

GOAL Kickstart

A risky 'risk-on' turn: markets might be too early in fading recession risks

Last week, macro data came in on the softer side: US consumer confidence fell to the lowest level since Feb 2021, US Q2 real GDP was weaker than expected and China manuf. data sharply decelerated. At the same time EU and US core inflation has continued to accelerate. Our economists have downgraded their European outlook to account for a mild recession in 2H due to weak data and renewed political uncertainty.

Despite that, performance across assets has been risk-on, especially post the Fed meeting which opened to the possibility of a slower hiking pace from here: most assets, including pro-cyclical expressions, have performed well since the FOMC while the Dollar has weakened (Exhibit 1). The VIX has also continued to reset towards the low 20s.

We think risky assets have been supported by the comeback of a friendly 'real regime' with real rates resetting materially lower - US 10-year real rates are almost back to zero - and breakevens moving higher (Exhibit 2). This environment tends to be the best for risky assets performance and has favored some long-duration equities - the beta of equities to US 10-year yields has turned positive,

especially for growth indices (Exhibit 3).

But looking at the re-pricing of cyclical assets in the US and EU, we think the market might have been too complacent too soon in fading recession risks on expectations of a more accommodative monetary policy stance. US cyclical equities have retraced almost 50% vs. defensives since their trough in early July (Exhibit 4). The S&P 500 has also outperformed more materially vs. bonds. European growth pricing seems slightly more conservative in equities and in credit, but even there our equities strategists do not think a recession is fully priced in.

We think markets will be vulnerable to hawkish surprises - if inflation continues to struggle to re-set - and growth surprises - if the slowdown in activity results in a more prolonged/deeper downturn. Our strategists think that from here sharp moves higher in US yields will likely have to rely on an improvement in growth sentiment. Against concerns of a continuation of the slowdown, they have downgraded their EUR/USD forecasts, and revised their Bund forecasts lower to 1.5% at year-end. We continue to like collars (sell calls to buy puts) to protect equity exposure.

Cecilia Mariotti
+44(20)7552-0450 |
cecilia.mariotti@gs.com
Goldman Sachs International

Christian Mueller-Glissmann, CFA
+44(20)7774-1714 | christian.mueller-glissmann@gs.com
Goldman Sachs International

Andrea Ferrario
+44(20)7552-4353 |
andrea.ferrario@gs.com
Goldman Sachs International

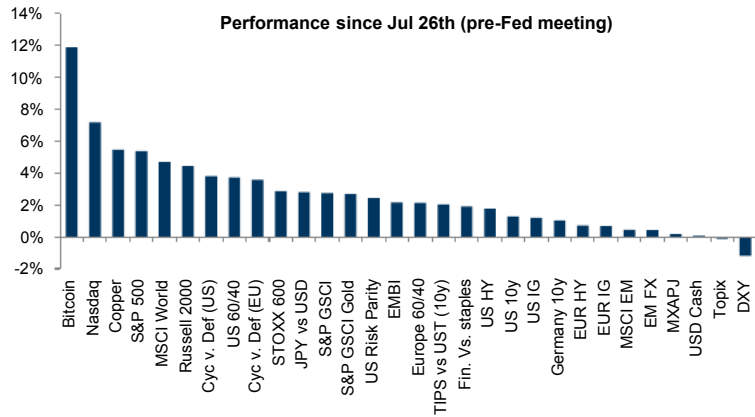
Peter Oppenheimer
+44(20)7552-5782 |
peter.oppenheimer@gs.com
Goldman Sachs International

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A risky 'risk-on' turn: markets might be too early in fading recession risks

Exhibit 1: Cross-asset performance has been risk-on post the Fed meeting



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

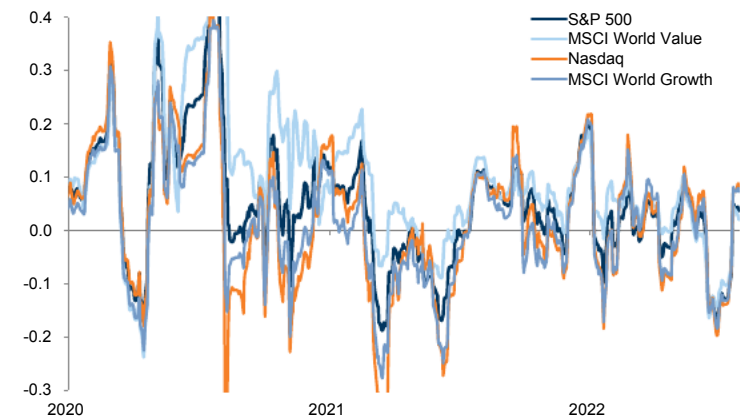
Exhibit 2: US 10-year real rates are almost back to zero, while breakevens have increased



Source: Bloomberg, Goldman Sachs Global Investment Research

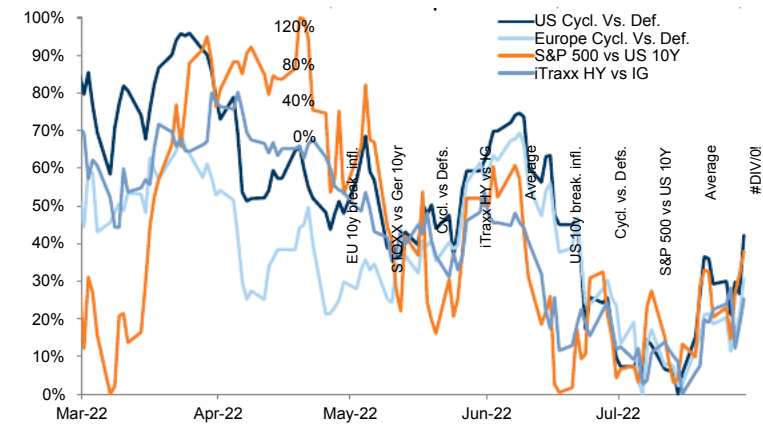
Exhibit 3: The beta of equities to US 10-year rates has turned positive, especially for long-duration pockets

1-month rolling beta of weekly returns



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 4: US cyclicals have retraced almost 50% vs. defensives
% retracement around the July trough vs. the YTD peak



Source: Datastream, Bloomberg, Goldman Sachs Global Investment Research

Cross-asset: Forecasts

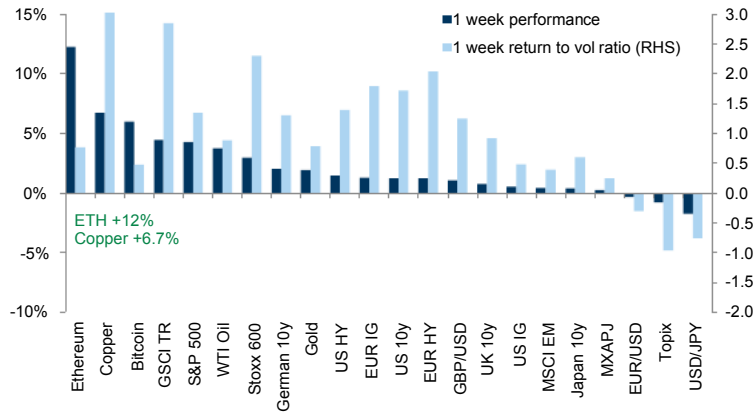
Exhibit 5: GOAL asset allocation recommendations and GS cross-asset forecasts

	Allocation Weighting		Current Level	Forecasts			Forecast Upside/Downside (%)		
	3m	12m		3m	6m	12 m	3m	6m	12 m
Equities	N	OW			Index level			Total Return	
S&P 500 (\$)	UW	UW	4130	4000	4300	4500	-2.7	4.9	10.6
Stoxx Europe 600 (€)	UW	OW	438	390	390	460	-10.1	-9.2	8.5
MSCI Asia-Pacific Ex-Japan (\$)	OW	OW	522	530	550	585	2.5	6.3	14.0
Topix (¥)	OW	OW	1940	1900	2020	2100	-1.4	5.4	10.8
10 Year Government Bonds	N	UW			Yield (%)			Total Return	
US	OW	OW	2.64	3.27	3.27	3.15	-4.7	-4.1	-1.8
Germany	UW	UW	0.83	1.33	1.52	1.60	-3.7	-5.2	-5.5
Japan	UW	UW	0.18	0.25	0.25	0.32	-0.2	-0.2	-0.7
UK	-	-	1.86	2.62	2.65	2.44	-5.3	-5.1	-2.4
Corporate Bonds	UW	N			Spread			Total Return	
Bloomberg Barclays US IG	OW	N	146	163	170	140	-5.0	-4.6	0.3
Bloomberg Barclays US HY	UW	N	488	569	597	465	-4.2	-3.9	4.2
iBoxx EUR IG	OW	N	202	218	219	175	-2.7	-3.3	-0.8
BAML EUR HY	UW	N	577	623	626	491	-2.4	-2.3	3.6
JP Morgan EMBI Div.	UW	N	533	507	481	430	-1.5	2.0	10.0
Commodities	OW	OW			Spot price			Spot Return	
WTI (\$/bbl)	-	-	101	137	125	125	35.1	23.3	23.3
Brent (\$/bbl)	-	-	110	140	130	130	27.2	18.1	18.1
Copper (\$/mt)	-	-	7,931	6,700	7,600	9,000	-15.5	-4.2	13.5
Gold (\$/troy oz)	-	-	1,764	2,100	2,300	2,500	19.0	30.4	41.7
FX	-	-			Spot rate			Spot Return	
EUR/USD	-	-	1.02	0.99	1.02	1.15	-2.9	0.0	12.8
USD/JPY	-	-	133.7	125.0	125.0	123.0	-6.5	-6.5	-8.0
GBP/USD	-	-	1.22	1.19	1.21	1.25	-2.2	-0.6	2.7
USD/BRL	-	-	5.20	5.50	5.30	5.00	5.8	2.0	-3.8
USD/RUB	-	-	63.6	80.0	90.0	100.0	25.7	41.5	57.2
USD/INR	-	-	79.3	80.0	81.0	81.0	0.9	2.2	2.2
USD/CNY	-	-	6.74	6.75	6.60	6.50	0.2	-2.0	-3.5
Cash	OW	OW			Spot rate			Total Return	
US 3-month Tbill	-	-	-	-	-	-	0.59	1.43	2.97
Germany 3-month Bubills	-	-	-	-	-	-	-0.01	0.07	0.38

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

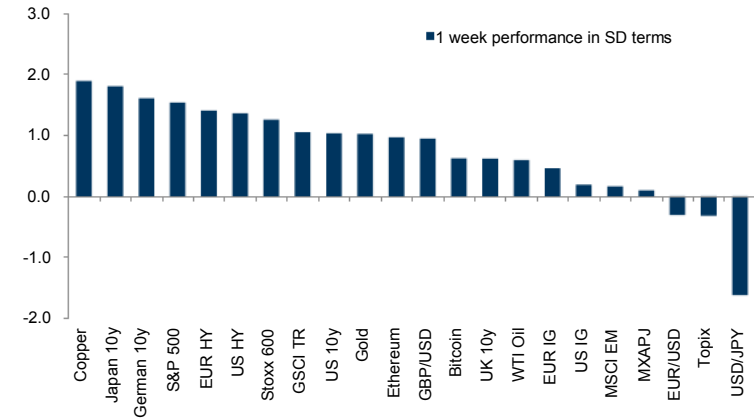
Cross-asset: Weekly and YTD performance, absolute and risk-adjusted

Exhibit 6: Local currency total returns and return to vol ratios over the past week
Weekly returns, return to vol ratios based on weekly volatility



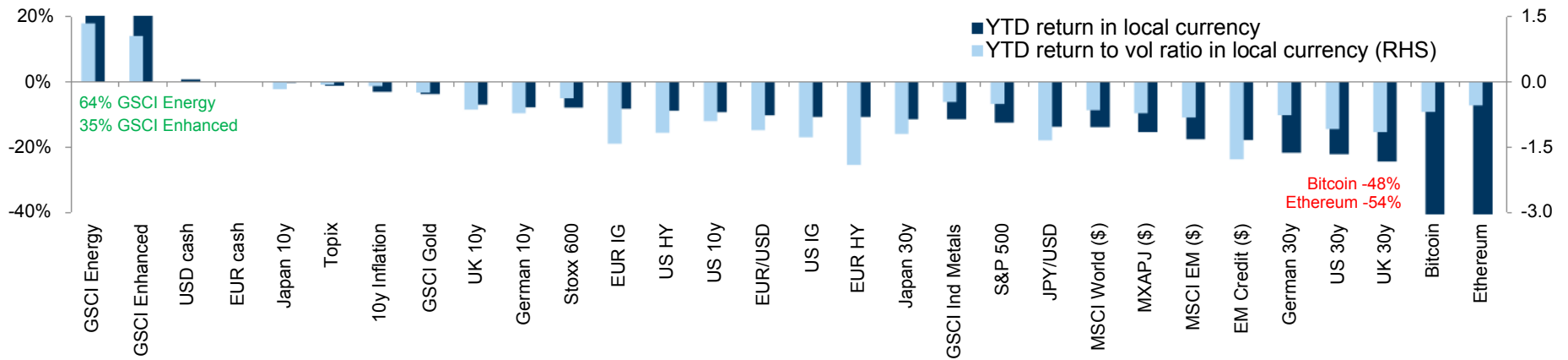
Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 7: Local currency total returns in standard deviation terms
1-week performance in rolling 12m standard deviation terms



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 8: Local currency returns and return to vol ratios
YTD returns

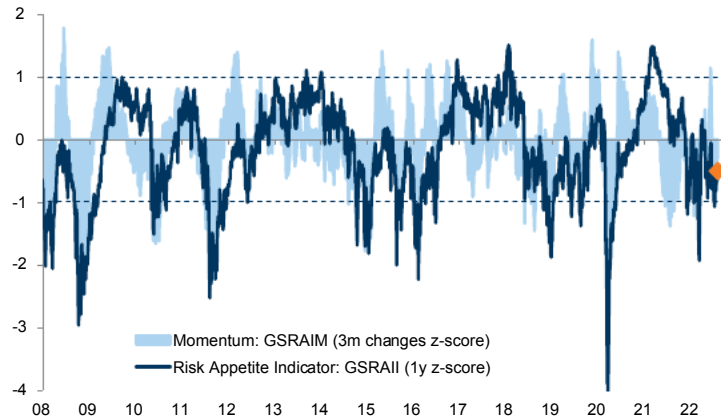


Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Cross-asset: Risk appetite indicator

Exhibit 9: Risk appetite indicator level and momentum factors

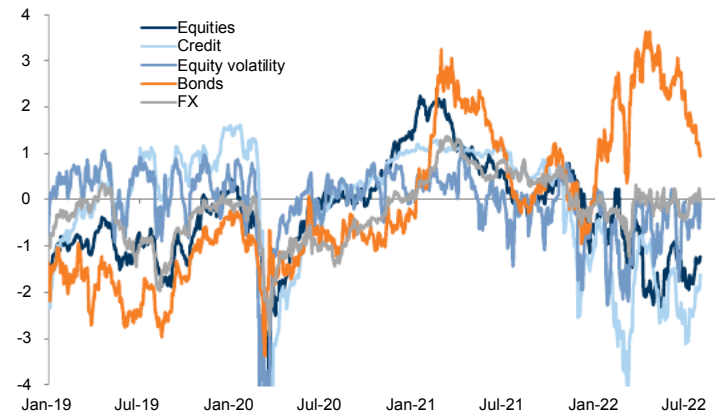
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 10: Risk appetite indicators for different asset classes

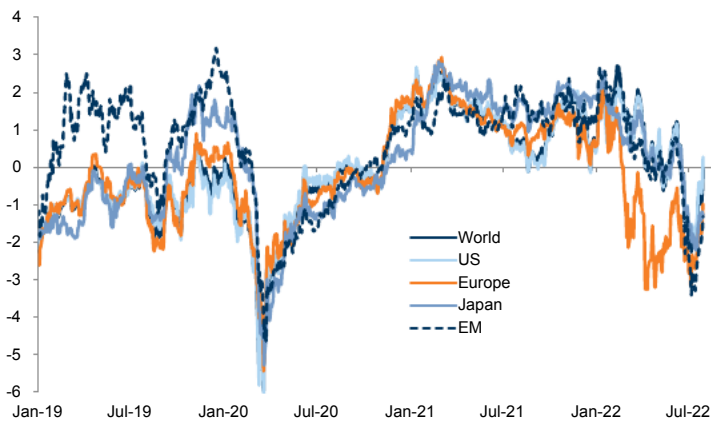
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 11: Cyclical vs. defensives 1-year rolling z-score across regions

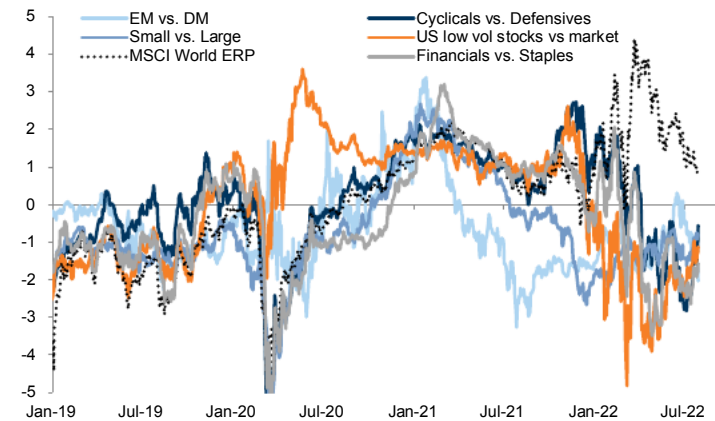
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 12: Sub-components of equity risk appetite indicator

See July 2016 GOAL for construction details

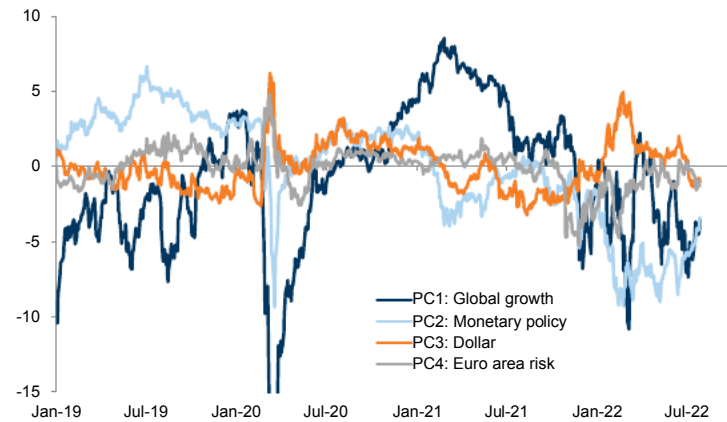


Source: Goldman Sachs Global Investment Research

Cross-asset: Risk Appetite principal component analysis

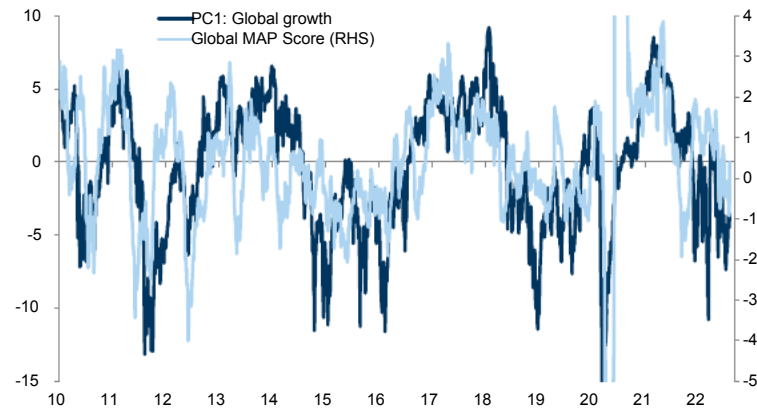
Exhibit 13: GS RAI principal component

See April 2019 GOAL for construction details



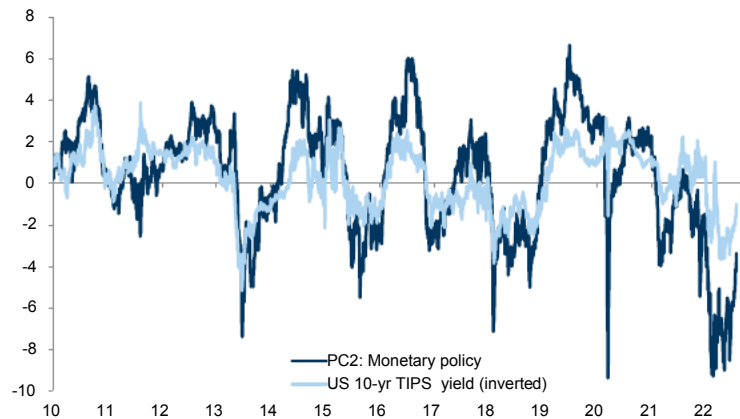
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 14: PC1: Global growth factor vs. Global MAP Score



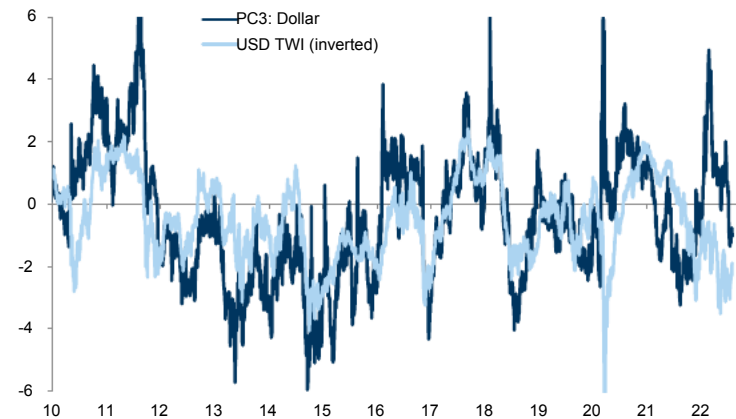
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 15: PC2: Monetary policy factor vs. US 10-year TIPS yield



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 16: PC3: Dollar factor vs. USD TWI



Source: Datastream, Goldman Sachs Global Investment Research

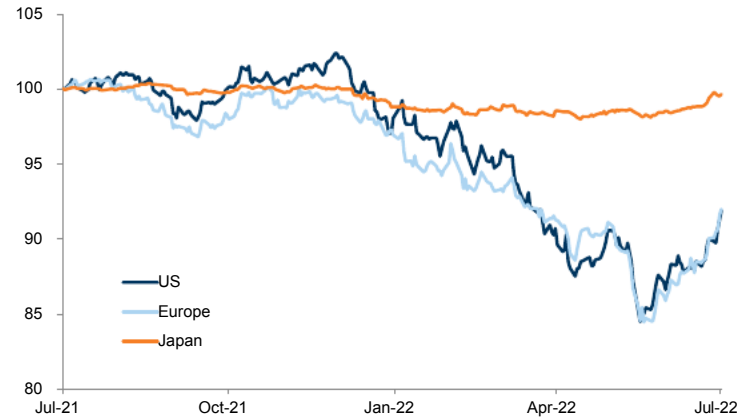
Cross-asset: Balanced portfolios and dynamic allocation strategies performance

Exhibit 17: 60/40 equity/bond portfolio performance across regions last 12m
Relative total return performance indexed to 100 12m ago (data since 2010)



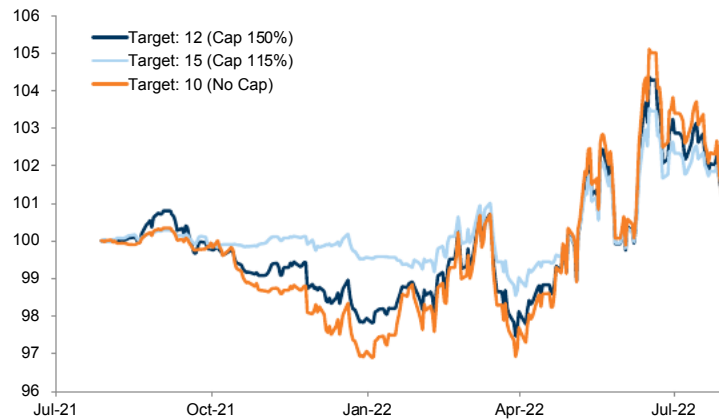
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 18: Risk parity portfolio performance across regions last 12m
Weighted inversely by 3m realised volatility of equity and 10y bonds



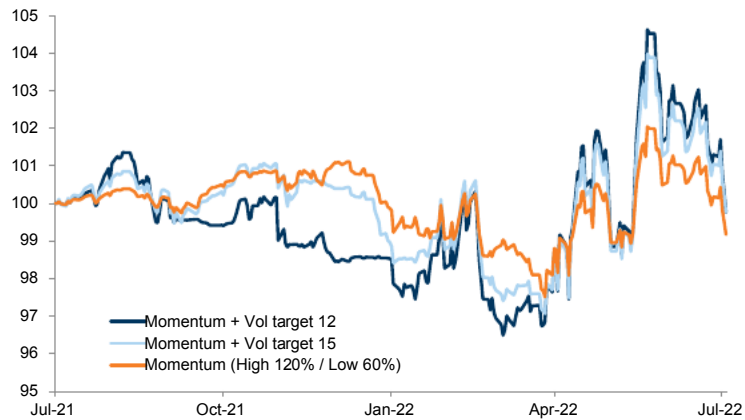
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 19: 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 20: 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

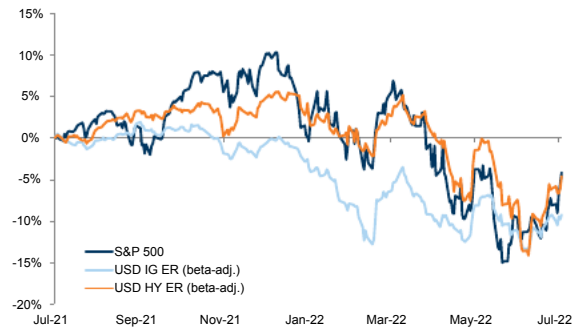


Source: Datastream, Goldman Sachs Global Investment Research

Cross-asset: Equity vs. credit monitor

Exhibit 21: USD cash credit vs. US equity

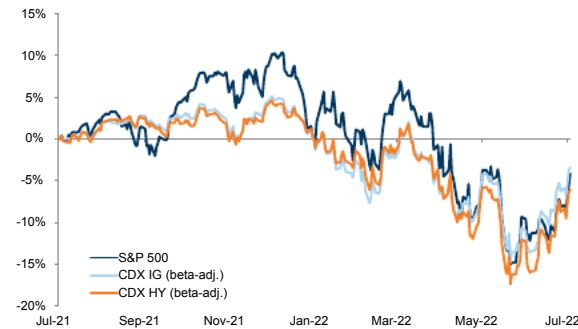
Cash credit excess returns (beta-adjusted) vs. S&P 500 total returns



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 22: USD synthetic credit vs. US equity

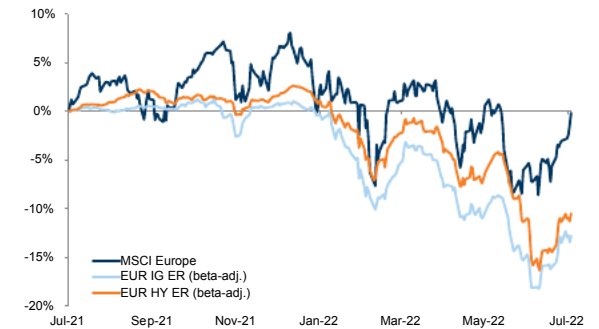
Synthetic credit excess returns (beta-adjusted) vs. S&P 500 total returns



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 23: EUR cash credit vs. European equity

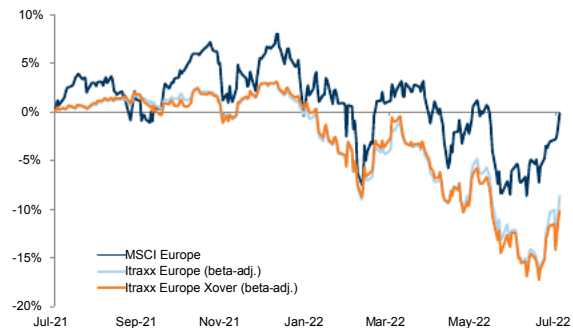
Cash credit excess returns (beta-adjusted) vs. MSCI Europe total returns



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 24: 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 25: EM cash credit vs. EM equity

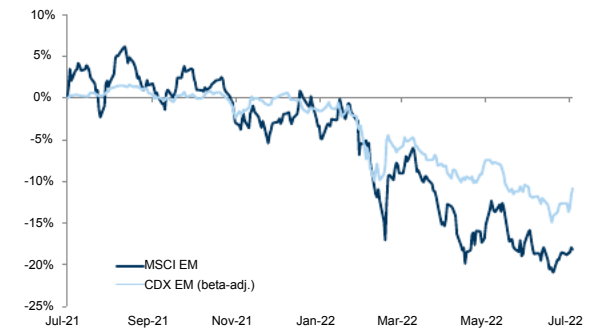
Cash credit excess returns (beta-adjusted) vs. MSCI EM total returns



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 26: 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 27: Cross-asset valuation table

A higher percentile means more expensive relative to 10y history

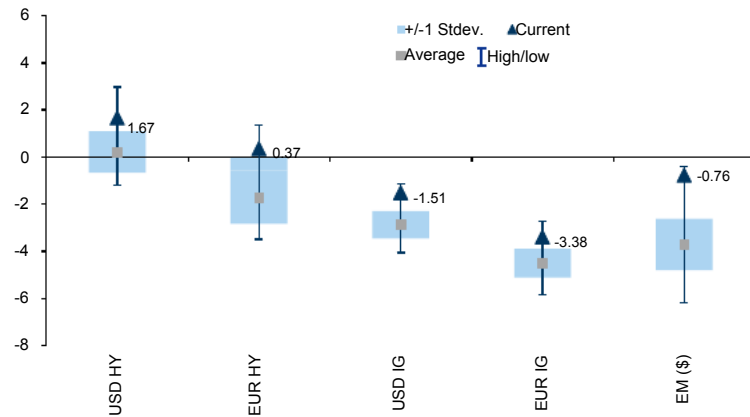
	Equity					Government bonds				Credit					FX	
	S&P 500	Stoxx 600	MXAPJ	Topix	MSCI EM	US 10y	German 10y	Japan 10y	UK 10y	US IG	US HY	EUR IG	EUR HY	EM (\$)	EUR/USD	USD/JPY
Valuation metric	12m forward P/E ratio					Yield				Spread					Actual - GS fair value	
Current:	17.4x	12.3x	12.2x	12.4x	11.0x	2.6%	0.8%	0.1%	1.9%	158bp	477bp	202bp	577bp	554bp	-0.21 €//\$	35.6 \$/¥
Expensiveness (last 10y percentile):	66%	11%	33%	14%	33%	21%	28%	42%	27%	24%	33%	4%	8%	2%	5%	2%
3M change:	-0.2x	-0.9x	-0.4x	-0.1x	-0.5x	-0.2%	-0.1%	-0.1%	0.0%	-3bp	84bp	35bp	123bp	115bp	-0.04 €//\$	2.6 \$/¥
Average:	17.2x	14.4x	13.1x	13.9x	11.8x	2.1%	0.4%	0.2%	1.4%	145bp	452bp	133bp	411bp	352bp	-0.09 €//\$	12.0 \$/¥
95th:	22.1x	17.4x	16.2x	17.3x	14.8x	3.0%	1.7%	0.8%	2.7%	192bp	693bp	194bp	634bp	474bp	0.12 €//\$	25.6 \$/¥
5th:	13.2x	11.6x	11.3x	11.8x	10.0x	0.7%	-0.5%	-0.1%	0.3%	102bp	324bp	96bp	279bp	270bp	-0.21 €//\$	-8.4 \$/¥

Note: GSDEER is our fair value macro model for exchange rates. US IG spread is from iBoxx. EM (\$) is JPM EMBI.

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

Exhibit 28: Credit spread minus equity risk premium estimates across markets

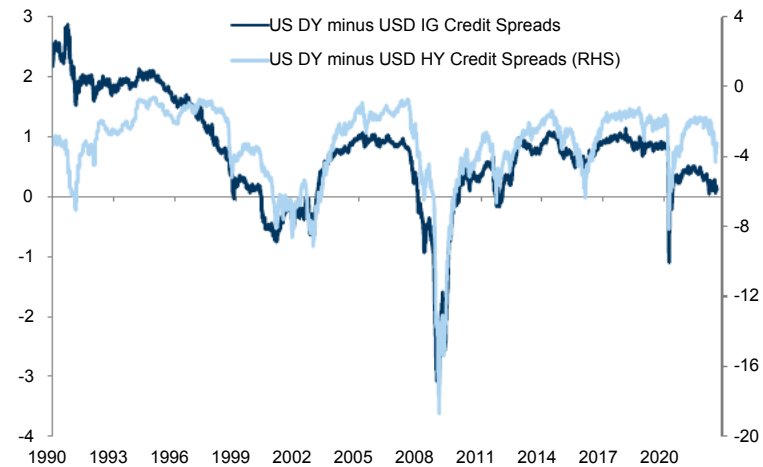
Equity risk premia based on 1-stage DDM using local 10-year yields and LT GDP consensus estimates. Using past 10 years of data.



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 29: Equity vs. credit relative valuation

US Dividend Yield minus Credit spreads



Source: Datastream, Goldman Sachs Global Investment Research

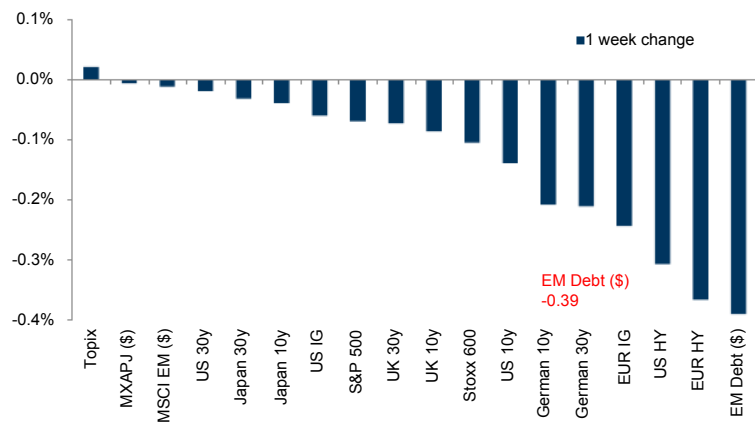
Cross-asset: Yields

Exhibit 30: 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 (\$)
Valuation metric	Dividend Yield (NTM)					Yield				Yield				
Current:	1.6%	3.6%	3.2%	2.6%	3.4%	2.6%	0.8%	0.1%	1.9%	4.1%	2.5%	7.7%	6.3%	8.0%
Percentile (-10y):	15%	40%	63%	88%	98%	80%	73%	58%	75%	96%	98%	90%	96%	99%
Average:	2.0%	3.6%	3.1%	2.2%	3.0%	2.1%	0.4%	0.2%	1.4%	2.6%	1.1%	6.5%	4.4%	5.6%
95th:	2.4%	4.1%	3.5%	2.8%	3.3%	3.0%	1.7%	0.8%	2.7%	4.0%	2.3%	8.3%	6.3%	6.9%
5th:	1.4%	3.0%	2.4%	1.9%	2.4%	0.7%	-0.5%	-0.1%	0.3%	1.3%	0.2%	4.8%	3.0%	4.6%
3m real. ret. vol:	28.6%	20.1%	16.8%	20.3%	20.1%	11.0%	12.8%	1.7%	11.3%	9.0%	7.0%	9.5%	6.9%	9.2%
Percentile (-10y):	96%	83%	50%	89%	88%	97%	100%	48%	98%	96%	98%	97%	96%	92%
Yield/vol ratio	0.06	0.18	0.19	0.13	0.17	0.24	0.06	0.07	0.16	0.46	0.36	0.81	0.92	0.87

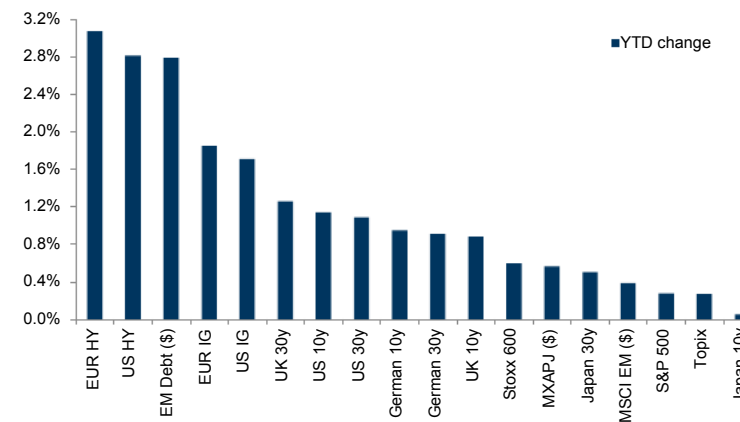
Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 31: Past week change in yields across assets



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 32: YTD change in yields across assets

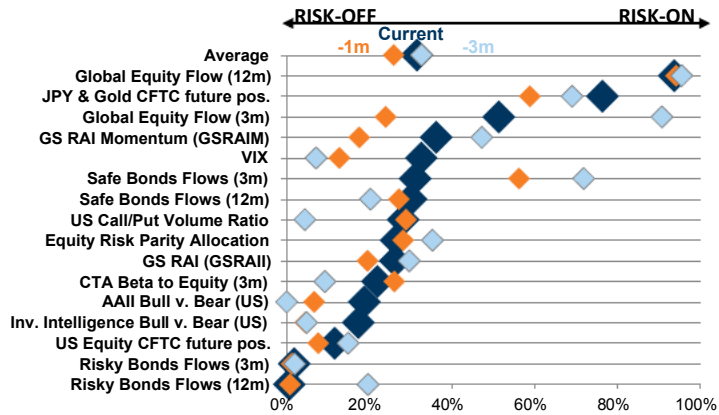


Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Cross-asset: Sentiment and Positioning

Exhibit 33: Percentile of sentiment indicators

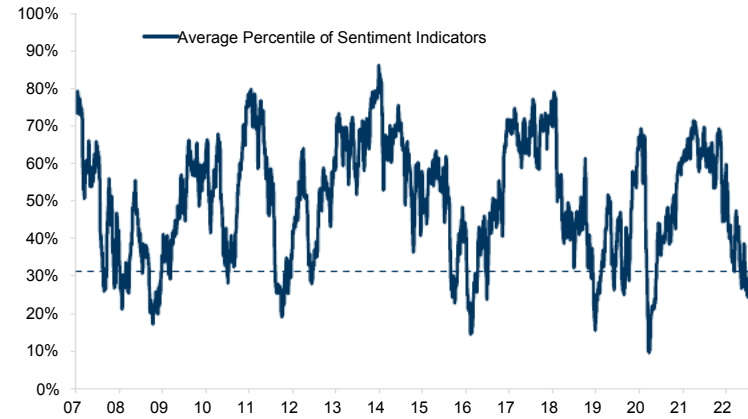
Data since 2007



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

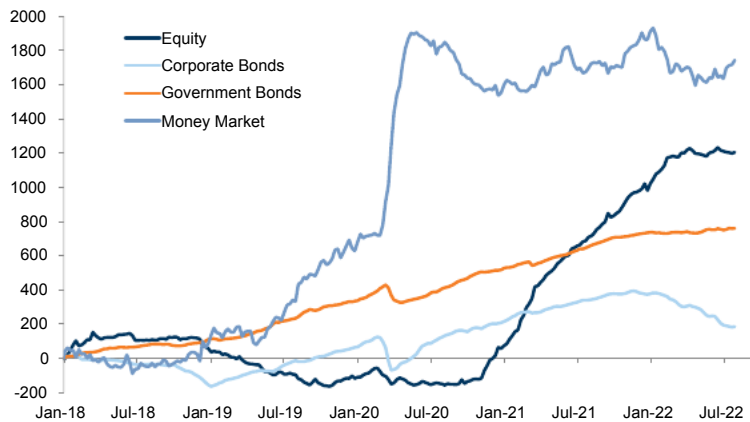
Exhibit 34: Average percentile of sentiment indicators

Data since 2007



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

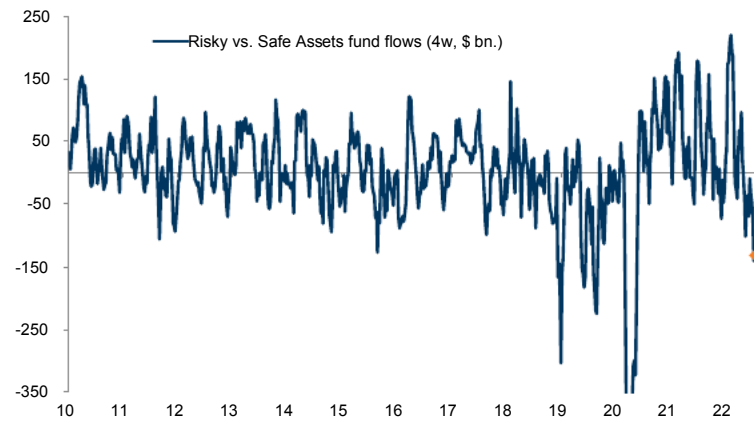
Exhibit 35: Cumulative fund flows across assets



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

Exhibit 36: Risky vs. safe assets fund flows

4 weeks rolling flows, USD bn

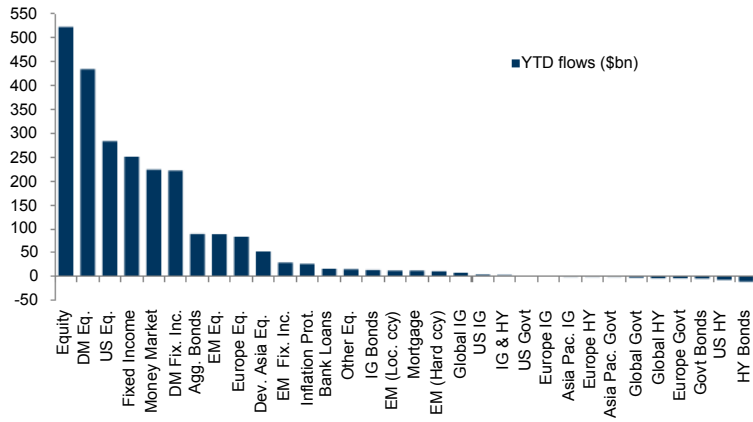


Source: Datastream, Haver Analytics, EPFR, Goldman Sachs Global Investment Research

Cross-asset: Global Funds Flows

Exhibit 37: YTD cross-asset global fund flows

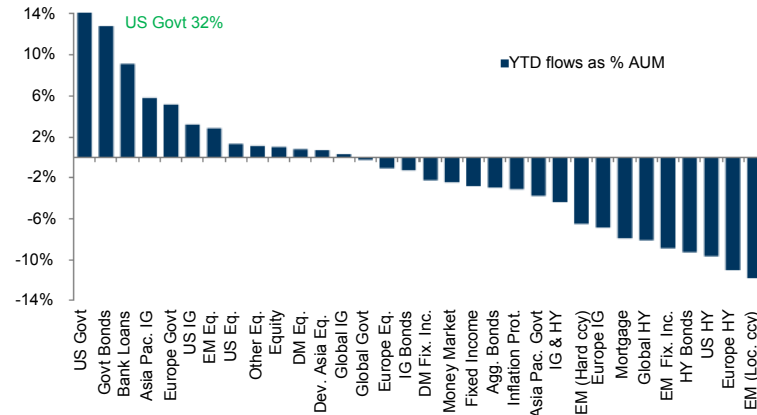
All reporting funds. \$ Bn



Source: EPFR, Goldman Sachs Global Investment Research

Exhibit 38: YTD cross-asset global fund flows

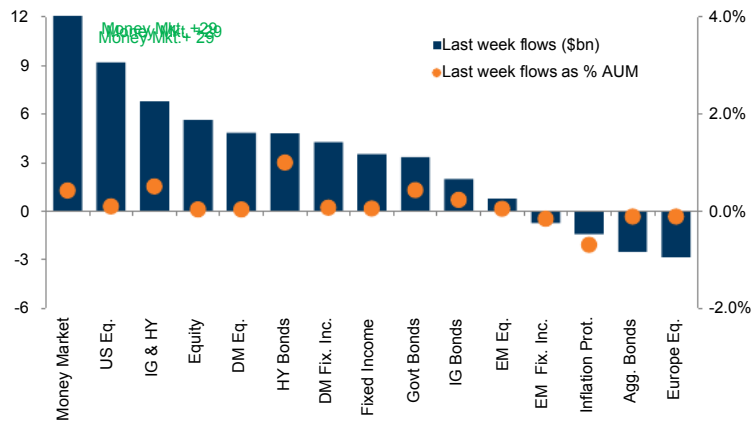
All reporting funds. % of AUM



Source: EPFR, Goldman Sachs Global Investment Research

Exhibit 39: 1-week cross-asset global fund flows

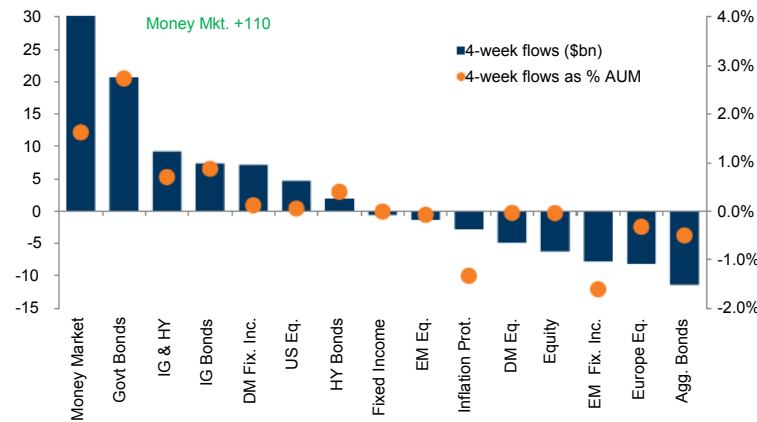
All reporting funds



Source: EPFR, Goldman Sachs Global Investment Research

Exhibit 40: 4-week cross-asset global fund flows

All reporting funds

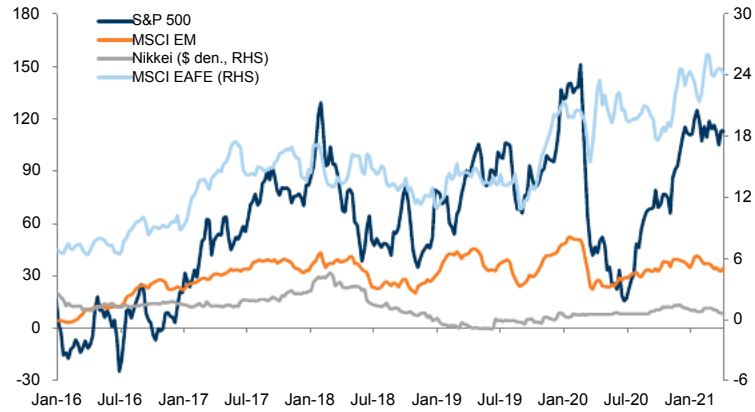


Source: EPFR, Goldman Sachs Global Investment Research

Cross-asset: CFTC positioning

Exhibit 41: Equity net long positioning

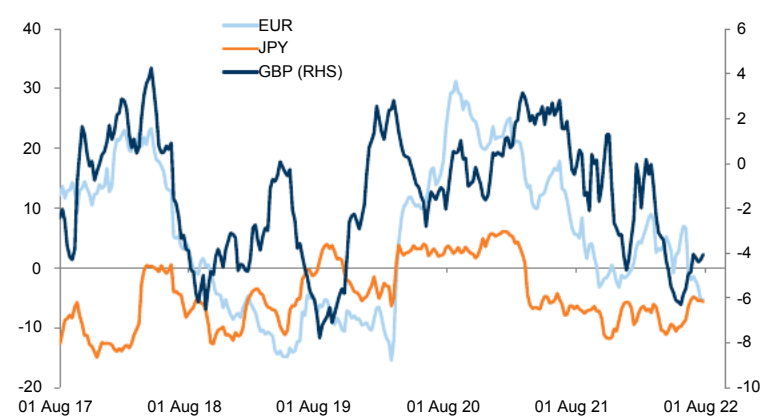
Leveraged funds and asset managers net future positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

Exhibit 42: Currency net long positioning

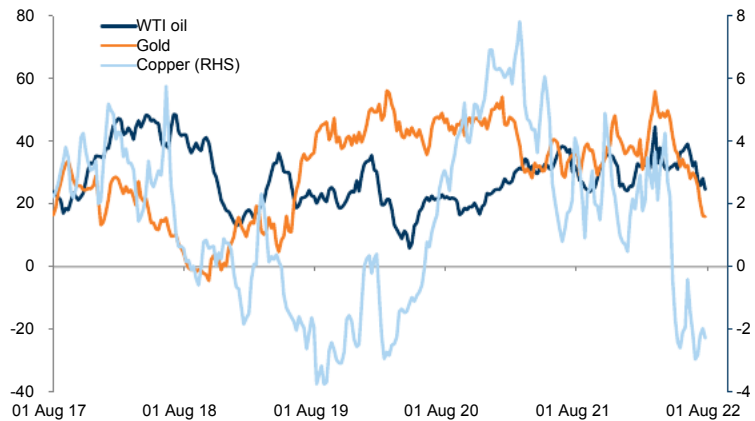
Net non-commercial positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

Exhibit 43: Commodity net long positioning

Net non-commercial positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

Exhibit 44: US Treasury net long positioning

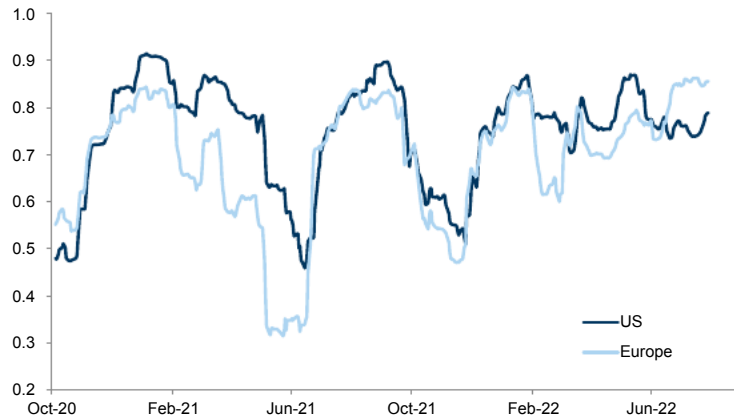
Net non-commercial positions (\$ bn)



Source: Bloomberg, CFTC, Goldman Sachs Global Investment Research

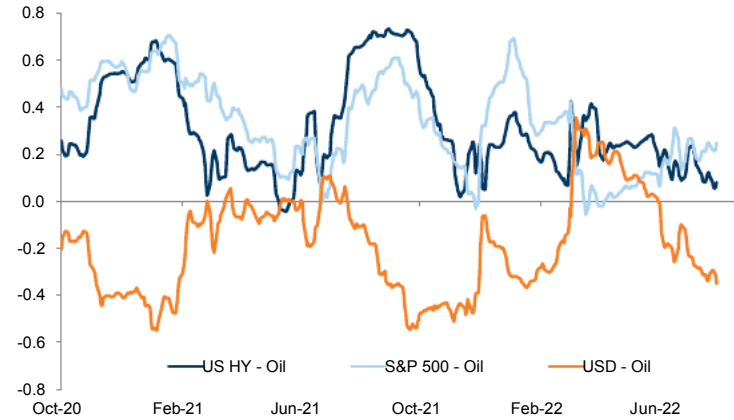
Cross-asset: Correlations: Equity vol/CDS, commodity prices/credit & FX, equity/bond, equity/FX

Exhibit 45: 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



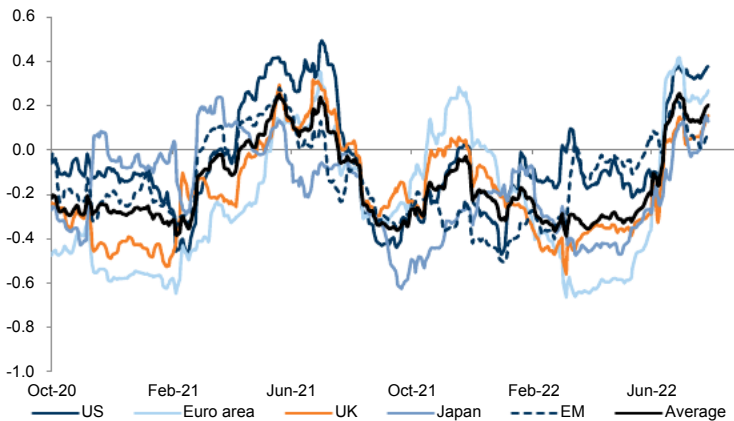
Source: Datastream, Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 46: 3m rolling commodity price correlations of weekly % changes with different assets



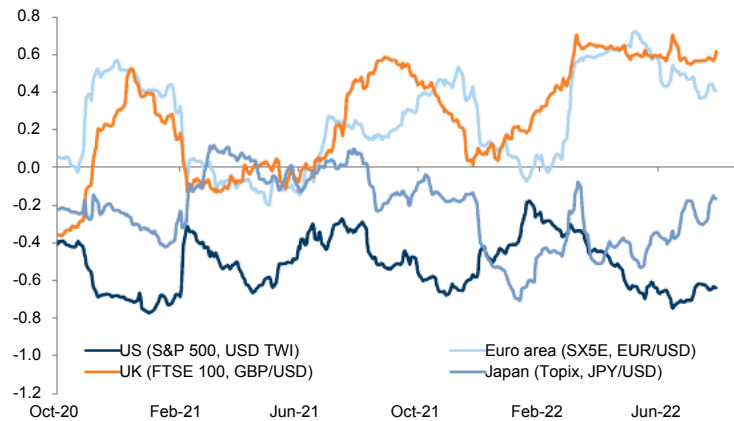
Source: Datastream, Goldman Sachs, Goldman Sachs Global Investment Research

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



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 48: 3m rolling equity/FX correlation of weekly returns



Source: Datastream, Goldman Sachs Global Investment Research

Cross-asset: Correlation matrix

Exhibit 49: 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		0.66	0.46	0.50	0.43	0.03	0.18	-0.01	0.18	0.42	-0.18	0.53	0.37	0.41	0.74	0.52	0.63	0.12	0.16	0.04	-0.68
STOXX 600	0.06		0.55	0.49	0.53	-0.06	-0.02	-0.13	-0.03	0.40	-0.02	0.40	0.26	0.31	0.57	0.64	0.70	-0.25	0.14	-0.02	-0.57
MXAPJ	0.14	0.23		0.68	0.99	0.00	-0.06	-0.09	-0.09	0.49	-0.13	0.69	0.20	0.21	0.46	0.43	0.50	0.13	0.46	0.28	-0.42
TOPIX	0.30	0.14	0.68		0.67	-0.14	-0.13	-0.22	-0.12	0.42	0.16	0.52	0.19	0.14	0.42	0.44	0.46	0.12	0.33	0.02	-0.41
MSCI EM	0.09	0.14	0.88	0.71		0.03	-0.04	-0.07	-0.08	0.48	-0.15	0.65	0.24	0.23	0.47	0.44	0.53	0.11	0.49	0.29	-0.40
US 10 yr	0.95	0.93	0.87	0.92	0.89		0.84	0.71	0.80	-0.06	-0.58	-0.06	0.84	0.69	0.31	0.21	0.15	-0.10	0.15	0.04	0.18
Germany 10 yr	1.00	0.90	0.74	0.81	0.80	0.91		0.67	0.89	-0.27	-0.58	-0.09	0.70	0.87	0.31	0.28	0.06	0.04	0.10	0.03	0.10
Japan 10 yr	0.78	0.60	0.56	0.69	0.57	0.97	0.91		0.68	-0.24	-0.42	-0.03	0.61	0.56	0.35	0.18	0.03	-0.13	0.15	0.13	0.21
UK 10 yr	1.00	0.96	0.74	0.88	0.79	0.66	0.74	0.91		-0.17	-0.53	-0.12	0.71	0.74	0.26	0.18	0.07	-0.06	0.05	-0.02	0.07
EUR/USD	0.85	0.92	0.80	0.92	0.73	0.18	0.22	0.07	0.24		-0.23	0.51	0.18	-0.13	0.40	0.23	0.49	-0.07	0.23	0.22	-0.33
USD/JPY	0.08	0.06	0.28	0.35	0.25	0.33	0.15	0.22	0.22	0.74		-0.17	-0.51	-0.53	-0.41	-0.27	-0.23	-0.11	-0.18	-0.27	-0.11
AUD/USD	0.69	0.63	0.62	0.78	0.59	0.53	0.52	0.54	0.47	0.39	0.55		0.15	0.14	0.57	0.38	0.26	0.39	0.49	0.44	-0.46
iBoxx US IG	0.95	0.95	0.76	0.90	0.81	0.50	0.60	0.86	0.66	0.46	0.25	0.53		0.73	0.62	0.47	0.44	-0.15	0.21	-0.09	-0.03
iBoxx EUR IG	0.95	0.84	0.55	0.60	0.67	0.77	0.72	0.94	0.74	0.26	0.03	0.51	0.59		0.60	0.65	0.37	0.03	0.19	0.04	-0.09
BAML US HY	0.85	0.53	0.21	0.48	0.22	0.84	0.90	0.94	0.89	0.82	0.02	0.76	0.92	0.87		0.76	0.63	0.04	0.30	0.15	-0.36
BAML EUR HY	0.61	0.69	0.16	0.38	0.21	0.92	0.97	0.88	0.92	0.72	0.10	0.58	0.90	0.88	0.38		0.65	-0.11	0.29	0.03	-0.25
EM Credit (\$)	0.92	1.00	0.63	0.89	0.65	0.50	0.41	0.34	0.36	0.90	0.33	0.27	0.45	0.49	0.61	0.73		-0.22	0.23	-0.01	-0.38
WTI Crude Oil	0.36	0.08	0.20	0.35	0.14	0.54	0.81	0.31	0.65	0.08	0.25	0.77	0.28	0.53	0.23	0.12	0.03		0.41	0.41	-0.05
Copper	0.15	0.16	0.51	0.67	0.54	0.97	0.96	0.92	0.92	0.35	0.14	0.57	0.94	0.88	0.57	0.64	0.72	0.75		0.45	-0.08
Gold	0.52	0.54	0.58	0.61	0.55	0.27	0.29	0.50	0.20	0.09	0.65	0.49	0.11	0.37	0.50	0.41	0.04	0.89	0.80		-0.09
VIX	0.87	0.87	0.70	0.76	0.84	0.28	0.15	0.74	0.14	0.13	0.74	0.27	0.26	0.31	0.69	0.80	0.23	0.69	0.95	0.32	
Current correlation's percentile since 2001																					

Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

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

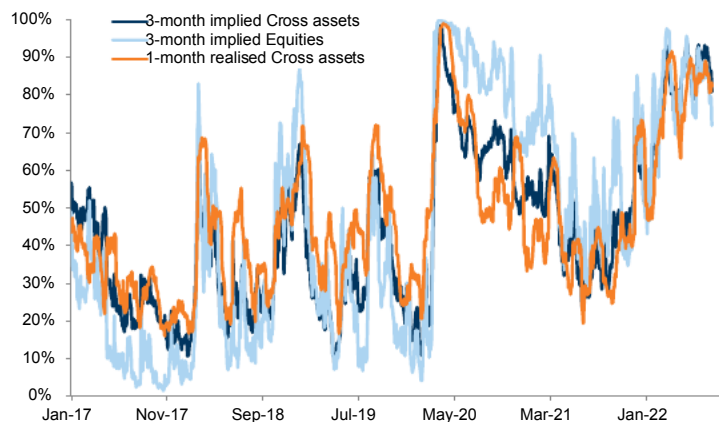
Exhibit 50: Cross-asset volatility, current and historical percentiles, implied 3m and realised 1m

	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
Implied (3-month ATM, %)																			
Current:	20.1	21.4	18.4	17.0	21.1	18.5	9.0	6.9	9.4	7.3	51.0	51.6	61.5	44.7	15.5	30.2	10.2	10.8	10.1
Percentile:	86%	79%	43%	77%	66%	81%	98%	96%	99%	99%	67%	76%	81%	85%	61%	98%	89%	79%	77%
1M change:	-4.3	-2.9	-2.3	-2.5	-1.9	-2.8	-1.1	-0.5	-1.1	-0.8	-16.8	-14.3	-6.0	-3.7	-0.5	1.1	1.2	-1.9	-0.7
Average:	15.5	18.3	19.6	14.9	20.0	15.6	3.2	4.6	1.8	3.4	49.7	45.2	53.2	33.6	14.7	21.2	7.7	8.6	8.6
95th:	24.9	26.0	26.7	22.6	26.6	22.5	5.7	6.6	4.3	5.2	69.7	65.5	69.9	53.8	20.4	28.8	11.1	12.7	12.6
5th:	10.0	12.3	13.8	10.3	15.2	10.4	1.2	3.5	0.9	2.2	38.5	30.7	38.7	17.1	9.7	15.2	5.1	5.6	5.8
Realised (%)																			
1-month:	19.5	21.0	17.7	16.6	14.0	18.9	9.2	7.6	10.1	8.2	43.3	44.9	58.5	59.6	16.0	35.7	10.4	9.8	9.6
Percentile:	82%	75%	50%	75%	59%	88%	98%	96%	99%	99%	72%	86%	87%	91%	72%	98%	87%	74%	76%
Average:	14.3	17.8	19.6	14.3	14.3	12.7	2.9	4.4	1.3	3.1	39.0	33.2	42.4	36.9	14.3	19.5	7.5	8.1	8.4

Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 51: 10y percentile for cross-asset average volatility

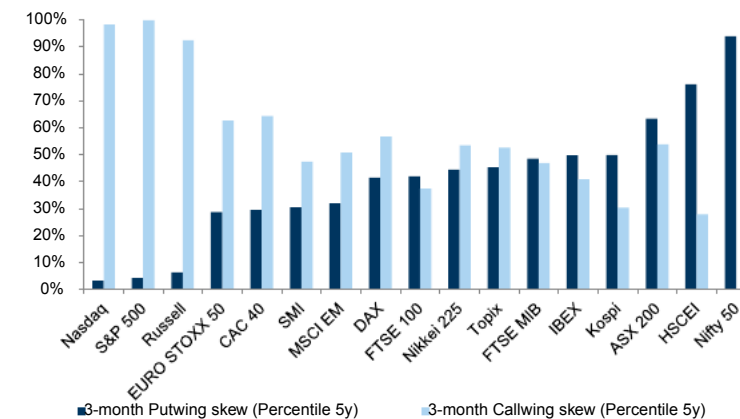
Using 16 assets across equity, government bonds, credit, commodities and FX



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 52: Putwing and Callwing normalised skew 5y percentile

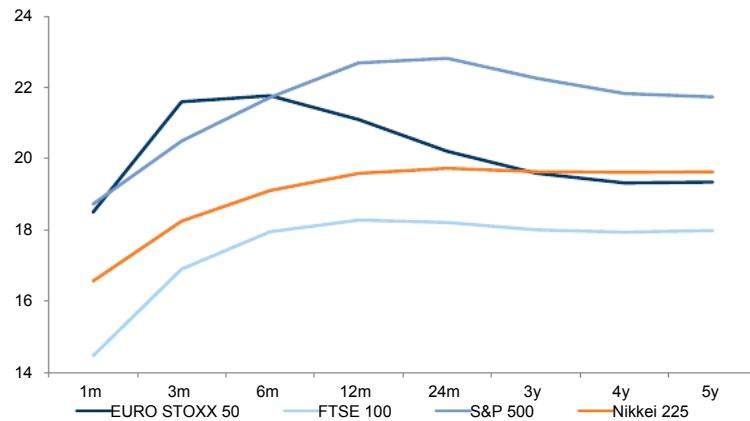
Normalised skew = (impl. vol 25 delta put/call minus implied vol 50 delta call)/50 delta call



Source: Goldman Sachs, Goldman Sachs Global Investment Research

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

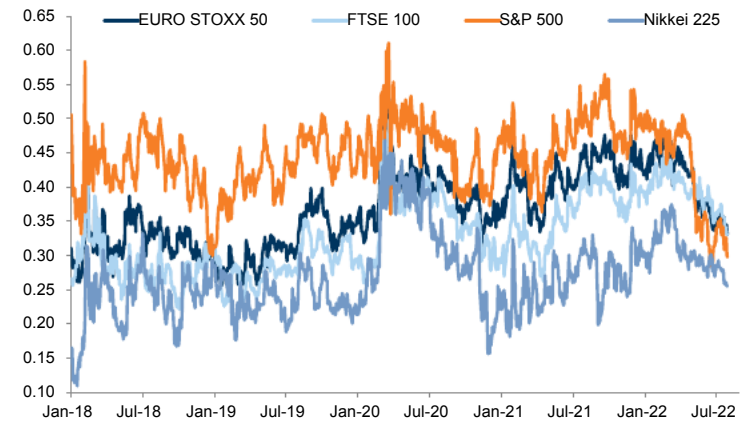
Exhibit 53: ATM implied volatility term structure for equity indices



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 54: Normalised implied volatility skew across regions

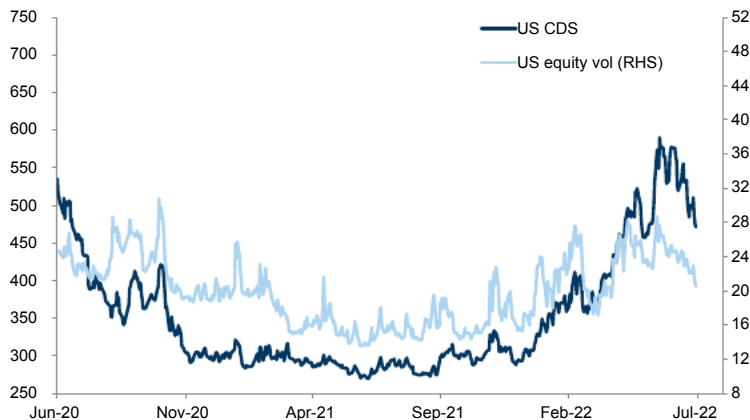
3m 25 delta put vol minus 25 delta call vol scaled by ATM implied vol



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 55: CDS and equity vol levels in the US

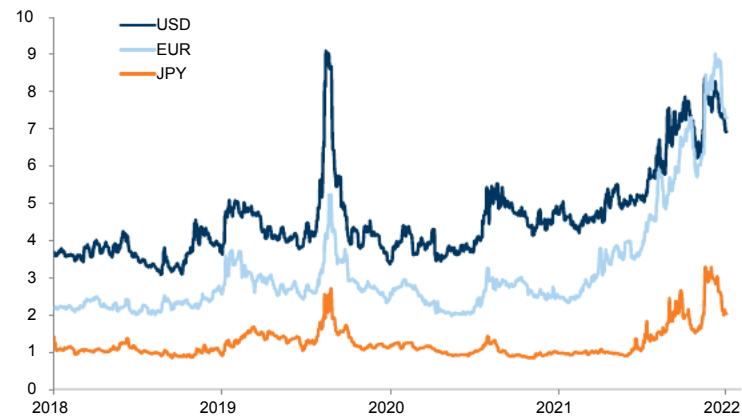
CDX HY, 3m ATM S&P 500 implied vol



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 56: 3m ATM implied rate volatility across regions

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

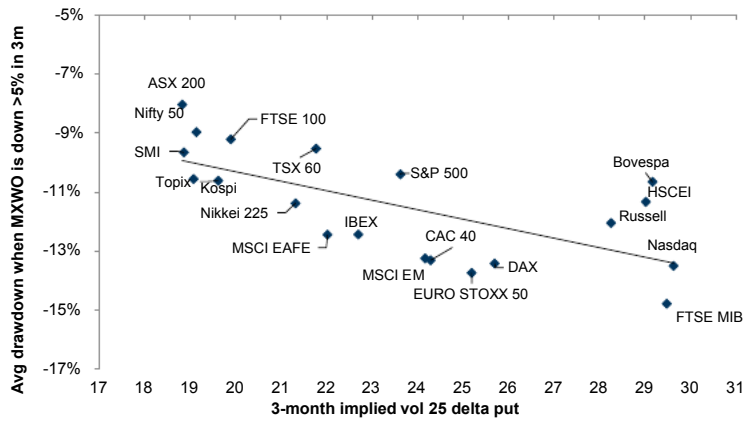


Source: Goldman Sachs, Goldman Sachs Global Investment Research

Cross-asset: Alternatives and option strategies

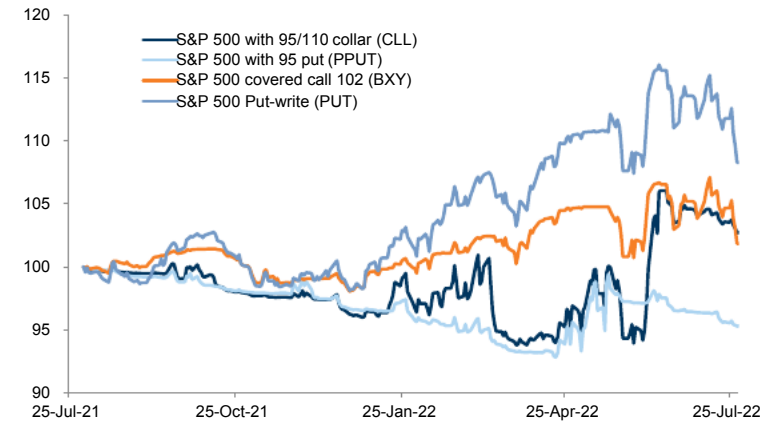
Exhibit 57: Implied volatility (3-month 25 delta put) vs. average drawdown during MXWO corrections

3m put 25 delta put option implied vol vs. average performance during a 5% MXWO drawdown



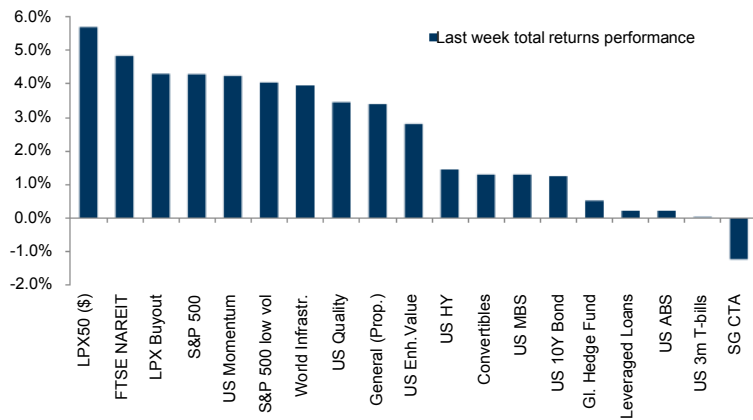
Source: Goldman Sachs Global Investment Research

Exhibit 58: Systematic option strategies vs. S&P 500 performance
CBOE Strategies vs. S&P 500 performance



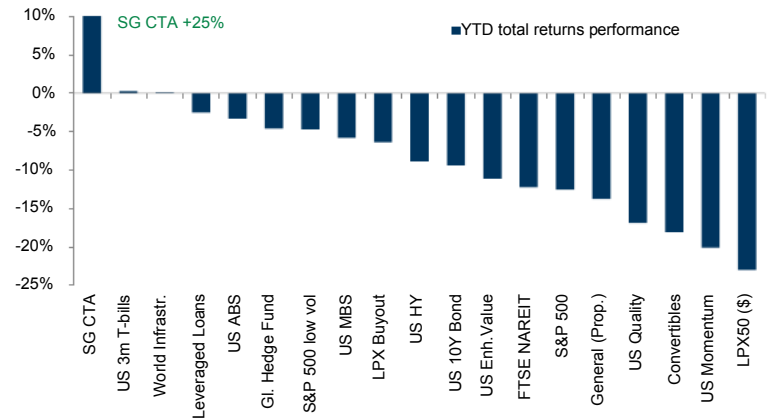
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 59: Last week performance of alternative assets or strategies



Source: Bloomberg, Datastream, Goldman Sachs Global Investment Research

Exhibit 60: YTD performance of alternative assets or strategies

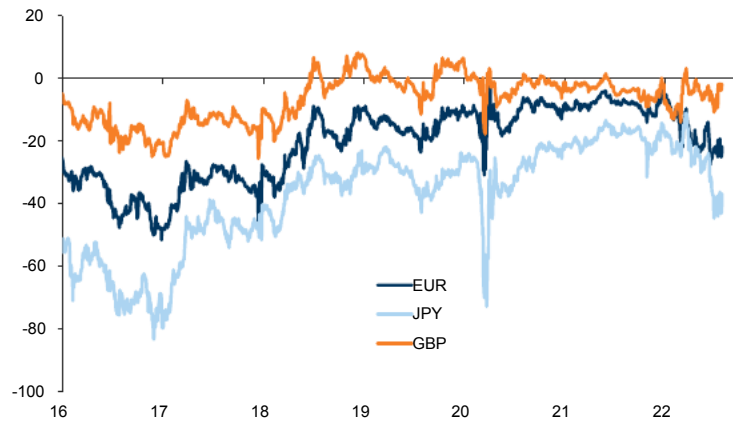


Source: Bloomberg, Datastream, Goldman Sachs Global Investment Research

Cross-asset: Liquidity indicators

Exhibit 61: 1-year cross-currency basis

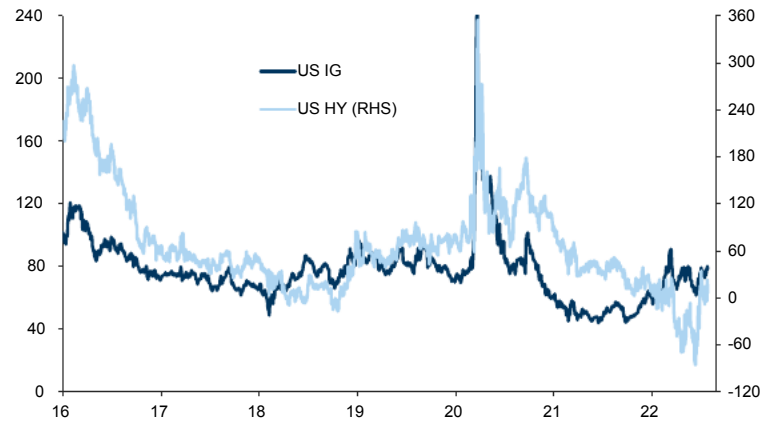
Basis points



Source: Goldman Sachs Group Inc., Goldman Sachs Global Investment Research

Exhibit 62: Cash credit versus CDS spread

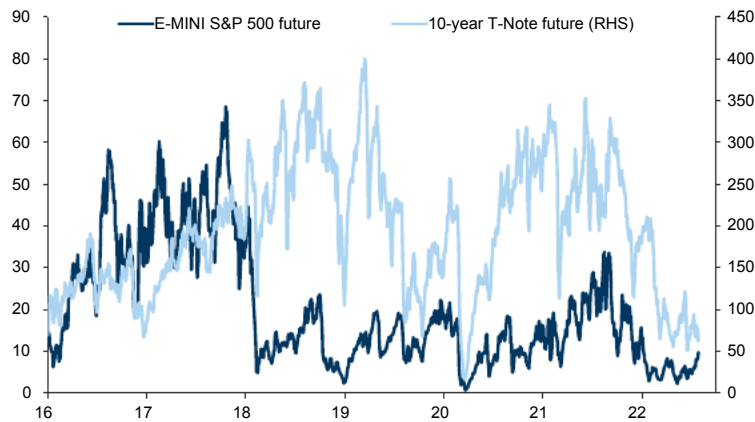
Basis points



Source: Goldman Sachs Group Inc., Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 63: Top-of-book depth

5-day average, \$ mln

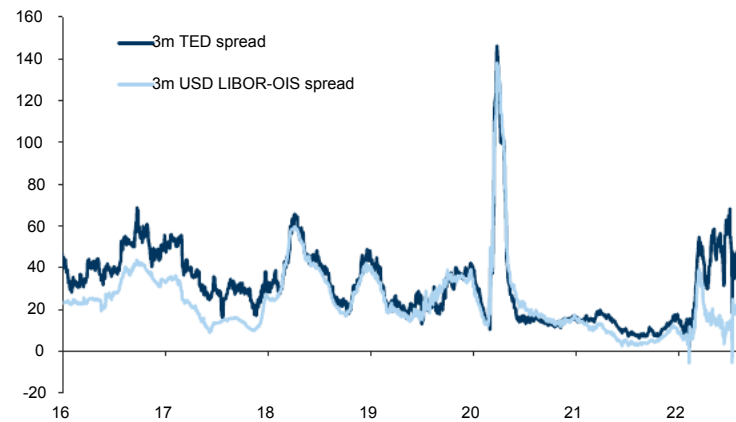


E-MINI S&P 500 = 5d avg. # of contracts * S&P 500 price * \$50. 10-year T-note = 5d avg. # of contracts * \$100,000

Source: Goldman Sachs Group Inc., Bloomberg, Goldman Sachs Global Investment Research

Exhibit 64: Interbank spread

Basis points

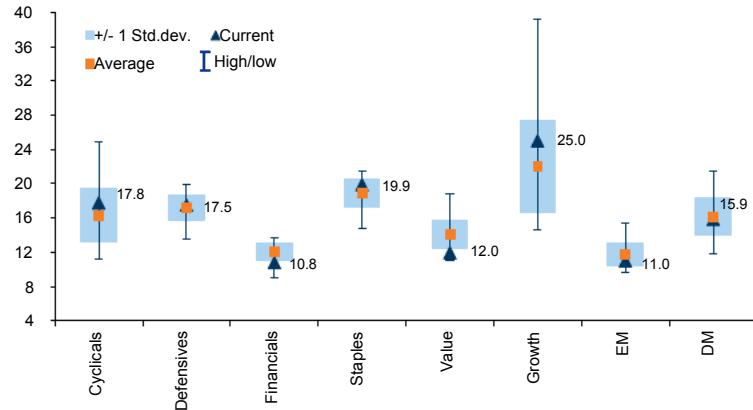


TED spread = 3m USD LIBOR rate - 3m T-bill rate

Source: Bloomberg, Goldman Sachs Global Investment Research

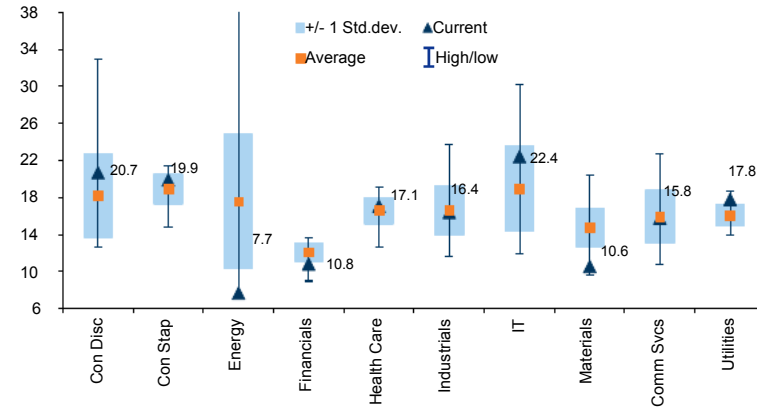
Equity: Valuation and styles

Exhibit 65: Valuation ranges of MSCI World styles indices
12-month forward P/Es relative to the last 10 years



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

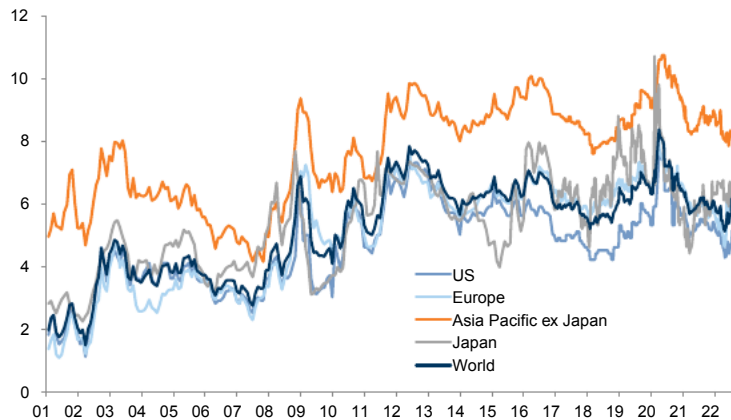
Exhibit 66: MSCI World sector valuations
12-month forward P/Es relative to the last 10 years



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

Exhibit 67: 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 68: MSCI World style index performance

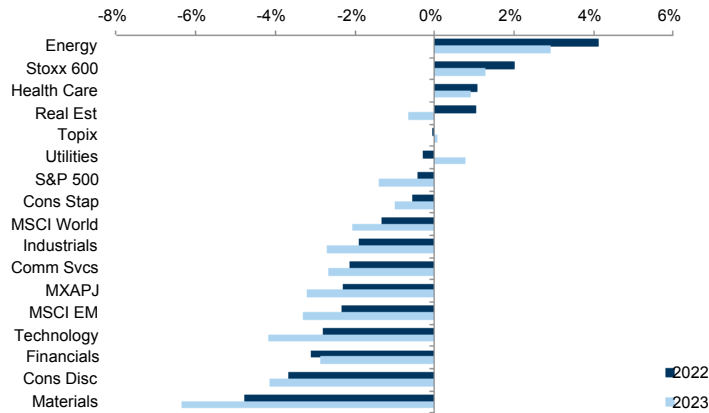
Performance indexed to 100 12m ago



Source: Datastream, Goldman Sachs Global Investment Research

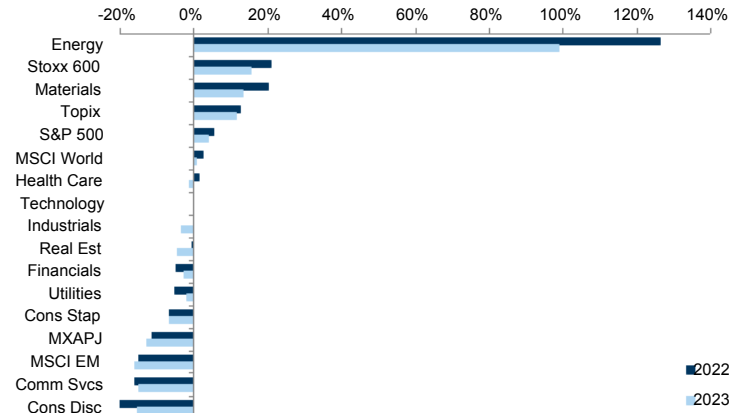
Equity: Earnings

Exhibit 69: 1-month revision to I/B/E/S consensus earnings
 MSCI World sectors, other global equity index aggregates. TOPIX: FY 2021/2022



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

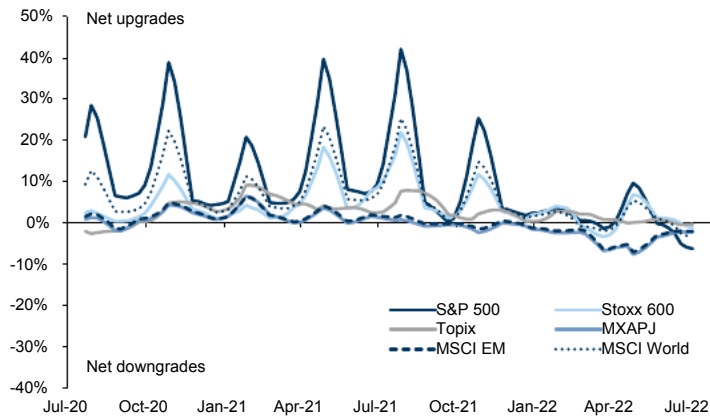
Exhibit 70: 12-month revision to I/B/E/S consensus earnings
 MSCI World sectors, other global equity index aggregates. TOPIX: FY 2021/2022



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

Exhibit 71: Earnings sentiment: Analyst upgrades minus downgrades (scaled by total analysts) across markets

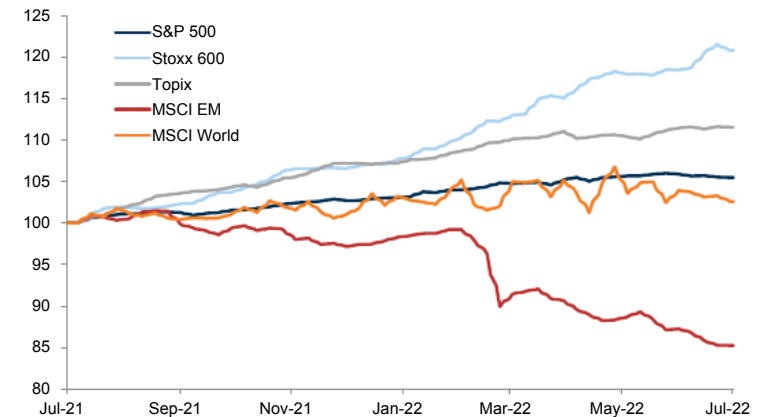
1-month moving average of net monthly upgrades



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

Exhibit 72: 2021 consensus earnings expectations over the past 12 months

Earnings indexed to 100 12 months ago. TOPIX: FY 2023

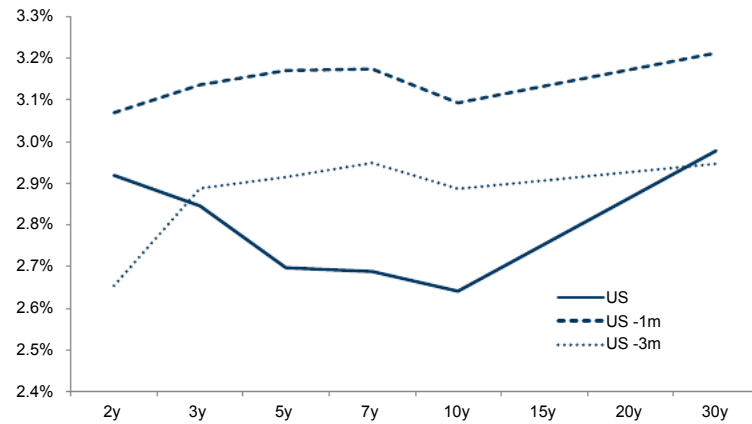


Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research

Government bonds: Yield curves

Exhibit 73: US yield curve dynamics

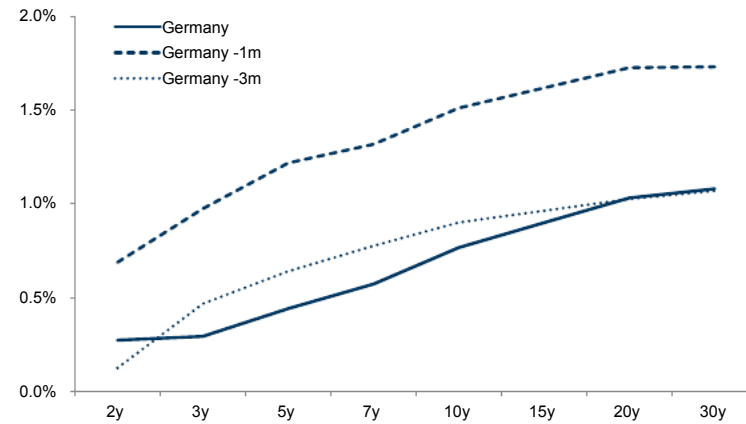
Current relative to 1 month and 3 months ago



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 74: German yield curve dynamics

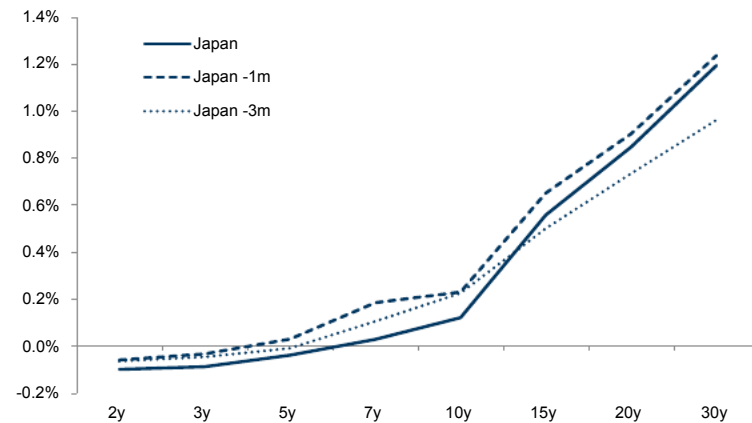
Current relative to 1 month and 3 months ago



Source: Datastream, Goldman Sachs Global Investment Research

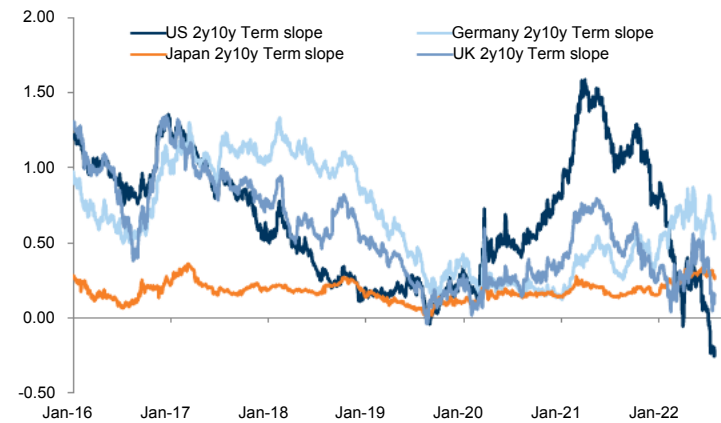
Exhibit 75: Japan yield curve dynamics

Current relative to 1 month and 3 months ago



Source: Goldman Sachs Global Investment Research

Exhibit 76: Yield curve term slope across regions

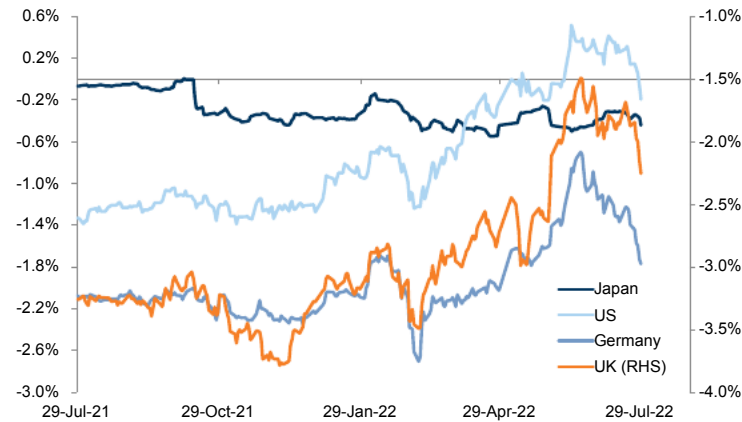


Source: Goldman Sachs Global Investment Research

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

Exhibit 77: 10y real yields across regions

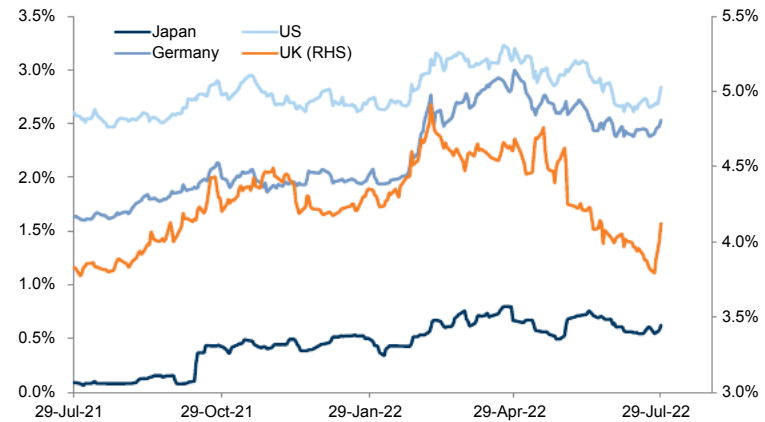
Nominal bond yield minus CPI inflation swap (RPI for the UK)



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 78: 10y inflation swaps across regions

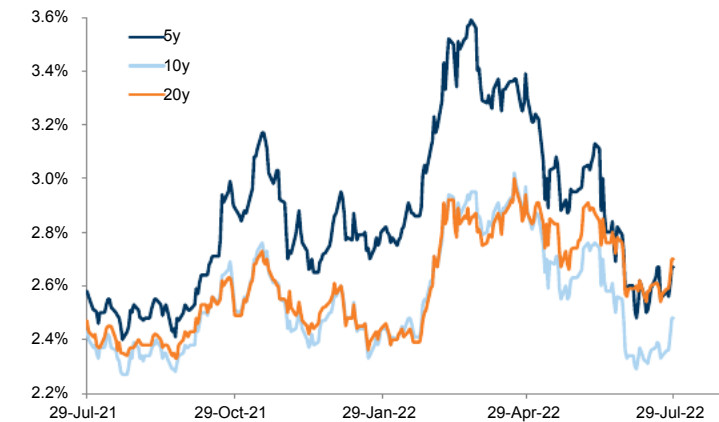
CPI inflation swap (RPI for the UK)



Source: Goldman Sachs, Goldman Sachs Global Investment Research

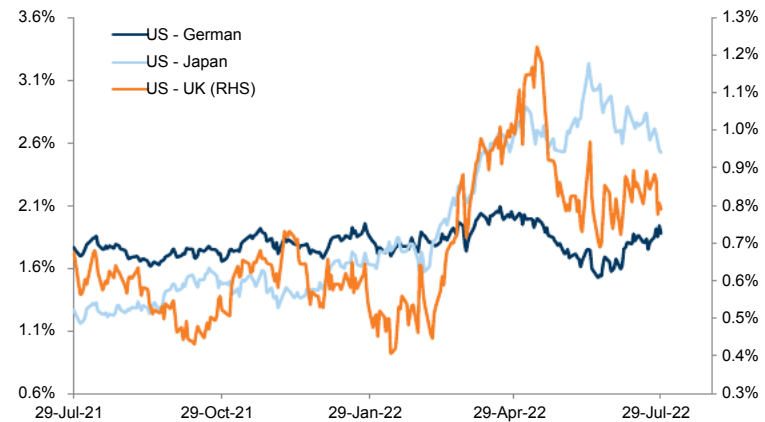
Exhibit 79: US breakeven inflation

Nominal yield minus TIPS yield



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 80: 10y nominal bond yield differentials



Source: Datastream, Goldman Sachs Global Investment Research

Credit: Spreads - history and forecasts

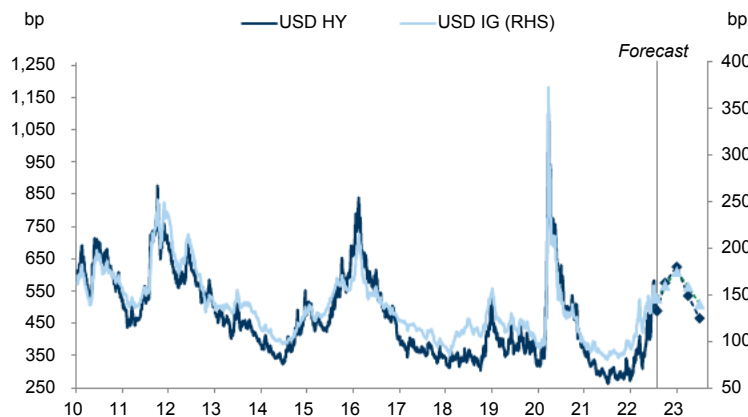
Exhibit 81: Credit spread forecasts

Yieldbook Citi US IG, iBoxx EUR IG, BAML US HY and EUR HY

Sector	Updated through Jul 31, 2022			
	Current	2022Q4	2023Q1	2023Q2
USD Spreads				
IG	146	175	159	140
IG Fin	152	170	155	135
IG Non-Fin	141	180	165	145
High Yield	488	625	535	465
EUR Spreads				
IG	204	229	195	175
IG Fin	236	260	225	200
IG Non-Fin	185	205	180	165
High Yield	591	655	560	491

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

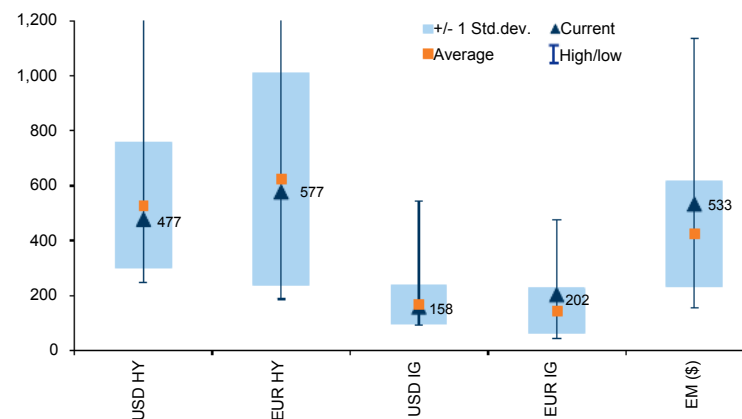
Exhibit 83: Our USD spread forecast for IG vs. HY



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

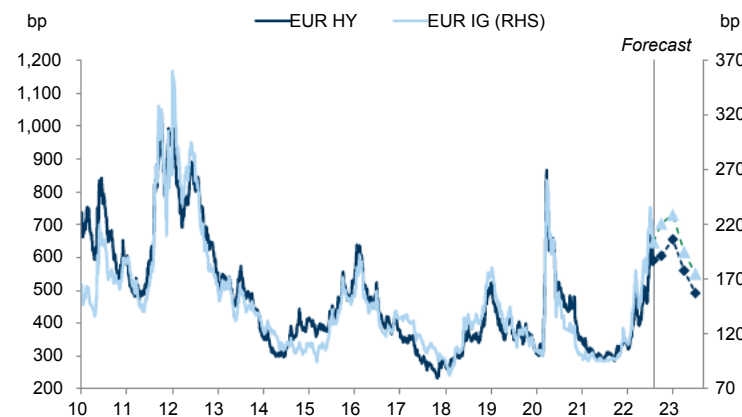
Exhibit 82: Current credit spreads relative to their historical ranges

Credit spreads (US HY and IG since 1985, EUR IG since 1997, EUR HY and EM since 1998)



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

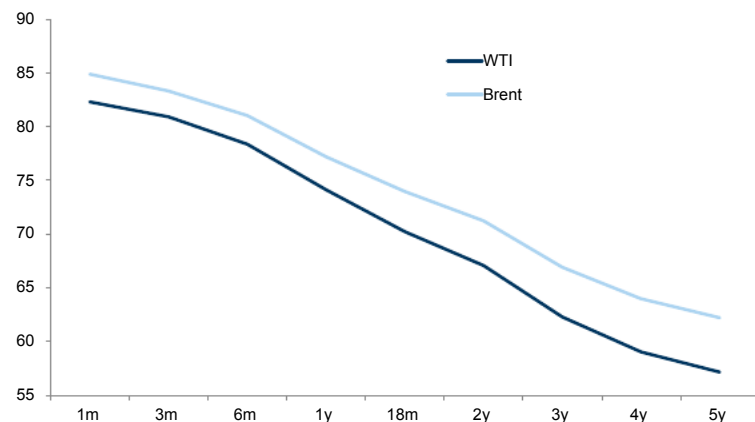
Exhibit 84: Our EUR spread forecast for IG vs. HY



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

Commodities: Curve shapes and roll yields

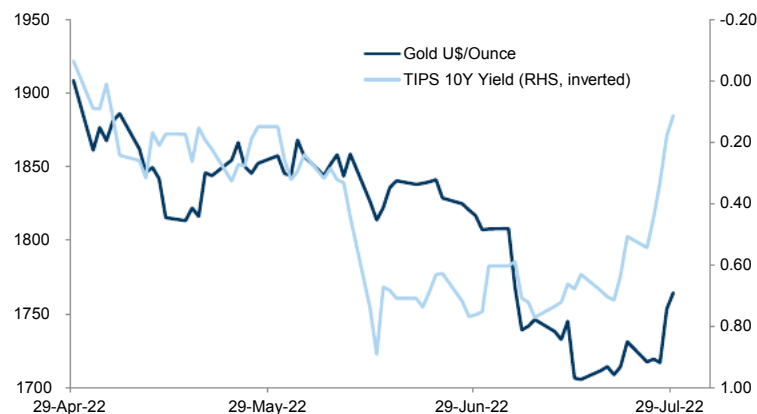
Exhibit 85: WTI and Brent oil forward curves



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Exhibit 86: Gold price and US real yields

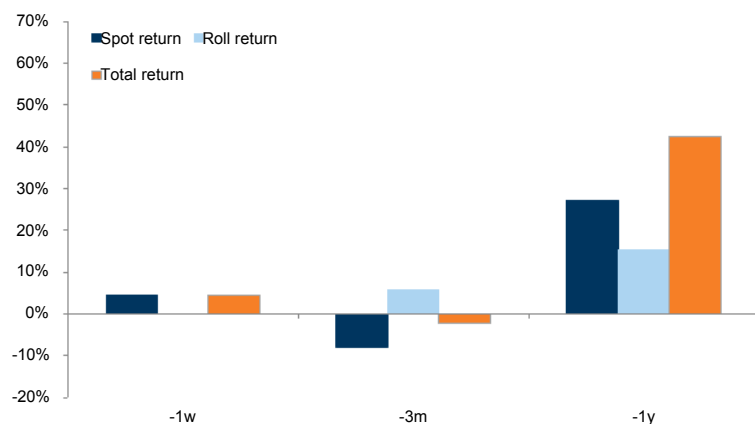
US 10-year TIPS yield, Gold US/ounce



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 87: 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 88: Recent performance of GSCI® Enhanced sectors

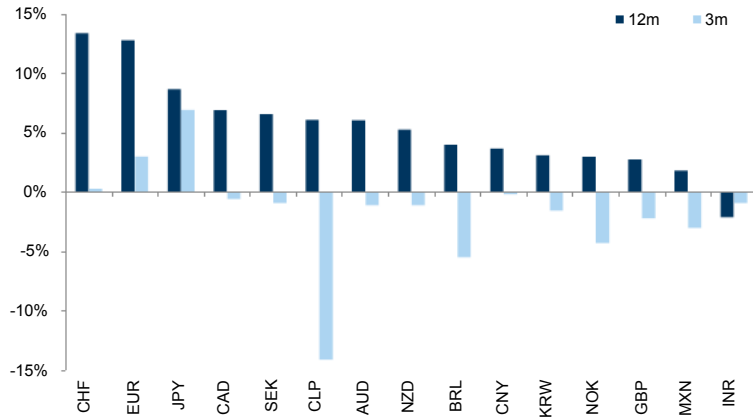
Weight signifies contribution to the GSCI® Enhanced index

	Current Weight (%)	Returns (%)		
		-1w	-1m	-1y
S&P GSCI Enhanced	100.0	4.5	-1.4	43.0
Energy	65.6	4.3	-2.7	72.2
Industrial Metals	8.8	4.5	2.4	-6.8
Precious Metals	3.8	2.7	-1.6	-5.3
Agriculture	16.1	7.6	0.2	18.5
Livestock	5.7	0.0	3.8	3.7

Source: Goldman Sachs, Goldman Sachs Global Investment Research

FX: Forecasts and forwards, recent performance and positioning

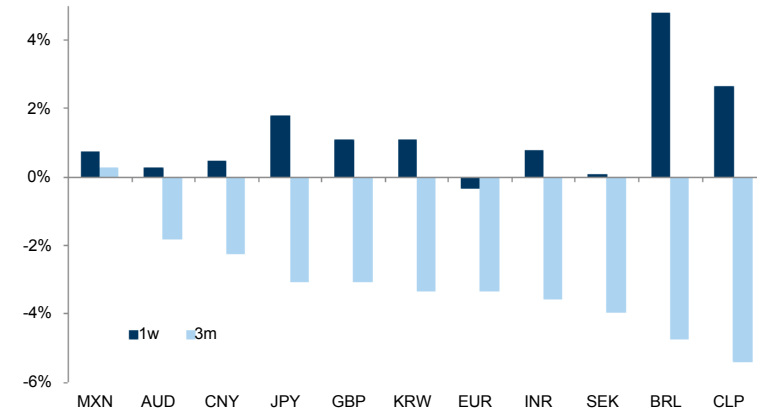
Exhibit 89: Our 3- and 12-month forecasts for dollar crosses



Source: Datastream, Goldman Sachs Global Investment Research

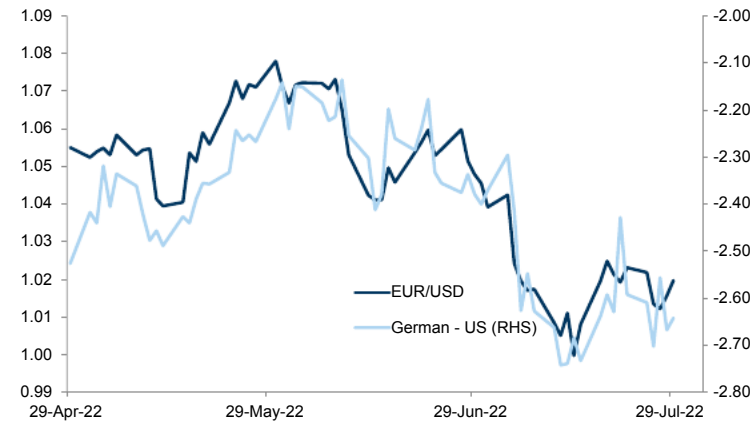
Exhibit 90: Recent performance of dollar crosses

Percentage change over past 1 week, 3 months



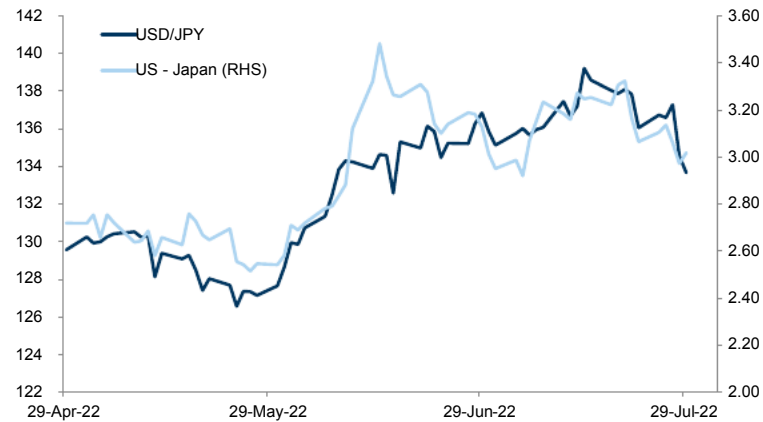
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 91: EUR/USD against German - US 2y interest rate differentials past 3m



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 92: USD/JPY against US - Japan 2y interest rate differentials past 3m



Source: Datastream, Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

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