

U.S. BSL CLO And Leveraged Finance Update: **CLOs Resilient So Far Amidst Uncertainty** **For Lower-Rated Issuers**

Q3 2023

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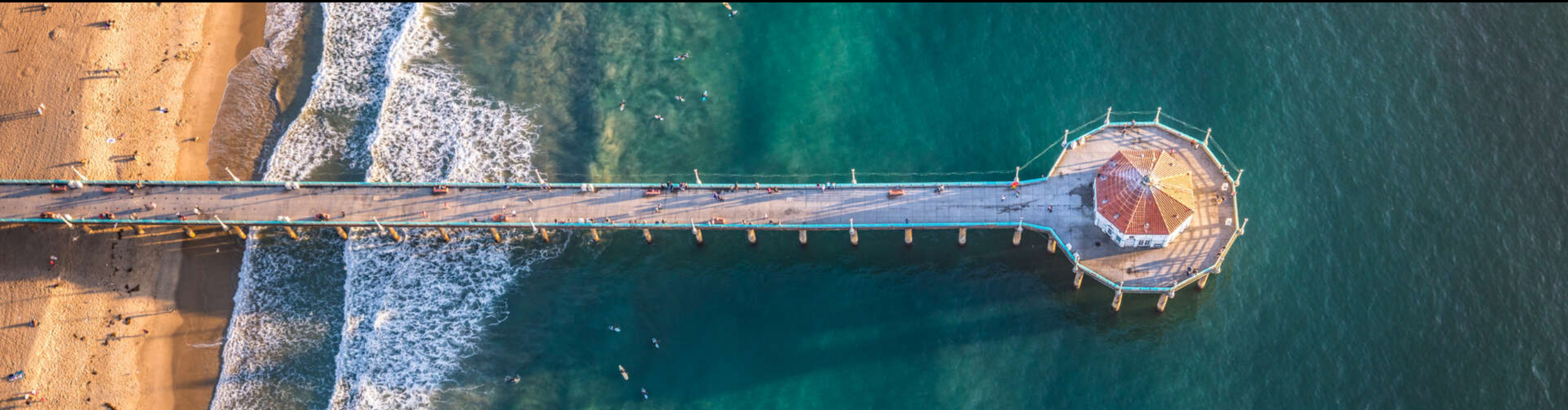
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Aug. 7, 2023

This report does not constitute a rating action.



U.S. Leveraged Finance Key Credit Themes

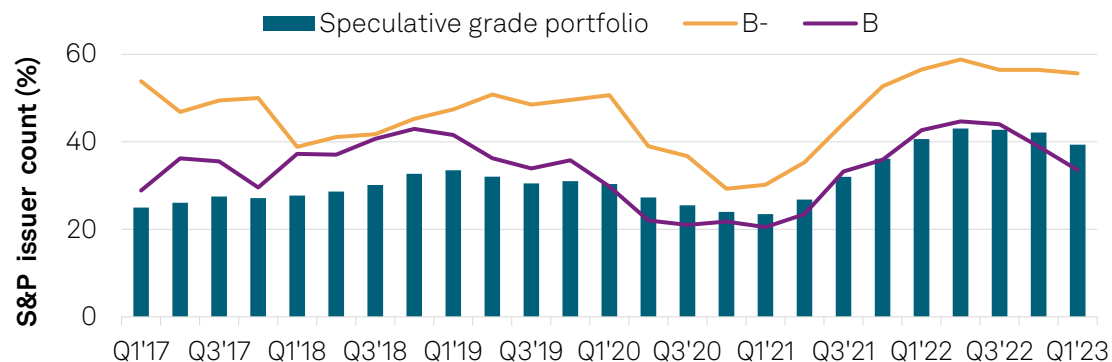
- **There is a broad dispersion in credit performance between and within rating categories, creating opportunities and risks for investors.**
 - Higher-rated issuers ('B+' and higher) are generally well-positioned to withstand the higher-for-longer interest rates and slowing economic growth over the next several quarters that is forecasted by S&P Global Ratings economists.
 - Issuers rated 'B-' and lower face the highest downgrade risk, due to cash flow pressures and limited financial flexibility.
 - Amend and extend (A&E), bond-for-loan takeouts, and refinancings in the private debt market transactions are chipping away at debt maturities. Nevertheless, refinancing and liquidity-shortfall risks are slowly rising as time passes and lower-rated and weaker performing issuers have been less proactive in addressing pending maturities.
- **“Higher-for-longer” interest rates, persistent cash flow deficits, and slowing earnings growth are the key concerns of our weakest issuers in 2023.**
 - Reported EBITDA interest coverage could decline 0.25x-0.50x from first-quarter 2023 levels by year end.
 - However, there has been a slight stabilization/moderation in the number of speculative-grade issuers reporting cash flow deficits.
 - Revenue and earnings growth continues to moderate.
- **The proportion of issuers rated in the 'CCC' category has grown to 13.7% in June from 11.7% at year-end 2022, and is likely to increase.**
 - With over half of the large 'B-' issuer base reporting cash flow deficits and more than 21% reporting EBITDA interest coverage deficits, speculative downgrades will likely continue to outpace upgrades.
- **We expect trailing-12-month default rates to increase by March 2024.**
 - Our speculative-grade default forecast: base-case of 4.25% (vs. 2.9% at May 31, just above the long-term historical average of 4.1%).
 - Morningstar-LSTA U.S. Leveraged Loan Index (LLI) default forecast: base-case of 2.5% (up from 1.6% at May 31 and at the same level as the historical average of 2.5%).
- **Estimated average recoveries on first-lien debt have declined in recent years and are mostly below the long-term historical average of 75%-80%.**
 - Our average expectation for future first-lien recoveries is 64%, with lower expectations on companies rated 'B' and lower.
 - Further, out-of-court restructurings will likely push many first-lien recoveries lower and increase dispersion.

U.S. BSL CLO Key Takeaways

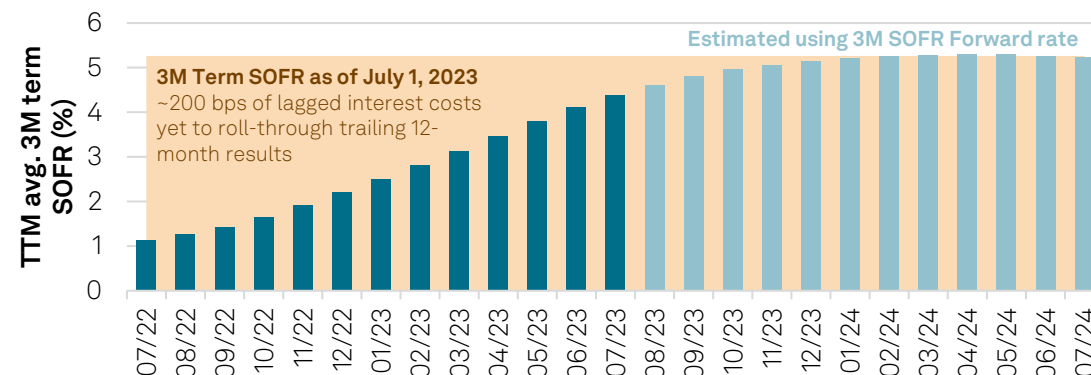
- Downgrades of obligor ratings in U.S. broadly syndicated loan (BSL) collateralized loan obligation (CLO) collateral pools continue to outnumber upgrades, but the pace moderated in July with the smallest number of downgrades since January 2023 (see slide 27).
- After peaking in late April, the proportion of BSL CLO assets from obligors rated 'B-' has changed course and modestly declined for the past several months. As of July 21st, it sits at 28.8% versus 31.1% in late April (see slide 25). This is due in part to more obligors in CLO collateral pools seeing ratings lowered **from 'B-'** to the 'CCC' category **than lowered to 'B-'**, but also due to other factors like some 'B-' companies refinancing into the private credit market or CLO managers reducing their exposure to 'B-' assets.
- Other metrics deteriorated modestly or were mostly unchanged over the past several months. The average BSL CLO 'CCC' basket (including obligors with 'B-' ratings on CreditWatch negative, per our CLO rating methodology) edged upward to 6.83% in July from 5.42% in late April. However, average BSL CLO exposure to nonperforming assets, weighted average rating factor (WARF), and assets from obligors with ratings on CreditWatch negative or negative outlook were all nearly unchanged (see slide 24).
- Given the increase in BSL CLO 'CCC' buckets and a modest decline in par, the average junior overcollateralization (O/C) ratio test cushion dropped to 4.10% in July from 4.39% in late April. The average test cushion has been gradually declining for more than a year but remains strong by historical standards. Our published stress scenarios suggest that the average BSL CLO junior O/C test could withstand 'CCC' baskets rising into the mid-teens before failing (see slide 36).
- The software and healthcare providers and services sectors are the two largest industry categories in BSL CLO collateral pools, with 11.4% and 6.6% of total assets, respectively. The sectors with the highest proportion of loans trading below 80 are Diversified Telecom Services (19.74% of loans within the sector) and Healthcare Providers & Services (18.47%). Given the overall increase in loan prices over the past several months (average price of 95.30 in late July versus 94.20 back in late April), fewer CLO assets are trading below 90: 12.9% now versus about 15% several months ago (see slide 33).
- On July 18, we published updated BSL CLO rating stress scenarios to test the resiliency of U.S. BSL CLO ratings during a possible downturn. Given the large proportion of BSL CLOs outside their reinvestment period, we included both reinvesting and amortizing CLOs in the stress test. As with our previous BSL CLO rating stress scenarios, the current analysis shows the CLO structure protecting senior noteholders. See slides 40 and 41 for a summary of the results.
- Out-of-court loan restructurings have been a topic of nearly every investor conversation we've had this year. On July 26, we published an article looking at how U.S. CLO document provisions have evolved in response (see ["Credit FAQ: A Closer Look At Uptier Priming And Asset Drop-Down Provisions In U.S. CLOs"](#)).

U.S. Leveraged Finance | What We Are Watching In Third-Quarter 2023

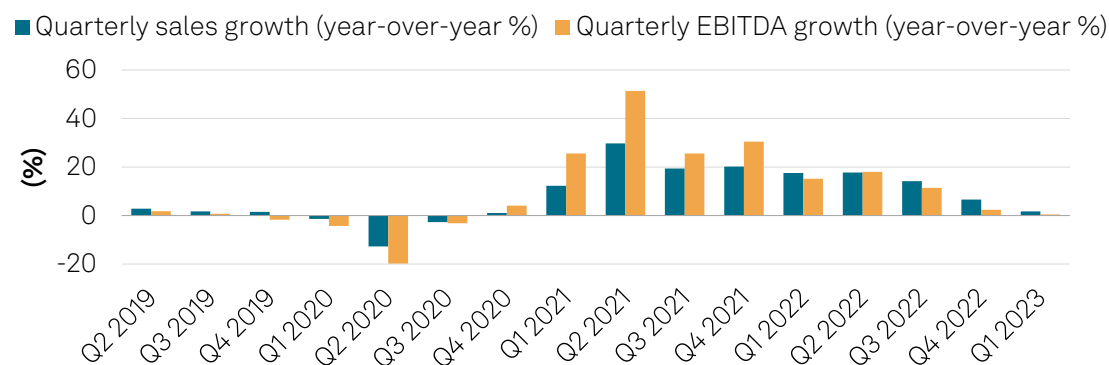
1. Persistence in the number of issuers burning cash



2. Lagged impact of higher benchmark rates is still pending

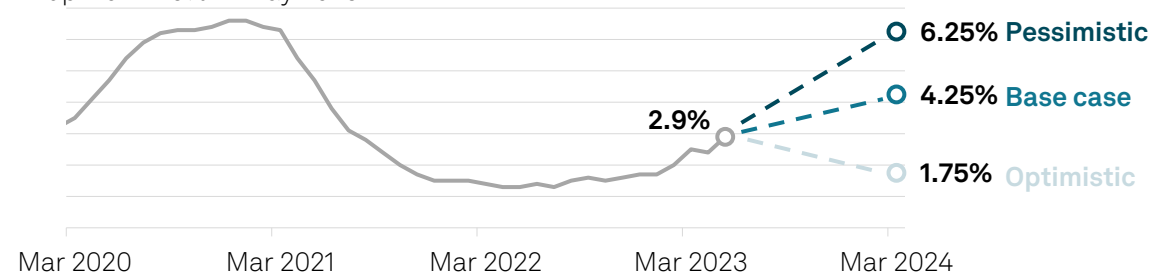


3. Potential reversal of revenue and earnings growth*



4. Speculative-grade default rate (expected to continue to rise from 2.9% at May 31)

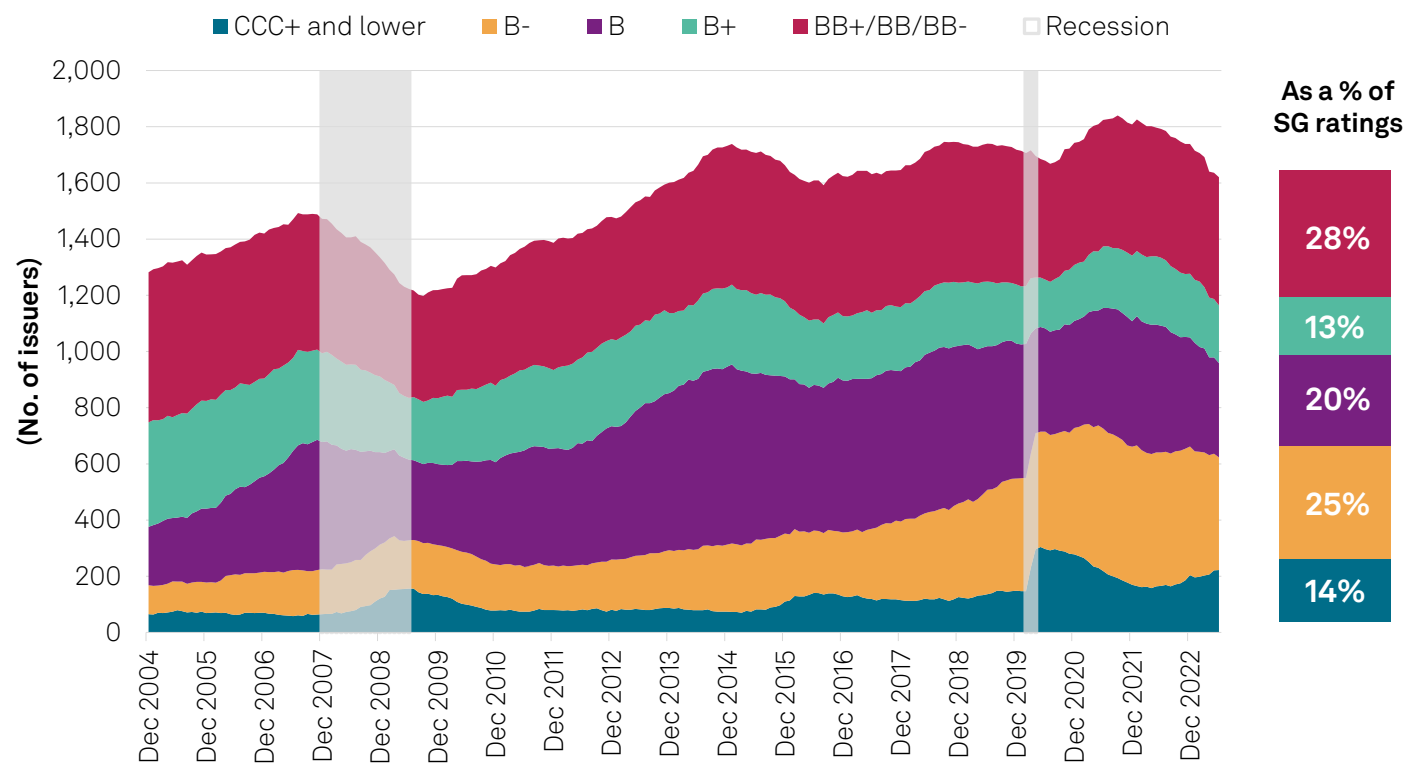
4.25 % March 2024 baseline leveraged loan default rate forecast, up from 2.9% in May 2023



*Data through to June 20, 2023. Nominal data, measured in U.S. dollars at historical conversion rates. Only includes companies reporting quarterly. Latest quarter only includes companies that have reported Q1 2023 results.
Sources: [U.S. Corporate Credit Outlook Midyear 2023: A Fragile Stability](#), S&P Capital IQ, S&P Global Ratings.

U.S. Leveraged Finance | Ratings Growth At Bottom Rungs Means Ratings Are Concentrated At Low Levels; Lower-Rated Issuers Have High Downgrade Risk

U.S. and Canada speculative-grade ratings distribution by issuer credit rating
As of June 30, 2023

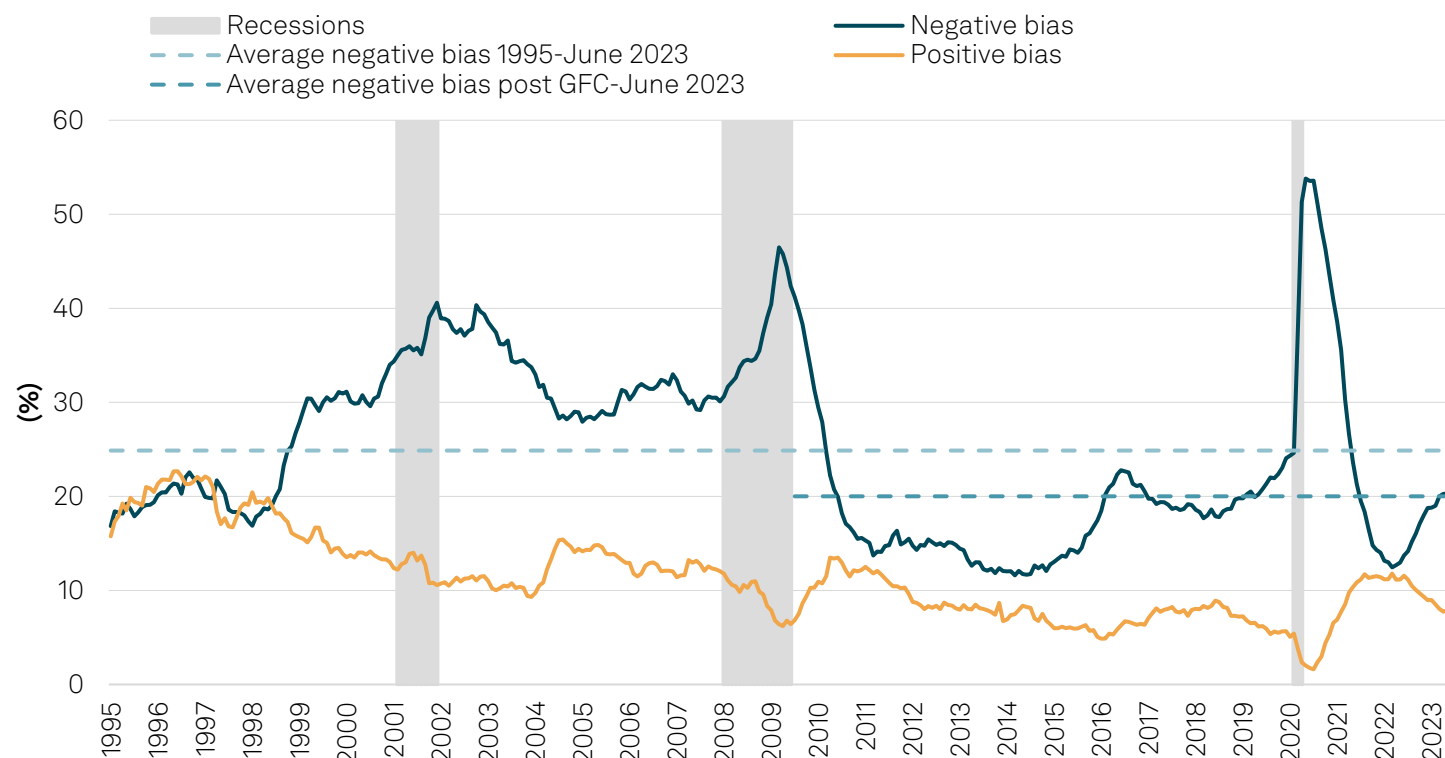


SG--Speculative grade. Source: S&P Global Ratings & CreditPro.

- About 60% of our speculative-grade issuer ratings are concentrated at 'B' and lower.
- Using the historical average of 'B' and 'B-' annual downgrade transition rates to the 'CCC' category, the percent of companies rated 'CCC+' and lower could expand by 5%-6% over the course of 2023.
- This would put the proportion of 'CCC' category rated issuers in the 15%-17% range by year-end 2023, which is below the COVID-19 peak of 18.7% but higher than the global financial crisis peak of 12.8%.

U.S. Leveraged Finance | Speculative-Grade Negative Bias Increases To Post-Global Financial Crisis Average

Speculative-grade negative ratings bias U.S. and Canadian nonfinancial corporates

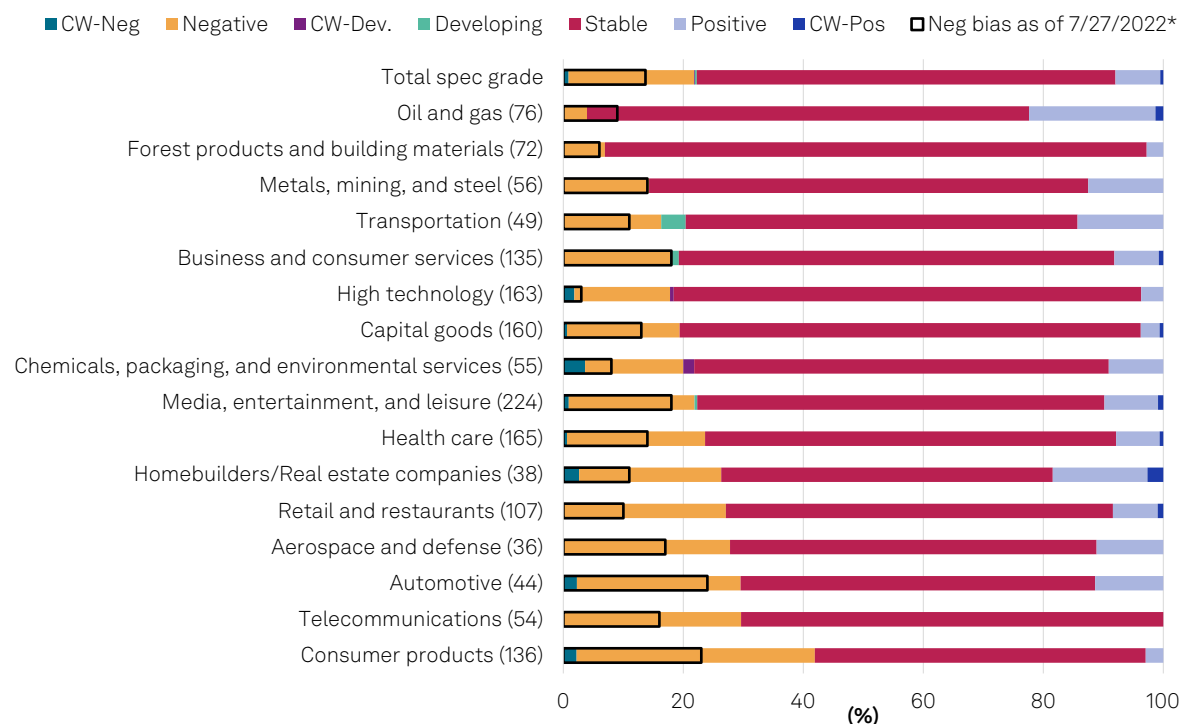


Data as of June 30, 2023, Source: S&P Global Ratings Credit Research & Insights.

- The negative bias for speculative-grade corporates has increased notably since March 2022, but has leveled off at about 20% over the past four months.
- The speculative-grade negative bias now sits at the post global financial crisis (GFC) average of roughly 20%, but is still below the long-term average from 1995 through March 2023.
- Even so, continued pressure from slowing economic growth and the burden of sharply higher debt servicing costs may keep upward pressure on negative bias.

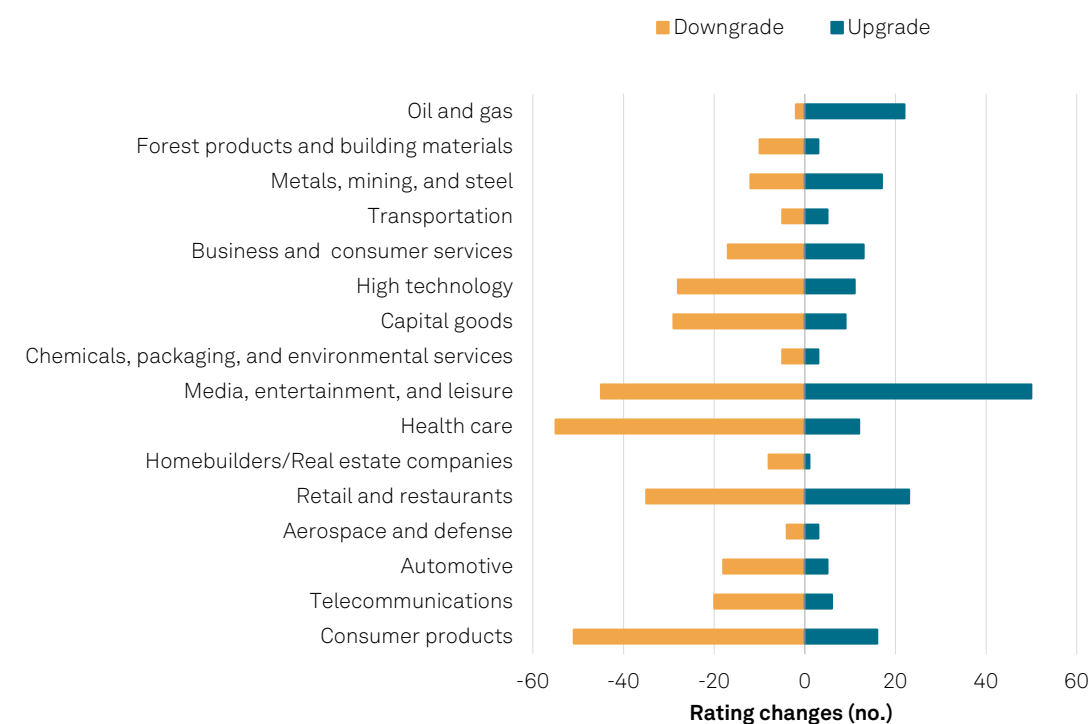
U.S. Leveraged Finance | Increased Negative Ratings Bias Highlights Growing Downgrade Risk

Speculative-grade rating outlook by sector
U.S. And Canada (as of July 26, 2023)



*Includes issuers with a 'Negative' rating outlook and issuers placed on CreditWatch Negative.
Source: S&P Global Ratings U.S. and Canada ratings.

Speculative-grade issuer credit rating changes by sector*
U.S. and Canada (last 12 months' June 2023)

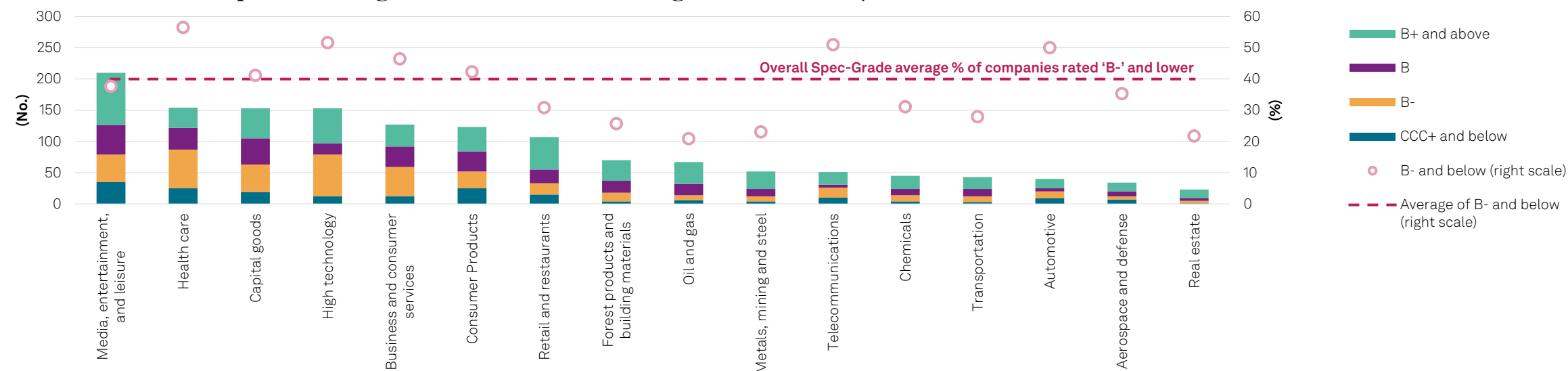


*Excludes utilities and financial and insurance services. Source: S&P Global Ratings U.S. and Canada ratings.

U.S. Leveraged Finance | Credit Quality Varies By Sector, But The Largest Sectors Generally Have High Concentrations Of Firms Rated ‘B-’ or Lower

- The sectors with the most speculative-grade companies tend to have high proportions of ratings of ‘B’ and lower, since this is where post-GFC ratings growth was concentrated.
- The sectors with the highest number of firms rated ‘B-’ and lower are health care; high technology; media, entertainment, and leisure; capital goods; business and consumer services; and consumer products.
- Of these six sectors, all but media, entertainment, and leisure have concentrations of companies rated ‘B-’ or lower that are above the speculative-grade average.

U.S. and Canada speculative-grade issuer credit rating distribution by sector



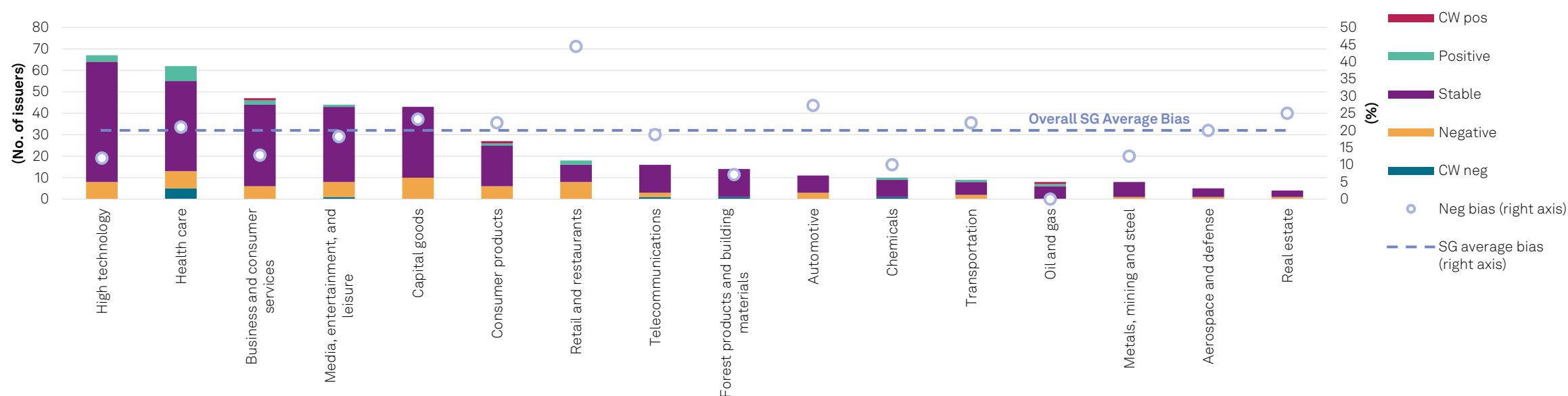
As of July 26, 2023. U.S. and Canada corporate ratings. Source: S&P Global Ratings.

U.S. Leveraged Finance | 'B-' Downgrade Risk Can Vary Widely By Sector

- On a speculative-grade corporate rating, an outlook negative is intended to signal a one-in-three chance of a downgrade within the next 12 months.
- Negative bias for companies rated 'B-' is 18.3%, modestly lower than the speculative-grade average of about 20.0%
- Most 'B-' rated companies have a stable outlook, modestly lower at the start of the year.
- Of the seven sectors with an above-average negative outlook, the retail and restaurants and automotive sectors are notably higher than the average.

Ratings bias of companies rated 'B-' by sector

U.S. and Canadian nonfinancial corporates



As of July 26, 2023. Source: S&P Global Ratings Credit Research & Insights.

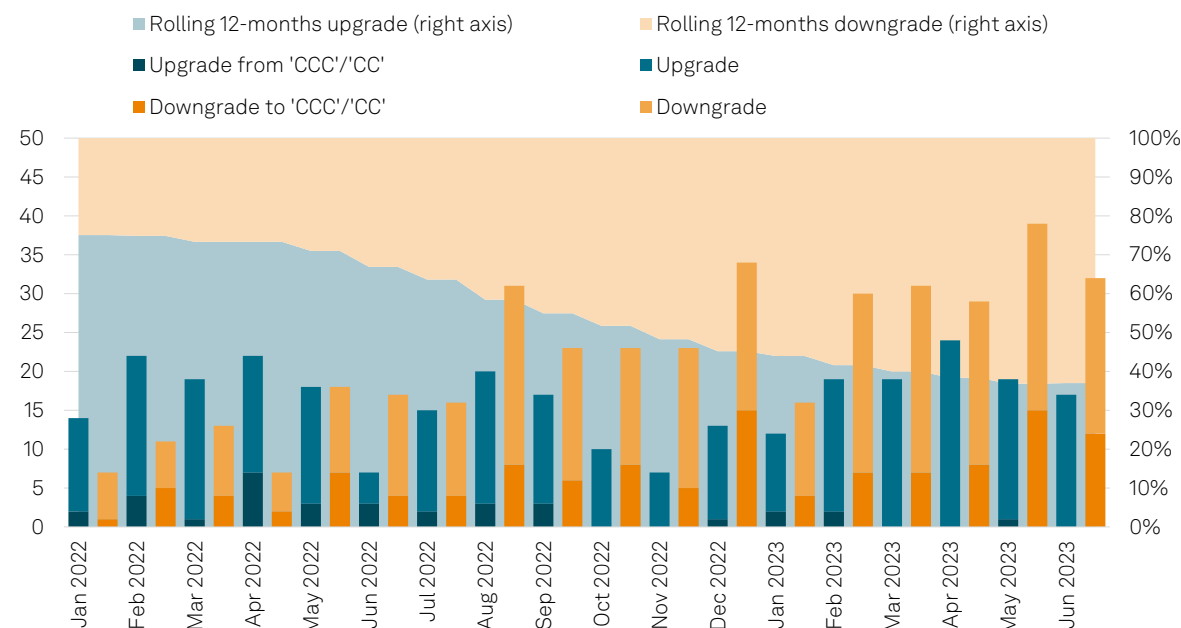
U.S. Leveraged Finance | Credit Trends Turn Negative As Economic Tailwinds Flag And Headwinds Mount

Credit statistics for entities downgraded to--or upgraded from--the 'CCC' category are starkly different than those where the issuer credit rating was unchanged.

Downgrades: Median leverage for companies downgraded to the 'CCC' category rose to 15.5x as EBITDA all but dried up (vs. 8.0x for entities rated 'B-'). Downgraded firms also had more severe and persistent free operating cash flow deficits.

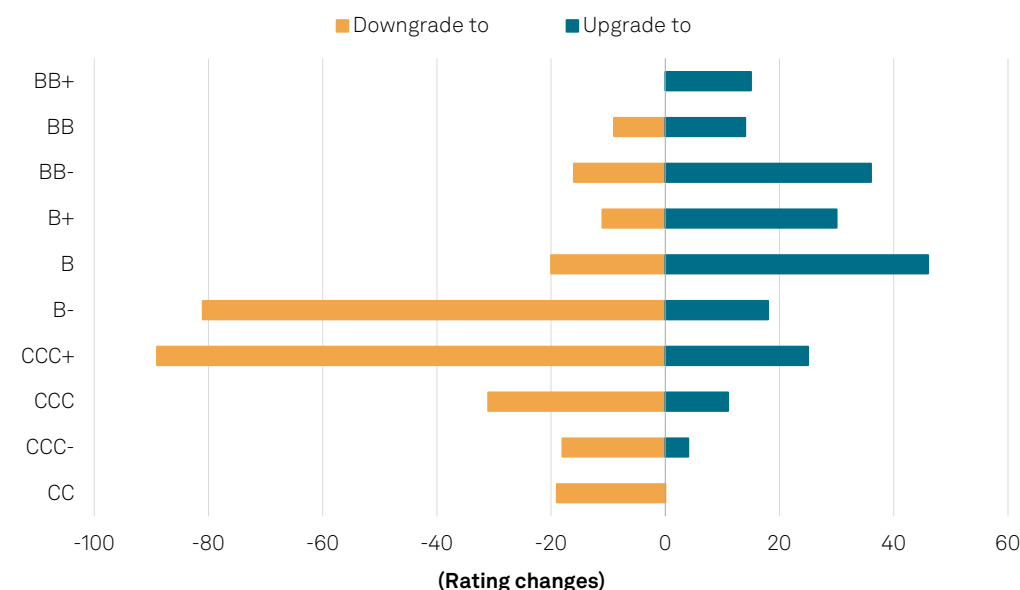
Upgrades: Firms upgraded from the 'CCC' category generally had better credit statistics than the cohort of 'B-' companies in which ratings remained static.

Speculative-grade upgrades and downgrades



Statistics in the charts above excludes entities in the infrastructure and financial and insurance services sectors.
Source: S&P Global Ratings U.S. and Canada ratings.

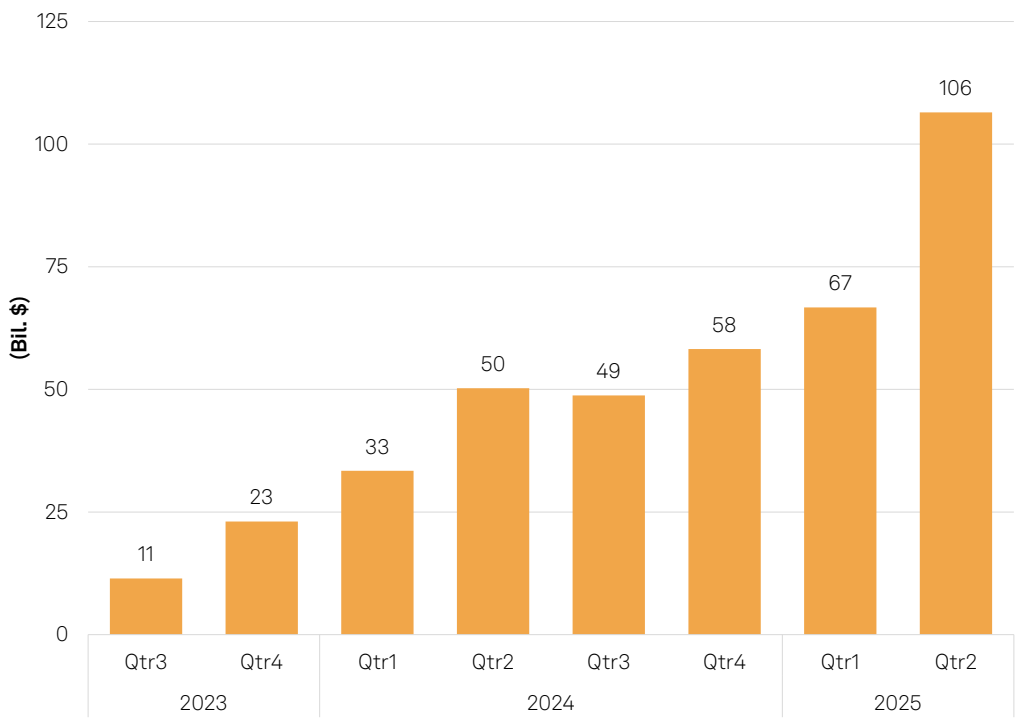
Speculative-grade issuer credit rating changes by sector: U.S. And Canada (last 12 months' June 2023)



Note: Downgrade and upgrade ratings actions are 'to' the current rating.
Source: S&P Global Ratings U.S. and Canada ratings.

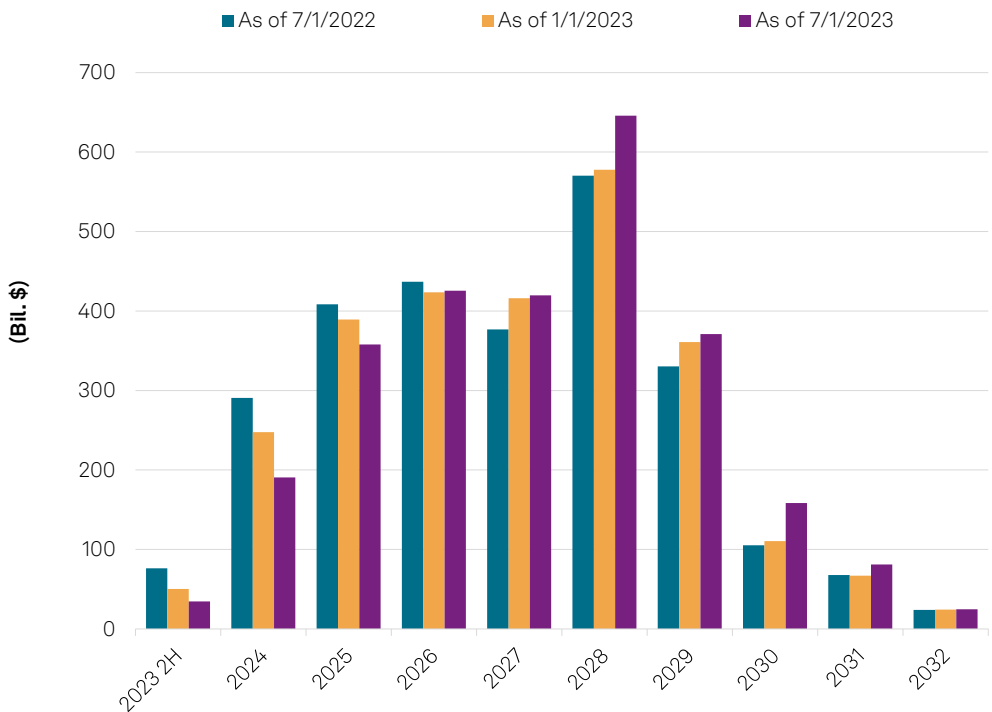
U.S. Leveraged Finance | Issuers Continue To Chip Away At Near-Term Maturities As They Approach; Refinancing Risk Remains A Credit Focus

U.S. speculative-grade maturities escalate in coming years



Note: Data as of July 1, 2023. Chart shows maturities of U.S. nonfinancial corporate debt, including bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings. Source: S&P Global Ratings Credit Research & Insights, [U.S. Corporate Credit Outlook Midyear 2023: A Fragile Stability](#), page 5 for additional information on U.S. debt maturities.

Companies reduced near-term speculative-grade maturities



Note: Foreign currencies are converted to USD on the respective report period date. Includes bonds, loans, and revolving credit facilities that are rated speculative grade by S&P Global Ratings from nonfinancial corporates based in the U.S. Source: S&P Global Ratings Credit Research & Insights, [U.S. Corporate Credit Outlook Midyear 2023: A Fragile Stability](#), page 5 for additional information on U.S. debt maturities.

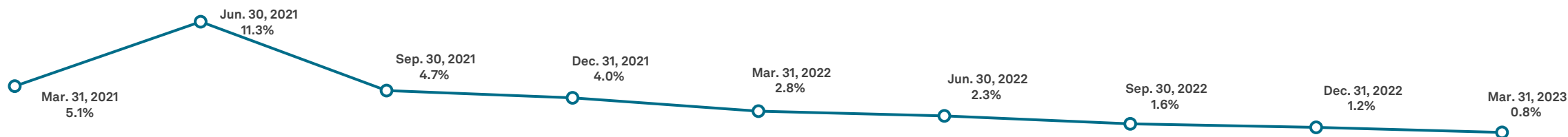
U.S. Leveraged Finance | Median EBITDA Growth Steadily Slowing (Overall) Since Mid-2021, And Varying Meaningfully By Sector

Reported EBITDA growth, quarter-over-quarter change (rolling 12 months periods)

Overall trend – breakdown by sector

Industry	Entity count (no.)	Median EBITDA growth, reported last 12 months (QoQ, %)								
		Ended on Mar. 31, 2021	Ended on Jun. 30, 2021	Ended on Sep. 30, 2021	Ended on Dec. 31, 2021	Ended on Mar. 31, 2022	Ended on Jun. 30, 2022	Ended on Sep. 30, 2022	Ended on Dec. 31, 2022	Ended on Mar. 31, 2023
Oil and gas	62	6.1	37.5	27.6	35.4	18.7	26.4	18.0	4.9	5.0
Aerospace/defense	23	-3.2	9.9	4.5	5.8	-1.2	0.1	1.5	2.4	4.7
Transportation	23	-4.4	22.8	16.6	14.7	2.7	3.4	4.7	3.8	4.7
Capital goods/machine and equipment	98	3.6	4.5	1.5	1.5	3.6	5.0	5.8	4.2	4.5
Technology	78	6.4	4.7	4.8	5.1	3.3	-0.3	2.2	1.5	2.7
Auto/trucks	23	17.3	30.7	1.3	3.5	-2.2	3.9	1.4	5.3	1.8
Business and consumer services	67	3.0	6.1	2.7	2.7	0.2	1.6	2.9	1.3	1.6
Forest product/building material/packaging	43	7.8	10.4	1.4	1.4	7.4	9.9	4.5	1.5	1.4
Healthcare	92	8.3	8.4	3.3	-0.8	-0.4	-1.8	-2.2	-0.1	0.8
Aggregate sample	940	5.1	11.3	4.7	4.0	2.8	2.3	1.6	1.2	0.8
Media, entertainment, and leisure	129	3.7	30.0	10.4	5.8	4.5	2.7	1.5	2.8	0.3
Restaurants/retailing	81	9.0	30.2	1.8	5.2	1.1	-0.6	0.0	0.0	-0.3
Consumer products	88	7.4	9.7	2.4	1.0	0.0	0.5	-0.2	0.1	-1.4
Telecommunications	39	2.2	2.7	1.2	-0.7	-1.0	-2.5	-0.4	-0.3	-2.2
Real estate	19	3.4	6.9	4.8	5.4	4.4	5.4	4.4	2.7	-2.5
Mining and minerals	44	8.1	22.4	14.3	11.2	10.1	7.1	-0.9	-7.9	-3.3
Chemicals	31	6.7	13.1	9.2	4.8	5.5	3.1	-0.9	-5.5	-8.8

Overall Trend – aggregate data for all sectors



Note: The data is from "U.S. Leveraged Finance Q2 2023 Update: Disparities Emerge By Sector, Rating, Company Size, And Debt Cushion," published on July 7, 2023. Rating as of June 29, 2023. Source: S&P Global Ratings.

U.S. Leveraged Finance | Coverage And Cash Flow Problems For Smaller, Lower-Rated Firms

Speculative-grade reported EBITDA interest coverage (U.S. and Canada)

Entity size (measured by EBITDA)	Entity count (no.)	Median EBITDA interest coverage (x), reported last 12 months										
		12-month ended on Dec. 31, 2019	12-month ended on Dec. 31, 2020	12-month ended on Mar. 31, 2021	12-month ended on Jun. 30, 2021	12-month ended on Sep. 30, 2021	12-month ended on Dec. 31, 2021	12-month ended on Mar. 31, 2022	12-month ended on Jun. 30, 2022	12-month ended on Sep. 30, 2022	12-month ended on Dec. 31, 2022	12-month ended on Mar. 31, 2023
<50	105	1.4	1.3	1.4	1.5	1.5	1.2	1.0	0.9	0.8	0.6	0.6
50-100	114	1.8	1.6	1.7	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.7
100-200	157	2.6	2.3	2.4	2.5	2.3	2.6	2.9	2.9	2.9	2.7	2.6
200-300	130	2.7	2.8	3.2	3.6	3.8	3.5	3.9	4.0	4.0	3.7	3.6
300-500	141	3.4	2.9	3.1	3.8	4.3	4.7	5.1	5.3	5.3	4.8	4.1
500-1000	146	4.4	3.8	4.0	4.9	5.6	6.3	7.1	6.8	6.5	5.9	5.7
>1000	147	5.4	3.8	4.0	5.4	5.6	6.7	7.6	8.0	8.3	8.3	6.6
Total	940	3.0	2.5	2.7	3.0	3.2	3.5	3.6	3.7	3.7	3.5	3.3

Speculative-grade reported FOCF-to-debt (U.S. and Canada)

Issuer credit rating*	Entity count (no.)	Median EBITDA interest coverage (x), reported last 12 months										
		12-month ended on Dec. 31, 2019	12-month ended on Dec. 31, 2020	12-month ended on Mar. 31, 2021	12-month ended on Jun. 30, 2021	12-month ended on Sep. 30, 2021	12-month ended on Dec. 31, 2021	12-month ended on Mar. 31, 2022	12-month ended on Jun. 30, 2022	12-month ended on Sep. 30, 2022	12-month ended on Dec. 31, 2022	12-month ended on Mar. 31, 2023
BB+	104	12.5	18.3	21.3	20.4	20.8	19.6	17.4	13.4	14.0	15.3	13.9
BB	109	13.7	16.7	17.1	16.6	16.5	14.4	13.6	12.3	13.1	9.5	9.3
BB-	116	8.9	12.0	17.0	13.9	13.4	11.2	8.9	9.4	6.8	7.0	9.7
B+	128	6.4	7.7	7.1	8.4	8.1	6.3	5.5	4.5	5.4	6.2	7.8
B	171	3.6	5.5	6.3	5.4	3.7	4.4	2.6	2.5	2.9	3.5	3.8
B-	193	1.4	4.1	4.1	2.2	0.7	0.2	-0.7	-1.3	-2.0	-0.7	-0.8
CCC+	86	-0.5	0.1	0.9	-1.5	-2.8	-3.7	-4.7	-5.3	-5.2	-4.7	-3.7
CCC	24	-4.6	3.7	5.0	0.9	-0.4	-1.1	-6.5	-7.5	-8.3	-5.9	-6.5
CCC-	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.
CC	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.
Total	940	4.9	7.0	7.6	7.1	5.7	4.8	3.5	2.7	2.4	2.9	3.7

FOCF--Free operating cash flow. N.M.--Not meaningful. Source: S&P Global Ratings.

- Smaller and lower-rated firms are constrained in their ability to support high interest costs and other cash needs. The smallest-size bucket (EBITDA < \$50 mil.) shows insufficient median interest coverage of 0.6x in the 12 months ended on March 31, 2023.
- On a median basis, free operating cash flow (FOCF) is still negative for companies rated 'B-' and lower.
- Recent progress in improving working capital flows has improved FOCF for most rating categories, although many gains are tied to reducing bloated inventories which is not sustainable.

U.S. Leveraged Finance | 'B' And 'B-' Issuers Have Modest Interest Rate Hedges

'B' and 'B-' rated companies could see a 60-80 basis points (bps) increase in interest costs for each 100 bps in higher benchmark interest rates

Implied higher benchmark rate passthrough by rating category

Rating category	Sample size	% with IR hedge	If hedged, % floating debt hedged	% floating rate debt capitalization	Implied benchmark rate flow through (%)
BB+	14	50.0	49.9	26.8	20.1
BB/BB-	23	47.8	58.3	40.2	29.0
B+	30	50.0	63.3	53.1	36.3
B	46	37.0	52.2	76.8	62.0
B-	43	18.6	64.7	90.2	79.4
CCC/CC/C	17	23.5	62.6	90.5	77.2

Source: "New Study Finds U.S. Speculative-Grade Issuers Most Vulnerable To Higher-For-Longer Interest Rate Environment," published March 27, 2023.

- In our 2023 stress scenario analysis, we estimate median interest coverage ratios for 'B' and 'B-' issuers could fall by about 0.52x-0.66x, and the percentage of these issuers with negative interest coverage ratios could rise to the low 20% area from 15%.
- 'CCC' category downgrade risk resulting from higher-for-longer interest rates is highest in the health care equipment and services, software and services, and commercial and professional services industry groups.
- Smaller issuers with EBITDA of less than \$75 million are seeing higher interest coverage ratio weakness.

U.S. Leveraged Finance | 'B' and 'B-' Issuers Could See A 0.25x-0.50x Decline In Reported EBITDA Interest Coverage By Year-End From First Quarter

Assessing 'B' and 'B-' issuers at risk

		Improvement		<= 0.25x decline	>0.25x - 0.5x decline	>0.5x - 0.75x decline		
		Reported EBITDA margin stress						
Sample size: 678		+15%	+10%	+5%	0%	-5%	-10%	-15%
		(16.7% median margin)	(15.9%)	(15.2%)	(14.5%)	(13.7%)	(13%)	(12.3%)
Benchmark rate (3 month LIBOR/SOFR)	3.35% (Est. LTM Q1'23)	2.12x	2.03x	1.94x	1.84x LTM	1.75x	1.66x	1.57x
	4%	1.99x	1.90x	1.82x	1.73x	1.65x	1.56x	1.47x
	4.8% (Annualized Q1'23)	1.82x	1.74x	1.66x	1.58x	1.50x	1.42x	1.35x
	5%	1.78x	1.71x	1.63x	1.55x	1.47x	1.40x	1.32x
	6%	1.60x	1.53x	1.46x	1.40x	1.32x	1.25x	1.18x

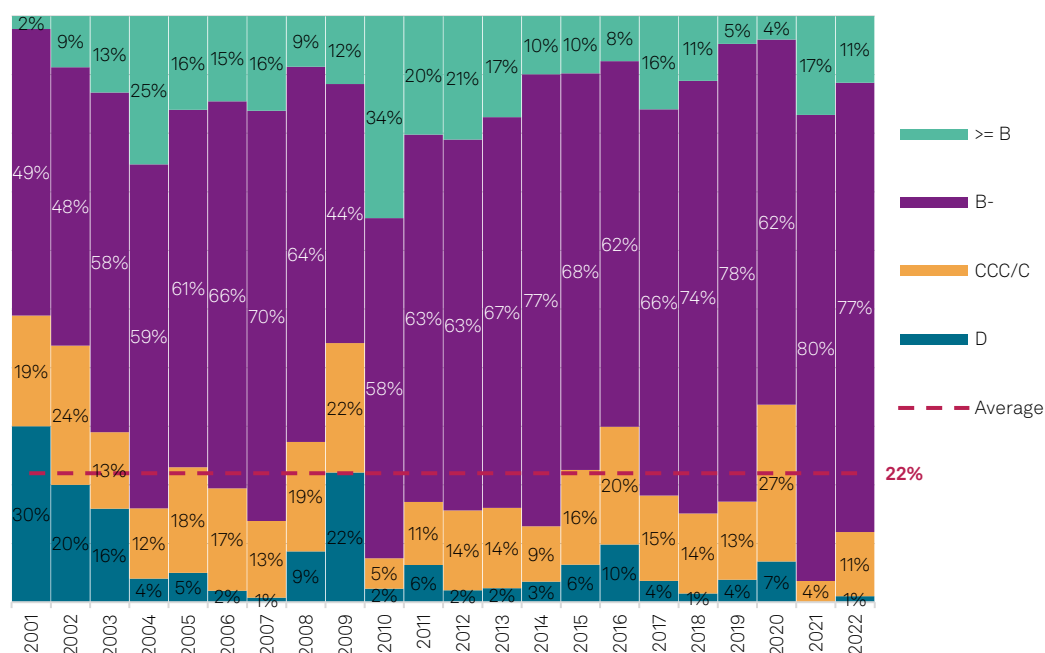
- Issuers rated 'B' and 'B-' are highly exposed to unhedged floating-rate debt obligations, and thus could see 60 bps-80 bps increases in interest costs for every 100 bps in higher benchmark interest rates.
- The most vulnerable 'B-' issuers are in the health care equipment and services, software and services, and commercial and professional services industry groups.
- Issuers rated 'B' and 'B-' with less than \$75 million EBITDA report weaker interest coverage ratios.

The hypothetical analysis uses the last 12-month financials as of March 30, 2023, as the starting point and assumes that revenue remains unchanged. For this study, we use the average for the higher benchmark rate flow-through from table 1 and chart 2 (approximately 60% for 'B' issuers and 75% for 'B-' issuers). In the column headers, the numbers in parenthesis are the median reported EBITDA margin after applying the EBITDA margin stress—source: 2023Q1 update on New Study Finds U.S. Speculative-Grade Issuers Most Vulnerable To Higher-For-Longer Interest Rate Environment.

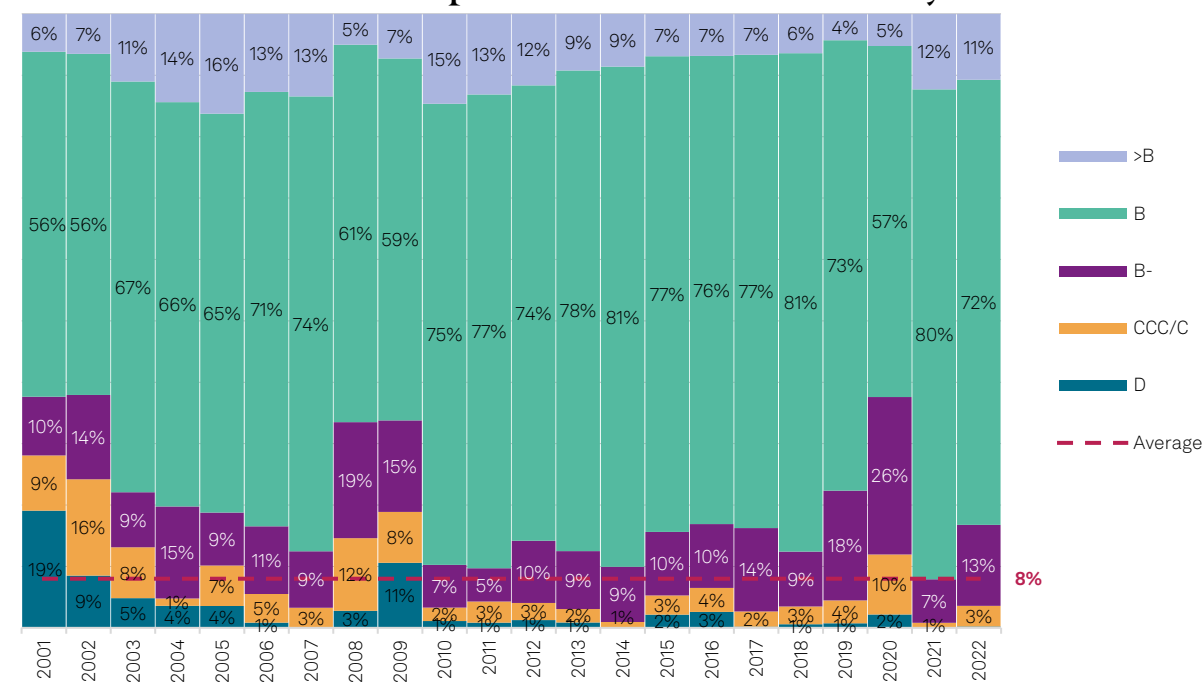
U.S. Leveraged Finance | Downgrades To 'CCC' Range Spike In Recessions

- Average one-year downgrades to the 'CCC' category for 'B' and 'B-' firms were 8% and 22%, respectively. Median one-year downgrades were 13% and 18%.
- Peak downgrades to the 'CCC' category for 'B' and 'B-' firms were 49% and 28%, respectively (both in 2001).
- Upgrades out of the 'CCC' category normally increase in the years following a recessionary period. In 2010 and 2021, approximately 32% and 31% were upgraded, respectively (compared to the 2001-2021 median/average of 13%/14%).

Movement of 'B-' issuer pool from start-to-end of year



Movement of 'B' issuer pool from start-to-end of year



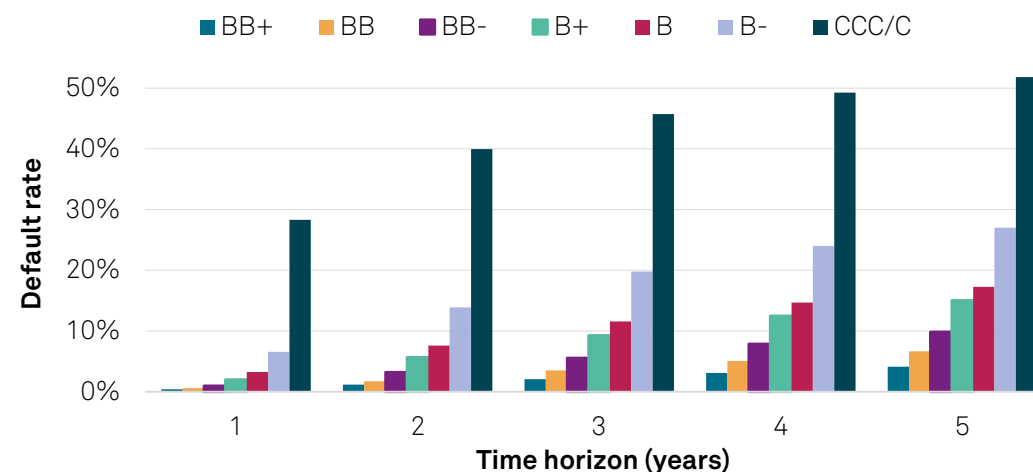
Note: The data is from "Leveraged Finance: U.S. Leveraged Finance Q1 2023 Update: Ch-Ch-Ch-Changes -- Material Shifts In Key Credit Stats Drove Downgrades To 'B-' And 'CCC', And Upgrades To 'B-',", published on May 4, 2023. The data for the samples for each quarterly report are rebalanced each quarter following selection criteria, as detailed in the "The Data Used in This Report" section. FOCF--Free operating cash flow. LTM--Last 12 months ending at/around the dates indicated. ICR--Issuer credit rating. Source: S&P Global Ratings U.S. and Canada ratings.

U.S. Leveraged Finance | 'CCC' Rated Companies Have Higher Default Risk

- Companies rated 'CCC+' or lower are viewed as more likely to default than not. Avoiding a default is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitments.
- We view defaults for companies rated in the 'CCC' category as mostly a matter of timing. Generally, a visible default scenario would be tied to the timeframes noted below, although the timing of selective defaults (i.e. distressed exchanges) are not predictable.
- In contrast, a company rated 'B-' is viewed as having a viable path to perform and improve its credit measures.
- Defaults and cumulative defaults are materially higher for companies with 'CCC' category ratings, even compared to 'B-' rated issuers. The cumulative default figures shown below do not adjust for high level of ratings withdrawals over the time period (more than 25%, on average, over a three-year period), as default tracking stops one year after a rating withdrawal.

Issuer credit rating	Anticipated time to default
CCC+	More than 12 months away
CCC	Within 12 months
CCC-	Within 6 months

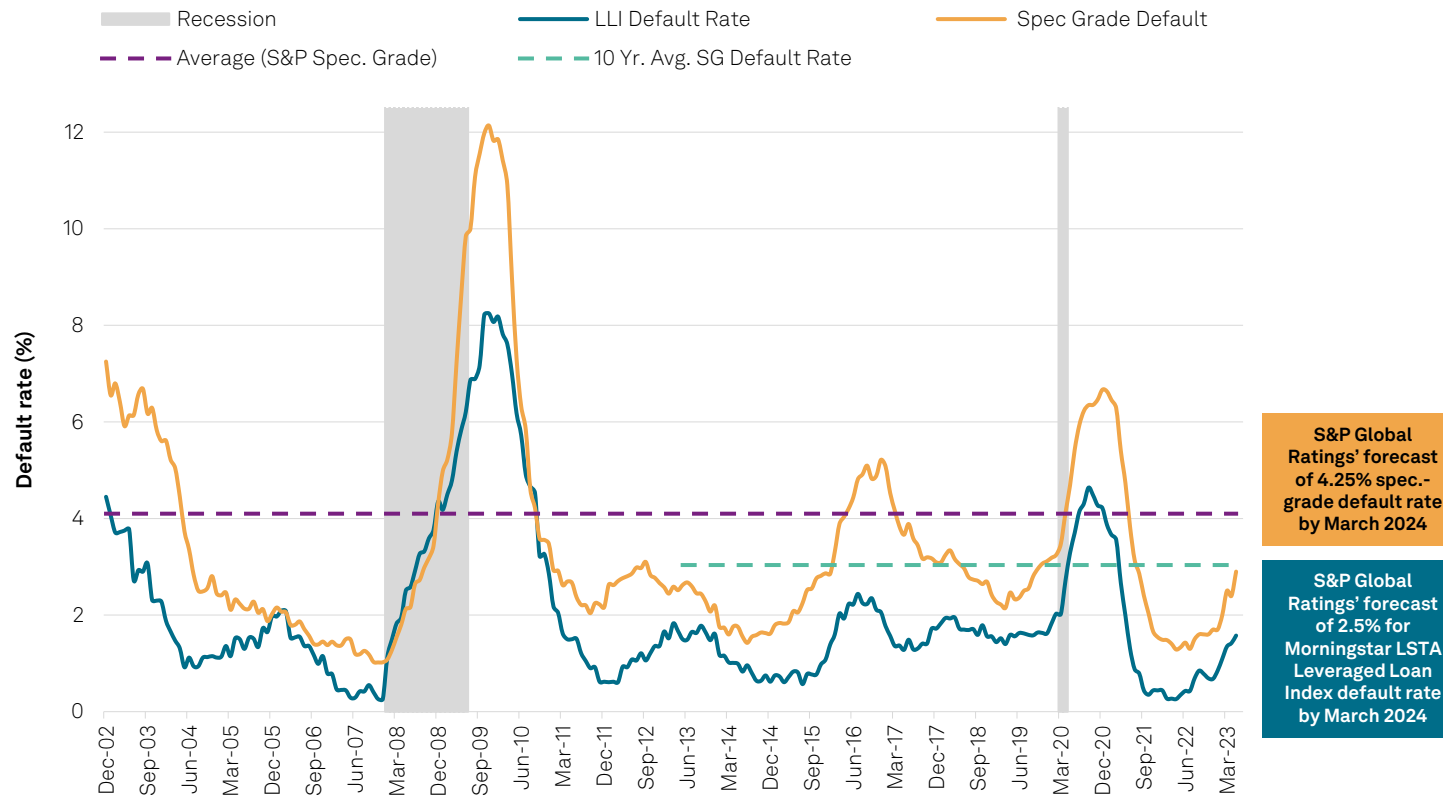
Average cumulative default rates for spec-grade U.S. corporates by issuer rating : 1981–2021



Average Three-Year U.S. Corporate Cumulative Default Rates (by Issuer Credit Ratings or ICRs): 'BB-categories' 4.05%; 'B-categories' 12.16%; 'CCC/C-categories' 45.73%. Source: 2021 Annual U.S. Corporate Default And Rating Transition Study, May 11, 2021.

U.S. Leveraged Finance | Speculative-Grade Defaults Rising And May Reach 4.25%; LSTA Leveraged Loan Index Defaults Could Reach 2.5% (Both By March 2024)

Last 12 months' default rates



Measures of LLI defaults exclude nonloan defaults and selective defaults. LTM--Last 12 months. Sources: S&P Global Ratings, [Default, Transition, and Recovery: Global Corporate Default articles](#).

Two default rate forecasts:

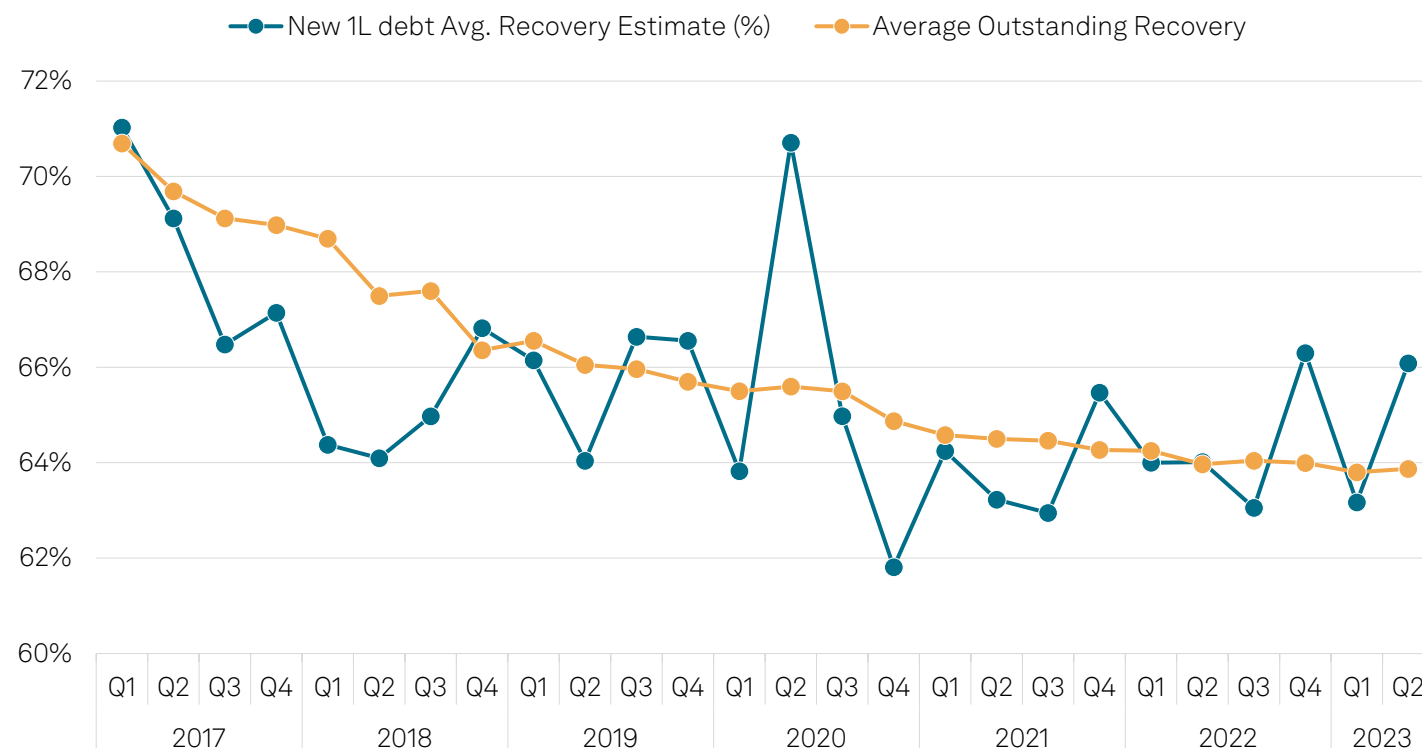
- Our overall speculative-grade default rate is calculated on an issuer count basis for all bond and loan defaults, including selective defaults.
- Default rates for the Morningstar Leveraged Loan Index (issuer count) exclude bond defaults and selective defaults.
- Selective defaults are significant, representing approximately 47% of all U.S. speculative-grade defaults in 2020, 64% in 2021, 60% in 2022, and roughly half of all defaults year-to-date (YTD) in 2023.
- After spiking in late 2020, default rates declined rapidly, but began to increase in second-quarter 2022. At year-end 2022, the Morningstar Leveraged Loan Index and speculative-grade default rates were 0.7% and 1.7%, respectively.

Forward-view: default risks are increasing

- For the U.S., our speculative-grade default forecast (issuer count) for March 2024 is 4.25% (base case; range 1.75%-6.25%).
- For the Morningstar LSTA Leveraged Loan Index, our default rate forecast (issuer count) for March 2024 is 2.50% (base case; range 1.00%-4.50%).

U.S. Leveraged Finance | First-Lien Recovery Expectations Are Now Well Below Historical Averages

Expected recovery on newly issued and outstanding first-lien debt (U.S. and Canada)

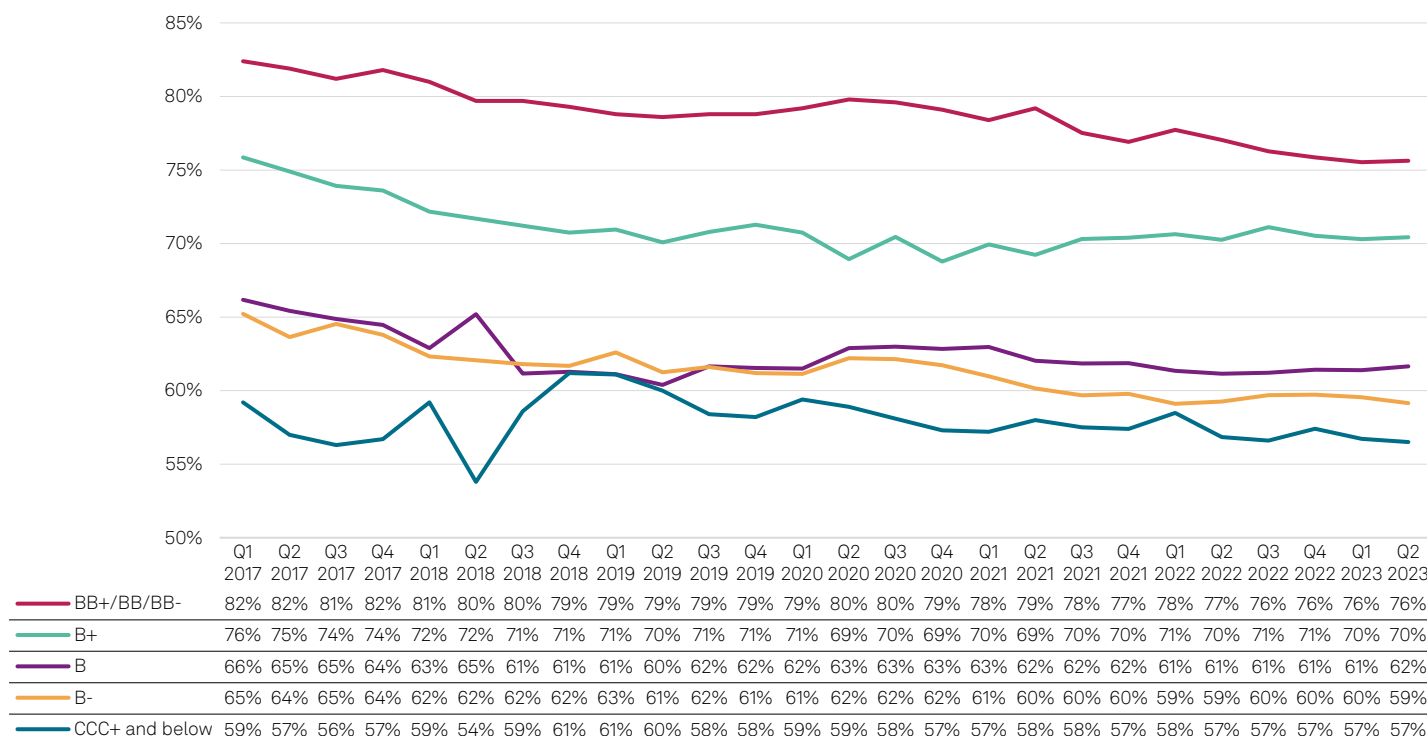


Data through Dec. 31, 2022, based on the rounded point-estimates included in our recovery ratings for rated nonfinancial corporate entities in the U.S. and Canada. Source: S&P Global Ratings.

- Estimated recoveries on first-lien debt have declined gradually.
- **Average expected recoveries are materially lower** than long-term U.S. historical averages for first-lien debt of 75%-80% (past 35 years).
- Estimated **average recoveries on first-lien debt have declined in recent years** and mostly sit at the low end of the historical range. Out-of-court restructurings are likely to push first-lien recoveries down and dispersion up.
- Additionally, average actual first-lien recovery rates in recent years have been somewhat lower and significantly variable.
- **Higher total debt leverage, higher first-lien debt leverage, and reduced junior debt cushions** are fundamental drivers of the decline.
- Covenant-lite term loans also contribute to lower recovery expectations, although as a secondary factor.

U.S. Leveraged Finance | First-Lien Recovery Expectations Vary By Rating Level

Average recovery estimate of first-lien debt: U.S. and Canada



- Average recovery expectations for first-lien debt vary by issuer rating.
- Higher-rated issuers, which tend to be less levered and have larger junior debt cushions, tend to have higher recoveries.
- **Average recovery expectations have drifted down since 2017.**
- **Overall average first-lien recoveries (prior slide) have drifted down more significantly due to a higher concentration of lower-rated entities ('B' and 'B-').**

Data through June 30, 2023, based on the rounded point-estimates included in our recovery ratings for rated nonfinancial corporate entities in the U.S. and Canada. Source: S&P Global Ratings.

U.S. Leveraged Finance | Aggressive Loan Restructurings Significantly Impair Recoveries And Don't Usually Resolve Financial Problems

Comparison of the expected recovery impairment from select loan restructuring

	Collateral transfers:	Dates	RR% before	RR% after	Change 1L % par
1	J.Crew *	07/17	40	15	-25
2	PetSmart	06/18	60	45	-15
3	Neiman Marcus *	09/19	55	55	0
4	Cirque du Soleil *	03/20	75	75	0
5	Revlon *	05/20	40	15	-25
6	Party City *	07/20	75	45	-30
7	Travelport (+priming loan)	09/20	75	0	-75
8	Envision Healthcare #1 *	04/22	50	30	-20
9	Shutterfly/Photo Holding	06/23	60	35	-25
10	US Renal Care #1 (transfer)	06/23	50	30	-20

	Priming loan exchanges:	Dates	RR% before	RR% after	Change 1L % par
1	Murray Energy *	06/18	65	0	-65
2	NPC International Inc. *	02/20	55	40	-15
3	Serta Simmons *	06/20	55	5	-50
4	Renfro #1	07/20	35	20	-15
5	Boardriders	08/20	55	5	-50
6	TriMark/TMK Hawk #1	09/20	55	0	-55
7	GTT *	12/20	50	40	-10
8	Renfro #2	02/21	20	10	-10
9	TriMark/TMK Hawk #2	07/22	60	30	-30
10	Medical Depot	07/22	15	10	-5
11	Envision Healthcare #2 *	08/22	30	Varied	Up to -30
12	Mitel Networks International	11/22	50	5	45
13	Rodan & Fields	04/23	55	40	-15
14	RobertShaw / Range Parent	05/23	50	Varied	Up to -50

Notes: *Indicates the company subsequently filed for bankruptcy. Excludes cases where all or essentially all lenders participated in the restructuring and realized the same impact.

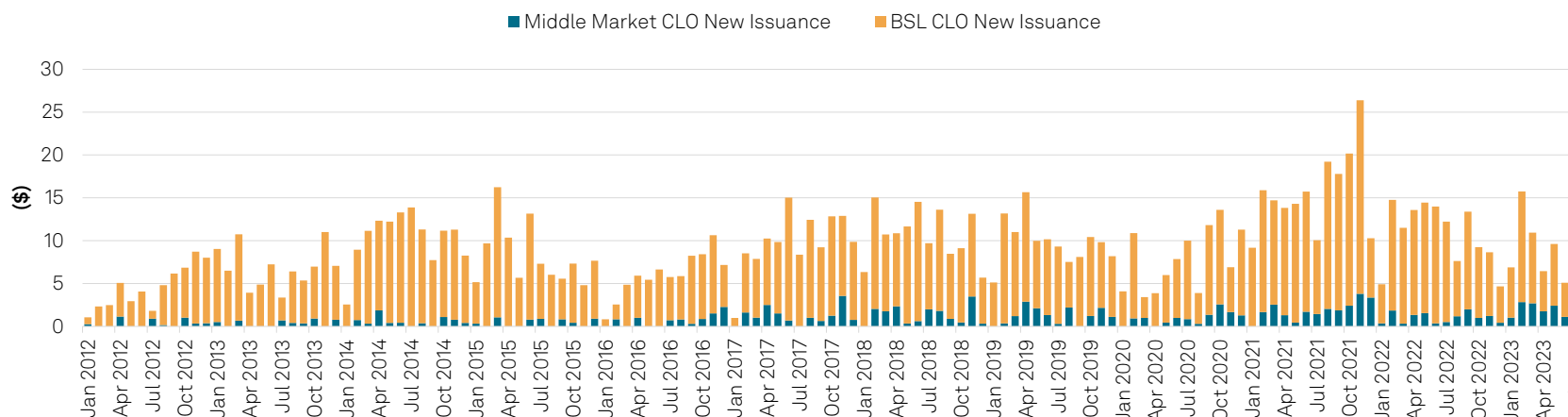
Source: S&P Global Ratings and company reports. "A Closer Look At How Uptier Priming Loan Exchanges Leave Excluded Lenders Behind" published June 15, 2021, plus data on subsequent restructurings for rated entities and the transactions are public.

U.S. Leveraged Finance | Related Research

- [U.S. Leveraged Finance Q2 2023 Update: Disparities Emerge By Sector, Rating, Company Size, And Debt Cushion](#), published July 27, 2023
- [Credit Trends: Global Refinancing--Progress Made As Pressure Remains](#), published July 25, 2023
- [Global Leveraged Finance Handbook, 2022-2023](#), published July 17, 2023
- [Rocky Road Ahead For Recurring-Revenue Loans](#), published June 21, 2023
- [Refinancing Needs And Rate Uncertainty Drive Issuers To The High-Yield Bond Market](#), published June 1, 2023
- [Leveraged Finance: U.S. Leveraged Finance Q1 2023 Update: Ch-Ch-Ch-Changes -- Material Shifts In Key Credit Stats Drove Downgrades To 'B-' And 'CCC', And Upgrades To 'B-',](#) published May 4, 2023
- [Credit FAQ: Risks To Leveraged Loans And CLOs Amid An Increasingly Cloudy Macroeconomic Environment](#), published March 29, 2023
- [New Study Finds U.S. Speculative-Grade Issuers Most Vulnerable To Higher-For-Longer Interest Rate Environment](#), published March 27, 2023
- [Fifth Annual Study Of EBITDA Addbacks Finds Management Continues To Regularly Miss Projections](#), published Feb. 16, 2023
- [U.S. Leveraged Finance Q4 2022 Update: Inflation Pressures Hit Margins, Rate Rises To Hit Cash Flow](#), published Feb. 7, 2023
- [What Rising Interest Rates Could Mean For U.S. Business And Technology Services Companies Rated 'B' And 'B-',](#) published Jan. 18, 2023
- [Assessing The Impacts Of Higher Interest Rates On 'B-' Rated U.S. Telecom And Cable Issuers](#), published Jan. 11, 2023
- [Credit FAQ: Envision Healthcare Corp.'s Two Major Restructurings In 100 Days](#), published Sept. 2, 2022
- [A Closer Look At How Uptier Priming Loan Exchanges Leave Excluded Lenders Behind](#), published June 15, 2021
- [Health Services Outlook Negative With Elevated Risks For Lowest-Rated Companies](#), March 21, 2023
- [Evaluating The Impact Of EBITDA Stress and Higher Interest Rates On U.S. E&C Issuers](#), Jan. 20, 2023

U.S. CLOs | New Issuance Slows, While Resets And Refinancings Halt

U.S. BSL CLO and middle-market CLO new issuance by month (2012–July 2023)



U.S. CLO Issuance, 2012 through July 2023 (\$ billions)

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022 July	2023 July	*YTD change
New Issue	BSL CLOs	50.11	78.12	117.78	93.76	64.01	103.58	112.88	103.65	82.21	164.97	116.99	79.17	49.73	-37.2%
	MM CLOs	4.15	4.31	6.32	5.15	8.28	14.49	15.97	14.82	11.33	22.53	11.98	6.23	13.16	+111.2%
	Total	54.26	82.43	124.10	98.91	72.30	118.07	128.86	118.47	93.54	187.49	128.97	85.40	62.89	-26.4%
Reset/Refi	BSL CLOs	0.00	0.00	0.00	0.00	39.73	161.53	151.97	41.33	30.39	237.61	17.35	17.35	1.69	-90.3%
	MM CLOs	0.00	0.00	0.00	0.00	0.00	5.48	3.92	2.46	1.09	13.70	7.42	7.00	0.81	-88.4%
	Total	0.00	0.00	0.00	0.00	39.73	167.01	155.89	43.79	31.48	251.31	24.77	24.34	2.50	-89.7%

*% change in Jan-Jul issuance in 2022 and 2023. Source: S&P Global Ratings, LCD.

- We have updated our CLO issuance outlooks to a range of \$90 billion-\$100 billion for U.S. CLO new issuance, and \$10 billion to \$15 billion for CLO resets and refinancings.
- In YTD 2023 (through July), new issuance of BSL CLOs is down by 37.2% compared to the same period last year.
- Credit spreads on new issue BSL CLO notes have tightened modestly in recent months, and some large managers are able to print new deals with 'AAA' spreads in the 170 bps area.
- Given current loan prices and spreads, however, the arbitrage remains challenged and nearly all new issue CLOs this year have relied on in-house equity or a captive equity fund rather than third-party equity.
- Middle-market CLOs are a bright spot, with YTD (though July) new issuance up more than 111% over last year. 2023 YTD issuance has already surpassed full-year issuance from 2022.
- After more than a year with no BSL CLO resets, four transactions priced in late June and July. These were transactions issued in 2022 with wide spreads and short (one-year) non-call periods.

U.S. BSL CLOs | Assets From 'B-' Obligators Decline Over Past Several Months

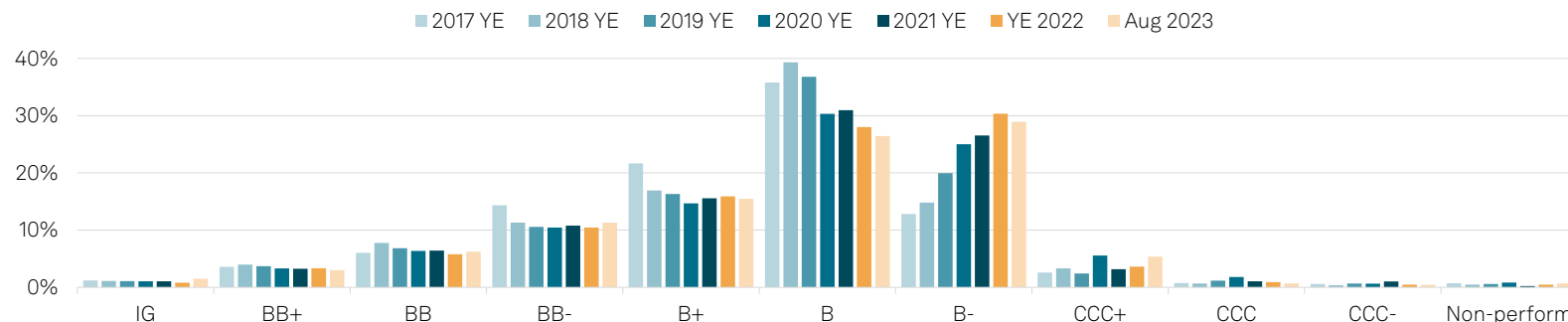
- After peaking in late April, the proportion of BSL CLO assets from obligors rated 'B-' has changed course and modestly declined for the past several months. As of July 21st, it sits at 28.8%, versus 31.1% in late April. In part, this is due to more obligors in CLO collateral pools seeing ratings lowered *from* 'B-' (typically into the 'CCC' range) than lowered *to* 'B-', but also due to other factors like some 'B-' companies refinancing into the private credit market. We have also heard from CLO managers who are actively working to reduce their exposure to 'B-' assets.
- Other metrics deteriorated modestly or were mostly unchanged over the past several months. The average BSL CLO 'CCC' basket (including obligors with 'B-' ratings on CreditWatch negative, per our CLO rating methodology) edged upward, to 6.83% in July from 5.42% in late April. But average BSL CLO exposure to nonperforming assets, weighted average rating factor (WARF), and assets from obligors with ratings on CreditWatch negative and negative outlook were all nearly unchanged.
- Given the increase in BSL CLO 'CCC' buckets and a modest decline in par, the average junior O/C ratio test cushion dropped to 4.10% in July from 4.39% in late April. The average test cushion has been gradually declining for more than a year but remains strong by historical standards.

As of date	'B-' (%)	'CCC' category (%)	Nonperforming assets (%)	SPWARF	WARR (%)	Watch Neg (%)	Negative outlook (%)	Weighted avg. price of portfolio (\$)	Jr. O/C cushion (%)	% of target par
07/31/2022(i)	29.36	3.49	0.25	2723	59.85	1.33	10.92	93.82	4.76	100.03
08/31/2022(i)	29.77	3.59	0.50	2746	59.80	0.95	11.50	94.79	4.79	100.05
09/30/2022(i)	29.55	3.77	0.45	2743	59.89	1.02	12.70	92.06	4.74	100.04
10/31/2022(i)	29.52	4.45	0.32	2746	59.86	0.52	13.75	92.44	4.75	100.08
11/30/2022(i)	30.43	4.48	0.27	2743	59.92	0.32	13.89	93.09	4.74	100.08
12/31/2022(i)	30.44	4.91	0.42	2756	59.93	0.12	14.61	92.83	4.75	100.10
01/31/2023(i)	30.52	5.12	0.39	2759	60.04	0.16	15.14	94.73	4.65	100.09
02/28/2023(i)	30.88	4.78	0.61	2764	59.87	0.22	15.95	94.62	4.57	100.07
03/31/2023(i)	30.95	4.97	0.60	2761	59.69	0.32	16.37	93.93	4.47	100.07
04/30/2023(i)	31.10	5.42	0.63	2770	59.57	0.32	16.89	94.20	4.39	100.04
05/31/2023(i)	30.02	6.31	0.73	2789	59.40	0.52	16.18	93.31	4.24	99.95
06/30/2023(ii)	29.20	6.90	0.69	2781	59.41	0.48	16.07	94.81	4.11	99.90
07/21/2023(iii)	28.84	6.83	0.66	2773	59.14	0.31	16.73	95.30	4.10	99.89

Index metrics based on end of month ratings and pricing data and as of month portfolio data available. (ii) index metrics based on June 30, 2023 ratings and pricing data and latest portfolio data available to us. (iii) index metrics based on July 21, 2023 ratings and pricing data and latest portfolio data available to us.

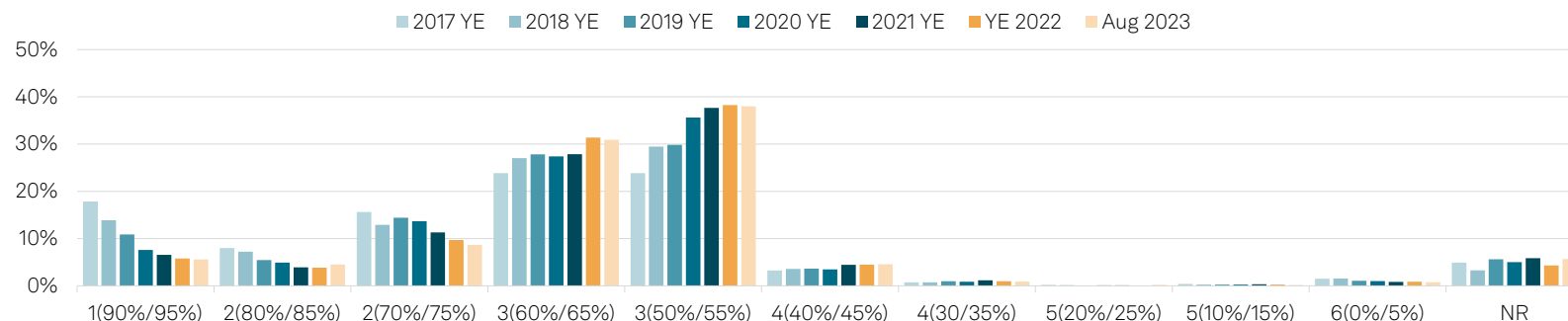
U.S. BSL CLOs | Have 'B-' Assets Peaked? 'B-' Assets Drift Downward, And 'CCC+' Assets Edge Upward

Rating distribution for assets in reinvesting U.S. BSL CLOs (2017-2023)



Latest data as of Aug. 1, 2023. YE--Year end. Source: S&P Global Ratings.

Recovery ratings distribution for assets in reinvesting U.S. BSL CLOs (2017-2023)

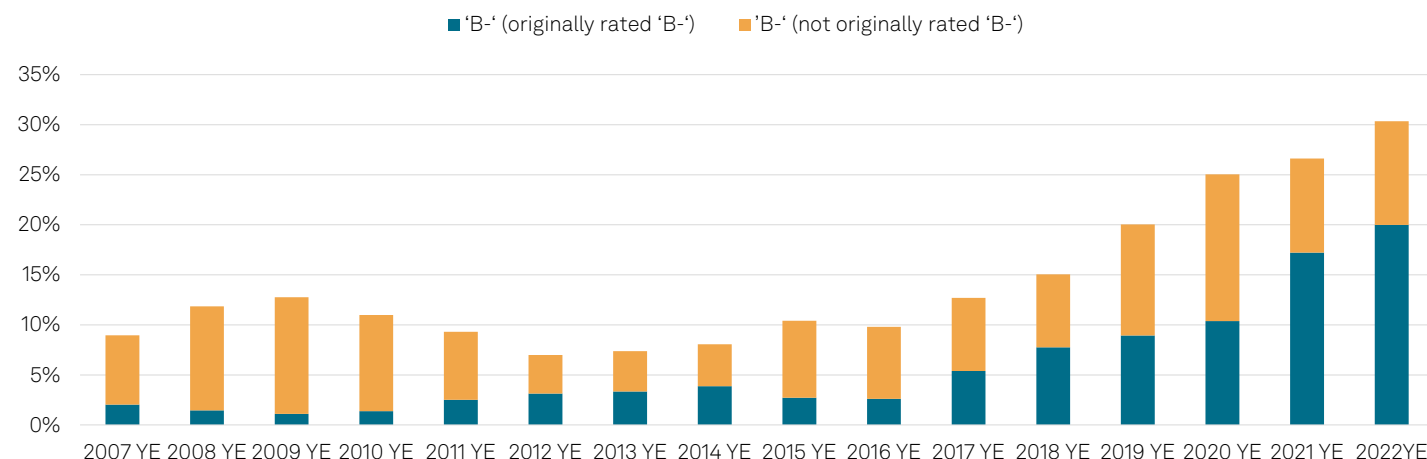


Latest data as of Aug. 1, 2023. NR--Not rated. YE--Year end. Source: S&P Global Ratings.

- Exposure to 'B-' rated issuers has declined below 30% to 28.92% for the first time in several months. Several issuers have been lowered to 'CCC' this year; meanwhile, downgrades to 'B-' from 'B' and higher have also recently slowed.
- Historically, companies rated 'B-' are more likely to see a downgrade (by definition, into the 'CCC' range or lower) or default than loans from companies rated 'B' or higher, even in benign economic periods.
- Over the past several years, there has also been a significant increase in loans with a recovery rating of '3'. In particular, point estimates of either 50% or 55% (i.e., the 3L category in the chart) make up over 37% of total CLO asset par, compared with about 30% prior to the COVID-19 pandemic.

U.S. BSL CLOs | Majority Of Current 'B-' Assets Were Born That Way

'B-' exposure across reinvesting U.S. BSL CLOs



Proportion of 'B-' exposures across CLO Index at the start of 2022

(% Of CLO assets)	Downgraded in 2022		Proportion downgraded in 2022 (b/a)
	% AUM at start of 2022 (a)	(% of AUM at start of 2022) (b)	
'B-' original rating at start of 2022	17.29	0.84	4.86
Not original 'B-' rating at start of 2022	8.92	1.49	16.66
Total 'B-' at start of 2022	26.21	2.33	8.88

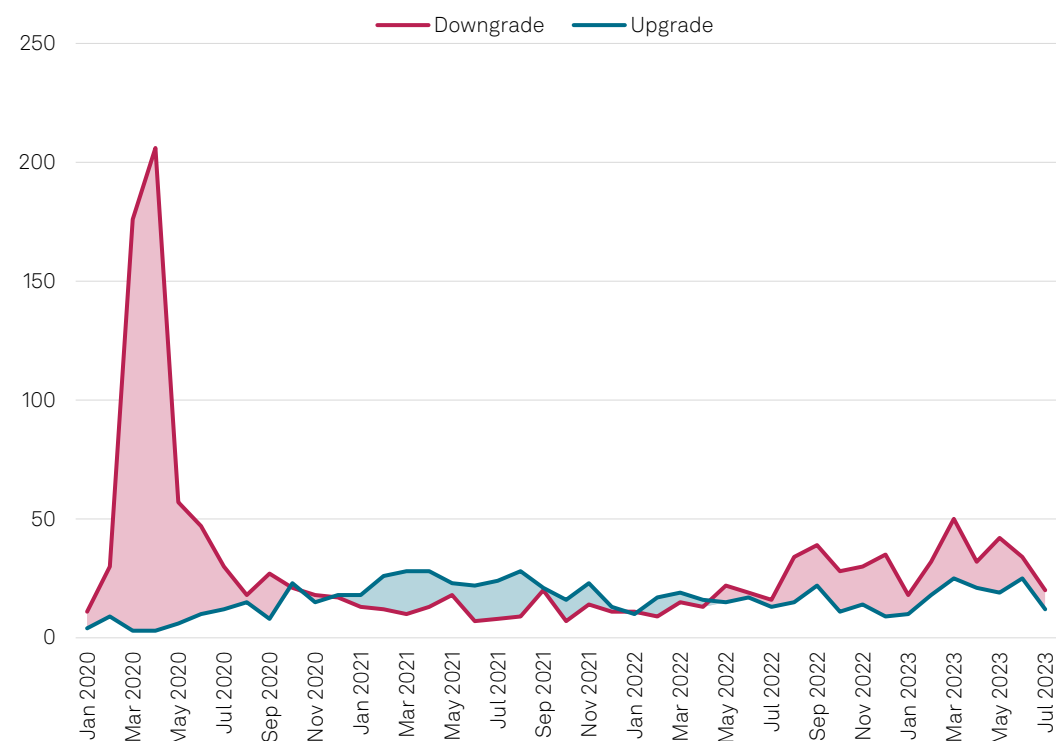
CLO--Collateralized loan obligation. AUM--Assets under management. YE--Year end.

Source: S&P Global Ratings.

- 'B-' exposure across reinvesting U.S. BSL CLOs are at record levels, ending the year at just over 30%, up from 26% at the start of 2022.
- Historically, 'B-' exposure across U.S. BSL CLOs was much smaller and was typically made up of issuers that were downgraded to 'B-' from a higher rating .
- During periods of stress, 'B-' exposure increased (as well as 'CCC' category exposure) as issuers experienced downgrades to 'B-' (see growth in yellow bar during stress periods 2008-2010, 2015-2017, and 2020-2021).
- Since 2017, there has been significant growth in issuers originally rated 'B-' (blue bar).
- 8.9% of the 'B-' exposures across U.S. BSL CLO portfolios at the start of 2022 saw downgrades (into the 'CCC' category) during the year; however, only 4.9% of the original 'B-' exposures experienced downgrades, while 16.7% of the not original 'B-' exposures experienced downgrades during the same time period.
- As of 2022 year-end, a majority (two thirds) of the current 'B-' exposures are from issuers that were originally rated 'B-' (fairly recently) and have not experience rating actions yet.

U.S. BSL CLOs | U.S. CLO Obligor Upgrades And Downgrades (2020-Q2 2023)

Speculative-grade corporate rating actions in BSL CLO collateral pools
(Jan 2020- Jul 2023)



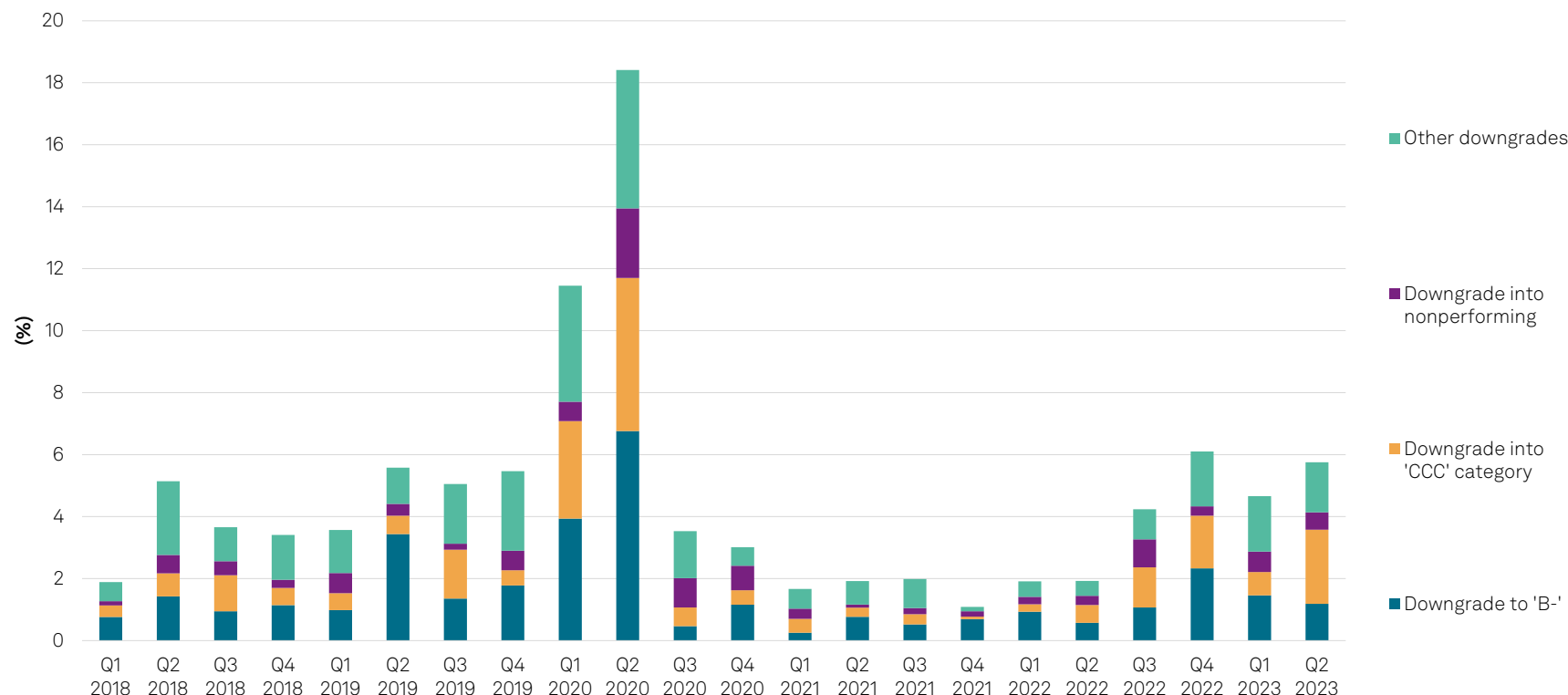
DG—Downgrade. Source: S&P Global Ratings.

Downgrades on U.S. BSL CLO obligor ratings (2022-2023)

Month	Total DG	DG to 'B-'	DG into 'CCC' category	DG to below 'CCC-'
Jan 2022	11	4	1	1
Feb 2022	9	2	4	1
Mar 2022	15	3	3	0
Apr 2022	13	3	4	3
May 2022	22	6	5	3
Jun 2022	19	7	3	4
Jul 2022	16	7	4	1
Aug 2022	34	10	9	3
Sep 2022	39	14	9	4
Oct 2022	28	7	9	4
Nov 2022	30	7	6	2
Dec 2022	35	8	15	3
Jan 2023	18	3	5	1
Feb 2023	32	5	6	7
Mar 2023	50	13	8	13
Apr 2023	32	6	9	6
May 2023	42	8	13	9
Jun 2023	34	3	13	9
Jul 2023	20	3	1	6
Total	499	119	127	80

U.S. BSL CLOs | Corporate Downgrades Start To Impact CLO Assets

Average CLO assets downgraded (% total par) by quarter



Source: S&P Global Ratings.

- After peaking in second-quarter 2020, BSL CLO exposure to downgrades have remained muted for several quarters, until third-quarter 2022.
- The impact of the rating actions since can be seen in BSL CLO collateral pools. The chart on the left shows BSL CLO collateral (by par) that has been downgraded during each quarter since 2018.
- To do this, we looked at the obligors in BSL CLO collateral pools at the start of each quarter, and then tracked which of those obligors saw ratings lowered during the quarter.
- Downgrades of corporate ratings into the 'CCC' range also increased during the fourth quarter.

U.S. BSL CLOs | Exposure To Second-Quarter Rating Actions By Top 30 CLO Managers (S&P Global Ratings-Rated CLO Count)

Manager at close of deal	No. of S&P-rated deals in sample	Upgrades (%)	Downgrades (%)	Downgrade to 'B-' (%)	Downgrade into 'CCC' category (%)	Downgrade into nonperforming (%)	Other Downgrades (%)	Top 250 (%)
Ares CLO Management LLC	28	1.94	4.36	0.24	2.13	0.68	1.31	58.15
Credit Suisse Alternative Capital, LLC	24	1.29	5.96	1.71	2.96	0.00	1.28	49.76
Neuberger Berman Inc.	21	4.33	5.73	1.76	1.29	1.04	1.64	56.66
Carlyle Investment Management LLC	21	2.14	5.46	1.07	1.81	0.52	2.07	60.78
PGIM Inc.	20	3.11	5.60	0.24	2.52	0.61	2.23	53.08
Octagon Credit Investors, LLC	20	3.13	5.41	0.82	1.82	0.55	2.22	61.05
Commercial Industrial Finance Corp.	19	2.76	4.89	0.87	1.78	0.26	1.99	58.90
Oak Hill Advisors LP	19	3.55	3.85	0.45	1.44	0.11	1.84	54.86
Voya Alternative Asset Management LLC	18	3.64	6.38	1.29	2.25	0.72	2.12	57.99
BlueMountain Capital Management L.P.	17	3.42	4.50	1.15	1.74	0.36	1.25	49.77
Elmwood Asset Management LLC	16	3.89	5.41	1.23	1.38	0.85	1.94	49.69
Blackstone/GSO Debt Funds Europe Ltd.	16	2.25	4.50	1.22	1.63	0.13	1.51	68.45
GSO Capital Partners, L.P.	15	2.87	5.93	1.16	2.14	1.17	1.45	68.88
Bain Capital Credit LP	14	4.30	7.28	1.50	3.61	0.98	1.20	41.23
CVC Credit Partners, LLC	14	3.03	5.90	0.74	2.99	0.38	1.78	54.43
Benefit Street Partners LLC	13	4.46	4.39	0.08	1.96	0.73	1.62	56.68
GoldenTree Asset Management LP	12	3.60	4.28	1.16	1.63	0.00	1.49	51.39
Onex Credit Partners LLC	12	2.00	5.68	1.18	2.90	0.32	1.28	52.75
Oaktree Capital Management L.P.	11	2.98	5.55	1.02	3.29	0.00	1.25	52.40
AEGON USA Investment Management LLC	10	3.30	5.91	1.84	2.62	0.72	0.73	48.28
KKR Financial Advisors	10	2.22	5.18	1.31	2.82	0.15	0.90	43.35
Symphony Asset Management, LLC	10	2.25	4.95	1.58	2.30	0.12	0.95	58.41
BlackRock Financial Management Inc.	10	2.65	4.48	1.26	1.40	0.12	1.70	63.63
LCM Asset Management LLC	9	4.47	7.94	1.36	4.29	1.02	1.27	45.48
Crescent Capital Group LP	9	3.51	7.79	2.51	3.60	0.66	1.02	57.23
Barings LLC	9	3.49	6.47	1.72	2.93	0.98	0.84	47.86
Redding Ridge Asset Management (UK) LLP	9	1.74	5.12	0.30	1.95	0.65	2.21	65.12
HPS Investment Partners, LLC	8	2.87	9.02	2.30	2.95	1.18	2.60	49.98
TCW Asset Management Co. LLC	8	4.04	7.29	2.34	2.77	0.48	1.70	45.46
Allstate Investment Management Co.	8	2.89	6.30	1.83	1.81	0.15	2.52	62.36

Source: S&P Global Ratings.

U.S. BSL CLOs | Value Of Active Management During A Turbulent 2022

- Turnover of assets in BSL CLO collateral pools in 2022 was just over 30.5%, meaning that just over 30% of the loans that had been in CLO collateral pools at the start of the year were no longer in the collateral pools at the end of the year.
- To examine the impact that portfolio turnover had on CLO credit metrics, we looked at the actual change in BSL CLO credit metrics during 2022, including portfolio turnover (Table 1); metrics from the same BSL CLO collateral pools while assuming they were static CLOs with no trading or asset turnover during 2022 (Table 2); and the difference between the actual CLO portfolios and hypothetical static CLO portfolios (Table 3).
- On average, the trades increased the proportion of loans from 'B-' companies, because, when a company saw its rating lowered to the 'CCC' range, a manager would often sell loans from that company and purchase loans from a 'B-' rated company.
- On average, all other CLO credit metrics benefitted from the trading activity: exposure to 'CCC' assets and defaulted assets was lowered, the SPWARF was lower (indicating higher average portfolio ratings), the par value of the assets was greater, and the junior O/C test cushion was greater.

Table 1 - Actual BSL CLO Performance in 2022

Metric	01-Jan-22	31-Dec-22	Change
Portfolio turnover	N/A	30.55%	30.55%
Exposure to 'B-' assets	26.36%	30.03%	3.67%
Exposure to 'CCC' assets	4.93%	5.23%	0.30%
Exposure to defaulted assets	0.17%	0.50%	0.33%
SPWARF	2699	2764	65
Portfolio % of target par	99.66%	99.85%	0.19%
Junior O/C test cushion	4.35%	4.45%	0.09%

Table 2 - Hypothetical Static Pool BSL CLO Performance in 2022

Metric	01-Jan-22	31-Dec-22	Change
Portfolio turnover	n/a	0.00%	0.00%
Exposure to 'B-' assets	26.36%	28.14%	1.78%
Exposure to 'CCC' assets	4.93%	7.33%	2.40%
Exposure to defaulted assets	0.17%	0.81%	0.65%
SPWARF	2699	2804	105
Portfolio % of target par	99.66%	99.66%	0.00%
Junior O/C test cushion	4.35%	4.15%	-0.20%

Table 3 - Manager Impact On CLO Metrics

Metric	Year-end results: Managed vs. hypothetical
Portfolio turnover	30.55% higher
Exposure to 'B-' assets	1.89% higher
Exposure to 'CCC' assets	2.10% lower
Exposure to defaulted assets	0.31% lower
SPWARF	40 lower
Portfolio % of target par	0.19% higher
Junior O/C test cushion	0.30% higher

Source: S&P Global Ratings.

U.S. BSL CLOs | Purchases And Sales In Year-To-Date 2023

Quarter	Purchases			Sales		
	WARF	Avg price	Avg target par %	WARF	Avg price	Avg target par %
Q1 2022	2802	98.96	10.48%	2660	99.00	5.99%
Q2 2022	2693	96.69	8.37%	2788	96.57	5.98%
Q3 2022	2699	94.14	6.17%	2847	93.87	4.37%
Q4 2022	2509	95.20	6.85%	2892	93.27	4.03%
Q1 2023	2580	97.08	8.07	3114	93.07	4.64
Q2 2023	2493	96.97	7.78	3031	93.16	5.04

S&P Global Ratings BSL CLO asset trades by company rating in second-quarter 2023

Rating category	Purchase (% of trades)	Avg purchase price	Sales (% of trades)	Avg sale price
Investment grade	2.34	96.84	1.07	98.82
'BB' category	22.01	98.56	20.86	98.71
'B+'	23.34	98.14	14.80	97.95
'B'	27.22	96.96	24.29	97.22
'B-'	22.43	95.16	24.36	94.11
'CCC' category	2.36	88.13	11.41	81.86
Nonperforming	0.30	96.42	3.22	35.54

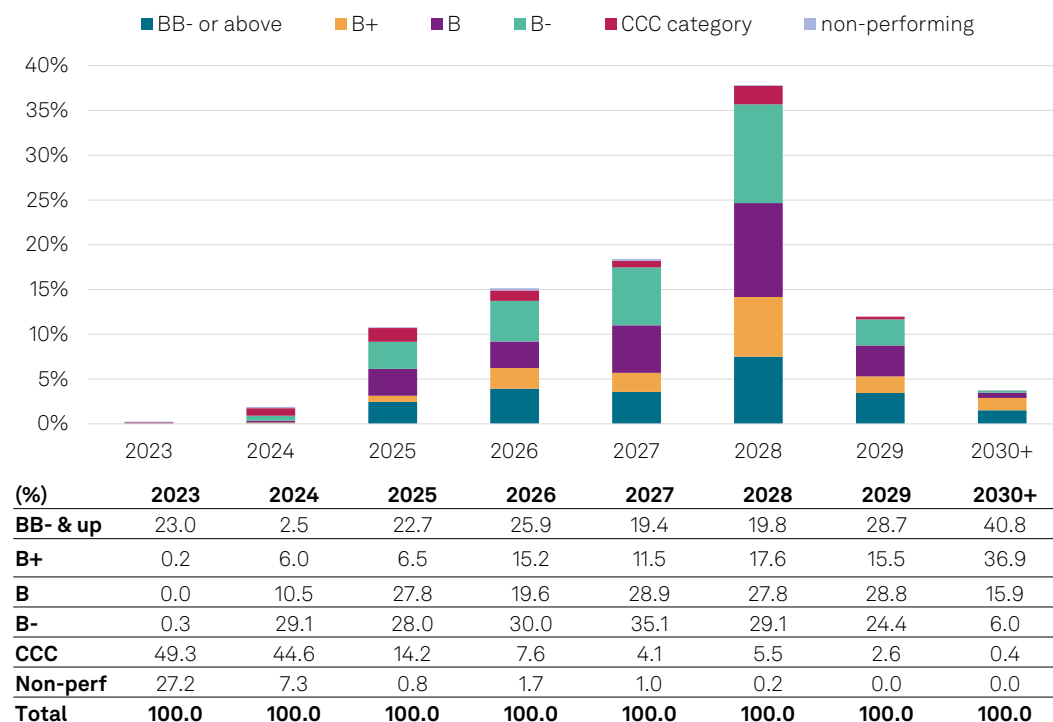
Source: S&P Global Ratings.

- Since 2022, the credit quality of the assets (SPWARF) purchased tend to be higher than the credit quality of the assets sold, evidence of CLO manager efforts at de-risking.
- As noted in prior slides, loan prices have declined sharply since early 2022, reflected in the lower average prices of purchases and sales since the second half of 2022.
- The prices of the purchases in the first half of 2023 are higher than the prices of the sales.
- The proportion of sales of 'CCC' category and nonperforming assets are greater than the proportion of purchases from these rating categories, further evidence of managers attempts at de-risking.

U.S. BSL CLOs | Loan Maturity Wall Within CLO Collateral Pools

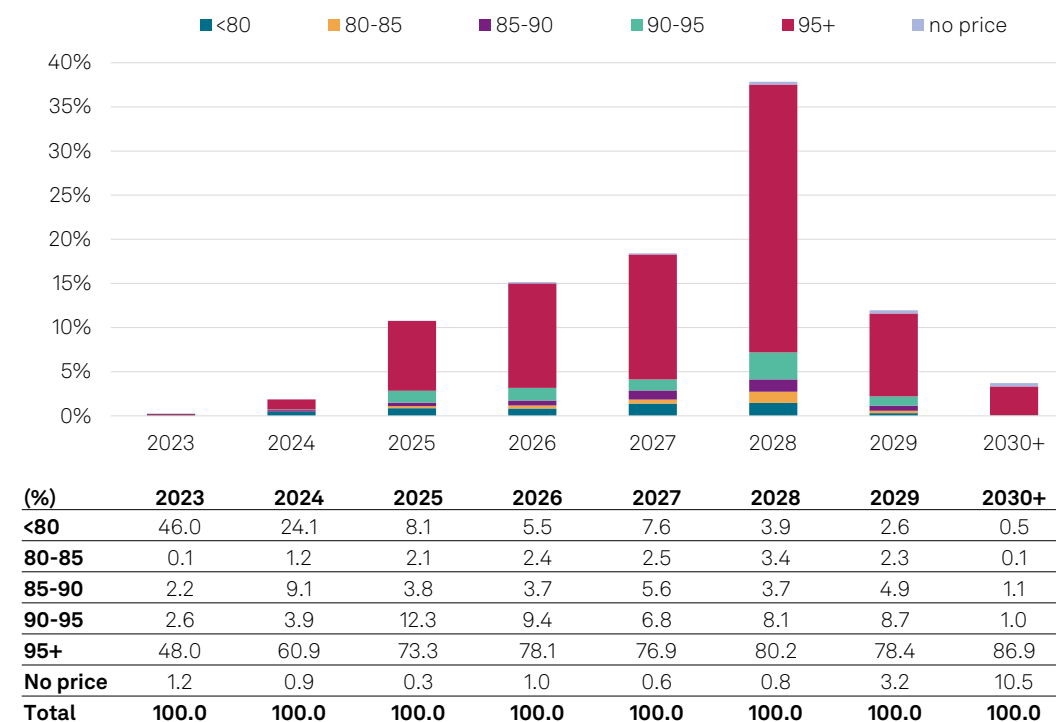
- With limited refinancing activity in the corporate loan market, maturity walls have become an increasing topic of discussion.
- Some loan issuers have done amend-to-extends, and others have refinanced into the high-yield bond and private credit markets.
- Near-term maturities within CLO collateral pools remain limited, but assets maturing in 2023 and 2024 are significantly lower quality than assets with maturities of 2025 and later.

Maturity wall by obligor rating



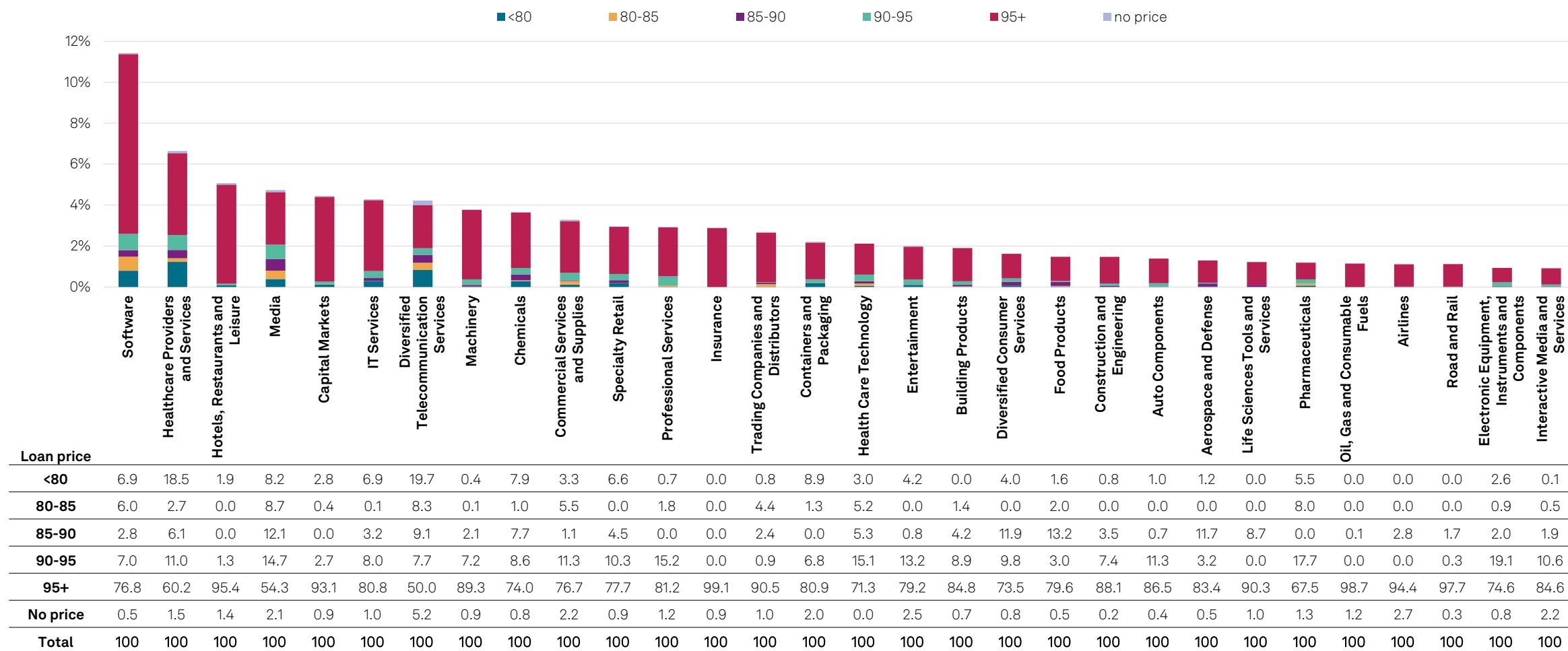
Source: S&P Global Ratings, LoanX.

Maturity wall by loan price



Source: S&P Global Ratings, LoanX.

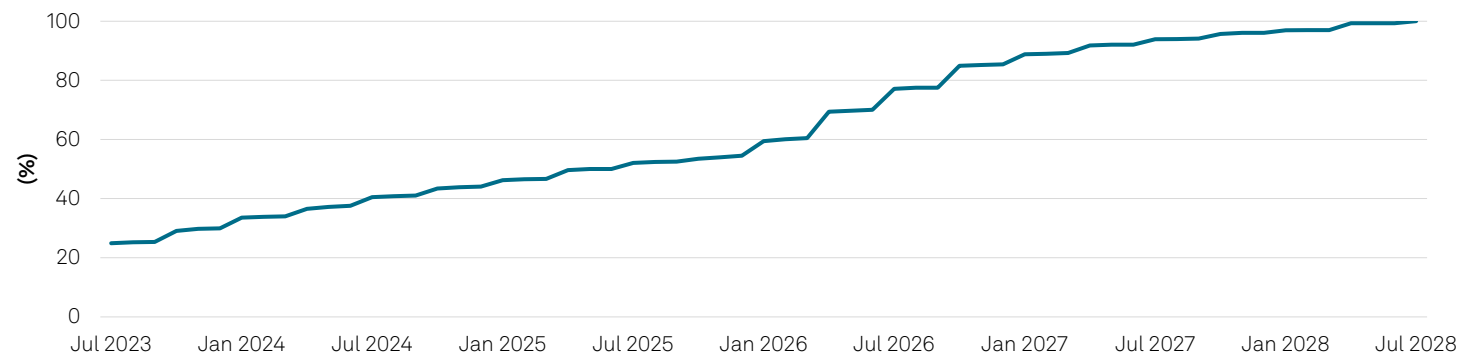
U.S. BSL CLOs | Loan Price Distribution Across Top 30 GIC Industry Exposures



Loan prices as of Aug. 1, 2023. Source: S&P Global Ratings, LoanX.

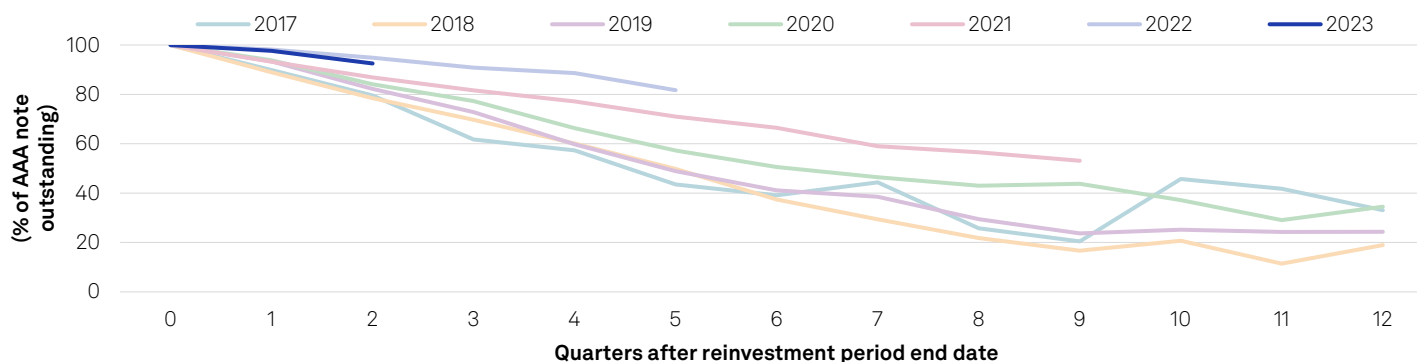
U.S. BSL CLOs | More Amortizing CLOs, But Less Amortization

Proportion of S&P Global Ratings-rated BSL CLOs outside reinvestment period*



- As BSL CLO new issuance has slowed this year, the population of outstanding CLOs has aged and a greater proportion of them are outside their reinvestment period.
- As of July 2023, just under a quarter of our rated U.S. BSL CLOs are in their amortization phase. By year-end 2023, this could reach more than 30% of outstanding BSL CLOs (see top chart to left).
- At the same time, activity in the corporate loan market has slowed, reducing the payment rate of amortizing CLO tranches (bottom chart).
- Historically, amortizing transactions, would take an average of under two years to paydown the notional of the senior notes by 50%, excluding transactions that have optionally redeemed.
- Transactions that have exited their reinvestment period within the past three years may take significantly longer.

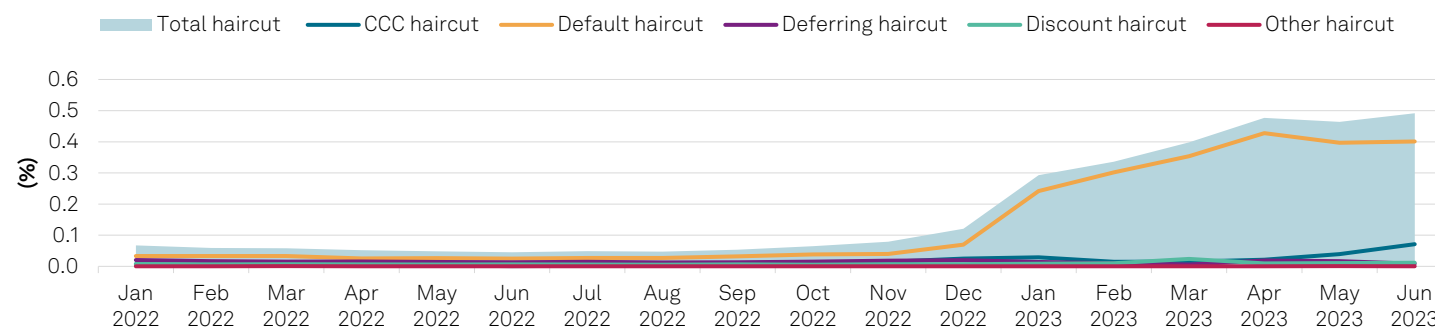
Balance of BSL CLO senior 'AAA' tranches by reinvestment period end date



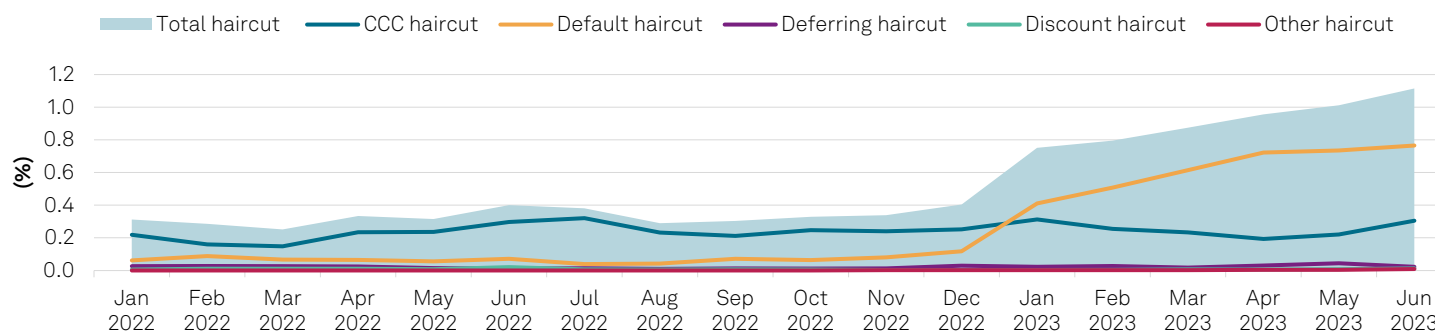
*Data as of Aug. 1, 2023. Data includes currently outstanding transactions only. Source: S&P Global Ratings.

U.S. BSL CLOs | O/C Test Cushions And Haircuts

Average O/C metrics for reinvesting U.S. BSL CLOs



Average O/C metrics for amortizing U.S. BSL CLOs



O/C—Overcollateralization. Source: S&P Global Ratings.

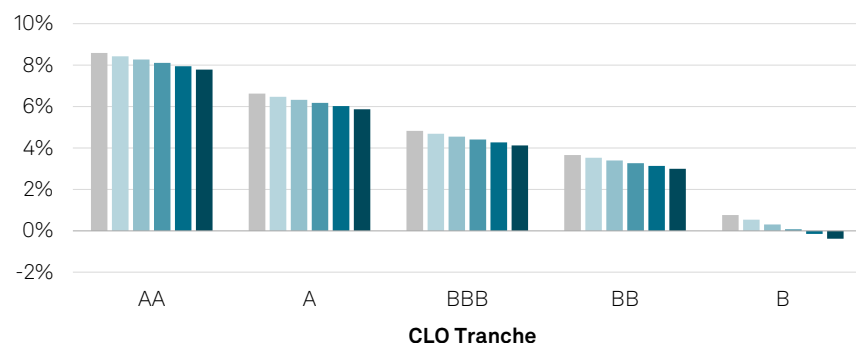
- O/C cushions have declined slightly since the start of the year; though on average, they still remain positive at over 4% as of third quarter 2023 across reinvesting transactions.
- Haircuts from excess ‘CCC’ exposures were minimal in early 2022, but have increased slightly in 2023 for reinvesting transactions.
- The O/C haircuts for the reinvesting and amortizing U.S. BSL CLOs mostly come from default exposures, followed by haircuts from excess ‘CCC’ exposures, and then by deferring assets, etc.; most reinvesting deals are not close to breaching their 7.5% threshold, though a few pre-pandemic transactions exceeded the 7.5% threshold.
- Some amortizing transactions are currently failing their junior O/C cushions.

U.S. BSL CLOs | Rising 'CCC' Assets Could Affect CLO O/C Test Cushions

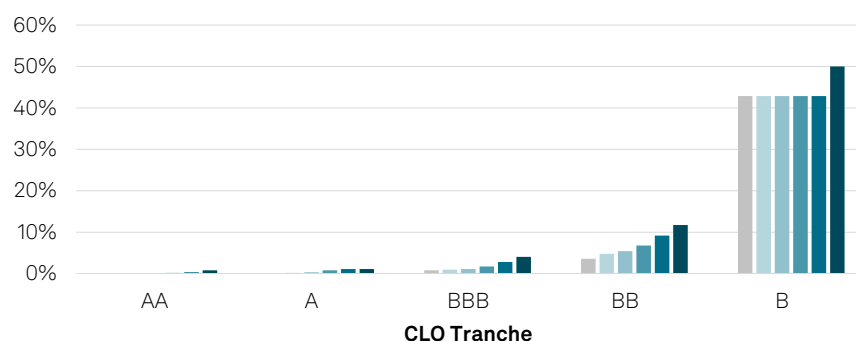
Assumed decline in 'CCC' asset prices: No decline 10% 20% 30% 40% 50%

Scenario A: 10% of CLO assets 'CCC+' and lower

Average CLO O/C test cushion

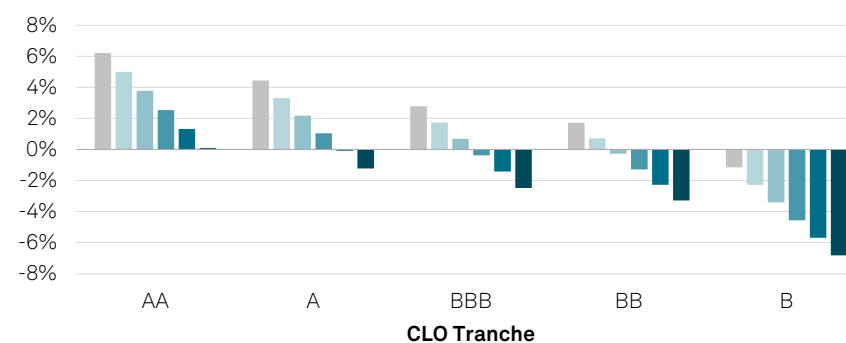


Percent of CLO sample failing O/C test cushion

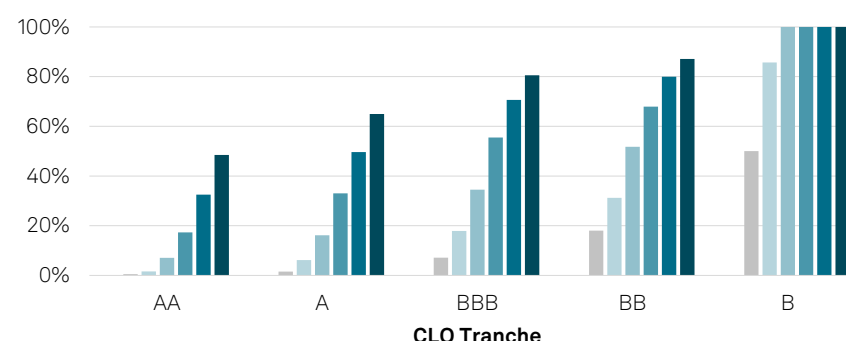


Scenario B: 20% of CLO assets 'CCC+' and lower

Average CLO O/C test cushion



Percent of CLO sample failing O/C test cushion

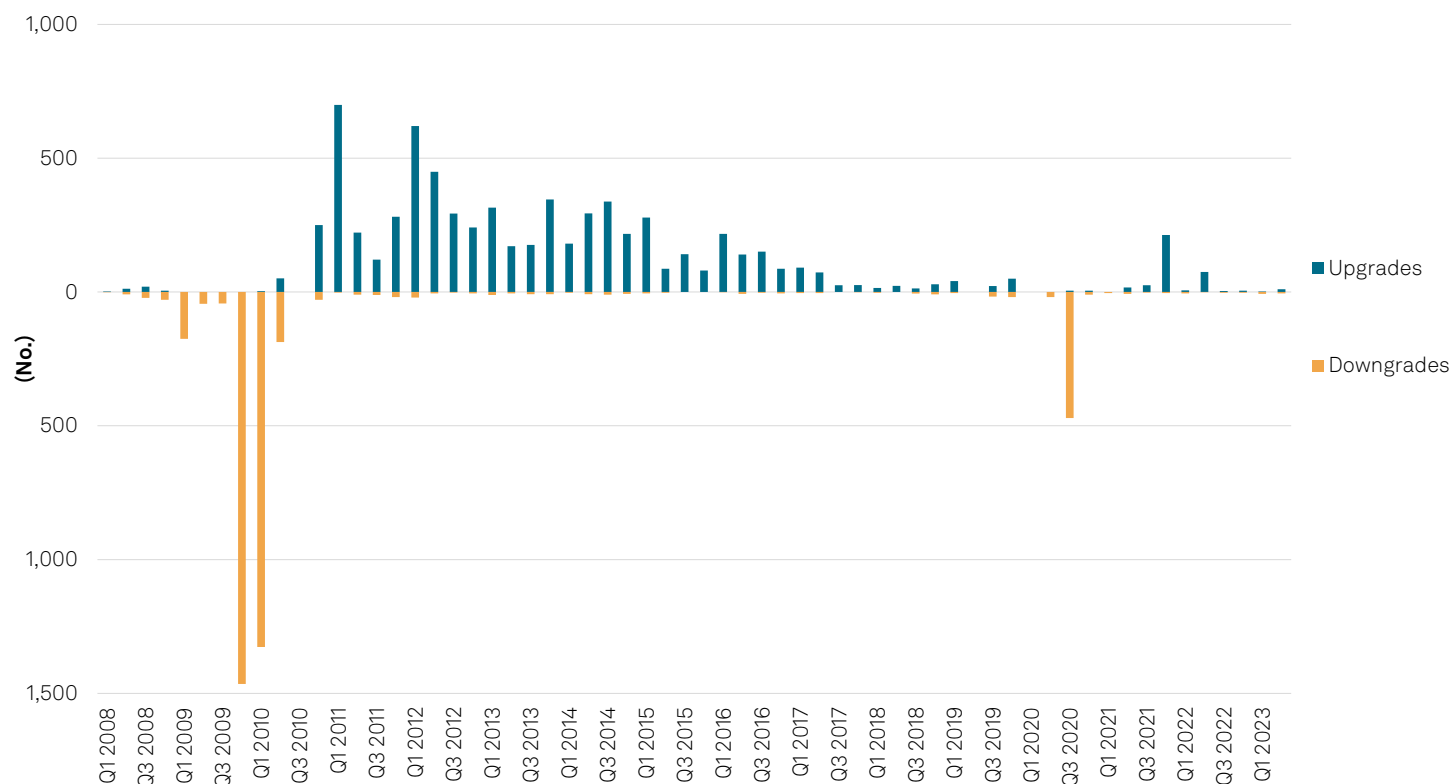


- U.S. BSL CLO O/C ratios have performed well over the past two years, with the average junior O/C test cushion sitting at 4.26% as of June 1.
- Given 'B-' obligors now account for over 30% of CLO assets, it wouldn't take a lot of corporate rating downgrades to increase the average size of BSL CLO 'CCC' baskets.
- We generated a scenario analysis to explore the impact on BSL CLO O/C ratios of various corporate 'CCC' downgrade scenarios and 'CCC' loan price declines.
- We found that most 'BB' tranche O/C test cushions can withstand 'CCC' baskets increasing into the mid-teens or higher before failing, although there were significant differences across amortizing and reinvesting CLOs.

Source: S&P Global Ratings: "How Rising U.S. BSL CLO 'CCC' Baskets Could Affect Junior Overcollateralization Test Cushions," published April 28, 2023.

U.S. CLO Ratings | No CLO 'AAA' Tranche Ratings Lowered Since 2011

U.S. CLO rating upgrades and downgrades (2008-Q2 2023)



Source: S&P Global Ratings.

- Downgrades to U.S. CLO 1.0 ratings in 2009 and 2010 were mostly driven by the effects of Great Financial Crisis (GFC), as well as our CLO criteria change.
- Upgrades to U.S. CLO 1.0 and U.S. CLO 2.0 ratings after the GFC were mostly driven by improvement in corporate credit and CLO tranche amortization.
- U.S. CLO reset activity reduced the volume of U.S. CLO 2.0 amortization from 2017, leading to a reduction in volume of upgrades.
- No 'AAA' rated CLO tranche has been downgraded since 2011.
- Downgrades taken in 2022 were on junior tranches from pre-pandemic CLOs that have already been downgraded previously (all 2022 downgrades were lowered into the 'CCC' category or lower).

U.S. BSL CLOs | What Gets Downgraded? Comparison Of Metrics Of CLOs With Different Rating Outcomes in 2020

- In the table below, we compare various average metrics across downgraded and affirmed CLO notes originally rated within the 'BBB', 'BB', and 'B' rating categories.
- We find across all three rating categories, most of the credit metrics are worse across the CLO notes that were downgraded, versus the notes that were affirmed.
- The trustee-calculated O/C test cushions as well as the subordination levels of the CLO notes were notably different between the downgraded and affirmed notes.
- For example, the downgraded tranches across all three rating categories all had less than 1% average trustee O/C cushion at the time of downgrade, relative to the affirmed tranches, most of which had greater than 2% cushion, on average.

Average CLO metrics across rating actions taken on reinvesting U.S. BSL CLOs in 2020

	Average outlook negative exposure (%)	Average 'B-' exposure (%)	Average 'CCC' category exposure (%)	Average nonperforming exposure (%)	Average trustee O/C ratio (%)	Average trustee O/C cushion (%)	Average SPWARF	Average O/C ratio (no 'CCC' haircut) (%)	Average subordination (no 'CCC' haircut) (%)
'BBB' affirmation	38.21	24.39	11.83	1.61	110.64	2.58	2858	112.30	10.94
'BBB' downgrade	41.05	24.67	12.45	2.29	108.60	0.57	2880	110.67	9.63
'BB' affirmation	36.70	25.03	10.71	1.32	106.95	1.96	2838	108.10	7.48
'BB' downgrade	39.68	24.26	12.34	1.89	104.59	0.34	2870	106.49	6.08
'B' affirmation	36.02	24.35	11.26	1.46	105.35	2.42	2833	106.23	5.76
'B' downgrade	39.09	24.22	12.01	2.21	102.20	-0.39	2855	104.15	3.98

BSL--Broadly syndicated loan. CLO--Collateralized loan obligation. O/C--Overcollateralization. SPWARF--S&P Global Ratings' weighted average rating factor.

Source: S&P Global Ratings.

U.S. CLOs | (Almost) 30 Years And 59 Tranche Defaults

U.S. BSL and middle-market CLO 1.0 and 2.0 default summary by original rating

	CLO 1.0 Transactions (2009 and prior)			CLO 2.0 Transactions (2010 and later)		
	Original rating(i)	Defaults(ii)	Currently rated(ii)	Original rating(i)	Defaults(ii)	Currently rated(ii)
AAA (sf)	1,540	0	0	3,639	0	1,626
AA (sf)	616	1	0	2,964	0	1,398
A (sf)	790	5	0	2,449	0	1,198
BBB (sf)	783	9	0	2,230	0	1,184
BB (sf)	565	22	0	1,818	8	975
B (sf)	28	3	0	389	11	187
Total	4,322	40	0	13,489	19	6,568

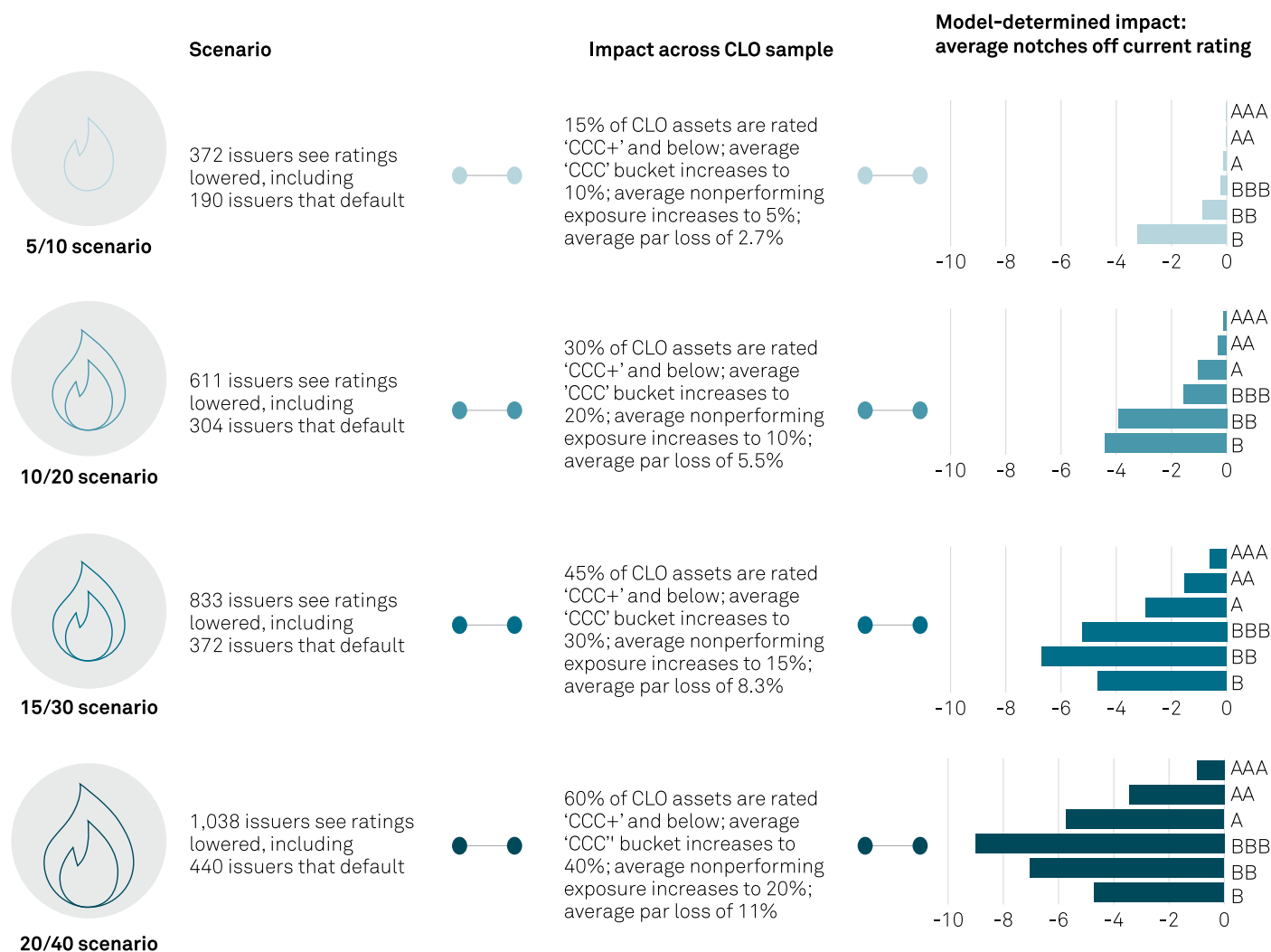
Likely future defaults: U.S. CLO tranches currently rated 'CCC-' or 'CC'

Transaction	Tranche	Year originated	Original rating	Current rating
Marathon CLO VII Ltd.	D	2014	BB- (sf)	CCC- (sf)
Avery Point IV CLO Ltd.	F	2014	B- (sf)	CC (sf)
BNPP IP CLO 2014-II Ltd.	E	2014	BB (sf)	CC (sf)
Telos CLO 2014-6 Ltd.	E	2014	BB (sf)	CCC- (sf)

(i)Original rating counts as of June 30, 2023. (ii)CLO tranche default counts as of August 1st, 2023. Source: S&P Global Ratings.

- S&P Global Ratings has rated **more than** 17,000 U.S. CLO tranches since our first CLOs in the mid-1990s. Our CLO ratings history **spans three recessionary periods**: the dot.com bust of 2000-2001, the global financial crisis in 2008-2009, and the recent COVID-19-driven downturn in 2020.
- Over that period, a total of 59 U.S. CLO tranches **have defaulted**: 40 U.S. CLO tranches from CLO 1.0 transactions originated in 2009 or before, and another 19 U.S. CLO 2.0 tranches.
- Across four other CLO 2.0s, there are two tranches rated 'CC (sf)' that are **likely to default** in the future for similar reasons and another two tranches rated 'CCC- (sf)' that may default.

U.S. BSL CLOs | Rating Stress Scenarios (May 2023 Update)



- These four rating stress scenarios are identical to ones we applied for our scenario analyses published in April 2020, June 2021, and August 2022.
- They have the benefit of being transparent and simple, allowing market participants to take their view of potential loan defaults and 'CCC' exposure amounts and assess what the potential CLO rating impact might be.
- Producing the same analysis on outstanding CLOs over time also provides insight into how the transactions are evolving and any changes in how they respond to the stresses.
- To achieve the target 'CCC' and default exposures for each of the scenarios, we adjusted the ratings on as many obligors as needed, starting with the weakest (based on rating and then loan price), on average, across our sample of CLOs.
- Note that this can produce CLOs with a range of exposures in the stress analysis (for example, in the "5/10" scenario, some CLOs end up with more than 5% exposure to defaulting loans, and others less, but the average ends up at about 5% across the sample).
- Finally, we assume a 45% recovery rate (or par loss given default of 55%) for the purposes of these four stresses.

Source: S&P Global Ratings.

U.S. BSL CLOs | Rating Stress Scenarios (May 2023 Update)



5/10 scenario

Current rating category	0 (%)	-1 (%)	-2 (%)	-3 (%)	-4 (%)	-5 (%)	-6 (%)	≥ -7 (%)	Avg notches	Investment grade (%)	Speculative grade (%)	'CCC' (%)	Non-performing (%)
Cash Flow Results Under "5-10" Scenario (2023)													
'AAA'	99.30	0.70							(0.01)	100.00			
'AA'	98.88	1.02							(0.01)	100.00			
'A'	90.88	6.43	2.57		0.12				(0.12)	100.00			
'BBB'	80.40	17.37	1.76	0.12	0.12	0.12		0.12	(0.23)	83.22	16.78	0.12	
'BB'	49.17	33.18	8.60	4.52	2.11	0.90	0.30	1.21	(0.87)	0.00	100.00	3.17	1.21
'B'	13.31	7.66	7.26	8.06	47.98	8.47	7.26	0.00	(3.24)	0.00	100.00	18.55	57.66



10/20 scenario

Cash Flow Results Under "10-20" Scenario (2023)													
'AAA'	87.05	12.95							(0.13)	100.00			
'AA'	76.53	17.45	5.82		0.10	0.10			(0.30)	100.00			
'A'	39.65	23.74	33.10	1.40	1.52	0.47		0.12	(1.03)	99.42	0.58		
'BBB'	20.07	48.94	10.80	8.69	6.46	1.53	1.29	2.23	(1.56)	22.18	77.82	1.64	0.59
'BB'	6.94	13.88	12.82	12.82	11.31	11.01	4.98	26.24	(3.93)		100.00	27.30	25.64
'B'	2.02	1.21	3.23	2.02	55.24	10.08	26.21		(4.42)		100.00	9.68	87.50



15/30 scenario

Cash Flow Results Under "15-30" Scenario (2023)													
'AAA'	38.65	61.24	0.10						(0.61)	100.00			
'AA'	22.55	20.31	47.35	4.08	3.27	2.14		0.31	(1.53)	99.80	0.20		
'A'	5.73	4.44	45.26	8.30	17.31	15.20	1.64	2.11	(2.94)	80.82	19.18	0.58	0.12
'BBB'	0.82	10.21	8.92	13.03	15.73	11.03	6.81	33.45	(5.24)	1.88	98.12	16.55	15.73
'BB'	0.60	0.60	0.15	2.41	2.26	3.32	3.92	86.73	(6.70)		100.00	9.80	86.43
'B'	1.21	0.40		0.40	57.66	8.47	31.85		(4.66)		100.00	0.81	97.98



20/40 scenario

Cash Flow Results Under "20-40" Scenario (2023)													
'AAA'	11.14	82.33	4.02	1.20	1.31				(0.99)	100.00			
'AA'	6.22	2.86	31.94	7.35	14.18	31.73	1.84	3.88	(3.45)	98.67	1.33	0.10	
'A'	1.99	0.70	6.78	3.27	11.23	38.71	8.42	28.89	(5.72)	25.03	74.97	3.74	1.87
'BBB'	0.35	0.12	0.82	1.76	3.17	2.82	4.46	86.50	(9.02)	0.59	99.41	15.61	70.31
'BB'	0.45		0.15			0.15	0.15	99.10	(7.03)		100.00	0.15	99.10
'B'	0.40	0.40			58.47	8.47	32.26		(4.70)		100.00	0.40	99.19

Source: S&P Global Ratings.

U.S. BSL CLOs | Related Research

- [SF Credit Brief: CLO Insights 2023 U.S. BSL Index: Lower-Rated Assets Decline Slightly In July; A Look At Metrics For Downgraded CLO Tranches](#), published July 31st, 2023
- [A Closer Look At Uptier Priming And Asset Drop-Down Provisions In U.S. CLOs](#), published July 26th, 2023
- [SLIDES: Middle-Market CLO And Private Credit Quarterly: Navigating The Post-Pandemic Economy](#), published July 24th, 2023
- [U.S. BSL CLO Top Obligor And Industries Report: Second-Quarter 2023](#), published July 19th, 2023
- [Scenario Analysis: U.S. BSL CLO Rating Performance Under Four Hypothetical Stress Scenarios \(2023 Update\)](#), published July 18th, 2023
- [U.S. BSL CLO Obligor: Corporate Rating Actions Tracker 2023 \(As Of July 28\)](#), published July 18th, 2023
- [Notes From Global Structured Finance Seminar 2023 In Japan: U.S. Broadly Syndicated Loans And CLOs](#), published June 23rd, 2023
- [Default, Transition, and Recovery: 2022 Annual Global Leveraged Loan CLO Default And Rating Transition Study](#), published May 26th, 2023
- [SLIDES: U.S. BSL CLO And Leveraged Finance Update: Steep Rate Climb Erodes Credit Metrics Of Lower-Rated Firms](#), published May 15th, 2023
- [Scenario Analysis: How Rising U.S. BSL CLO 'CCC' Baskets Could Affect Junior Overcollateralization Test Cushions](#), published April 28th, 2023
- [CLO Spotlight: U.S. CLO Tranche Defaults As Of April 1, 2023](#), published April 7th, 2023
- [Credit FAQ: Risks To Leveraged Loans And CLOs Amid An Increasingly Cloudy Macroeconomic Environment](#), published March 29th, 2023
- [Credit FAQ: The Potential Impact Of LIBOR Transition On U.S. CLOs](#), published February 24th, 2023
- [Scenario Analysis: How Resilient Are Middle-Market CLO Ratings \(2022 Update\)](#), published October 19th, 2022
- [CLO Spotlight: S&P Global Ratings' Surveillance Process For Monitoring CLO Transactions](#), published October 14th, 2022
- [Scenario Analysis: LIBOR Transition, Excess Spread, And U.S. CLO Ratings](#), published June 30th, 2022
- [Good Intentions, Limited Impact: ESG-Excluded Sectors Proliferate In U.S. CLO Indentures](#), published May 16th, 2022

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