

Global Credit Trader

Too fast, too soon

Still fading the rally

- Credit spreads have continued to pull tighter in the aftermath of the FOMC meeting, on a market narrative that a dovish pivot could be warranted.
- We disagree given the likely forward path of inflation and would continue to fade the rally, using it as opportunity to cut risk and rotate further up in quality

Europe: Stronger sovereign spillovers, downgrading AT1s to underweight vs. HY

- Compared to previous episodes of European periphery sovereign stress, spillovers to the IG corporate bond market have been stronger this time, due to the combination of an equally challenging backdrop for both private and public balance sheets, as well as the end of ECB net purchases.
- Given their past history of underperformance when macro vol increases, we are also downgrading AT1s to underweight vs. HY, from overweight previously.

Yet another look at secondary market liquidity

- We construct two novel measures of market liquidity, the share of unmatched client "sell" IG block trades and

an augmented price impact measure, using bond age.

- Both metrics continue to highlight increasing weakness in secondary market liquidity.

New regulatory proposals for CLOs: Another reason to stay up in the capital structure

- A new proposed regulation could potentially increase insurance companies' risk-weights for lower-rated holdings, presenting a long-term risk to junior and mezzanine CLO tranche demand.
- In addition to our constructive view on AAA CLO relative valuations, senior tranches should also be well-insulated from these potential regulatory headwinds.

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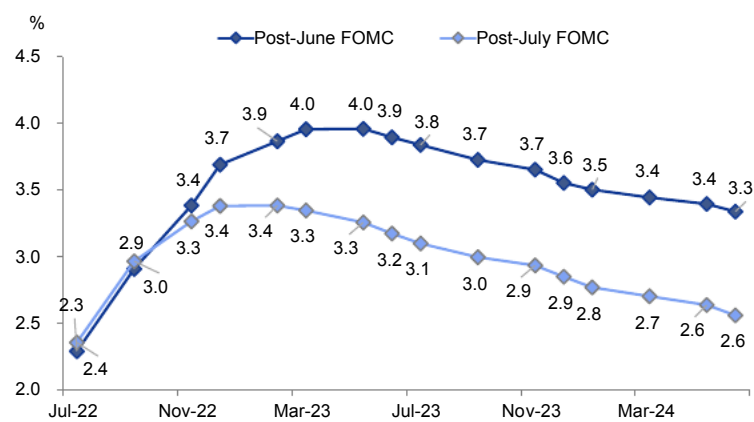
Markets embrace a dovish Fed view: Too fast, too soon. The rally of the past few weeks has gained more momentum post-FOMC meeting. HY spreads are close to 90bp tighter vs. the beginning of the month's wide and the S&P 500 is now up 10.5% since its local trough on June 16. A new powerful driver has emerged in recent days: the growing expectation that the Fed will pivot in a dovish direction, and a comfort from the notable decline in real yields (Exhibit 1), as well as the material downward shift in the market pricing of the Fed funds rate over the next year (Exhibit 2). Our economists do expect a slower pace of hikes for the remainder of the year (50bp in September, followed by two 25bp hikes in November and December). That said, they think the case for a dovish pivot is still quite weak considering the most likely forward path of inflation. We would also caveat that current market pricing of the Fed funds rate ought to be interpreted as a probability-weighted average as opposed to a modal outcome. As such, the recent downward shift (again Exhibit 2) is closer to capturing a repricing of recession risk as opposed to a genuine improvement in the growth/inflation tradeoff. And while the upcoming "mechanical" decline in inflation measures could surprise positively in terms of its magnitude, we struggle to see a sustained compression in risk premia, and therefore an easing of financial conditions, at a time when the Fed has not yet seen any concrete evidence that inflation has come under control. We continue to fade the rally and recommend using it as opportunity to cut risk and rotate further up in quality.

Exhibit 1: Real yields have moved notably lower recently



Source: Goldman Sachs Global Investment Research

Exhibit 2: Relative to the post-June FOMC meeting, the current OIS curve now implies three fewer hikes in 2023

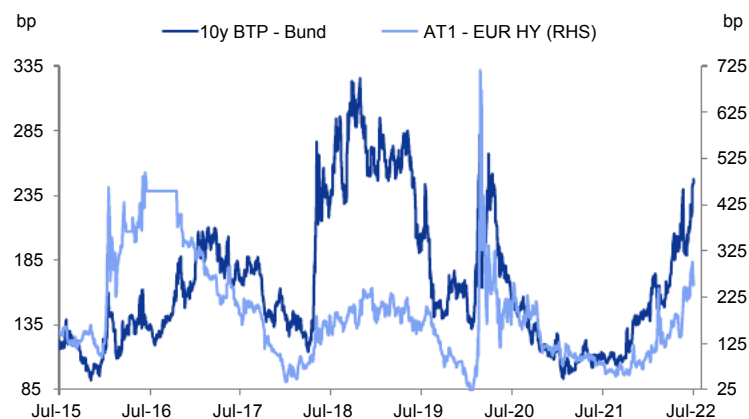


Source: Goldman Sachs Global Investment Research

AT1s vs. HY: A tough call but recent underperformance has room to run. Our European economists are now forecasting a technical recession in the Euro area, with a contraction in real GDP growth of -0.1% in the third quarter and -0.2% in the fourth quarter (non-annualized). This macro outlook further strengthens our conviction level in the IG/HY decompression theme. It also prompted us to downgrade EUR AT1s to a modest underweight allocation vs. HY. This recommendation may

seem counter intuitive considering the fact that AT1 securities, while subordinated, are issued by IG-rated and well-capitalized banks. After all, a full-blown recession is generally a more serious fundamental headwind for a typical HY-rated firm than a large and diversified bank. But in our view, two drivers will likely continue to constrain the relative performance of AT1 vs. HY bonds (Exhibit 3). The first is the tendency of AT1 securities to underperform their “market beta” during high volatility regimes, such as the one that has prevailed this year or in 2018. While this behavior is likely more driven by technicals rather than fundamentals, we don’t see reasons for this to change. The second is the strong linkages between bank securities and sovereign markets. While the announcement of Transmission Protection Instrument could put a ceiling on BTP spreads, the current political backdrop greatly limits the scope for a convincing move tighter in BTP spreads, a negative for the relative performance of AT1s.

Exhibit 3: AT1s are at their widest level since 2016 vs. EUR HY

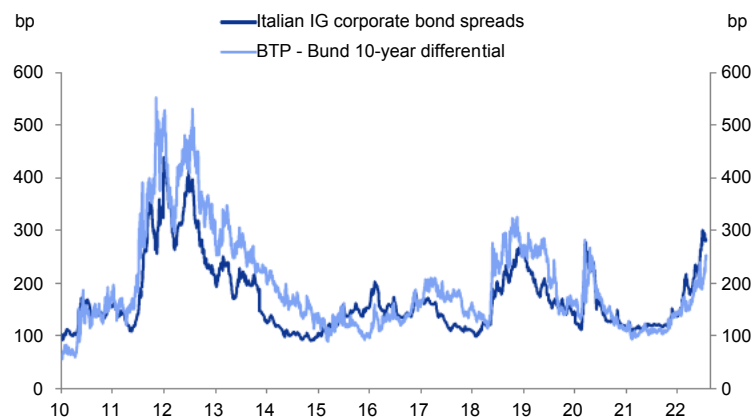


Source: iBoxx, Goldman Sachs Global Investment Research

Fragmentation risk in corporate credit: A stronger sovereign spillover this time around. One key feature of the past several years has been the outperformance of Italian corporate bonds vs. BTPs during episodes of sovereign stress. The recent widening in BTP spreads has proved more challenging for corporate bonds. The strong co-movement between Italian corporate bond spreads and BTP spreads is of course not surprising (Exhibit 4). But in departure from the pattern of the past few years, just 28% of EUR IG Italian corporate bonds are trading with yields tighter than their sovereign counterparts. For context, the last time the BTP-Bund spread was this wide, approximately 80% of Italian corporate bonds traded tighter than BTPs (Exhibit 5). We see two reasons why this time is different. The first is the current macro environment is equally challenging for both public and private balance sheets. While political uncertainty typically weighs more heavily on sovereign credit risk, the prospect of a full-blown recession in the Euro area (with a likely more severe impact on the Italian economy) has constrained the relative performance of Italian corporate bonds in a way that previous episodes did not. The second is

the end of ECB net purchases. Unlike the first half of 2017 and the second half of 2018, when the ECB was still deploying its balance sheet in the corporate bond market (albeit at a slower pace in the second half of 2018), there is no direct support this time around. And as we discussed earlier this week, it is unlikely that the ECB would purchase corporate bonds using the TPI even though it did leave the door open to that possibility.

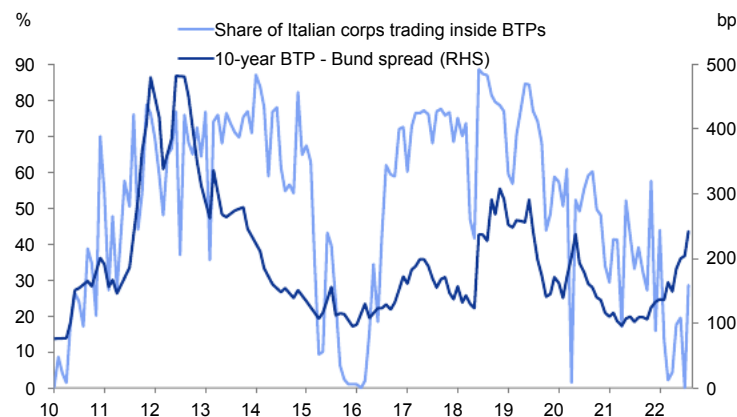
Exhibit 4: Unsurprisingly, Italian corporate bond spreads have been moving in lockstep with BTP spreads...



Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 5: ...but unlike previous episodes, Italian corporate bonds are not outperforming BTPs

Share of Italian corporate bonds with yields tighter than similar duration BTPs vs. the 10-year BTP-Bund spread



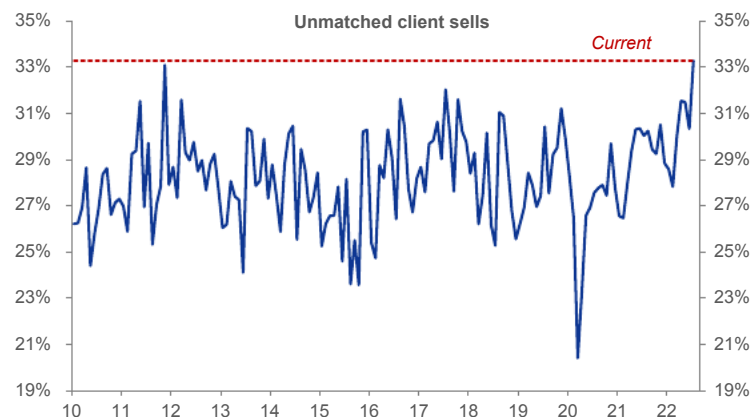
Source: iBoxx, Goldman Sachs Global Investment Research

A closer look at the supply of secondary market liquidity. Over the last few weeks, we have been paying special attention to the evolution of secondary market liquidity conditions. In the pursuit of expanding our analytical toolkit, we present two more novel measures. The first is the share of unmatched client block trade “sells” in the IG market. We define a block trade as one with a notional size of more than \$5M of a single bond. We consider it unmatched if more than five days elapse without an offsetting transaction (i.e. a client “buy” transaction). In effect, this measure is a way to assess the share of trades for which intermediaries have to allocate principal capital. As shown in Exhibit 6, this share currently stands at its highest level since the end of the global financial crisis, suggesting a mixed read-through. On the one hand, it is reassuring that dealers have managed to deploy more principal capital which has likely preserved a healthy risk intermediation backdrop. On the other hand, any further increase in the share of principal trades will likely be inhibited by the numerous requirements that constrain the expansion of dealers’ balance sheets. The second measure is a refined version of one of our long-time favorites: the Amihud price impact measure, by bond age (Exhibit 7). Technicalities aside, a higher Amihud measure implies a less liquid bond and, in less liquid markets, off-the-run bonds should see a higher degree of liquidity deterioration vs. their on-the-run peers. The takeaway from both of these Exhibits is clear, the quality of the secondary market microstructure is

continuing to show signs of deterioration, especially for off-the-run bonds. That said, we would also stress that we view the current state of market liquidity as *straining*, but not yet *strained*.

Exhibit 6: Share of unmatched client sells is sitting at a post-GFC high

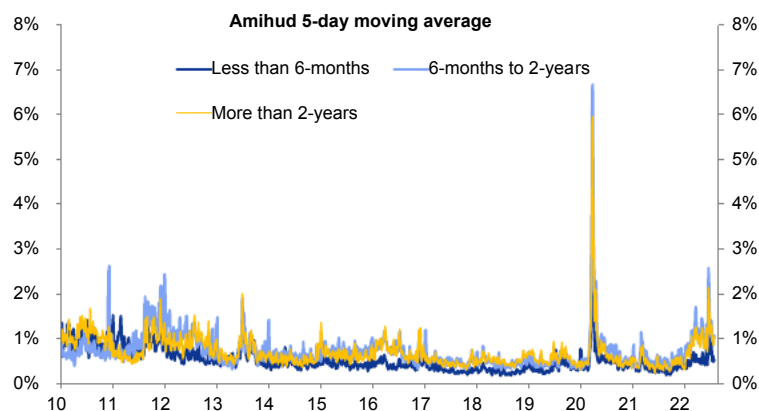
A block trade is any trade that is greater than \$5M in notional value. We consider a trade unmatched if there are more than 5 days without an offsetting transaction.



Source: TRACE, Goldman Sachs Global Investment Research

Exhibit 7: Off-the-run bonds are becoming less liquid

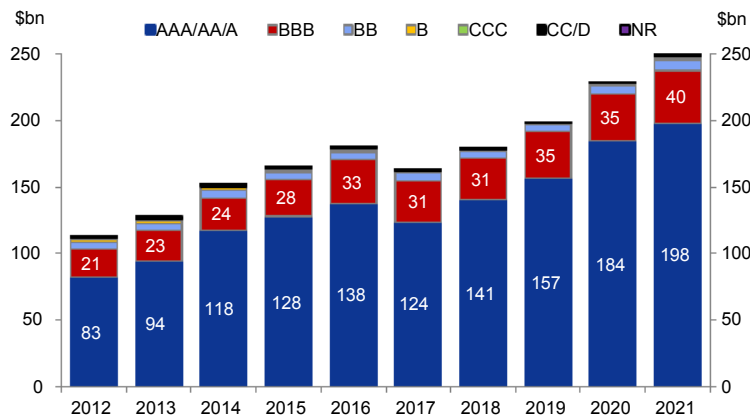
The 5-day moving average of the Amihud price impact measure, by bond age.



Source: TRACE, Dealogic, Goldman Sachs Global Investment Research

CLOs: New proposed regulatory changes are another reason to prefer AAA tranches. A [proposed change](#) from the NAIC (the primary regulatory group for U.S. insurance companies) could dampen demand from insurance companies for mezzanine and junior CLO tranches. By potentially increasing the risk weights for lower-rated holdings, the NAIC (the primary regulatory group for U.S. insurance companies) is aiming to resolve an arbitrage wherein the entire capital stack of CLOs has a lower total risk weight than the underlying loan collateral. As a result, holdings of certain junior CLOs could be less effective for insurance companies, as the risk weight could rise despite the level of yield remaining unchanged. This increase in risk weighting will likely be sharpest for CLOs where official ratings understate potential risk, most affecting CLOs rated BBB (or even single-A) and lower. For context, insurance companies own over 50% of outstanding BBB-rated CLOs (versus 26% of AAA-rated CLOs) per estimates from the Federal Reserve Board in June 2020. As of the end of 2021, US insurance companies owned roughly \$40 billion worth of BBB-rated CLOs, on our equity research analysts' estimates (Exhibit 8). While this change is unlikely to go into effect by year-end 2022, it presents a salient long-term risk to insurance demand for mezzanine and junior tranches. While BBB-rated CLO spreads have widened versus HY corporate bonds in recent weeks, we continue to think relative value is stronger for AAA-rated CLOs (Exhibit 9), anchoring our overweight recommendation on AAA CLOs versus IG credit. In addition to their favorable valuations, senior CLO tranches should be well-insulated from this potentially sustained regulatory headwind.

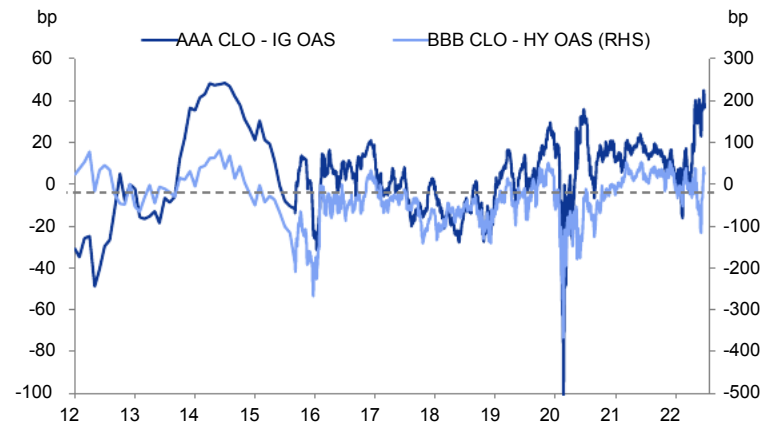
Exhibit 8: U.S. insurance companies own roughly \$40 billion in BBB-rated CLO tranches
 GS estimates of insurance company CLO holdings across life, P&C, and health insurance sectors



Note: As of year-end 2021.

Source: Goldman Sachs Global Investment Research

Exhibit 9: AAA CLOs remain attractive versus IG credit in valuation terms
 Spread of CLO discount margins (AAA and BBB) and corporate bond OAS (IG and HY)

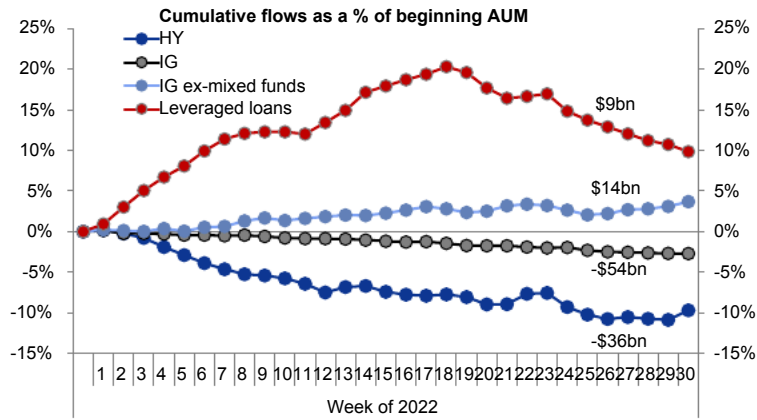


Source: Palmer Square, Bloomberg, Goldman Sachs Global Investment Research

Fund flows reflect recent rally. Excluding mixed IG and bank loan funds in the USD market, which saw net outflows of \$0.8 billion each, this week saw net inflows across most markets. USD IG ex-mixed and USD HY had inflows of \$2.1 billion and \$4.4 billion. The EUR IG and HY market also experienced inflows of \$0.1 billion and \$0.2 billion, respectively. Taking a step back, the key takeaway from the past few weeks has been the tangible signs of stabilization in the trajectory of IG fund flows, in both the USD and EUR markets. By contrast, momentum up until this week was negative for HY funds, suggesting more resistance to recovery than their IG counterparts. In the USD market, IG funds have seen six weeks of positive inflows, as well as three weeks of increasing positive momentum (Exhibit 10). Conversely, outflows have remained strong in bank loan funds, with seven consecutive weeks of net outflows. Interestingly, the outflows have persisted despite the rally in the leveraged loan market. The EUR market tells a similar, albeit grimmer story, with EUR IG funds (excluding mixed funds) in their fifth straight week of inflows (though cumulative flows are still net negative year-to-date), and EUR HY funds experiencing their first week of inflows in seven weeks (Exhibit 11).

Exhibit 10: USD IG ex-mixed funds have shown more improvement than HY and leveraged loan funds

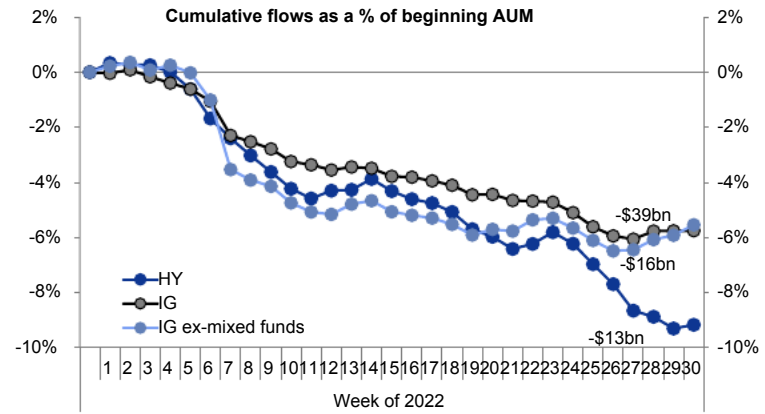
USD YTD cumulative flows as a % of beginning AUM



Source: EPFR, Goldman Sachs Global Investment Research

Exhibit 11: EUR IG and IG ex-mixed funds have shown more improvement than HY

EUR YTD cumulative flows as a % of beginning AUM



Source: EPFR, Goldman Sachs Global Investment Research

Spread and excess returns forecasts

Exhibit 12: USD and EUR spread forecasts

Sector	Updated through Jul 27, 2022			
	Current	2022Q4	2023Q1	2023Q2
USD Spreads				
IG	144	175	159	140
IG Fin	151	170	155	135
IG Non-Fin	140	180	165	145
High Yield	491	625	535	465
EUR Spreads				
IG	205	229	195	175
IG Fin	238	260	225	200
IG Non-Fin	185	205	180	165
High Yield	585	655	560	491

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

Exhibit 13: USD and EUR excess return forecasts

Sector	Updated through Jul 27, 2022		
	Current Duration	2022 YTD excess return (%)	Forecasted excess return (%)
			Full-year 2022
USD excess returns			
Investment Grade	8.8	-2.8	-4.8
High Yield	3.9	-5.6	-8.1
EUR excess return			
Investment Grade	5.4	-3.9	-4.3
High Yield	3.2	-7.8	-7.4

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

Exhibit 14: Our directional view in the USD market



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Exhibit 15: Our directional view in the EUR market



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

Valuation dashboard for cash and synthetic markets

Exhibit 16: Performance and percentile ranks for cash and synthetic markets

Index	Current*		Total return			Percentile rank (spread)		Percentile rank (yield)	
	Spread	Yield	MTD	QTD	YTD	Post-GFC	Full history	Post-GFC	Full history
Cash									
Agency MBS	29	3.4	2.2	2.2	-6.8	48	30	91	35
IG	144	4.5	2.3	2.3	-12.4	66	70	97	26
AA	87	3.8	2.4	2.4	-11.3	62	60	99	42
A	124	4.2	2.0	2.0	-11.0	69	64	95	37
BBB	195	4.9	2.1	2.1	-13.1	59	59	95	37
HY	491	8.1	4.5	4.5	-10.4	63	60	87	38
HY ex-Energy	498	0.0	4.6	4.6	-10.8	69	64	0	0
BB	338	6.4	4.6	4.6	-9.5	55	55	87	46
B	568	8.7	4.5	4.5	-9.9	72	64	92	60
CCC	1127	14.2	3.6	3.6	-14.2	75	63	88	69
Leveraged Loans	516	7.1	2.0	2.0	-2.6	68	77	97	64
BB	370	5.6	2.1	2.1	-1.2	56	70	98	64
B	551	7.5	2.2	2.2	-2.8	72	74	95	61
CCC	1250	14.8	-0.3	-0.3	-8.8	72	71	83	78
ABS (Autos)	110	4.0	0.3	0.3	-2.0	96	86	100	53
ABS (Credit cards)	46	3.3	0.6	0.6	-2.8	53	40	100	48
ABS (Student loans)	147	3.9	0.2	0.2	-1.9	68	65	100	77
AAA CLO 2.0	197	--	--	--	--	95	95	--	--
BB CLO 2.0	1087	--	--	--	--	93	93	--	--
EMBI	465	--	1.2	1.2	-17.8	96	77	--	--
Synthetic									
CDX IG	84	-	0.8	0.8	-1.0	69	69	-	-
CDX HY	487	-	4.0	4.0	-4.9	75	72	-	-
CDX EM	364	-	-0.7	-0.7	-7.9	97	93	-	-
iTraxx Asia ex-Japan	157	-	-0.5	-0.5	-2.1	91	85	-	-
CMBX 9 AAA	43	-	0.0	0.0	0.0	53	53	-	-
CMBX 9 BBB	928	-	0.0	0.0	0.0	95	95	-	-
CMBX 6 AAA	36	-	0.0	0.0	0.0	48	48	-	-
CMBX 6 BBB	13440	-	0.0	0.0	0.0	100	100	-	-
Cash									
IG	205	2.7	4.0	4.0	-8.9	89	89	77	41
AA	123	1.9	3.8	3.8	-6.6	84	84	75	40
A	174	2.4	4.0	4.0	-7.9	87	85	78	42
BBB	247	3.1	3.9	3.9	-10.1	83	84	74	40
HY	585	6.5	4.3	4.3	-11.5	78	62	75	42
AT1	851	9.1	3.5	3.5	-13.2	89	89	97	97
Leveraged loans	646	6.6	1.7	1.7	-6.0	84	84	78	74
BB	488	5.0	1.9	1.9	-4.0	97	92	88	58
B	638	6.5	1.9	1.9	-6.2	87	86	81	75
Synthetic									
iTraxx Main	110	-	0.00	0.00	0.0	81	81	-	-
iTraxx Xover	552	-	1.57	1.57	-9.9	88	85	-	-
iTraxx SenFin	121	-	0.46	0.46	-2.3	73	78	-	-
iTraxx SubFin	227	-	0.99	0.99	-3.7	74	80	-	-

*Data as of previous day close.

For USD IG and HY we use the Bloomberg Barclays indices with history back to Jun-89 and Jan-94, respectively. Corp rating level, Agency MBS and ABS we use ICE-BAML indices with history back to Dec-96, EUR IG we use the iBoxx QW5A index with history back to Jan-99, EUR HY we use the ICE-BAML index with history back to Dec-97, EUR AT1s we use the iBoxx index with data back to Jan-15, EM we use the JPM EMBI index with history back to Jan-00 and USD and EUR leveraged loans we use the S&P LCD LLI and ELLI indices with data going back to Jan-97 and Jan-02, respectively.

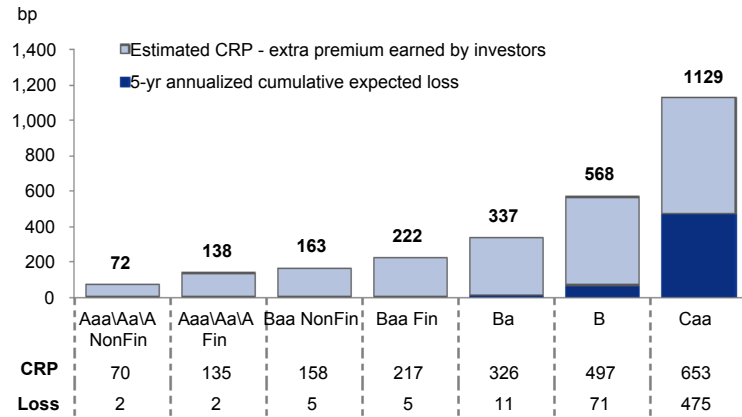
Note: A percentile rank of 50 indicates that spreads traded tighter than their current level 50% of the time. *Data as of previous day close.

Source: Bloomberg-Barclays, iBoxx, S&P Capital IQ LCD, ICE-BAML, Goldman Sachs Global Investment Research

Credit Risk Premium (CRP) estimates and loss rate forecasts

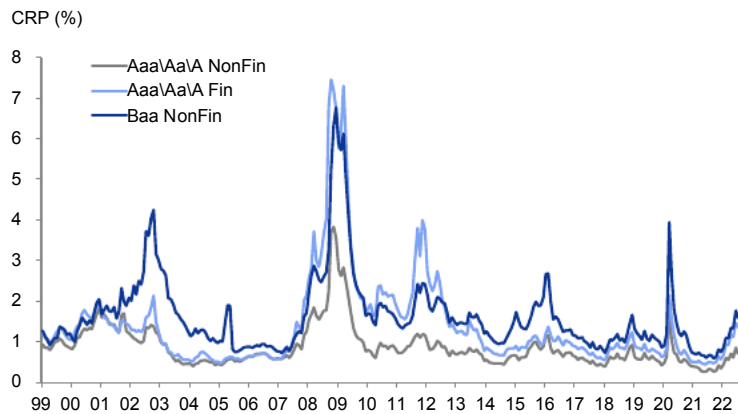
Exhibit 17: Decomposition of spreads into our own forecasts of expected losses and the premium net of loss (CRP)

The CRP is calculated as the IRR on loss-adjusted cash flows in excess of the 5-year Treasury yield



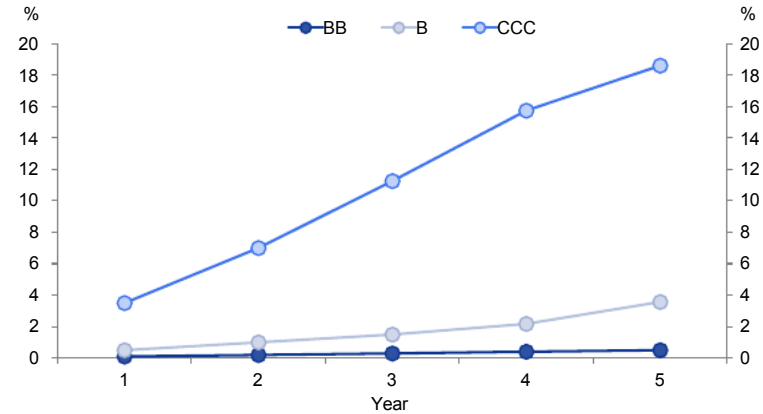
Source: Haver Analytics, iBoxx, Moody's, Goldman Sachs Global Investment Research, ICE-BAML

Exhibit 19: Realized and forecasted CRP across the IG rating spectrum



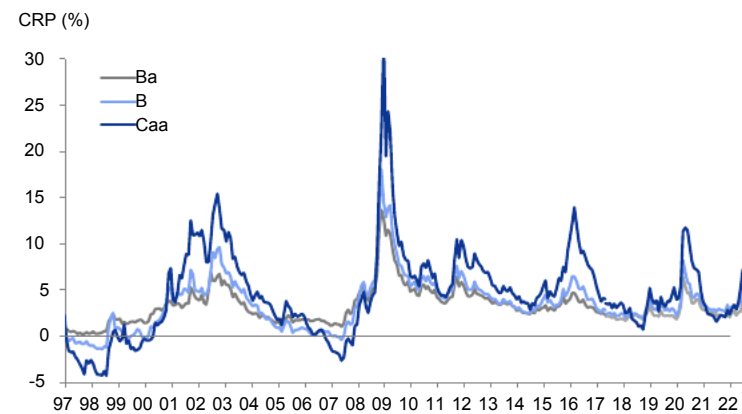
Source: iBoxx, Moody's, Goldman Sachs Global Investment Research

Exhibit 18: Cumulative loss rate forecasts across the HY rating spectrum



Source: Moody's, Goldman Sachs Global Investment Research

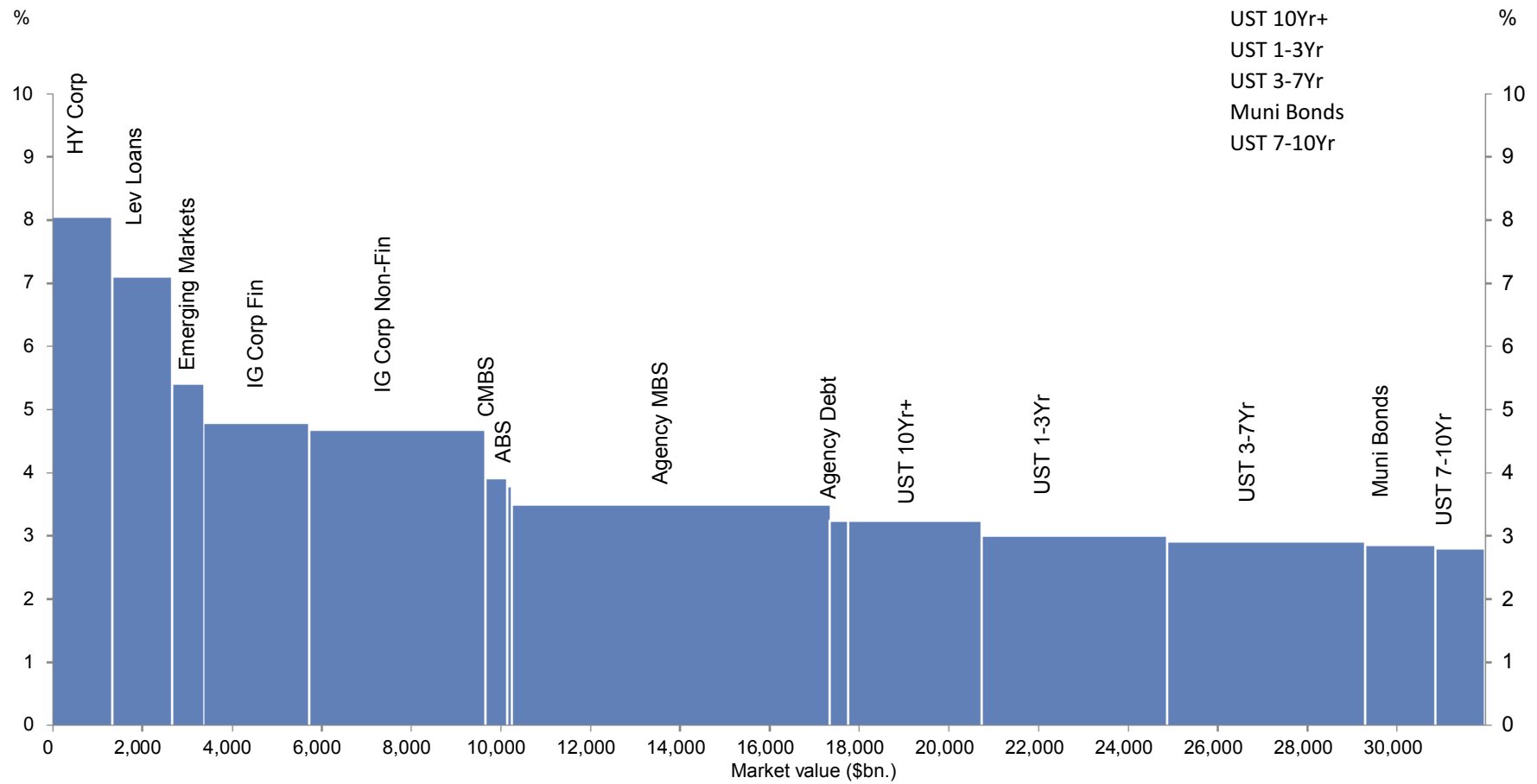
Exhibit 20: Realized and forecasted CRP across the HY rating spectrum



Source: Haver Analytics, Moody's, Goldman Sachs Global Investment Research, ICE-BAML

Finding yield in USD fixed income markets

Exhibit 21: Average yield vs. total market value outstanding across the USD fixed income complex

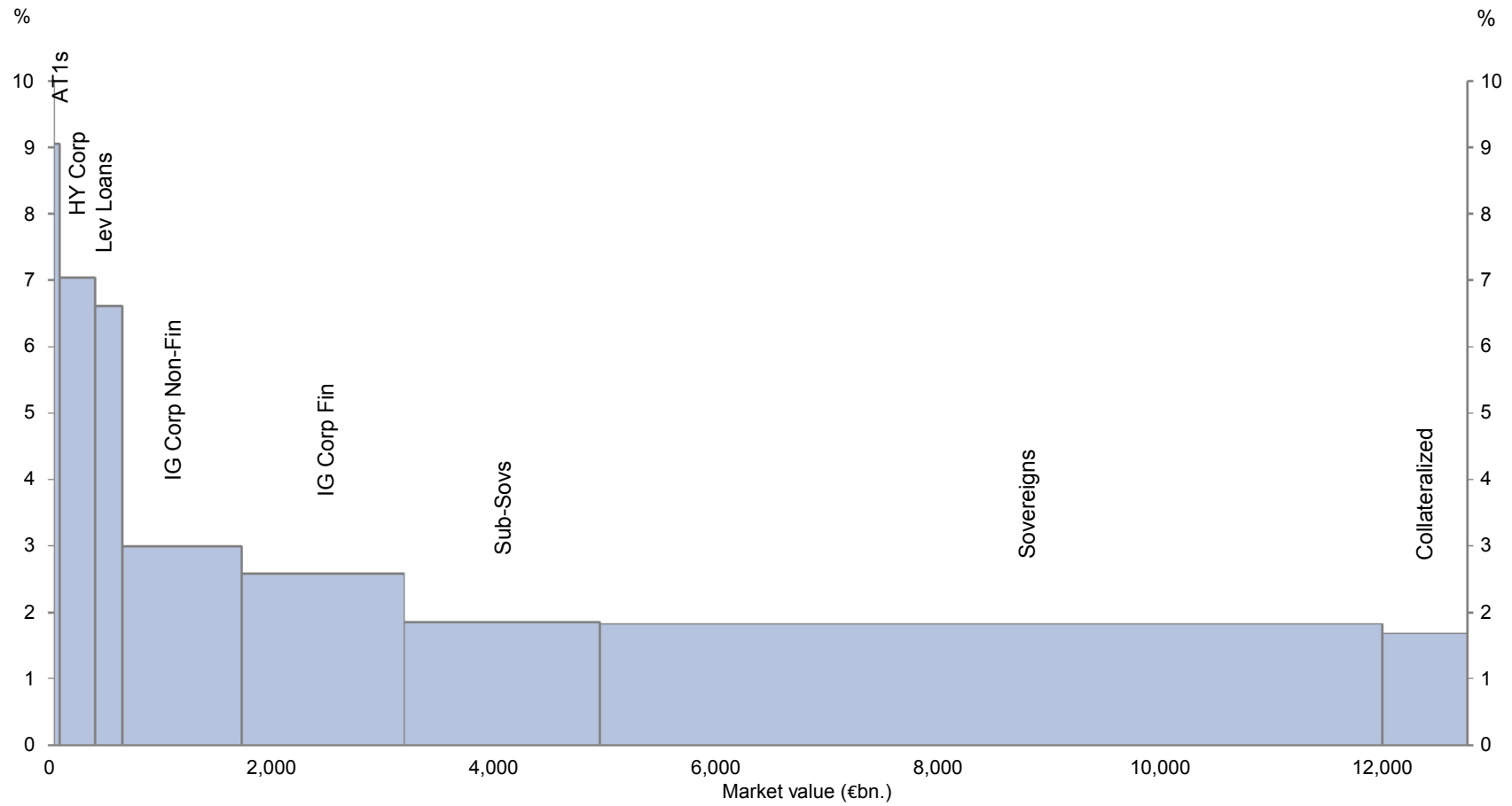


Note: We use the iBoxx indices for the IG corporate credit and US Treasury markets, the Bloomberg-Barclays indices for the HY, MBS, CMBS and ABS markets, the EMBI index for the EM credit market, and the S&P LSTA index for the leveraged loan market.

Source: iBoxx, Bloomberg-Barclays, S&P LCD, Goldman Sachs Global Investment Research

Finding yield in EUR fixed income markets

Exhibit 22: Average yield vs. total market value outstanding for the EUR fixed income markets



Source: iBoxx, Goldman Sachs Global Investment Research

Performance of our factor and thematic bond baskets

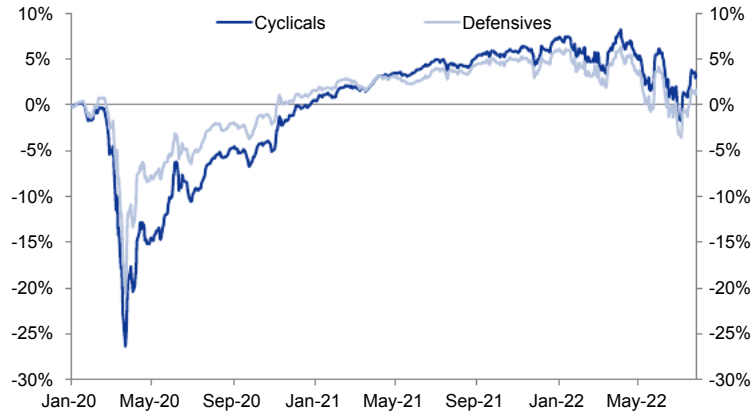
Exhibit 23: Performance of our baskets

Theme	Market	Strategy	Market beta (2016-2020)	Total return			Excess return			Average maturity (years)	Average rating	Sector-neutral	Rating-neutral	Duration-neutral	Duration times spread (DTS)-neutral
				1-week	3-month	12-month	1-week	3-month	12-month						
Factors	USD IG	Momentum (winners)	1.04	1.43	0.62	-13.13	-0.21	0.69	-1.96	13.7	A-	N	N	N	Y
		Momentum (losers)	1.03	1.44	-1.03	-15.86	-0.14	-1.03	-3.78	9.3	BBB+	N	N	N	Y
		High value	1.08	1.38	0.02	-11.71	-0.04	-0.03	-1.58	10.4	A-	N	N	N	N
		Low value	0.89	1.31	-0.23	-12.92	-0.12	-0.36	-3.24	9.4	A-	N	N	N	N
		Low risk	0.27	0.75	0.30	-4.49	0.02	0.16	-0.34	2.4	A-	N	N	N	N
		High risk	1.92	1.71	-0.87	-24.60	-0.30	0.79	-4.42	25.1	BBB+	N	N	N	N
		High Carry	1.29	1.49	-0.62	-13.96	-0.09	-0.87	-3.50	10.4	BBB+	N	Y	Y	N
		Low Carry	0.75	1.43	0.64	-13.73	-0.18	0.68	-2.31	11.0	A-	N	Y	Y	N
		Low Liquidity	1.10	1.42	-0.47	-14.03	-0.13	-0.48	-3.03	11.3	BBB+	N	N	Y	N
		High Liquidity	0.96	1.42	-0.32	-13.72	-0.15	-0.49	-3.15	10.6	A-	N	N	Y	N
	USD HY	Momentum (winners)	0.92	1.33	-1.38	-6.31	-0.25	-2.12	-0.01	6.2	B+	N	N	N	Y
		Momentum (losers)	1.10	1.26	-1.72	-9.99	-0.12	-2.07	-1.84	5.4	B+	N	N	N	Y
		High value	1.45	1.45	-3.64	-8.73	0.09	-4.10	-1.26	5.6	B+	N	N	N	N
		Low value	0.79	0.83	-1.05	-7.56	-0.61	-1.61	-1.29	5.6	B+	N	N	N	N
		Low risk	0.46	0.56	-0.40	-3.32	-0.48	-0.74	0.44	3.8	BB-	N	N	N	N
		High risk	1.97	1.82	-4.50	-12.69	0.19	-5.07	-3.27	6.9	B-	N	N	N	N
		High Carry	1.83	1.60	-3.60	-8.65	0.22	-4.03	-0.79	5.8	B+	N	Y	Y	N
		Low Carry	0.64	0.86	-0.71	-8.89	-0.67	-1.31	-1.81	5.9	BB-	N	Y	Y	N
		Low Liquidity	1.38	1.56	-2.04	-8.26	0.07	-2.58	-0.45	5.9	B+	N	N	Y	N
		High Liquidity	0.74	1.10	-1.25	-7.61	-0.40	-1.84	-0.95	6.0	B+	N	N	Y	N
Balance sheet quality	USD IG	High margin	1.04	1.45	-0.35	-14.05	-0.14	-0.23	-2.87	13.8	BBB+	Y	Y	N	N
		Low margin	1.15	1.48	-0.75	-12.55	-0.11	-0.95	-3.11	10.6	BBB	Y	Y	N	N
	USD HY	High margin	0.60	0.80	-0.80	-5.47	-0.41	-1.30	-0.41	6.3	BB-	Y	Y	N	N
		Low margin	0.83	0.64	-3.23	-5.62	-0.63	-3.64	-1.22	5.3	B+	Y	Y	N	N
Cyclical recovery and commodity exposure	USD IG	Cyclicals	0.95	1.43	-0.14	-13.29	-0.09	-0.24	-2.81	9.8	A-	N	N	N	N
		Defensives	0.99	1.58	0.25	-15.33	-0.12	0.45	-2.66	12.9	BBB+	N	N	N	N
		Covid-19 resilient	0.91	1.42	0.04	-13.86	-0.15	0.02	-2.79	10.3	A-	N	N	N	N
		Covid-19 disrupted	1.27	1.83	0.56	-13.84	0.24	0.54	-2.72	9.8	BBB	N	N	N	N
		Commodities-related	1.73	1.52	-0.61	-14.52	-0.15	-0.58	-2.66	12.5	BBB+	N	N	N	N
	USD HY	Cyclicals	1.05	0.99	-1.59	-8.38	-0.47	-2.10	-0.93	5.9	B+	N	N	N	N
		Defensives	0.81	1.53	-1.50	-9.67	-0.06	-2.10	-1.84	6.0	B+	N	N	N	N
		Covid-19 resilient	0.83	1.02	-1.47	-9.86	-0.49	-2.02	-2.10	6.0	B+	N	N	N	N
		Covid-19 disrupted	1.26	0.79	-1.45	-7.02	-0.61	-1.93	0.05	5.5	B	N	N	N	N
		Commodities-related	1.66	1.28	-1.62	-5.22	-0.23	-2.19	1.93	6.2	BB-	N	N	N	N
	EUR IG	Cyclicals	1.03	1.66	-1.06	-10.29	0.18	-1.20	-3.94	5.0	A-	N	N	N	N
		Defensives	0.94	2.19	-1.86	-13.32	0.34	-1.79	-4.96	6.4	BBB+	N	N	N	N
		Covid-19 resilient	1.01	1.80	-1.18	-10.52	0.23	-1.26	-3.63	5.4	A-	N	N	N	N
		Covid-19 disrupted	0.94	2.76	-1.04	-12.47	0.59	-0.56	-2.32	7.7	A	N	N	N	N
	EUR HY	Cyclicals	1.09	1.38	-4.32	-15.60	0.16	-4.49	-10.48	4.3	BB-	N	N	N	N
		Defensives	0.80	1.01	-3.22	-11.13	-0.29	-3.33	-5.55	4.6	BB-	N	N	N	N
Covid-19 resilient		1.00	1.18	-4.72	-11.42	0.01	-4.87	-6.57	4.0	BB-	N	N	N	N	
Market liquidity	USD IG	Covid-19 disrupted	1.32	0.75	-5.20	-10.02	-0.31	-5.29	-5.24	3.7	BB-	N	N	N	N
		Liquid	0.96	1.42	-0.32	-13.72	-0.15	-0.49	-3.15	10.6	A-	N	N	Y	N
US tax policy	USD IG	Illiquid	1.10	1.42	-0.47	-14.03	-0.13	-0.48	-3.03	11.3	BBB+	N	N	Y	N
		Liquid	0.74	1.10	-1.25	-7.61	-0.40	-1.84	-0.95	6.0	B+	N	N	Y	N
	USD HY	Illiquid	1.38	1.56	-2.04	-8.26	0.07	-2.58	-0.45	5.9	B+	N	N	Y	N
		Low tax	0.95	1.44	-0.21	-13.45	-0.17	-0.32	-2.72	11.0	A-	Y	N	N	N

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

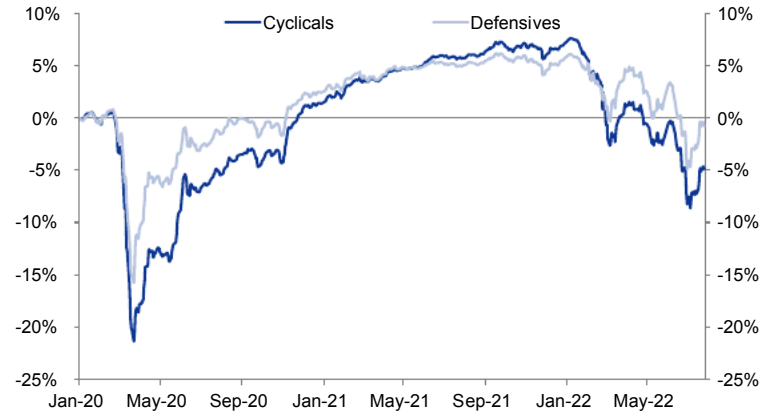
Performance of the reopening and cyclical recovery themes

Exhibit 24: Relative performance of cyclicals vs. defensives in the USD HY market



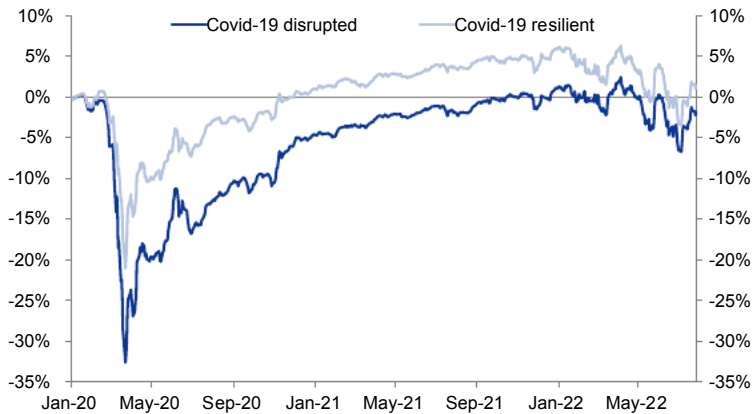
Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 25: Relative performance of cyclicals vs. defensives in the EUR HY market



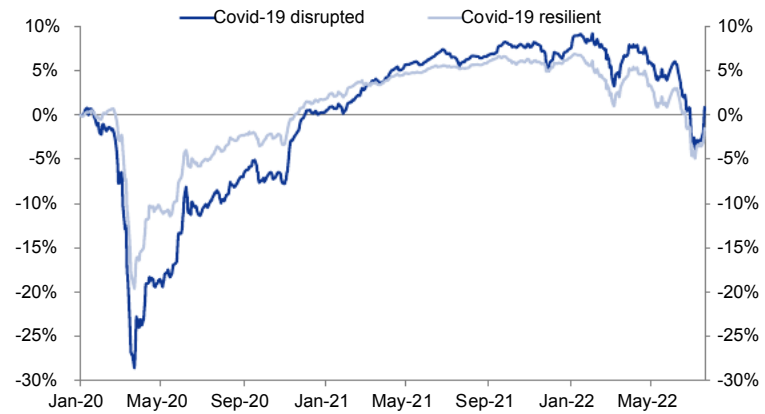
Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 26: Relative performance of Covid-19 disrupted vs. indirectly impacted sectors in the USD HY market



Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 27: Relative performance of Covid-19 disrupted vs. indirectly impacted sectors in the EUR HY market



Source: iBoxx, Goldman Sachs Global Investment Research

USD ETF performance

Exhibit 28: USD ETF performance

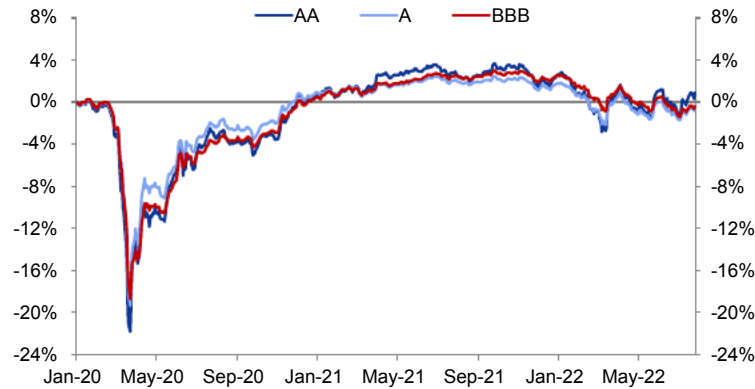
Sector	ETF Ticker	AUM	Weekly Flow (\$Mn.)	YTD cum flow (% of AUM)	Shares Outstanding (Mn.)	Short Interest (%)	Price	% NAV Premium	YTD Total Return	QTD Total Return	MTD Total Return	Benchmark Index	YTD Total Return
Investment Grade	LQD	\$34.59B	1093	2.9%	306	17.45	114.31	0.43%	-12.6	4.2	4.2	iBoxx USD Liquid Investment Grade Index	-13.7
	VCSH	\$41.57B	338	5.3%	541	3.43	77.26	0.21%	-4.1	1.5	1.5	Bloomberg Barclays US Corporate 1-5 Yrs Total Return Index Value Unhedged	-4.7
	VCIT	\$42.07B	-7	1.7%	515	0.98	82.55	0.11%	-9.9	3.4	3.4	Bloomberg Barclays US Credit Corporate 5-10 Yrs Total Return Index Value Unhedged	-10.9
	FLOT	\$9.43B	0	32.3%	188	--	50.16	-0.09%	-0.8	0.6	0.6	Bloomberg Barclays US FRN < 5 yr Total Return Index Value Unhedged	-0.4
	IGSB	\$21.43B	0	-1.4%	421	1.13	51.15	0.24%	-4.3	1.4	1.4	ICE BofAML 1-5 Year US Corporate Bond Index	-5.2
	IGIB	\$9.73B	-29	-1.4%	187	0.66	52.62	0.48%	-10.1	3.3	3.3	Bloomberg Barclays U.S. Interm	-11.2
	SPSB	\$7.51B	-39	-2.0%	252	1.04	29.94	0.13%	-2.7	0.9	0.9	Bloomberg Barclays US Corporate 1-3 Yrs Total Return Index Value Unhedged	-2.9
	SPIB	\$6.2B	231	-2.0%	188	2.10	33.31	0.21%	-6.9	2.3	2.3	Bloomberg Barclays Intermediate Corporate Total Return Index Value Unhedged	-7.5
	VCLT	\$4.74B	67	18.6%	57	6.06	85.07	0.65%	-18.2	5.2	5.2	Bloomberg Barclays Long U.S. Corporate Total Return Index Value Unhedged	-19.9
High Yield	HYG	\$15.02B	649	-22.0%	196	43.05	77.54	0.54%	-8.8	5.8	5.8	iBoxx USD Liquid High Yield Index	--
	JNK	\$7.89B	755	-7.3%	83	14.83	95.58	0.58%	-9.7	5.9	5.9	Bloomberg Barclays VLI: High Yield Total Return Index Value Unhedged USD	-10.4
	SJNK	\$3.67B	148	-4.3%	148	2.28	24.99	0.53%	-5.7	4.1	4.1	Bloomberg Barclays US High Yield 350M Cash 0-5yr 2% Cap Total Return Index	-6.5
	SHYG	\$4.82B	50	-4.1%	116	4.13	42.00	0.49%	-4.9	4.1	4.1	Markit iBoxx USD Liquid High Yield 0-5 Total Return Index	-5.5
	HYS	\$1.16B	9	-27.0%	13	4.53	91.83	0.49%	-5.4	4.2	4.2	ICE BofAML 0-5 Year US High Yield Constrained Index	-6.0
	HYLS	\$1.67B	2	-13.0%	41	0.15	41.15	0.14%	-10.4	5.8	5.8	ICE BofAML US High Yield Constrained Index	-10.2
	ANGL	\$3.13B	4	-28.5%	113	4.16	28.16	0.66%	-12.8	4.6	4.6	ICE BofAML US Fallen Angel High Yield Index	--
	PHB	\$7.78B	10	-11.6%	45	1.10	17.67	0.53%	-7.2	5.2	5.2	RAFI Bonds US High Yield 1-10 Index	--
Loans	BKLN	\$4.09B	-4	-30.7%	195	30.33	20.94	-0.22%	-3.3	3.6	3.6	S&P/LSTA U.S. Leveraged Loan 100 Index	-2.7
	SRLN	\$8.26B	0	0.3%	194	6.10	42.43	-0.21%	-4.8	2.3	2.3	Markit iBoxx USD Liquid Leverage Loans Total Return Index	-3.5
	FTSL	\$3.42B	-122	16.1%	76	0.31	45.14	-0.08%	-3.7	2.7	2.7	S&P/LSTA US Leveraged Loan 100 Market Value Index	-2.7
	SNLN	\$0.3B	-1	-23.6%	2	0.49	14.90	0.33%	-4.4	1.7	1.7	Markit iBoxx USD Liquid Leveraged Loans Total Return Index	-3.5
EM	EMB	\$14.81B	297	-5.3%	174	6.94	87.15	1.61%	-18.2	2.6	2.6	J.P. Morgan EMBI Global Core Index	-20.0
	EMLC	\$2.87B	0	3.3%	120	5.59	24.14	0.96%	-13.4	-0.9	-0.9	J.P. Morgan Government Bond Index Emerging Markets Global Core Index	-14.5

Source: Bloomberg, Goldman Sachs Global Investment Research

Beta-adjusted performance across the rating spectrum

Exhibit 29: Beta-adjusted performance across the USD IG rating spectrum

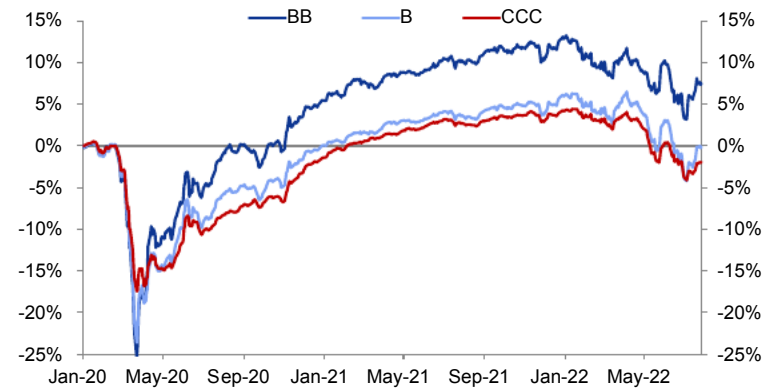
Each rating bucket is adjusted such that its beta to the index is equal to one; returns are also rates-hedged



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Exhibit 30: Beta-adjusted performance across the USD HY rating spectrum

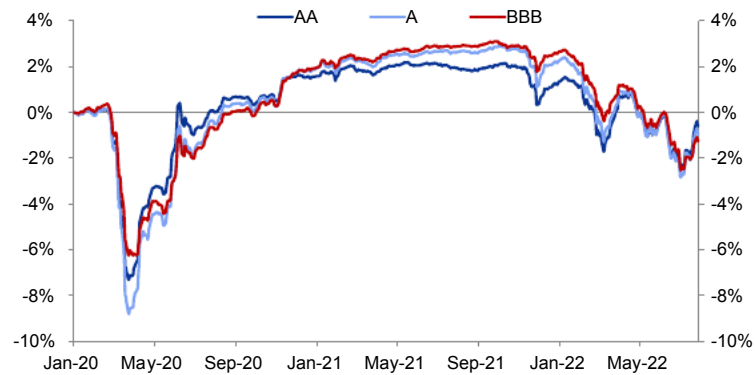
Each rating bucket is adjusted such that its beta to the index is equal to one; returns are also rates-hedged



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Exhibit 31: Beta-adjusted performance across the EUR IG rating spectrum

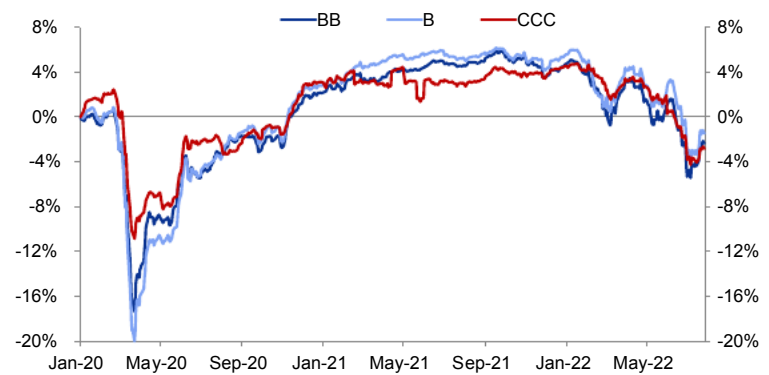
Each rating bucket is adjusted such that its beta to the index is equal to one; returns are also rates-hedged



Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 32: Beta-adjusted performance across the EUR HY rating spectrum

Each rating bucket is adjusted such that its beta to the index is equal to one; returns are also rates-hedged

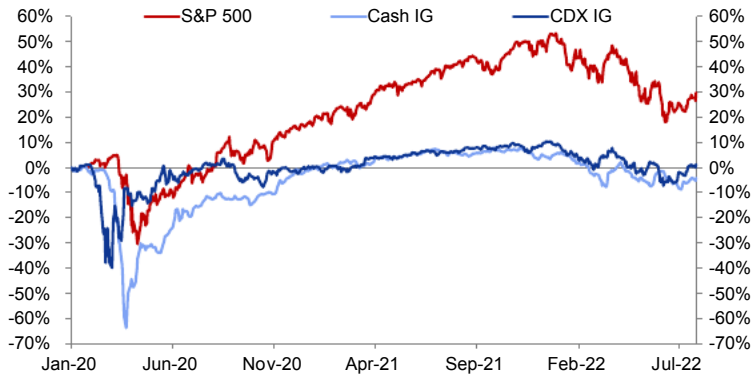


Source: iBoxx, Goldman Sachs Global Investment Research

Beta-adjusted performance of cash and synthetic indices vs. equities

Exhibit 33: Beta-adjusted performance of USD IG cash and CDX IG vs. S&P 500

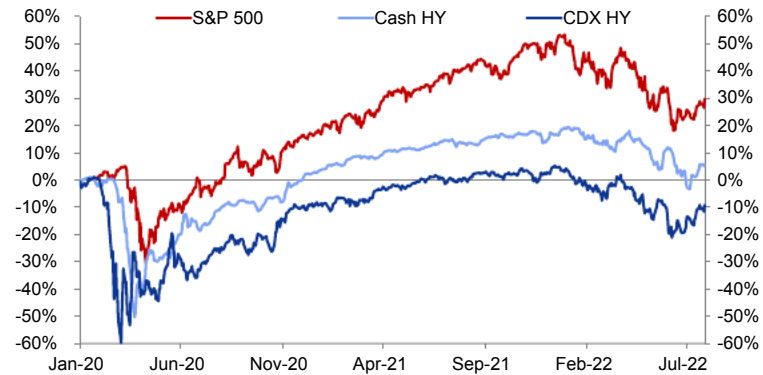
Credit returns are adjusted such that their beta to the S&P 500 is equal to one; cash credit returns are also rates-hedged



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Exhibit 34: Beta-adjusted performance of USD HY cash and CDX HY vs. S&P 500

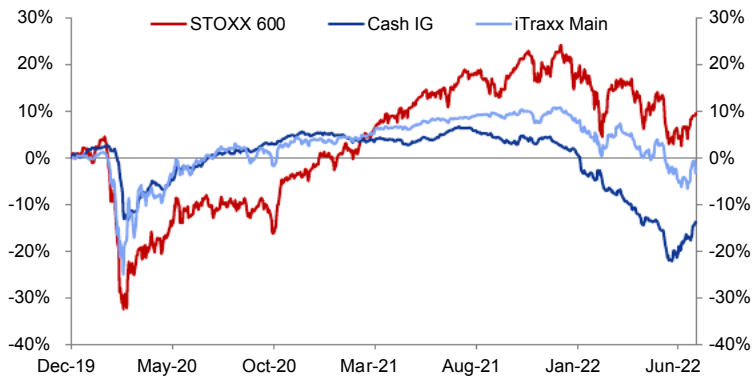
Credit returns are adjusted such that their beta to the S&P 500 is equal to one; cash credit returns are also rates-hedged



Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Exhibit 35: Beta-adjusted performance of EUR IG cash and iTraxx Main vs. STOXX 600

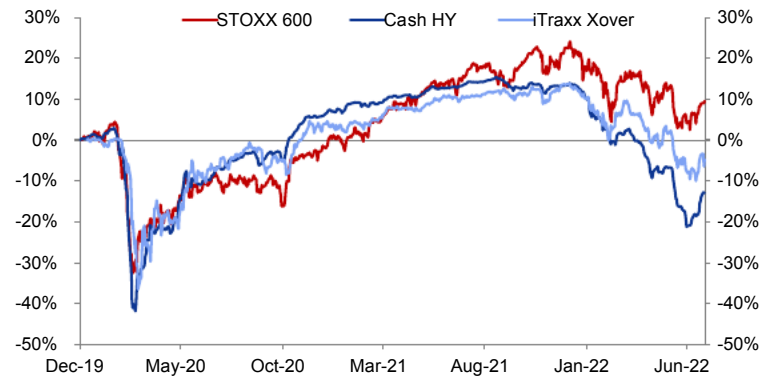
Credit returns are adjusted such that their beta to the STOXX 600 is equal to one; cash credit returns are also rates-hedged



Source: iBoxx, Goldman Sachs Global Investment Research

Exhibit 36: Beta-adjusted performance of EUR HY cash and iTraxx Xover vs. STOXX 600

Credit returns are adjusted such that their beta to the STOXX 600 is equal to one; cash credit returns are also rates-hedged



Source: iBoxx, Goldman Sachs Global Investment Research

Sector performance in USD IG

Exhibit 37: Sector performance: Investment Grade (USD)

Sector	Metrics							Spread change				Total return			
	Index weight	Mkt val (\$bn)	OAS	Percentile rank (2010-today)	YTW	Dur	Ratings	1-week	MTD	QTD	YTD	1-week	MTD	QTD	YTD
Basic Industry	3%	166.8	184		4.9	8.6	BAA1/BAA2	0.1	-0.1	-0.1	59.6	0.5	2.0	2.0	-14.8
Chemicals	1%	86.4	166		4.7	8.6	BAA1/BAA2	0.3	3.1	3.1	71.5	0.4	2.1	2.1	-15.1
Metals & Mining	1%	55.0	205		5.1	9.1	BAA1/BAA2	0.5	0.2	0.2	46.4	0.5	1.6	1.6	-15.1
Paper	0%	25.4	199		4.9	7.4	BAA2/BAA3	-1.0	-5.9	-5.9	58.2	0.7	2.4	2.4	-13.1
Capital Goods	5%	332.2	132		4.3	7.7	BAA1/BAA2	-0.8	-10.0	-10.0	53.8	0.6	2.6	2.6	-12.2
Aerospace & Defense	2%	122.4	152		4.6	8.5	BAA1/BAA2	-0.6	-12.1	-12.1	50.3	0.5	3.2	3.2	-13.0
Building Materials	0%	22.2	175		4.8	7.8	BAA1/BAA2	-0.2	-3.3	-3.3	73.3	0.5	2.1	2.1	-14.2
Diversified Manufacturing	2%	111.8	135		4.3	7.8	A3/BAA1	-1.2	-8.4	-8.4	60.0	0.6	2.4	2.4	-13.0
Construction Machinery	1%	49.6	57		3.6	5.5	A2/A3	-0.7	-19.0	-19.0	35.8	0.4	1.7	1.7	-7.7
Packaging	0%	9.4	173		4.7	5.3	BAA2/BAA3	-0.2	-5.2	-5.2	85.6	0.7	1.8	1.8	-10.8
Environmental	0%	16.8	114		4.1	8.2	BAA1/BAA2	-1.4	-11.8	-11.8	49.8	0.7	2.8	2.8	-11.8
Communications	9%	543.8	171		4.7	9.8	BAA1/BAA2	0.2	-7.0	-7.0	44.2	0.2	2.9	2.9	-15.1
Cable & Satellite	2%	120.3	183		4.8	10.7	BAA1/BAA2	0.2	-7.5	-7.5	41.0	0.1	3.3	3.3	-16.5
Media & Entertainment	2%	117.4	183		4.8	8.8	BAA1/BAA2	-0.2	-6.8	-6.8	72.7	0.5	2.7	2.7	-15.3
Wireless	2%	117.4	163		4.6	8.4	BAA2/BAA3	-0.2	-8.7	-8.7	45.9	0.4	2.7	2.7	-13.4
Wirelines	3%	188.7	160		4.6	10.6	BAA1/BAA2	0.9	-5.4	-5.4	33.1	0.1	2.8	2.8	-14.9
Consumer Cyclical	7%	411.2	120		4.2	7.4	A2/A3	0.4	-10.7	-10.7	53.0	0.4	2.4	2.4	-11.3
Automotive	2%	108.7	128		4.3	4.6	A3/BAA1	0.1	-9.3	-9.3	80.3	0.5	1.5	1.5	-8.9
Leisure	0%	0.0	0		0.0	0.0	NA/NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gaming	0%	10.8	263		5.6	5.8	BAA3/BAA3	-1.7	-6.5	-6.5	33.9	0.8	2.5	2.5	-13.0
Home Construction	0%	11.6	198		5.0	4.6	BAA2/BAA3	-0.5	-10.6	-10.6	104.2	0.6	2.0	2.0	-10.9
Lodging	0%	10.9	177		4.7	4.8	BAA3/BAA3	-2.5	-4.5	-4.5	56.8	0.7	1.4	1.4	-8.6
Retailers	4%	217.3	99		4.0	8.8	A1/A2	1.1	-11.9	-11.9	46.7	0.4	2.7	2.7	-12.3
Restaurants	1%	33.4	113		4.2	9.0	BAA1/BAA2	1.1	-14.8	-14.8	31.5	0.3	3.4	3.4	-12.4
Consumer Cyc Services	0%	18.5	155		4.5	7.1	A3/BAA1	-0.7	-9.0	-9.0	81.5	0.6	2.2	2.2	-11.7
Consumer Non-Cyclical	15%	927.5	127		4.3	9.0	A3/BAA1	0.1	-11.1	-11.1	45.2	0.5	2.9	2.9	-13.4
Consumer Products	1%	57.7	91		3.9	7.1	A2/A3	-1.1	-13.5	-13.5	66.9	0.7	2.5	2.5	-10.6
Food & Beverage	4%	224.1	126		4.3	9.3	A3/BAA1	0.3	-13.2	-13.2	42.3	0.5	3.4	3.4	-13.1
Healthcare	4%	262.6	138		4.4	9.5	A3/BAA1	-0.5	-10.4	-10.4	51.9	0.6	2.9	2.9	-14.7
Pharmaceuticals	5%	310.7	101		4.1	9.1	A2/A3	1.1	-13.7	-13.7	34.0	0.3	2.9	2.9	-12.4
Supermarkets	0%	10.8	137		4.4	9.0	BAA2/BAA2	0.0	-9.8	-9.8	37.0	0.2	3.0	3.0	-14.0
Tobacco	1%	61.6	247		5.5	7.8	BAA1/BAA2	-0.4	-1.2	-1.2	62.1	0.5	1.6	1.6	-16.3
Energy	7%	434.3	165		4.7	8.2	A3/BAA1	-0.2	-5.5	-5.5	42.2	0.5	2.3	2.3	-12.1
Independent Energy	1%	57.3	185		4.8	7.9	BAA1/BAA2	-0.4	-2.4	-2.4	47.6	0.6	1.9	1.9	-11.4
Integrated Energy	2%	122.9	102		4.0	8.8	A1/A2	-1.3	-12.1	-12.1	31.2	0.5	2.7	2.7	-11.1
Oil Field Services	0%	19.0	164		4.7	8.4	A3/BAA1	0.8	-2.9	-2.9	31.1	0.5	2.0	2.0	-13.2
Refining	0%	27.1	173		4.8	8.4	BAA1/BAA2	-0.7	-4.2	-4.2	36.4	0.6	2.1	2.1	-12.4
Midstream	3%	208.0	196		5.0	7.8	BAA1/BAA2	0.0	-4.6	-4.6	44.3	0.5	2.2	2.2	-12.8
Technology	10%	612.6	121		4.2	8.1	A2/A3	-0.1	-10.6	-10.6	50.8	0.4	2.6	2.6	-11.9
Transportation	2%	146.0	139		4.4	10.3	A3/BAA1	-0.2	-9.8	-9.8	41.3	0.3	3.3	3.3	-14.1
Airlines	0%	17.7	254		5.5	3.9	A3/BAA1	-0.7	0.4	0.4	86.6	0.4	0.7	0.7	-8.1
Railroads	2%	93.9	121		4.3	11.8	A3/BAA1	0.4	-12.0	-12.0	29.2	0.3	3.9	3.9	-15.6
Transportation Services	1%	34.5	128		4.3	9.4	A3/BAA1	-0.9	-11.5	-11.5	42.5	0.4	3.1	3.1	-13.4
Other Industrial	0%	30.3	128		4.3	15.0	AA2/AA3	-3.5	-2.3	-2.3	51.1	0.7	2.6	2.6	-21.4
Utility	8%	513.3	146		4.5	9.8	A3/BAA1	-0.9	-6.8	-6.8	36.3	0.5	2.7	2.7	-14.3
Electric	8%	463.9	145		4.5	9.8	A2/A3	-0.9	-6.8	-6.8	35.4	0.6	2.7	2.7	-14.2
Natural Gas	1%	36.9	156		4.7	9.7	A3/BAA1	-0.2	-7.1	-7.1	44.3	0.5	2.7	2.7	-15.1
Other Utility	0%	12.5	146		4.5	10.3	BAA1/BAA2	-0.8	-5.4	-5.4	46.2	0.6	2.6	2.6	-15.6
Financial Institutions	33%	2024.0	151		4.5	5.9	A2/A3	-0.1	-4.8	-4.8	81.9	0.6	1.7	1.7	-10.6
Banking	23%	1414.3	144		4.5	5.3	A2/A3	0.3	-4.0	-4.0	87.3	0.5	1.5	1.5	-9.7
Brokerage Asset Managers Exchanges	1%	86.0	137		4.3	6.9	A2/A3	-1.1	-10.0	-10.0	67.9	0.7	2.3	2.3	-11.5
Finance Companies	1%	77.0	267		5.6	4.0	BAA2/BAA3	-1.3	-4.8	-4.8	124.2	0.8	1.6	1.6	-9.9
Insurance	4%	269.1	148		4.5	9.3	A3/BAA1	-0.7	-7.2	-7.2	50.0	0.5	2.7	2.7	-14.1
REITS	3%	174.8	171		4.7	6.3	BAA1/BAA2	-0.2	-2.9	-2.9	87.8	0.7	1.7	1.7	-11.7
Other Financial	0%	2.9	110		4.0	4.6	A2/A3	-0.7	-3.7	-3.7	9.2	0.6	1.2	1.2	-7.1
US Corporate IG		6141.9	144		4.5	7.8	A3/BAA1	-0.1	-7.1	-7.1	56.2	0.5	2.3	2.3	-12.4

Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Sector performance in USD HY

Exhibit 38: Sector performance: High Yield (USD)

Sector	Metrics							Spread change				Total return			
	Index weight	Mkt val (\$bn)	OAS	Percentile rank (2010-today)	YTW	Dur	Ratings	1-week	MTD	QTD	YTD	1-week	MTD	QTD	YTD
Basic Industry	5%	61.8	509		8.2	4.8	BA3/B1	2.0	-5.7	-5.7	76.6	0.5	3.0	3.0	-10.8
Chemicals	2%	27.4	552		8.6	4.8	B1/B2	0.4	-8.2	-8.2	63.0	0.5	3.6	3.6	-11.1
Metals & Mining	2%	27.4	487		8.0	4.8	BA3/B1	4.0	-3.1	-3.1	97.3	0.5	2.5	2.5	-10.6
Paper	1%	7.0	426		7.4	4.4	BA3/B1	-0.6	-6.9	-6.9	48.5	0.4	2.3	2.3	-10.0
Capital Goods	9%	121.5	463		7.8	4.4	B1/B2	0.1	-16.1	-16.1	68.1	0.7	4.5	4.5	-8.8
Aerospace & Defense	2%	29.8	468		8.0	3.7	B1/B2	0.7	-24.0	-24.0	47.9	0.6	5.6	5.6	-7.6
Building Materials	2%	24.2	534		8.4	5.3	B1/B2	0.5	-13.9	-13.9	90.0	1.1	6.0	6.0	-12.9
Diversified Manufacturing	1%	17.9	484		8.1	4.1	B1/B2	-0.7	-8.9	-8.9	88.3	0.6	2.5	2.5	-7.9
Construction Machinery	1%	11.3	357		6.9	5.2	BA3/B1	-1.2	-18.5	-18.5	39.1	1.2	4.9	4.9	-7.6
Packaging	2%	30.0	466		7.8	4.0	B1/B2	-1.2	-12.1	-12.1	81.1	0.7	3.3	3.3	-8.1
Environmental	1%	8.3	332		6.5	4.5	B1/B2	5.0	-22.0	-22.0	38.1	0.0	4.8	4.8	-6.8
Communications	17%	220.4	560		8.7	4.9	BA3/B1	1.1	-10.9	-10.9	76.5	0.5	5.1	5.1	-12.3
Cable & Satellite	6%	85.3	668		9.8	5.3	BA3/B1	2.1	-12.8	-12.8	79.4	0.4	6.0	6.0	-11.3
Media & Entertainment	4%	59.6	567		8.8	4.7	BA3/B1	0.3	-11.1	-11.1	68.8	0.6	4.0	4.0	-12.1
Wireless	3%	35.3	348		6.5	4.6	BA2/BA3	1.0	-9.6	-9.6	83.0	0.7	5.0	5.0	-15.0
Wirelines	3%	40.1	507		8.2	4.7	B1/B2	-0.4	-16.3	-16.3	54.6	0.6	5.0	5.0	-11.6
Consumer Cyclical	22%	291.3	504		8.2	4.4	BA3/B1	0.5	-15.2	-15.2	87.6	0.6	4.7	4.7	-10.8
Automotive	5%	62.9	363		6.7	4.4	BA2/BA3	1.9	-18.9	-18.9	77.2	0.2	4.3	4.3	-10.2
Leisure	3%	38.8	645		9.6	3.7	B2/B3	2.3	-14.2	-14.2	95.7	-0.2	5.0	5.0	-10.6
Gaming	4%	55.5	546		8.6	4.0	B1/B2	-3.0	-17.2	-17.2	96.6	1.9	5.1	5.1	-10.1
Home Construction	1%	13.9	495		8.0	4.5	BA3/B1	-0.2	-15.4	-15.4	142.1	0.7	5.2	5.2	-12.4
Lodging	1%	11.1	317		6.3	5.2	BA2/BA3	-2.4	-22.4	-22.4	49.4	0.6	5.3	5.3	-8.7
Retailers	4%	47.1	613		9.2	5.1	BA3/B1	2.6	-9.4	-9.4	102.1	0.0	4.1	4.1	-15.7
Restaurants	1%	16.8	361		6.7	5.5	B1/B2	1.0	-16.5	-16.5	47.8	0.5	4.7	4.7	-7.7
Consumer Cyc Services	3%	45.2	516		8.3	4.4	B1/B2	-0.4	-14.7	-14.7	68.1	0.6	4.6	4.6	-8.7
Consumer Non-Cyclical	12%	152.8	513		8.4	4.8	B1/B2	-1.6	-15.1	-15.1	105.1	1.1	5.0	5.0	-12.1
Consumer Products	2%	22.1	419		7.3	5.4	BA3/B1	0.1	-11.3	-11.3	58.6	0.2	3.8	3.8	-12.5
Food & Beverage	2%	24.5	376		7.0	4.7	B1/B2	0.7	-18.6	-18.6	91.5	0.5	4.5	4.5	-10.3
Healthcare	5%	70.1	447		7.8	4.8	B1/B2	-4.2	-21.7	-21.7	83.7	1.9	6.2	6.2	-8.8
Pharmaceuticals	2%	27.6	917		12.3	4.5	B1/B2	0.4	-5.2	-5.2	169.3	0.5	3.5	3.5	-21.5
Supermarkets	1%	6.8	339		6.6	4.8	BA3/B1	0.8	-20.3	-20.3	104.5	0.6	4.7	4.7	-8.1
Tobacco	0%	1.6	607		9.4	4.3	B1/B2	-2.0	-11.2	-11.2	21.0	1.4	4.2	4.2	-4.5
Energy	13%	168.1	442		7.6	5.0	BA3/B1	-2.0	-10.7	-10.7	35.0	0.9	3.3	3.3	-7.4
Independent Energy	5%	70.0	356		6.9	5.1	BA2/BA3	-2.1	-13.1	-13.1	24.7	0.8	3.2	3.2	-6.4
Oil Field Services	1%	17.5	861		11.7	3.4	B2/B3	-3.8	3.5	3.5	29.3	1.6	-0.4	-0.4	-6.6
Refining	0%	6.5	562		8.8	3.9	BA3/B1	-3.9	-2.4	-2.4	-5.9	1.2	2.6	2.6	2.8
Midstream	6%	74.2	413		7.2	5.3	BA2/BA3	-0.9	-14.8	-14.8	53.7	0.7	4.5	4.5	-9.5
Technology	7%	88.2	443		7.6	5.1	B1/B2	1.6	-15.7	-15.7	81.4	0.2	4.9	4.9	-9.2
Transportation	3%	33.9	462		7.7	4.0	BA3/B1	-0.9	-23.1	-23.1	49.7	0.6	4.4	4.4	-8.0
Airlines	2%	24.1	437		7.4	3.8	BA2/BA3	-1.0	-23.1	-23.1	58.0	0.7	5.2	5.2	-7.7
Railroads	0%	0.6	485		8.1	4.2	CAA1/CAA1	3.1	-4.8	-4.8	49.9	-0.2	2.0	2.0	-6.8
Transportation Services	1%	9.2	528		8.4	4.2	B1/B2	-0.9	-23.7	-23.7	35.3	0.6	2.5	2.5	-9.1
Other Industrial	1%	17.5	551		8.6	4.2	B1/B2	-3.6	-11.7	-11.7	56.3	1.1	3.8	3.8	-9.2
Utility	2%	32.6	299		6.2	5.7	BA2/BA3	4.0	-19.9	-19.9	20.0	0.4	4.8	4.8	-8.0
Financial Institutions	10%	137.8	478		7.9	4.6	BA3/B1	0.0	-14.1	-14.1	80.4	0.6	4.3	4.3	-10.7
Banking	1%	16.3	424		7.4	4.4	BA1/BA2	-0.7	0.9	0.9	139.9	0.8	0.6	0.6	-14.9
Brokerage Asset Managers Exchanges	1%	10.6	555		8.6	5.2	B1/B2	4.5	-6.2	-6.2	78.6	-0.6	3.2	3.2	-14.1
Finance Companies	3%	34.3	652		9.6	4.0	BA3/B1	0.7	-14.1	-14.1	98.7	0.6	4.9	4.9	-12.2
Insurance	3%	34.7	307		6.3	5.7	BA3/B1	-2.5	-21.1	-21.1	43.3	1.0	5.1	5.1	-8.1
REITS	2%	25.6	450		7.6	4.1	BA2/BA3	0.7	-18.1	-18.1	74.2	0.4	4.6	4.6	-9.1
Other Financial	1%	16.4	527		8.4	4.2	BA3/B1	-1.4	-17.8	-17.8	65.1	0.7	5.5	5.5	-8.6
US Corp High Yield		1325.8	491		8.1	4.7	BA3/B1	0.1	-13.7	-13.7	73.4	0.7	4.5	4.5	-10.4

Source: Bloomberg-Barclays, Goldman Sachs Global Investment Research

Sector performance in EUR IG

Exhibit 39: Sector performance: Investment Grade (EUR)

Sector	Metrics			Spread Change				Total Return							
	%Mkt	MktVal (cbn)	OAS	Percentile	YTM	Dur	Rating	1-Wk	MTD	QTD	YTD	1-Wk	MTD	QTD	YTD
Consumer Goods	13.3	€ 336.4	175.3		2.5	7.5	A	-8	-38	-38	68	2.00	4.47	4.47	-7.76
Automobiles & Parts	5.6	€ 143.1	217.0		2.8	4.1	A	-11	-39	-39	108	1.68	3.60	3.60	-7.18
Beverages	3.0	€ 77.0	146.2		2.3	6.6	BBB	-5	-42	-42	38	2.39	6.10	6.10	-8.82
Food Producers	2.0	€ 50.1	137.8		2.1	5.8	A	-7	-35	-35	47	2.23	4.85	4.85	-7.36
Household Goods	0.3	€ 8.4	117.5		2.0	5.6	AA	-11	-43	-43	32	2.33	4.90	4.90	-7.01
Personal Goods	1.5	€ 36.9	117.3		1.9	5.3	A	-10	-34	-34	29	2.18	4.38	4.38	-6.51
Tobacco	0.8	€ 20.8	317.4		3.9	5.1	BBB	-2	-20	-20	150	1.74	3.59	3.59	-11.58
Consumer Services	3.7	€ 93.8	177.9		2.5	8.1	A	-9	-37	-37	74	2.13	4.53	4.53	-8.12
Food & Drug Retailers	0.6	€ 14.7	217.3		2.7	3.9	BBB	-14	-40	-40	116	1.77	3.48	3.48	-6.62
General Retailers	0.2	€ 4.6	195.0		2.6	5.3	A	-4	-30	-30	92	1.97	4.36	4.36	-8.87
Media	1.4	€ 35.2	200.3		2.7	4.8	BBB	-6	-35	-35	93	1.84	4.16	4.16	-8.06
Travel & Leisure	1.5	€ 39.3	152.2		2.3	6.4	A	-10	-35	-35	49	2.55	5.29	5.29	-8.76
Oil & Gas	4.4	€ 112.2	213.3		2.8	7.3	A	-2	-25	-25	83	1.81	4.18	4.18	-11.24
Oil & Gas Producers	4.1	€ 104.0	214.7		2.9	5.4	A	-2	-26	-26	83	1.77	4.20	4.20	-11.36
Oil Equipment / Services & Distribution	0.3	€ 8.2	196.8		2.7	5.9	A	-7	-17	-17	80	2.33	4.02	4.02	-9.59
Industrials	9.1	€ 229.7	183.6		2.5	6.7	A	-9	-22	-22	82	2.18	3.90	3.90	-8.34
Aerospace & Defense	0.5	€ 12.8	150.5		2.3	5.9	A	-8	-20	-20	36	2.36	4.44	4.44	-6.46
Construction & Materials	1.3	€ 34.1	217.2		2.8	5.0	BBB	-11	-22	-22	117	2.19	3.67	3.67	-9.12
Electronic & Electrical Equipment	0.6	€ 15.6	140.9		2.0	4.2	A	-13	-28	-28	64	1.91	3.27	3.27	-6.14
General Industrials	1.5	€ 38.2	159.7		2.3	5.3	A	-10	-28	-28	68	2.21	4.26	4.26	-7.93
Industrial Engineering	1.0	€ 26.4	184.8		2.5	4.9	BBB	-9	-22	-22	84	1.99	3.52	3.52	-7.97
Industrial Transportation	3.2	€ 80.2	189.6		2.6	5.7	A	-9	-19	-19	82	2.35	4.09	4.09	-9.31
Support Services	0.9	€ 22.4	199.1		2.6	4.6	BBB	-7	-20	-20	104	1.85	3.56	3.56	-7.39
Health Care	6.2	€ 156.6	160.2		2.4	9.4	A	-4	-30	-30	51	2.20	4.98	4.98	-8.90
Health Care Equipment & Services	2.9	€ 72.8	167.7		2.5	6.8	A	-1	-31	-31	49	2.17	5.48	5.48	-9.45
Pharmaceuticals & Biotechnology	3.3	€ 83.8	152.3		2.3	5.8	A	-7	-29	-29	54	2.23	4.54	4.54	-8.43
Basic Materials	2.6	€ 65.9	195.2		2.6	7.1	A	-15	-27	-27	100	2.49	4.17	4.17	-9.52
Chemicals	2.0	€ 51.0	185.8		2.6	5.6	A	-11	-23	-23	97	2.44	4.20	4.20	-9.61
Forestry & Paper	0.1	€ 3.7	251.2		3.2	5.5	BBB	-7	-12	-12	151	2.19	3.47	3.47	-12.50
Industrial Metals	0.1	€ 2.2	232.6		2.7	2.2	BBB	-7	-12	-12	114	0.79	1.33	1.33	-9.92
Mining	0.4	€ 9.0	229.0		2.9	4.5	BBB	-44	-66	-66	105	3.35	5.03	5.03	-7.89
Technology	2.6	€ 65.4	187.4		2.6	6.7	A	-4	-20	-20	88	1.93	3.68	3.68	-8.47
Software & Computer Services	1.9	€ 49.1	204.6		2.8	5.4	A	-4	-18	-18	99	1.98	3.68	3.68	-9.24
Technology Hardware & Equipment	0.6	€ 16.3	128.6		1.9	4.8	A	-4	-25	-25	52	1.76	3.69	3.69	-6.02
Telecommunications	5.9	€ 149.7	164.5		2.4	7.9	BBB	-2	-26	-26	50	1.93	4.38	4.38	-7.87
Fixed Line Telecommunications	4.8	€ 122.2	161.8		2.4	5.9	BBB	-1	-25	-25	48	1.95	4.55	4.55	-8.01
Mobile Telecommunications	1.1	€ 27.5	180.0		2.5	4.7	BBB	-8	-30	-30	66	1.83	3.64	3.64	-7.24
Financials	42.2	€ 1,069.1	237.9		3.0	5.8	A	-4	-32	-32	122	1.56	3.62	3.62	-8.41
Banks Sen	25.8	€ 654.2	200.8		2.6	4.0	A	1	-27	-27	103	1.21	3.02	3.02	-6.90
Banks Sub	3.2	€ 79.9	308.7		3.6	3.7	BBB	-21	-45	-45	165	1.90	3.47	3.47	-7.85
Financial Services Sen	2.6	€ 66.6	191.5		2.7	5.6	A	-3	-18	-18	82	1.93	3.60	3.60	-8.84
Financial Services Sub	0.1	€ 1.9	369.9		4.3	4.5	A	7	-24	-24	228	1.23	3.36	3.36	-12.68
Insurance Sen	1.4	€ 36.0	183.5		2.5	5.2	A	-1	-11	-11	90	1.71	3.13	3.13	-8.36
Insurance Sub	3.0	€ 75.5	351.9		4.2	4.9	A	-7	-27	-27	171	1.89	3.87	3.87	-10.77
Real Estate Sen	6.0	€ 151.3	301.4		3.7	5.6	BBB	-13	-57	-57	164	2.51	6.02	6.02	-13.17
Real Estate Sub	0.1	€ 3.7	1000.7		10.4	2.5	BBB	-67	-696	-696	681	2.33	18.29	18.29	-14.98
Utilities	10.1	€ 255.9	215.7		2.9	7.8	BBB	-4	-18	-18	106	2.02	3.92	3.92	-10.86
Electricity	5.9	€ 149.6	216.7		2.9	5.8	BBB	-3	-22	-22	101	2.00	4.14	4.14	-10.72
Gas / Water & Multiutilities	4.2	€ 106.3	214.2		2.9	5.6	BBB	-4	-13	-13	114	2.05	3.61	3.61	-11.05
Index	100.0	€ 2,534.6	204.7		2.7	5.0	A	-5	-29	-29	93	1.85	3.99	3.99	-8.72

Source: iBoxx, Goldman Sachs Global Investment Research

Sector performance in EUR HY

Exhibit 40: Sector performance: High Yield (EUR)

Sector	Metrics							Spread Change				Total Return			
	%Mkt	MktVal (€bn)	OAS	Percentile	YTM	Dur	Rating	1-Wk	MTD	QTD	YTD	1-Wk	MTD	QTD	YTD
Consumers	24.7	€ 105.2	714.7		7.7	4.1	BB	-14	-72	-72	338	1.54	4.46	4.46	-10.36
Consumer Goods	13.1	€ 55.9	659.7		7.1	4.1	BB	-28	-82	-82	348	2.02	4.87	4.87	-10.84
Consumer Services	11.6	€ 49.3	777.7		8.3	4.2	B	1	-61	-61	319	1.01	3.99	3.99	-9.71
Energy	7.9	€ 33.8	635.5		6.9	4.4	BB	9	-68	-68	328	0.94	4.85	4.85	-13.43
Oil & Gas	1.9	€ 8.2	698.2		7.5	4.2	BB	-6	-73	-73	314	1.48	5.85	5.85	-14.81
Utilities	6.0	€ 25.5	615.2		6.7	4.4	BB	13	-66	-66	337	0.76	4.52	4.52	-12.90
Industrials	29.0	€ 123.5	603.6		6.6	4.3	BB	-14	-62	-62	261	1.68	4.19	4.19	-9.13
Basic Materials	4.9	€ 20.8	677.7		7.3	4.0	BB	-16	-15	-15	305	1.64	2.33	2.33	-9.69
Construction & Materials	1.9	€ 7.9	730.2		7.8	4.0	BB	-14	-13	-13	341	1.61	2.62	2.62	-10.04
Health Care	7.0	€ 29.8	542.5		6.0	4.6	BB	-10	-115	-115	171	1.69	6.75	6.75	-7.29
Industrials	15.3	€ 64.9	597.5		6.5	4.3	BB	-16	-55	-55	284	1.68	3.84	3.84	-9.67
TMT	19.2	€ 81.7	583.9		6.4	5.1	BB	12	-75	-75	238	0.84	5.15	5.15	-10.00
Technology	3.0	€ 12.9	649.1		7.0	4.3	B	14	-41	-41	329	0.54	3.29	3.29	-9.80
Telecommunications	16.2	€ 68.8	573.1		6.4	5.3	BB	12	-80	-80	224	0.90	5.51	5.51	-10.05
Financials	19.1	€ 81.1	796.6		8.4	3.6	BB	6	-12	-12	420	0.80	2.71	2.71	-13.02
Core Financials	12.4	€ 52.8	600.8		6.4	3.4	BB	10	31	31	301	0.58	0.53	0.53	-10.54
Financial Services	2.8	€ 11.8	910.3		9.6	4.0	B	-8	36	36	278	1.22	0.35	0.35	-12.18
Real Estate	3.9	€ 16.6	1243.2		12.9	3.7	BB	0	-231	-231	765	1.18	12.08	12.08	-20.92
Index	100.0	€ 425.3	659.9		7.1	4.3	BB	-3	-60	-60	305	1.26	4.21	4.21	-10.67

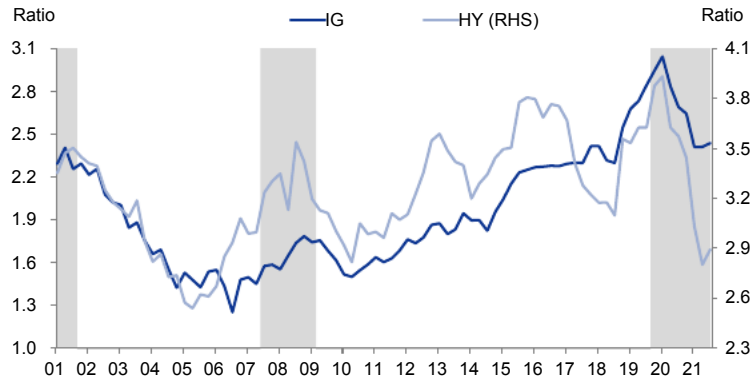
0 50 100

Source: iBoxx, Goldman Sachs Global Investment Research

Net leverage and interest coverage metrics for North American and European firms

Exhibit 41: Net debt to EBITDA ratios for the median IG and HY-rated company in North America

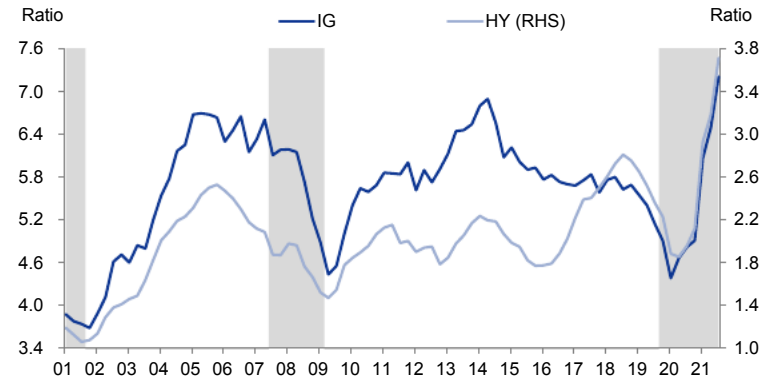
We show 4-quarter moving averages to account for seasonal factors; shaded areas indicate recessions



Source: Bloomberg, FactSet, Goldman Sachs Global Investment Research

Exhibit 42: Interest coverage ratios for the median IG-rated and HY-rated company in North America

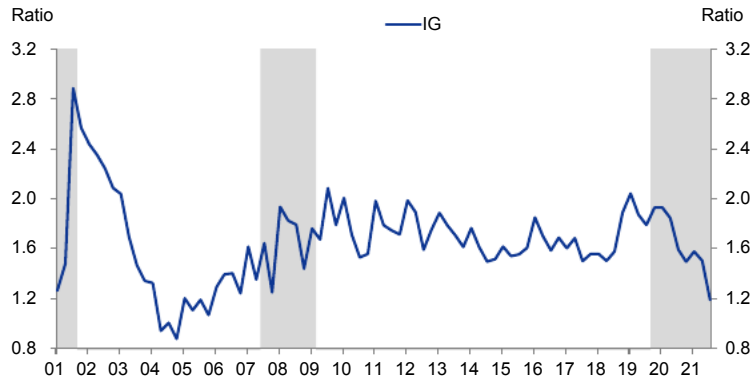
We show 4-quarter moving averages to account for seasonal factors; shaded areas indicate recessions



Source: Bloomberg, FactSet, Goldman Sachs Global Investment Research

Exhibit 43: Net debt to EBITDA ratios for the median IG-rated company in Europe

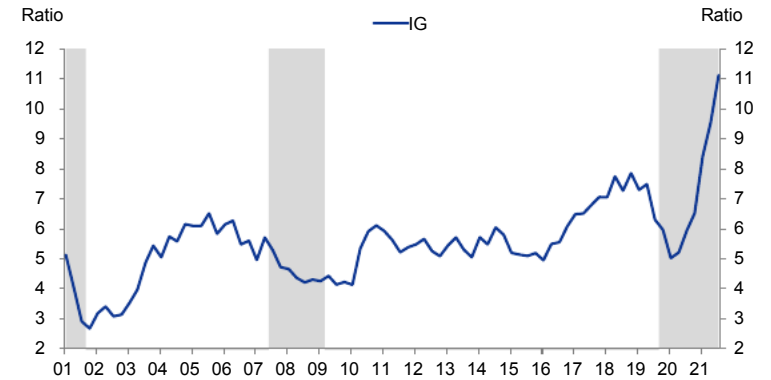
We show 4-quarter moving averages to account for seasonal factors; shaded areas indicate recessions



Source: Bloomberg, FactSet, Goldman Sachs Global Investment Research

Exhibit 44: Interest coverage ratios for the median IG-rated company in Europe

We show 4-quarter moving averages for the companies to account for seasonal factors; shaded areas indicate recessions

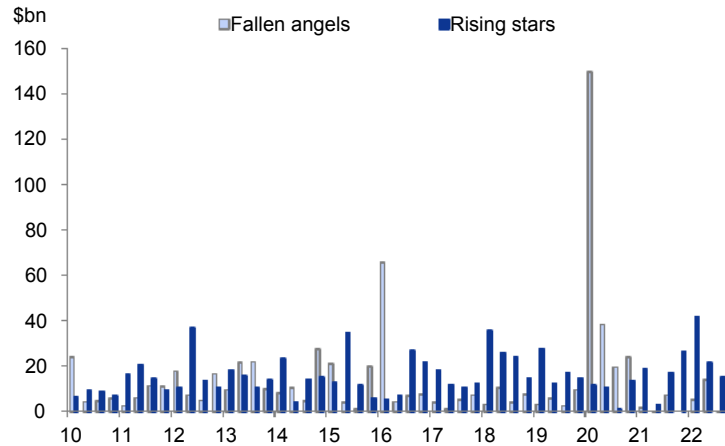


Source: Bloomberg, FactSet, Goldman Sachs Global Investment Research

Rating migration trend in the USD and EUR bond markets

Exhibit 45: Notional amount of fallen angel and rising star bonds in the USD market

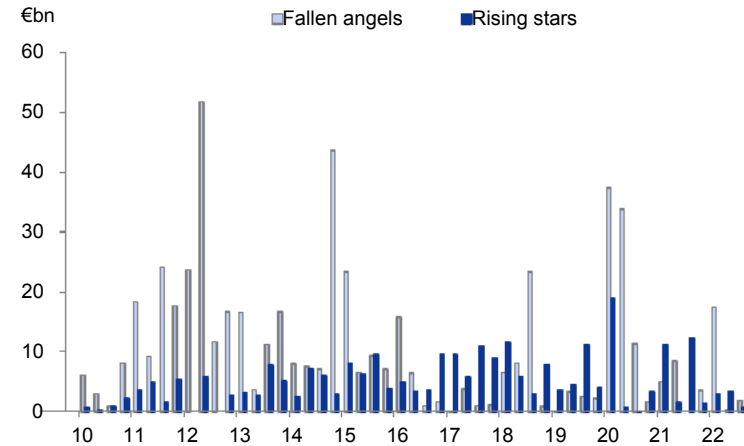
Notional amount downgraded from IG to HY (fallen angels) vs. the notional amount upgraded from HY to IG (rising stars)



Source: Bloomberg, Goldman Sachs Global Investment Research

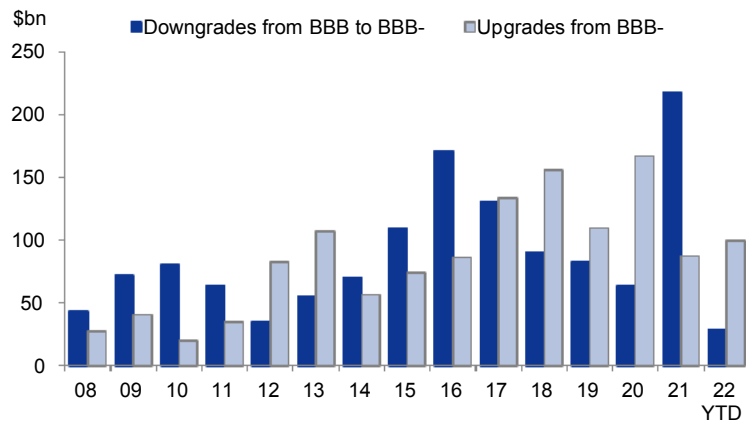
Exhibit 46: Notional amount of fallen angel and rising star bonds in the EUR market

Notional amount downgraded from IG to HY (fallen angels) vs. the notional amount upgraded from HY to IG (rising stars)



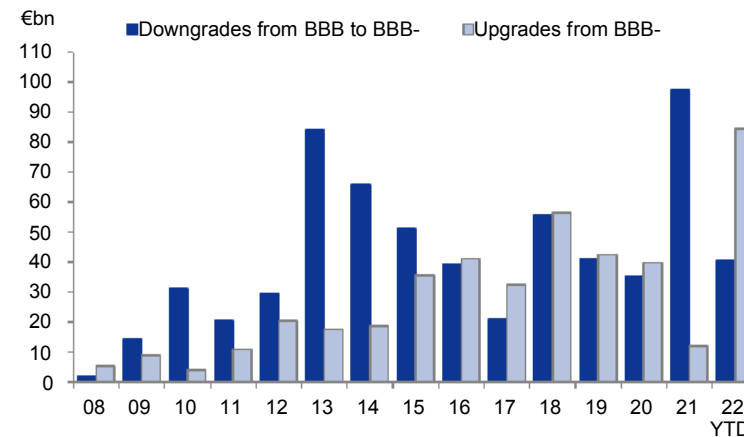
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 47: Amount outstanding of bonds downgraded from BBB to BBB- and upgraded from BBB- in the USD market



Source: Moody's, Goldman Sachs Global Investment Research

Exhibit 48: Amount outstanding of bonds downgraded from BBB to BBB- and upgraded from BBB- in the EUR market



Source: Moody's, Goldman Sachs Global Investment Research

A firm-level look at fallen angels and downgrade watch

Exhibit 49: Top USD fallen angel issuers

Company	Notional downgraded (\$bn)
Sands China Ltd	7.1
Las Vegas Sands Corp	4.0
Electricite De France Sa	3.6
Ojsc Novo(Steel Funding)	1.2
Warner Media Llc	0.9
Ohio Nat Financial Srvs	0.7
Mmk Intl Capital Dac	0.5
Steelcase Inc	0.5
Historic Tw Inc	0.4
Macy'S Retail Hldgs Llc	0.3

Source: Moody's, Goldman Sachs Global Investment Research

Exhibit 50: Top EUR fallen angel issuers

Company	Notional downgraded (€bn)
Electricite De France Sa	7.4
Gazprom (Gaz Capital Sa)	4.0
La Banque Postale	3.5
Gazprom Pjsc (Gaz Fn)	2.5
Atos Se	1.9
Russian Rail(Rzd Cap)	1.0
Atrium European Real Est	0.7
Spp Infrastructure Fin	0.5
Ojsc Novo(Steel Funding)	0.5
Eustream As	0.5

Source: Moody's, Goldman Sachs Global Investment Research

Exhibit 51: Top 10 USD BBB capital structures on downgrade watch

Company	Industry	Median rating	\$bn
Oracle Corp	Software	BBB	75.3
American Tower Corp	REITS	BBB-	22.5
Rogers Communications In	Telecommunications	BBB+	15.4
General Electric Co	Miscellaneous Manufactur	BBB+	14.7
Electricite De France Sa	Electric	BBB+	11.3
Vmware Inc	Software	BBB-	9.3
Celanese Us Holdings Llc	Chemicals	BBB-	8.9
Mondelez International	Food	BBB	7.5
Ge Capital Intl Funding	Miscellaneous Manufactur	BBB+	7.3
Telus Corp	Telecommunications	BBB+	3.3

Source: Moody's, Goldman Sachs Global Investment Research

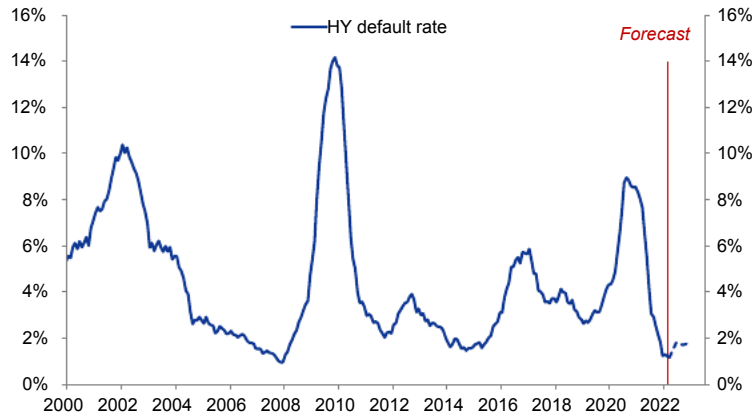
Exhibit 52: Top 10 EUR BBB capital structures on downgrade watch

Company	Industry	Median rating	€bn
Electricite De France Sa	Electric	BBB+	16.0
Naturgy Finance Bv	Electric	BBB	6.8
General Electric Co	Miscellaneous Manufactur	BBB+	3.9
Fortum Oyj	Electric	BBB	3.5
Heathrow Funding Ltd	Engineering&Construction	BBB+	3.4
Celanese Us Holdings Llc	Chemicals	BBB-	3.3
Mondelez International	Food	BBB	3.2
Cpi Property Group Sa	Real Estate	BBB	3.0
Ep Infrastructure As	Electric	BBB-	2.4
Ge Capital Euro Funding	Miscellaneous Manufactur	BBB+	1.8

Source: Moody's, Goldman Sachs Global Investment Research

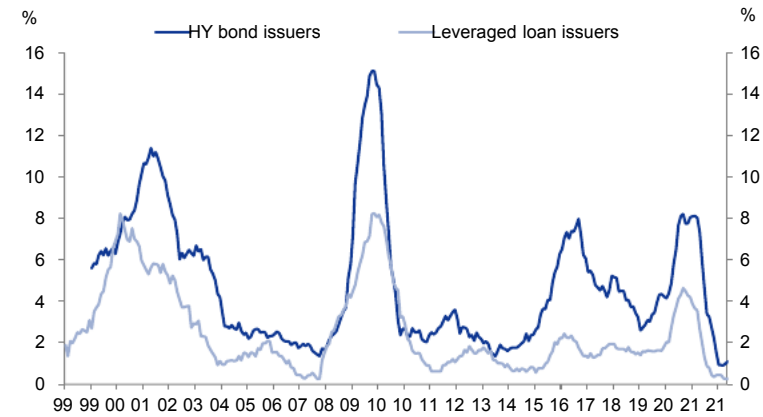
Default trend in the USD and EUR HY bond and leveraged loan markets

Exhibit 53: We expect the pace of HY defaults will remain benign
12-month trailing issuer-weighted default rate in the USD HY market



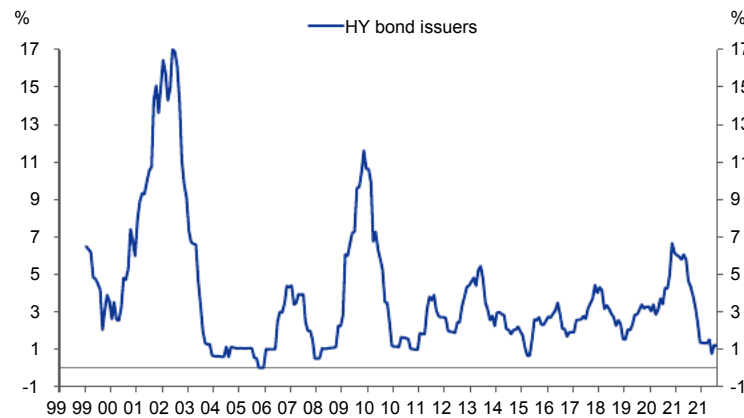
Source: Moody's, Goldman Sachs Global Investment Research

Exhibit 54: The leveraged loan market has seen fewer defaults than the HY bond market
12-month trailing issuer-weighted default rate in the USD HY bond and leveraged loan markets



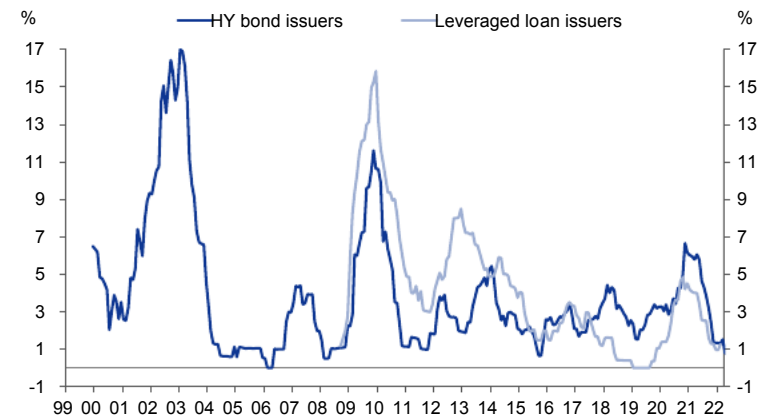
Source: Moody's, Goldman Sachs Global Investment Research, S&P Capital IQ LCD

Exhibit 55: We expect the default picture will likely remain benign in the EUR market
12-month trailing issuer-weighted default rate in the EUR HY market



Source: Moody's, Goldman Sachs Global Investment Research

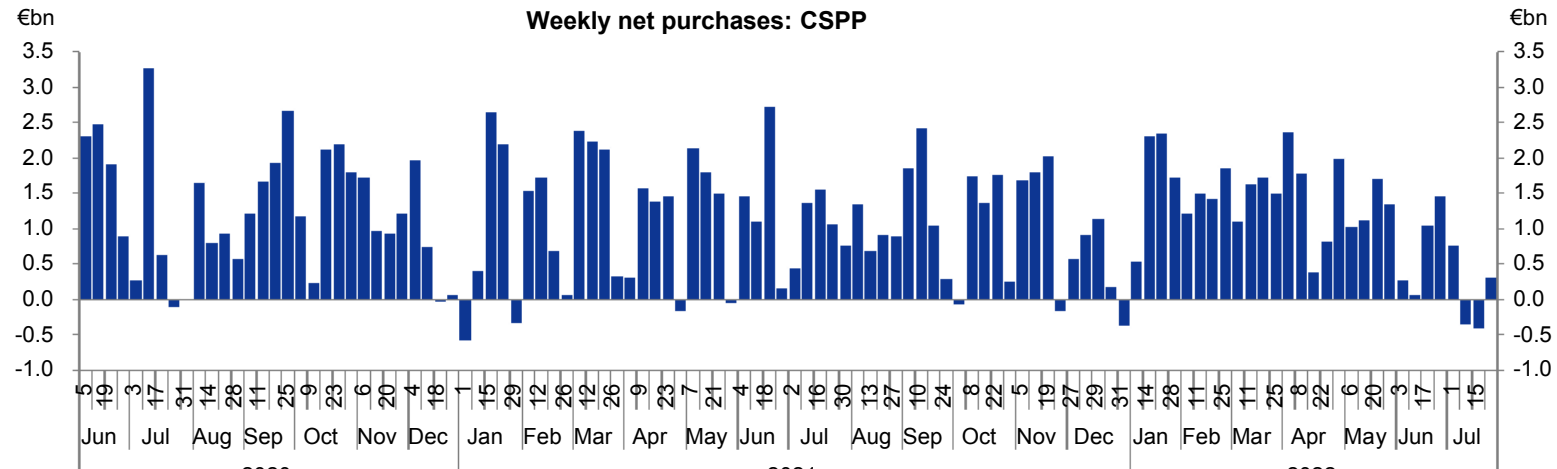
Exhibit 56: In both the EUR HY bond and leveraged loan markets, defaults have remained low
12-month trailing issuer-weighted default rate in the EUR HY bond and leverage loan markets



Source: Moody's, S&P Capital IQ LCD, Goldman Sachs Global Investment Research

ECB corporate bond purchases

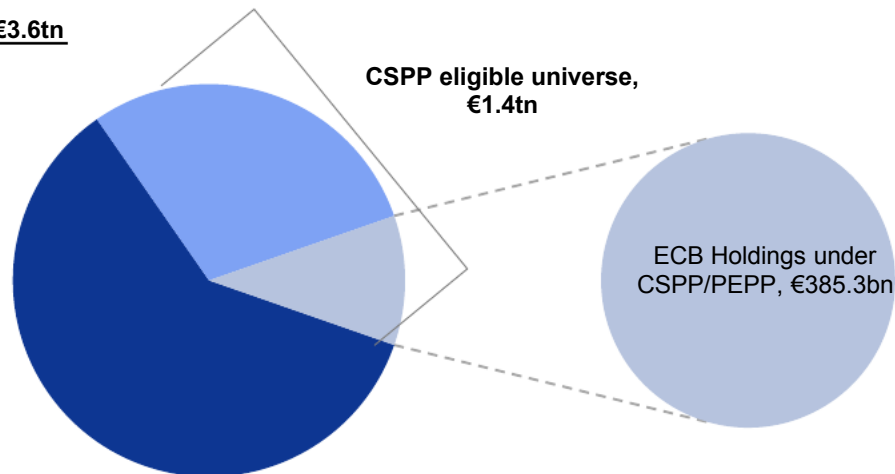
Exhibit 57: CSPP weekly net purchases



Source: ECB, Goldman Sachs Global Investment Research

Exhibit 58: Putting the CSPP and PEPP holdings in context

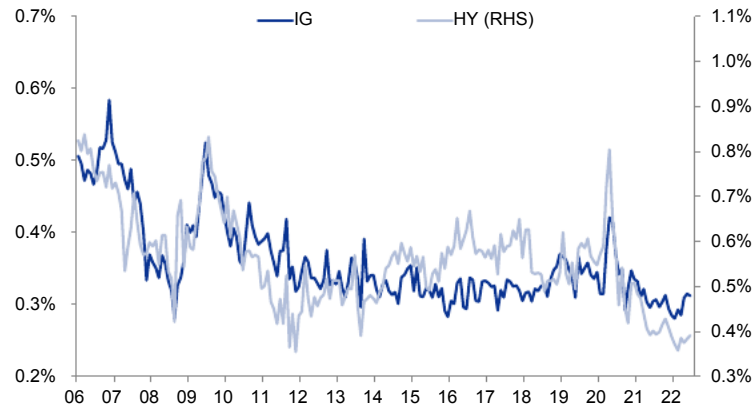
Total EUR IG: €3.6tn



Source: Bloomberg, Goldman Sachs Global Investment Research

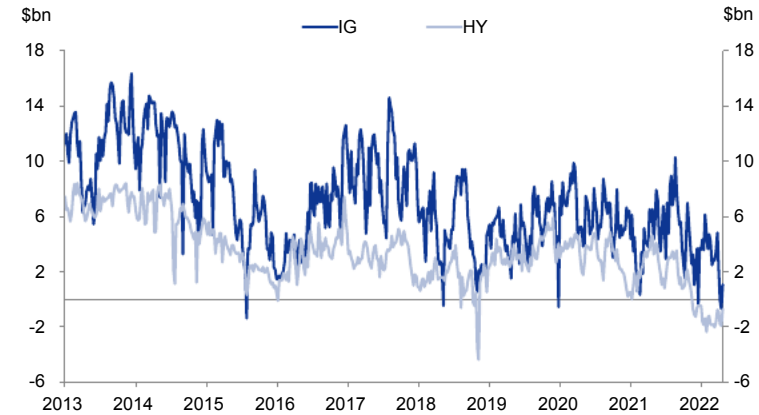
Liquidity conditions in the USD secondary bond market

Exhibit 59: Estimated daily average turnover (trading volume/amount outstanding)



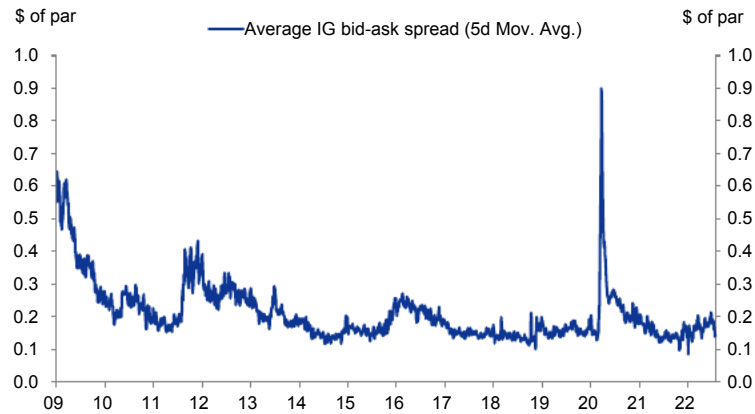
Source: TRACE, Bloomberg-Barclays, The Yield Book Inc.; FTSE Index, Goldman Sachs Global Investment Research

Exhibit 60: Primary dealer net positioning in USD corporate bonds



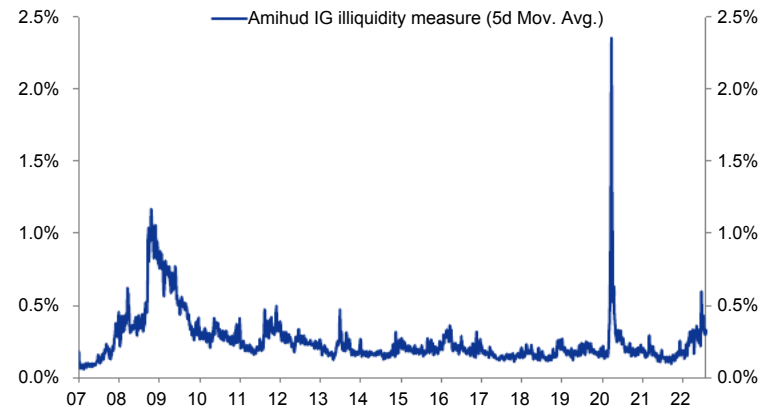
Source: FRBNY, Goldman Sachs Global Investment Research

**Exhibit 61: Average IG bid-ask spread
5-day moving average**



Source: Trace, Bloomberg, Goldman Sachs Global Investment Research

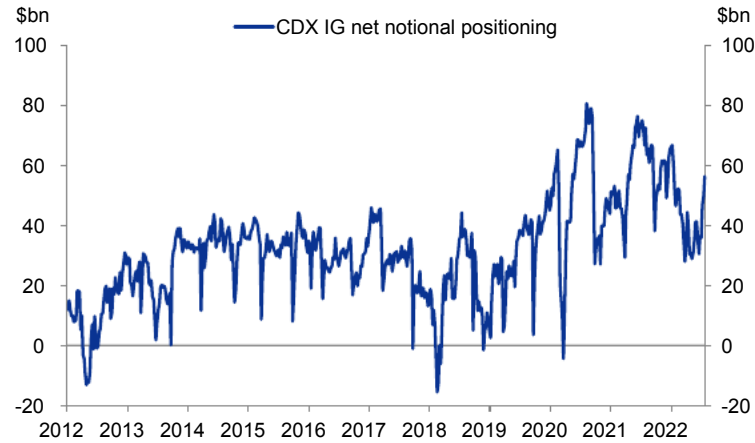
**Exhibit 62: Amihud IG illiquidity measure
5-day moving average**



Source: TRACE, Bloomberg, Goldman Sachs Global Investment Research

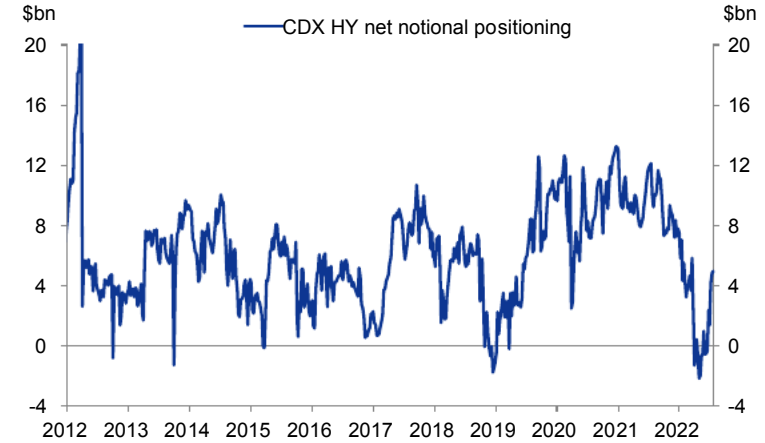
Net positioning in synthetic macro indices

Exhibit 63: Net notional positioning in the CDX IG 5-year on-the-run contract



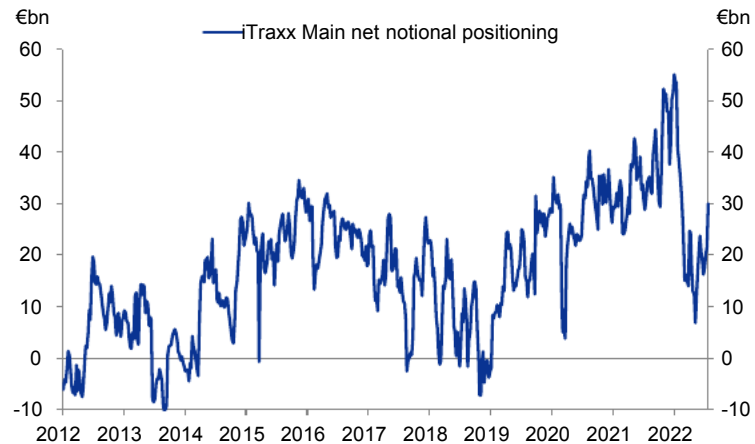
Source: DTCC, Goldman Sachs Global Investment Research

Exhibit 64: Net notional positioning in the CDX HY 5-year on-the-run contract



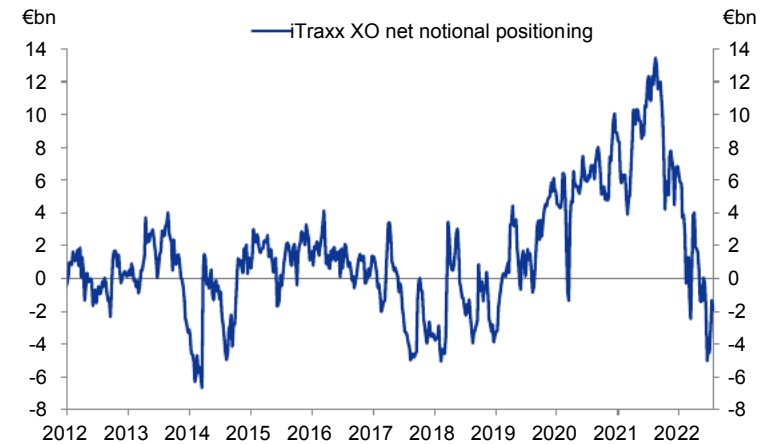
Source: DTCC, Goldman Sachs Global Investment Research

Exhibit 65: Net notional positioning in the iTraxx Main 5-year on-the-run contract



Source: DTCC, Goldman Sachs Global Investment Research

Exhibit 66: Net notional positioning in iTraxx Xover 5-year on-the-run contract

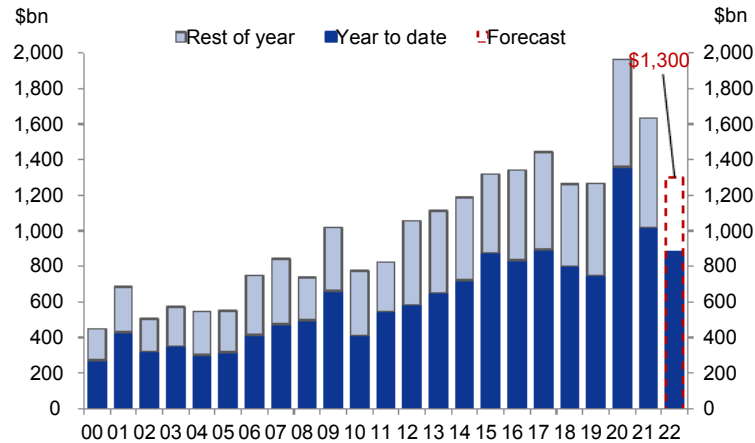


Source: DTCC, Goldman Sachs Global Investment Research

Gross issuance in the USD bond, leverage loan and CLO markets

Exhibit 67: USD IG gross issuance

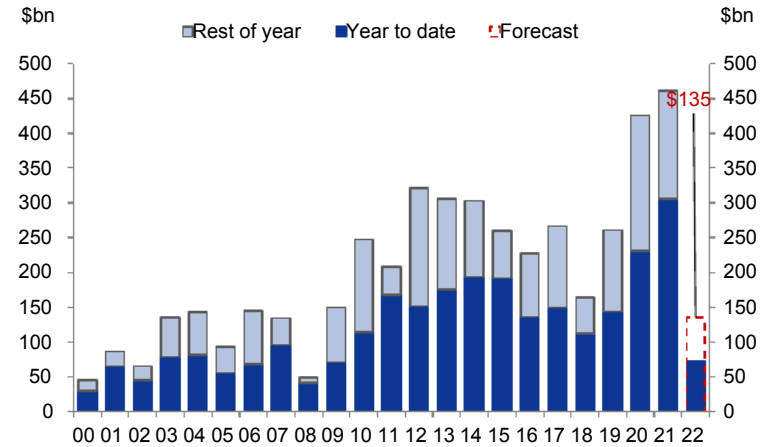
Historical investment grade issuance broken out to compare to 2022 year to date



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 68: USD HY issuance

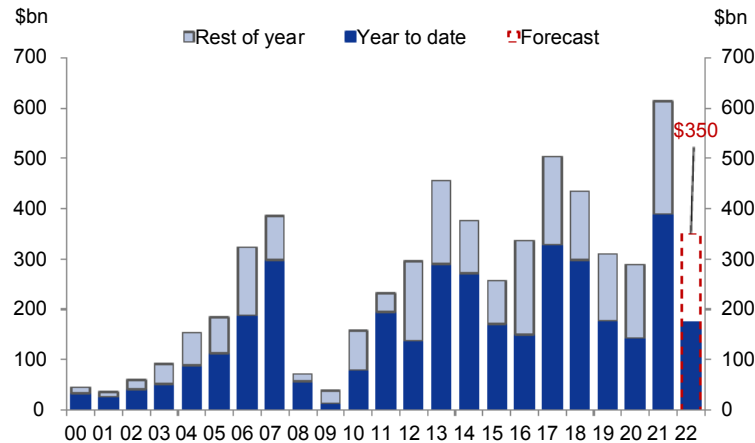
Historical USD high yield issuance broken out to compare to 2022 year to date



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 69: USD institutional leveraged loan gross issuance

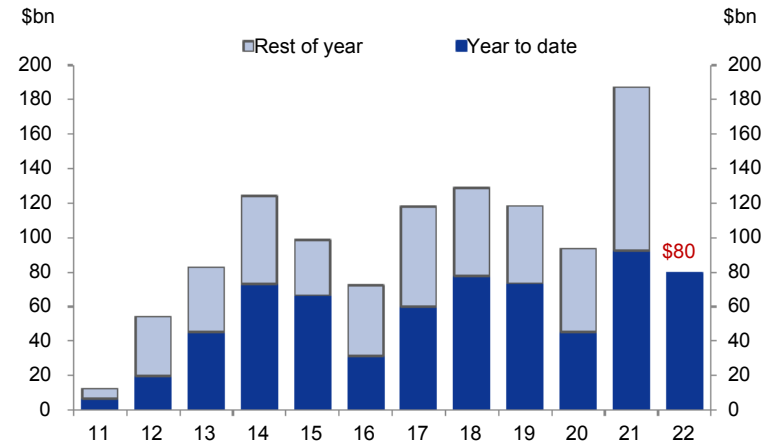
Historical leveraged loan issuance broken out to compare to 2022 year to date



Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

Exhibit 70: USD CLO creation

Historical USD CLO creation broken out to compare to 2022 year to date

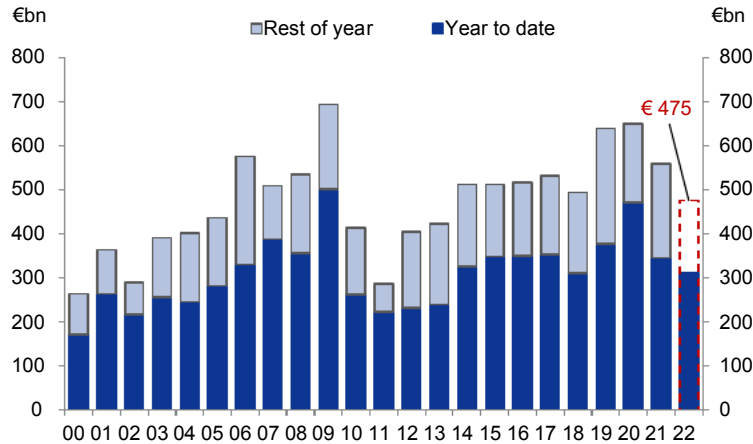


Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

Gross issuance in the EUR bond, leveraged loan and CLO markets

Exhibit 71: EUR IG gross issuance

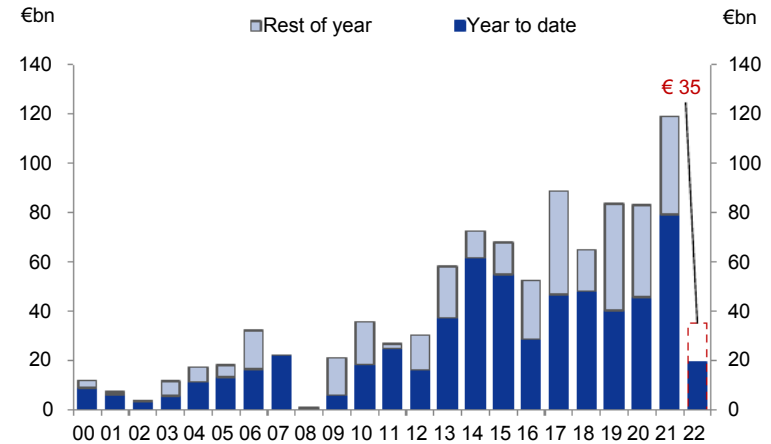
Historical EUR investment grade issuance broken out to compare to 2022 year to date



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 72: EUR HY gross issuance

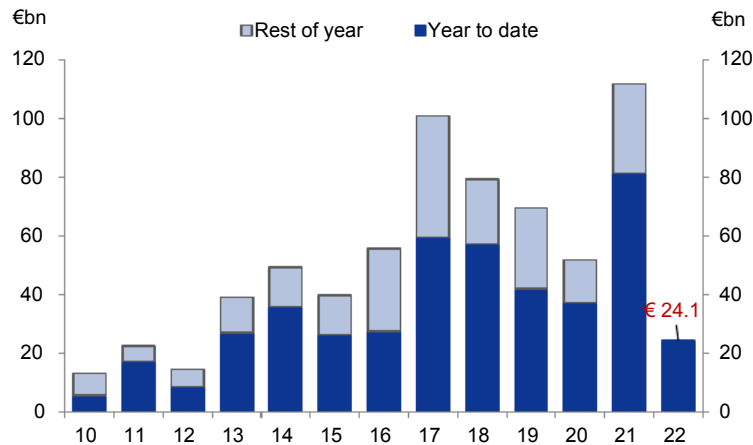
Historical EUR high yield issuance broken out to compare to 2022 year to date



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 73: EUR Leveraged loan gross issuance

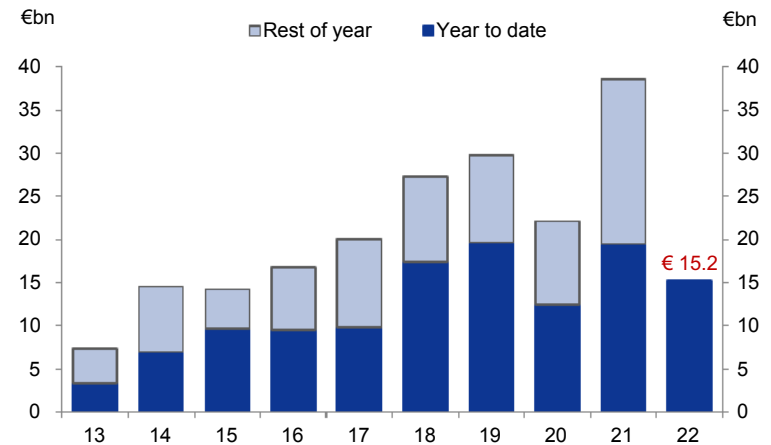
Historical EUR leveraged loan issuance broken out to compare to 2022 year to date



Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

Exhibit 74: EUR CLO creation

Historical EUR CLO creation broken out to compare to 2022 year to date

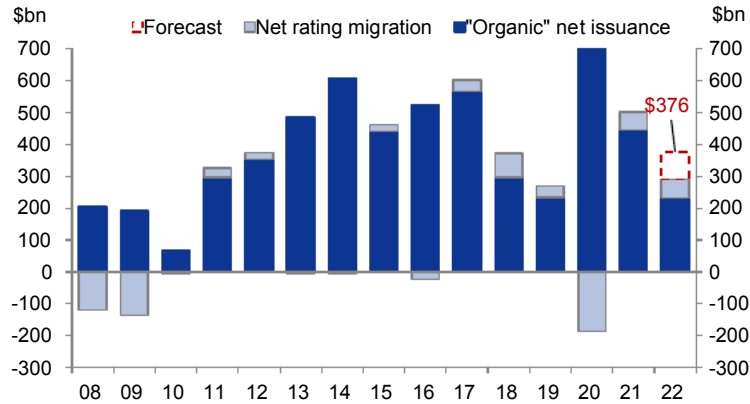


Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

Net issuance in the EUR and USD bond markets

Exhibit 75: Annual USD IG net issuance

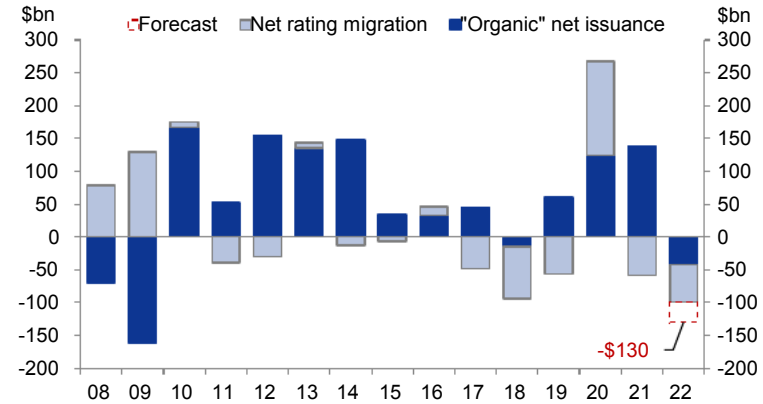
Decomposition of the change in par value outstanding into net rating migration vs. "organic" net issuance (gross issuance minus redemptions/matured bonds)



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 76: Annual USD HY net issuance

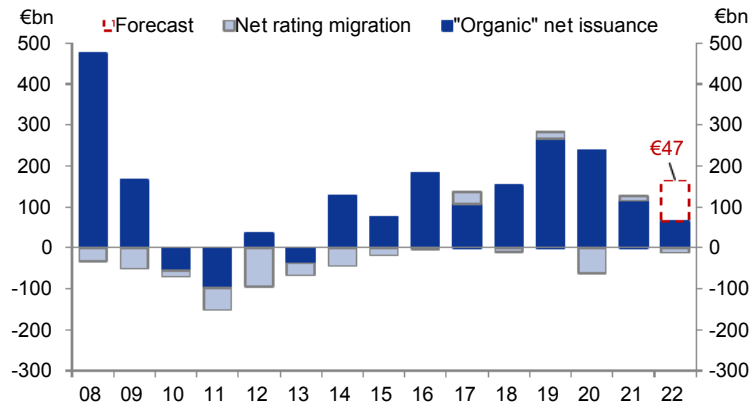
Decomposition of the change in par value outstanding into net rating migration vs. "organic" net issuance (gross issuance minus redemptions/matured bonds)



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 77: Annual EUR IG net issuance

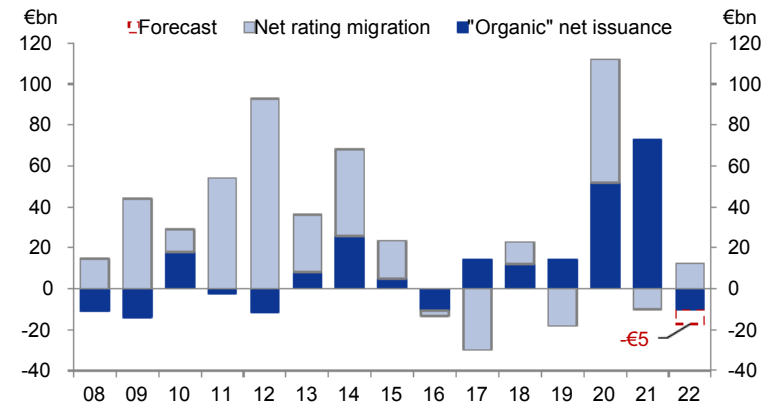
Decomposition of the change in par value outstanding into net rating migration vs. "organic" net issuance (gross issuance minus redemptions/matured bonds)



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 78: Annual EUR HY Net Issuance

Decomposition of the change in par value outstanding into net rating migration vs. "organic" net issuance (gross issuance minus redemptions/matured bonds)

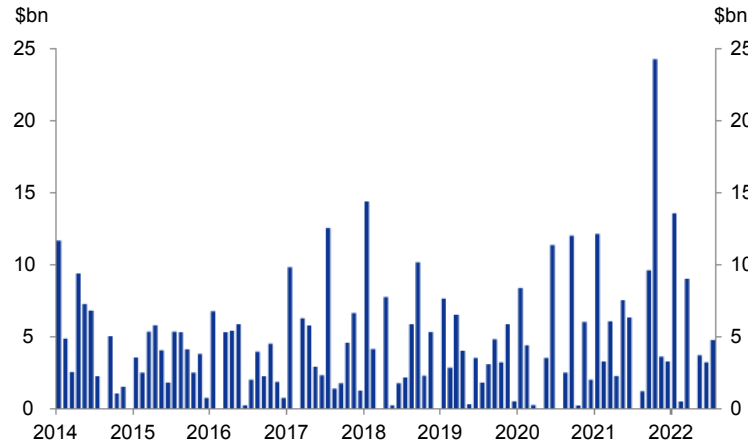


Source: Bloomberg, Goldman Sachs Global Investment Research

Cross border issuance in the USD and EUR IG markets

Exhibit 79: Financial Yankee IG gross issuance

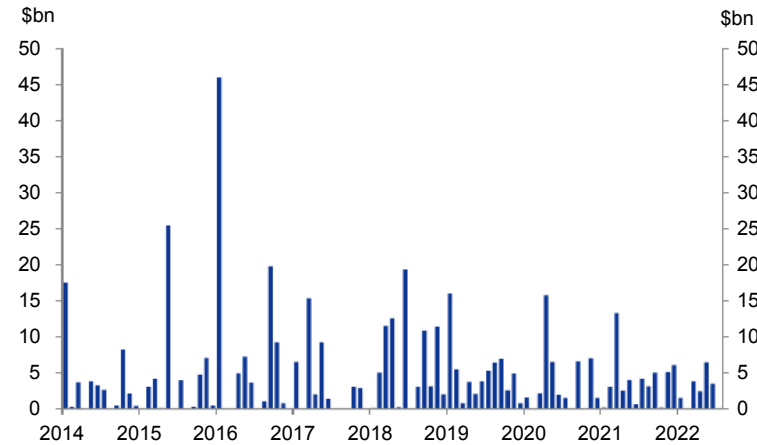
Monthly issuance by Euro-area-domiciled financial institutions in the USD bond market



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 80: Non-Financial Yankee IG gross issuance

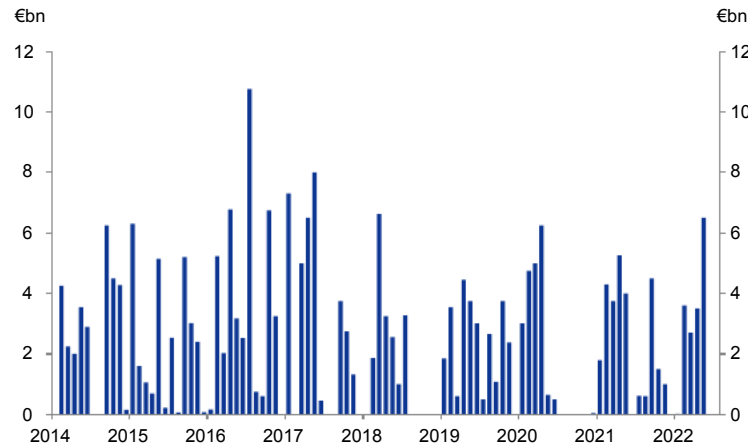
Monthly issuance by Euro-area-domiciled non-financial corporations in the USD bond market



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 81: Financial Reverse Yankee IG gross issuance

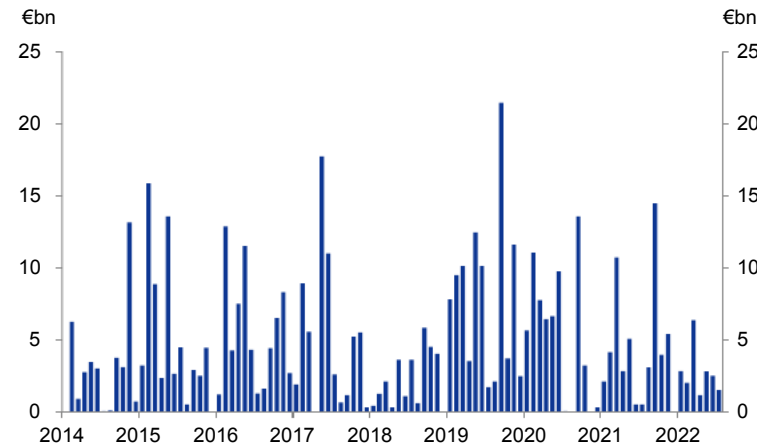
Monthly issuance by US-domiciled financial institutions in the EUR bond market



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 82: Non-Financial Reverse Yankee IG gross issuance

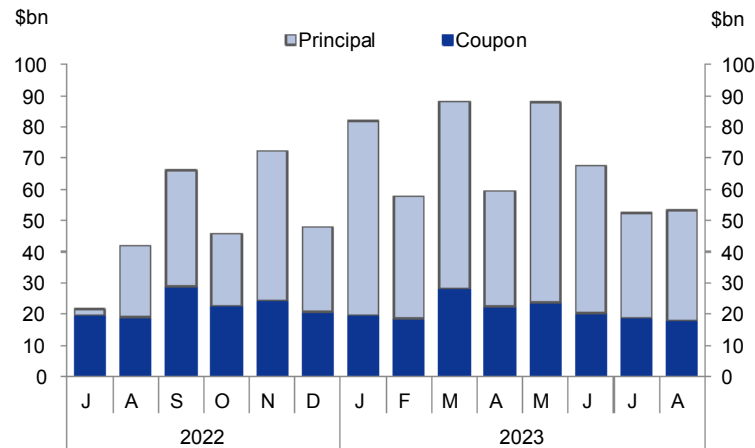
Monthly issuance by US-domiciled non-financial corporations in the EUR bond market



Source: Dealogic, Goldman Sachs Global Investment Research

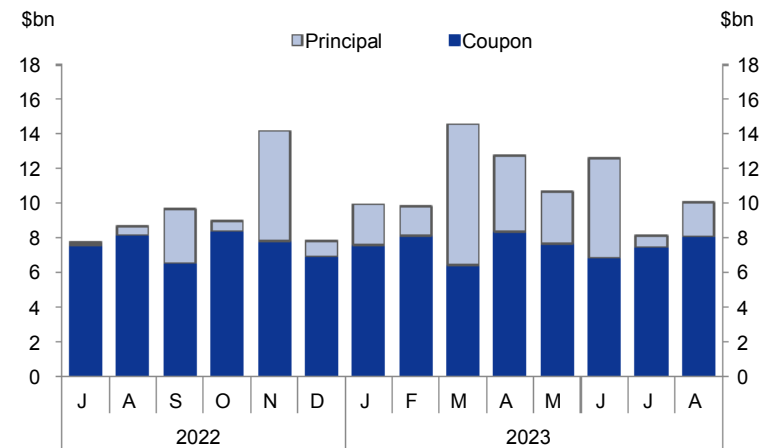
Upcoming coupon and principal payments in the USD and EUR bond markets

Exhibit 83: Our estimates of upcoming coupon and principal payments in the USD IG market



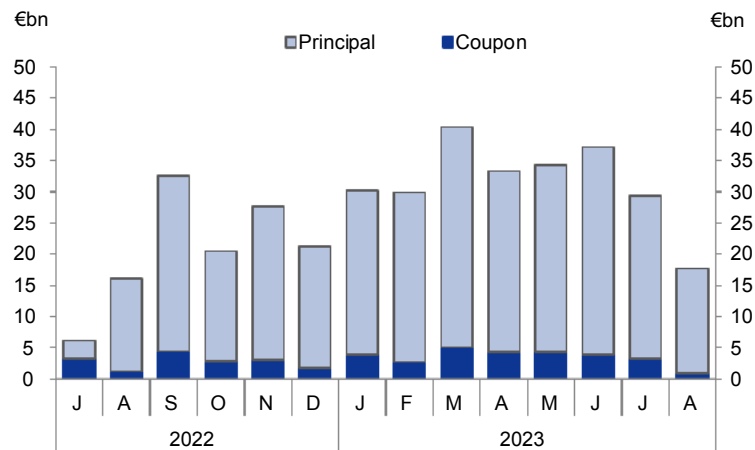
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 84: Our estimates of upcoming coupon and principal payments in the USD HY market



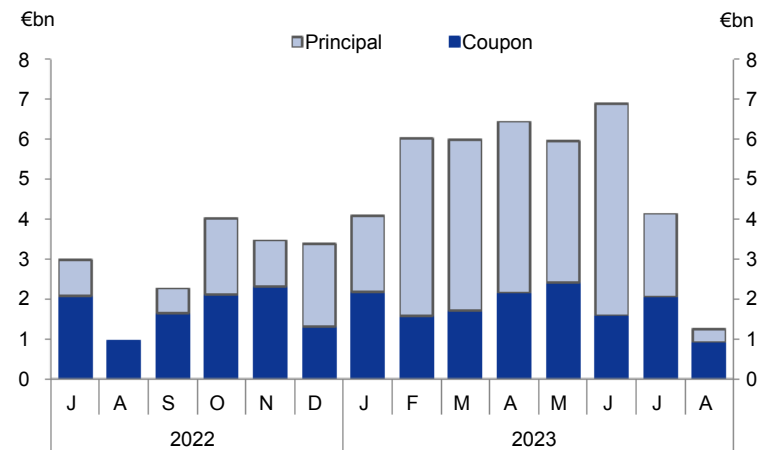
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 85: Our estimates of upcoming coupon and principal payments in the EUR IG market



Source: Bloomberg, Goldman Sachs Global Investment Research

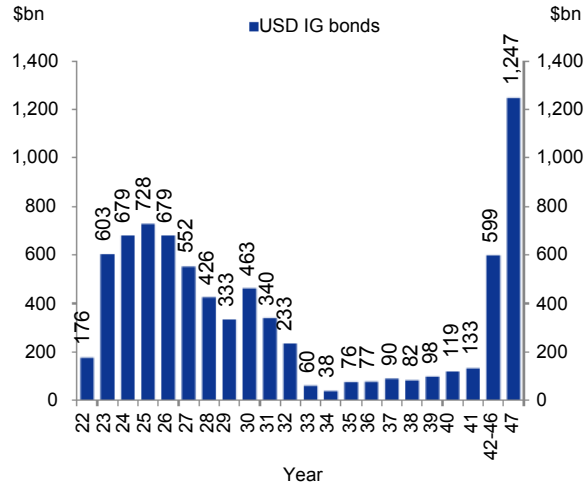
Exhibit 86: Our estimates of upcoming coupon and principal payments in the EUR HY market



Source: Bloomberg, Goldman Sachs Global Investment Research

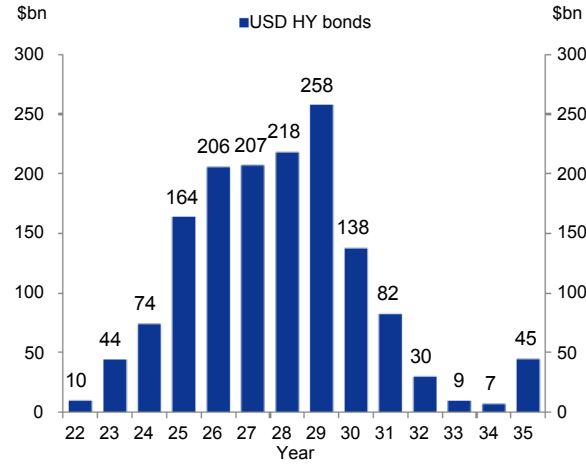
Maturity walls in the USD and EUR bond and leveraged loan markets

Exhibit 87: USD IG bond maturity wall



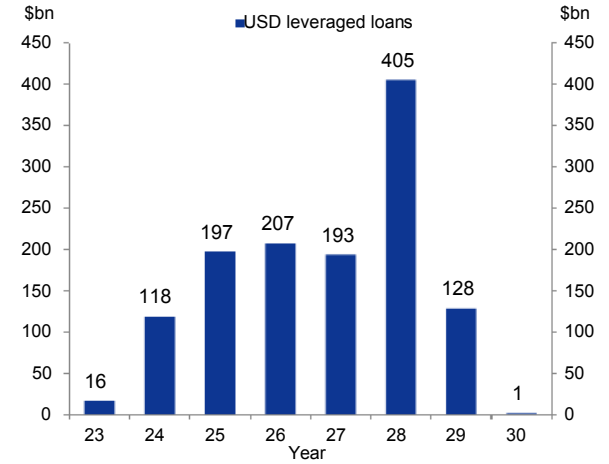
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 88: USD HY bond maturity wall



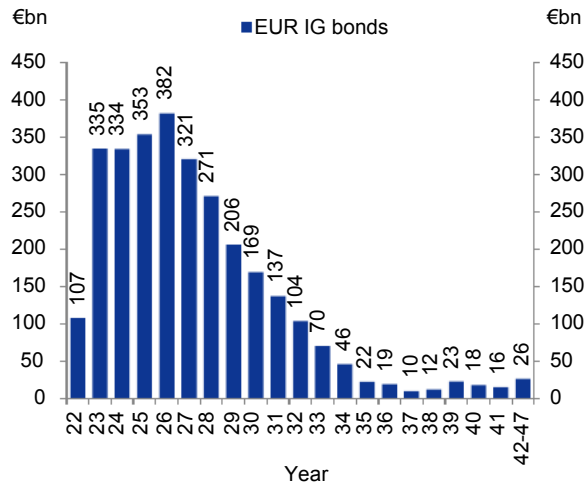
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 89: USD leveraged loan maturity wall



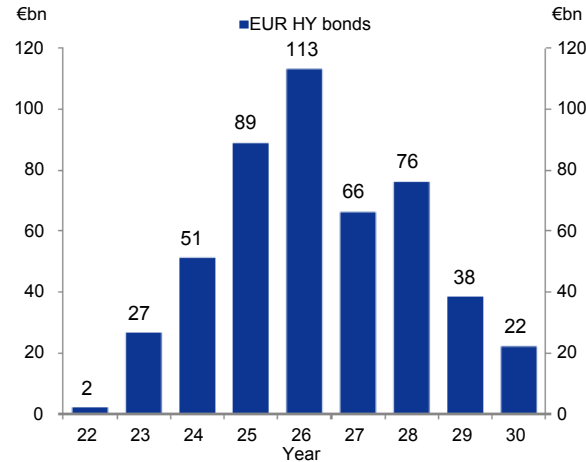
Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

Exhibit 90: EUR IG bond maturity wall



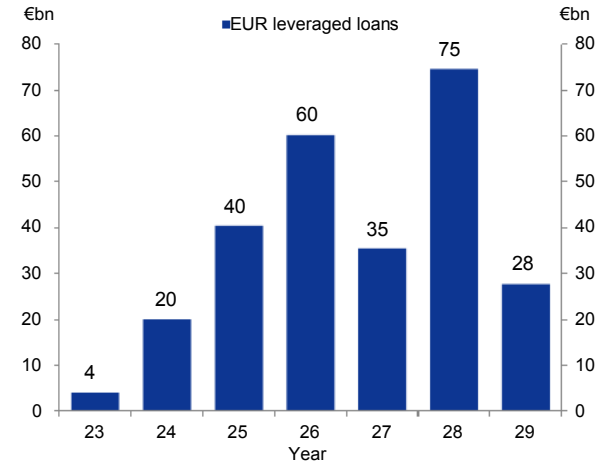
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 91: EUR HY bond maturity wall



Source: Bloomberg, Goldman Sachs Global Investment Research

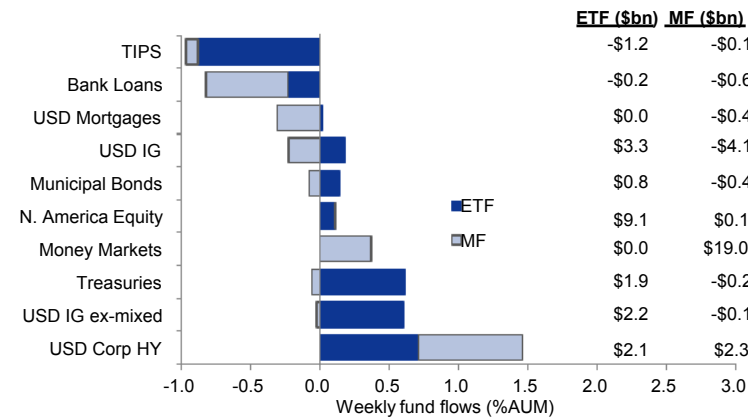
Exhibit 92: EUR leveraged loan maturity wall



Source: S&P Capital IQ LCD, Goldman Sachs Global Investment Research

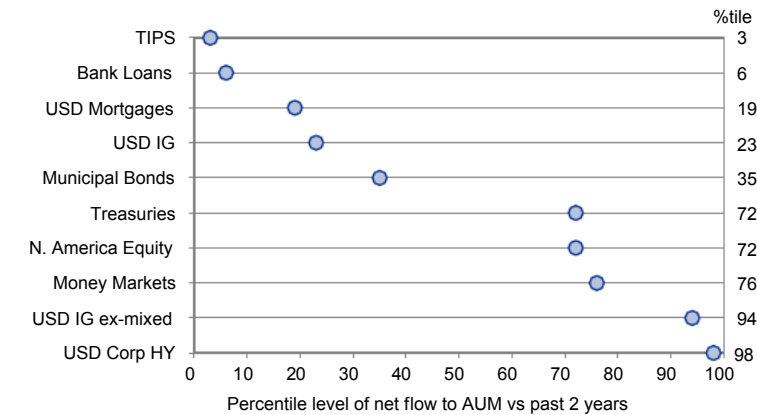
Mutual fund flows in the US fixed income and equity markets

Exhibit 93: USD Weekly net inflows into open-end mutual funds and ETFs



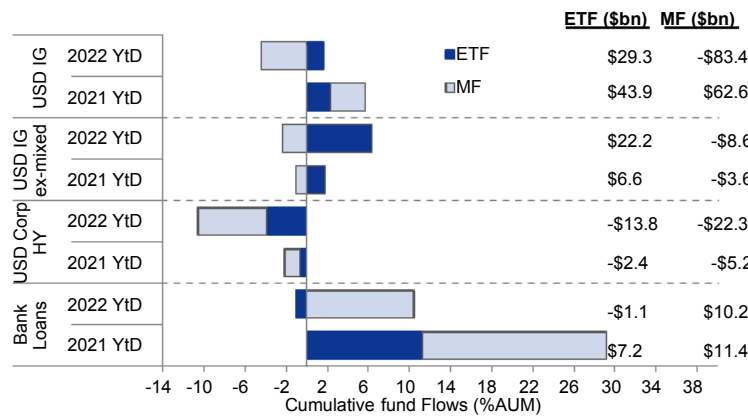
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 94: USD Percentile levels (vs. past two years) of weekly net inflows per AUM



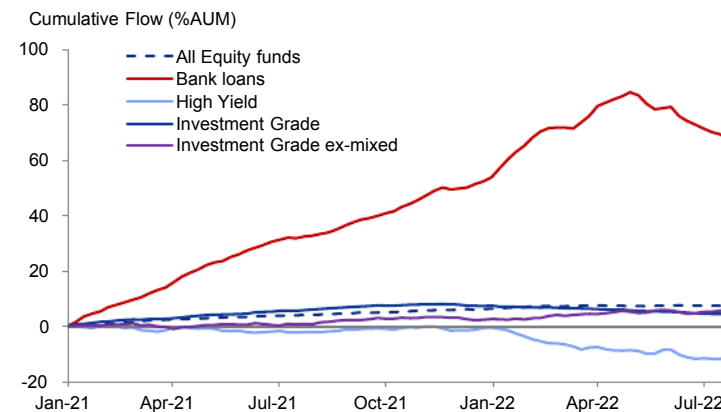
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 95: USD Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

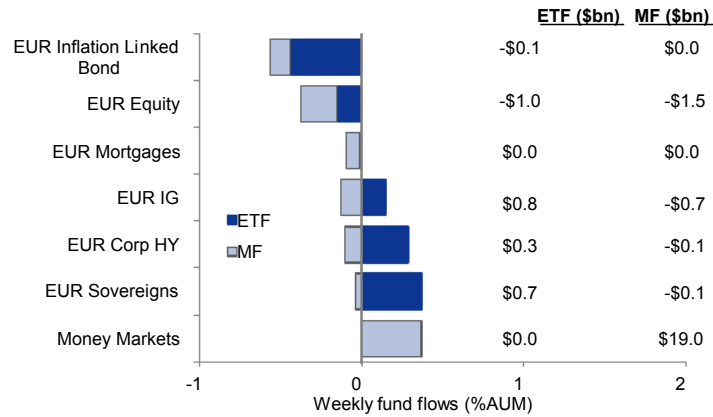
Exhibit 96: USD Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

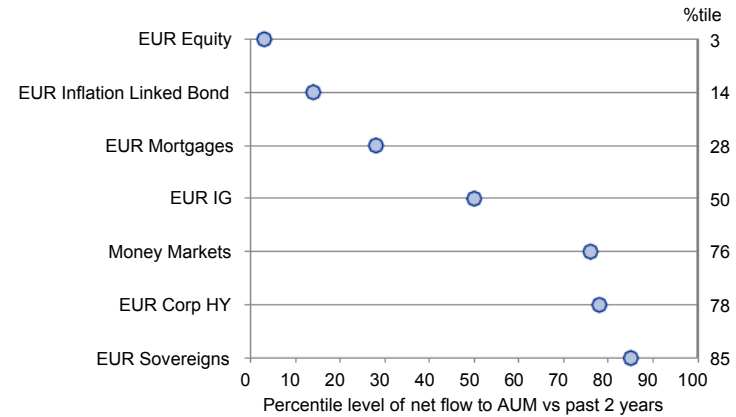
Mutual fund flows in European fixed income and equity markets

Exhibit 97: EUR Weekly net inflows into open-end mutual funds and ETFs



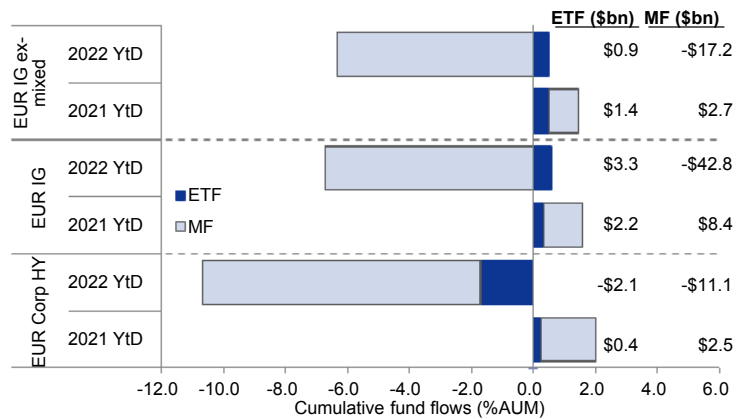
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 98: EUR Percentile levels (vs. past two years) of weekly net inflows per AUM



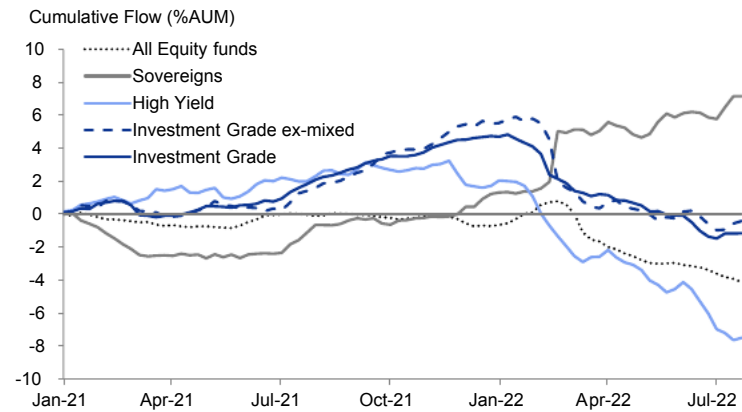
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 99: EUR Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

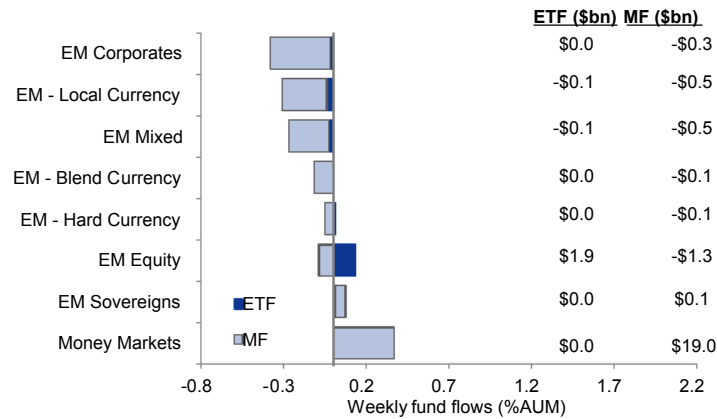
Exhibit 100: EUR Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

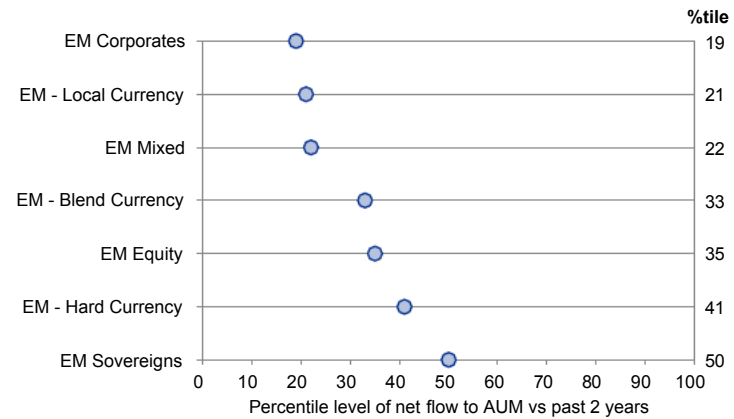
Mutual fund flows in EM fixed income and equity markets

Exhibit 101: EM Weekly net inflows into open-end mutual funds and ETFs



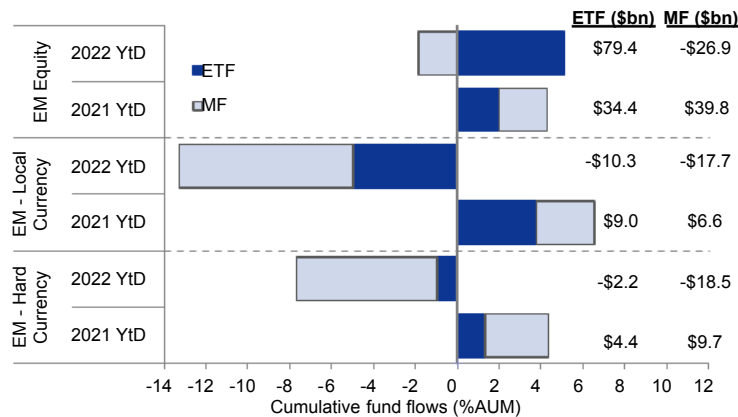
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 102: EM Percentile levels (vs. past two years) of weekly net inflows per AUM



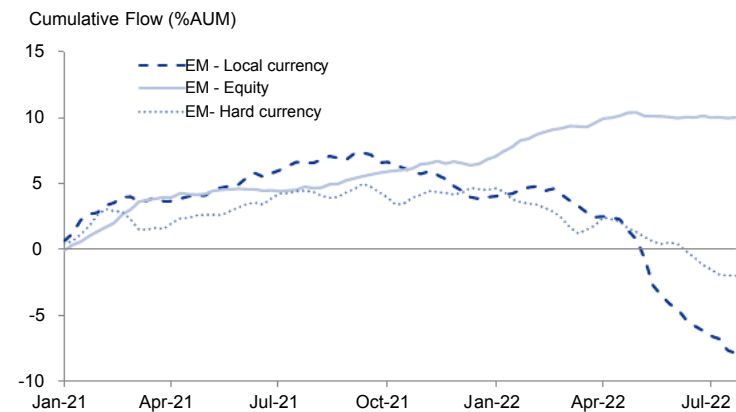
Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 103: EM Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

Exhibit 104: EM Cumulative flows as a percentage of AUM



Source: EPFR Global, Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Lotfi Karoui, Spencer Rogers, CFA, Sienna Mori, Michael Puempel, Ph.D., Ben Shumway, Vinay Viswanathan and Marcelo Manzo, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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