S&P Global Ratings

Private Credit And Middle-Market CLO Quarterly: Not A Sunset, Just An Eclipse

Q2 2024

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This report does not constitute a rating action

Q2 2024 Update | Private Credit And Middle-Market CLOs

Credit-Estimated Companies Under Stress

After robust issuance in 2023, credit estimates picked up even more pace in the first quarter of 2024, with a record 750 credit estimates completed (217 of which were new estimates). In terms of credit estimate revisions, downgrades continued to dominate this quarter, although they fell from the peaks observed in the second half of 2023 (see slide 12). Over 15% of the estimates reviewed during first-quarter 2024 (excluding new estimates) resulted in downgrades, about 5% were upgrades, and the remaining 80% of the reviews were affirmations. This breakout is similar to what we observed in 2023.

Credit estimate downgrades continued to be driven by the impact of higher debt servicing costs on companies given the steep increase in benchmark rates. We expect downgrades to continue, but the volume will likely begin to moderate given the resilience and sustained growth of the U.S. economy, some stabilization in inflation, clarity for now around the direction of policy rates, and efforts companies have taken to contain costs. This could change if inflation ticks up and rates remain higher for much longer, which would put pressure on interest payments for a prolonged basis.

The pace of selective defaults moderated during first-quarter 2024 (see slides 16 and 17). The bulk of these were due to payment-in-kinds (PIKs)/deferrals, followed by entities extending their loan maturities as exits remain challenged for sponsors. Based on the notifications we have received, selective defaults for the U.S. credit estimates universe stands at 4.91% on a last 12 months (LTM) basis. This is comparable to the U.S. speculative-grade default rate, which includes payment and selective defaults on rated bond and loan issuers, and which stood at 4.71% at the end of February. Among broadly syndicated loan issuers, the LSTA Leveraged Loan Index default hit 1.9% by issuer count at the end of 2023 for conventional defaults, or 3.84% when selective defaults are added. S&P Global Ratings forecasts defaults among loan issuers to reach 3% by September 2024, excluding selective defaults.

Strong Collateralized Loan Obligation (CLO) Issuance to Start the Year

Middle-market CLO issuance has been very robust this year, although it hasn't (yet) reached the 35% of total U.S. CLO issuance that many in the market had been expecting late last year, largely because broadly syndicated loan (BSL) CLO issuance has been so strong (see slide 18). As of April 15th, middle-market CLO issuance has been $10.49 billion across 21 transactions, up 51.4% over the same period last year. Meanwhile, BSL CLO issuance is up 55.8% year over year, and middle-market CLOs have made up 18.3% of total issuance in 2024 so far.

We expect the pace of BSL CLO issuance will taper off at some point this year and the proportion of middle-market CLOs issued will grow. Between February and mid-April, four middle-market CLO 'AAA' notes priced in the SOFR+180 range, and new issue spreads are the tightest they've been since first-quarter 2022, which should continue to propel issuance. Most of the factors that led us to think middle-market CLO issuance would grow this year are still in place: Interest in middle-market CLOs as an asset class is sky high, the investor base continues to expand, and direct lenders have a need for funding and think CLOs are a good way to do it. We continue to speak with potential new issuers in the space, and with existing managers who plan to increase their pace of CLO issuance.

Q2 2024 Update | Private Credit And Middle-Market CLOs

Middle-Market (MM) CLOs Collateral Metrics Still Stable

Credit estimate downgrades continue at an elevated level, although they do seem to have peaked. However, MM CLO metrics have been remarkably stable over the past quarter (see slide 19). Exposure to 'CCC' assets hasn't moved much (15.47% in March versus 15.59% at the start of 2024), unlike the BSL CLO market, which saw a bump up in 'CCC' baskets due to the Altice France downgrade. This leaves the average MM CLO with some cushion before breaching the typical excess 'CCC' asset threshold of 17.5%, while the average BSL CLO is close to breaching its 'CCC' limit (6.7% versus a typical threshold of 7.5% as of March 2024). Junior overcollateralization (O/C) test cushions are down very slightly (6.62% now from 6.71% at the start of the year), which should leave plenty of cushion to absorb any credit deterioration. Other MM CLO metrics are also holding steady on average. As with BSL CLOs, there are significant differences in performance between transactions, with CLOs originated prior to the pandemic showing generally weaker metrics.

First MM CLO Rating Lowered Since 2020

MM CLOs have demonstrated an enviable track record of rating stability. In 2020, amidst the shutdowns and the negative impact on corporate loan issuers, we lowered nearly 500 BSL CLO ratings, or about 13% of outstanding ratings at the time. Most of these downgrades were on the 'BB' tranches or lower. This was solid performance for BSL CLOs during a period of substantial economic stress. MM CLOs did even better--they saw just seven ratings lowered during 2020, or just over 1% of our outstanding MM CLO ratings at the time (see slide 30).

For the first time since then, there was a MM CLO rating downgrade in first-quarter 2024; on March 15, we lowered the rating on the class E notes from KCAP F3C Senior Funding LLC to 'B+ (sf)' from 'BB- (sf)' amidst heightened obligor concentration in the portfolio, increased exposure to 'CCC' and 'D' rated collateral, and par losses. At the same time, the ratings on the class C and D notes were raised following improved O/C ratios resulting from senior note paydowns of $106.70 million to the class A debt. KCAP F3C Senior Funding LLC is a MM CLO that closed in October 2017 and exited its reinvestment period in October 2021.

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Credit Metrics | Median Leverage And Interest Coverage By Sector

Metrics for companies with credit estimates updated during first-quarter 2024

S&P Global Ratings-calculated leverage ratios
for the top 10 most represented sectors

Industry	Median of debt/EBITDA (x)	Obligors (no.)
Software	7.89	86
Healthcare providers and services	7.39	75
Professional services	5.65	48
Commercial services and supplies	5.94	43
IT services	6.27	39
Media	5.91	35
Construction and engineering	5.37	33
Diversified consumer services	5.95	29
Hotels, restaurants, and leisure	6.38	28
Insurance	7.95	22

Source: S&P Global Ratings.

S&P Global Ratings-calculated interest coverage ratios
for the top 10 most represented sectors

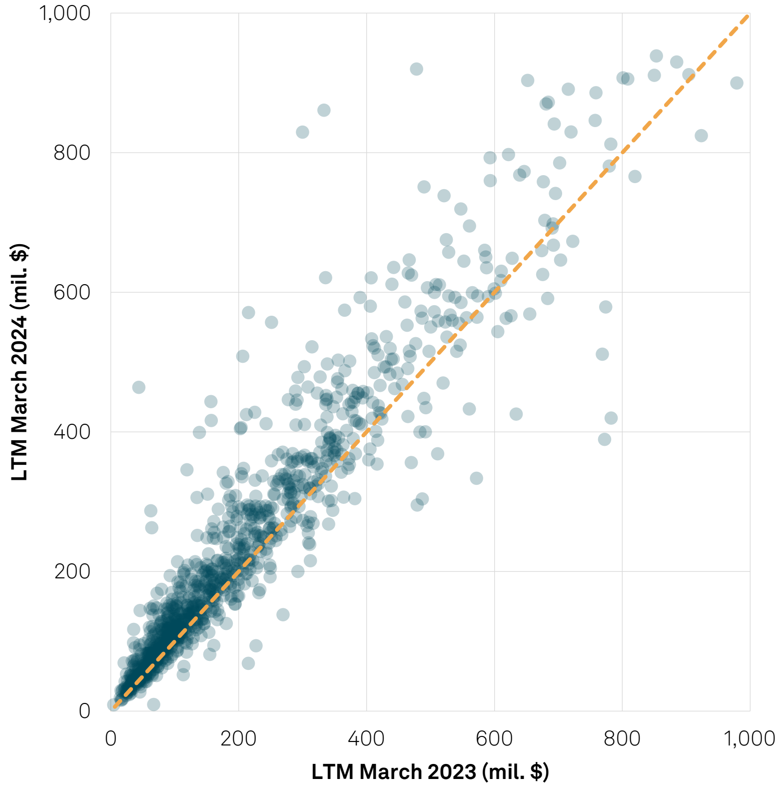
Industry	Median interest coverage (x)	Obligors (no.)
Software	1.15	86
Healthcare providers and services	1.52	75
Professional services	1.59	48
Commercial services and supplies	1.66	43
IT services	1.53	39
Media	1.53	35
Construction and engineering	1.79	33
Diversified consumer services	1.64	29
Hotels, restaurants, and leisure	1.71	28
Insurance	1.31	22

Source: S&P Global Ratings.

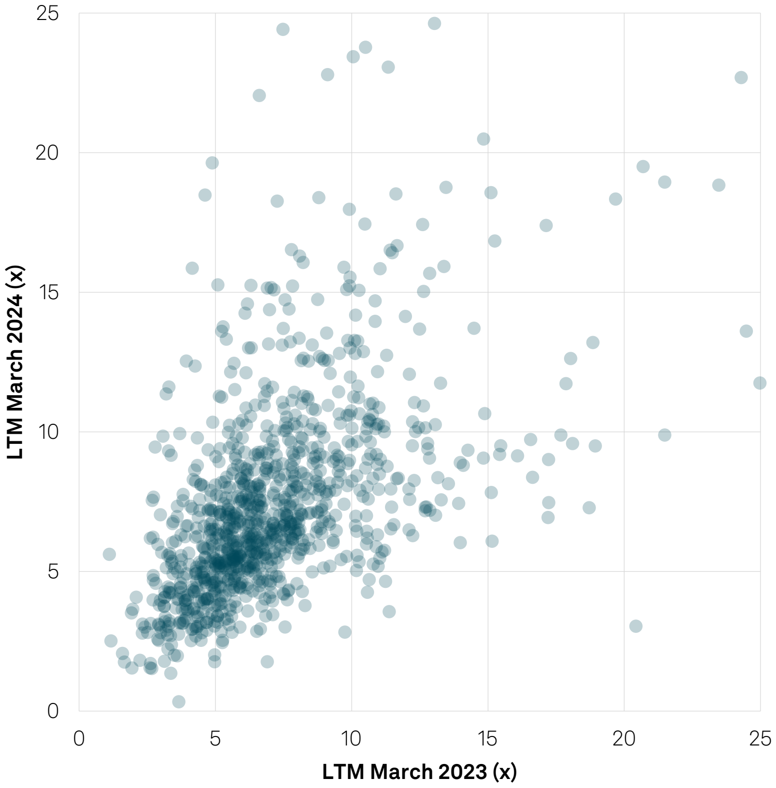
Credit Metrics | Revenue And Leverage Trends

Change in metrics for credit-estimated obligors (LTM March 2023 reviews vs. LTM March 2024 reviews)

Revenue



Leverage



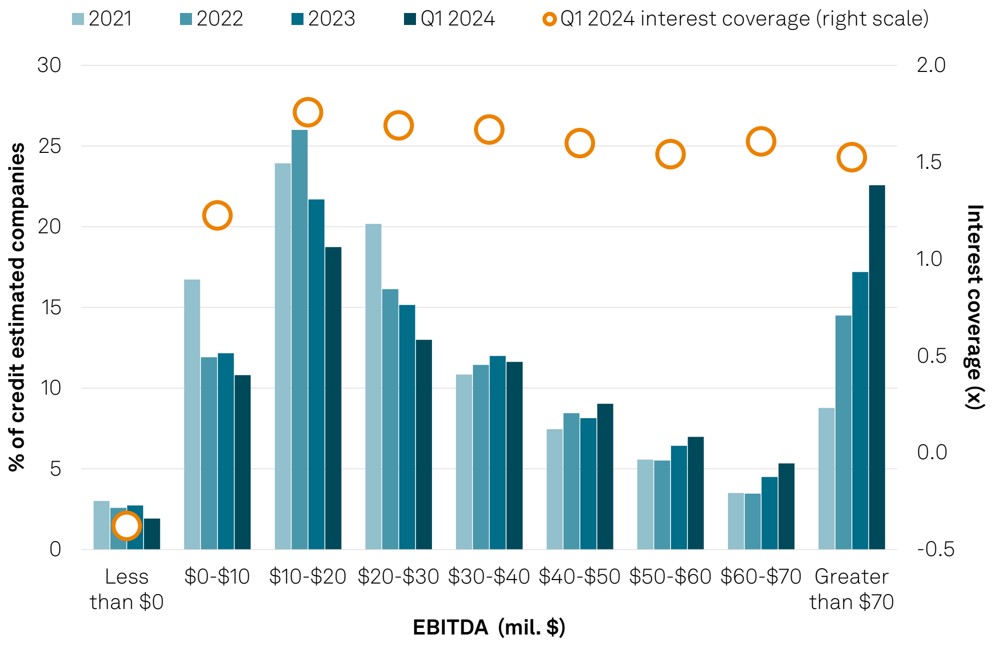
- For reviews done during the LTM March 2024 period, revenue has continued to grow due in part to acquisitions.
- Revenue and EBITDA increased year over year in 79% and 59% of cases, respectively. Still, leverage increased in 49% of cases.
- For reviews done, median revenue and EBITDA increased by 19% and 32%, respectively, while median leverage went up by 30%.
- In 24% of the cases, revenue increased yet EBITDA declined, indicating likely sensitivity to inflation.
- In less than 5% of the sample, revenue declined yet EBITDA increased, indicating better cost control.

Source: S&P Global Ratings.

Credit Metrics | EBITDA And Free Operating Cash Flow Distribution

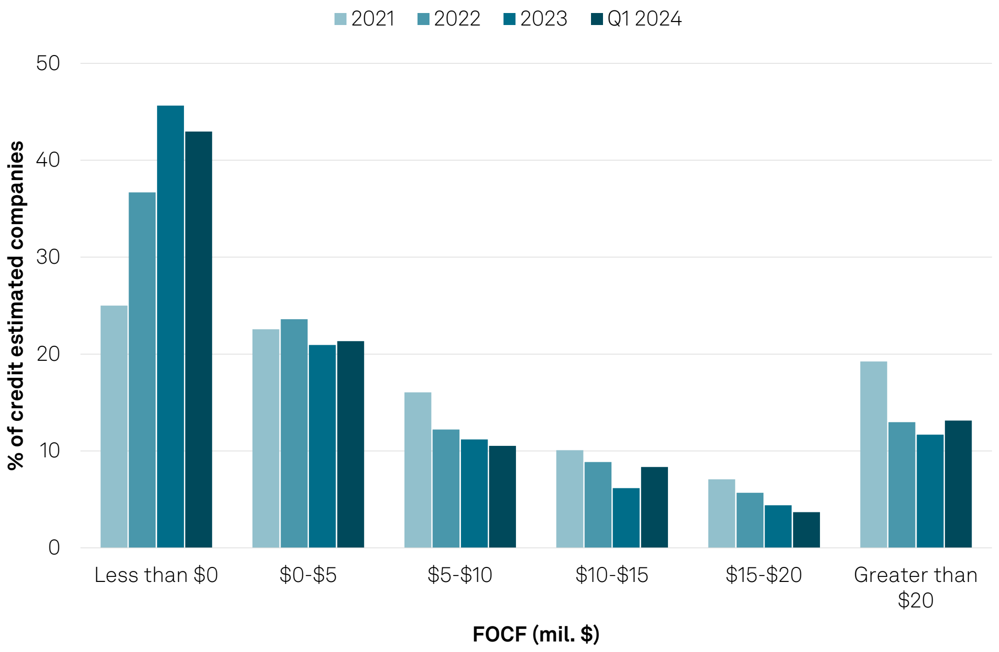
- About 43% of companies reviewed in Q1 2024 generated negative free operating cash flow (FOCF).
- Interest coverage appears to be agnostic to the size of the company (using EBITDA as a proxy).
- Of the companies with recurring revenue loan structures, 33% generated negative EBITDA (more on recurring revenue on slide 8).

EBITDA and interest coverage



Source: S&P Global Ratings.

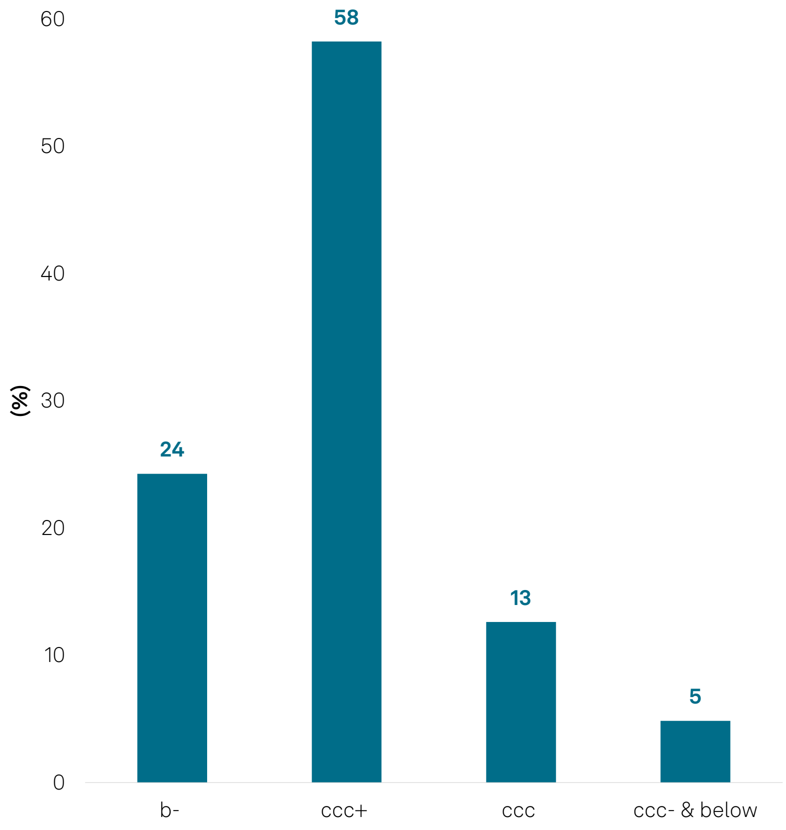
Free operating cash flow



Source: S&P Global Ratings.

Recurring Revenue | Credit Metrics

Recurring revenue score distribution



Credit metrics: recurring revenue deals

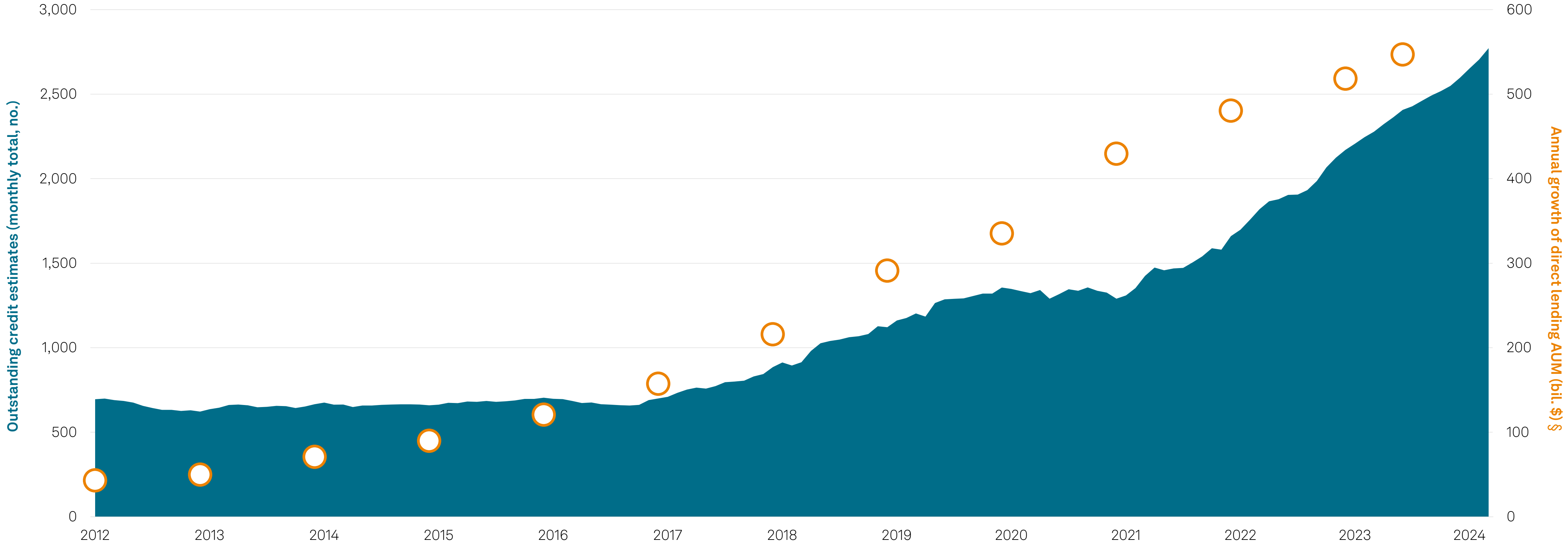
Metrics (median)	Total outstanding
No. of deals	103
EBITDA (mil. $)	6.98
Leverage	27.39x
Cash interest coverage	0.32x
Interest coverage	0.29x
Capex (mil. $)	1.48
Cash balance (mil. $)	18.41
FOCF to debt (%)	-7.00
Liquidity ratio	1.73x

Capex—Capital expenditure. FOCF—Free operating cash flow. Source: S&P Global Ratings.

- Recurring revenue companies represent a small proportion (<5%) of our outstanding credit estimates, typically for software companies.
- In a higher-for-longer rate environment, increased debt servicing charges will exert pressure on recurring-revenue companies to prioritize liquidity at the expense of upfront investments. This could affect their long-term trajectory and growth.
- Recurring revenue deals compare unfavorably on metrics such as EBITDA and FOCF compared to other MM deals.
- They tend to have higher sponsor equity contributions. Over 75% of them have ‘adequate’ liquidity.

Credit Estimates | Outstanding Credit Estimates Have Doubled Since 2021

All outstanding S&P Global Ratings credit estimates (2012–Q1 2024)*

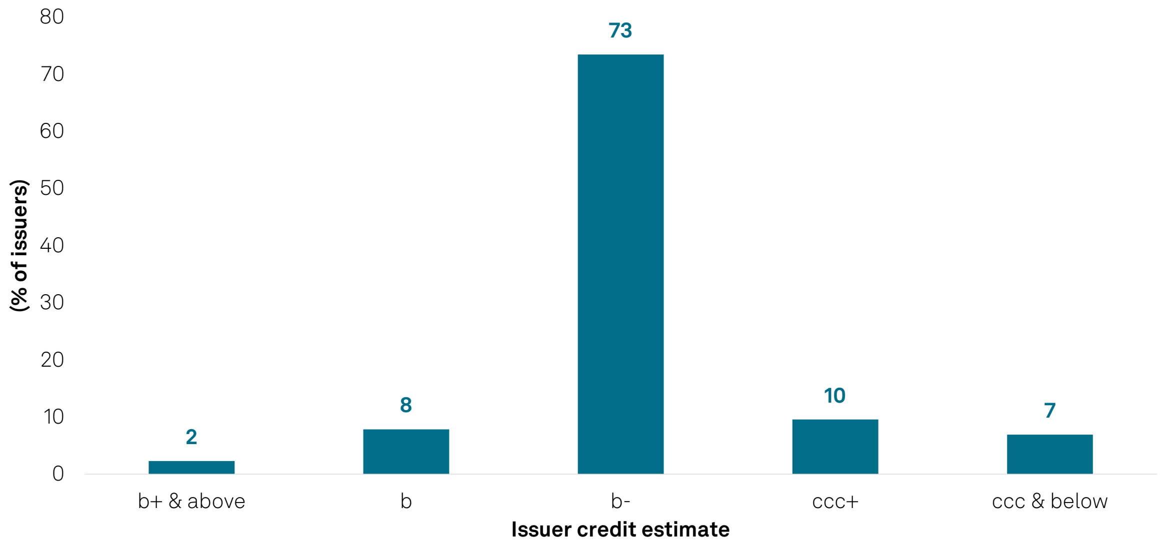


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including a small number of estimates for obligors not currently held within a CLO transaction. §Direct Lending AUM value for 2023 is up to June 30, 2023. CE--Credit estimate. CLO--Collateralized loan obligation. AUM--Assets under management. Source: S&P Global Ratings and PitchBook Data Inc.

Credit Estimates | Credit Estimate Scores As Of First-Quarter 2024

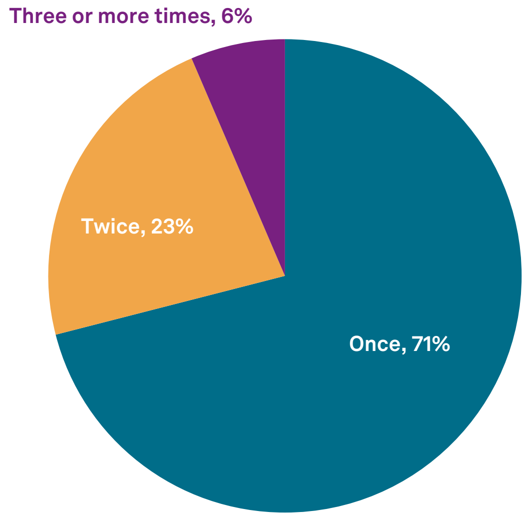
- Many of the companies we assign credit estimates to are financial sponsor-owned and generally highly levered.
- For credit-estimated companies reviewed in first-quarter 2024, the median EBITDA was $34 million, and the median adjusted debt was about $207 million.
- Due to their weaker business and financial risk profiles, a large majority of these companies tend to have credit estimate scores at the lower end of the credit spectrum, especially ‘b-’.

Credit estimates outstanding as of first-quarter 2024*



*Covers all outstanding S&P Global Ratings U.S. credit estimates (estimates less than one year old), including estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

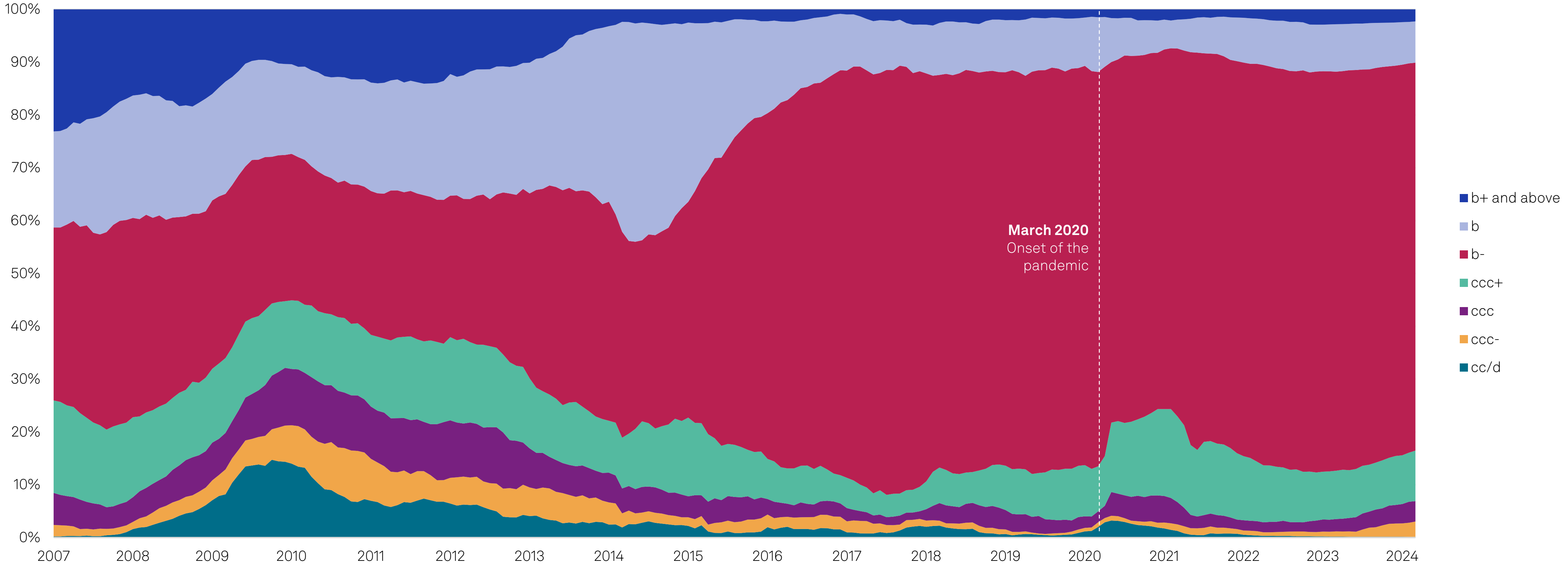
Frequency of credit estimate reviews in 2023



Source: S&P Global Ratings.

Credit Estimates | Credit Quality Over The Years

Outstanding credit estimate distribution (2007–Q1 2024)*



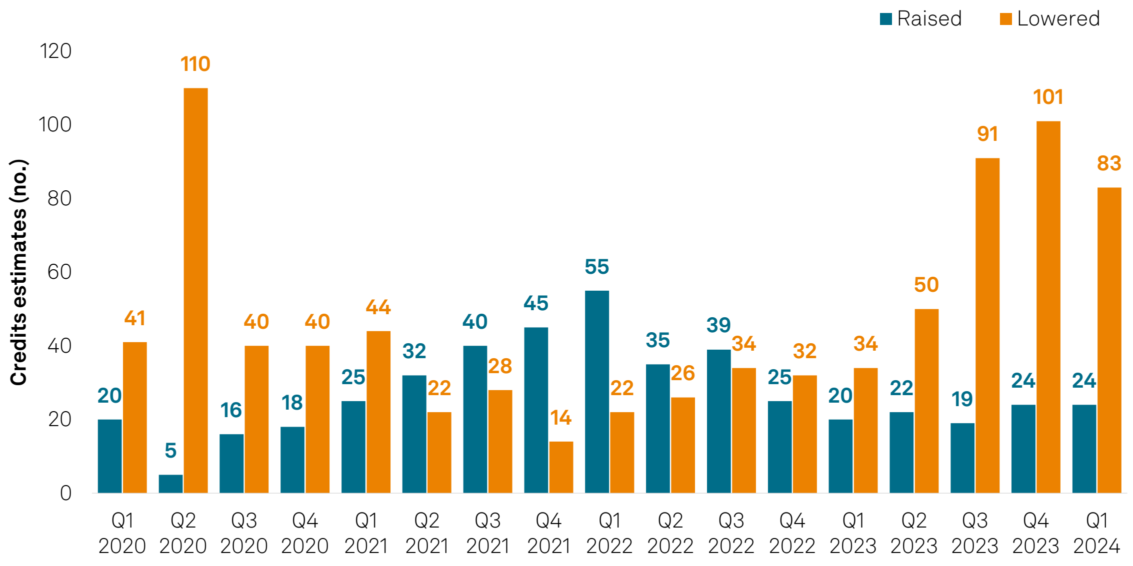
*Covers all outstanding S&P Global Ratings U.S. credit estimates, including estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

S&P Global Ratings

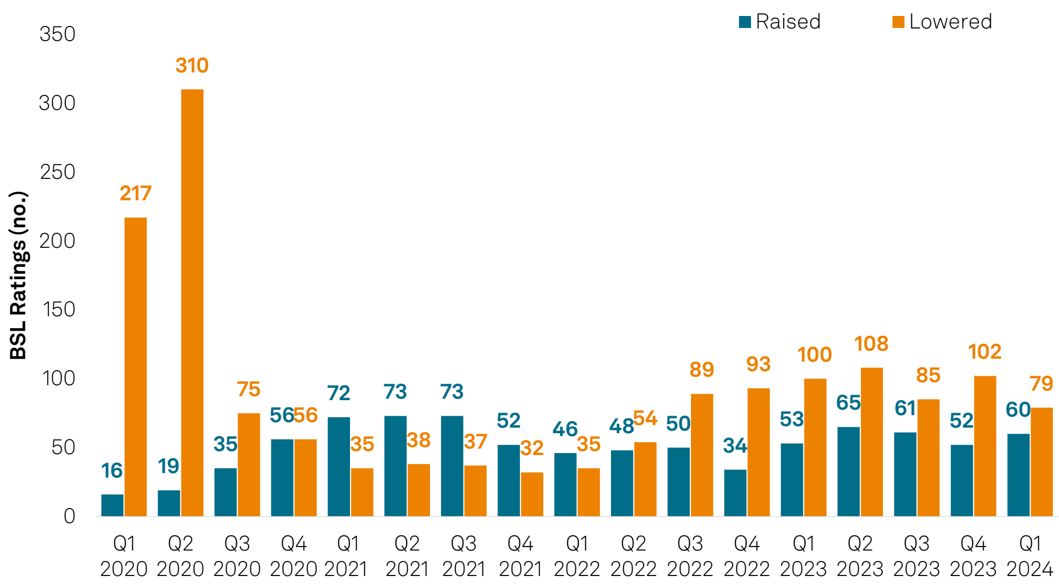
Upgrades And Downgrades | Credit Estimate Changes Vs. BSL Rating Changes

- 2023 saw record downgrades eclipsing 2020. However, the downgrades-to-upgrade ratio of 3.2 remains less than the 2020 metric of 3.9.
- Downgrades have slowed in the first quarter of 2024, though we expect them to dominate upgrades for the remainder of the year.
- For the companies reviewed in the first quarter of 2024, 80% were affirmed, 15% were downgraded, and 5% were upgraded, the same breakout as in 2023.

Credit estimates raised and lowered (Q1 2020-Q1 2024)



BSL Ratings raised and lowered (Q1 2020-Q1 2024)



Beginning in second-quarter 2023, we have excluded upgrades/downgrades outside the construct of a CLO. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

Upgrades And Downgrades | Credit Estimate Transitions

One-year credit estimate transition matrix (Jan. 1, 2023-Dec. 31, 2023)

Credit estimate score Jan. 1, 2023 (%) / Credit estimate score Dec. 31, 2023 (%)	b+ and above	b	b-	ccc+	ccc	ccc-	Below ccc-	Not rated
b+ and above	60	40						
b		57	24	1	1	2		15
b-		2	80	5	3	2		8
ccc+		1	9	56	10	6	1	17
ccc			12	14	32	14	7	21
ccc-			9	18	9	37		27
Below ccc-							100	

Source: S&P Global Ratings.

- The y-axis represents the credit estimate score on Jan. 1, 2023, and the x-axis represents the credit estimate score on Dec. 31, 2023.
- 80% of 'b-' credit estimate scores were affirmed during the year.
- Approximately 10% of the credit estimates in the 'b-' category were downgraded into the 'ccc' category after one year.

Upgrades And Downgrades | Credit Estimates Raised And Lowered By Sector

24 upgrades in first-quarter 2024*

	Top five sectors upgraded	Overall percentage of upgrades (%)	Sector exposure of total credit estimates (%)	Count of obligor (no.)
1	Software	16.7	11.6	5
2	Media	12.5	4.7	3
3	IT services	8.3	5.2	2
4	Healthcare providers and services	8.3	10.1	2
5	Electrical equipment	4.2	0.7	1

83 downgrades in first-quarter 2024*

	Top five sectors downgraded	Overall percentage of downgrades (%)	Sector exposure of total credit estimates (%)	Count of obligor (no.)
1	Healthcare providers and services	14.5	10.1	12
2	Software	12.0	11.6	10
3	Commercial services and supplies	7.2	5.8	6
4	IT services	7.2	5.2	6
5	Chemicals	6.0	2.3	5

Credit-estimate downgrades were driven by:

- Negative funds from operations (FFO) because of higher interest rates;
- Upcoming maturities with no refinancing plans in place.;
- Unsustainable capital structures with high leverage; and
- Residual inflation, resulting in increased wages and material costs.

*Beginning in second-quarter 2023, we have excluded upgrades/downgrades outside the construct of a CLO. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

Upgrades And Downgrades | Does Company Size Affect Performance?

- There is no observable correlation between the size of a company and its credit quality.
- EBITDA as a proxy for the size of a company is a volatile measure, and hence, we prefer using debt.

Debt size of LTM March 2024 downgrades (mil. $)

	LTM March 2024 CEs	Downgraded CEs	% difference
Median	207	225	+9
Average	365	347	-5

LTM--Last 12 months. CE--Credit estimate. Source: S&P Global Ratings.

Debt size of LTM March 2024 defaults (mil. $)

	LTM March 2024 CEs	Defaulted CEs	% difference
Median	207	181	-13
Average	365	280	-23

LTM--Last 12 months. CE--Credit estimate. Source: S&P Global Ratings.

EBITDA size of LTM March 2024 downgrades (mil $.)

	LTM March 2024 CEs	Downgraded CEs	% difference
Median	31	19	-39
Average	49	28	-43

LTM--Last 12 months. CE--Credit estimate. Source: S&P Global Ratings.

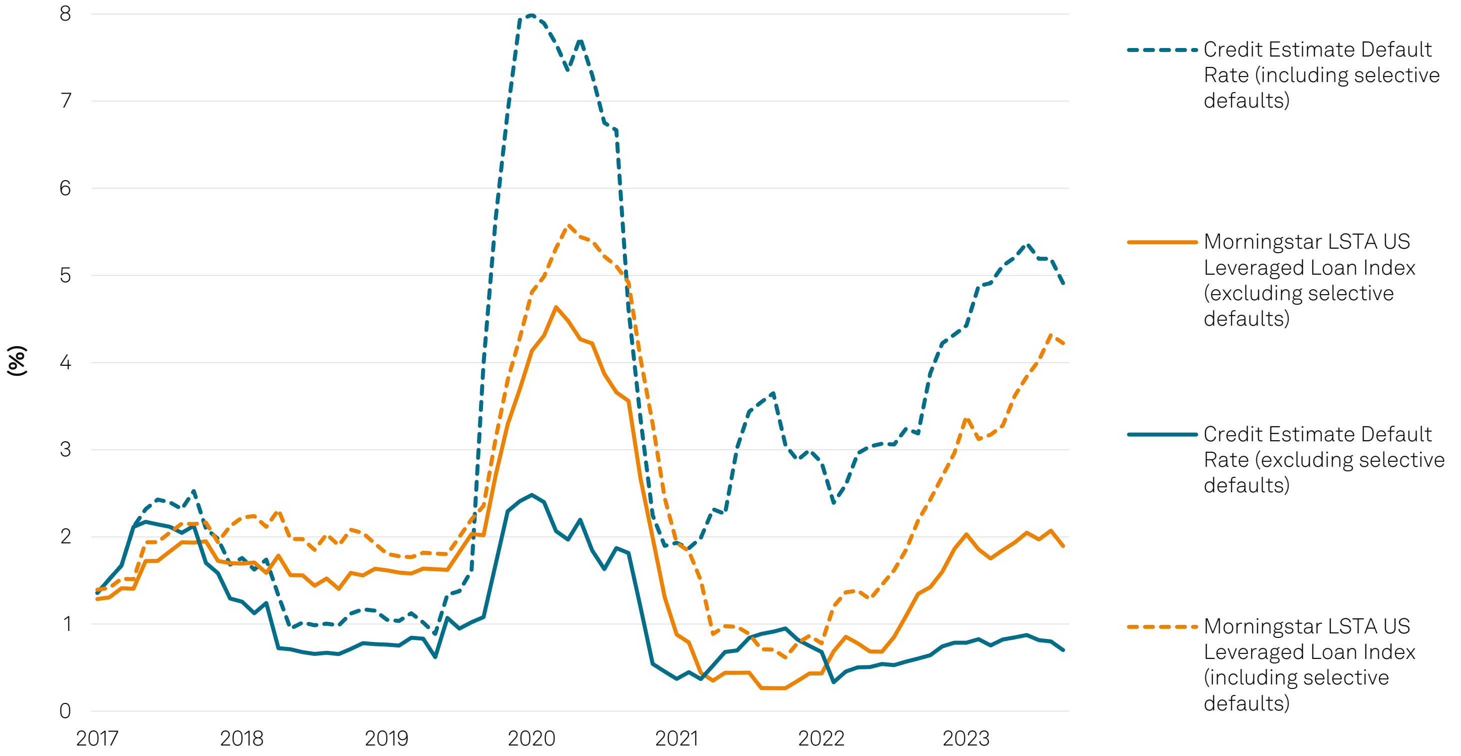
EBITDA size of LTM March 2024 defaults (mil. $)

	LTM March 2024 CEs	Defaulted CEs	% difference
Median	31	20	-35
Average	49	28	-43

LTM--Last 12 months. CE--Credit estimate. Source: S&P Global Ratings.

Defaults | Credit-Estimated Companies Have Higher Selective Defaults But Fewer Conventional Defaults

Credit estimate default rates compared to syndicated loan default rates



Source: S&P Global Ratings and Pitchbook/LCD.

- The dashed blue line in the chart, which includes both selective and conventional defaults among credit-estimated issuers, has trended down marginally. Selective defaults are primarily driven by A-to-E or interest deferral as companies continue to address liquidity concerns.
- Defaults have begun to pick up in the syndicated loan market as well. In February 2024, the trailing 12-month Morningstar LSTA U.S. Leveraged Loan Index default rate (excluding selective defaults) reached 2.07%.
- Other default studies' calculations may differ because of methodology and sample use.

Defaults | Credit Estimate Selective Defaults Grow At Slower Pace

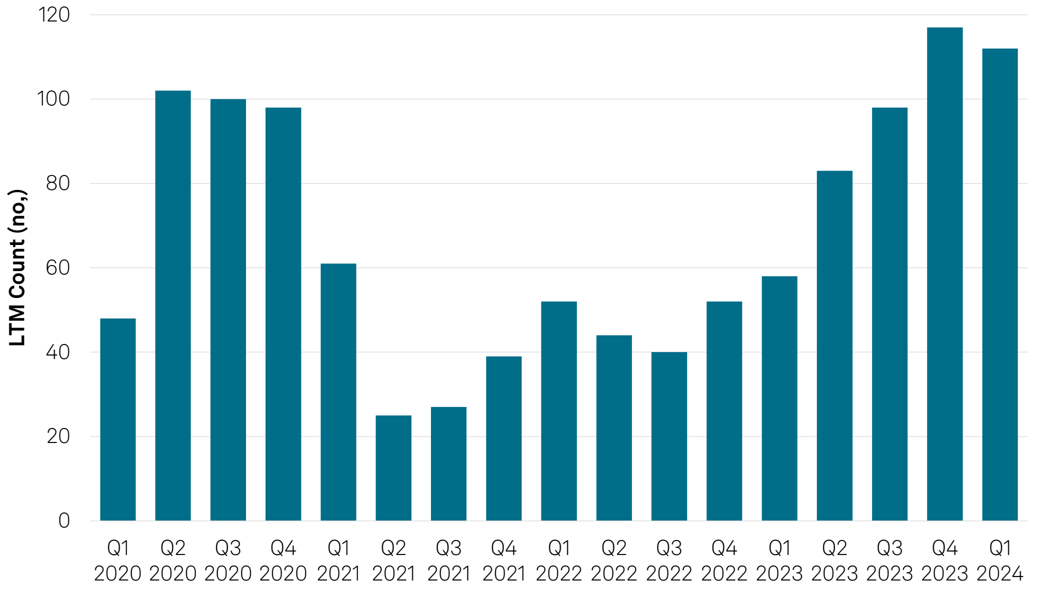
- The biggest reasons for selective defaults were PIK followed by A-to-E transactions.
- Close to 70% of selective defaults in the 'b-' category were reassessed at the 'ccc' category post-selective default.

Transition table for credit estimate selective defaults that occurred in LTM March 2024

Credit estimate score post-selective default (columns) / **Credit estimate score pre-SD** (rows)

	b	b-	ccc+	ccc	ccc-	cc
b		1				
b-		16	7	9	19	
ccc+		2	5	4		
ccc		1	1	13	1	4
ccc-			4	2	7	

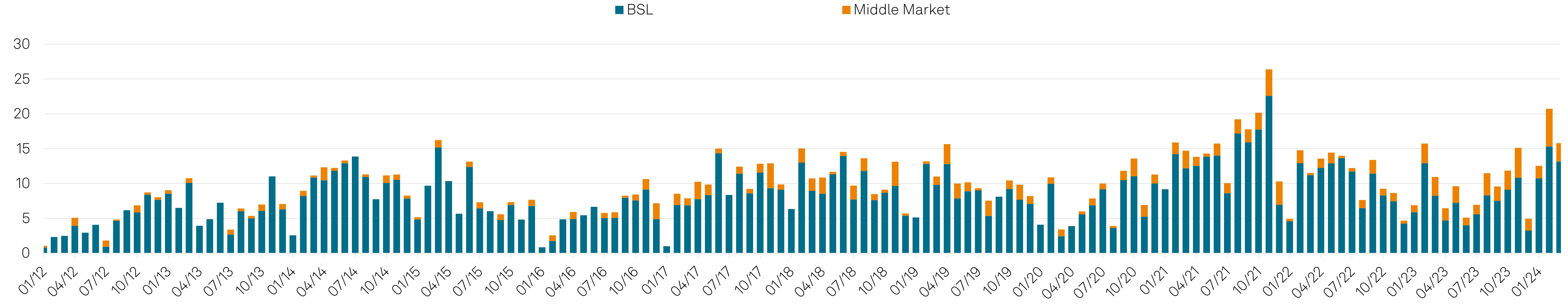
LTM count of selective defaults (Q1 2020–Q1 2024)



As of first quarter-2024, we are still receiving selective default notices from managers and incorporating them into our dataset. SD--Selective default. LTM--Last 12 months.
Source: S&P Global Ratings.

Issuance | More Issuance Coming From Middle-Market CLOs

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



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023 as of Apr. 15	2024 as of Apr. 15	Change (%)
New Issue (U.S. bil. $)															
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	30.01	46.75	55.8
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	6.93	10.49	51.4
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**	**36.94**	**57.24**	55.0
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**	**18.8**	**18.3**	
Reset/Refi (U.S. bil. $)															
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	0.00	44.61	N.A.
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	0.41	3.03	641.7
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**	**0.41**	**47.64**	11,576

BSL--Broadly syndicated loan. MM--Middle market. Source: S&P Global Ratings, Pitchbook LCD.

CLO Performance | 'CCC' Buckets Increase Slightly, Other Metrics Stable

- The increased count of lowered credit estimates over the past three quarters have resulted in a notable increase in 'CCC' buckets as well as default buckets across MM CLO portfolios.
- Portfolio par loss; haircuts from defaults; and; in some instances, excess 'CCC' exposures have resulted in O/C numerator haircuts, leading to a decline in junior O/C test cushions.
- However, the average MM CLO junior O/C test cushion still remains at 6.6%.

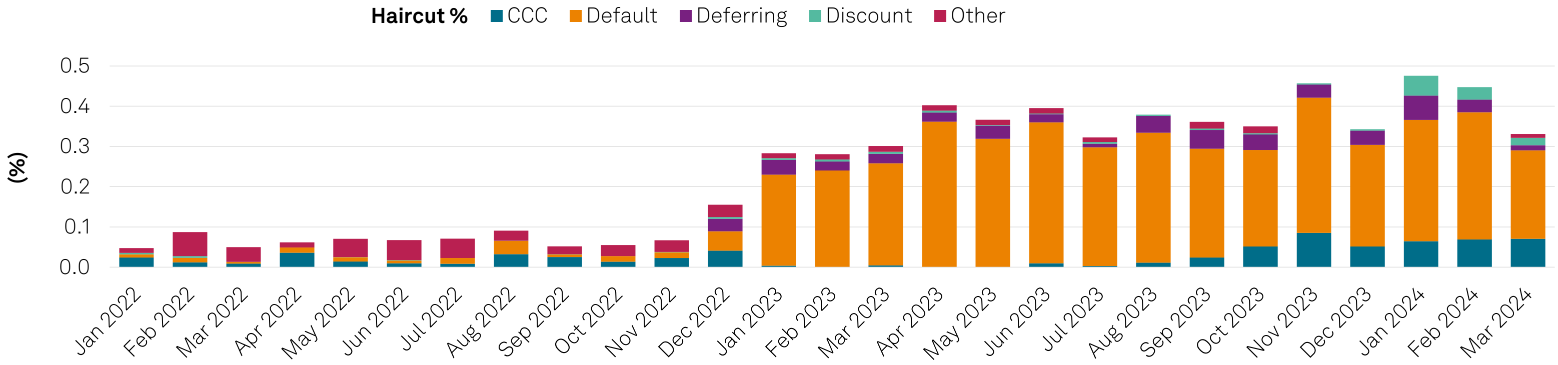
Credit metrics averaged across 60 reinvesting S&P Global Ratings-rated middle-market CLOs

As of date	'B-' (%)	'CCC' category (%)	No rating/CE (%)	Nonperforming assets (%)	SPWARF	Jr. O/C cushion (%)	% of target par
3/31/2023(i)	72.90	9.64	5.96	0.26	3792	6.93	100.81
4/30/2023(i)	73.01	9.87	6.05	0.32	3802	6.86	100.80
5/31/2023(i)	72.89	9.95	6.36	0.31	3814	6.88	100.85
6/30/2023(i)	72.55	10.50	5.98	0.34	3811	6.84	100.88
7/31/2023(i)	71.77	11.20	6.15	0.33	3828	6.87	100.90
8/31/2023(i)	71.39	12.06	5.78	0.43	3843	6.78	100.90
9/30/2023(i)	71.24	12.59	5.98	0.39	3858	6.79	100.89
10/31/2023(i)	69.79	13.83	6.29	0.41	3884	6.74	100.89
11/30/2023(i)	69.10	14.48	6.48	0.39	3900	6.70	100.83
12/31/2023(i)	67.41	15.59	7.03	0.44	3931	6.71	100.86
1/31/2024(i)	67.32	15.18	7.37	0.55	3938	6.63	100.87
2/29/2024(ii)	67.98	15.05	7.56	0.51	3948	6.63	100.84
3/20/2024(iii)	67.26	15.47	7.63	0.66	3965	6.62	100.84

(i)Index metrics based on end of month ratings and pricing data and as of month portfolio data available. (ii)Index metrics based on Feb. 29, 2024, ratings and latest portfolio data available to us. (iii)Index metrics based on March 20, 2024, ratings and latest portfolio data available to us. Source: S&P Global Ratings.

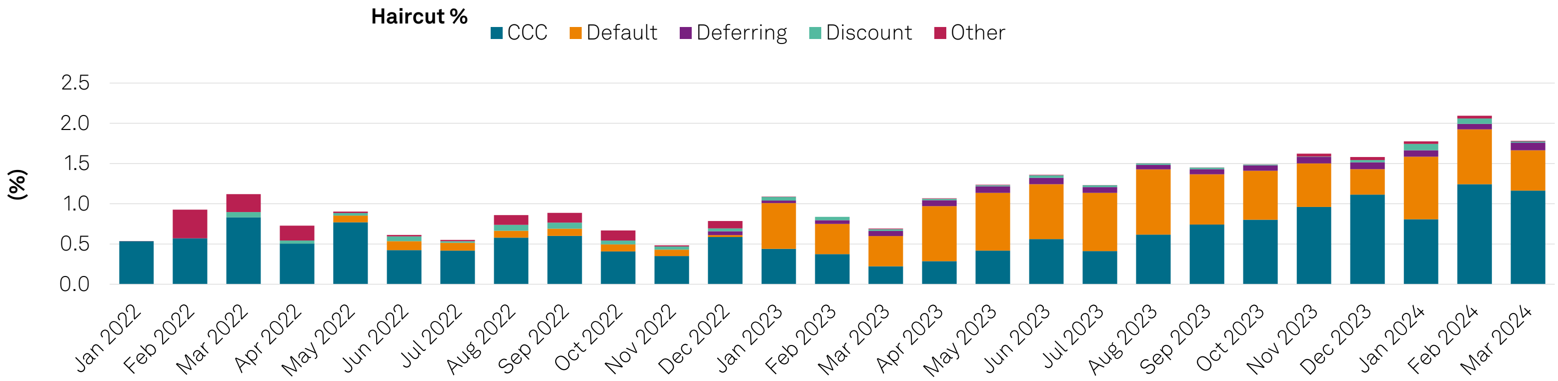
CLO Performance | O/C Test Haircuts Remain Modest

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



O/C—Overcollateralization. MM--Middle market. Source: S&P Global Ratings.

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



O/C—Overcollateralization. MM--Middle market. Source: S&P Global Ratings.

- O/C cushions across reinvesting U.S. MM CLOs have declined slightly over the past 12 months, but still have a significant cushion at end of first-quarter 2024 (6.62%).
- The O/C haircuts for the reinvesting U.S. MM CLOs mostly come from default exposures; most reinvesting deals are not close to breaching their 'CCC' thresholds, though a few transactions exceeded their 'CCC' thresholds (most deals have a 17.5% 'CCC' threshold).
- O/C haircuts across amortizing U.S. MM CLOs are larger relative to the reinvesting transactions; both default exposures and excess 'CCC' exposures contribute a large majority of the haircuts.
- Despite the higher average haircuts, the junior O/C cushions for amortizing transactions are higher than reinvesting transactions due to senior note paydowns.

BSL And MM CLOs | Comparing Middle-Market CLOs To BSL CLOs

	Broadly syndicated loan CLOs (BSL CLOs)	**Middle-market loan CLOs (MM CLOs)**
Outstanding Amount (Q4 2023)	About $875 billion	About $125 billion
Size of median CLO (par $)	About $500 million	About $475 million

Collateral attributes	Senior secured loans to larger companies:
	• EBITDA greater than $100 million; and,
	• Loan facility sizes greater than $500 million.
		Senior secured loans to smaller companies:
		• Loan facility sizes of $50 million to $300 million
		• Issuer EBITDA sizes of:
		  • < $20 million (lower middle market)
		  • $20 to $50 million (core middle market)
		  • $50 to $100 million (upper middle market)

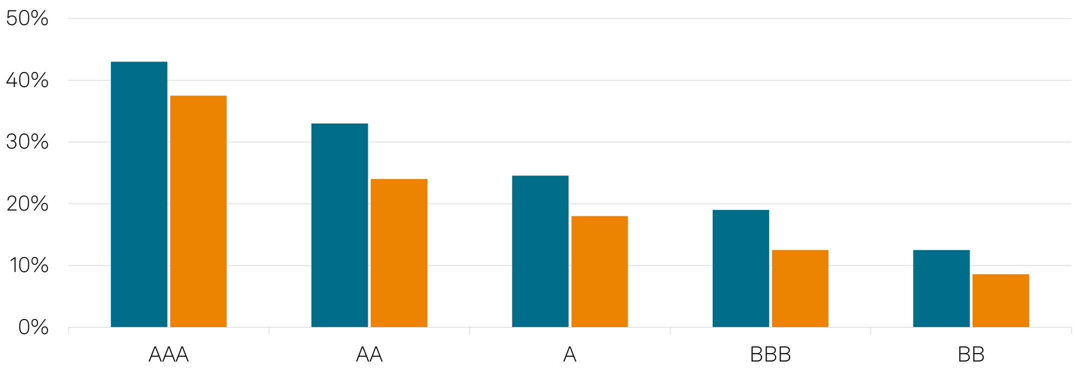
Source of CLO collateral	BSL CLO managers purchase the loans for their CLOs in the open market to create a portfolio	Some MM CLO managers (or their affiliates) are direct lenders and issue some/most of the loans in their CLOs
Typical issuer motivation	BSL CLO managers typically use BSL CLOs to build assets under management and generate fee income	Most MM CLO managers use CLOs to fund their direct lending and maintain diverse funding sources
CLO manager relationship with borrower	Investor	Direct lender or Investor
Risk retention	U.S. BSL CLOs are generally not subject to risk retention since the manager acquires the loans in the open market	MM CLOs are generally subject to risk retention since the manager is the issuer of some/all the loans in the CLO
Loan covenants	Covenant-lite loans are the norm (80% plus of BSL loan market) along with looser provisions	A large majority of loans in MM CLOs have maintenance covenants. Generally, the smaller the loan, the more likely it is to have covenants/restrictive provisions.
CLO equity holder	Historically most BSL CLO managers have placed CLO equity with third-party investors (although this was less true in 2023)	Most MM CLO managers hold their CLO equity, although some now have third-party equity in their CLOs.
Junior-most 'AAA' subordination	Typically ranges from 34% to 39% (median is 36%)	Typically ranges from 40% to 46% (median is 42.5%)
Source of ratings/implied ratings	S&P Global Ratings has ratings on more than 95% of BSL loan issuers	Credit estimates typically cover > 60% of the issuers in MM CLOs
Typical spreads of loans within portfolio	SOFR+350 to SOFR+400	SOFR+550 to SOFR+600
Maturity of loans	Loans in BSL CLOs have an average of maturity of 4.4 years	Loans in MM CLOs have an average of maturity of 3.5 years
Number of obligors in CLO pool	Varies, but average is 310 obligors	Varies, but average is 108 obligors
Number of industries in CLO pool	Typical BSL CLO has loans from ≈ 24 industry sectors	Typical MM CLO 15 to 20 industries

Source: S&P Global Ratings.

BSL And MM CLOs | Comparison Of Metrics

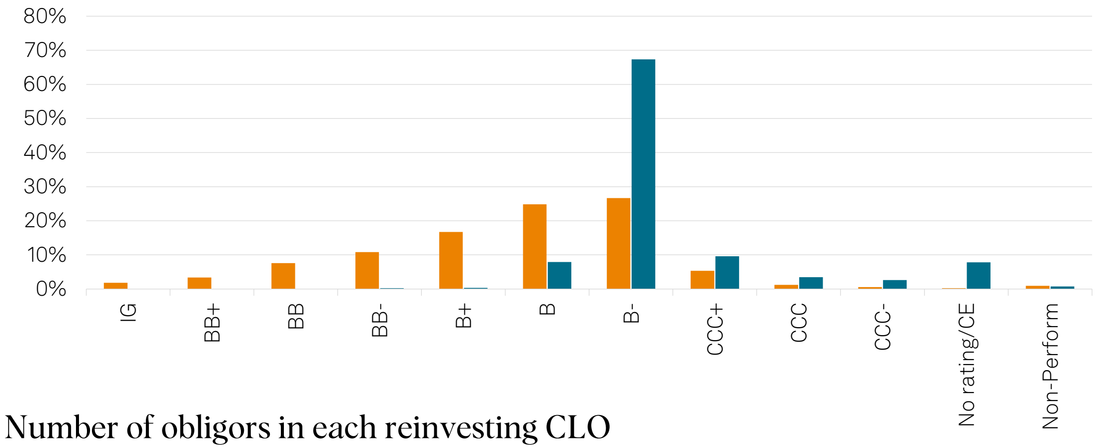
Middle-market CLOs   Broadly syndicated loan CLOs

Median subordination of CLO tranches

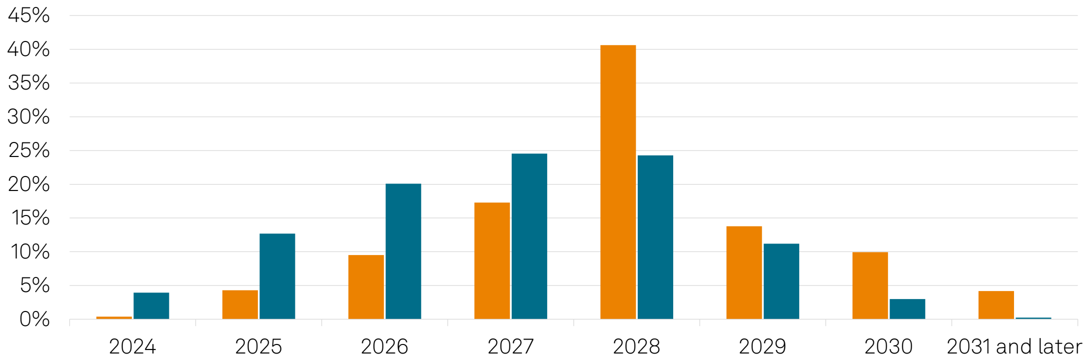


Ratings distribution of CLO obligors

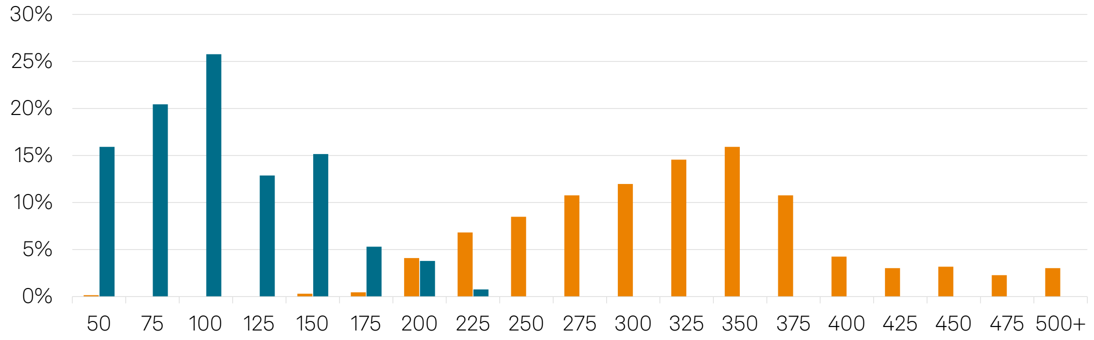
Exposures with no S&P derived rating included as 'CCC-'



Maturity distribution of CLO assets



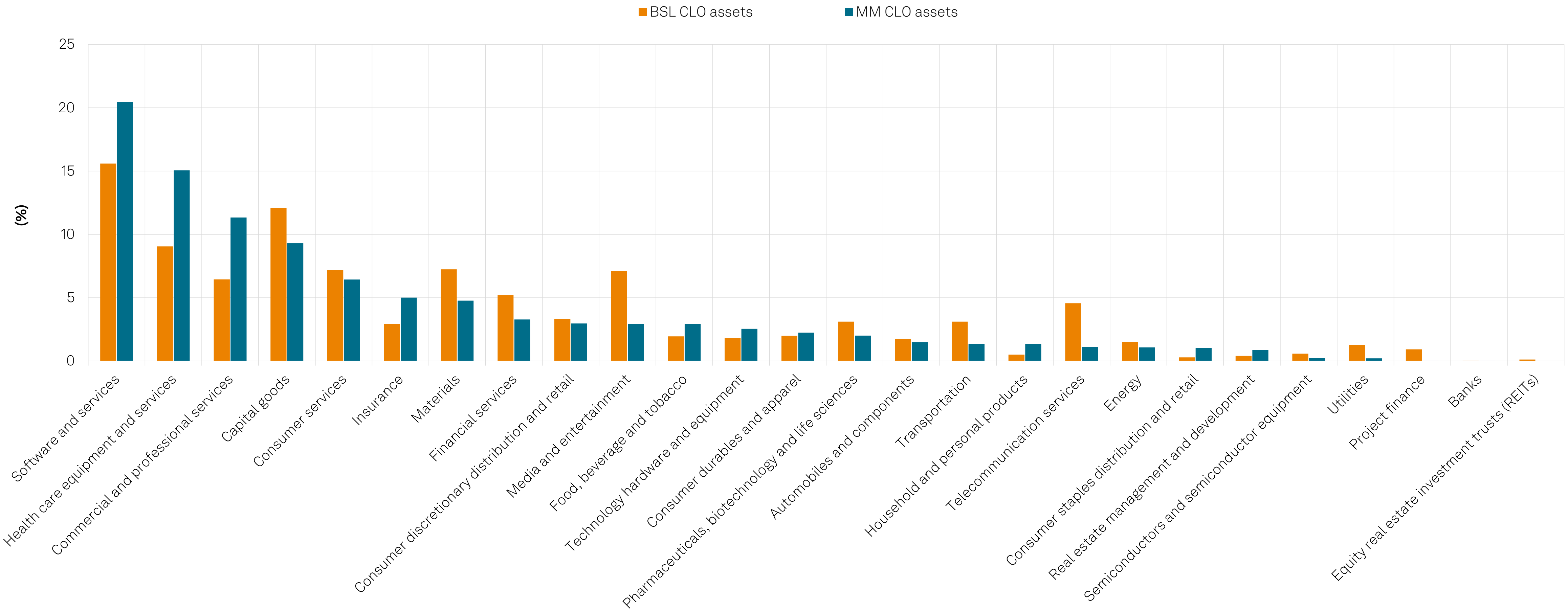
Number of obligors in each reinvesting CLO



Source: S&P Global Ratings.

BSL And MM CLOs | GICS Industry Groups

GICs Industry Groups distribution across MM CLO and BSL CLO collateral pools



MM--Middle market. BSL--Broadly syndicated loan. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

S&P Global
Ratings

Managers | Fourth-Quarter 2023 Manager Metrics (1 of 2)

Manager (No. S&P MM CLOs)	Largest GICS Industry (%)	Largest GICS Industry	GICS industries (No.)	Largest issuer exposure (%)	Issuers (No.)	Issuers credit estimated (No.)	Downgrades in 2023 (No.) (i)	Upgrades in 2023 (No.) (i)	Credit estimated issuers (%)	Proportion credit estimated in Q4 2023 (%)	SPWARF (ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
Alliance Bernstein (14)	31.3	Software	22	1.9	139	126	0	6	92.8	6.9	3934	5.7	3.6	45.8	Blue Owl	6.9
Angelo Gordon/ Twin Brook (2)	23.5	Healthcare providers and services	34	2.3	93	87	0	4	89.6	0.3	3952	5.9	2.2	82.2	Maranon	1.5
Antares (12)	11.9	Healthcare providers and services	46	1.1	341	295	6	17	90.5	17.3	3933	5.4	3.1	31.2	Churchill	12.2
Apollo (1)	12.6	Professional services	17	5.4	27	25	0	1	89.0	0.2	3902	5.7	3.4	13.8	Midcap	13.4
Ares (7)	17.2	Software	37	1.8	247	173	2	3	60.7	3.3	3921	5.4	3.5	26.0	Audax	11.9
Audax (7)	11.8	Software	39	1.1	299	105	1	1	29.9	1.5	3665	4.9	4.1	24.2	Monroe	15.9
Bain (3)	9.3	Software	34	3.2	80	53	1	3	80.0	1.1	3973	6.0	3.9	42.6	Antares	9.4
Barings (6)	19.2	Software	38	2.5	168	122	2	5	83.2	1.3	3962	5.5	3.1	38.6	Antares	8.4
Blackrock (9)	26.3	Software	39	1.6	189	134	2	5	72.5	3.4	4175	5.9	3.8	32.9	HPS	10.7
Blue Owl (24)	21.7	Software	43	2.0	243	164	2	8	81.4	13.3	3868	6.0	4.1	37.2	HPS	12.1
BMO (4)	17.4	Healthcare providers and services	41	1.7	150	127	1	7	84.3	0.7	4302	5.3	2.7	49.3	Antares	6.2
Brightwood (4)	16.4	IT services	25	4.5	78	58	1	3	81.9	0.8	3929	6.5	2.6	63.5	KCAP/ Garrison	4.2
Carlyle (1)(iii)	11.8	Software	26	3.5	60	53	1	3	85.0	0.4	4041	6.1	3.2	16.8	First Eagle/ NewStar	4.6
Churchill (6)	10.6	Healthcare providers and services	46	1.3	253	190	4	4	78.3	2.5	3932	5.4	3.5	27.0	Antares	12.2
CIFC (1)	11.7	Healthcare providers and services	28	2.6	60	57	0	0	93.0	0.1	3648	6.4	3.0	56.8	Deerpath	8.1
Deerpath (7)	16.2	Healthcare providers and services	33	2.1	139	109	0	5	82.6	1.7	3946	6.0	3.0	69.8	CIFC	8.1

(i)Based on quarterly exposure to companies with credit estimates raised and lowered during the quarter, summed across all four quarters in 2023. (ii)Assets without credit estimate (or other derived S&P Global Ratings' credit rating) treated as 'ccc-' for purposes of SPWARF calculation. Includes both rated and credit estimated obligors. (iii)All portfolios across rated transactions are amortizing. MM--Middle-market. CLO--Collateralized loan obligation. SPWARF--S&P Global Ratings weighted average rating factor. WAS--Weighted average spread. WAM--Weighted average maturity. CE--Credit estimate. Source: S&P Global Ratings.

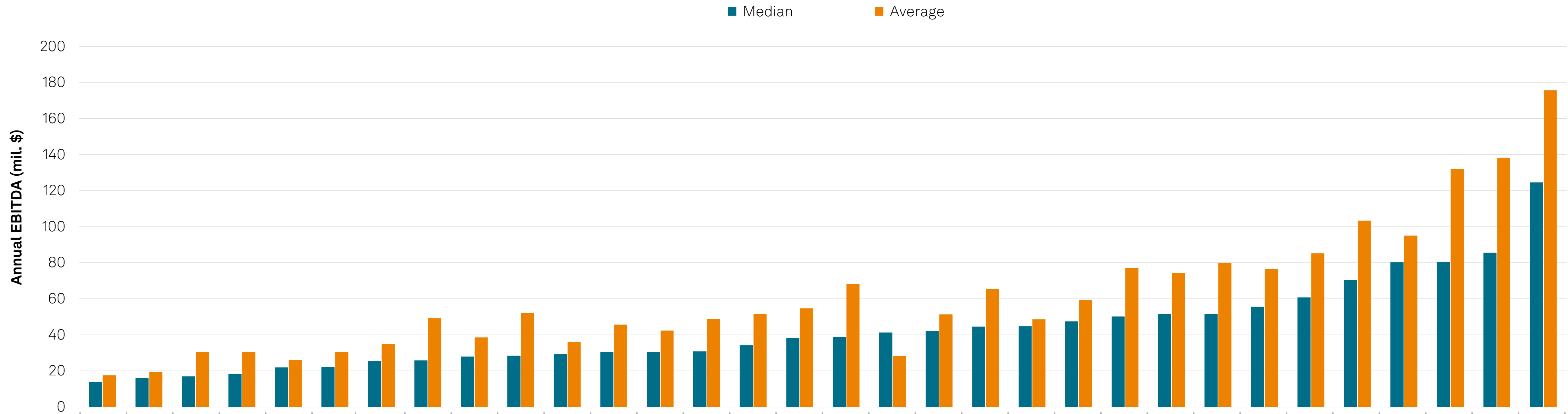
Managers | Fourth-Quarter 2023 Manager Metrics (2 of 2)

Manager (No. S&P MM CLOs)	Largest GICS Industry (%)	Largest GICS Industry	GICS industries (No.)	Largest issuer exposure (%)	Issuers (No.)	Issuers credit estimated (No.)	Downgrades in 2023 (No.) (i)	Upgrades in 2023 (No.) (i)	Credit estimated issuers (%)	Proportion credit estimated in Q4 2023 (%)	SPWARF (ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
First Eagle/ NewStar (5)	17.3	Healthcare providers and services	45	2.4	172	80	1	8	57.9	1.5	4156	5.7	3.2	41.0	Blackrock	6.5
Fortress (6)	14.3	Hotels, restaurants and leisure	41	4.1	134	72	0	2	58.2	1.5	4266	6.3	3.3	62.2	Blue Owl	5.5
Golub (30)	26.6	Software	44	1.6	293	226	2	11	91.1	22.6	3962	5.7	3.5	44.9	Blue Owl	10.6
GSO/ Blackstone (2)(iii)	31.2	Hotels, restaurants and leisure	11	16.7	15	11	0	0	60.1	0.0	3799	5.0	1.7	33.8	Apollo	3.2
Guggenheim (1)(iii)	11.2	Software	40	2.9	122	41	1	0	43.5	0.2	3936	5.3	3.6	26.6	Ares	9.4
HPS (1)	10.5	Software	33	1.5	76	55	0	1	72.1	0.7	3622	6.0	4.5	28.7	Blue Owl	12.1
KCAP/Garrison (4)	14.2	Software	36	2.7	115	59	1	1	46.7	0.5	4169	5.8	3.2	25.8	Ares	9.7
KKR (2)(iii)	12.9	Healthcare providers and services	25	3.8	64	48	0	2	77.5	1.8	4058	6.1	3.5	42.7	HPS	7.8
Maranon (6)	10.5	Professional services	35	2.0	125	112	1	3	91.6	3.0	3885	5.7	2.9	53.3	MCF/ Apogem	6.3
MCF/Apogem (8)	10.8	Insurance	39	1.7	216	185	2	8	87.4	4.1	3926	5.4	3.2	39.6	Ares	8.2
Midcap (12)	10.5	Commercial services and supplies	46	1.4	249	191	4	8	84.1	5.3	4042	5.9	3.3	40.5	Apollo	13.4
Monroe (1)	14.5	Healthcare providers and services	35	1.3	132	53	2	1	30.4	0.1	3896	4.9	3.9	27.3	Audax	15.9
MSD (1)	14.1	Healthcare providers and services	22	4.0	44	19	0	0	34.2	0.3	3720	5.8	4.3	33.0	HPS	8.3
NXT Capital (1)	17.8	Healthcare providers and services	26	2.1	76	67	1	1	89.3	0.3	4099	5.5	3.0	36.2	Barings	5.0
Pennantpark (7)	11.9	Professional services	35	1.8	135	93	0	7	72.8	2.7	4103	5.9	3.0	44.2	KCAP/ Garrison	7.6
Silver Point (2)	13.6	Software	29	2.9	54	26	0	1	45.2	0.3	4519	6.6	4.1	52.6	Fortress	3.4

(i)Based on quarterly exposure to companies with credit estimates raised and lowered during the quarter, summed across all four quarters in 2023. (ii)Assets without credit estimate (or other derived S&P Global Ratings' credit rating) treated as 'ccc-' for purposes of SPWARF calculation. Includes both rated and credit estimated obligors. (iii)All portfolios across rated transactions are amortizing. MM--Middle-market. CLO--Collateralized loan obligation. SPWARF--S&P Global Ratings weighted average rating factor. WAS--Weighted average spread. WAM--Weighted average maturity. CE--Credit estimate. Source: S&P Global Ratings.

Managers | Company Size Varies By Middle-Market CLO Manager

EBITDA of credit-estimated issuers held by MM CLO managers



Companies with an EBITDA of:	Deerpath (7)	Angelo Gordon/ Twin Brook (2)	Maranon (6)	First Eagle/ NewStar (5)	CIFC (1)	BMO (4)	NXT Capital (1)	MCF/Apogem (8)	Brightwood (4)	Pennantpark (7)	Apollo (1)	Barings (6)	Midcap (12)	Alliance Bernstein (14)	KCAP/Garrison (4)	Churchill (6)	Blackrock (9)	GSO/Blackstone (2)*	Monroe (1)	Antares (12)	Bain (3)	Fortress (6)	Golub (30)	Carlyle (1)*	Ares (7)	Silver Point (2)	Audax (7)	Blue Owl (24)	Guggenheim (1)*	MSD (1)	KKR (2)*	HPS (1)
Less than 10 mil. (%)	31.4	21.5	17.0	18.3	19.6	11.3	6.9	9.6	7.1	8.3	5.8	5.4	8.0	11.2	2.1	3.0	12.5	13.6	3.3	3.9	4.7	6.9	3.8	7.8	0.6	0.0	1.3	4.2	2.7	0.0	2.3	2.0
Less than 25 mil. (%)	69.8	62.2	56.6	46.4	58.7	48.1	48.8	42.9	32.4	28.2	42.0	33.4	29.5	31.0	24.6	24.1	24.3	13.6	33.6	15.4	27.0	21.3	12.4	21.4	14.6	5.5	18.1	4.9	4.5	0.0	3.5	4.0

*All portfolios across rated transactions are amortizing. MM--Middle market. CLO--Collateralized loan obligation. CE--Credit estimate. Source: S&P Global Ratings.

Managers | The Matrix: Fourth-Quarter 2023 Asset Overlap By Manager (%)

Source: S&P Global Ratings.

	Alliance Bernstein	Angelo Gordon/Twin Brook	Antares	Apollo	Ares	Audax	Bain	Barings	Blackrock	Blue Owl	BMO	Brightwood	Carlyle	Churchill	CIFC	Deerpath	First Eagle/NewStar	Fortress	Golub	GSO/Blackstone	Guggenheim	HPS	KCAP/Garrison	KKR	Maranon	MCF/Apogem	Midcap	Monroe	MSD	NXT Capital	Pennantpark	Silver Point
Alliance Bernstein		0.0	2.1	0.0	5.4	1.2	1.6	1.3	5.7	6.9	1.4	1.2	2.8	2.3	2.0	2.4	0.0	3.7	5.3	0.2	2.1	4.8	3.6	2.5	1.0	3.0	3.6	1.3	0.8	1.9	1.4	1.4
Angelo Gordon/Twin Brook	0.0		0.3	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.9	0.9	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.2	0.9	0.0	0.0	0.2	0.5	0.0
Antares	2.1	0.3		0.3	10.5	5.5	9.4	8.4	7.8	9.2	6.2	0.4	3.0	12.2	0.7	0.9	3.4	0.7	9.0	0.2	2.2	4.3	2.2	3.9	4.3	7.4	4.1	2.3	0.4	4.0	4.5	0.6
Apollo	0.0	0.0	0.3		0.0	0.0	0.0	1.1	0.0	0.0	0.6	1.4	0.0	0.5	0.0	0.0	2.4	0.0	0.0	3.2	0.0	0.0	1.4	0.0	0.0	1.1	13.4	0.5	0.0	0.0	2.6	0.0
Ares	5.4	0.2	10.5	0.0		11.9	1.8	4.5	9.8	5.9	1.1	0.3	2.9	7.2	1.7	0.6	3.4	2.0	7.9	0.4	9.4	5.4	9.7	4.8	2.2	8.2	4.6	8.8	1.6	0.3	3.2	0.0
Audax	1.2	0.1	5.5	0.0	11.9		3.2	1.4	5.8	5.8	0.9	0.4	2.4	11.0	0.4	2.2	5.2	3.2	3.3	0.0	7.2	3.0	9.5	1.4	2.9	5.2	1.1	15.9	2.1	0.0	6.2	0.0
Bain	1.6	0.0	9.4	0.0	1.8	3.2		2.2	0.9	1.1	0.0	0.0	1.0	1.0	0.0	0.0	5.3	0.4	1.8	0.0	0.2	1.5	0.7	0.0	0.0	1.5	2.2	0.6	0.2	0.5	2.1	0.0
Barings	1.3	0.1	8.4	1.1	4.5	1.4	2.2		2.4	1.9	5.0	1.1	2.8	8.2	0.0	0.1	4.1	0.9	2.0	0.0	2.0	1.6	2.6	0.6	2.4	3.0	3.3	3.0	1.2	5.0	2.5	1.4
Blackrock	5.7	0.0	7.8	0.0	9.8	5.8	0.9	2.4		9.3	0.0	3.8	0.7	6.6	0.2	0.5	6.5	4.4	7.1	0.0	7.2	10.7	3.4	5.3	3.5	4.2	3.5	5.1	1.2	1.3	6.1	3.2
Blue Owl	6.9	0.0	9.2	0.0	5.9	5.8	1.1	1.9	9.3		0.7	0.2	4.2	2.7	0.0	0.7	0.7	5.5	10.6	0.0	3.4	12.1	1.1	5.0	1.1	3.6	1.1	1.9	2.7	1.2	2.6	0.7
BMO	1.4	0.6	6.2	0.6	1.1	0.9	0.0	5.0	0.0	0.7		1.0	0.8	1.7	0.0	3.8	1.8	0.0	0.5	0.0	1.8	0.0	4.9	0.0	4.3	3.8	3.0	1.3	0.0	4.0	0.7	0.0
Brightwood	1.2	0.0	0.4	1.4	0.3	0.4	0.0	1.1	3.8	0.2	1.0		0.4	1.8	0.0	0.5	0.4	2.3	0.9	0.0	0.0	1.5	4.2	0.9	0.4	0.4	1.2	0.4	1.1	0.0	1.8	0.9
Carlyle	2.8	0.0	3.0	0.0	2.9	2.4	1.0	2.8	0.7	4.2	0.8	0.4		3.1	0.0	0.0	4.6	0.7	3.4	1.5	1.5	2.9	1.7	4.6	0.0	2.3	1.5	1.8	0.0	0.0	1.0	3.0
Churchill	2.3	0.9	12.2	0.5	7.2	11.0	1.0	8.2	6.6	2.7	1.7	1.8	3.1		2.4	1.2	3.2	0.4	4.5	0.4	2.4	1.1	3.4	1.8	4.6	7.5	5.2	8.1	0.5	1.4	3.0	0.0
CIFC	2.0	0.9	0.7	0.0	1.7	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	2.4		8.1	1.8	0.6	0.1	0.0	0.0	0.0	1.6	0.0	5.4	1.2	0.0	1.2	0.0	0.0	3.2	0.0
Deerpath	2.4	0.3	0.9	0.0	0.6	2.2	0.0	0.1	0.5	0.7	3.8	0.5	0.0	1.2	8.1		1.2	0.5	0.1	0.2	0.0	0.2	2.6	0.0	0.0	1.0	0.0	0.9	0.2	0.9	2.6	0.0
First Eagle/NewStar	0.0	0.6	3.4	2.4	3.4	5.2	5.3	4.1	6.5	0.7	1.8	0.4	4.6	3.2	1.8	1.2		2.3	0.4	1.8	4.5	1.0	4.7	0.0	2.8	2.5	4.0	4.8	1.0	2.6	5.1	0.0
Fortress	3.7	0.0	0.7	0.0	2.0	3.2	0.4	0.9	4.4	5.5	0.0	2.3	0.7	0.4	0.6	0.5	2.3		0.7	0.0	3.0	2.6	2.8	1.1	0.0	0.0	1.4	0.6	1.1	0.0	1.3	3.4
Golub	5.3	0.0	9.0	0.0	7.9	3.3	1.8	2.0	7.1	10.6	0.5	0.9	3.4	4.5	0.1	0.1	0.4	0.7		0.0	1.5	9.9	3.5	6.3	1.1	2.7	1.6	0.9	0.4	1.1	0.8	0.2
GSO/Blackstone	0.2	0.0	0.2	3.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.4	0.0	0.2	1.8	0.0	0.0		0.0	0.0	1.1	0.0	0.3	0.3	0.9	0.3	0.0	0.0	0.9	0.0
Guggenheim	2.1	0.0	2.2	0.0	9.4	7.2	0.2	2.0	7.2	3.4	1.8	0.0	1.5	2.4	0.0	0.0	4.5	3.0	1.5	0.0		7.2	5.0	1.4	1.2	0.2	1.5	9.1	2.5	0.0	1.9	0.3
HPS	4.8	0.0	4.3	0.0	5.4	3.0	1.5	1.6	10.7	12.1	0.0	1.5	2.9	1.1	0.0	0.2	1.0	2.6	9.9	0.0	7.2		0.2	7.8	1.3	0.8	1.9	1.0	8.3	0.0	3.8	0.0
KCAP/Garrison	3.6	0.0	2.2	1.4	9.7	9.5	0.7	2.6	3.4	1.1	4.9	4.2	1.7	3.4	1.6	2.6	4.7	2.8	3.5	1.1	5.0	0.2		0.0	2.0	0.9	2.0	4.6	0.8	1.4	7.6	1.2
KKR	2.5	0.0	3.9	0.0	4.8	1.4	0.0	0.6	5.3	5.0	0.0	0.9	4.6	1.8	0.0	0.0	0.0	1.1	6.3	0.0	1.4	7.8	0.0		1.2	0.8	2.2	2.2	1.0	1.3	0.0	0.9
Maranon	1.0	1.5	4.3	0.0	2.2	2.9	0.0	2.4	3.5	1.1	4.3	0.4	0.0	4.6	5.4	0.0	2.8	0.0	1.1	0.3	1.2	1.3	2.0	1.2		6.3	1.4	1.2	0.0	3.2	1.9	1.4
MCF/Apogem	3.0	0.2	7.4	1.1	8.2	5.2	1.5	3.0	4.2	3.6	3.8	0.4	2.3	7.5	1.2	1.0	2.5	0.0	2.7	0.3	0.2	0.8	0.9	0.8	6.3		6.9	2.2	0.7	4.4	3.0	0.0
Midcap	3.6	0.9	4.1	13.4	4.6	1.1	2.2	3.3	3.5	1.1	3.0	1.2	1.5	5.2	0.0	0.0	4.0	1.4	1.6	0.9	1.5	1.9	2.0	2.2	1.4	6.9		2.7	0.7	2.4	4.4	0.2
Monroe	1.3	0.0	2.3	0.5	8.8	15.9	0.6	3.0	5.1	1.9	1.3	0.4	1.8	8.1	1.2	0.9	4.8	0.6	0.9	0.3	9.1	1.0	4.6	2.2	1.2	2.2	2.7		2.2	1.8	3.5	0.0
MSD	0.8	0.0	0.4	0.0	1.6	2.1	0.2	1.2	1.2	2.7	0.0	1.1	0.0	0.5	0.0	0.2	1.0	1.1	0.4	0.0	2.5	8.3	0.8	1.0	0.0	0.7	0.7	2.2		0.0	2.1	2.9
NXT Capital	1.9	0.2	4.0	0.0	0.3	0.0	0.5	5.0	1.3	1.2	4.0	0.0	0.0	1.4	0.0	0.9	2.6	0.0	1.1	0.0	0.0	0.0	1.4	1.3	3.2	4.4	2.4	1.8	0.0		2.7	0.0
Pennantpark	1.4	0.5	4.5	2.6	3.2	6.2	2.1	2.5	6.1	2.6	0.7	1.8	1.0	3.0	3.2	2.6	5.1	1.3	0.8	0.9	1.9	3.8	7.6	0.0	1.9	3.0	4.4	3.5	2.1	2.7		2.6
Silver Point	1.4	0.0	0.6	0.0	0.0	0.0	0.0	1.4	3.2	0.7	0.0	0.9	3.0	0.0	0.0	0.0	0.0	3.4	0.2	0.0	0.3	0.0	1.2	0.9	1.4	0.0	0.2	0.0	2.9	0.0	2.6	

Managers | CLO Asset Credit Distribution By Manager

Credit Distribution Across Rated MM CLO Exposures (%)

Manager (S&P MM CLOs)	BBB	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	No rating/ CE	Non-perform	Earliest trustee report in data set	Latest trustee report in data set
Alliance Bernstein (14)	0.0	0.0	0.0	0.0	0.0	3.5	71.7	15.1	2.8	2.3	4.6	0.0	1/9/2024	3/8/2024
Angelo Gordon/Twin Brook (2)	0.0	0.0	0.0	0.0	0.0	2.2	79.5	1.7	3.1	3.1	10.4	0.0	2/6/2024	2/6/2024
Antares (12)	0.0	0.0	0.0	0.0	0.0	6.9	69.7	10.9	4.4	4.2	3.6	0.4	1/11/2024*	3/7/2024
Apollo (1)	0.0	0.0	0.0	0.0	0.0	7.5	72.0	7.3	2.2	0.0	11.0	0.0	1/31/2024	1/31/2024
Ares (7)	0.0	0.0	0.0	0.0	0.0	8.5	71.8	7.3	3.9	1.7	5.7	1.2	2/1/2024	2/5/2024
Audax (7)	0.0	0.0	0.0	0.1	0.8	20.0	65.1	7.9	2.4	0.3	3.3	0.3	2/6/2024	2/6/2024
Bain (3)	0.0	0.0	0.2	0.3	0.4	7.1	66.1	10.1	2.3	0.0	13.6	0.0	2/6/2024	2/8/2024
Barings (6)	0.0	0.0	0.0	0.0	0.1	11.1	63.8	7.9	3.1	4.6	9.4	0.1	3/5/2024	3/8/2024
Blackrock (9)	0.0	0.0	0.0	0.0	0.0	13.1	57.2	10.4	7.1	3.9	4.3	4.1	2/5/2024	3/6/2024
Blue Owl (24)	0.3	0.0	0.0	0.0	0.4	9.9	65.3	13.7	3.6	0.1	6.6	0.0	1/31/2024*	3/6/2024
BMO (4)	0.0	0.0	0.0	0.0	0.0	5.7	60.0	5.6	5.5	6.2	14.9	2.1	1/31/2024	1/31/2024
Brightwood (4)	0.0	0.0	0.0	0.0	2.7	12.9	56.7	8.8	7.6	4.8	6.5	0.0	2/7/2024	3/5/2024
Carlyle (1)*	0.0	0.0	0.0	0.0	2.4	7.4	62.8	8.1	8.0	5.8	4.2	1.5	2/21/2024	2/21/2024
Churchill (6)	0.0	0.0	0.0	0.0	0.6	8.2	69.3	8.7	2.5	1.8	8.3	0.7	2/7/2024	2/7/2024
CIFC (1)	0.0	1.8	0.0	0.0	0.0	5.4	84.8	3.9	0.0	0.0	4.1	0.0	3/6/2024	3/6/2024
Deerpath (7)	0.0	0.0	0.0	0.1	0.0	5.0	76.0	2.3	0.7	2.5	13.4	0.0	2/13/2024	2/13/2024
First Eagle/NewStar (5)	0.0	0.0	0.0	0.0	2.4	10.3	55.8	11.8	2.5	4.6	9.6	3.0	2/15/2024	3/11/2024
Fortress (6)	0.0	0.0	0.1	5.9	0.2	6.9	50.8	8.6	3.6	4.1	15.7	4.1	1/31/2024	2/29/2024
Golub (30)	0.0	0.0	0.0	0.0	0.0	4.3	72.4	11.4	3.1	2.2	6.2	0.6	2/1/2024	3/11/2024
GSO/Blackstone (2)*	0.0	3.7	0.0	0.0	0.0	6.0	73.5	0.0	4.7	4.1	8.0	0.0	2/6/2024	2/6/2024
Guggenheim (1)*	0.0	0.0	0.1	0.2	2.6	12.6	56.2	11.3	8.2	0.6	7.7	0.6	2/7/2024	2/7/2024
HPS (1)	0.0	0.0	0.0	1.6	3.0	13.6	70.4	4.5	0.0	1.5	5.5	0.0	2/8/2024	2/8/2024
KCAP/Garrison (4)	0.0	0.4	0.0	0.0	0.8	9.9	56.9	9.1	7.6	7.2	5.4	2.6	2/2/2024	2/7/2024
KKR (2)*	0.0	0.0	0.0	0.0	0.1	8.1	67.0	1.0	1.8	4.6	17.4	0.0	1/31/2024	2/29/2024
Maranon (6)	0.0	0.0	0.0	0.0	0.0	3.8	79.6	4.4	4.0	3.6	4.3	0.4	2/5/2024	2/5/2024
MCF/Apogem (8)	0.0	0.0	0.0	0.0	0.0	10.5	69.4	3.9	2.5	3.2	9.9	0.5	2/7/2024	2/9/2024
Midcap (12)	0.0	0.0	0.0	0.0	0.0	9.7	63.0	7.9	2.6	3.4	13.0	0.5	2/5/2024	3/6/2024
Monroe (1)	0.0	0.0	0.0	0.0	1.8	19.9	54.4	12.1	0.0	1.2	8.4	2.1	2/8/2024	2/8/2024
MSD (1)	0.0	0.0	0.0	0.0	6.5	15.3	60.2	5.0	0.0	0.0	13.0	0.0	2/1/2024	2/1/2024
NXT Capital (1)	0.0	0.0	0.0	0.0	0.0	3.8	67.0	8.5	3.0	8.8	8.9	0.0	2/7/2024	2/7/2024
Pennantpark (7)	0.0	0.0	0.0	0.0	0.5	6.1	65.3	5.5	4.8	3.8	13.4	0.6	2/7/2024	3/6/2024
Silver Point (2)	0.0	0.0	0.0	0.0	2.9	11.5	34.6	14.4	2.2	0.0	31.6	2.8	2/1/2024	2/1/2024

Based on most recent trustee report available to us as of Apr. 1, 2024, and ratings and credit estimates as of that date.

*All portfolios across rated transactions are amortizing. §Some transactions recently reset. MM--Middle market. CLO--Collateralized loan obligation. CE--Credit estimate. Source: S&P Global Ratings.

PE Sponsors | Sponsor Diversity In MM CLO Collateral Pools

Manager (No. of S&P MM CLOs)	Credit estimated issuers (%)	Credit estimated issuer (No.)	Credit estimated exposures matched to sponsor (%)	Unique sponsors across CE issuers (No.)	Max exposure across 1 sponsor (%)	Max CE issuers from one sponsor (No.)	Earliest trustee report in data set	Latest trustee report in data set
Alliance Bernstein (14)	92.8	126	87.6	76	3.5	4	1/9/2024	3/8/2024
Angelo Gordon/Twin Brook (2)	89.6	87	95.6	49	5.3	7	2/6/2024	2/6/2024
Antares (12)	90.5	295	94.9	117	3.8	12	1/11/2024*	3/7/2024
Apollo (1)	89.0	25	92.7	18	9.7	2	1/31/2024	1/31/2024
Ares (7)	60.7	173	91.4	85	3.0	6	2/1/2024	2/5/2024
Audax (7)	29.9	105	92.4	53	1.3	3	2/6/2024	2/6/2024
Bain (3)	80.0	53	84.9	34	5.3	3	2/6/2024	2/8/2024
Barings (6)	83.2	122	98.5	59	4.9	7	3/5/2024	3/8/2024
Blackrock (9)	72.5	134	88.7	53	8.7	14	2/5/2024	3/6/2024
Blue Owl (24)	81.4	164	85.5	66	6.7	9	1/31/2024*	3/6/2024
BMO (4)	84.3	127	95.5	83	3.9	7	1/31/2024	1/31/2024
Brightwood (4)	81.9	58	88.3	35	8.7	3	2/7/2024	3/5/2024
Carlyle (1)*	85.0	53	92.9	36	7.3	3	2/21/2024	2/21/2024
Churchill (6)	78.3	190	94.5	81	4.4	8	2/7/2024	2/7/2024
CIFC (1)	93.0	57	85.2	38	5.8	4	3/6/2024	3/6/2024
Deerpath (7)	82.6	109	94.2	70	5.1	6	2/13/2024	2/13/2024
First Eagle/NewStar (5)	57.9	80	89.1	45	4.4	4	2/15/2024	3/11/2024
Fortress (6)	58.2	72	69.9	39	4.6	3	1/31/2024	2/29/2024
Golub (30)	91.1	226	93.4	95	6.9	11	2/1/2024	3/11/2024
GSO/Blackstone (2)*	60.1	11	88.3	5	16.7	1	2/6/2024	2/6/2024
Guggenheim (1)*	43.5	41	95.9	21	4.6	2	2/7/2024	2/7/2024
HPS (1)	72.1	55	89.3	35	4.5	4	2/8/2024	2/8/2024
KCAP/Garrison (4)	46.8	59	94.9	37	3.8	3	2/2/2024	2/7/2024
KKR (2)*	77.5	48	87.3	29	7.0	3	1/31/2024	2/29/2024
Maranon (6)	91.6	112	86.3	62	5.4	4	2/5/2024	2/5/2024
MCF/Apogem (8)	87.4	185	94.7	110	3.6	7	2/7/2024	2/9/2024
Midcap (12)	84.1	191	92.4	102	3.7	7	2/5/2024	3/6/2024
Monroe (1)	30.4	53	93.5	32	2.1	2	2/8/2024	2/8/2024
MSD (1)	34.2	19	82.1	9	6.0	2	2/1/2024	2/1/2024
NXT Capital (1)	89.3	67	97.7	47	5.9	3	2/7/2024	2/7/2024
Pennantpark (7)	72.8	93	90.3	51	5.2	6	2/7/2024	3/6/2024
Silver Point (2)	45.2	26	97.1	19	5.2	2	2/1/2024	2/1/2024

Based on most recent trustee report available to us as of Apr. 1, 2024, and ratings and credit estimates as of that date. *All portfolios across rated transactions are amortizing.
MM--Middle market. CLO--Collateralized loan obligation. CE--Credit estimate. Source: S&P Global Ratings.

- Over 450 sponsors are affiliated with the 2,000+ issuers that have been credit estimated in 2022 and 2023. Some sponsors are affiliated with several issuers that have been recently credit estimated, while some sponsors are affiliated with much fewer issuers.
- Some sponsors fund their investments across several MM CLO managers, while some sponsors only work with a small handful of managers.
- Across the sponsors of issuers held across 10 or more MM CLO managers, we find the CLO exposures to these issuers tend to have:
  - Loans with slightly lower spreads;
  - Higher credit estimates;
  - A further pushed out maturity wall; and
  - More tech-related companies.

MM CLO Ratings | Few Downgrades In 2020 (And Only One Since)

U.S. BSL CLO and middle-market CLO rating changes (2020-Q1 2024)

CLO type	Total ratings (mid-2020)	Rating action	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22	Q4'22	Q1'23	Q2'23	Q3'23	Q4'23	Q1'24	Total
BSL CLOs	3,786	Lowered		19	464	10	4	7	2	4	3	1	3	3	7	5	24	12	7	575
		Raised			5	5	4	18	23	203	4	70	2	3	2	1	79	3	15	437
MM CLOs	553	Lowered			7														1	8
		Raised							2	13	2	6	2	2	3	2	2		17	51

BSL--Broadly syndicated loan. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

MM CLO transactions performed well during the pandemic, with only seven ratings lowered during 2020--about 1.3% of the outstanding ratings at the time, versus 13.0% of BSL CLO ratings lowered during the year. Why?

1) **CLO structural reasons:** MM CLOs tend to have more par subordination and rating cushion at a given tranche level than a typical BSL CLO, with this being positively correlated with the proportion of credit estimates in a CLO collateral pool. MM CLOs also sometimes don't issue lower-rated ('BBB' and 'BB') tranches, which would be more likely to see downgrades than more senior tranches.

2) **Fewer loan payment defaults:** In 2020, parties to middle-market loan agreements were able to amend loan terms in ways that avoided payment defaults and bankruptcy. This took different forms: rolling scheduled amortization into the final bullet, allowing a company to PIK upcoming interest payments, pushing out loan maturities, etc. S&P Global Ratings treated some of these as selective defaults, but they reduced the level of conventional (payment) defaults (see slide 16).

3) **Some sponsors injected cash into their companies:** This was done because, in some cases, sponsors saw value in infusing equity rather than losing control of the company in a payment default/bankruptcy scenario. In a more protracted downturn, however, the economic incentives to do this might be less appealing.

4) **CLO manager asset swaps:** Under their CLO indenture provisions, MM CLO managers can swap out distressed assets from the portfolio and replace them with loans from better-performing companies. Because MM CLO managers often (although not always) hold the CLO equity in their transactions, and because they often manage assets across different types of accounts, in some cases they may be incentivized to move distressed assets outside of their CLO(s) and replace them. It's also often easier for a manager to work out a distressed loan outside the CLO.

5) **Par build from new loans:** New issue loans are typically placed into MM CLOs at a small discount--for example, 97.5% or 98% of par. Since these loans are carried at par, they increase the overall par value of the collateral pool and benefit the CLO. During periods of stress, collateral turnover will likely slow and the effect will be muted. During periods of higher collateral turnover, such as in 2021, the effect can be more pronounced.

MM CLO Ratings | Thirty Years And 60 CLO Tranche Defaults

- S&P Global Ratings has rated **more than** 18,000 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 60 U.S. CLO tranches **have defaulted:** 40 U.S. CLO tranches from CLO 1.0 transactions originated in 2009 or before, and another 20 U.S. CLO 2.0 tranches.
- Across eight other CLO 2.0s, there are two tranches rated 'CC (sf)' that are **likely to default** in the future for similar reasons and another six tranches rated 'CCC- (sf)' that may default.

U.S. BSL and middle-market CLO 1.0 and 2.0 default summary by original rating (no.)

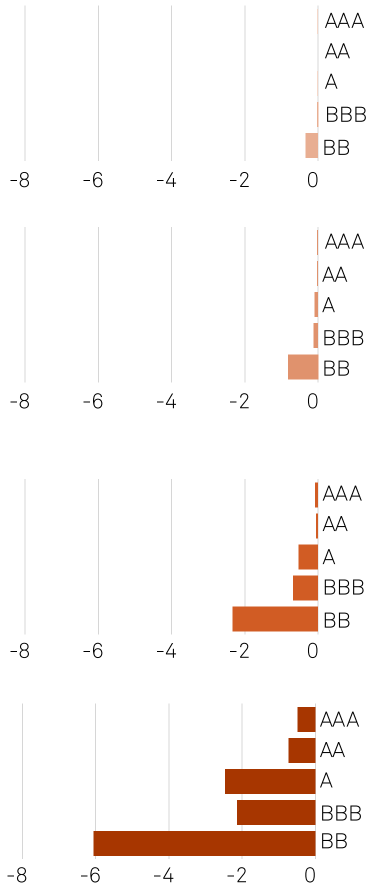
	CLO 1.0 transactions (2009 and prior)			CLO 2.0 transactions (2010 and later)		
	Original ratings(i)	**Defaults(ii)**	**Currently rated**	**Original ratings(i)**	**Defaults(ii)**	**Currently rated**
AAA (sf)	1,540	0	0	3,840	0	1,753
AA (sf)	616	1	0	3,112	0	1,498
A (sf)	790	5	0	2,582	0	1,290
BBB (sf)	783	9	0	2,355	0	1,273
BB (sf)	565	22	0	1,919	9	1,043
B (sf)	28	3	0	396	11	182
Total	**4,322**	**40**	**0**	**14,204**	**20**	**7,039**

(i)Original rating counts as of December 31, 2023. (ii)CLO tranche default counts as of April 1, 2024.
Source: S&P Global Ratings Credit Research & Insights and S&P Global Market Intelligence's CreditPro®.

MM CLO Ratings | Scenario Analysis: How Resilient Are MM CLO Ratings?

MM--Middle market. WA--Weighted average. Source: S&P Global Ratings.

Scenario		Impact across CLO sample	average notches off current rating
10% default scenario	10% of performing assets within each MM portfolio defaults with 50% recovery	5% par loss within all MM portfolios	
15% default scenario	15% of performing assets within each MM portfolio defaults with 50% recovery	7.5% par loss within all MM portfolios	
20% default scenario	20% of performing assets within each MM portfolio defaults with 50% recovery	10% par loss within all MM portfolios	
30% default scenario	30% of performing assets within each MM portfolio defaults with 50% recovery	15% par loss within all MM portfolios	



- We applied a series of hypothetical stress scenarios to of our rated middle-market CLO transactions, generating quantitative analysis for each one using our CLO rating models (CDO Evaluator and S&P Cash Flow Evaluator) (see "Scenario Analysis: How Resilient Are Middle-Market CLO Ratings (2023 Update)?"published Oct. 16, 2023.)
- The scenarios feature increasing levels of collateral default stress.
- The stress scenarios shows the fundamentals of the CLO structure protecting the noteholders, especially for the senior CLO tranches, and that middle-market CLOs can withstand comparable asset defaults with less rating impact than BSL CLOs.

S&P Global Ratings

MM CLO Ratings | Scenario Analysis: How Resilient Are MM CLO Ratings?

Hypothetical stress scenario results

Scenario One: 10% default / 5% par loss

			CLO tranche rating movement under scenario (%)									
Current tranche rating	**0**	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7+**	**Avg. notches**	**Spec.-grade**	**'CCC' category**	**Below 'CCC-'**
'AAA'	98.90	1.10							-0.01			
'AA'	100.00								0.00			
'A'	99.27	0.73							-0.01			
'BBB'	96.58	3.42							-0.03	3.42		
'BB'	86.57	7.46	1.49		1.49	1.49		1.49	-0.34	100.00	2.99	1.49

Scenario Two: 15% default / 7.5% par loss

			CLO tranche rating movement under scenario (%)									
Current tranche rating	**0**	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7+**	**Avg. notches**	**Spec.-grade**	**'CCC' category**	**Below 'CCC-'**
'AAA'	98.17	1.83							-0.02			
'AA'	98.83		1.17						-0.02			
'A'	94.16	3.65	1.46	0.73					-0.09			
'BBB'	90.60	6.84	2.56						-0.12	5.13		
'BB'	65.67	20.90	4.48	1.49		1.49	1.49	4.48	-0.82	100.00	2.99	4.48

Scenario Three: 20% default / 10% par loss

			CLO tranche rating movement under scenario (%)									
Current tranche rating	**0**	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7+**	**Avg. notches**	**Spec.-grade**	**'CCC' category**	**Below 'CCC-'**
'AAA'	93.04	6.96							-0.07			
'AA'	95.91	2.92	1.17						-0.05			
'A'	63.50	23.36	11.68	0.73	0.73				-0.52	0.73		
'BBB'	48.72	41.03	5.98	2.56	1.71				-0.68	48.72		
'BB'	25.37	28.36	8.96	11.94	2.99	7.46	4.48	10.45	-2.33	100.00	14.93	10.45

Scenario Four: 30% default / 15% par loss

			CLO tranche rating movement under scenario (%)									
Current tranche rating	**0**	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7+**	**Avg. notches**	**Spec.-grade**	**'CCC' category**	**Below 'CCC-'**
'AAA'	53.11	45.79		1.10					-0.49			
'AA'	55.56	19.30	23.98			1.17			-0.73			
'A'	11.68	3.65	29.20	16.79	32.85	5.11	0.73		-2.74	10.95		
'BBB'	5.98	45.30	13.68	17.09	11.11	4.27		2.56	-2.14	94.02	0.85	1.71
'BB'	8.96	4.48	2.99			1.49		82.09	-6.06	100.00	1.49	82.09

WA--Weighted average. Source: S&P Global Ratings.

- Even under the most punitive of our scenarios, with 30% of the collateral in the CLOs defaulting with a 50% recovery, about three-quarters of the CLO 'AAA' ratings either remain 'AAA' or are downgraded one notch to 'AA+'.
- No 'AAA' rating was lowered by more than five notches (below 'A') under any of the scenarios.
- As expected, ratings further down the MM CLO capital stack were affected more significantly in the hypothetical stress scenarios.
- For example, under our most stressful scenario (the above-referenced 30% default case), 94% of our 'BBB' ratings were lowered to 'BB+' or below, while 0.85% of the ratings were lowered into the 'CCC' range and 1.71% defaulted.

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