, Goldman Sachs Global Investment Research

**Exhibit 34: Cumulative fund flows across assets**

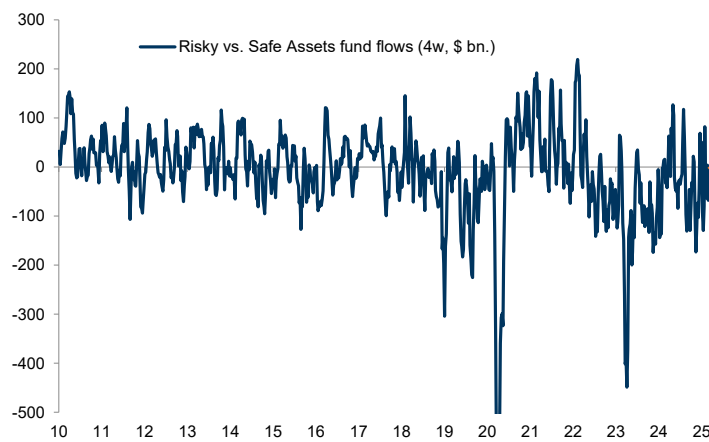
Monthly flows (\$bn). MTD sum of weekly flows when monthly not yet available



Source: Datastream, Haver Analytics, EPFR, Goldman Sachs Global Investment Research

**Exhibit 35: Risky vs. safe assets fund flows**

4 weeks rolling flows, USD bn

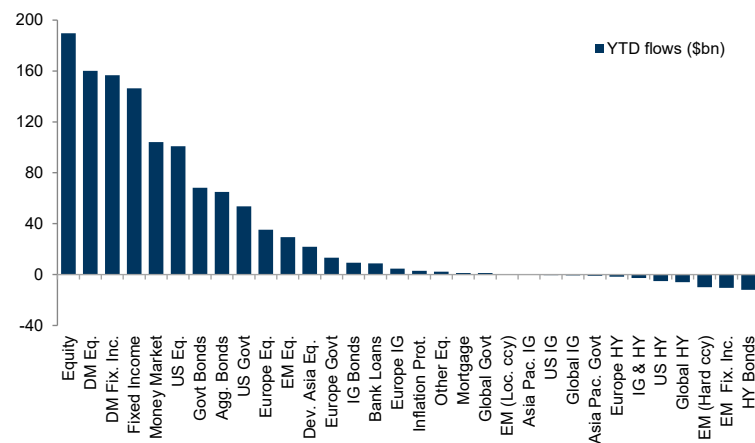


Source: Datastream, Haver Analytics, EPFR, Goldman Sachs Global Investment Research

## Cross-asset: Global Funds Flows

### Exhibit 36: YTD cross-asset global fund flows

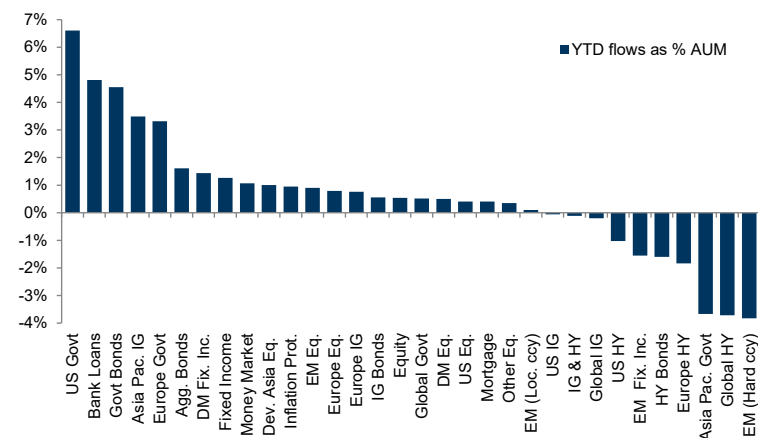
All funds reporting monthly. MTD sum of weekly flows when monthly not yet available (\$Bn)



Source: EPFR, Goldman Sachs Global Investment Research

### Exhibit 37: YTD cross-asset global fund flows

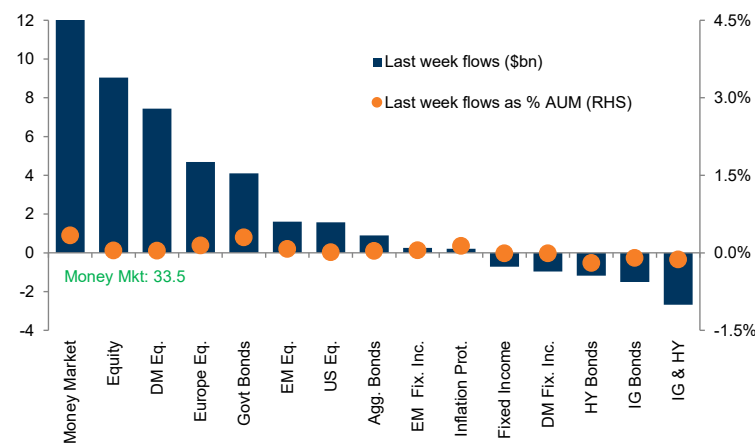
All funds reporting monthly. MTD sum of weekly flows when monthly not yet available (% of AUM)



Source: EPFR, Goldman Sachs Global Investment Research

### Exhibit 38: 1-week cross-asset global fund flows

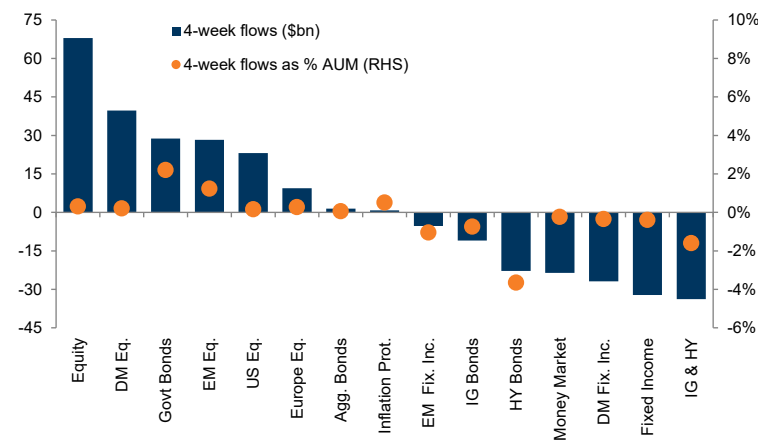
All funds reporting weekly



Source: EPFR, Goldman Sachs Global Investment Research

### Exhibit 39: 4-week cross-asset global fund flows

All funds reporting weekly

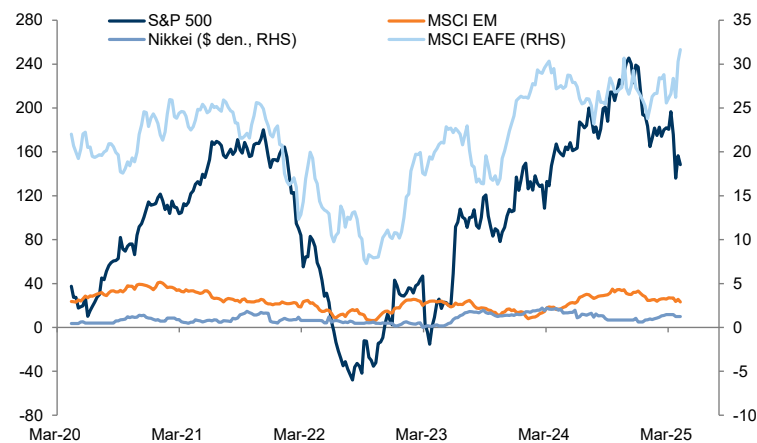


Source: EPFR, Goldman Sachs Global Investment Research

# Cross-asset: CFTC positioning

## Exhibit 40: Equity net long positioning

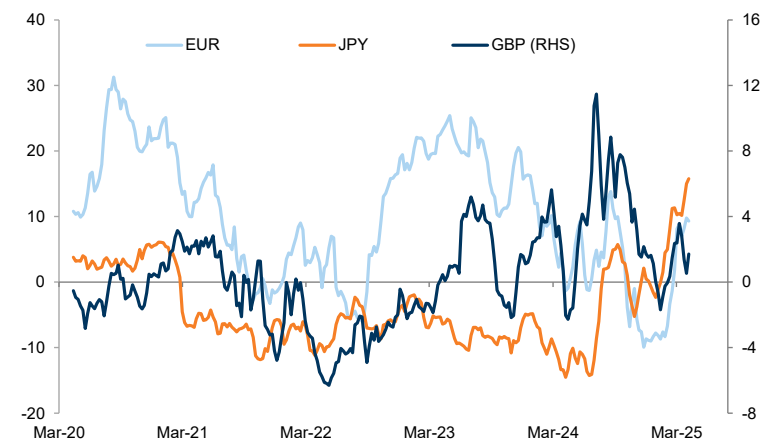
Leveraged funds and asset managers net future positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

## Exhibit 41: Currency net long positioning

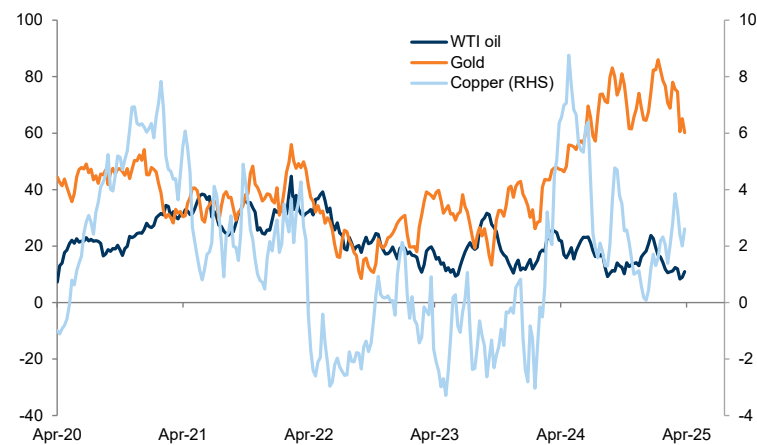
Net non-commercial positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

## Exhibit 42: Commodity net long positioning

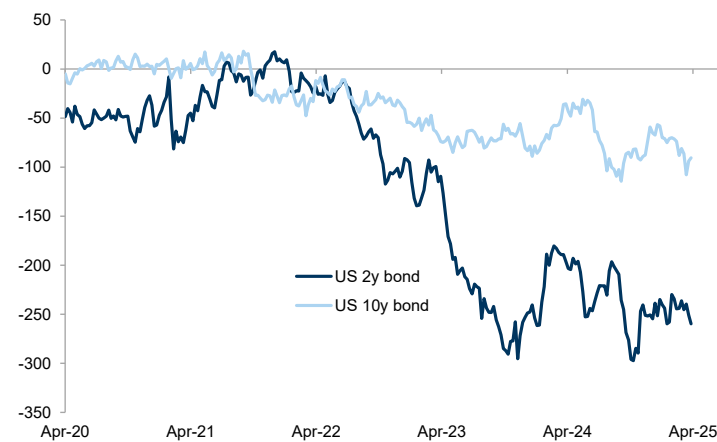
Net non-commercial positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

## Exhibit 43: US Treasury net long positioning

Net non-commercial positions (\$ bn)

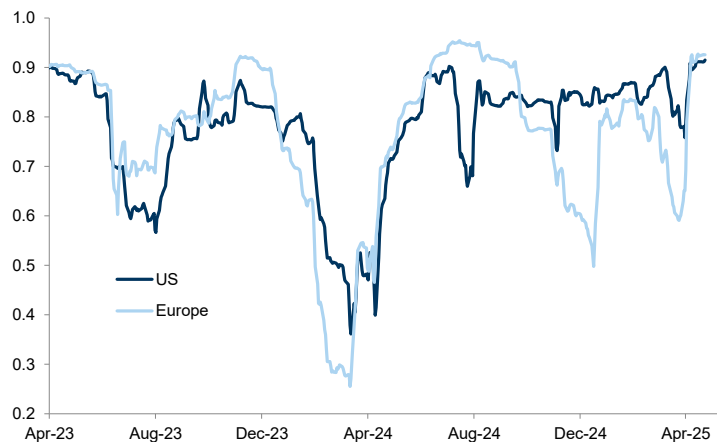


Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

# Cross-asset: Correlations: Equity vol/CDS, commodity prices/credit & FX, equity/bond, equity/FX

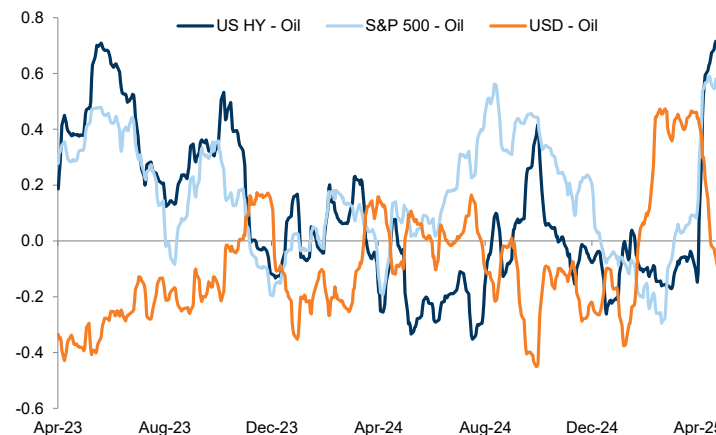
**Exhibit 44: 3m rolling equity vol/CDS correlation of weekly level changes**

CDX HY for the US, iTraxx Xover for Europe; ATM implied vol for S&P 500 and Euro Stoxx 50



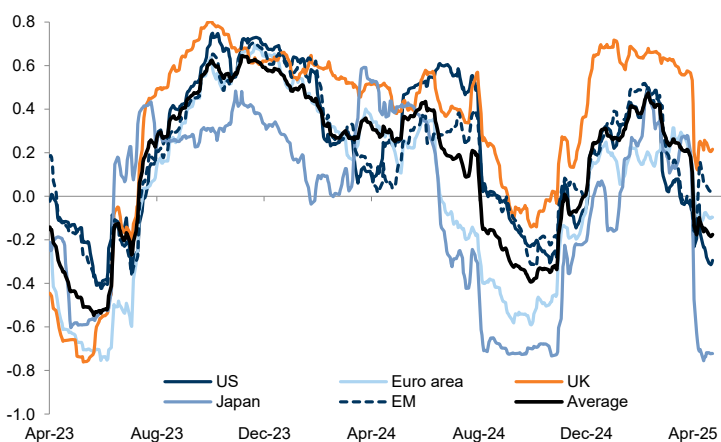
Source: Datastream, Goldman Sachs, Goldman Sachs Global Investment Research

**Exhibit 45: 3m rolling commodity price correlations of weekly % changes with different assets**



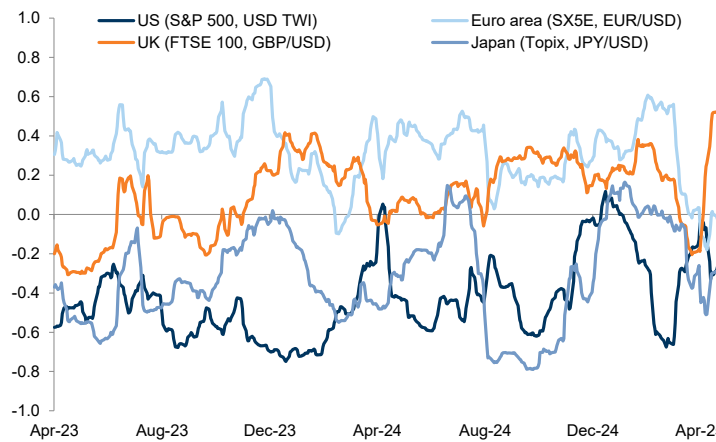
Source: Datastream, Goldman Sachs, Goldman Sachs Global Investment Research

**Exhibit 46: 3m rolling equity/bond correlation of weekly returns**



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 47: 3m rolling equity/FX correlation of weekly returns**



Source: Datastream, Goldman Sachs Global Investment Research

## Cross-asset: Correlation matrix

### Exhibit 48: Cross-asset correlation matrix

Upper half of matrix: current 1-year correlation (black shading = more/less than 0.50/-0.50); lower half of matrix: percentile since 2001 (dark grey shading indicates above 75th percentile, orange shading indicates below 25th percentile); correlations are calculated on weekly, local currency returns.

	S&P 500	STOXX 600	MXAPJ	TOPIX	MSCI EM	US 10 yr	Germany 10 yr	Japan 10 yr	UK 10 yr	EUR/USD	USD/JPY	AUD/USD	iBoxx US IG	iBoxx EUR IG	BAML US HY	BAML EUR HY	EM Credit (\$)	WTI Crude Oil	Copper	Gold	VIX
	Current 1y correlation of weekly returns																				
S&P 500		0.62	0.43	0.59	0.41	-0.16	0.01	-0.51	-0.12	0.03	0.23	0.56	0.08	0.21	0.61	0.44	0.20	0.35	0.60	0.23	-0.40
STOXX 600	0.05		0.60	0.63	0.59	-0.02	-0.15	-0.42	-0.02	-0.06	0.17	0.48	0.20	0.18	0.70	0.73	0.45	0.30	0.54	0.16	-0.49
MXAPJ	0.09	0.35		0.61	0.99	0.18	-0.10	-0.09	0.11	0.18	-0.01	0.57	0.40	0.12	0.56	0.54	0.55	0.19	0.54	0.18	-0.36
TOPIX	0.64	0.60	0.50		0.59	-0.20	-0.29	-0.47	-0.25	0.06	0.36	0.54	0.07	0.02	0.54	0.52	0.24	0.27	0.49	0.11	-0.43
MSCI EM	0.07	0.23	0.92	0.50		0.15	-0.13	-0.09	0.09	0.19	-0.01	0.56	0.36	0.09	0.53	0.50	0.52	0.18	0.55	0.21	-0.33
US 10 yr	0.69	0.86	0.86	0.68	0.84		0.65	0.54	0.88	0.02	-0.58	-0.11	0.94	0.59	0.29	0.22	0.78	-0.33	-0.16	-0.18	-0.04
Germany 10 yr	0.81	0.63	0.61	0.37	0.58	0.02		0.50	0.70	-0.25	-0.43	-0.13	0.54	0.86	0.13	0.10	0.38	-0.26	-0.21	-0.02	0.11
Japan 10 yr	0.00	0.08	0.50	0.14	0.47	0.67	0.52		0.57	-0.07	-0.32	-0.42	0.38	0.23	-0.24	-0.13	0.26	-0.29	-0.53	-0.18	0.38
UK 10 yr	0.68	0.85	0.88	0.53	0.86	0.94	0.01	0.72		-0.05	-0.50	-0.11	0.80	0.64	0.23	0.22	0.70	-0.31	-0.24	-0.04	0.05
EUR/USD	0.29	0.39	0.26	0.51	0.27	0.26	0.22	0.25	0.33		-0.45	0.50	0.04	-0.28	-0.05	-0.27	-0.03	-0.33	0.33	0.31	0.32
USD/JPY	0.58	0.41	0.47	0.50	0.48	0.35	0.47	0.41	0.33	0.42		-0.12	-0.48	-0.31	-0.03	0.17	-0.30	0.56	0.03	-0.09	-0.27
AUD/USD	0.71	0.67	0.31	0.83	0.38	0.38	0.42	0.02	0.43	0.34	0.66		0.08	0.03	0.47	0.20	0.19	0.20	0.67	0.49	-0.14
iBoxx US IG	0.67	0.83	0.85	0.73	0.82	0.78	0.18	0.40	0.89	0.21	0.38	0.36		0.60	0.53	0.43	0.91	-0.21	0.01	-0.16	-0.19
iBoxx EUR IG	0.72	0.54	0.36	0.39	0.36	0.51	0.62	0.32	0.46	0.09	0.37	0.29	0.27		0.46	0.49	0.55	-0.16	-0.04	-0.02	-0.10
BAML US HY	0.59	0.80	0.43	0.75	0.35	0.74	0.65	0.08	0.77	0.15	0.41	0.56	0.73	0.65		0.79	0.72	0.22	0.34	-0.01	-0.47
BAML EUR HY	0.36	0.91	0.37	0.53	0.35	0.84	0.68	0.35	0.86	0.04	0.57	0.16	0.77	0.52	0.43		0.63	0.14	0.23	-0.11	-0.49
EM Credit (\$)	0.09	0.50	0.49	0.42	0.35	0.93	0.67	0.62	0.95	0.04	0.27	0.06	0.97	0.59	0.73	0.63		0.01	0.14	-0.05	-0.31
WTI Crude Oil	0.70	0.65	0.38	0.71	0.29	0.22	0.30	0.06	0.20	0.00	1.00	0.44	0.22	0.15	0.53	0.51	0.20		0.29	0.28	-0.24
Copper	0.88	0.87	0.67	0.94	0.68	0.49	0.41	0.00	0.28	0.57	0.53	0.91	0.58	0.41	0.68	0.46	0.30	0.51		0.54	-0.21
Gold	0.82	0.73	0.40	0.78	0.39	0.03	0.21	0.01	0.15	0.21	0.85	0.62	0.06	0.26	0.21	0.21	0.05	0.64	0.90		0.19
VIX	0.53	0.09	0.36	0.34	0.45	0.15	0.46	0.95	0.32	0.99	0.30	0.60	0.17	0.45	0.13	0.16	0.25	0.25	0.50	0.83	
	Current correlation's percentile since 2001																				

Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

## Cross-asset: Implied and realised vol, call and put skew

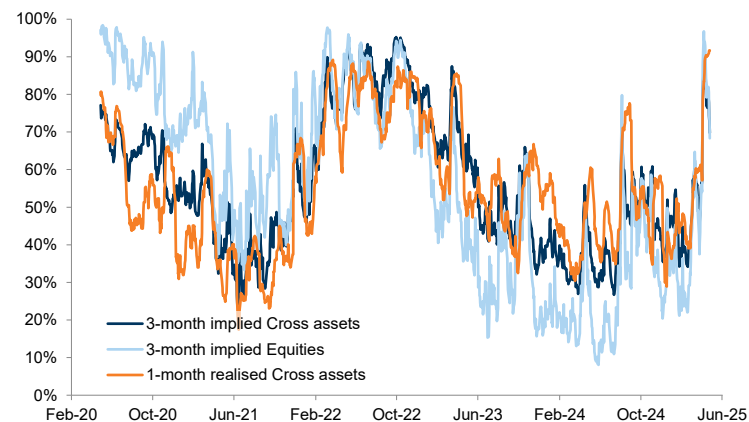
Exhibit 49: Cross-asset volatility, current and historical percentiles, implied 3m and realised 1m

	Equities						Rates				Credit			Commodities			Currencies		
	S&P 500	EURO STOXX 50	Nikkei 225	FTSE 100	MSCI EM	MSCI EAFE	USD 2-year	USD 10-year	EUR 2-year	EUR 10-year	CDX IG	CDX HY	iTraxx Europe	WTI	Gold	Copper	EUR/USD	JPY/USD	GBP/USD
<b>Implied (3-month ATM, %)</b>																			
<b>Current:</b>	20.4	18.5	23.3	14.0	18.4	17.2	7.6	6.6	4.6	4.5	50.6	47.9	53.9	36.3	18.3	22.1	9.0	11.5	8.4
<b>Percentile:</b>	<b>82%</b>	<b>63%</b>	<b>89%</b>	<b>57%</b>	<b>48%</b>	<b>73%</b>	<b>79%</b>	<b>78%</b>	<b>71%</b>	<b>71%</b>	<b>65%</b>	<b>70%</b>	<b>61%</b>	<b>60%</b>	<b>91%</b>	<b>56%</b>	<b>78%</b>	<b>82%</b>	<b>53%</b>
<b>1M change:</b>	4.9	2.7	4.7	3.4	2.8	2.2	1.3	0.5	0.2	-0.3	6.5	3.7	9.7	9.0	4.1	2.6	2.0	1.6	1.3
<b>Average:</b>	16.0	17.7	18.9	14.6	19.5	15.5	4.7	5.3	3.0	4.0	49.2	43.8	52.3	36.2	14.2	22.1	7.6	8.9	8.9
<b>95th:</b>	25.4	26.1	25.9	22.6	26.7	22.6	9.7	7.9	8.5	7.7	69.7	65.7	70.3	54.2	19.6	29.7	11.0	12.7	13.0
<b>5th:</b>	10.0	12.2	13.8	10.1	14.7	10.4	1.3	3.5	0.9	2.2	37.8	30.4	38.6	23.7	9.7	16.0	5.1	5.6	6.4
<b>Realised (%)</b>																			
<b>1-month:</b>	50.2	38.5	57.4	32.8	36.1	41.7	9.7	8.5	3.5	2.9	91.0	81.6	77.2	50.7	32.2	35.3	13.4	15.3	11.1
<b>Percentile:</b>	<b>99%</b>	<b>97%</b>	<b>99%</b>	<b>98%</b>	<b>99%</b>	<b>99%</b>	<b>95%</b>	<b>94%</b>	<b>72%</b>	<b>43%</b>	<b>98%</b>	<b>98%</b>	<b>95%</b>	<b>86%</b>	<b>99%</b>	<b>97%</b>	<b>95%</b>	<b>95%</b>	<b>85%</b>
<b>Average:</b>	15.4	17.2	19.3	14.1	15.0	13.4	4.4	5.1	2.3	3.7	39.9	33.6	41.8	39.3	13.7	20.2	7.7	8.7	9.0

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

Exhibit 50: 10y percentile for cross-asset average volatility

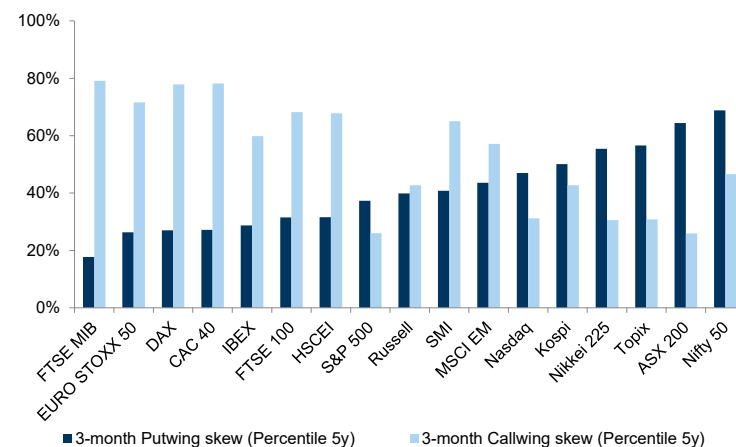
Using 16 assets across equity, government bonds, credit, commodities and FX



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

Exhibit 51: Putwing and Callwing normalised skew 5y percentile

Normalised skew = (impl. vol 25 delta put/call minus implied vol 50 delta call)/50 delta call

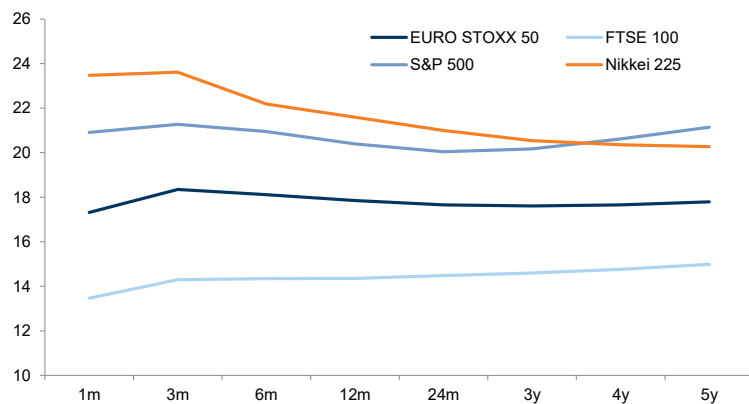


Source: Goldman Sachs FICC and Equities, Goldman Sachs Global Investment Research



## Cross-asset: Volatility, skew, CDS with equity vol, rate vol

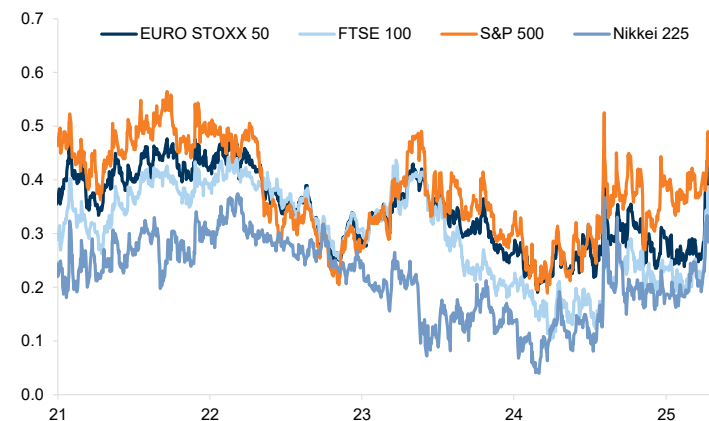
**Exhibit 52: ATM implied volatility term structure for equity indices**



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

**Exhibit 53: Normalised implied volatility skew across regions**

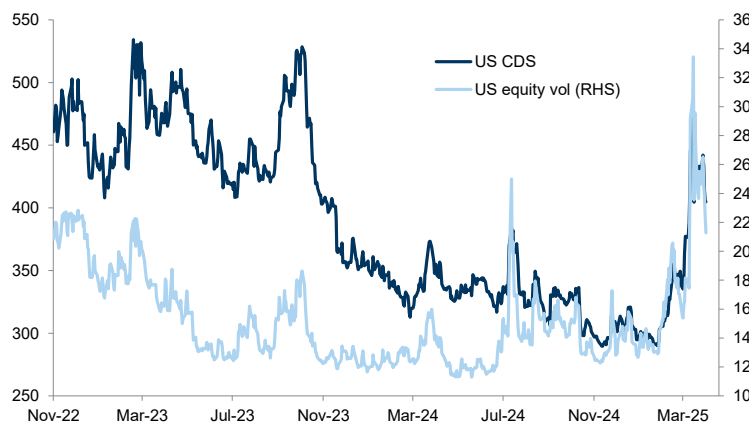
3m 25 delta put vol minus 25 delta call vol scaled by ATM implied vol



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

**Exhibit 54: CDS and equity vol levels in the US**

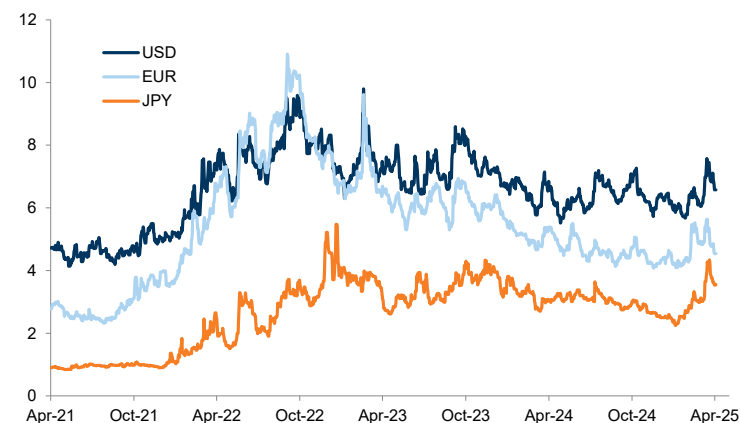
CDX HY, 3m ATM S&P 500 implied vol



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

**Exhibit 55: 3m ATM implied rate volatility across regions**

3-month implied volatility of 10-year rates (bp/day)

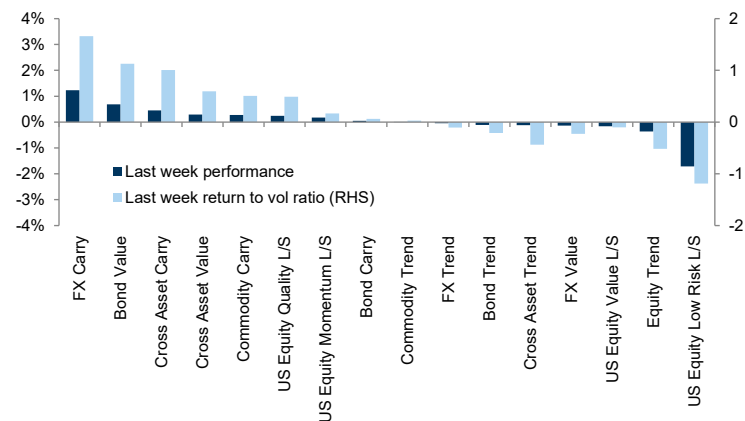


Source: Goldman Sachs FICC and Equities, Goldman Sachs Global Investment Research

## Cross-asset: Alternatives and liquid risk premia

### Exhibit 56: Last week performance of liquid risk premia

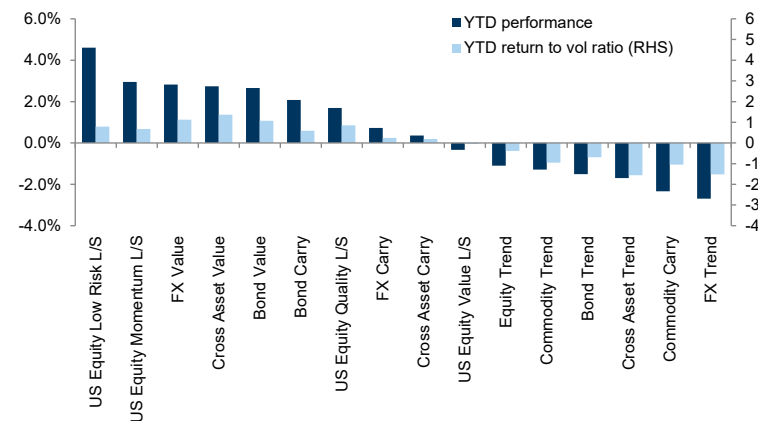
Bloomberg GSAM indices. 12M volatility



Source: Bloomberg, Goldman Sachs Global Investment Research

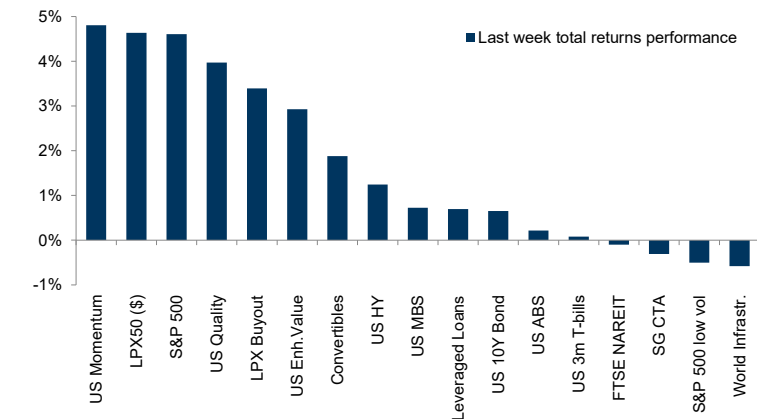
### Exhibit 57: YTD performance of liquid risk premia

Bloomberg GSAM indices. 12M volatility



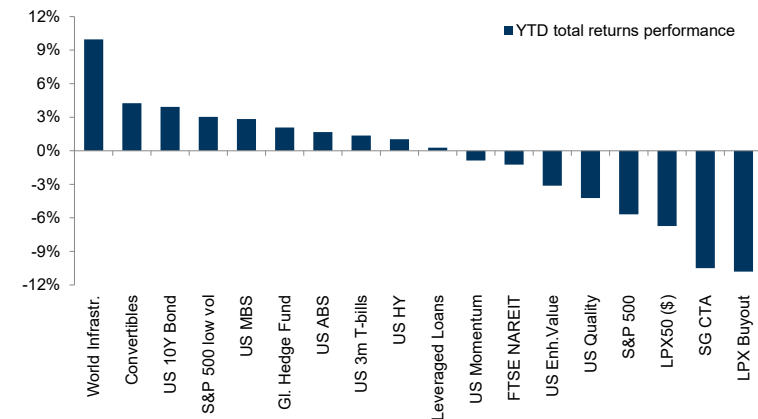
Source: Bloomberg, Goldman Sachs Global Investment Research

### Exhibit 58: Last week performance of alternative assets or strategies



Source: Bloomberg, Datastream, Goldman Sachs Global Investment Research

### Exhibit 59: YTD performance of alternative assets or strategies

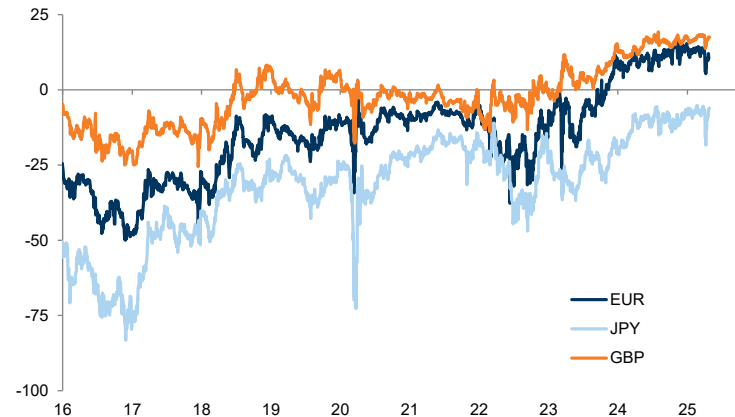


Source: Bloomberg, Datastream, Goldman Sachs Global Investment Research

## Cross-asset: Liquidity indicators

**Exhibit 60: 1-year cross-currency basis**

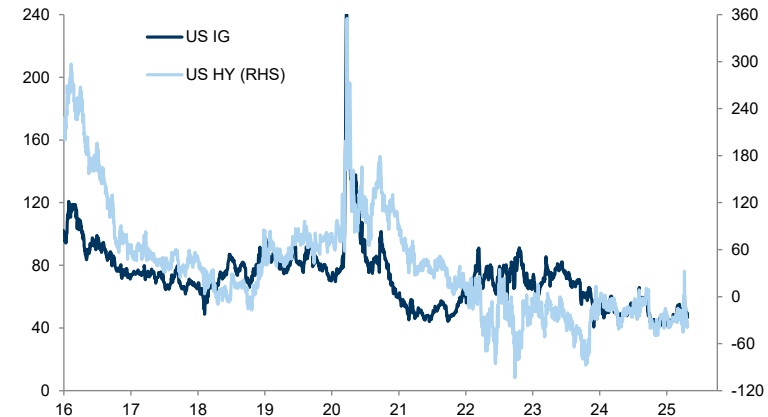
Basis points



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

**Exhibit 61: Cash credit versus CDS spread**

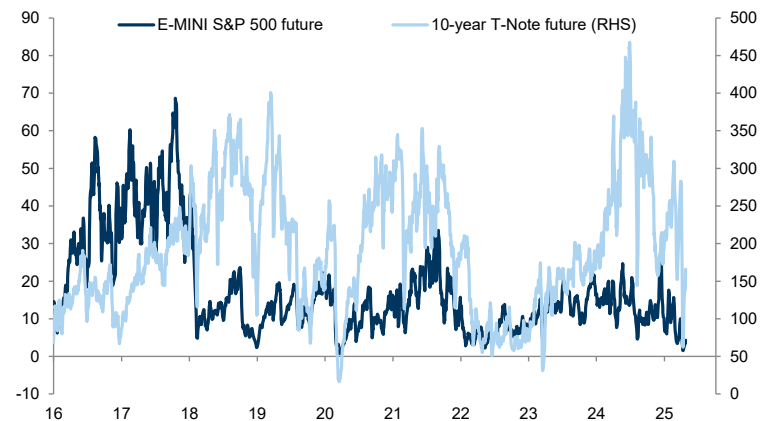
Basis points



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

**Exhibit 62: Top-of-book depth**

5-day average, \$ mln

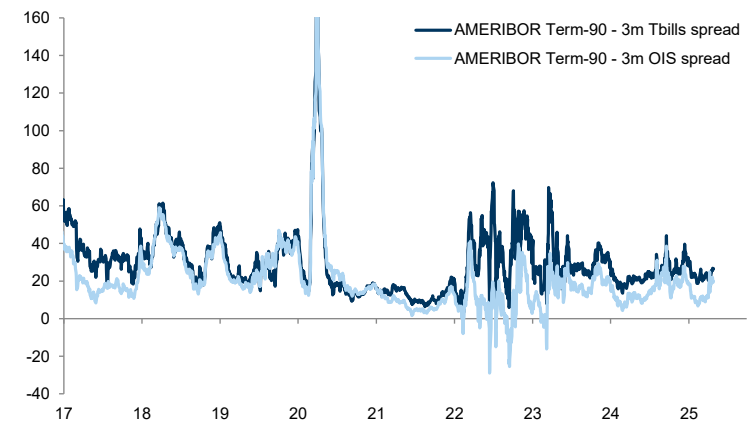


E-MINI S&P 500 = 5d avg. # of contracts \* S&P 500 price \* \$50. 10-year T-note = 5d avg. # of contracts \* \$100,000

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

**Exhibit 63: US financial institutions wholesale funding cost**

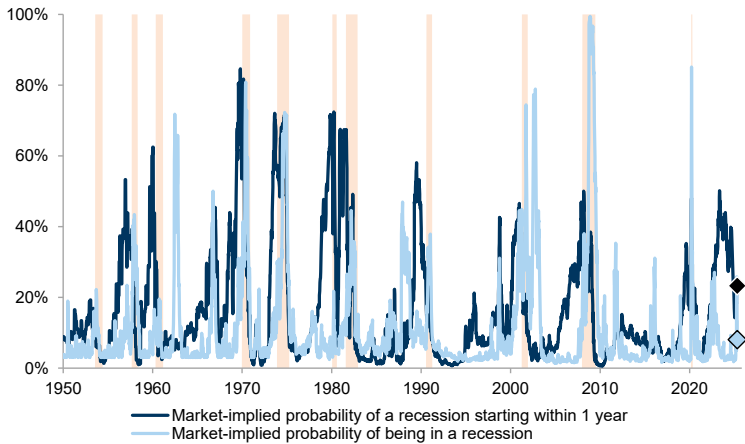
Basis points



Source: Bloomberg, Goldman Sachs Global Investment Research

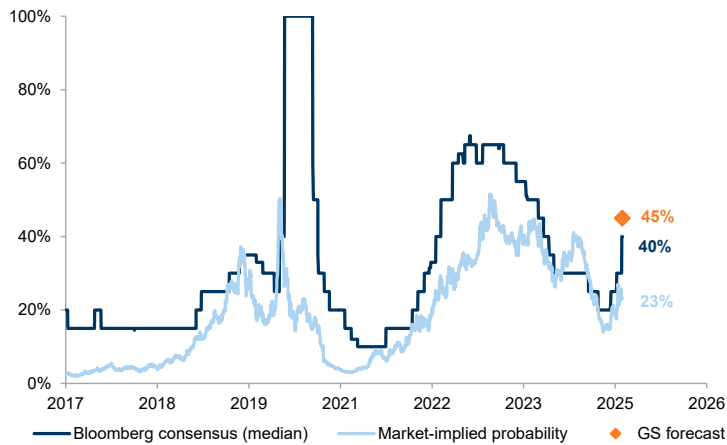
# Cross-asset: Market pricing of US recession risk

**Exhibit 64: Market-implied US recession probability**  
Average of univariate logit models on the right. Orange shade: NBER recession



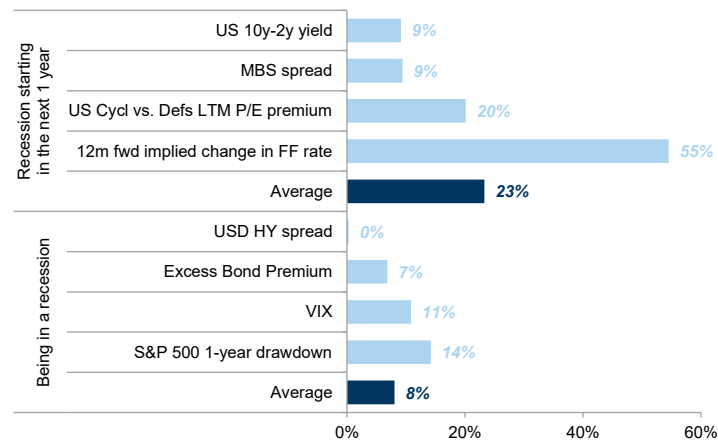
Source: Haver Analytics, Datastream, Worldscope, Goldman Sachs Global Investment Research

**Exhibit 66: Probability of a US recession in the next 1 year**



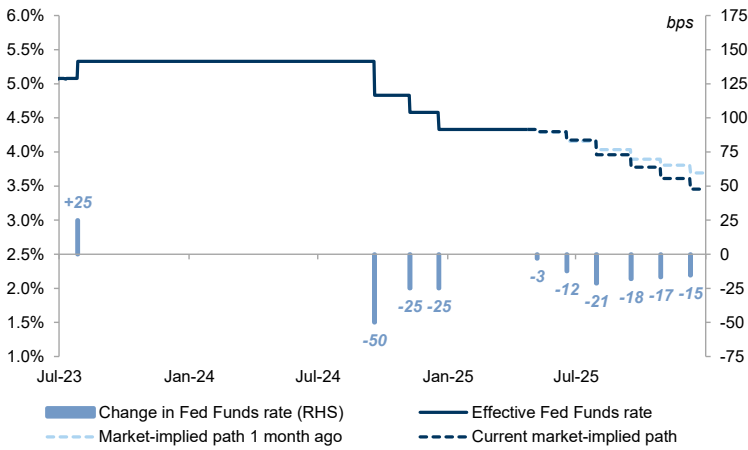
Source: Haver Analytics, Datastream, Worldscope, Bloomberg, Goldman Sachs Global Investment Research

**Exhibit 65: Market-implied US recession probability by indicator**  
Univariate logit models. Maximum history since 1950



Source: Haver Analytics, Datastream, Worldscope, Goldman Sachs Global Investment Research

**Exhibit 67: Market-implied path of the Fed Funds rate**  
Based on 30-day Fed Funds futures

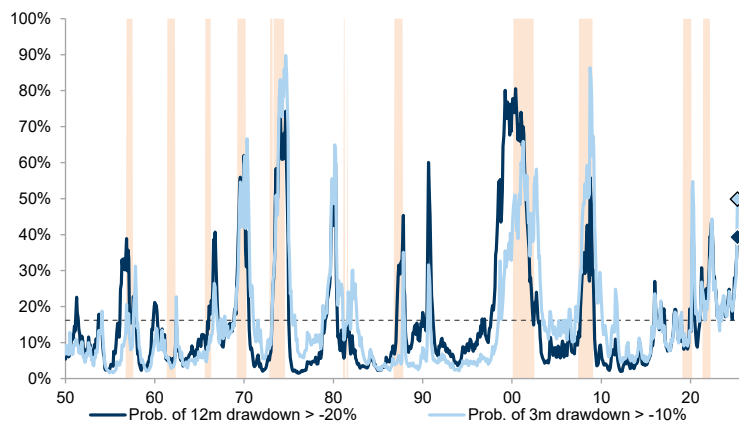


Source: Haver Analytics, Goldman Sachs Global Investment Research

## Equity: Drawdown probability

### Exhibit 68: Implied probability of S&P 500 drawdown based on multi-variate logit model

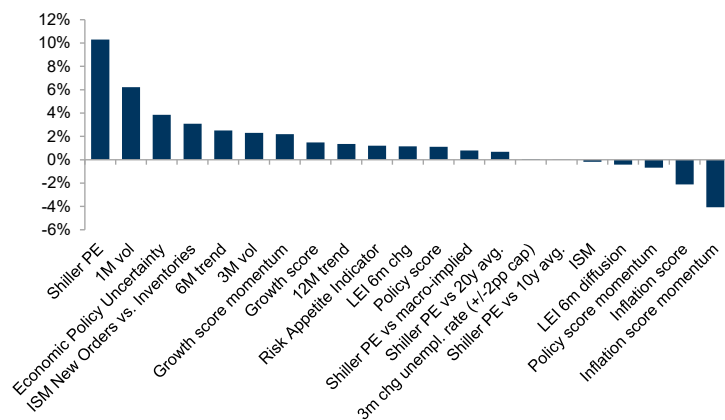
Orange/light grey shading = S&P 500 subsequent drawdown >20%/>10%. Dashed line = unconditional probability



Source: Haver Analytics, Datastream, Goldman Sachs Global Investment Research

### Exhibit 70: Contribution to the current probability of a drawdown >20% in 12m

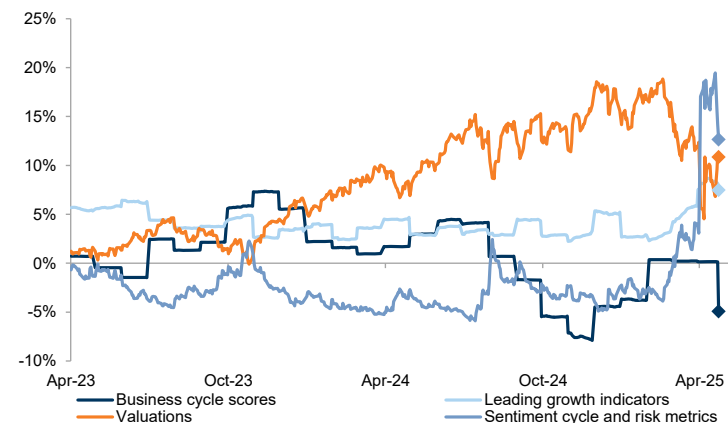
Based on Shapley values



Source: Haver Analytics, Datastream, Goldman Sachs Global Investment Research

### Exhibit 69: Contribution to the probability of a drawdown >20% in 12m

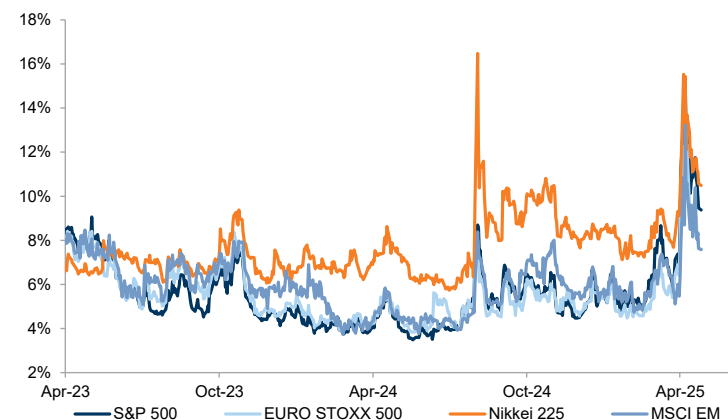
Based on Shapley values. Inputs aggregated by type



Source: Haver Analytics, Datastream, Goldman Sachs Global Investment Research

### Exhibit 71: Option-implied probability of a 6-month sell-off > 20%

Return vs. forward

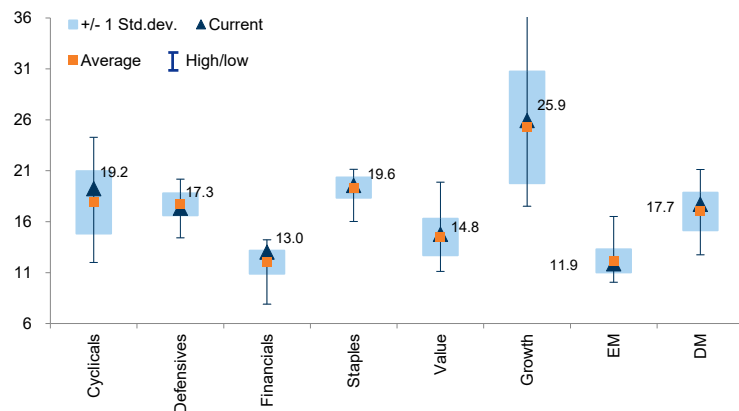


Source: Goldman Sachs FICC and Equities, Goldman Sachs Global Investment Research

## Equity: Valuation and styles

### Exhibit 72: Valuation ranges of MSCI World styles indices

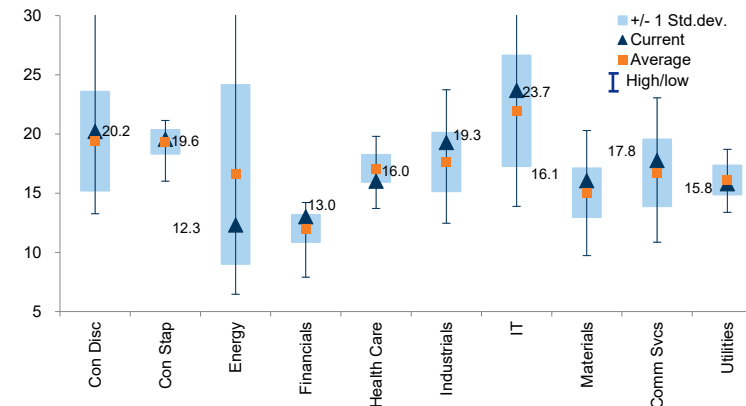
12-month forward P/E's relative to the last 10 years



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

### Exhibit 73: MSCI World sector valuations

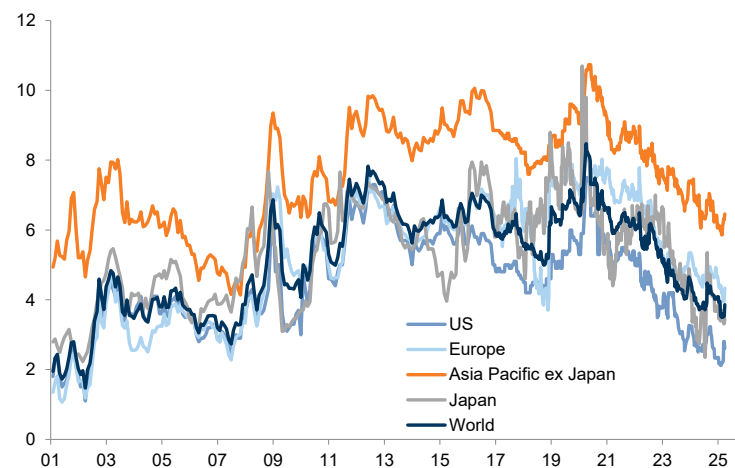
12-month forward P/E's relative to the last 10 years



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

### Exhibit 74: Global market implied ERPs (%)

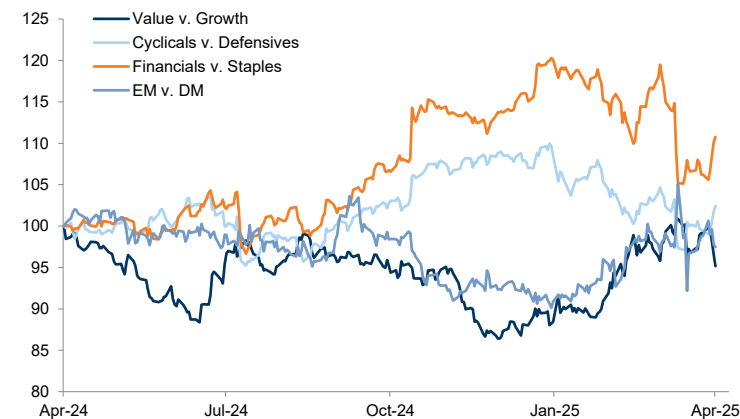
Implied ERPs are calculated by each regional strategy team. While specific assumptions differ between regions, all are calculated using similar frameworks



Source: Datastream, Goldman Sachs Global Investment Research

### Exhibit 75: MSCI World style index performance

Performance indexed to 100 12m ago

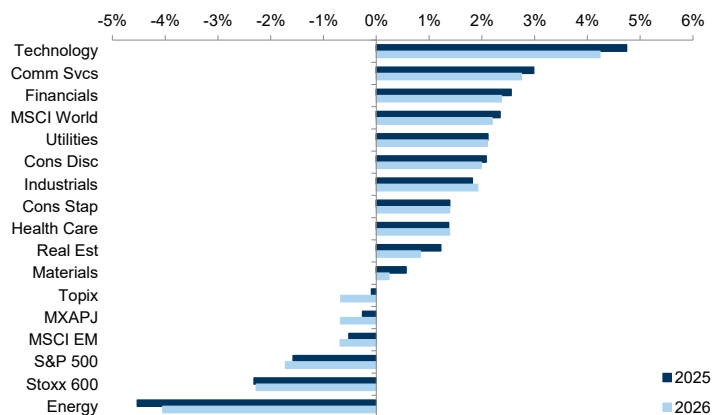


Source: Datastream, Goldman Sachs Global Investment Research

# Equity: Earnings

## Exhibit 76: 1-month revision to I/B/E/S consensus earnings

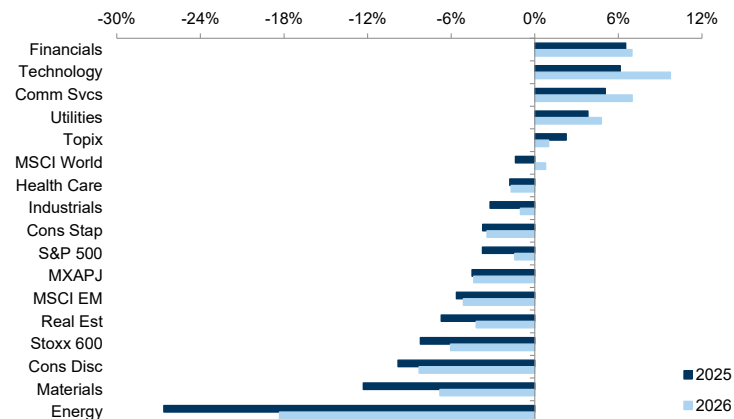
MSCI World sectors, other global equity index aggregates. TOPIX: FY 2025/2026



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

## Exhibit 77: 12-month revision to I/B/E/S consensus earnings

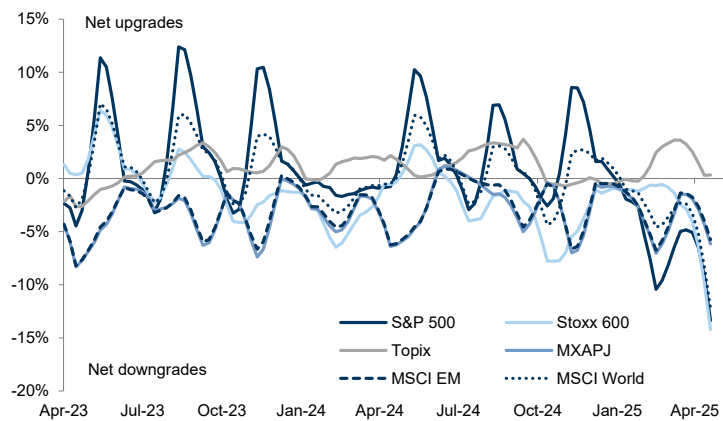
MSCI World sectors, other global equity index aggregates. TOPIX: FY 2025/2026



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

## Exhibit 78: Earnings sentiment: Analyst upgrades minus downgrades (scaled by total analysts) across markets

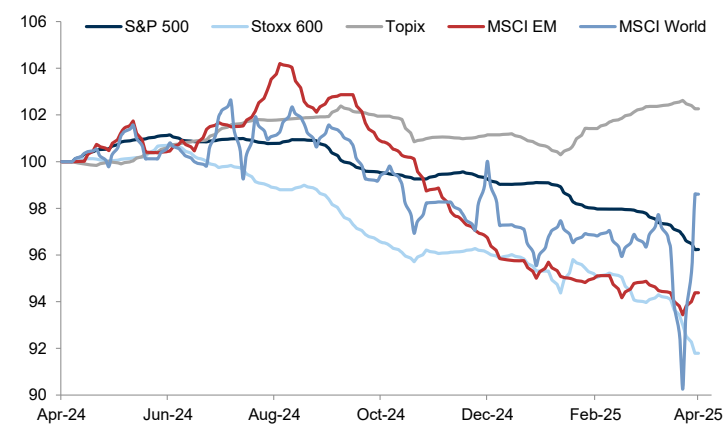
1-month moving average of net monthly upgrades



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

## Exhibit 79: 2025 consensus earnings expectations over the past 12 months

Earnings indexed to 100 12 months ago. TOPIX: FY 2025

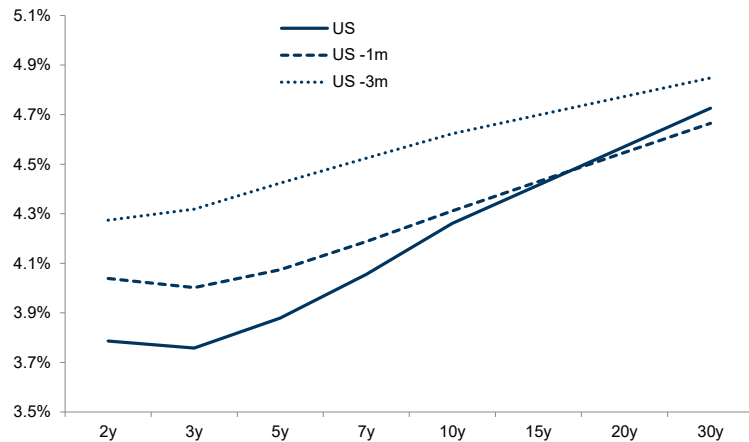


Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

# Government bonds: Yield curves

## Exhibit 80: US yield curve dynamics

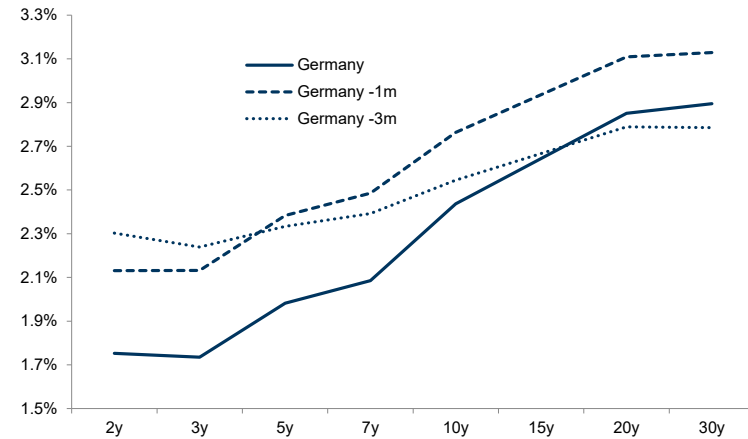
Current relative to 1 month and 3 months ago



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 81: German yield curve dynamics

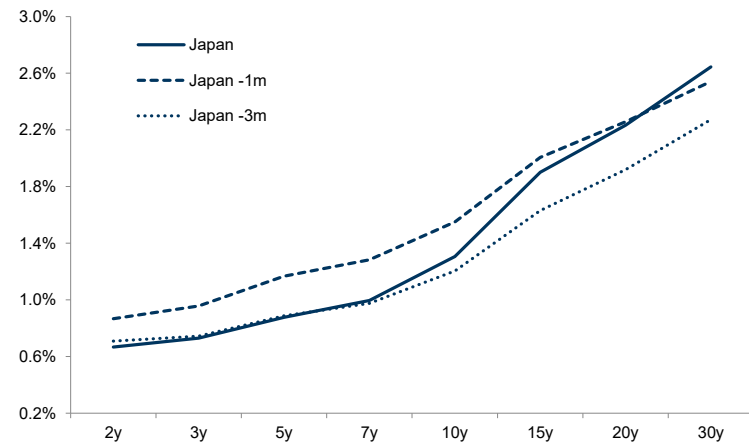
Current relative to 1 month and 3 months ago



Source: Datastream, Goldman Sachs Global Investment Research

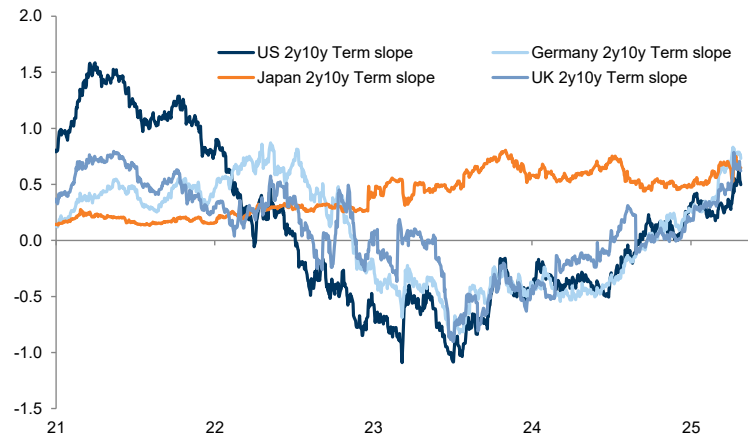
## Exhibit 82: Japan yield curve dynamics

Current relative to 1 month and 3 months ago



Source: Datastream, Goldman Sachs Global Investment Research

## Exhibit 83: Yield curve term slope across regions



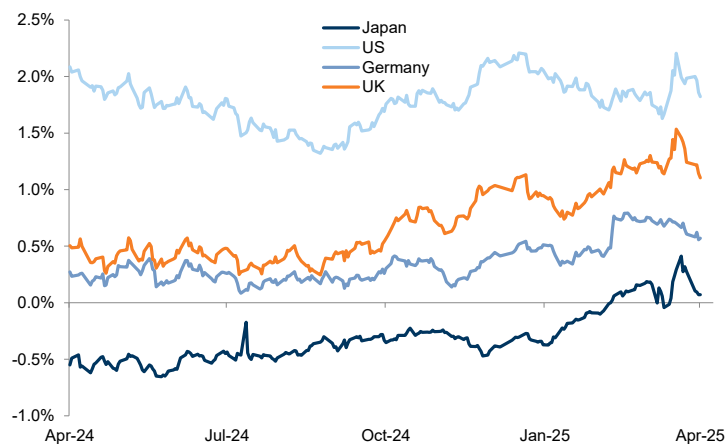
Source: Datastream, Goldman Sachs Global Investment Research



# Government bonds: Real yields, inflation, breakevens, 10y IR differentials

## Exhibit 84: 10y real yields across regions

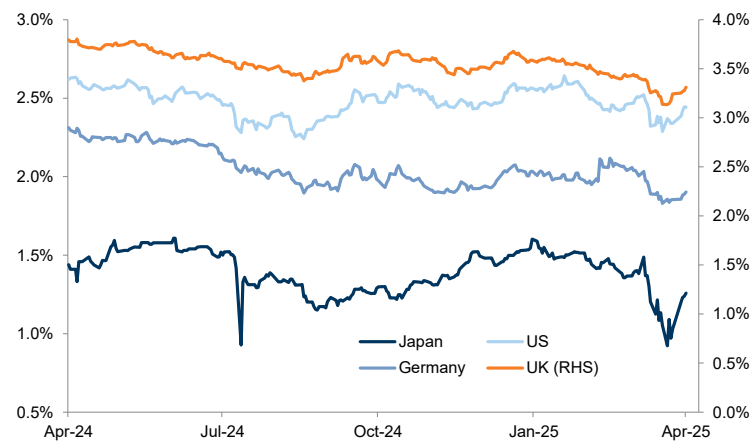
Nominal bond yield minus CPI inflation swap (RPI for the UK)



Source: Goldman Sachs, Goldman Sachs Global Investment Research

## Exhibit 85: 10y inflation swaps across regions

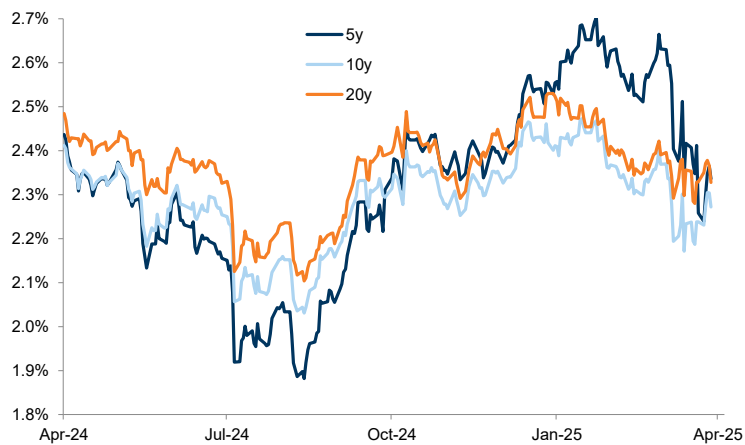
CPI inflation swap (RPI for the UK)



Source: Goldman Sachs, Goldman Sachs Global Investment Research

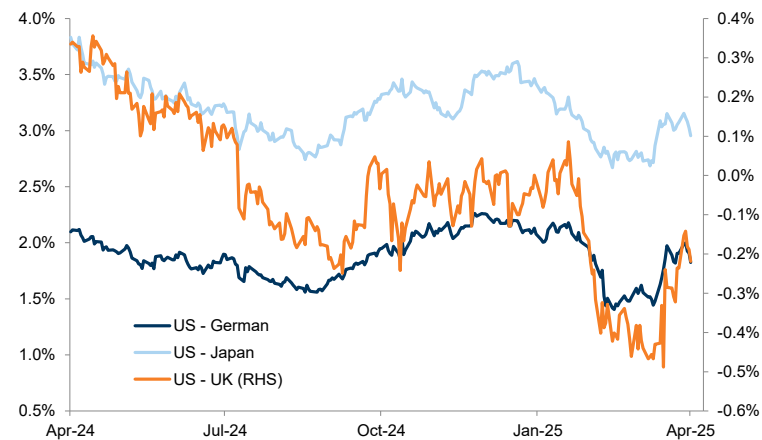
## Exhibit 86: US breakeven inflation

Nominal yield minus TIPS yield



Source: Bloomberg, Goldman Sachs Global Investment Research

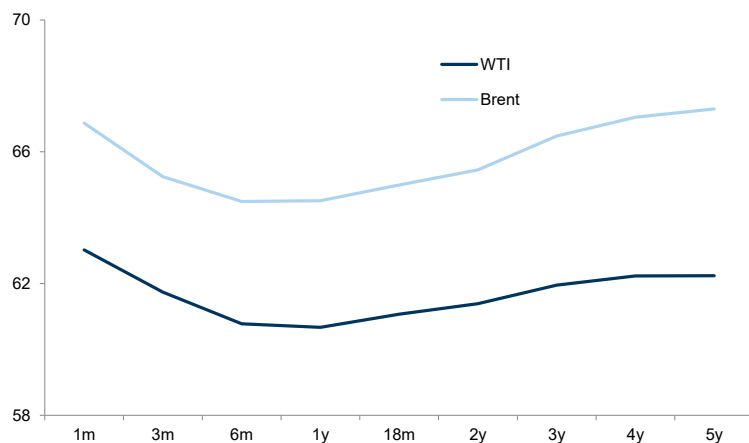
## Exhibit 87: 10y nominal bond yield differentials



Source: Datastream, Goldman Sachs Global Investment Research

## Commodities: Curve shapes and roll yields

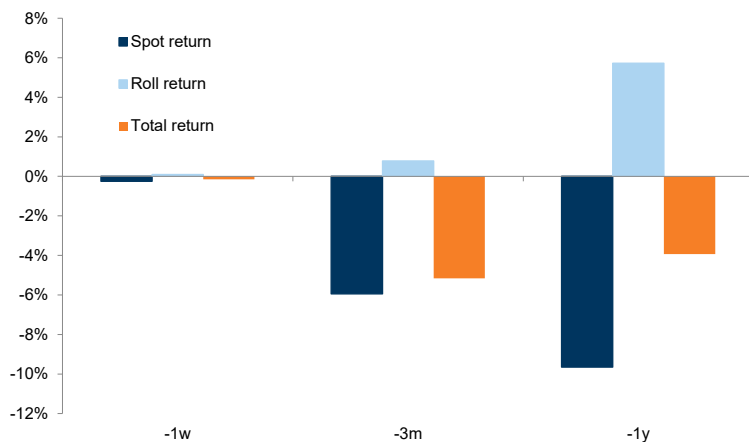
**Exhibit 88: WTI and Brent oil forward curves**



Source: Goldman Sachs, Goldman Sachs Global Investment Research

**Exhibit 90: GSCI® Enhanced spot, roll and total returns**

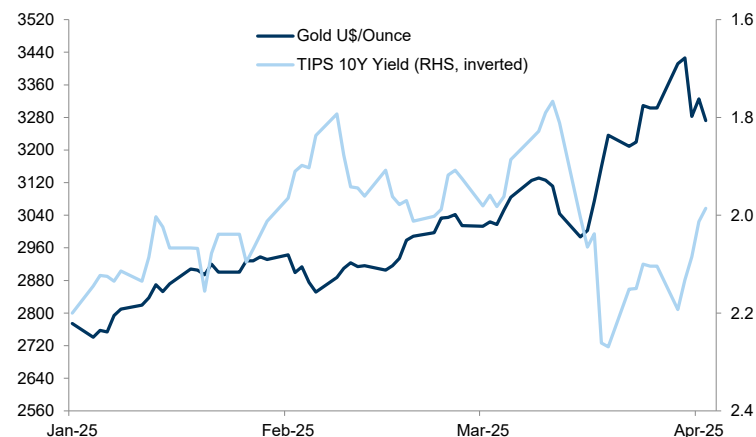
Returns over the past 1 week, 3 months and 1 year



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 89: Gold price and US real yields**

US 10-year TIPS yield, Gold US\$/ounce



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 91: Recent performance of GSCI® Enhanced sectors**

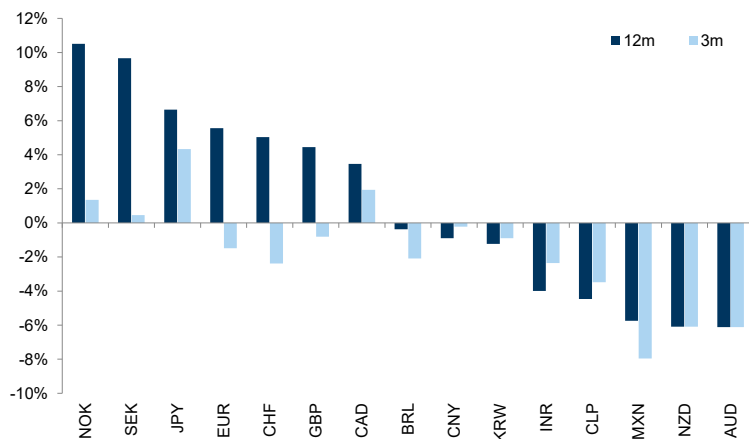
Weight signifies contribution to the GSCI® Enhanced index

	Current Weight (%)	Returns (%)		
		-1w	-1m	-1y
<b>S&amp;P GSCI</b>	<b>100.0</b>	<b>-0.2</b>	<b>-4.1</b>	<b>-4.2</b>
Energy	49.6	-1.7	-9.3	-13.1
Industrial Metals	11.8	2.3	-5.0	-7.0
Precious Metals	8.7	-0.6	6.0	37.4
Agriculture	18.3	1.3	3.8	0.5
Livestock	11.6	2.2	2.5	18.3

Source: Goldman Sachs, Goldman Sachs Global Investment Research

## FX: Forecasts and forwards, recent performance and positioning

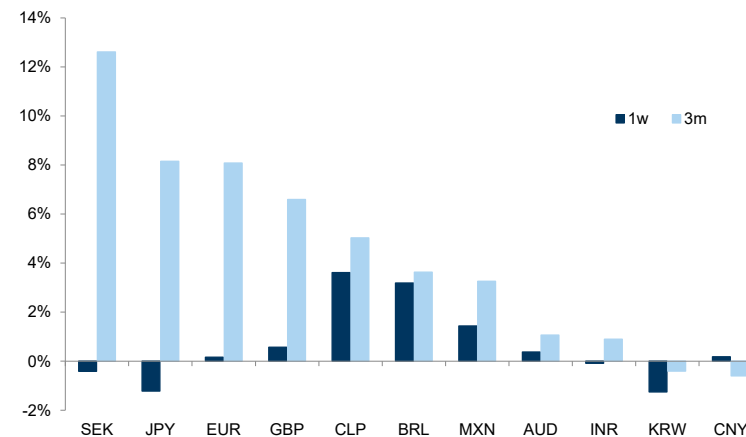
**Exhibit 92: Our 3- and 12-month forecasts for dollar crosses**



Source: Datastream, Goldman Sachs Global Investment Research

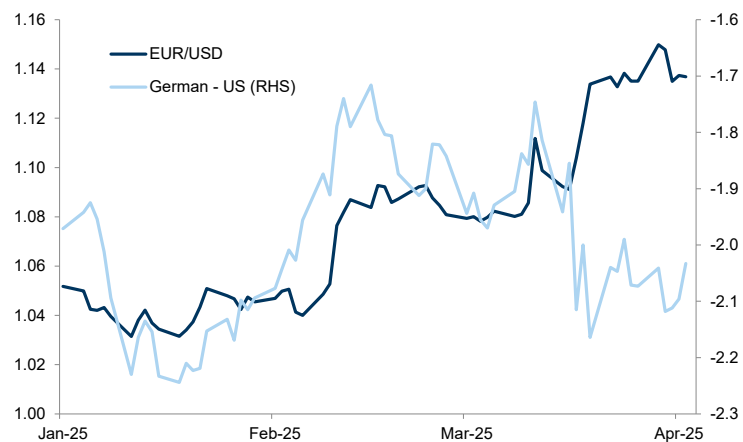
**Exhibit 93: Recent performance of dollar crosses**

Percentage change over past 1 week, 3 months



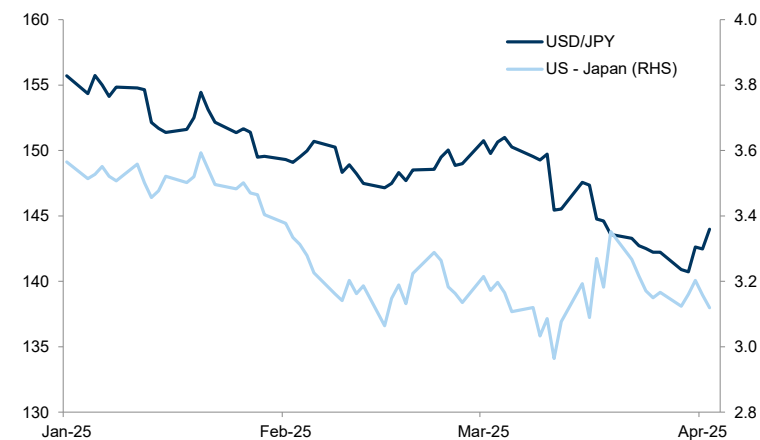
Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 94: EUR/USD against German - US 2y interest rate differentials past 3m**



Source: Datastream, Goldman Sachs Global Investment Research

**Exhibit 95: USD/JPY against US - Japan 2y interest rate differentials past 3m**



Source: Datastream, Goldman Sachs Global Investment Research

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