U.S. BSL CLO And Leveraged Finance Quarterly:

Have We Turned The Corner Yet?

Q1 2024

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This report does not constitute a rating action

Q1 2024 Update | Leveraged Finance

The Road Back To Neutral Rates May Be Long And Bumpy, Especially For Highly Leveraged, Low-Rated Companies

Widespread fears that 2024 could bring a hard economic landing or that interest rates might remain persistently high have subsided. However, the improved outlook may need to offer more relief to highly leveraged companies beset with poor interest coverage and negative free operating cash flow (operating cash flow after capital expenditures [capex]). Economic growth in 2024 and 2025 is expected to slow, and the timing and magnitude of interest rate cuts is unclear. Further, eventual interest rate cuts will take time to flow through and reduce high debt servicing costs. Companies rated 'B-' and lower comprise 37% of the speculative-grade universe **(slide 6),** and ongoing cash flow deficits (slide 16) or refinancing needs will narrow liquidity cushions, resulting in downgrades, distressed exchanges, and an expected rise in speculative-grade default rates rising to 5% (slides 23 and 24) by September. Accordingly, we anticipate another year with downgrades outpacing upgrades as issuers progress down the long and bumpy road back to a neutral interest rate policy.

Broad Dispersion Within And Across Rating Levels

Despite our negative outlook for our most vulnerable issuers, 2024 should be a good year for credit pickers. Narrowing credit spreads and improved credit availability support corporate refinancings and investment needs. We see broad dispersion within and across rating levels and healthy earnings growth for many issuers **(slide 18).** In a soft landing, where growth falls to the mid-1%-area over the next two years, we believe many of our 'B' and higher-rated issuers will demonstrate good stability or growth. Many have seen their debt leverage fall over the last few years **(slide 19),** giving them room to use the balance sheet, and improving confidence that interest rates have peaked should support corporate investments. By industry sector and ratings, we are seeing a broad divergence in earnings growth. This adds pressure to the most cyclical sectors. Still, the potential end of inventory rebalancing and potentially lower rates could stabilize hard-hit sectors like the chemical sector. However, secular headwinds faced by some issuers in the telecommunications and some segments of the media and entertainment sectors will result in diverging sector issuer rating trends.

First-Lien Recovery Rates Under Pressure

Estimated actual recovery rates on first-lien debt declined notably in the five-year period from 2018-2022 using the data from two different recovery studies that S&P Global Ratings published last year (**slide 25, righthand chart**). This is directionally consistent with the downward trend in our recovery expectations for first-lien debt since 2017 (**slide 25, lefthand chart, and slide 26**). Further, the rise in liability management transactions in recent years often materially impairs the recovery prospects of first-lien lenders that do not participate in these out-of-court restructurings (slide 27). This impairment is not necessarily captured by our recovery ratings, even in hindsight, since many of these lenders no longer have a first-lien position after the restructurings are completed. We also note that these aggressive restructurings rarely seem to solve the capital structure problems that triggered the transactions in the first place.

Q1 2024 Update | Broadly Syndicated Loan CLOs

Strong Issuance To Start the Year

The new year is starting off with a sense of optimism and confidence that's been missing from the collateralized loan obligation (CLO) market since early 2022. The first month of 2024 saw more U.S. CLOs issued than any other January in the CLO 2.0 era, with $12.52 billion of CLOs pricing during the month **(see slide 29)**. Only January 2021 comes close ($9.16 billion). It remains to be seen whether the pace will continue, but CLO spreads have come in considerably since December, with one high-asset-under-management (AUM) manager pricing a 'AAA' note at SOFR+148, the tightest since May 2022, and others coming in at SOFR+150, or close. Some media reports state that large U.S. banks are ramping up their purchases, which could tighten pricing for lower-AUM managers as well, fueling CLO new issue and resets/refinancings (refis).

We expect to see $110 billion of U.S. CLO issuance this year (not including resets and refis), with middle-market CLOs making up a greater proportion than they have historically. In recent years, middle-market transactions have typically accounted for 10%-12% of total U.S. CLO issuance volume, but 2023 was different, with about 23% of issuance coming from the private credit space. We expect this to increase in 2024 due to investor interest, issuer interest, and an increased focus private credit in the market more broadly.

Corporate Downgrades And CLO Credit Metrics

From a CLO credit perspective, not all that much has changed since late last year. Downgrades of obligor ratings in BSL CLO collateral pools continue to significantly outnumber upgrades **(slide 35)**, although the proportion of CLO collateral affected by these downgrades has dropped in recent quarters **(slide 36)**. Credit metrics continue to gradually erode **(slide 30)**, and the average BSL CLO 'CCC' basket now sits at 7.47%--up from 4.8% at the start of 2023, and just under the 7.5% threshold where most BSL CLOs have to start haircutting the value of excess 'CCC' assets. The average junior overcollateralization (O/C) test cushion is now 4.18%, down from 4.99% at the start of 2023 but still a healthy level from a historical standpoint. However, there are significant differences in the credit metrics of CLOs originated before and after the arrival of the pandemic shutdowns in first-quarter 2020 **(slide 31)**. Aside from subordinate tranches of some pre-COVD-19 transactions, we expect stable CLO rating performance in 2024 under our economic outlook.

The Impact Of Asset Diversity, Active Management, And Other Topics

Later in the deck, we highlight some themes from our recent research, including median and average EBITDAs for companies in the collateral pools of different CLO managers **(slide 43)**; the value of active portfolio management in 2022 and the first three quarters of 2023 **(slide 44)**; the impact of obligor and industry diversification on CLO performance **(slide 45)**; and weighted average spreads and interest coverage (I/C) test cushions amidst rising interest rates **(slide 46)**.

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Credit Themes | A Long And Bumpy Road Back To Neutral Rates

We expect to see slightly more downgrades than upgrades by year-end as our large cohort of weak issuers remain challenged despite positive market momentum and interest rate cut expectations

Cons

- ~13% issuers in 'CCC' category
- Rising defaults ~ 5% by Sept. 2024
- 1L recovery pressure
- ~20% with interest coverage deficits
- ~ 57% 'B-'/'CCC' with cash flow deficits
- Earnings growth slowing
- High interest rates through 2025
- 23% 'negative' SG-issuer ratings bias
- High % CLOs post-reinvestment

Pro

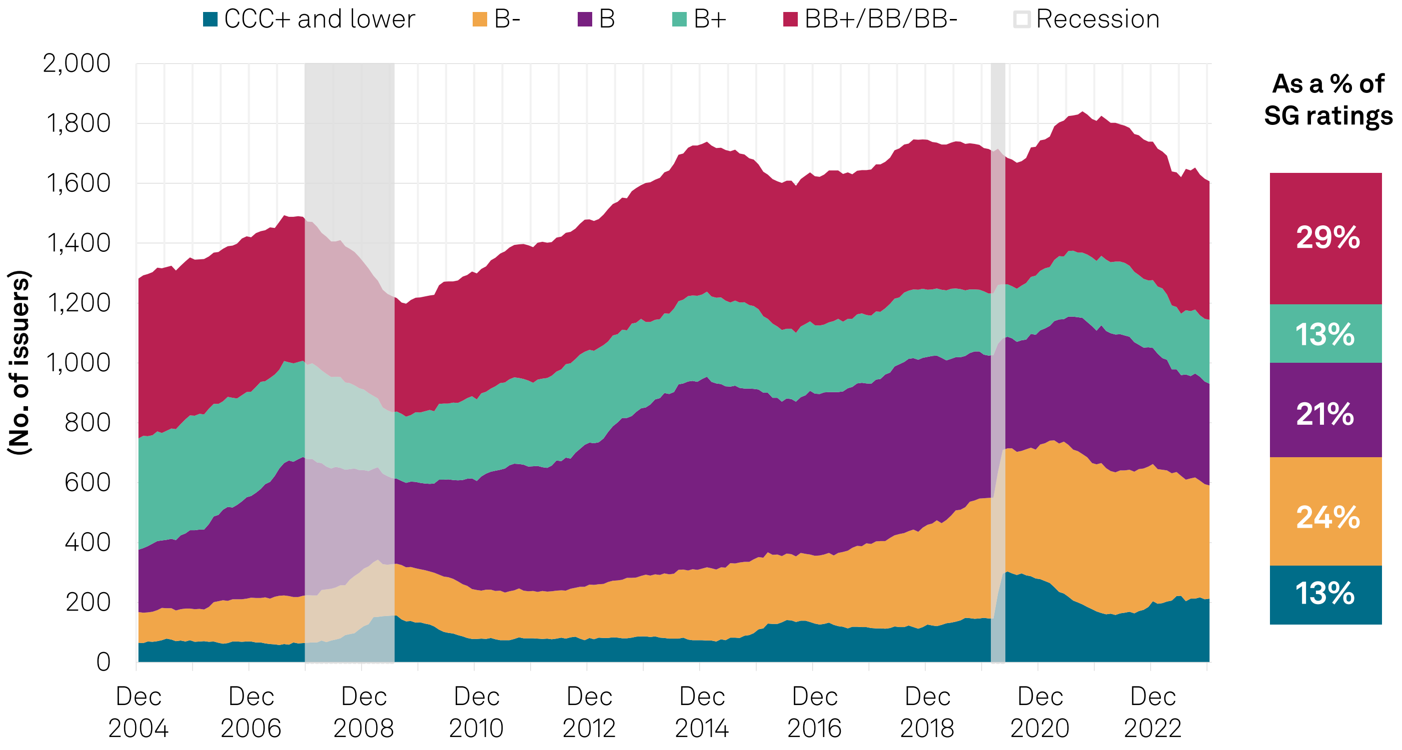
- Positive economic growth in 2024
- Resilient earnings growth to date
- Improved credit spreads and availability
- Interest rate cut expectations
- Manageable 2024 maturities
- Private Credit 'B-'/'CCC' Refi

Balance of leveraged finance credit risks: **Negative**

As of Feb. 2, 2024. Source: S&P Global Ratings. Metrics reflect U.S. and Canadian speculative-grade corporate issuers, excluding financial, and insurance institutions. The estimate of issuers with interest coverage deficits reflects GAAP-reported EBITDA interest coverage. The calculation annualized third-quarter 2023 reported interest expense. Risk bias: positive--more speculative grade upgrades than downgrades over the next 12 months), Flat--Downgrades and upgrades are balanced, Negative--More downgrades than upgrades, Very negative--Significantly more downgrades than upgrades. CLO--Collateralized loan obligation.

Rating Trends | Ratings Remain Concentrated At Low Levels

U.S. and Canada speculative-grade ratings distribution by issuer count

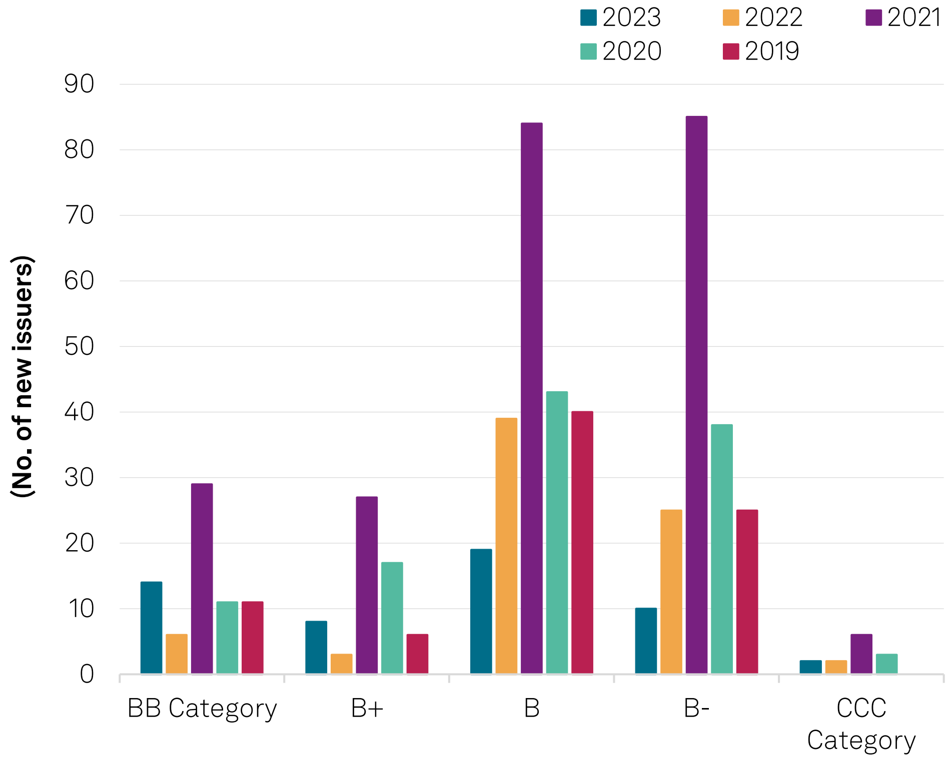


As of Dec. 31, 2023. SG--Speculative grade. Source: S&P Global Ratings & CreditPro.

- About 58% of our speculative-grade issuer ratings (by issuer count) are concentrated at 'B' and lower. The proportion declined about 250 basis points in 2023.
- The speculative-grade issuer population fell about 7.6% in 2023. We saw a modest widening of the tails ('BB' and 'CCC' categories) in our rating distribution.
- 'CCC' category issuers account for 13% of our portfolio, which is high but below the COVID-19 peak of 18.7% and just above the global financial crisis peak of 12.8%.

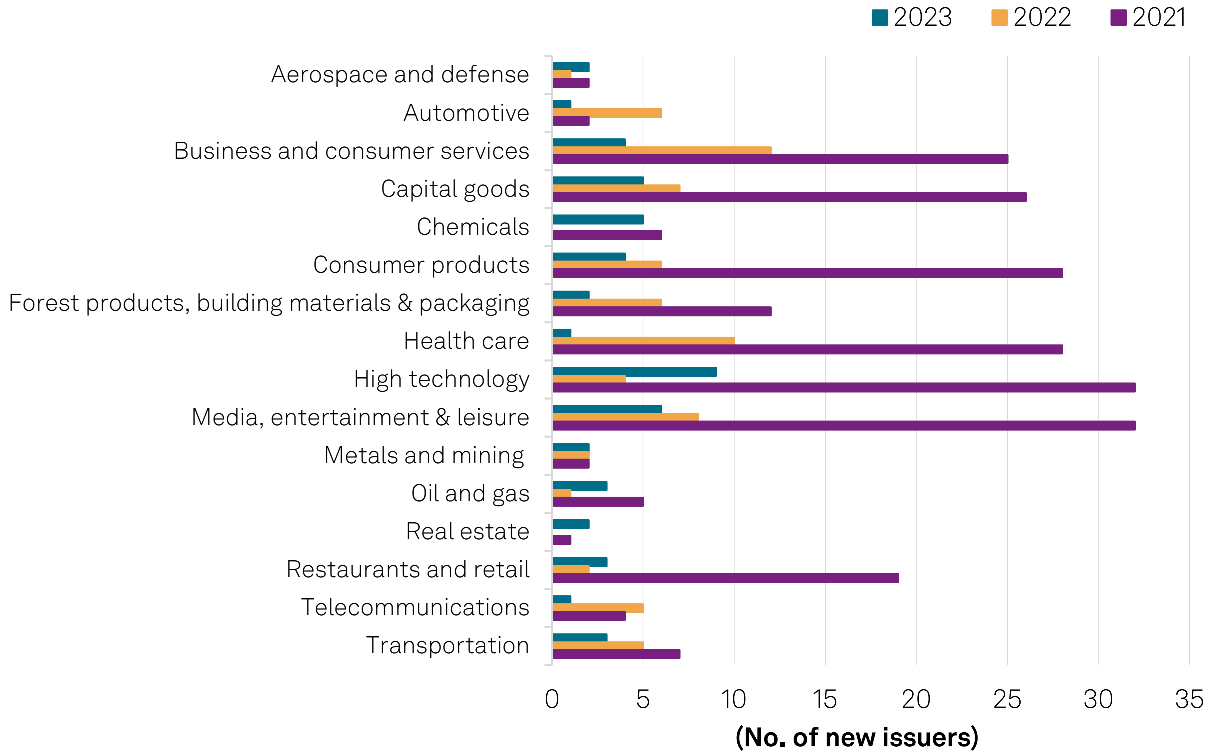
Rating Trends | New Issuer Credit Quality Improved In 2023 Amid A Challenging Financing Environment

U.S. and Canada distribution of new speculative-grade issuers by credit quality



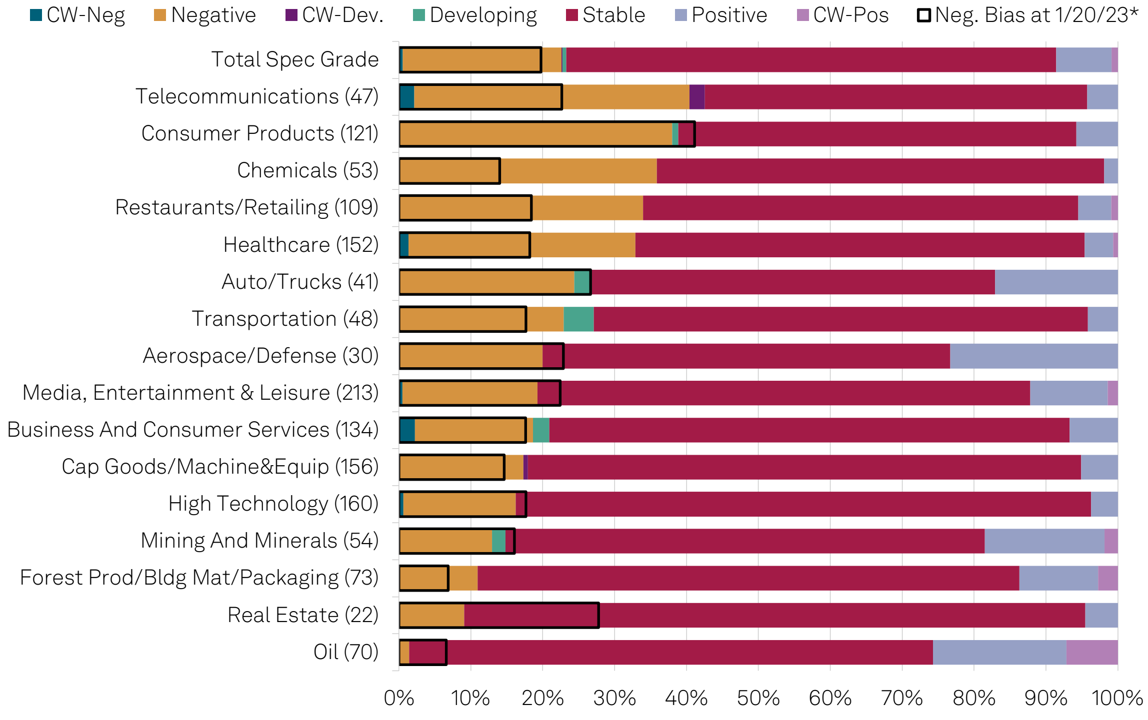
SG--Speculative grade. Source: S&P Global Ratings

U.S. and Canada distribution of new speculative-grade issuers by industry



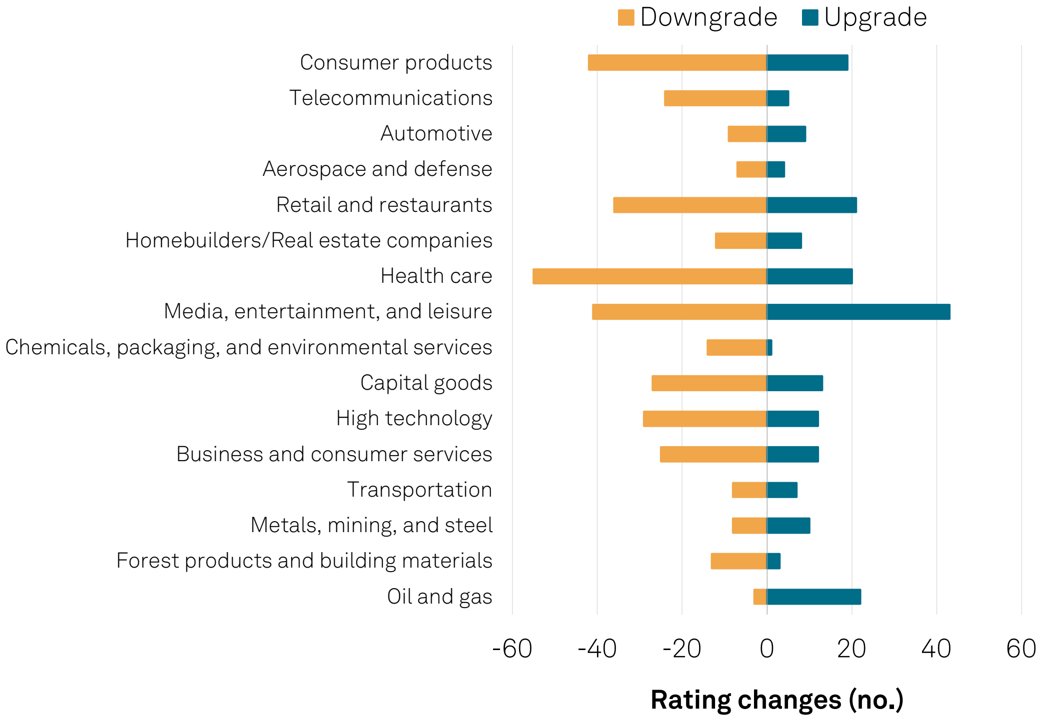
Rating Trends | Rating Outlooks And Rating Actions Highlight Dispersion Among Sectors; 23% SG-Negative Bias Above The Long-Term Average Of 20%

Speculative-grade rating outlook by sector
U.S. And Canada (as of Jan. 24, 2024)



*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 (FY 2023)



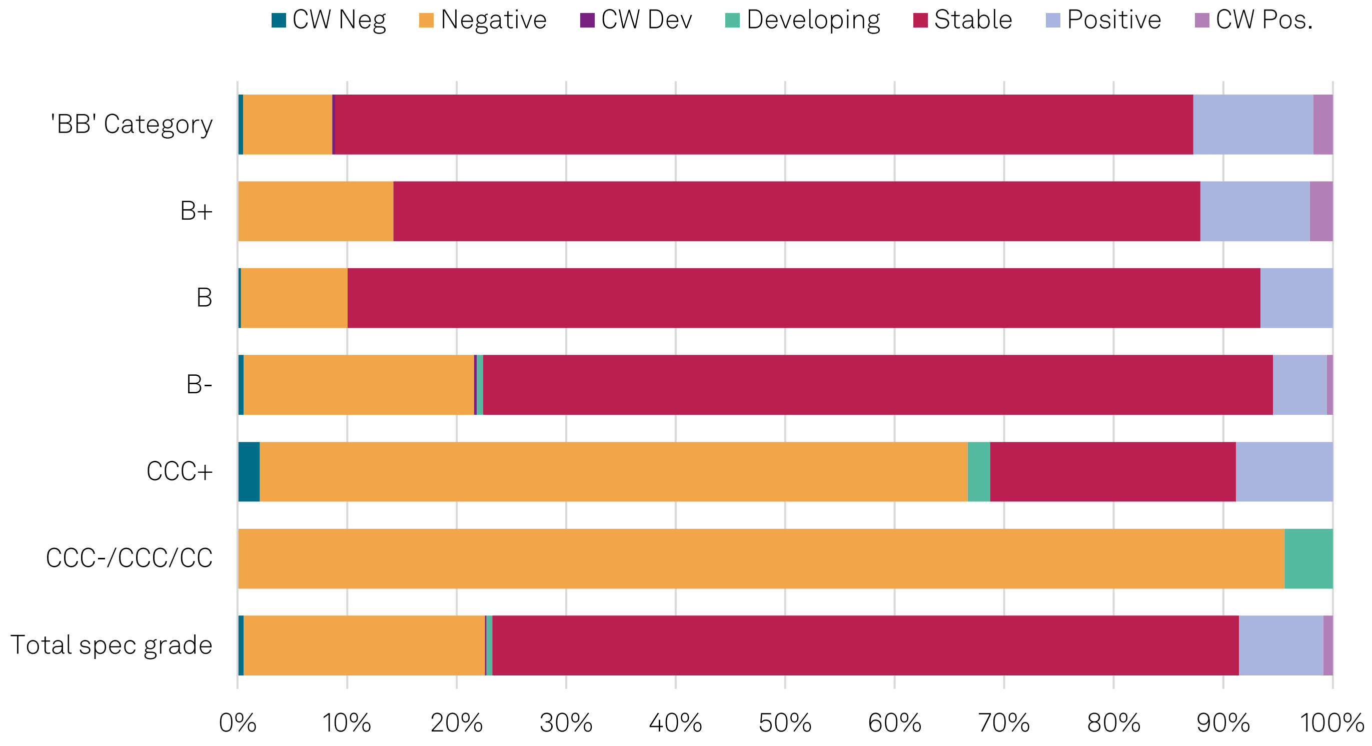
*Excludes utilities, financial, and insurance services. FY--Fiscal year. Source: S&P Global Ratings U.S. and Canada ratings.

S&P Global Ratings

Rating Trends | Negative Ratings Bias Is Concentrated At Lower Ratings; About 77% of 'CCC' Category Issuers Have A Negative Ratings Outlook

Speculative-grade negative ratings bias

U.S. and Canadian nonfinancial corporates



Data as of Jan. 24, 2024, Source: S&P Global Ratings Credit Research & Insights.

- The speculative-grade negative bias sits just above the post-global financial crisis (GFC) average of roughly 20%. It is still below the long-term average from 1995 through March 2023.
- Default risk remains elevated over the next 12 months, with 67% of 'CCC+' issuers and 96% of issuers rated 'CCC-'/'CCC'/'CC' with a negative ratings bias.
- Slowing economic growth and lags in when eventual rate cuts will reduce high debt servicing cost (and benefit cash flows) may keep ratings pressure on 'B-' issuers.

Rating Trends | Weaker Cash Flow, High Leverage, Defaults, And An Unsustainable Capital Structure Were Key Factors That Drove Rating Downgrades In 2023

2023 speculative-grade downgrades across U.S. BSL CLO obligors

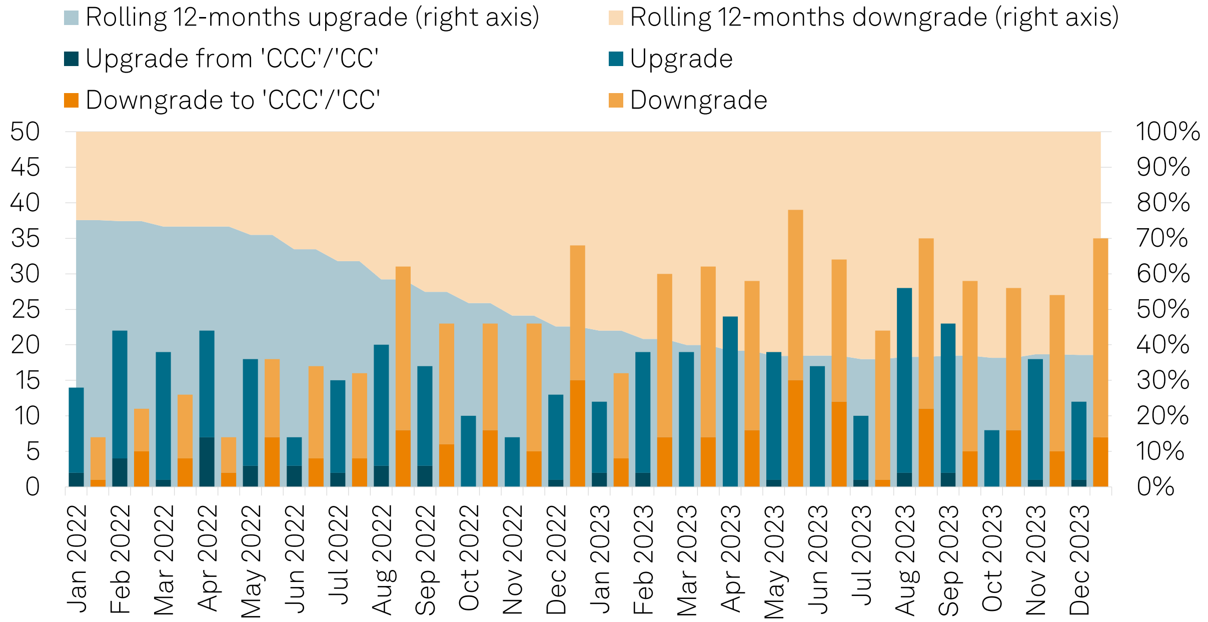
Key rationale	Secondary rationale	'BB' category	'B' category	'CCC' category	Nonperforming category	Speculative-grade total
Cash flow/Leverage	Unsustainable cap structure			56		56
	M&A driven credit measure weakness		1			1
	weaker than expected cash flow/leverage	13	61	2		76
Competitive position	Competition/market share losses		1			1
	Regulatory	1				1
	Secular pressure / industry challenges	1	1			2
Default	Bankruptcy				18	18
	Distressed exchange				50	50
	Payment default				25	25
Liquidity	High risk of payment default (interest, principal)		1	24		25
	Near-term maturity		10	23		33
	Persistent cash flow shortfalls		5	34		39
	Risk of covenant breach		2	2		4
Operating performance	Cost pressure (inability to pass thru cost)/inflation		5			5
	Margin decline/market share loss	1	11			12
	Revenue decline	7	16			23
	Total	**23**	**114**	**141**	**93**	**371**

BSL--Broadly syndicated loan. CLO--Collateralized loan obligation.

Rating Trends | Downgrades Have Moderated, But Liquidity And Cash Flow Pressures Expected To Persist For ‘B-’ And Lower Issuers

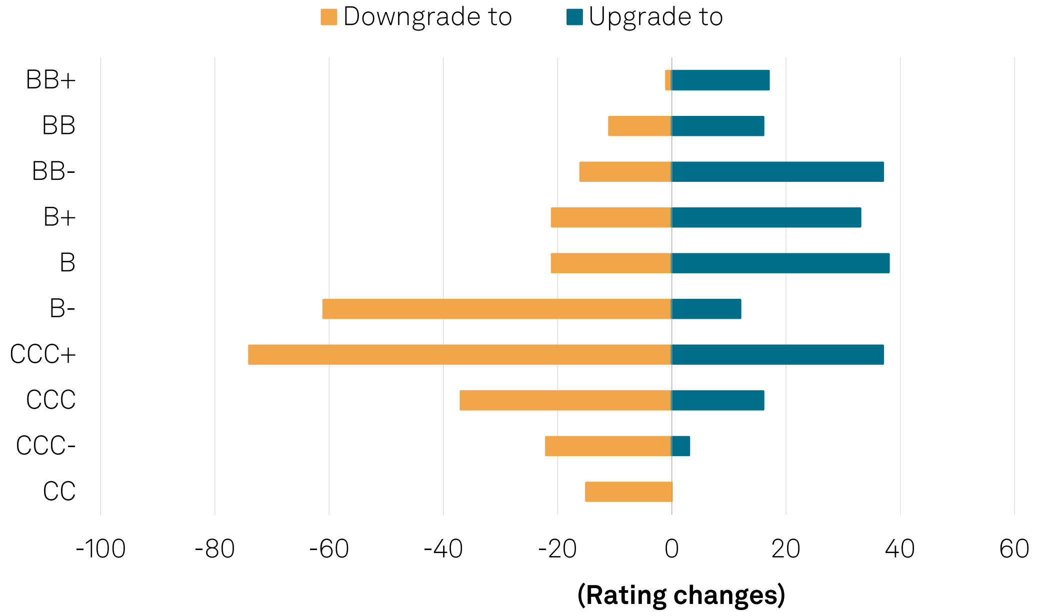
Credit statistics for entities downgraded to--or upgraded from--the ‘CCC’ category are starkly different than those where the issuer credit rating was unchanged.

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.

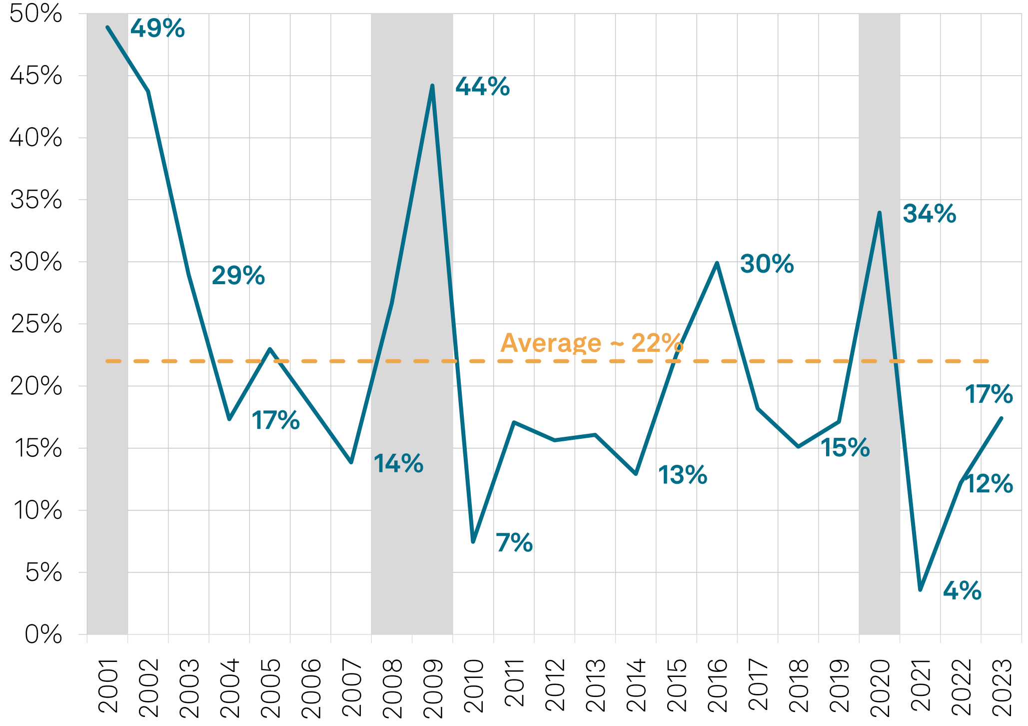
Speculative-grade issuer credit rating changes by sector: U.S. And Canada (FY 2023)



Note: Downgrade and upgrade ratings actions are ‘to’ the current rating. FY--Fiscal year.
Source: S&P Global Ratings U.S. and Canada ratings.

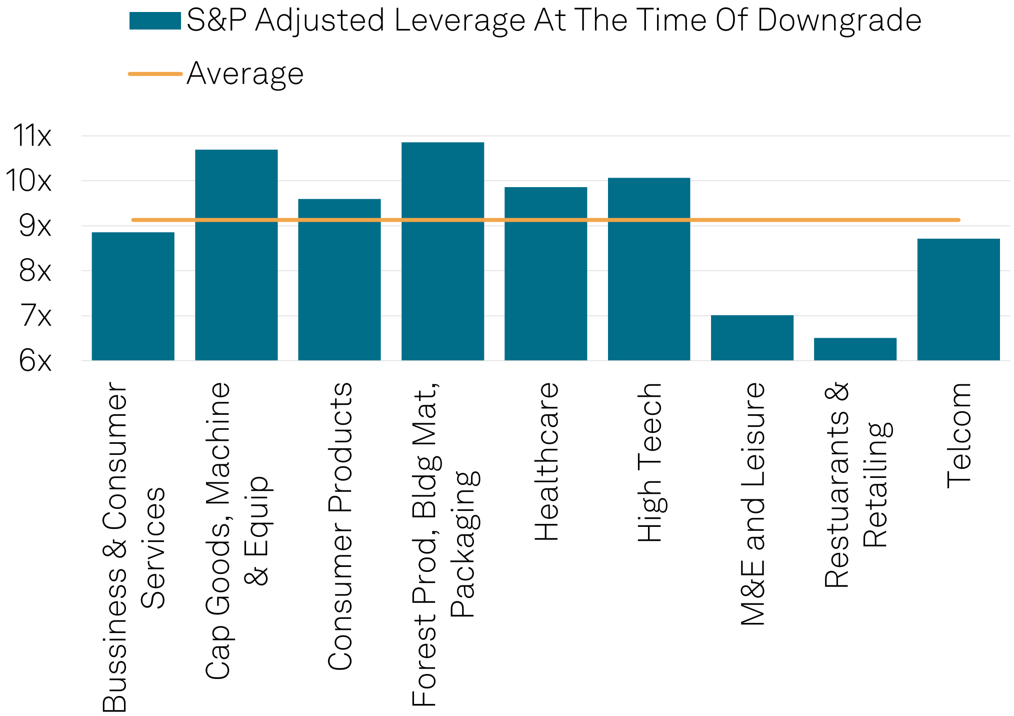
‘B-’ Credit Risk | ‘B-’ Downgrades Rose In 2023 And Likely To Stay Elevated In 2024

Percentage of ‘B-’ issuers downgraded from the start-to-end of the year



Source: S&P CreditPro as of Jan 20, 2024. S&P Global Ratings U.S. and Canada ratings exclude financial and insurance issuers.

Our 2023 expectations for ‘B-’ downgraded issuers often showed persistently high adjusted leverage and reported cash flow deficits



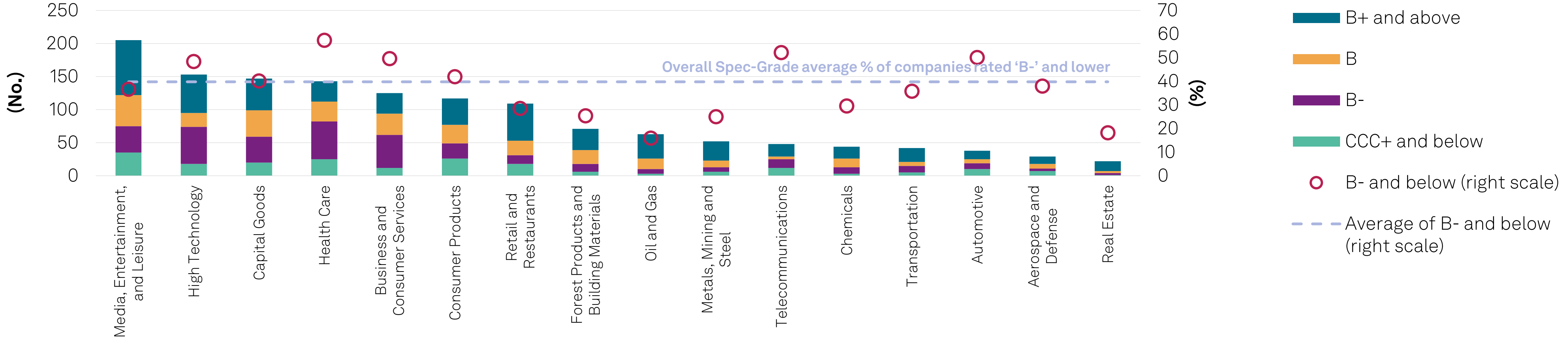
Statistics in the charts were from our 2023 forecasts at the time of downgrade. Source: S&P Global Ratings U.S. and Canada ratings.

S&P Global Ratings

‘B-’ Credit Risk | 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; media, entertainment, and leisure; high technology; business and consumer services; capital goods; 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



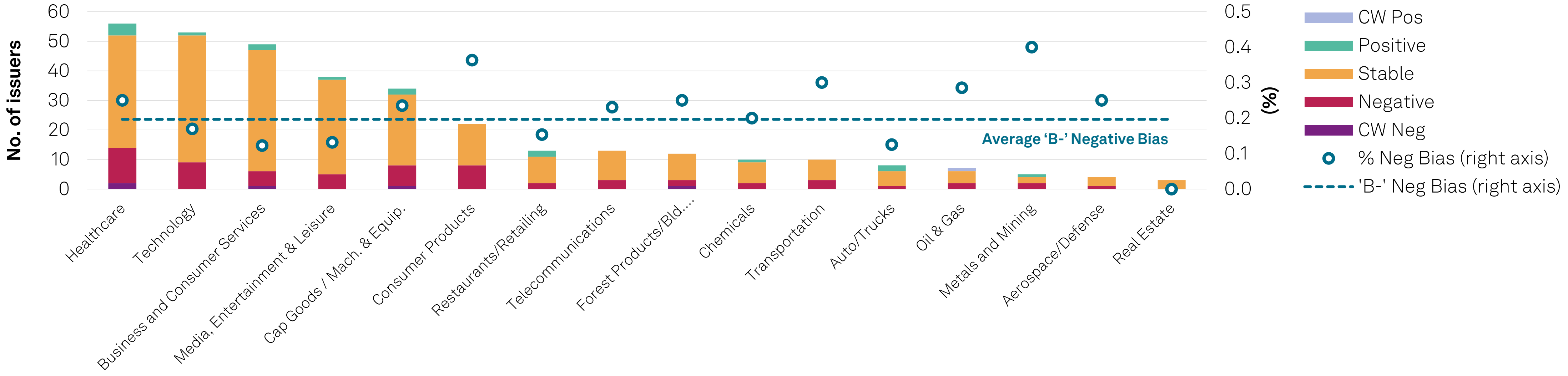
As of January 24, 2024. U.S. and Canada corporate ratings. Source: S&P Global Ratings.

‘B-’ Credit Risk | 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 22 %, modestly lower than the speculative-grade average of about 23%, but somewhat higher than all speculative-grade rating categories other than the ‘CCC’ category (see slide 6).
- Of the ten sectors with an above-average negative outlook, the consumer products and metals and mining sectors are notably higher than the average.
- Healthcare; consumer products; technology; media, entertainment and leisure; capital goods; and restaurants and retailing were the sectors that had the most downgrades to ‘B-’ in 2023. Business and consumer services also has a high count of ‘B-’ rated issuers.

Ratings bias of companies rated ‘B-’ by sector

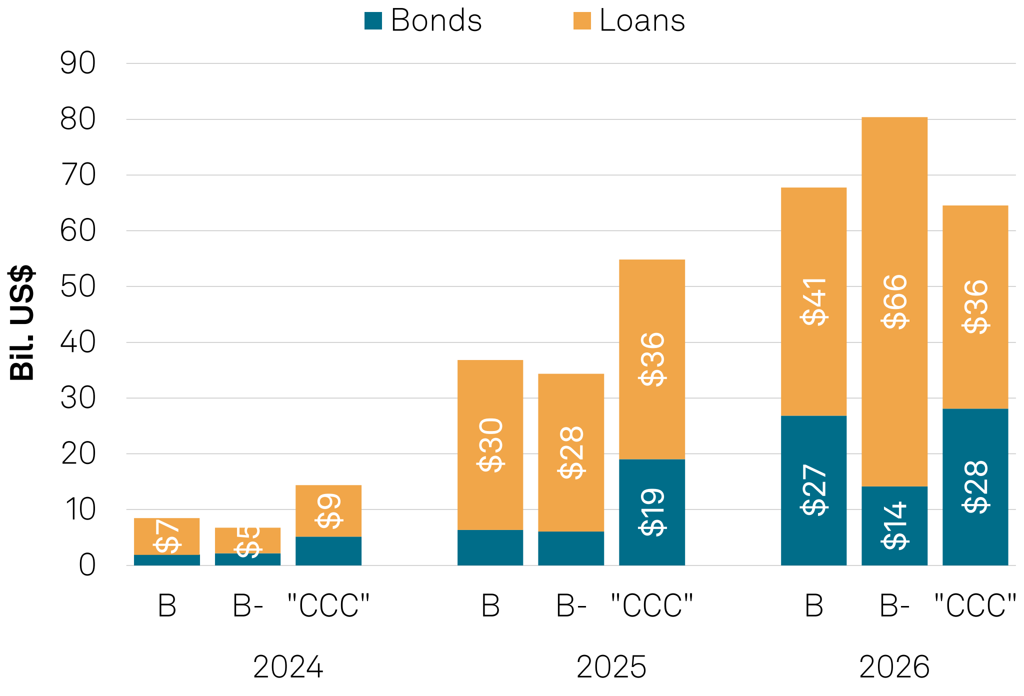
U.S. and Canadian nonfinancial corporates



As of January 24, 2024. Source: S&P Global Ratings Credit Research & Insights.

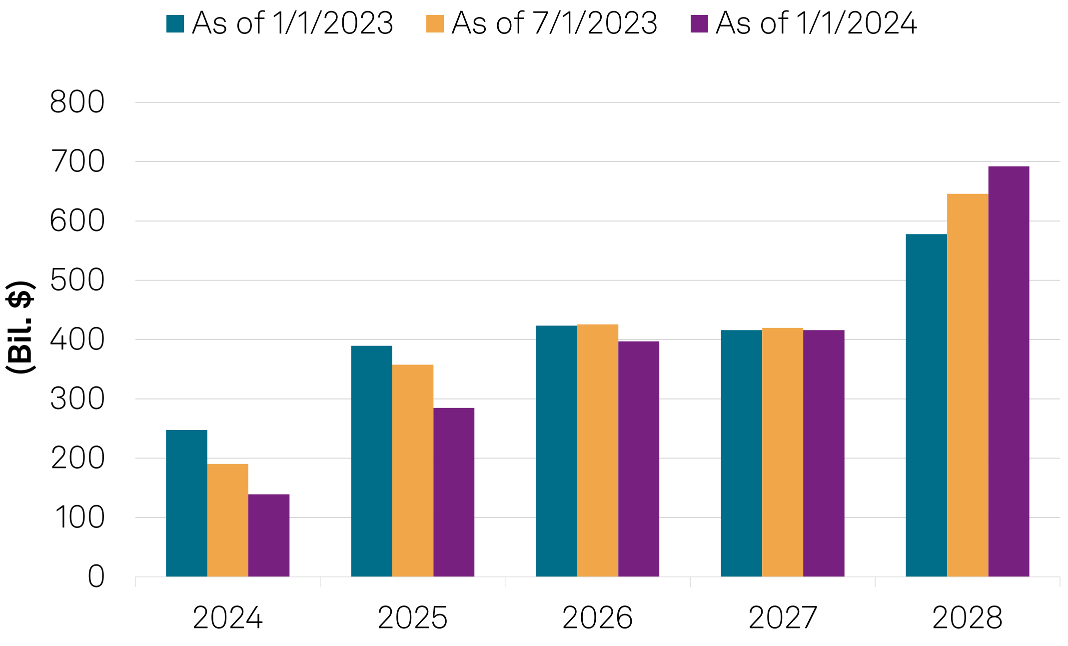
Maturity Wall | ‘CCC’ Category Issuer Refinancing Risk Could Keep Defaults Elevated; B- Issuers With 2025 Maturities A Downgrades Risk In 2024

U.S. speculative-grade maturities at Jan. 20, 2024*



*Excludes revolving credit facilities. As of Jan. 22, 2024. Source: IHS Markit and Reuters.

Speculative-grade borrowers in the U.S. have trimmed near-term obligations

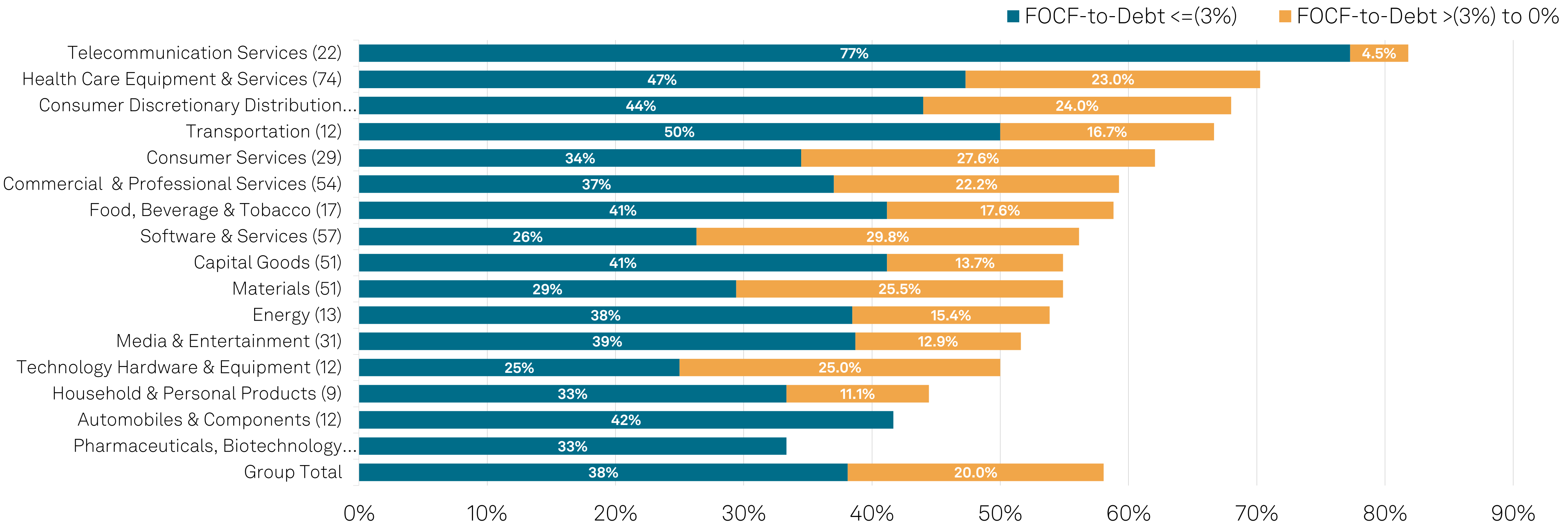


Note: Foreign currencies are converted to USD on the respective report period date. Includes bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings. Source: S&P Global Ratings Credit Research & Insights.

S&P Global Ratings

Credit Metrics | Cash Flow: Broad Dispersion Of Cash Flow Deficits Among Our Vulnerable Issuers

Assessing 'B-' and 'CCC' category issuers at risk: free operating cash flow(FOCF)-to-debt (Q3 2023)*



*Ratings exclude financial and insurance issuers. Source: S&P Global Ratings U.S. and Canada.

S&P Global Ratings

Credit Metrics | Cash Flow: Issuers Are Cutting CAPEX (And Working Capital) To Preserve Liquidity, Which Could Limit Future Growth

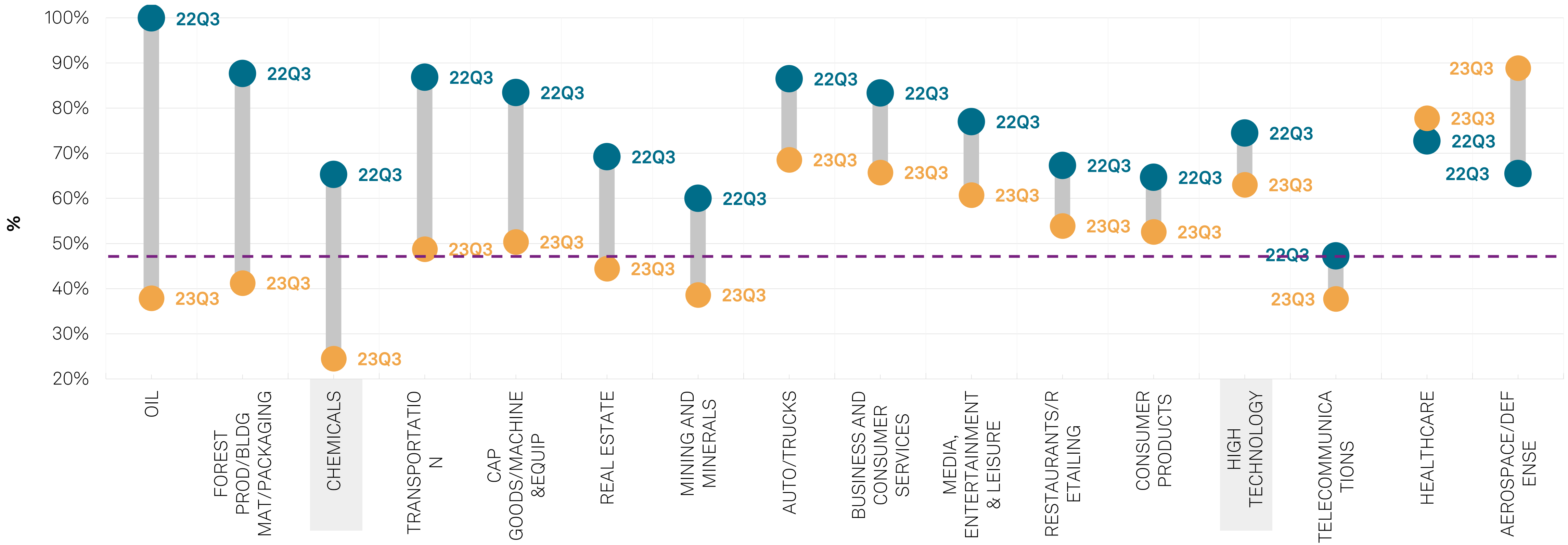
(Rolling 12 months periods)
Change in speculative-grade reported capital expenditures (U.S. and Canada)

Issuer credit rating*	Entity count (no.)	Q2 2022 (%)	Q3 2022 (%)	Q4 2022 (%)	Q1 2023 (%)	Q2 2023 (%)	Q3 2023 (%)
BB+	103	6.2	6.8	7.6	5.7	3.3	1.9
BB	115	4.3	4.0	4.3	3.8	2.0	0.7
BB-	121	7.1	7.9	4.2	5.7	3.7	2.1
B+	145	6.0	6.5	4.6	2.7	3.8	1.6
B	208	6.1	6.6	5.4	3.6	3.5	0.3
B-	232	3.4	4.7	3.6	1.6	1.7	-1.1
CCC+	109	4.2	-1.2	-1.7	-1.2	-1.6	-0.1
CCC	30	7.4	8.6	4.5	1.0	-3.5	-5.4
CCC-	10	13.3	3.7	-0.5	-5.7	-8.3	-7.8
Total	**1,075**	**5.4**	**5.9**	**4.2**	**2.7**	**2.4**	**0.4**

*Rating as of Dec. 4, 2023. Source: S&P Global Ratings.

Credit Metrics| Earnings Growth: Slowing Growth Was Notable In Many Sectors And Could Persist In 2024 As The Economy Downshifts

Percent of U.S. and Canadian speculative-grade reporting earnings growth



Source: S&P Global Ratings.

Credit Metrics | Leverage: Remains Elevated For Many Lower Rated Issuers Despite Good Earnings In 2024

Reported Leverage (rolling 12 months periods)

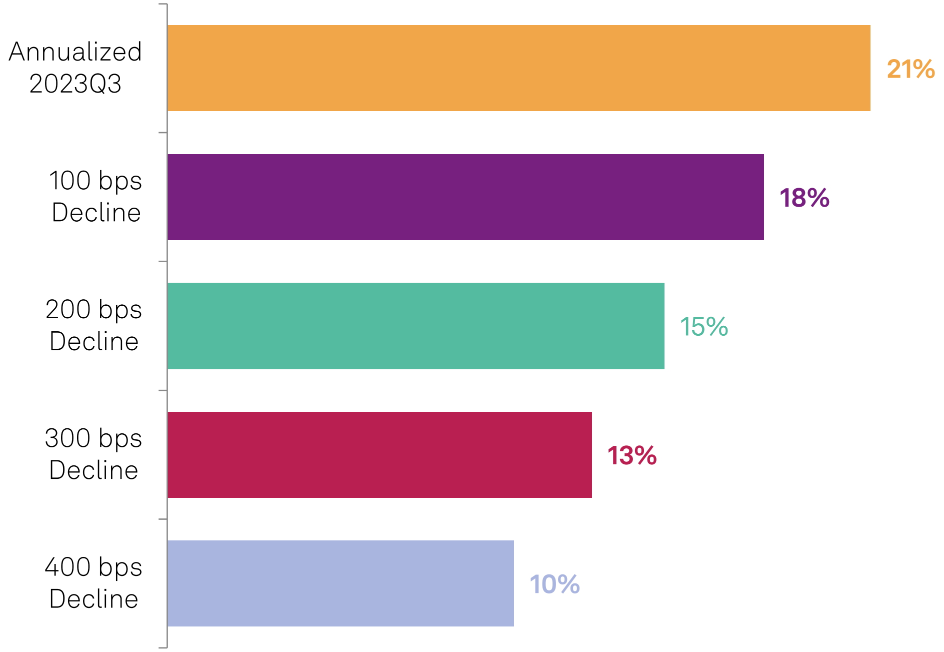
Breakdown by rating

		Debt/EBITDA (x)															
Issuer Credit Rating*	**Entity Count**	**2019**	**2020Q1 LTM**	**2020Q2 LTM**	**2020Q3 LTM**	**2020**	**2021Q1 LTM**	**2021Q2 LTM**	**2021Q3 LTM**	**2021**	**2022Q1 LTM**	**2022Q2 LTM**	**2022Q3 LTM**	**2022**	**2023Q1 LTM**	**2023Q2 LTM**	**2023Q3 LTM**
BB+	96	3.3	3.5	4.5	3.9	3.6	3.7	3.0	2.7	3.1	2.9	2.7	2.5	2.5	2.7	2.8	2.8
BB	108	3.5	3.9	4.0	3.9	3.7	3.7	3.2	3.1	3.1	3.1	2.9	3.4	3.3	3.5	3.3	3.3
BB-	116	4.1	4.3	4.8	4.8	4.8	4.5	3.4	3.2	3.3	3.4	3.3	3.3	3.2	3.3	3.5	3.3
B+	129	4.6	5.1	5.5	5.6	5.4	5.5	5.0	4.4	4.3	4.6	4.6	4.4	4.2	4.3	4.1	4.2
B	177	5.9	6.7	7.2	6.8	6.9	6.7	6.1	5.6	5.3	5.3	5.0	4.9	4.8	4.7	5.0	4.9
B-	222	7.2	7.9	7.8	7.6	8.3	8.4	8.1	8.5	9.2	9.2	8.9	8.9	8.6	8.3	8.2	8.0
CCC+	105	7.9	8.3	8.5	8.3	9.6	9.5	9.9	9.2	10.8	11.4	11.2	11.0	11.1	10.2	9.9	10.3
CCC	30	8.1	9.2	9.4	9.3	8.4	8.5	7.7	8.7	9.6	9.6	13.8	16.8	16.9	16.9	14.5	15.2
CCC-	6	14.4	15.4	27.4	23.5	24.7	NM	11.7	16.3	13.6	15.0	15.6	15.0	19.1	18.8	17.1	17.8
CC	2	11.1	14.2	26.8	81.1	NM	NM	NM	NM	NM	NM	NM	16.1	11.9	12.1	12.0	13.0
Total	**991**	**5.4**	**6.0**	**6.5**	**6.3**	**6.3**	**6.2**	**5.5**	**5.5**	**5.6**	**5.7**	**5.5**	**5.4**	**5.4**	**5.2**	**5.2**	**5.2**

*Rating as ofDec. 5, 2023.; LTM—Last 12 months. Source: S&P Global Ratings

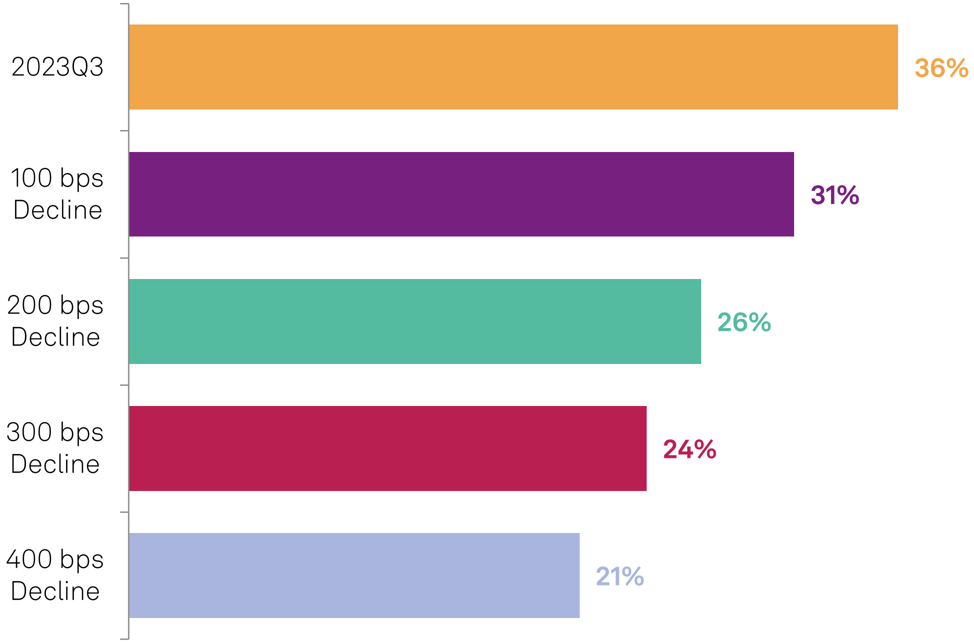
Scenario Analysis | Lower Interest Rates Will Support Credit Quality, But At-Risk Issuers Remain High Even If Rates Fall 150 Basis Points

Percentage of issuers with reported EBITDA interest coverage less than 1.0x in various rate scenarios



Statistics in the charts above annualize reported interest expense in 2023Q3. Reflects a scenario where all other performance and leverage metrics (i.e., EBITDA, Debt) remain unchanged. Source: S&P Global Ratings U.S. and Canada ratings.

Percentage of issuers with reported free operating cash flow deficits in various rate scenarios



Statistics in the charts above annualize reported free operating cash flow in 2023Q3. Reflects a scenario where all other performance and leverage metrics (i.e., EBITDA, Debt) remain unchanged. Reported free operating cash flow is GAAP reported cash from operations less capex. Source: S&P Global Ratings U.S. and Canada ratings.

Scenario Analysis | Lower Interest Rate And Earnings Growth Could Support A Solid Improvement Of Interest Coverage

Percentage of speculative-grade issuers with reported EBITDA interest coverage less than 1x

> 500 bps improvement	< 500bps Improvement	Weakening

Median Debt Costs (Reported 2023Q3 Annualized Reported Interest Divided By Total Reported Debt)

	Reported EBITDA margin stress						
	+15%	+10%	+5%	0%	-5%	-10%	-15%
Sample size: 1376	(17% median margin)	(16.3%)	(15.6%)	(14.8%)	(14.1%)	(13.3%)	(12.6%)
4.8%	8%	9%	10%	10%	11%	12%	13%
5.8%	10%	11%	12%	13%	14%	15%	16%
6.8%	13%	13%	14%	15%	17%	18%	19%
7.8%	14%	15%	17%	18%	19%	21%	23%
8.3%	16%	17%	18%	19%	22%	23%	25%
8.8% (Annualized Q3'23)	17%	18%	18%	21%	23%	25%	26%

- When annualizing reported interest expense in third-quarter 2023, the percentage of issuers that fail to have reported EBITDA interest coverage > 1x rises to 21%.
- Under a scenario where annualized debt costs fall 200 bps and EBITDA remains unchanged, we could see the number of issuers with less than 1x interest coverage fall to 15% from 21% of our portfolio.
- In a scenario where annualized debt costs fall by 400 bps and EBITDA remains unchanged, the number of issuers with interest coverage deficits would remain high at 10% of our sample.

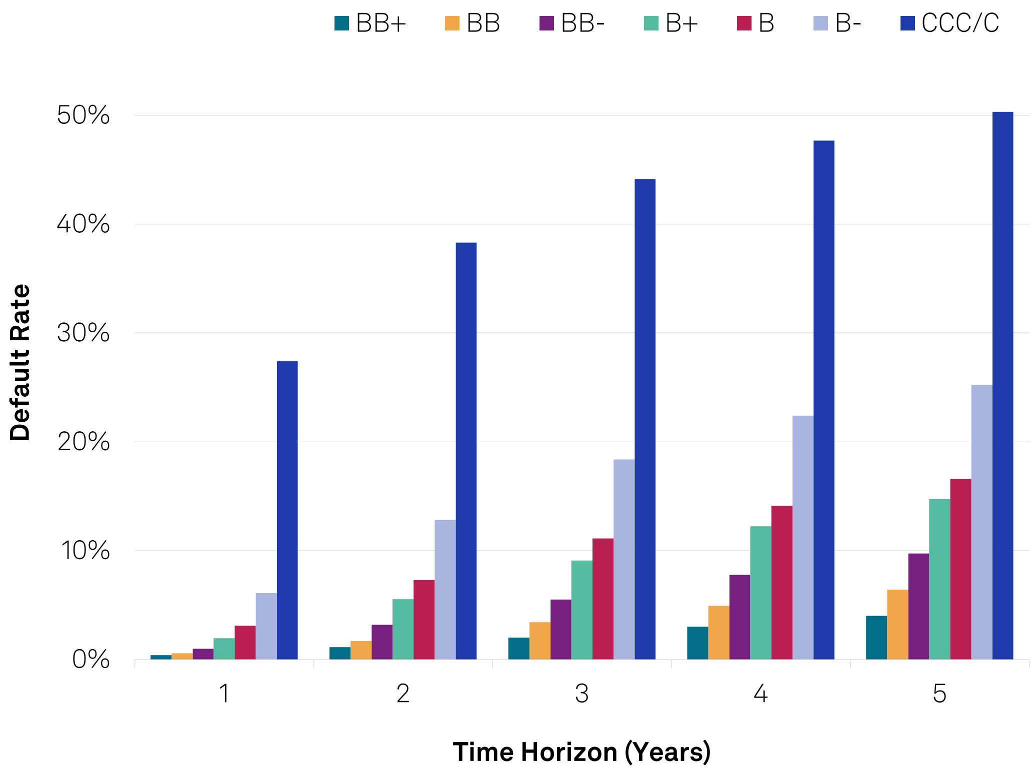
*The hypothetical analysis using quarterly annualized interest for issuers reporting in third-quarter 2023 and measuring the impact of falling interest costs and various EBITDA growth and decline scenarios.

Defaults | 'CCC' Rated Companies Have Higher Default Risk

- We consider companies rated 'CCC+' or lower 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 often 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 nearby do not adjust for a 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

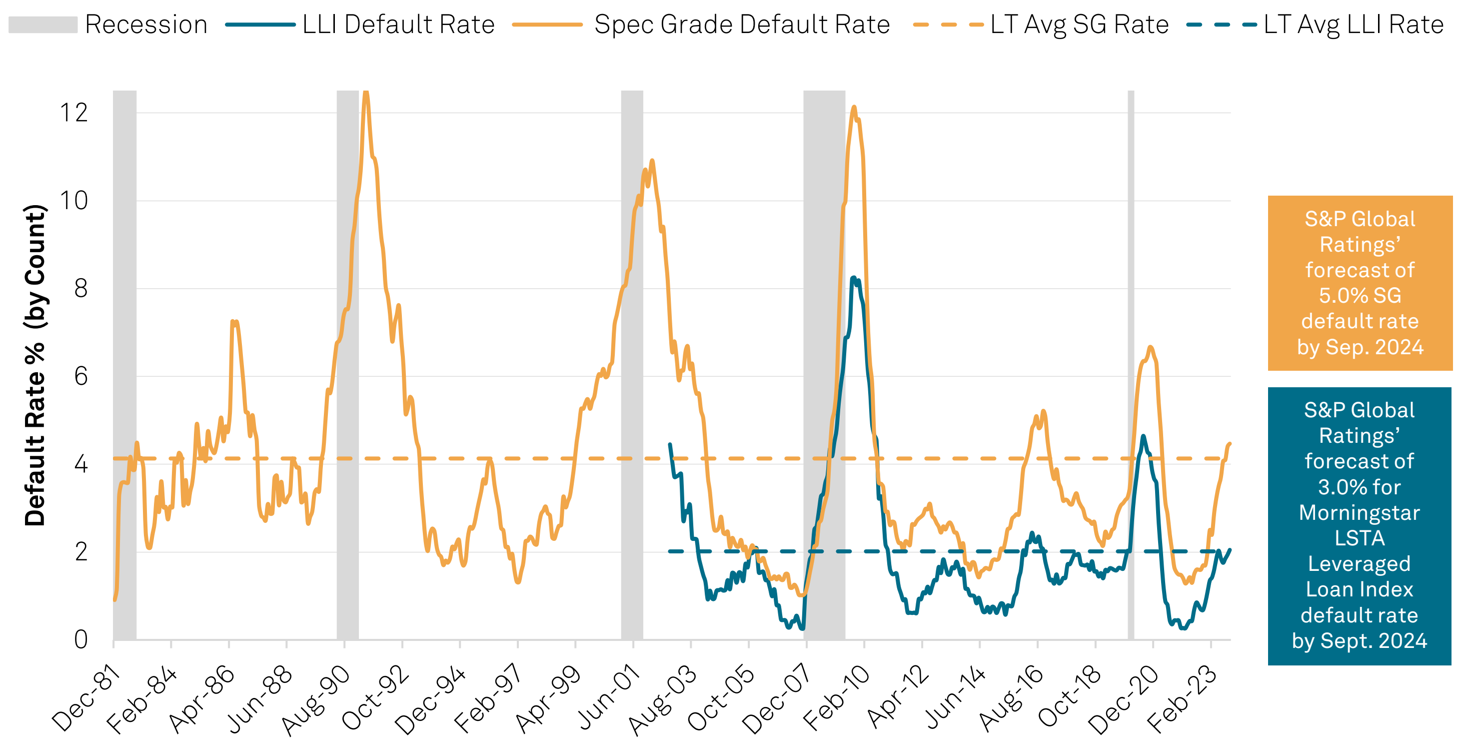
Average cumulative default rates for speculative-grade U.S. corporates by issuer rating (1981–2022)



The chart shows average U.S. Corporate Cumulative Default Rates (by Issuer Credit Ratings or ICRs) from Table 14 in the 2022 Annual U.S. Corporate Default And Rating Transition Study, published June 13, 2023.

Defaults | Default Rates At Year-End 2023 Exceeded Long-Term Averages For SG Overall And The LL Index; Further Increases Expected In 2024

U.S. speculative-grade default rates on a trailing 12-month basis through Dec. 31, 2023



Source: S&P Global Ratings. All default measures are shown on an issuer-count basis through Dec. 31, 2023. The LLI default rate is for the Morningstar/LSTA Leveraged Loan Index (and does not include selective defaults (SDs), consistent with the default definition of the index.

Two default rate forecasts:

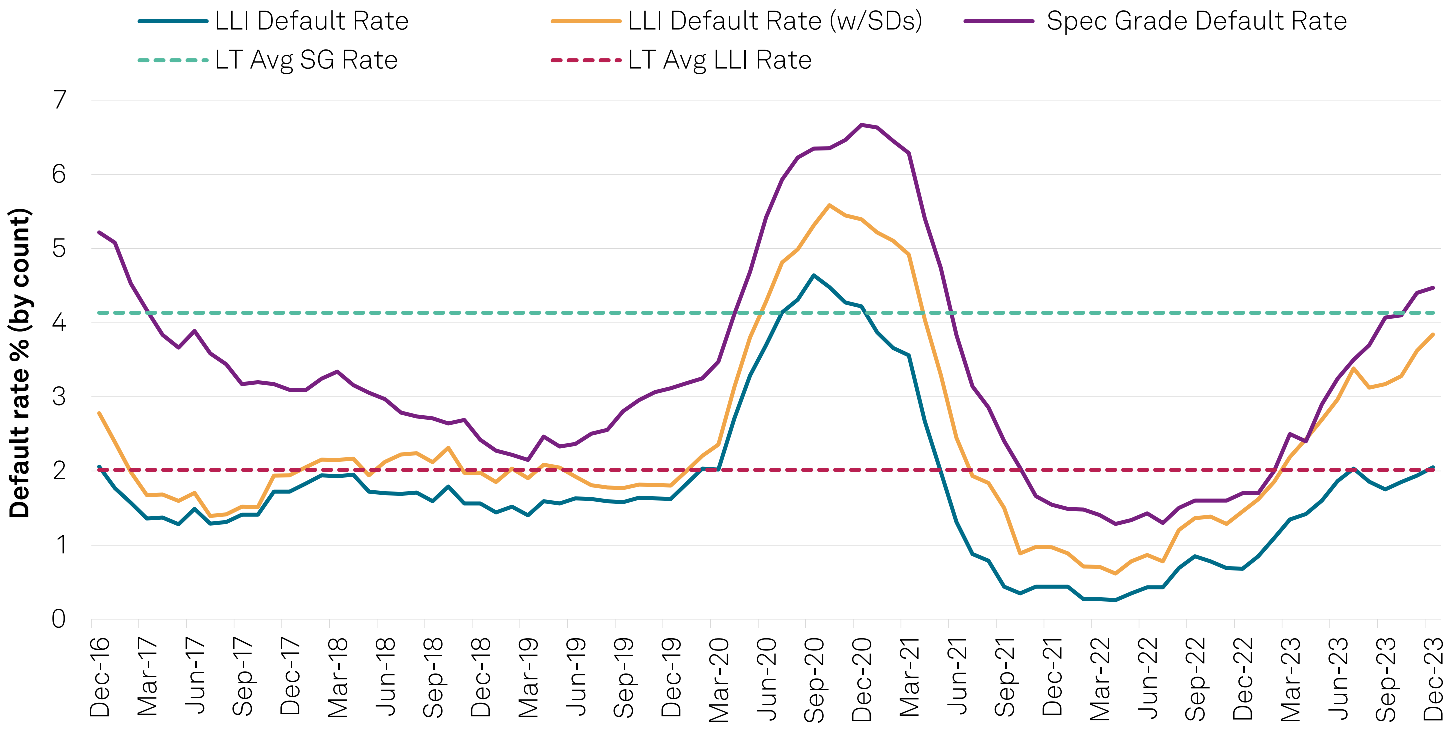
- Our overall speculative-grade default rate is calculated on an issuer count basis for all bond and loan defaults, including selective defaults.
- Default rates for the Morningstar/LSTA Leveraged Loan Index (issuer count) exclude bond defaults and selective defaults (SDs).
- SDs are significant, generally exceeding 50% in recent years, including more than 60% in 2021 and 2022.
- Defaults on a trailing 12-month basis now exceed their long-term averages.

Forward-view: Defaults likely to rise further

- Our U.S., our speculative-grade default forecast (issuer count) for Sept. 2024 is 5.0% (base case; range 3.3%-7.0%) (up from 4.47% at YE).
- Our Morningstar LSTA Leveraged Loan Index default forecast (issuer count) for Sept. 2024 is 3.0% (base case; range 1.5%-5.0%) (2.05% at YE).

Defaults | Leveraged Loan Default Rates Are Much Higher When 'SD' Rating Actions Are Considered, Especially From 2020 Forward

U.S. speculative-grade default rates on a trailing 12-month basis through December 31, 2023



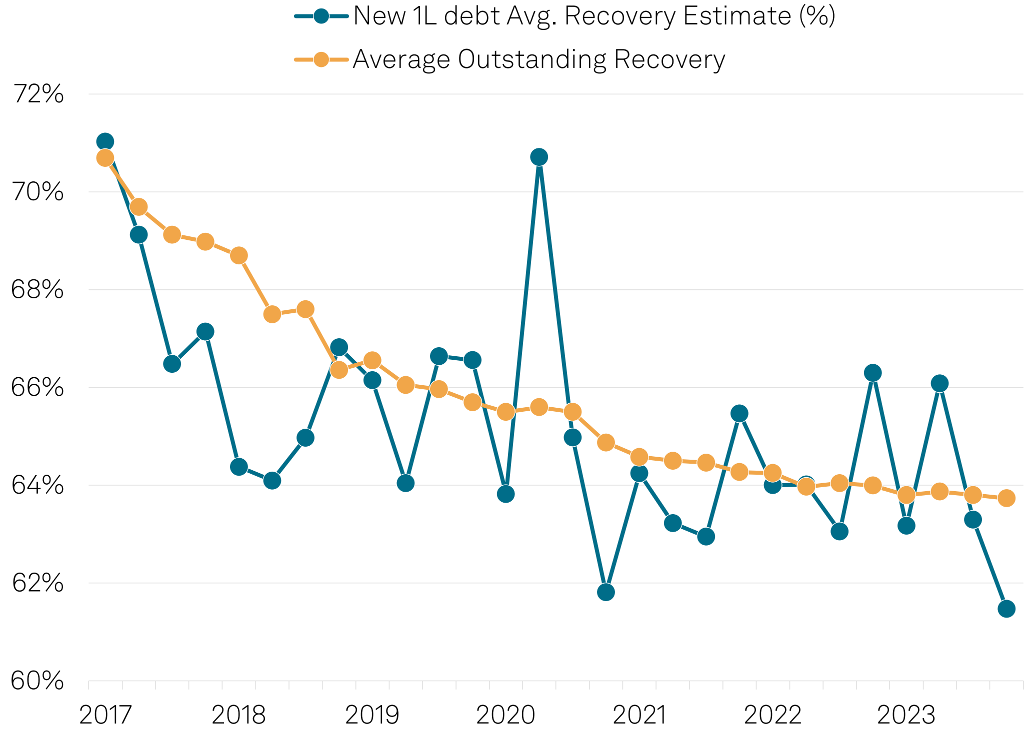
Source: S&P Global Ratings and Leveraged Commentary & Data. All default measures are shown on an issuer-count basis through Dec. 31, 2023. The LLI default rate is for the Morningstar/LSTA Leveraged Loan Index and is shown without selective defaults (SDs), consistent with the default definition of the index, as well as with SDs consistent with S&P Global Ratings actions.

- Leveraged Loan Index Defaults with and without SD actions are notably different.
- LCD recently began publishing a default rate for the Morningstar/LSTA Leveraged Loan Index that includes selective default (or SD) rating actions by S&P Global Ratings (from Dec. 2016 forward).
- On this basis ,the default rate is meaningfully higher at Jan. 31, 2024, at 4.03%, compared to 1.97% without SDs (both measures on an issuer-count basis).
- The GAP between LL Index defaults with and without SD actions has been notably wider since 2020, reaching a peak of 206 bps on Jan. 31, 2024.
- From July 2022, the LL Index default rate with SDs is closer to S&P Global Ratings' overall speculative-grade default rate (which also includes SDs) than it is to the traditional LL Index default rate.
- Given the prevalence of SD rating actions in recent years, LCD's 'dual track' LL Index default rate is a useful metric.

S&P Global Ratings

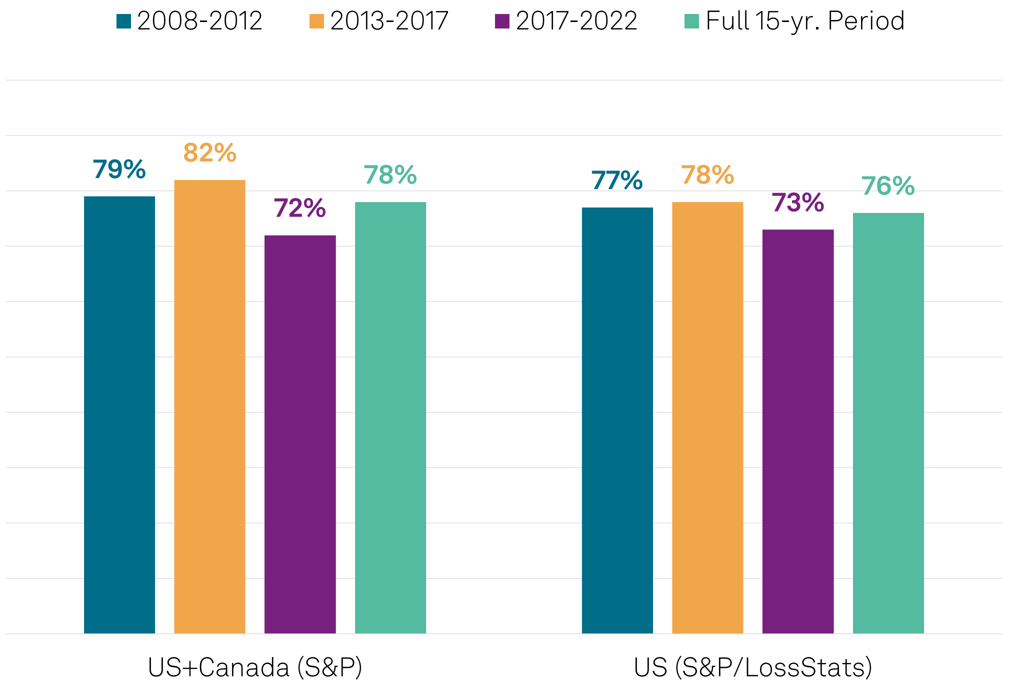
Recoveries | First-Lien Recovery Expectations Have Come Down Over Time; As Have Estimated Actual 1L Recovery Rates In Recent Years

Expected recovery on newly issued and outstanding 1L debt based on S&P's Recovery Ratings (U.S. and Canada)



Data through December 31, 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.

Estimated actual first-lien recovery rates (% par) on a nominal basis



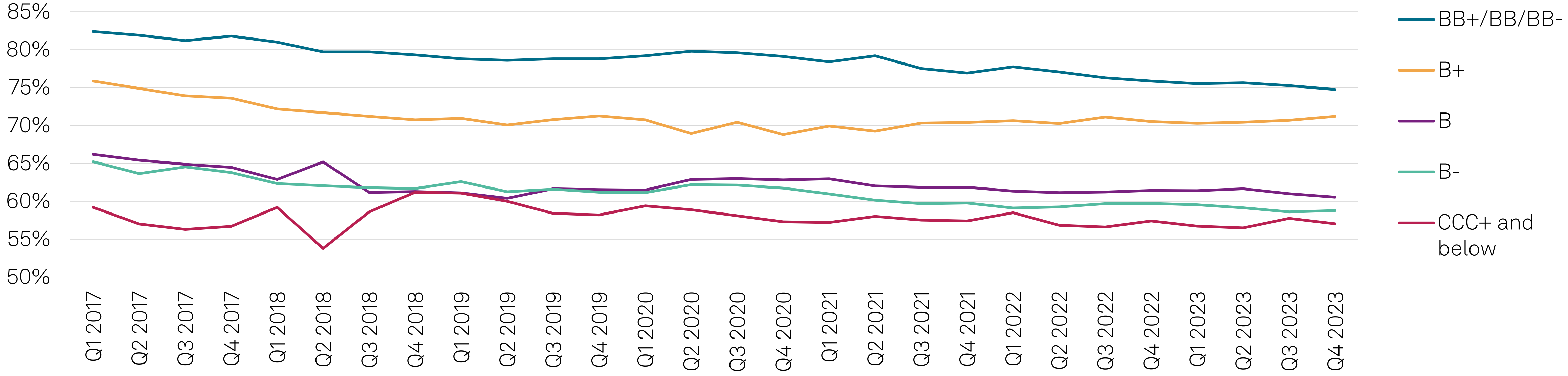
Source: S&P Global Ratings default studies. The actual recovery estimates are on an ultimate basis (at the end of an insolvency period). The S&P data represents estimated recoveries from bankruptcy documents while S&P Global's LossStats database estimates recoveries based on the best available data using one of three calculation approaches (trading prices, settlement prices or liquidity event pricing).

S&P Global
Ratings

Recoveries | First-Lien Recovery Expectations Vary By Rating Level

- Average recovery expectations for first-lien debt are notably lower for companies rated 'B-' and lower.
- Higher-rated issuers, which tend to be less levered and have larger junior debt cushions, tend to have higher recovery expectations.
- Average recovery expectations have generally drifted down since 2017.
- These recovery expectations do not account for 'event risk' related to future aggressive-out-of-court restructurings or liability management transactions.

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



Data through December 31, 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.

Recoveries | Aggressive Loan Restructurings Significantly Impair Recoveries And Don’t Usually Resolve Financial Problems

Comparison of the expected recovery impairment from select loan restructuring

-	Collateral tranfers:	Dates	RR% before	RR% after	Change 1L % par
1	J.Crew *	7/2017	40%	15%	-25%
2	PetSmart	6/2018	60%	45%	-15%
3	Neiman Marcus *	9/2019	55%	55%	0%
4	Cirque du Soleil *	3/2020	75%	75%	0%
5	Revlon *	5/2020	40%	15%	-25%
6	Party City *	7/2020	75%	45%	-30%
7	Travelport (+priming loan) **	9/2020	75%	0%	-75%
8	Envision Healthcare #1 *	4/2022	50%	30%	-20%
9	Shutterfly/Photo Holdings **	6/2023	60%	35%	-25%
10	US Renal Care #1 (transfer) **	6/2023	50%	30%	-20%

-	Priming loan exchanges:	Dates	RR% before	RR% after	Change 1L % par
1	Murray Energy *	6/2018	65%	0%	-65%
2	NPC International Inc. *	2/2020	55%	40%	-15%
3	Serta Simmons *	6/2020	55%	5%	-50%
4	Renfro #1	7/2020	35%	20%	-15%
5	Boardriders	8/2020	55%	5%	-50%
6	TriMark/TMK Hawk #1 **	9/2020	55%	0%	-55%
7	GTT *	12/2020	50%	40%	-10%
8	Renfro #2	2/2021	20%	10%	-10%
9	TriMark/TMK Hawk #2 **	7/2022	60%	30%	-30%
10	Medical Depot **	7/2022	15%	10%	-5%
11	Envision Healthcare #2 *	8/2022	30%	Varied	Up to -30%
12	Mitel Networks International **	11/2022	50%	5%	-45%
13	BW Homecare/Elara Caring **	12/2022	50%	20%	-30%
14	Rodan & Fields **	4/2023	55%	40%	-15%
15	RobertShaw/Range Parent (multiple) **	5/2023	50%	0%	-50%
16	Wheel Pros **	9/2023	50%	30%	-20%
17	API Holdings III Corp. **	11/2023	55%	35%	-20%

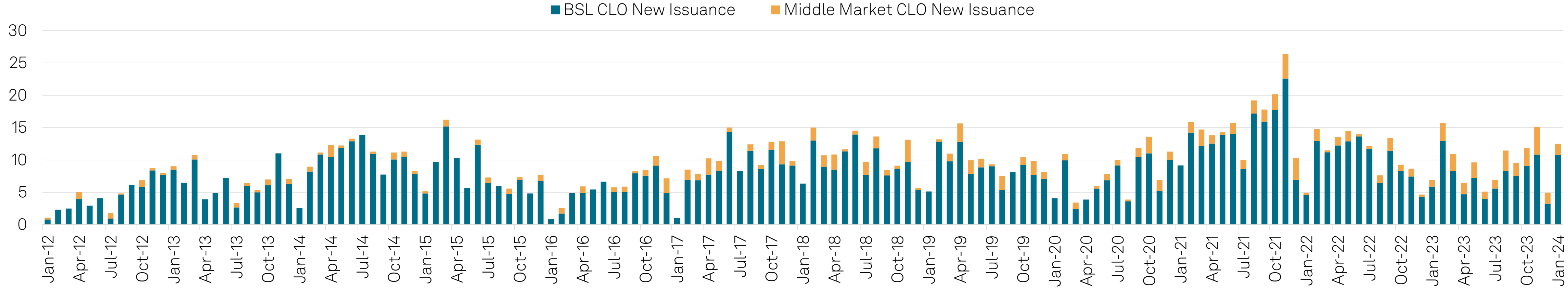
Notes: *Indicates the company subsequently filed for bankruptcy. ** Indicates company either subsequently redefaulted and/or is rated 'CCC+' or lower. Excludes cases where all or essentially all lenders participated in the restructuring and realized the same impact. Source: S&P Global Ratings and company 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 public transactions.

U.S. Leveraged Finance: Further Reading

- PIK Refinancing: A Little Room To Breathe, Or One Step Closer To The Edge?, published Feb. 8, 2024
- U.S. Speculative-Grade Media Outlook 2024: A Mixed Story, published Feb. 2, 2024
- Default, Transition, and Recovery: U.S. Recovery Study: Loan Recoveries Persist Below Their Trend, published Dec. 15, 2023
- North American Debt Recoveries May Trend Down For Longer, published Dec. 11, 2023
- Leveraged Finance: U.S. Leveraged Finance Q3 2023 Update: The Lowdown On High Interest Rates, published Nov. 9, 2023
- Scenario Analysis: Testing Private Debt's Resilience Through The Credit Estimate Lens, published Nov. 2, 2023
- Leveraged Finance: Creative Structuring Helps Trinseo PLC, Comes With Lowered Recovery Prospects And Higher Costs, published Sept. 19, 2023
- 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
- 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

Issuance | 2024 Is Off To A Busy Start

U.S. CLO new issuance by month (U.S. bil. $)



		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Change	2023 Jan.	2024 Jan.
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	$88.71	-24.1%	$5.87	$10.74
	MM CLOs	$4.15	$4.31	$6.32	$5.15	$8.28	$14.49	$15.97	$14.82	$11.33	$22.53	$11.98	$27.10	126.2%	$1.01	$1.79
	Total new issue	**$54.26**	**$82.43**	**$124.10**	**$98.91**	**$72.30**	**$118.07**	**$128.86**	**$118.47**	**$93.54**	**$187.49**	**$128.97**	**$115.81**	**-10.1%**	**$6.87**	**$12.52**
	MM CLO %	7.6%	5.2%	5.1%	5.2%	11.5%	12.3%	12.4%	12.5%	12.1%	12.0%	9.3%	23.4%	+14.1 ppt	14.7%	14.3%
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	$21.55	24.2%	$0.00	$3.56
	MM CLOs	$0.00	$0.00	$0.00	$0.00	$0.00	$5.48	$3.92	$2.46	$1.09	$13.70	$7.42	$3.05	-58.9%	$0.00	$0.970
	Total resets/refis	$0.00	$0.00	$0.00	$0.00	$39.73	$167.01	$155.89	$43.79	$31.48	$251.31	$24.77	$24.60	-0.7%	$0.00	$4.53

Source: S&P Global Ratings, Pitchbook LCD.

CLO Metrics | Corporate Downgrades Grind CLO Metrics Down

- The U.S. CLO Insights Index averages CLO portfolio metrics across a large sample of reinvesting SPGR-rated U.S. broadly syndicated loan (BSL) CLOs and provides a one-year lookback at performance.
- The Index includes CLOs that have been reinvesting for the entirety of the past year and is based on a cohort of transactions with at least 11 months of processed trustee reports. Therefore, numbers from prior months can change as new CLOs are added or removed from the one-year lookback period.

As of date	'B-' (%)	'CCC' category (%)	Below 'CCC-' (%)	SPWARF	WARR (%)	Watch negative (%)	Negative outlook (%)	Weighted avg. price of portfolio ($)	Jr. O/C cushion (%)	% of target par	'B-' on negative outlook (%)
1/31/2023*	30.65	4.83	0.37	2754	60.10	0.16	14.78	94.86	4.99	100.26	3.80
2/28/2023*	30.96	4.56	0.53	2758	59.92	0.21	15.67	94.74	4.93	100.24	4.01
3/31/2023*	31.03	4.79	0.53	2755	59.76	0.32	16.08	94.06	4.85	100.24	4.10
4/30/2023*	31.23	5.22	0.55	2763	59.64	0.33	16.59	94.32	4.79	100.23	5.29
5/31/2023*	30.14	6.13	0.63	2780	59.47	0.51	15.94	93.43	4.66	100.14	4.62
6/30/2023*	29.31	6.68	0.59	2772	59.51	0.46	15.79	94.93	4.52	100.09	4.71
7/31/2023*	28.71	6.49	0.64	2761	59.42	0.32	16.49	95.42	4.43	100.04	5.35
8/31/2023*	28.58	6.90	0.56	2760	59.45	0.33	17.12	95.82	4.38	100.02	5.77
9/30/2023*	28.74	6.97	0.52	2759	59.32	0.62	17.27	95.94	4.38	100.00	6.17
10/13/2023*	27.27	7.81	0.57	2773	59.36	0.94	17.82	95.17	4.33	99.95	5.81
11/30/2023*	26.87	7.48	0.44	2744	59.25	1.01	18.21	95.78	4.23	99.87	5.96
12/31/2023**	26.45	7.43	0.55	2735	59.37	0.94	17.88	96.70	4.20	99.84	5.72
1/22/2024***	26.31	7.47	0.55	2729	59.06	0.81	17.46	96.68	4.18	99.81	5.21

*Index metrics based on end-of-month ratings and pricing data and as of month portfolio data available.
**Index metrics based on Dec. 31, 2023, ratings and pricing data and latest portfolio data available to us.
***Index metrics based on Jan. 22, 2024, ratings and pricing data and latest portfolio data available to us.
BSL--Broadly syndicated loan. O/C--Overcollateralization. SPWARF--S&P Global Ratings' weighted average rating factor. WARR--Weighted averaged recover rate. Source: S&P Global Ratings.

CLO Metrics | Pre-Pandemic CLO Metrics Are Generally Weaker

Pre-Pandemic BSL CLOs (Q1 2020 and earlier)

As of date	'B-' (%)	'CCC' category (%)	Below 'CCC-' (%)	SPWARF	WARR (%)	Jr. O/C cushion (%)	% of target par
1/31/2023*	29.44	5.81	0.54	2777	60.20	4.35	99.96
2/28/2023*	29.80	5.32	0.87	2785	60.00	4.25	99.93
3/31/2023*	29.85	5.43	0.85	2780	59.83	4.08	99.92
4/30/2023*	30.07	5.89	0.87	2788	59.75	3.97	99.88
5/31/2023*	29.03	6.67	0.96	2805	59.60	3.80	99.75
6/30/2023*	28.37	7.08	0.90	2792	59.66	3.63	99.69
7/31/2023*	27.87	6.85	0.93	2780	59.59	3.57	99.62
8/31/2023*	27.82	7.28	0.81	2778	59.62	3.51	99.57
9/30/2023*	27.80	7.36	0.74	2774	59.54	3.54	99.54
10/13/2023*	26.38	8.11	0.76	2784	59.59	3.48	99.50
11/30/2023*	25.94	7.74	0.61	2755	59.52	3.35	99.37
12/31/2023**	25.51	7.72	0.76	2749	59.59	3.31	99.33
1/22/2024***	25.33	7.86	0.71	2742	59.22	3.29	99.31

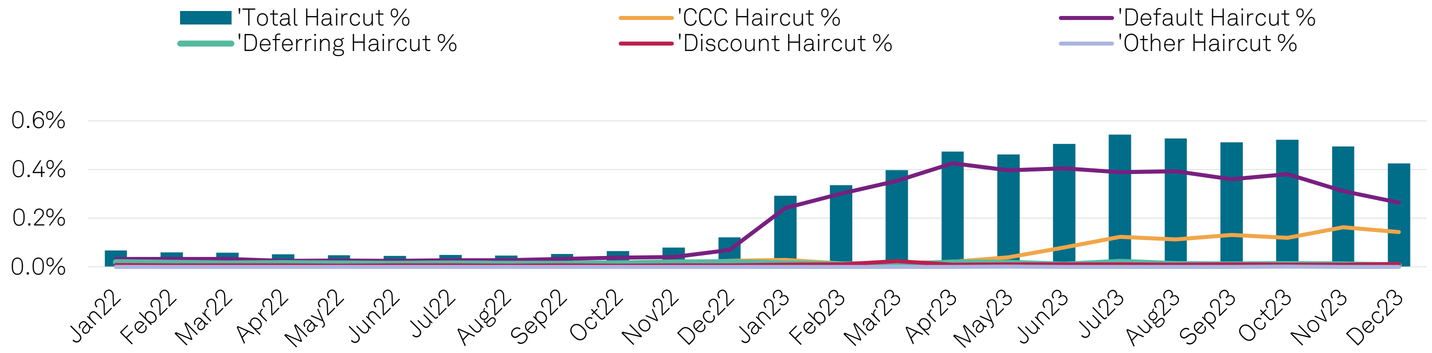
Post-Pandemic BSL CLOs (Q2 2020 and later)

As of date	'B-' (%)	'CCC' category (%)	Below 'CCC-' (%)	SPWARF	WARR (%)	Jr. O/C cushion (%)	% of target par
1/31/2023*	31.21	4.36	0.28	2743	60.05	5.30	100.40
2/28/2023*	31.51	4.21	0.37	2746	59.87	5.25	100.38
3/31/2023*	31.58	4.49	0.37	2743	59.72	5.21	100.40
4/30/2023*	31.77	4.91	0.40	2751	59.59	5.17	100.40
5/31/2023*	30.66	5.87	0.47	2769	59.41	5.06	100.32
6/30/2023*	29.75	6.49	0.45	2762	59.44	4.93	100.28
7/31/2023*	29.11	6.33	0.51	2753	59.34	4.83	100.24
8/31/2023*	28.94	6.72	0.45	2752	59.37	4.78	100.23
9/30/2023*	29.18	6.79	0.42	2751	59.21	4.77	100.21
10/13/2023*	27.69	7.67	0.48	2767	59.25	4.73	100.17
11/30/2023*	27.31	7.36	0.36	2739	59.13	4.64	100.11
12/31/2023**	26.89	7.30	0.45	2728	59.27	4.62	100.08
1/22/2024***	26.77	7.29	0.48	2722	58.99	4.60	100.05

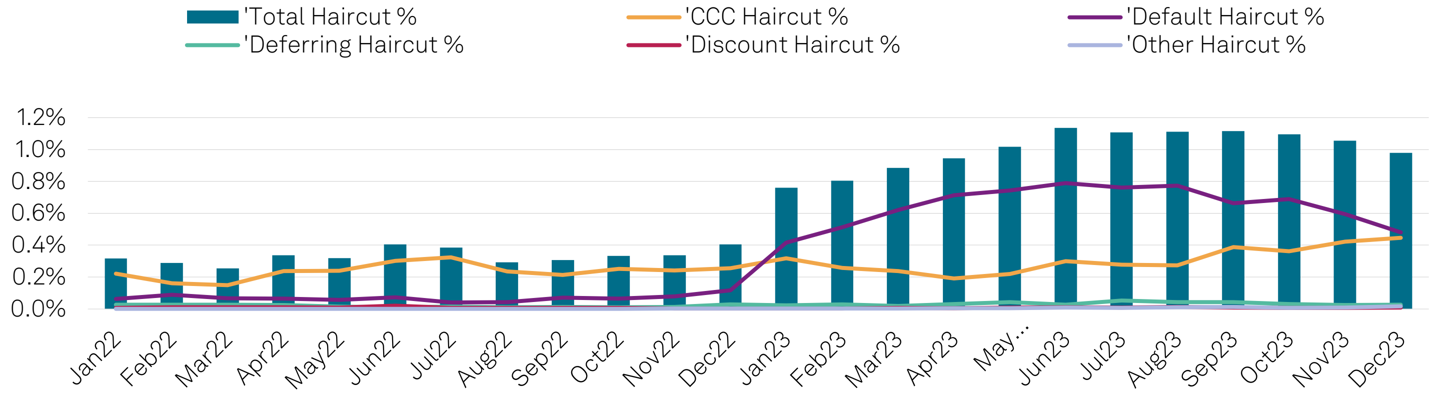
*Index metrics based on end-of-month ratings and pricing data and as of month portfolio data available.
**Index metrics based on Dec. 31, 2023, ratings and pricing data and latest portfolio data available to us.
***Index metrics based on Jan. 22, 2024, ratings and pricing data and latest portfolio data available to us.
BSL--Broadly syndicated loan. O/C--Overcollateralization. SPWARF--S&P Global Ratings' weighted average rating factor. WARR--Weighted averaged recover rate. Source: S&P Global Ratings.

CLO Metrics | O/C Haircuts Have Started To Decline Because Of Reduction In Haircuts Due To Defaults

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



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

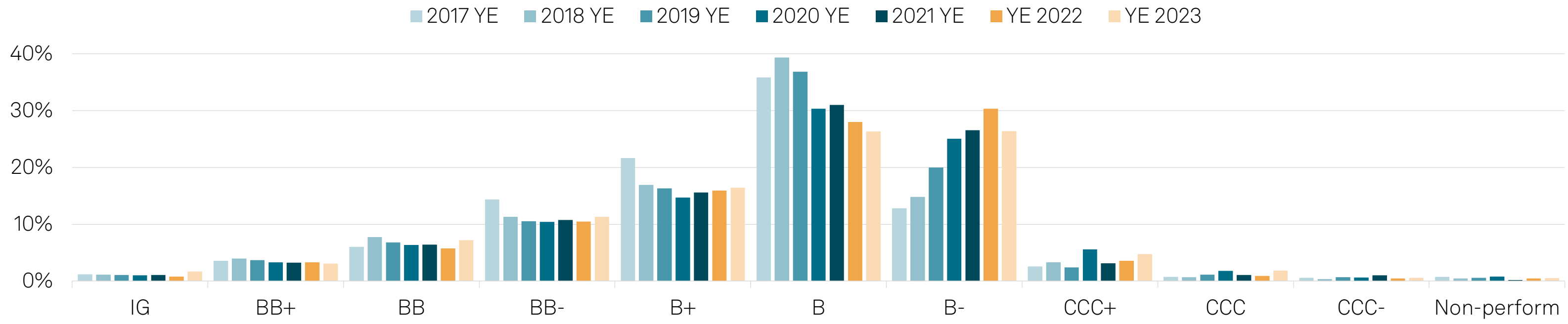


O/C--Overcollateralization. Source: S&P Global Ratings.

- There was a notable decline in the O/C haircuts in fourth-quarter 2023 trustee reports, as haircuts from default exposures have declined.
- O/C cushions have declined since the start of the year; though on average, they still remain positive at over 4% as of the end of fourth-quarter 2023 across reinvesting transactions.
- Haircuts from excess 'CCC' exposures for reinvesting transactions were minimal in early 2022, but have increased slightly in 2023. Excess 'CCC' haircuts remained fairly steady across amortizing CLOs since 2022, though there has been a slight pickup in second half of 2023.
- 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. Several reinvesting and amortizing deals are now breaching or close to breaching their 7.5% threshold.
- Some amortizing and a handful of reinvesting transactions are currently failing their junior O/C tests.

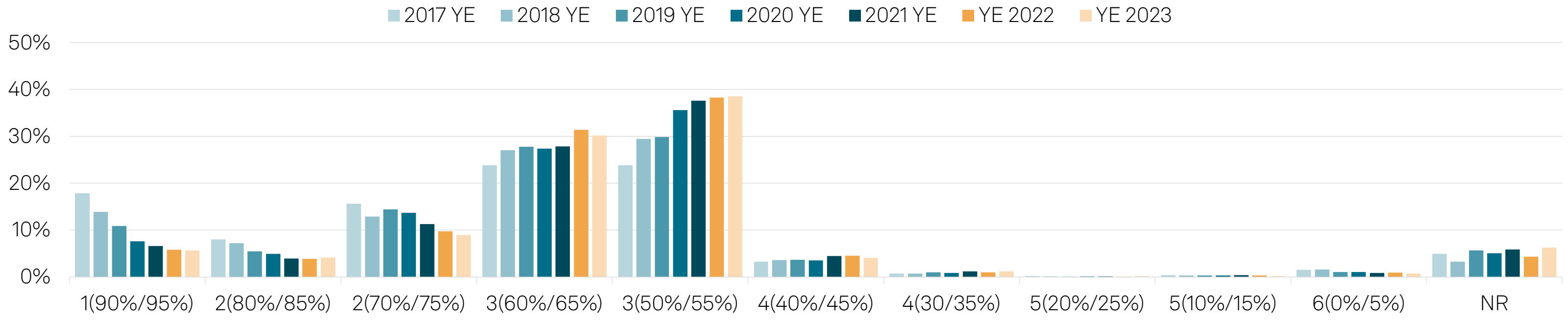
‘B-’ Assets | After Six Years Of Increases, ‘B-’ Assets Edge Downward

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)

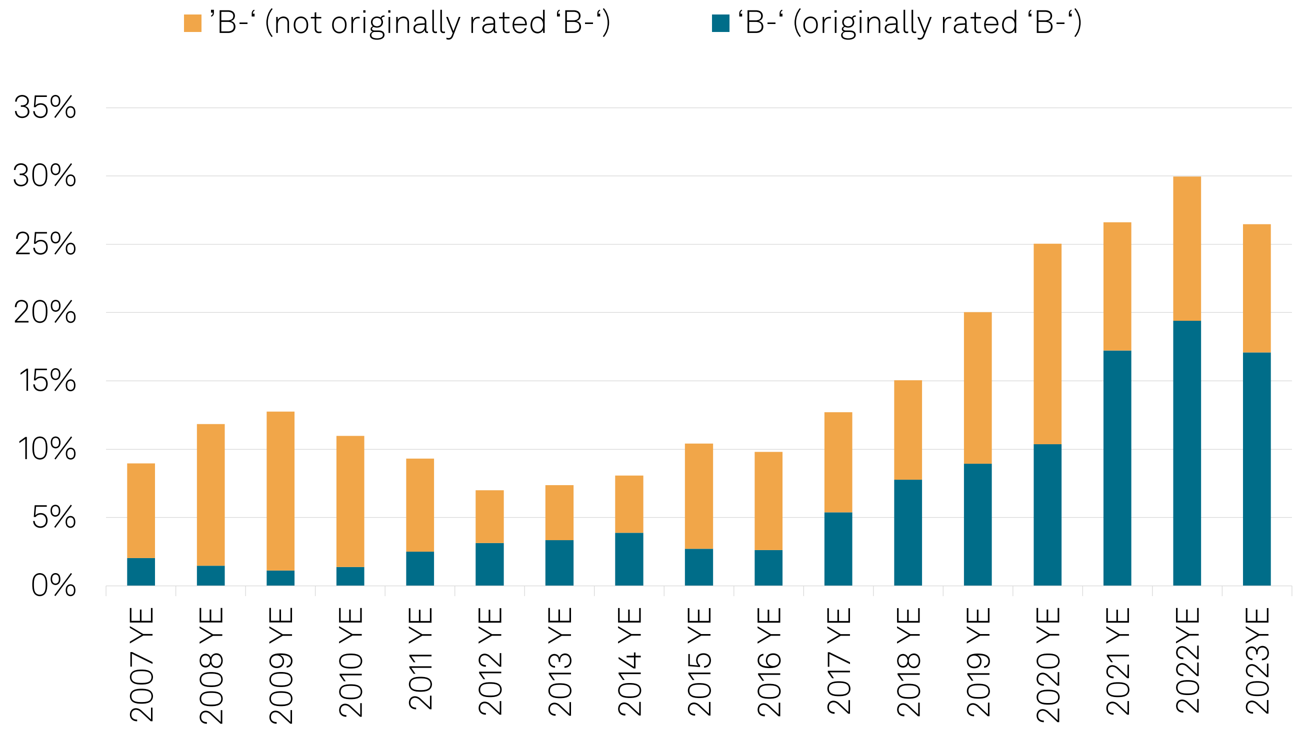


Latest data as of Aug. 1, 2023. NR--Not rated. YE--Year end. Source: S&P Global Ratings.

- Exposure to ‘B-’ rated issuers has declined to 26.4%, a level not seen since end of 2021. 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.

‘B-’ Assets | Majority Of Current ‘B-’ Assets Were Born That Way

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

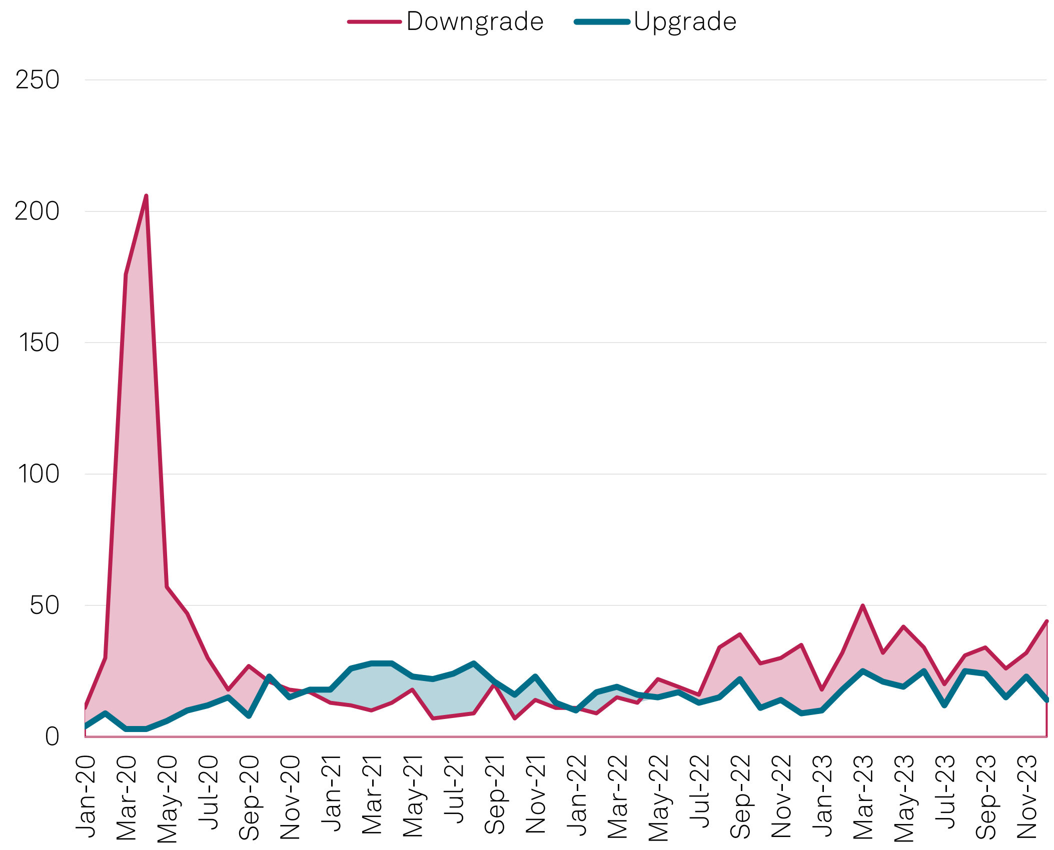


CLO--Collateralized loan obligation. AUM--Assets under management. YE--Year end. Source: S&P Global Ratings.

Outcomes for 'B-’ assets in BSL CLOs during 2023

(% Of CLO assets)	% AUM at start of 2023 (a)	Downgraded in 2023 (% of AUM at start of 2023) (b)	Proportion downgraded in 2023 (b/a)
'B-' original rating at start of 2023	19.41	2.34	12.03
Not original 'B-' rating at start of 2023	10.55	2.39	22.66
Total 'B-' at start of 2023	29.96	4.73	15.78

Asset Rating Actions | U.S. CLO Obligor Downgrades (2020-2023)



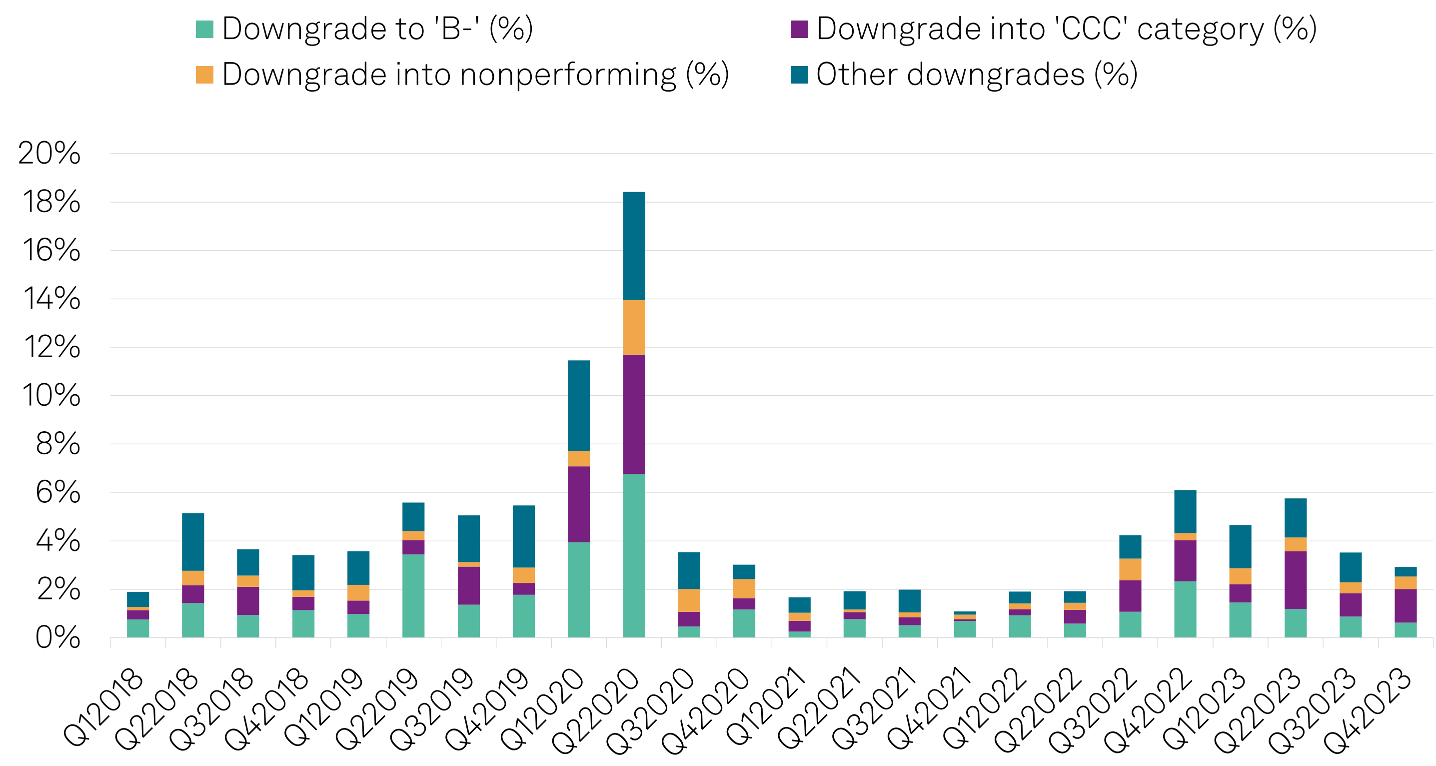
BSL--Broadly syndicated loan. DG--Downgrade .Source: S&P Global Ratings.

Downgrades On U.S. BSL CLO Obligor Ratings (2022–2023)

	Downgrades					Upgrades			
Month	**Total DG**	**DG to 'CCC-' and above**	**DG to CC**	**DG to SD**	**DG to D**	**Total UG**	**UG to B or above**	**UG to B-**	**UG to CCC level (from non-performing)**
Jan-22	11	9	1	1	0	10	3	3	0
Feb-22	9	8	0	1	0	17	3	3	0
Mar-22	15	14	0	1	0	19	6	0	2
Apr-22	13	10	0	1	2	16	1	5	1
May-22	22	19	1	1	1	15	3	3	1
Jun-22	19	15	3	0	1	17	3	5	0
Jul-22	16	14	1	1	0	13	3	3	0
Aug-22	34	27	1	3	3	15	4	3	1
Sep-22	39	34	0	1	4	22	8	3	2
Oct-22	28	24	2	1	1	11	0	1	3
Nov-22	30	26	1	3	0	14	1	1	2
Dec-22	35	31	2	2	0	9	4	2	0
Jan-23	18	17	0	0	1	10	3	1	3
Feb-23	32	22	2	4	4	18	3	1	4
Mar-23	50	35	1	6	8	25	7	0	8
Apr-23	32	25	1	3	3	21	3	2	2
May-23	42	30	1	6	5	19	6	0	4
Jun-23	34	22	3	3	6	25	6	1	8
Jul-23	20	13	2	4	1	15	5	2	0
Aug-23	31	24	0	5	2	25	1	3	7
Sep-23	34	30	0	4	0	24	3	4	4
Oct-23	26	23	1	1	1	15	2	0	2
Nov-23	32	24	0	7	1	23	5	1	4
Dec-23	44	31	4	7	2	14	3	1	6
Total	**665**	**527**	**27**	**66**	**46**	**412**	**76**	**46**	**52**

Asset Rating Actions | CLO Exposure To Downgrades Drops In Q3 And Q4 2023

Average CLO assets downgraded (% total par) by quarter



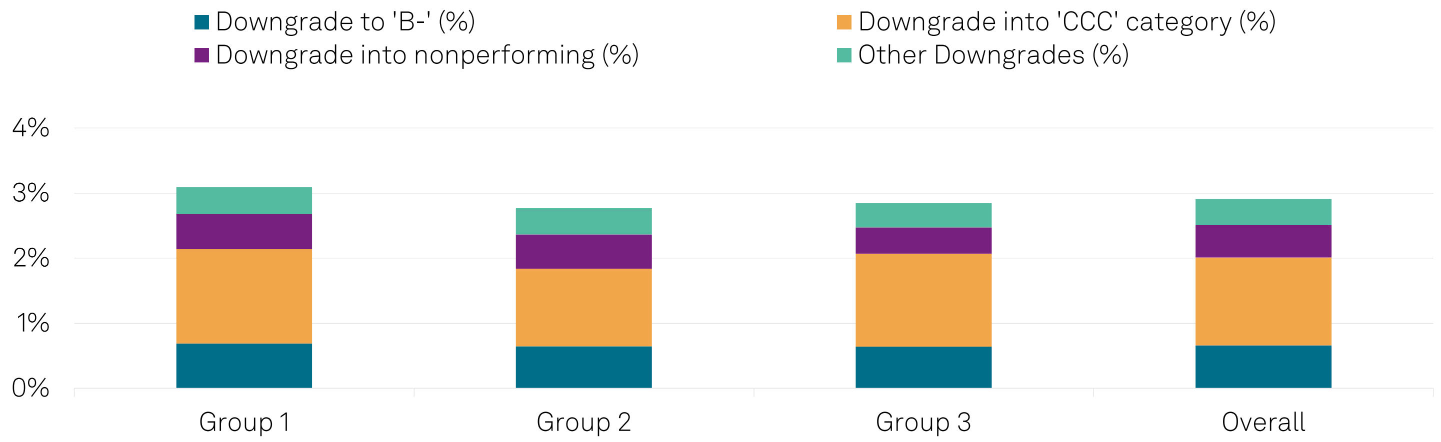
Source: S&P Global Ratings.

- 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.
- Exposures to downgrades declined slightly in the second half of 2023

Asset Rating Actions | Exposure To Fourth-Quarter Rating Actions By Manager Cohort (By Post-Pandemic Issuance Count)

Average CLO assets downgraded

(% total par, by CLO manager group for fourth-quarter 2023)



Manager at close of deal	Upgrades (%)	Downgrades (%)	Downgrade to 'B-' (%)	Downgrade into 'CCC' category (%)	Downgrade into nonperforming (%)	Other Downgrades (%)	Top 250
Group 1	1.92	3.09	0.69	1.45	0.54	0.41	52.40
Group 2	1.71	2.77	0.64	1.20	0.53	0.40	51.69
Group 3	1.57	2.85	0.64	1.43	0.40	0.38	49.20
Average Total	1.75	2.91	0.66	1.35	0.50	0.40	51.30

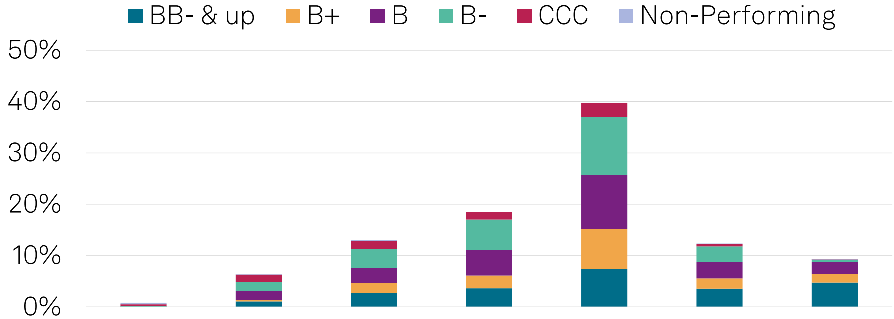
Source: S&P Global Ratings.

- U.S. BSL CLO exposures to fourth-quarter 2023 downgrades declined to 2.92% from 3.52% the quarter prior.
- We bucketed our rated U.S. BSL CLO transaction data into three cohorts based on the dollar amount of U.S. BSL CLOs the manager has closed since the start of the pandemic, as detailed in the fourth-quarter 2023 CLO Global Databank maintained by Pitchbook:
  - Group 1: more than $2.9 billion;
  - Group 2: between $1.2 billion and $2.3 billion; and
  - Group 3: less than $1.2 billion.
- Relative to groups 2 and 3, CLOs issued by group 1 managers had more exposure to corporate ratings that experienced a downgrade in fourth-quarter 2023.
- Group 1 CLO managers tend to have higher exposure to the widely held names (top 250). These larger issuers tend to have more rating stability during periods of stress.

Maturity Wall | Loan Maturity Wall Within CLO Collateral Pools

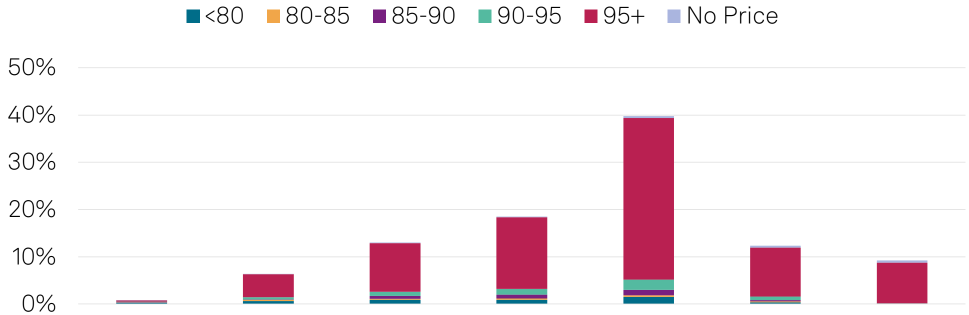
- With limited refinancing activity in the corporate loan market, maturity walls have become an increasing topic of discussion.
- Some loan issuers have done amend-to-extends, and others have refinanced into the high-yield bond and private credit markets.
- Near-term maturities within CLO collateral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

Maturity wall by obligor rating (first-quarter 2024)



	2024	2025	2026	2027	2028	2029	2030+
BB- & up	1.2	16.6	20.8	19.7	18.7	28.9	51.4
B+	0.1	5.6	14.8	13.2	19.5	16.0	18.3
B	4.7	26.7	22.8	26.9	26.4	26.7	24.6
B-	20.4	28.0	28.5	32.2	28.6	24.3	5.5
CCC	39.4	22.7	11.7	7.7	6.6	3.7	0.2
Non-performing	34.3	0.4	1.5	0.2	0.2	0.5	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Maturity wall by loan price (first-quarter 2024)



	2024	2025	2026	2027	2028	2029	2030+
95+	36.7	76.7	78.8	82.0	86.2	83.8	92.8
90-95	9.7	7.9	6.9	6.7	5.3	6.0	1.6
85-90	6.8	0.4	4.9	4.5	3.0	2.1	0.0
80-85	5.5	4.2	1.2	1.2	0.8	1.9	0.1
<80	39.3	10.4	7.1	5.0	3.8	2.8	0.1
No price	1.9	0.4	1.1	0.6	0.9	3.4	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: S&P Global Ratings, LoanX.

Purchases & Sales | Managers Continue To 'De-Risk' CLO Portfolios

Quarter	Purchases WARF	Purchases Avg. price	Purchases Avg. target par %	Sales WARF	Sales Avg. price	Sales 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
Q3 2023	2459	97.52	7.09	3000	95.08	4.44
Q4 2023	2311	98.11	8.79	2989	95.01	4.71

BSL CLO asset trades by company rating (fourth-quarter 2023)

Rating category	Purchase (% of trades)	Avg purchase price	Sales (% of trades)	Avg sale price
Investment grade	1.24	95.37	1.35	97.66
'BB' category	36.28	98.91	19.90	98.98
'B+'	13.87	98.23	15.90	98.41
'B'	28.78	98.08	23.40	98.21
'B-'	17.56	97.44	23.87	97.29
'CCC' category	2.19	91.78	13.83	82.34
Nonperforming	0.08	85.15	1.74	43.20

WARF--Weighted average rating factor. Source: S&P Global Ratings.

- Since the start of 2023, the credit quality of the assets purchased tend to be notably higher (lower S&P Global Ratings' weighted average rating factor [SPWARF]) than the credit quality of the assets sold, evidence of CLO manager efforts at de-risking.
- This comes at a modest cost, though: on average, each sale incurs a modest par loss.
- During the second half of 2023, average prices of both purchase and sales have increased slightly.
- The average prices of the purchases in 2023 are higher than the prices of the sales, resulting in slight par loss across several transactions.
- The proportion of sales of 'B-', 'CCC' category, and nonperforming assets are greater than the proportion of purchases from these rating categories, further evidence of managers' attempts at de-risking.

Purchases And Sales | Most Popular Trades By Pricing Cohort

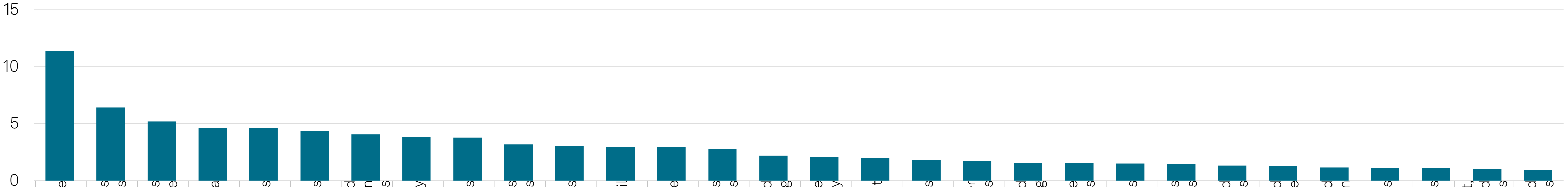
Top 10 Purchases Below 80	Top 10 Purchases Between 80 And 90	Top 10 Purchases 90+
Air Methods Corporation	Tenneco Inc.	Flutter Financing B.V.
Goto Group, Inc.	Ivanti Software, Inc.	1011778 B.C. Unlimited Liability Company
Radiology Partners Inc.	Sabre Glbl Inc.	Star Parent Inc.
Goldman Sachs Group Inc.	Zayo Group Holdings, Inc.	Transdigm Inc.
Bank Of America Corp	Neptune Bidco Us Inc.	Boost Newco Borrower, LLC
Standard Industries Inc	Mozart Debt Merger Sub Inc.	Gtcr W Merger Sub LLC
City Brewing Company, LLC	Napa Management Services Corporation	Summit Materials, LLC
Ww International, Inc.	Univision Communications Inc.	Gip Pilot Acquisition Partners, L.P.
Sk Neptune Husky Finance S.A R.L.	Iheartcommunications Inc.	Prime Security Services Borrower, LLC
Telesat Canada	Signal Parent, Inc.	Homeserve USA Holding Corp.

Top 10 Sales Below 80	Top 10 Sales Between 80 And 90	Top 10 Sales 90+
Lumen Technologies, Inc.	Commscope Inc.	Ukg Inc.
New Trojan Parent, Inc.	Zayo Group Holdings, Inc.	Medline Borrower L.P.
Hornblower Sub, LLC	H-food Holdings LLC	Cdk Global Ii LLC
Pecf Uss Intermediate Holding Iii Corporation	Radiate Holdco, LLC	1011778 B.C. Unlimited Liability Company
Air Methods Corporation	Iris Holding, Inc.	Hub International Ltd.
Envision Healthcare Corp.	Michaels Companies, Inc. (The)	American Airlines Inc.
Pretium Pkg Holdings, Inc.	Sinclair Television Group Inc.	Boxer Parent Company Inc.
Eyecare Partners, LLC	Curia Global Inc.	Proampac Pg Borrower Llc
Radiology Partners Inc.	Ot Merger Corporation	Realpage, Inc.
Schenectady International Group, Inc.	Quest Software Us Holdings Inc.	Amwins Group Inc.

Source: S&P Global Ratings.

- Top 10 issuers by number of managers purchased and sold in fourth-quarter 2023.
- Some deals that have been purchased below 80 are not considered a discount obligation (for purposes of O/C haircuts)
- Some of the purchase and sales below 80 are part of assets swaps (distressed for distressed).
- Volume of trades below 80 are notably lower relative to the other price cohorts, particularly for purchases below 80.

Industry Categories | Credit Metrics Across Top 30 GIC Industry Exposures

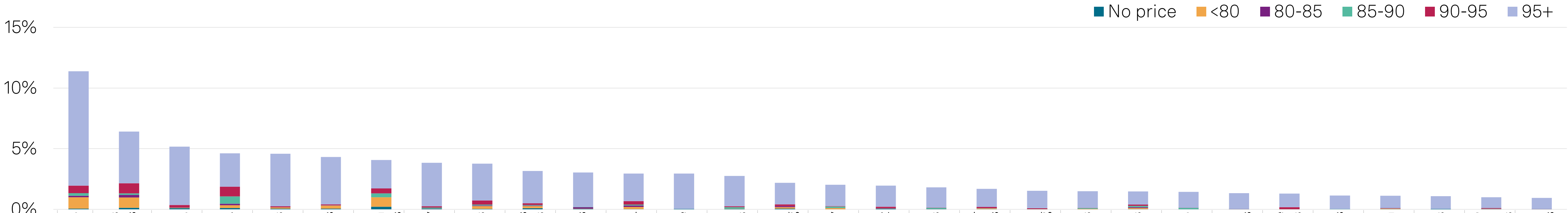


	Software	Healthcare Providers and Services	Hotels, Restaurants and Leisure	Media	Capital Markets	IT Services	Diversified Telecommunication Services	Machinery	Chemicals	Commercial Services and Supplies	Professional Services	Specialty Retail	Insurance	Trading Companies and Distributors	Containers and Packaging	Health Care Technology	Entertainment	Building Products	Diversified Consumer Services	Construction and Engineering	Automobile Components	Food Products	Life Sciences Tools and Services	Oil, Gas and Consumable Fuels	Aerospace and Defense	Ground Transportation	Pharmaceuticals	Passenger Airlines	Electronic Equipment, Instruments and Components	Interactive Media and Services
Assets (%)	11.4	6.4	5.2	4.6	4.6	4.3	4.1	3.8	3.8	3.2	3.0	3.0	3.0	2.8	2.2	2.0	2.0	1.8	1.7	1.5	1.5	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0	0.9
SPWARF(i)	3,231	3,279	2,115	2,860	2,333	2,687	3,056	2,810	2,971	2,767	2,643	2,455	2,700	2,780	2,991	3,570	2,279	2,667	2,824	2,858	2,720	2,914	2,791	1,914	2,837	1,882	2,418	1,948	2,936	2,498
WAP(i)	96.3	92.1	99.4	92.3	98.5	96.0	91.8	99.2	95.9	96.9	98.4	95.2	100.0	98.8	97.3	97.5	99.0	98.7	97.7	99.2	98.2	95.9	98.6	100.0	98.8	99.3	96.9	100.4	97.5	99.1
WARR (%)(i)	58.0	54.5	68.0	72.0	51.2	58.5	63.6	55.9	62.0	64.7	60.4	58.0	52.9	55.0	58.1	65.4	65.0	56.9	55.6	55.5	58.4	58.7	54.4	66.3	54.9	65.2	58.6	75.9	58.0	61.9
WAS (%)(i)	3.7	4.0	3.2	3.7	3.5	3.7	3.1	3.7	3.9	3.8	3.7	3.6	3.5	3.4	3.7	4.0	3.3	3.6	3.9	4.0	4.2	3.6	3.4	3.6	3.8	3.1	3.5	3.6	3.9	3.6
Neg. Outlook (%)	16.9	24.1	10.8	26.6	19.5	16.3	24.3	16.7	32.7	16.3	26.1	40.9	0.0	7.0	13.8	31.0	2.4	4.1	2.1	8.8	12.3	21.1	10.9	22.7	23.8	34.2	7.9	0.0	20.0	2.1
Credit Watch neg. (%)	1.1	2.5	1.4	0.0	1.0	0.0	10.9	0.0	1.1	0.0	0.0	0.0	0.0	1.5	0.0	0.0	4.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: "U.S. BSL CLO Top Obligors And Industries Report: Fourth-Quarter 2023," published Jan. 9, 2024

S&P Global Ratings

Industry Categories | Loan Price Distribution Across Top 30 GIC Industry Exposures



	Software	Healthcare Providers and Services	Hotels, Restaurants and Leisure	Media	Capital Markets	IT Services	Diversified Telecommunication Services	Machinery	Chemicals	Commercial Services and Supplies	Professional Services	Specialty Retail	Insurance	Trading Companies and Distributors	Containers and Packaging
Assets (%)	11.4	6.4	5.2	4.6	4.6	4.3	4.1	3.8	3.8	3.2	3.0	3.0	3.0	2.8	2.2
<80	8.3	13.2	0.7	5.1	2.1	5.9	19.1	0.4	6.2	5.7	0.7	5.8	0	0.8	5.5
80-85	1.1	3.4	0	2.5	0	0	0	0	1.2	1.3	4.2	4.2	0	0	4.5
85-90	2	2	0.4	13.3	0	0.6	8.1	2.7	1.9	1.5	0.3	2.5	0	4.4	0
90-95	5.4	12.8	4.1	16.9	1.9	1.8	9.9	2.4	9.2	4.9	0.3	9.5	0	2.4	6.8
95+	82.9	66.6	93.1	59.8	94.7	90.6	57.5	93.7	80.6	84.1	93.4	77.2	98.9	91.1	80.9
No price	0.4	2	1.6	2.3	1.3	1.1	5.5	0.8	0.9	2.6	1.1	0.9	1.1	1.4	2.3
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	Health Care Technology	Entertainment	Building Products	Diversified Consumer Services	Construction and Engineering	Food Products	Automobile Components	Aerospace and Defense	Life Sciences Tools and Services	Oil, Gas and Consumable Fuels	Pharmaceuticals	Ground Transportation	Passenger Airlines	Electronic Equipment, Instruments and Components	Interactive Media and Services
Assets (%)	2.0	2.0	1.8	1.7	1.5	1.5	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0	0.9
<80	5.5	0.6	0	3.9	0.3	1.7	6.9	0	0	0.7	0	4.5	0	1.4	0
80-85	0.1	1.4	0.1	0	0	0.2	4.7	0	0	0.2	0	3.2	0	0.9	0
85-90	5.5	0	5.8	1	0.5	4.7	7.2	7.3	0	0	1.7	0	0	2.8	0
90-95	1.9	5.9	1	6.1	4.9	1.5	6.6	0	0.1	11.9	0	0	0	4	0.2
95+	86.8	89.2	92	88.1	93.8	91.7	73.8	91.9	98.4	86.6	97.7	90.4	96.9	90.1	97.2
No price	0.1	2.9	1	0.9	0.4	0.2	0.8	0.8	1.5	0.4	0.6	1.9	3.1	0.8	2.7
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Loan prices as of Jan. 1, 2024. Source: S&P Global Ratings, LoanX.

CLO Research | Wide Range Of Corporate Metrics Across U.S. BSL CLOs

- Wide range in leverage, interest coverage and company sizes across the U.S. BSL CLO portfolios, representing the different areas of focus across the CLO managers.
- The average median revenue of the larger CLO managers (group 1) are slightly smaller, though, the average weighted average revenue of the group 1 managers are higher, indicating these larger managers also have notable exposure to very large companies (top 250).

Average of portfolio

	Exposure matched to corporate metrics	Median debt to EBITDA	Median EBITDA interest coverage	Median revenues (mil. $)	Weighted average revenues (mil. $)	Median EBITDA (mil. $)	Weighted average EBITDA (mil. $)
Group 1	79.40%	5.98	2.51	2,009	4,660	368.81	781.68
Group 2	80.19%	5.86	2.59	2,167	4,418	406.59	750.81
Group 3	79.38%	5.91	2.57	2,187	4,616	399.49	803.36
Grand total	79.56%	5.95	2.53	2,061	4,604	380.00	777.27

Median and weighted average corporate metrics based off latest CLO portfolios available to us as of Jan. 1, 2024 which are matched to latest corporate financial data available to us; 80% match across the CLO portfolios. Source: S&P Global Ratings.

	Proportion of manager exposures matched to corporate metrics	Median debt to EBITDA	Median EBITDA interest coverage	Median revenues (mil. $)	Weighted average revenues (mil. $)	Median EBITDA (mil. $)	Weighted average EBITDA (mil. $)
Blackstone	80.13%	6.06	2.38	2,253	5,571	370.62	1,106
Credit Suisse	78.22%	5.97	2.66	1,632	3,568	263.60	648
Ares	80.52%	6.03	2.53	2,073	5,090	340.53	1,050
Carlyle	74.69%	5.73	2.61	2,210	5,210	364.78	987
Neuberger Berman	75.49%	5.77	2.75	2,364	5,231	370.62	969
Octagon	79.67%	5.74	2.53	2,413	5,487	362.96	1,163
PGIM	80.16%	5.08	2.91	2,432	5,873	389.30	1,111
Oak Hill	84.83%	5.66	2.85	1,694	3,256	285.90	742
Sound Point	80.19%	5.91	2.59	2,201	4,667	328.16	934
CIFC	77.21%	6.11	2.42	2,179	4,594	324.78	939
Voya	78.62%	5.74	2.74	2,144	4,682	340.53	923
Benefit Street	74.77%	5.66	2.67	2,256	5,049	354.19	1,020
Onex	81.36%	5.85	2.60	2,301	4,572	366.19	920
Elmwood	81.80%	5.17	2.87	2,030	3,774	292.42	757
Bain	80.08%	5.83	2.62	1,661	3,463	274.16	736
LCM	84.11%	5.96	2.48	1,920	4,688	281.99	924
CVC	77.56%	5.62	2.81	2,525	5,090	412.21	998
HPS	74.98%	6.10	2.34	2,226	5,119	342.86	957
BlackRock	84.88%	5.74	2.77	2,370	4,944	412.97	928
Crescent	77.56%	6.22	2.42	2,782	4,959	422.30	1,036
GoldenTree	78.92%	5.40	2.83	2,591	5,005	435.41	1,019
Oaktree	75.58%	5.47	2.80	2,481	5,395	397.45	953
Aegon	84.26%	5.78	2.75	2,740	4,567	474.00	947
Fortress	72.01%	6.40	2.22	1,214	3,818	144.06	541
Barings	81.28%	5.60	2.77	2,421	4,822	351.00	1,001
KKR	86.70%	5.90	2.41	2,028	4,475	274.16	833
Marathon	77.23%	5.56	2.65	2,107	3,778	287.42	755
Palmer Square	72.71%	5.60	2.79	2,066	4,249	363.44	858
Symphony	81.13%	6.09	2.61	2,417	4,752	373.03	916

CLO Research | The Value Of Active Management (2022 Through Q3 2023)

- Turnover of assets in BSL CLO collateral pools in 2022 was just under 50% during the seven quarters between first-quarter 2022 and third-quarter 2023, meaning almost half of the loans that had been in CLO collateral pools at the start of 2022 were no longer in the collateral pools by the end of third-quarter 2023.
- To examine the impact that portfolio turnover had on CLO credit metrics, we looked at the actual change in BSL CLO credit metrics seven quarters after the start of 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 (**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), and the junior O/C test cushion was greater.

Table 1 - Actual BSL CLO Performance (Q1 2022-Q3 2023)

Metric	1/1/22	9/30/23	Change
Portfolio turnover (%)	N/A	48.13	48.13
Exposure to 'B-' assets (%)	26.58	28.44	1.86
Exposure to 'CCC' assets (%)	4.50	7.32	2.82
Exposure to defaulted assets (%)	0.13	0.60	0.47
SPWARF	2692	2769	76
Portfolio % of target par (%)	99.91	99.82	-0.09
Junior O/C test cushion (%)	4.72	3.93	-0.80

Table 2 - Hypothetical Static Pool BSL CLO Performance (Q1 2022-Q3 2023)

Metric	1/1/22	9/30/23	Change
Portfolio turnover (%)	N/A	0.00	0.00
Exposure to 'B-' assets (%)	26.58	27.26	0.68
Exposure to 'CCC' assets (%)	4.50	10.05	5.56
Exposure to defaulted assets (%)	0.13	1.28	1.15
SPWARF	2692	2888	195
Portfolio % of target par	99.91	99.91	0.00
Junior O/C test cushion (%)	4.72	3.02	-1.70

Table 3 - Manager Impact On CLO Metrics

Metric	Year-end results: managed vs. hypothetical
Portfolio turnover	48.13% higher
Exposure to 'B-' assets	1.18% higher
Exposure to 'CCC' assets	2.74% lower
Exposure to defaulted assets	0.67% lower
SPWARF	119 lower
Portfolio % of target par	0.09% lower
Junior O/C test cushion	0.90% higher

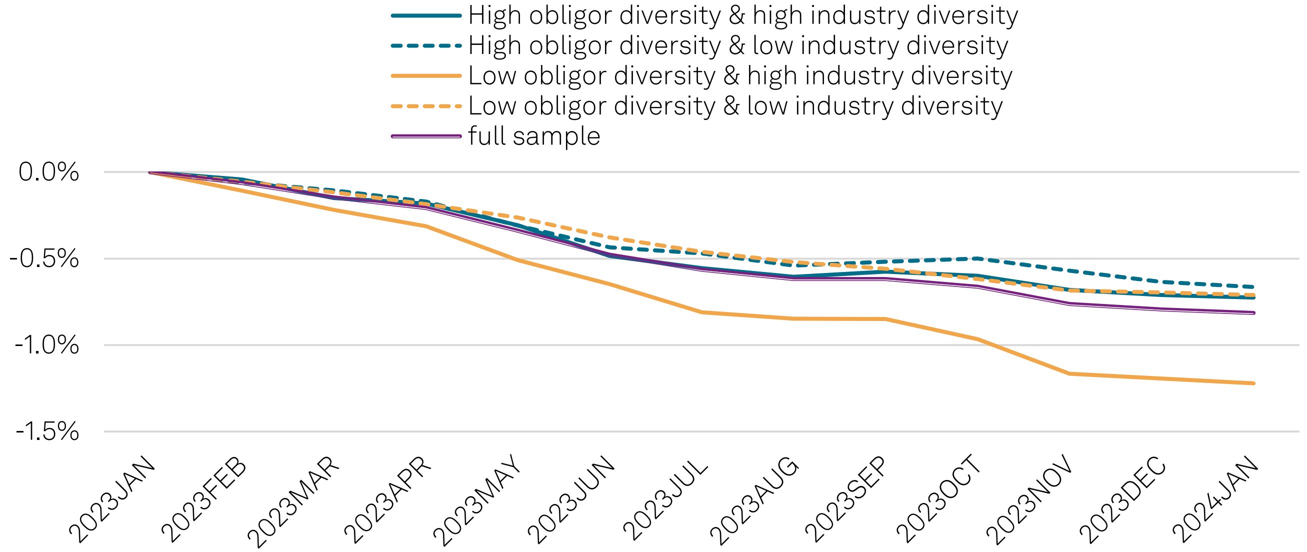
N/A--Not applicable. O/C--Overcollateralization. SPWARF-S&P Global Ratings' weighted average rating factor.-Source: S&P Global Ratings.

CLO Research | Assessing The Impact Of CLO Diversity

We broke our index of 492 reinvesting U.S. BSL CLOs into four cohorts:

- High obligor diversity and high industry diversity (141 transactions): solid yellow
- High obligor diversity and low industry diversity (105 transactions): dotted yellow
- Low obligor diversity and high industry diversity (105 transactions): solid blue
- Low obligor diversity and low industry diversity (141 transactions): dotted blue

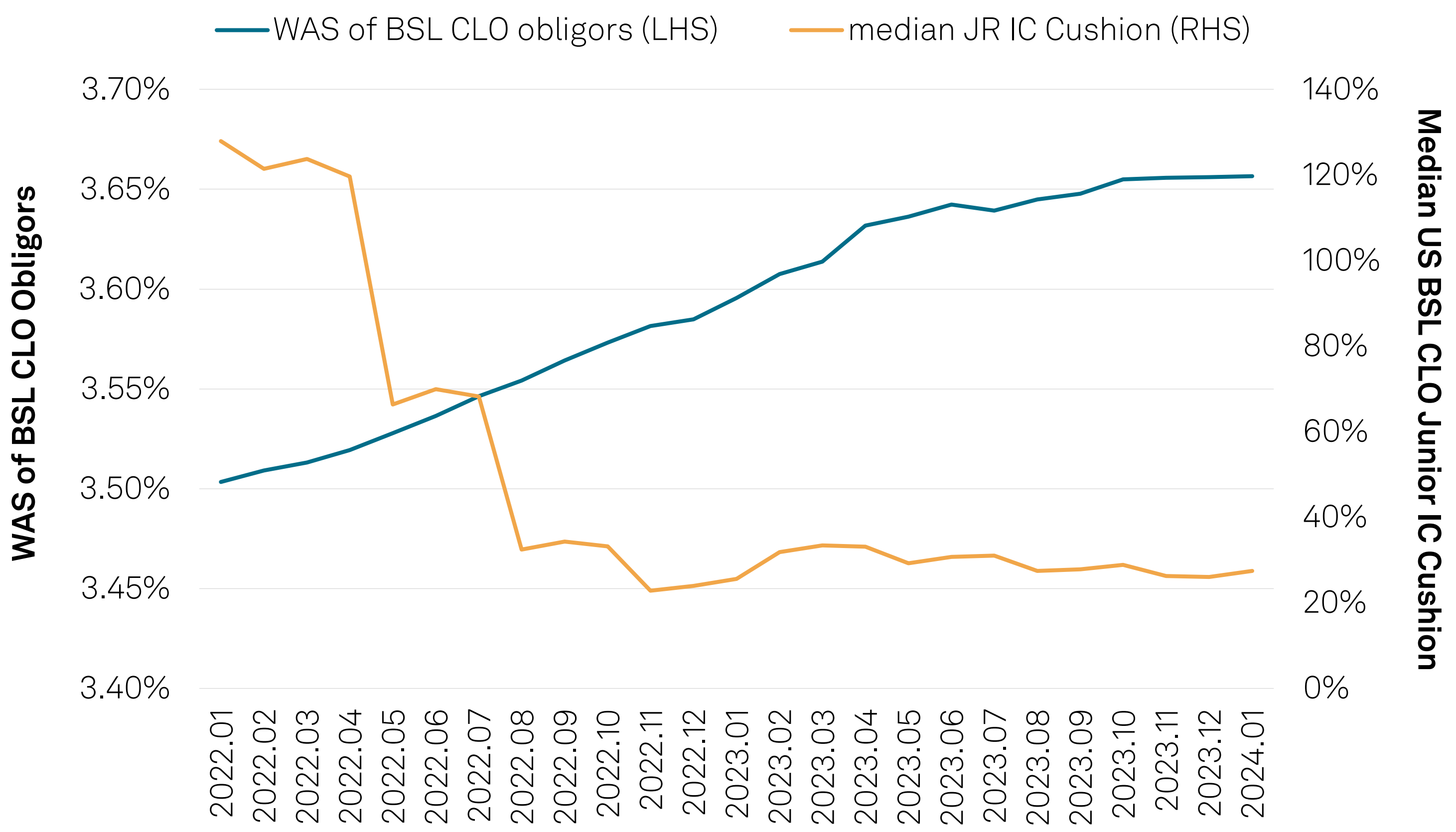
Change in junior OC cushion



S&P Global Ratings.

- In our prior study on CLO portfolio diversity (see "Can Too Much Diversity Have Negative Effects On CLO Portfolios?" published April 23, 2018), we found that CLO portfolios with low obligor diversity and high industry diversity experienced a higher level of credit deterioration during the GFC as well as the energy slowdown in 2016.
- We found that transactions with low obligor diversity and high industry diversity were more likely to have material exposure to the next industry that would experience stress (for example, energy and retail during the 2016 slowdown).
- We see pressure across several industries (e.g., healthcare, consumer-related, telecom, chemicals, etc.), likely resulting in an outsized negative impact to some CLO portfolios last year.
- In 2023, we find deals with low obligor diversity and high industry diversity experienced notably larger average declines in junior O/C cushions:
  - This cohort of transactions experienced above average levels of par loss and default exposure in 2023.

CLO Research | Spreads Within CLO Portfolios Have Peaked



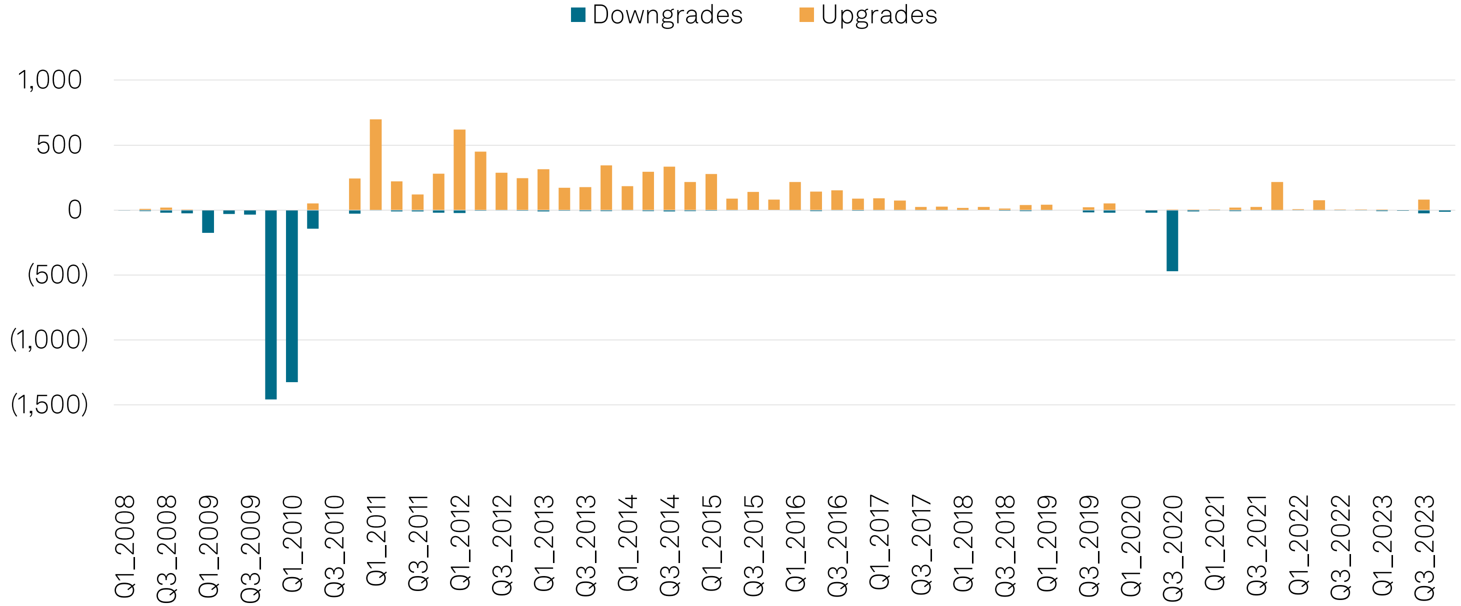
WAS--Weighted average spread. I/C--Interest coverage.

- Given rising rates in 2022, LIBOR/SOFR floors were out of the money for virtually all loans by the later half of the year, resulting in dramatic declines in interest coverage (I/C) test cushions.
- I/C test cushions have stabilized mostly within the 20%-30% range.
- As a slight reprieve, the nominal spread of existing U.S. BSL CLO portfolios have steadily risen until the second half of 2023.
- Given the recent rally in loan prices, we are seeing an uptick in loan re-pricings, resulting in a plateau in weighted average spread levels across U.S. BSL CLO exposures.
- As loan spreads are likely to continue to compress, this may put increasing pressure to re-price the CLO liabilities as well.
- Given new issue CLO pricings levels in late January 2024, a large majority of existing callable U.S. BSL CLOs are in the money to re-price their liabilities.

S&P Global Ratings

Rating Actions & Defaults | No CLO 'AAA' Tranche Ratings Lowered Since 2012

U.S. BSL & MM CLO rating upgrades and downgrades (2008-Q4 2023)



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Upgrades	36	0	296	1321	1601	1006	1029	586	599	216	91	114	10	263	91	92
Downgrades	54	1699	1495	42	34	32	29	8	17	10	18	40	500	17	10	48

Source: S&P Global Ratings.

- Downgrades to U.S. CLO 1.0 ratings in 2009 and 2010 were mostly driven by the effects of GFC, as well as our CLO criteria change.
- Upgrades to U.S. CLO 1.0 and 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 2012.
- Despite the steady corporate rating downgrades, our outlook for CLO ratings remains stable, especially for more senior, higher-rated CLO tranches, given the structural protections built into CLOs and rating cushions for most tranches.
- We do expect some CLO tranche rating downgrades, but these should mostly be from subordinate tranches of amortizing CLOs originated prior to the 2020 pandemic.

Rating Actions & Defaults | Thirty Years And 59 CLO Tranche Defaults

- 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 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)	BSL CLO Defaults(ii)	MM CLO Defaults(ii)	Currently rated(ii)	Original rating(i)	BSL CLO Defaults(ii)	MM CLO Defaults(ii)	Currently rated(ii)
AAA (sf)	1,540	0	0	0	3,639	0	0	1,626
AA (sf)	616	1	0	0	2,964	0	0	1,398
A (sf)	790	4	1	0	2,449	0	0	1,198
BBB (sf)	783	7	2	0	2,230	0	0	1,184
BB (sf)	565	19	3	0	1,818	8	0	975
B (sf)	28	3	0	0	389	11	0	187
Total	4,322	34	6	0	13,489	19	0	6,568

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

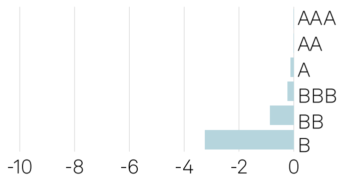
Scenario Analysis | Rating Stress Scenarios (May 2023 Update)

Scenario | **Impact across CLO sample** | **Model-determined impact: average notches off current rating**

5/10 scenario

372 issuers see ratings lowered, including 190 issuers that default

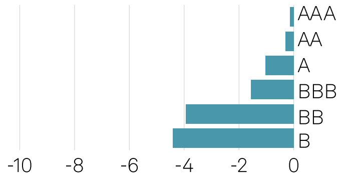
15% of CLO assets are rated ‘CCC+’ and below; average ‘CCC’ bucket increases to 10%; average nonperforming exposure increases to 5%; average par loss of 2.7%



10/20 scenario

611 issuers see ratings lowered, including 304 issuers that default

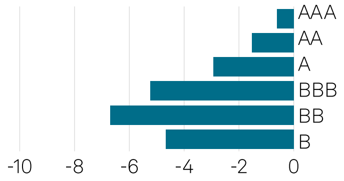
30% of CLO assets are rated ‘CCC+’ and below; average ’CCC’ bucket increases to 20%; average nonperforming exposure increases to 10%; average par loss of 5.5%



15/30 scenario

833 issuers see ratings lowered, including 372 issuers that default

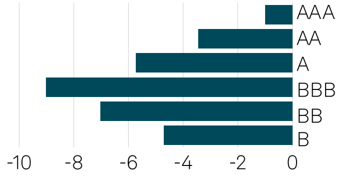
45% of CLO assets are rated ‘CCC+’ and below; average ‘CCC’ bucket increases to 30%; average nonperforming exposure increases to 15%; average par loss of 8.3%



20/40 scenario

1,038 issuers see ratings lowered, including 440 issuers that default

60% of CLO assets are rated ‘CCC+’ and below; average ‘CCC’’ bucket increases to 40%; average nonperforming exposure increases to 20%; average par loss of 11%



Source: S&P Global Ratings.

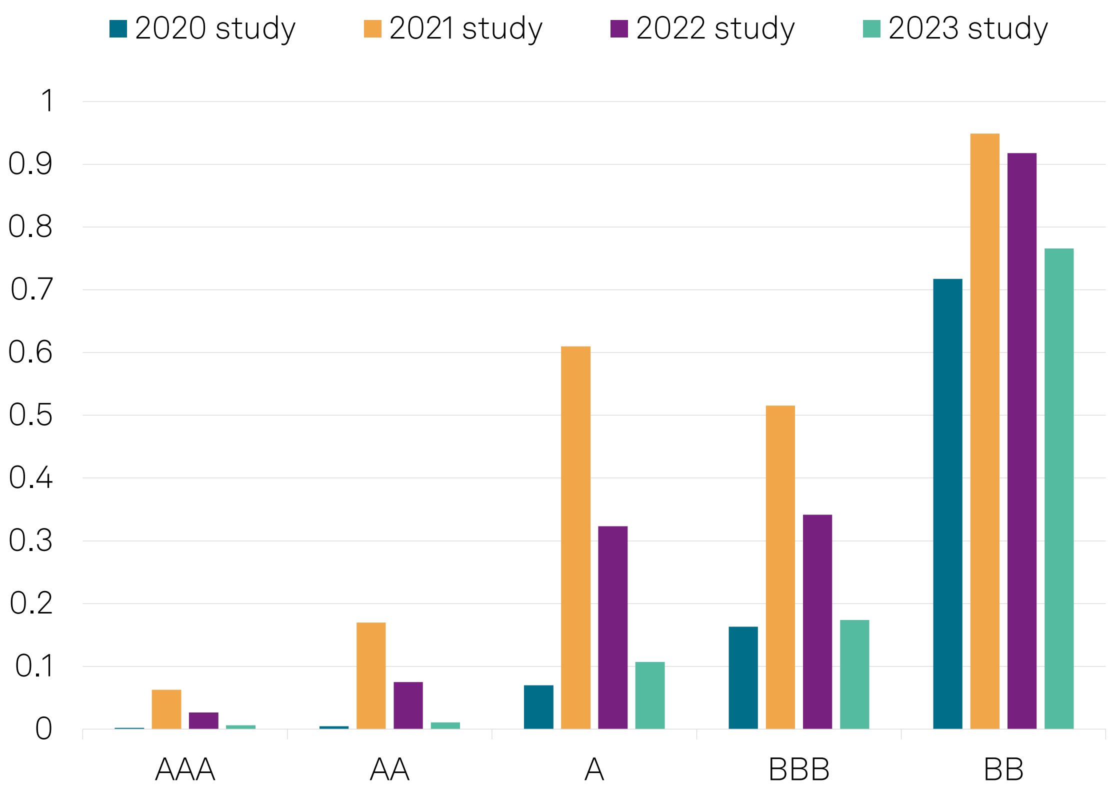
- These four rating stress scenarios are identical to ones we applied for our scenario analyses published in April 2020, June 2021, and August 2022.
- They have the benefit of being transparent and simple, allowing market participants to take their view of potential loan defaults and ‘CCC’ exposure amounts 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.

Scenario Analysis | Rating Stress Scenarios (2023 Update)

Current rating category	0 (%)	-1 (%)	-2 (%)	-3 (%)	-4 (%)	-5 (%)	-6 (%)	≥-7 (%)	Avg. Notches	IG (%)	SG (%)	'CCC' (%)	Default (%)
Cash Flow Results Under "5-10" Scenario (2023)													
'AAA'	99.3	0.7							(0.0)	100.0			
'AA'	98.9	1.0	0.1						(0.0)	100.0			
'A'	90.9	6.4	2.6		0.1				(0.1)	100.0			
'BBB'	80.4	17.4	1.8	0.1	0.1	0.1		0.1	(0.2)	83.2	16.8	0.1	
'BB'	49.2	33.2	8.6	4.5	2.1	0.9	0.3	1.2	(0.9)		100.0	3.2	1.2
Cash Flow Results Under "10-20" Scenario (2023)													
'AAA'	87.0	13.0							(0.1)	100.0			
'AA'	76.5	17.4	5.8		0.1	0.1			(0.3)	100.0			
'A'	39.6	23.7	33.1	1.4	1.5	0.5		0.1	(1.0)	99.4	0.6		
'BBB'	20.1	48.9	10.8	8.7	6.5	1.5	1.3	2.2	(1.6)	22.2	77.8	1.6	0.6
'BB'	6.9	13.9	12.8	12.8	11.3	11.0	5.0	26.2	(3.9)		100.0	27.3	25.6
Cash Flow Results Under "15-30" Scenario (2023)													
'AAA'	38.7	61.2	0.1						(0.6)	100.0			
'AA'	22.6	20.3	47.3	4.1	3.3	2.1		0.3	(1.5)	99.8	0.2		
'A'	5.7	4.4	45.3	8.3	17.3	15.2	1.6	2.1	(2.9)	80.8	19.2	0.6	0.1
'BBB'	0.8	10.2	8.9	13.0	15.7	11.0	6.8	33.5	(5.2)	1.9	98.1	16.5	15.7
'BB'	0.6	0.6	0.2	2.4	2.3	3.3	3.9	86.7	(6.7)		100.0	9.8	86.4
Cash Flow Results Under "20-40" Scenario (2023)													
'AAA'	11.1	82.3	4.0	1.2	1.3				(1.0)	100.0			
'AA'	6.2	2.9	31.9	7.3	14.2	31.7	1.8	3.9	(3.4)	98.7	1.3	0.1	
'A'	2.0	0.7	6.8	3.3	11.2	38.7	8.4	28.9	(5.7)	25.0	75.0	3.7	1.9
'BBB'	0.4	0.1	0.8	1.8	3.2	2.8	4.5	86.5	(9.0)	0.6	99.4	15.6	70.3
'BB'	0.5		0.2			0.2	0.2	99.1	(7.0)		100.0	0.2	99.1

Comparison of BSL CLO rating stress test results over the past four years

Average notch downgrade under "5-10" scenario



U.S. BSL And MM CLOs: Further Reading

- CLO Insights 2024 U.S. BSL Index: Some Thoughts On The Value Of CLO Diversity, published Feb. 1st, 2024
- SLIDES: Private Credit And Middle-Market CLO Quarterly: Shelter From The Storm (Q1 2024), published Jan. 26th, 2024
- CLO Insights U.S. BSL Index 2023 Wrap Up: 'B-' Assets Down; Amortizing CLOs Up, published Jan. 9th, 2024
- U.S. BSL CLO Top Obligors And Industries Report: Fourth-Quarter 2023, published Jan. 9th, 2024
- Full-Year 2023 U.S. Corporate Rating Actions Tracker, published Jan. 3rd, 2024
- Managers Matter: Active Management Of U.S. BSL CLOs During Uncertain Times Shows Its Value, published Nov. 30th, 2023
- Scenario Analysis: How Resilient Are Middle-Market CLO Ratings (2023 Update)?, published Oct. 16, 2023
- U.S. And European CLOs: A Comparative Overview, published Aug. 31, 2023
- CLO Spotlight: U.S. CLO Tranche Defaults As Of July 27, 2023, published Aug. 9, 2023
- A Closer Look At Uptier Priming And Asset Drop-Down Provisions In U.S. CLOs, published July 26, 2023
- Scenario Analysis: U.S. BSL CLO Rating Performance Under Four Hypothetical Stress Scenarios (2023 Update), published July 18, 2023
- Default, Transition, and Recovery: 2022 Annual Global Leveraged Loan CLO Default And Rating Transition Study, published May 26, 2023
- Scenario Analysis: How Rising U.S. BSL CLO 'CCC' Baskets Could Affect Junior Overcollateralization Test Cushions, published April 28, 2023
- Good Intentions, Limited Impact: ESG-Excluded Sectors Proliferate In U.S. CLO Indentures, published May 16, 2022

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