Private Credit And Middle-Market CLO Quarterly: Pick Up In Performance And PIKs

Q3 2024

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This report does not constitute a rating action

Q3 2024 Update | Private Credit And Middle-Market CLOs

More Middle-Market CLOs, More Credit Estimates

The pace of U.S. middle-market collateralized loan obligation (CLO) issuance continues to fuel the growth of credit estimates (see **slide 11**). For the second quarter, a total of 970 credit estimates were issued, of which 234 were new and 736 were refreshes of existing credit estimates. For the year, S&P Global Ratings has completed an aggregate 1,720 credit estimates, of which 451 are new and the remaining refreshes of existing estimates. We estimate the aggregate value of committed senior first-lien debt from companies we've credit estimated over the past 12-months to be more than $640 billion. This figure is indicative of the size of the direct lending segment of the private credit market, as these loans are also held in other vehicles managed by private credit managers or on their balance sheets.

Credit Estimate Downgrades Increased, But So Did Upgrades

The second quarter saw a total of 98 credit estimate downgrades, bringing the total for the first half of the year to 181 (see **slide 14**). Although the second quarter saw an increase in the absolute number of downgrades, the percentage of downgrades of companies reviewed during the quarter declined. This is a function of an increase in the number of companies refreshed in the second quarter. For the quarter, 13% of the estimates reviewed (excluding new estimates) resulted in downgrades; this compares to 15% of entities that were downgraded in the first quarter. Six percent were upgrades, compared to 5% for the first quarter, and the remaining 81% of the reviews were affirmations.

Higher debt servicing costs arising out of decade-high benchmark rates continue to exert pressure on companies' liquidity and margins. We expect credit estimate downgrades to continue to moderate, given the resilience of the U.S. economy and the steadying of inflation. Further, companies continue to make efforts to contain costs, including increased instances of companies renegotiating applicable margins on their loans. This is like the dynamic of spreads getting repriced in the broadly syndicated loan (BSL) markets; and in both cases, the reduction in loan spreads is a partial offset to the increase in base rates (SOFR) over the past two years.

Pace Of Selective Defaults Moderates

The pace of selective defaults among credit-estimated companies moderated in the second quarter of 2024 (see **slide 18**). Selective defaults continue to be driven by payment-in-kinds (PIKs) as stressed companies seek to use deferral of interest to maintain liquidity. Another driver of selective defaults is companies amending their credit agreements to extend their loan maturities, given the challenges for sponsor exits. Based on the notifications we have received, selective defaults for the U.S. credit estimate universe stands at 4.57% on a last-12-month (LTM) basis. Among rated BSL issuers, the LSTA Leveraged Loan Index default was 1.55% on an issuer count basis, while the broader dual-track loan default, including out-of-court liability management transactions along with payment defaults, was at 4.31% at the end of June.

Although the pace of selective defaults for credit-estimated issuers has moderated, we find more instances of entities that have given issuers the option to PIK on a portion of their spreads from day one. For these partial PIKs, in our CLO analysis, we only give credit for the cash portion of the interest payment and to the day-one loan balance.

Q3 2024 Update | Private Credit And Middle-Market CLOs

Middle-Market (MM) CLO Issuance Vs. BSL CLO Issuance: Strong And Stronger

The first half of 2024 saw record MM CLO issuance at $19.5 billion per Pitchbook LCD (see **slide 20**). This is 65% higher than the tally for the first half of last year ($11.8 billion), but MM CLO issuance as a proportion of total U.S. CLO issuance dropped. This is due to exceptionally strong BSL CLO issuance year to date: $81.9 billion, up 90.9% over the first half of 2023. We think strong MM CLO new issuance will continue for the rest of this year, but BSL CLO new issuance will slow as lack of new loan supply limits the collateral available for new BSL CLO creation. The BSL loan market has been busy with companies repricing and refinancing their loans this year, but limited M&A and LBOs has meant few truly new loans. BSL CLO resets and refinancings have accelerated and will likely fill the gap.

Interest in MM CLOs continues to grow. We were in Japan and Korea this past May, and every conversation included a private credit and MM CLO segment, even if actual money allocated to the space in the region remains modest so far compared to BSL CLOs. We've also spoken with managers who are seeing interest from countries in the Middle East. MM CLO managers tell us they have a busy pipeline and expect a busy second half to the year.

We're also hearing more discussions around arbitrage MM CLOs, with equity held by third parties rather than the more common instance of equity held in-house by the manager or a related entity. One potential indicator of this is the CLO capital structure, with third-party equity MM CLOs tending to have a full capital stack, including an original 'BB' category tranche. Of our rated universe of 236 MM CLO transactions as of mid-2024, about 44% fall into this category.

MM CLOs Collateral Metrics Mostly Stable

Downgrades of corporate speculative-grade issuer ratings has been moderating for some time, and the downgrade:upgrade ratio for the second quarter was a benign 1.2 downgrades for each upgrade. The pace of downgrades for credit-estimated loan issuers is also moderating, but at a slower pace, and there were 2.1 downgrades for each upgrade (see **slide 14**). This has had an impact on MM CLO credit metrics, with 'CCC' asset exposure at an average 16.13% of total collateral in July 2024 versus 10.48% a year earlier. Other metrics for MM CLOs saw only modest deterioration. Exposure to non-performing assets was 0.54% in June 2024 versus 0.37% a year prior, and the average par (versus target par) of a MM CLO went to 100.60 from 100.76. All of this came together in the average junior overcollateralization ratio test cushion, which edged downward to a still-robust 6.44% from 6.87% a year earlier (see **slide 21**). As always, it's worth noting that there's a vintage effect here, with older CLO transactions (particularly those originated prior to the arrival of the pandemic in first-quarter 2020) showing weaker collateral metrics than newer CLOs. It's also worth keeping in mind the strong performance shown by MM CLO ratings, with one downgrade in first-quarter 2024 and a total of eight ratings lowered since 2020, including the pandemic (see **slide 34**).

What's New This Quarter

- We compare performance trends across BSL CLO and MM CLOs, looking at weighted average spread (WAS), weighted average maturity (WAM), S&P Global Ratings' weighted average rating factor (SPWARF) ,and junior overcollateralization (O/C) test cushions since the start of 2022 (see **slide 24**).
- We compare 'CCC' exposures at time of closing for new issue CLOs and CLO resets across both MM and BSL CLOs (see **slide 25**).
- We look at assets removed from MM CLOs (by sale or collateral substitution) at a discount to par from first-quarter 2020 through Q2 2024 (see **slide 33**).

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Credit Metrics | Median Leverage Trends, And Q1 Vs. Q2 Comparison

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

S&P Global Ratings-calculated leverage ratios for first-half 2024 for the top 10 most represented sectors

Industry	Median of debt/EBITDA (x)	Obligors (no.)
Software	7.83	182
Healthcare providers and services	6.92	180
Commercial services and supplies	6.33	111
Professional services	5.91	109
IT services	6.15	71
Construction and engineering	5.47	70
Diversified consumer services	6.18	66
Media	5.91	61
Hotels, restaurants, and leisure	6.21	46
Health care technology	6.91	44
All sectors	**6.13**	**1,590**

Source: S&P Global Ratings.

S&P Global Ratings-calculated leverage ratios Q1 vs. Q2 comparison for the top 10 most represented sectors

	Median of debt/EBITDA (x)		
Industry	Q1	Q2	△
Software	7.89	8.09	+0.20
Healthcare providers and services	7.39	6.76	-0.63
Commercial services and supplies	5.94	6.39	+0.45
Professional services	5.65	6.08	+0.43
IT services	6.27	5.96	-0.31
Construction and engineering	5.37	5.84	+0.48
Diversified consumer services	5.95	6.91	+0.96
Media	5.91	5.94	+0.02
Hotels, restaurants, and leisure	6.38	5.56	-0.83
Health care technology	5.90	7.11	+1.21
All sectors	**6.12**	**6.31**	**+0.19**

Source: S&P Global Ratings.

Credit Metrics | Median Coverage Trends, And Q1 Vs. Q2 comparison

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

S&P Global Ratings-calculated coverage ratios for first-half 2024 for the top 10 most represented sectors

Industry	Median EBITDA cash interest coverage (x)	Median FOCF* + cash interest coverage (x)	Obligors (no.)
Software	1.12	0.85	182
Healthcare providers and services	1.47	0.98	180
Commercial services and supplies	1.48	0.92	111
Professional services	1.60	1.01	109
IT services	1.52	1.13	71
Construction and engineering	1.80	0.96	70
Diversified consumer services	1.61	1.12	66
Media	1.50	1.16	61
Hotels, restaurants, and leisure	1.84	1.25	46
Health care technology	1.44	1.16	44
All sectors	**1.56**	**1.06**	**1,590**

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

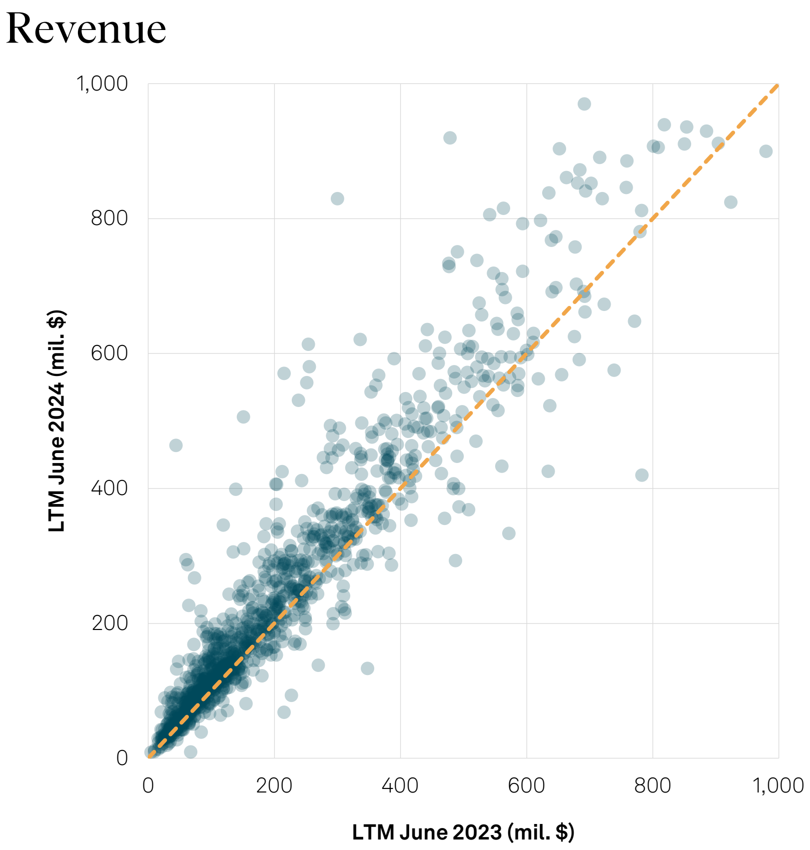
S&P Global Ratings-calculated coverage ratios Q1 vs. Q2 comparison for the top 10 most represented sectors

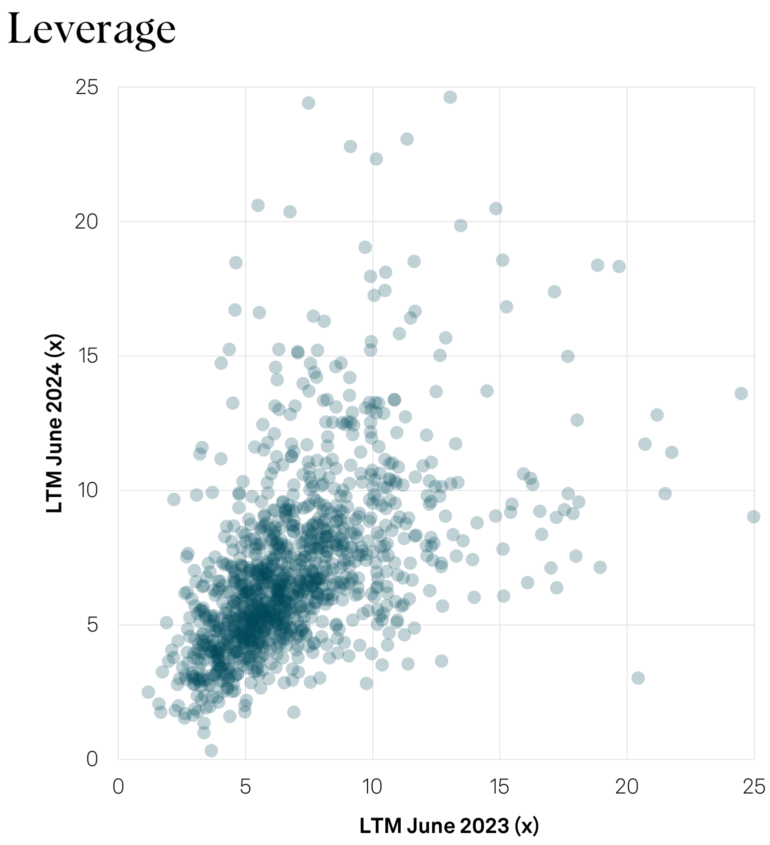
	Median EBITDA cash interest (x)			Median FOCF* + cash interest coverage (x)		
Industry	Q1	Q2	△	Q1	Q2	△
Software	1.15	1.06	-0.08	0.77	0.84	+0.07
Healthcare providers and services	1.52	1.45	-0.07	0.95	0.97	+0.02
Commercial services and supplies	1.66	1.44	-0.22	1.04	0.80	-0.24
Professional services	1.59	1.57	-0.02	1.21	0.97	-0.24
IT services	1.53	1.45	-0.07	0.98	1.14	+0.16
Construction and engineering	1.79	1.78	-0.01	1.00	0.96	-0.04
Diversified consumer services	1.64	1.61	-0.03	1.10	1.14	+0.04
Media	1.53	1.48	-0.04	1.39	0.93	-0.47
Hotels, restaurants, and leisure	1.71	2.00	+0.29	1.29	1.18	-0.11
Health care technology	1.58	1.33	-0.25	1.33	0.90	-0.43
All sectors	**1.56**	**1.52**	**-0.04**	**1.08**	**1.02**	**-0.06**

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

Credit Metrics | Revenue And Leverage Trends

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





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

- For reviews done during the LTM June 2024 period, growth is driven both organically and via acquisitions.
- Revenue and EBITDA increased year over year in 77% and 59% of cases, respectively. Add-on and tuck-in acquisitions resulted in leverage going up in 47% of cases.
- For reviews done, median revenue and EBITDA increased by 18% and 32%, respectively, while median leverage went up by 29%.
- In 23% of the cases, revenue increased, but EBITDA still declined, indicating higher inflation and increased cost of production.
- In 5% of the sample, revenue declined, yet EBITDA increased, indicating better cost control.

Credit Metrics | Sector Trends

Year-over-year growth and revenue trends for credit-estimated obligors (LTM June 2023 reviews vs. LTM June 2024 reviews)

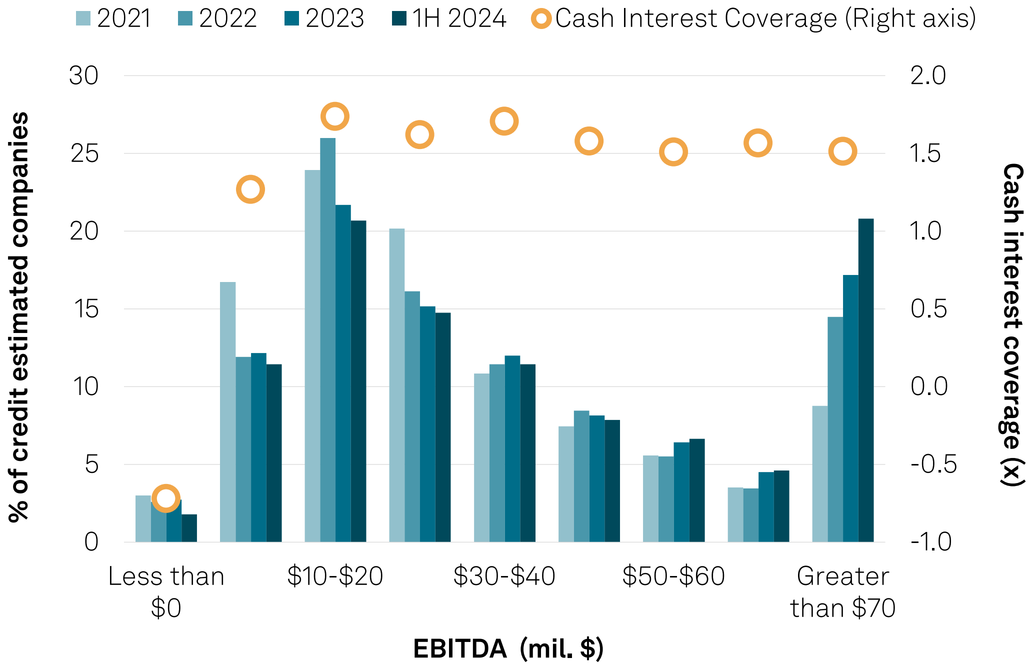
Industry	Median change in revenue (%)	Median change in EBITDA (%)	Median change in leverage (%)	Obligors (no.)
Software	+14.2	+13.7	-15.0	159
Healthcare providers and services	+16.7	+2.0	+4.7	144
Commercial services and supplies	+15.9	+14.4	-0.6	86
Professional services	+13.3	+11.8	-2.8	78
IT services	+7.0	+6.5	+0.3	54
Media	+8.1	+2.1	-13.4	49
Health care technology	+16.3	+3.4	+3.8	43
Construction and engineering	+28.6	+27.7	+3.7	41
Diversified consumer services	+23.7	+13.1	-7.4	41
Machinery	+19.1	+24.0	0.0	30

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

Credit Metrics | EBITDA And Free Operating Cash Flow Distribution

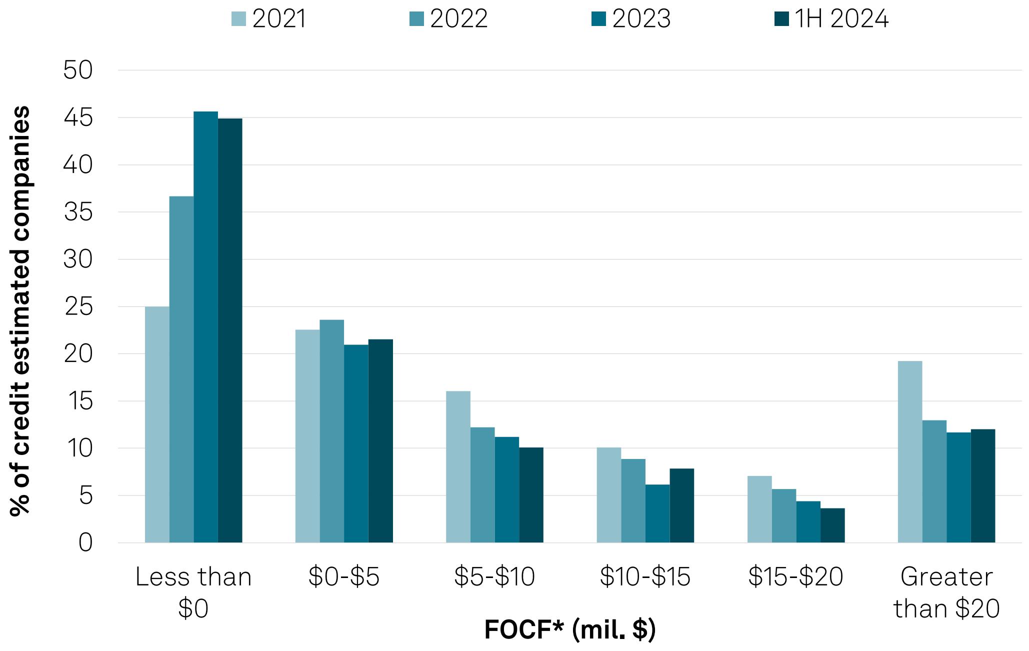
- Interest coverage appears to be agnostic to the size of the company (using EBITDA as a proxy).
- Of the companies with recurring revenue loan structures, 28% generated negative EBITDA (more on recurring revenue on slide 10).

EBITDA and cash interest coverage



Source: S&P Global Ratings.

Free operating cash flow

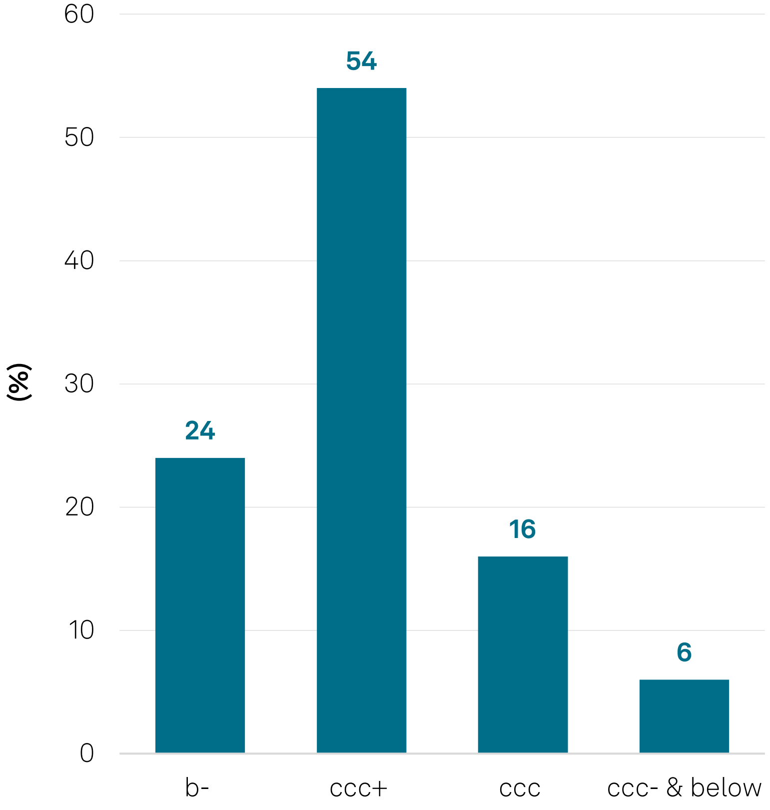


*FOCF = CFO - Capex. Source: S&P Global Ratings.

S&P Global Ratings

Recurring Revenue | Credit Metrics

Recurring revenue score distribution



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

Credit metrics: recurring revenue deals

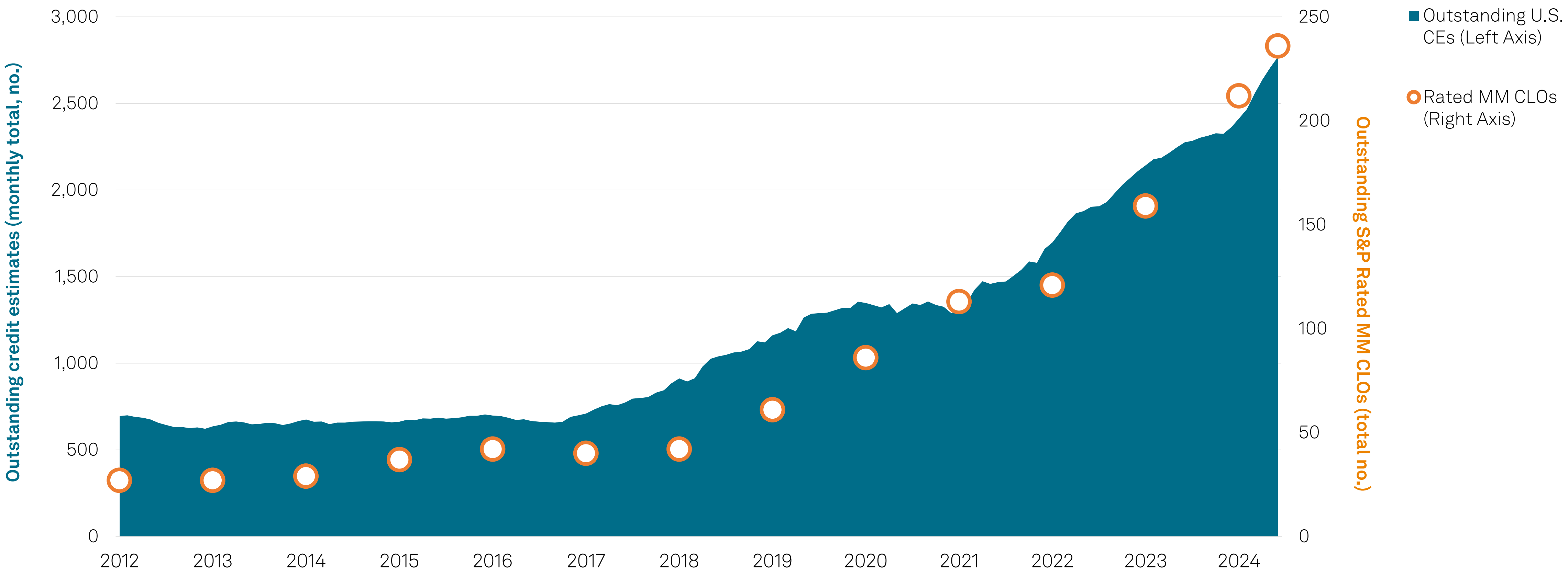
Metrics (median)	Total outstanding
No. of deals	109
EBITDA (mil. $)	6.84
Leverage	23.02x
Cash interest coverage	0.42x
Interest coverage	0.33x
Capex (mil. $)	1.29
Cash balance (mil. $)	17.58
FOCF to debt (%)	-6.53
Liquidity ratio	1.68x

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 long-term trajectory and growth.
- Recurring revenue deals compare unfavorably on metrics such as EBITDA and free operating cash flow (FOCF) compared to other MM deals.
- They tend to have higher sponsor equity contributions. Over 75% of them have 'adequate' liquidity.
- For the first half of 2024, there were nine downgrades and two upgrades, constituting 21% and 5%, respectively, of the recurring revenue deals we reviewed.

Credit Estimates | Middle-Market CLO Issuance Drives Increase In Estimates

All outstanding S&P Global Ratings credit estimates (2012–Q2 2024)*

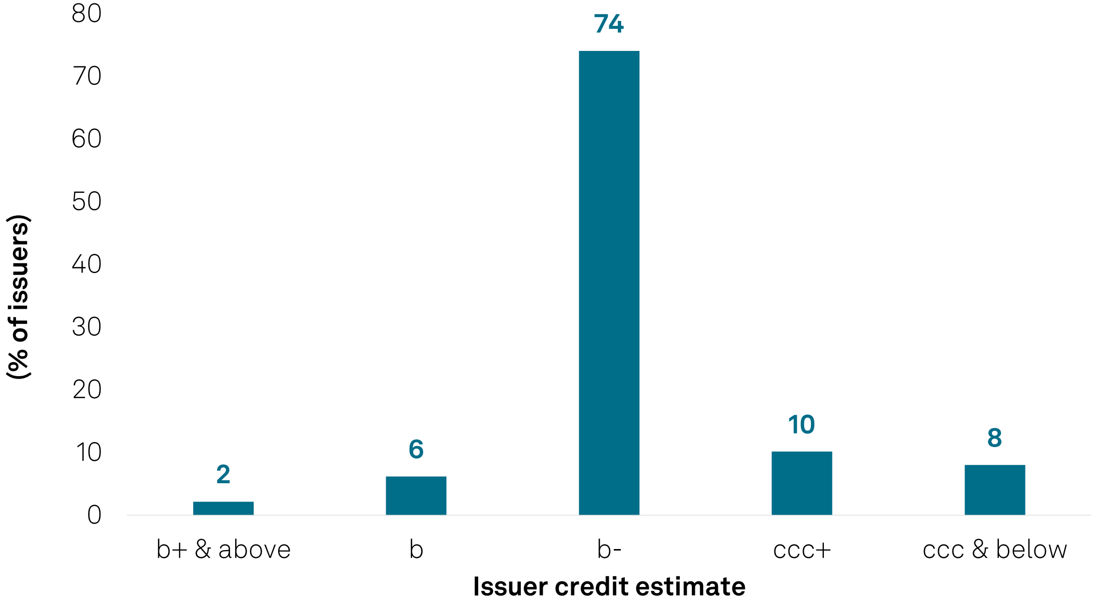


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including a small number of estimates for obligors not currently held within a CLO transaction. CE--Credit estimate. MM--Middle market. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

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

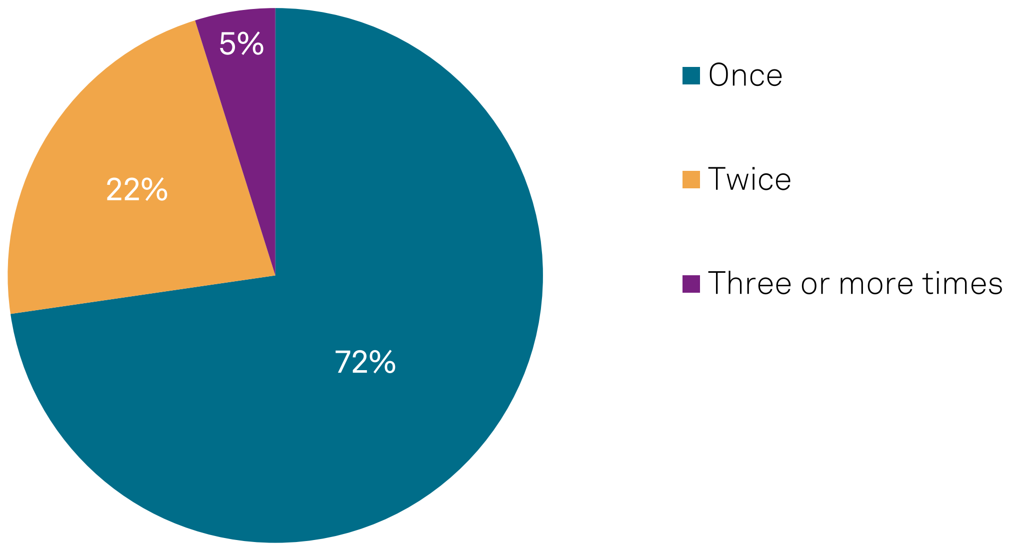
- For credit-estimated companies reviewed in second-quarter 2024, the median EBITDA was $31 million, and the median adjusted debt was about $193 million.
- For credit-estimated companies reviewed in first-half 2024 (97% are owned by financial sponsor), the median EBITDA was $31 million, and the median adjusted debt was about $187 million.
- Due to their weaker business and highly leveraged 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-half 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 LTM June 2024

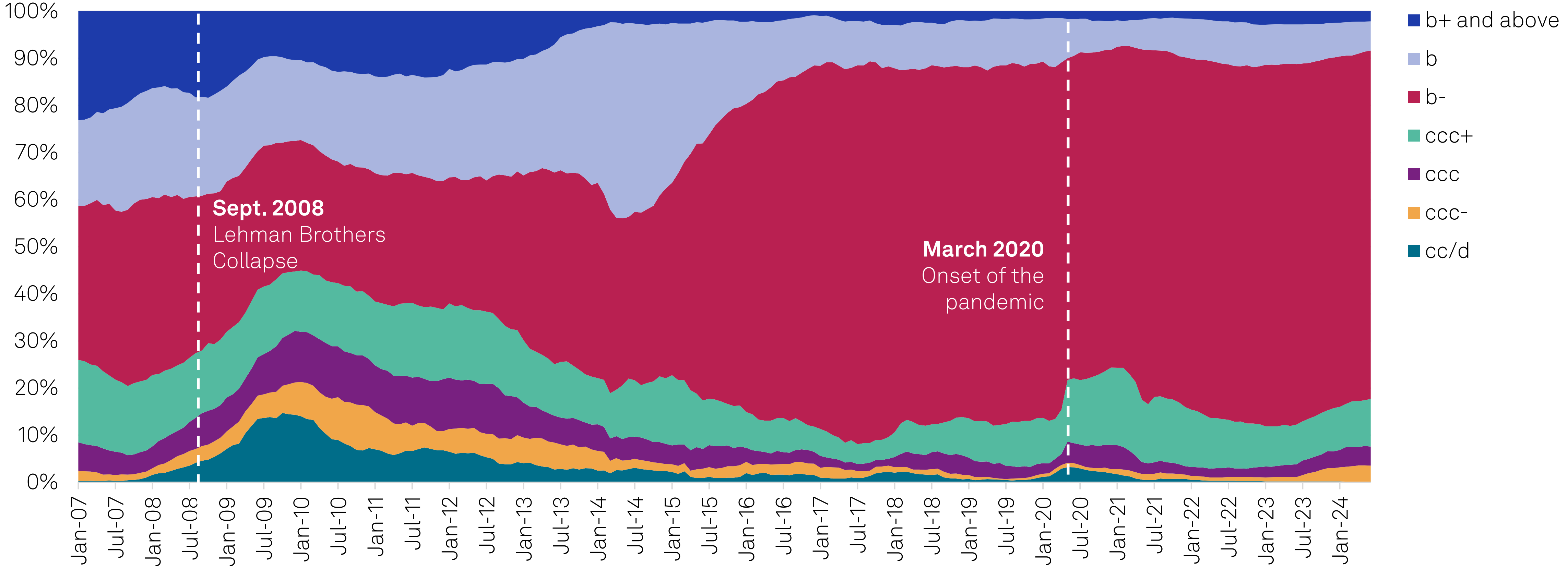


LTM--Last 12 months. Source: S&P Global Ratings.

S&P Global Ratings

Credit Estimates | Credit Quality Over The Years

Outstanding credit estimate distribution (2007–Q2 2024)*

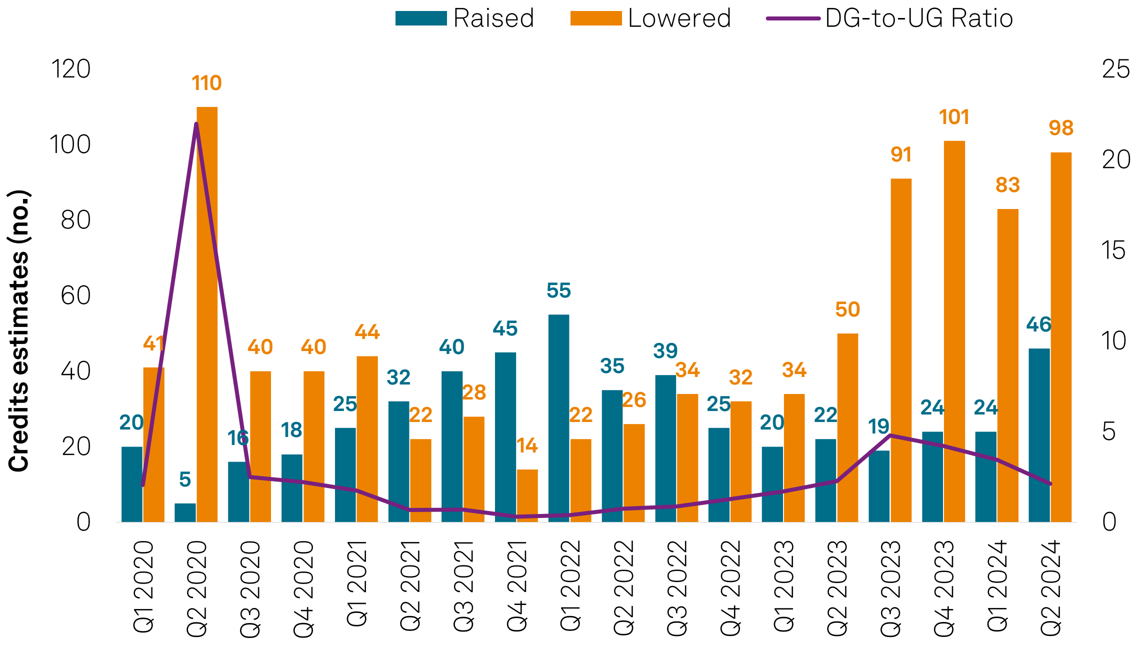


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

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

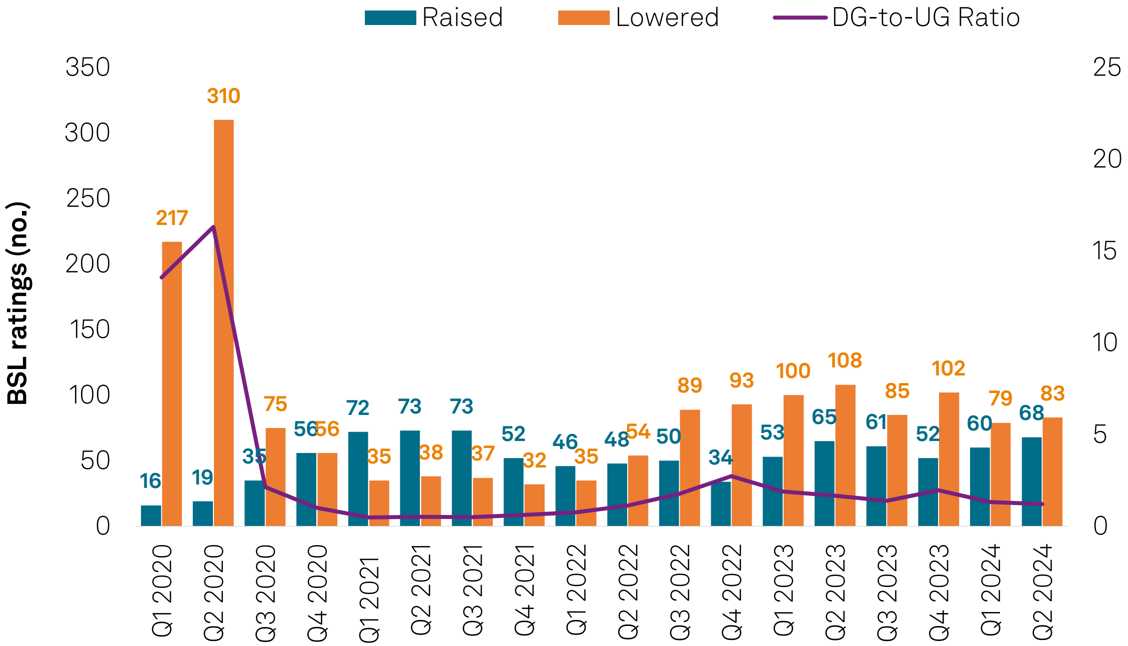
- Upgrades rose to their highest level in over two years. Downgrades ticked up, too; however, the downgrade-to-upgrade ratio decreased to 2.1 from 3.5 quarter over quarter.
- For the companies reviewed in the first half of 2024, 80% were affirmed, 14% were downgraded, and 6% were upgraded, a similar breakout as in 2023.

Credit estimates raised and lowered (Q1 2020-Q2 2024)



Source: S&P Global Ratings.

BSL ratings raised and lowered (Q1 2020-Q2 2024)



BSL--Broadly syndicated loan. 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 as of Dec. 31, 2023 (%)

Credit estimate score Jan. 1, 2023 (%)	'b+' and above	'b'	'b-'	'ccc+'	'ccc'	'ccc-'	Below 'ccc-'	Score withdrawn
'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.

One-year credit estimate transition matrix (June 30, 2023-June 30, 2024)

Credit estimate score as of June 30, 2024 (%)

Credit estimate score Jun. 30, 2023 (%)	'b+' and above	'b'	'b-'	'ccc+'	'ccc'	'ccc-'	Below 'ccc-'	Score withdrawn
'b+' and above	70	13	4					13
'b'		58	25	2	2			13
'b-'		1	79	6	3	3		8
'ccc+'			14	51	11	7	1	16
'ccc'			11	11	19	21	7	31
'ccc-'			5	14	9	43	5	24
Below 'ccc-'					50		50	

Source: S&P Global Ratings.

Upgrades And Downgrades | Credit Estimates Raised And Lowered By Sector

70 upgrades in first-half 2024

Top five sectors upgraded		Overall percentage of upgrades (%)	Sector exposure of total credit estimates (%)	Count of obligor (no.)
1	Software	15.7	11.5	11
2	Healthcare providers and services	10.0	11.3	7
3	IT services	7.1	4.5	5
4	Media	5.7	3.8	4
5	Professional services	5.7	6.9	4

181 downgrades in first-half 2024

Top five sectors downgraded		Overall percentage of downgrades (%)	Sector exposure of total credit estimates (%)	Count of obligor (no.)
1	Healthcare Providers and Services	14.9	11.3	27
2	Software	10.5	11.5	19
3	Chemicals	7.7	2.3	14
4	Commercial Services and Supplies	6.6	7.0	12
5	Media	5.5	3.8	10

Credit-estimate downgrades were driven by:

- Negative funds from operations (FFO) because of higher interest rates;
- Weakened liquidity profile;
- Unsustainable capital structures with high leverage;
- Upcoming maturities with no refinancing plans in place;
- Acquisitions that don't fully materialize into positive earnings; and
- Residual inflation, resulting in increased wages and material costs.

Source: S&P Global Ratings.

Upgrades And Downgrades | Does Company Size Affect Performance?

- We wanted to see if there is a relationship between the size of a credit-estimated company and its performance.
- We looked at downgrades and defaults as an indicator of performance and used debt and EBITDA as a proxy for size.
- The below charts compare median and average debt and EBITDA for companies' credit estimated in the last twelve months with the ones that were downgraded and defaulted during that period. We did not find a strong correlation between the two.

Debt size (mil. $)

	All CEs	Downgraded CEs
Median debt size	207	206
Average debt size	376	329

CE--Credit estimate. Source: S&P Global Ratings.

EBITDA size (mil $.)

	All CEs	Downgraded CEs
Median EBITDA size	32	19
Average EBITDA size	52	29

CE--Credit estimate. Source: S&P Global Ratings.

Debt size (mil. $)

	All CEs	Defaulted CEs
Median debt size	207	179
Average debt size	376	313

CE--Credit estimate. Source: S&P Global Ratings.

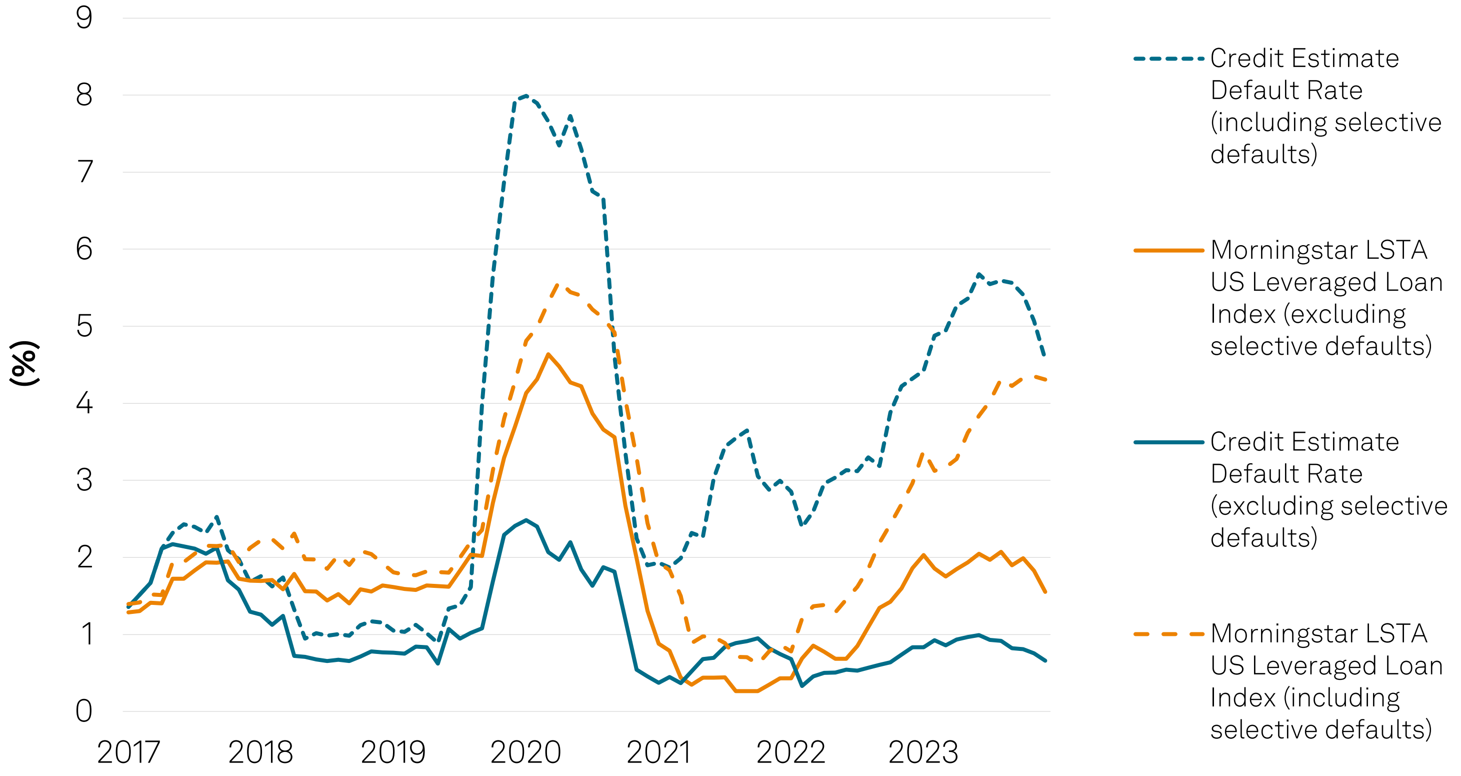
EBITDA size (mil. $)

	All CEs	Defaulted CEs
Median EBITDA size	32	19
Average EBITDA size	52	33

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.
- Among broadly syndicated loan issuers, the LSTA Leveraged Loan Index default trended down towards 1.55% on an issuer count basis. The dual-track loan default rate, when including out-of-court liability management transactions along with payment defaults, was at 4.31%, closer to our aggregate defaults/selective defaults of 4.57%.
- Other default studies' outcomes may differ because of methodology and universe sampled.

Defaults | Credit Estimate Selective Defaults Moderate

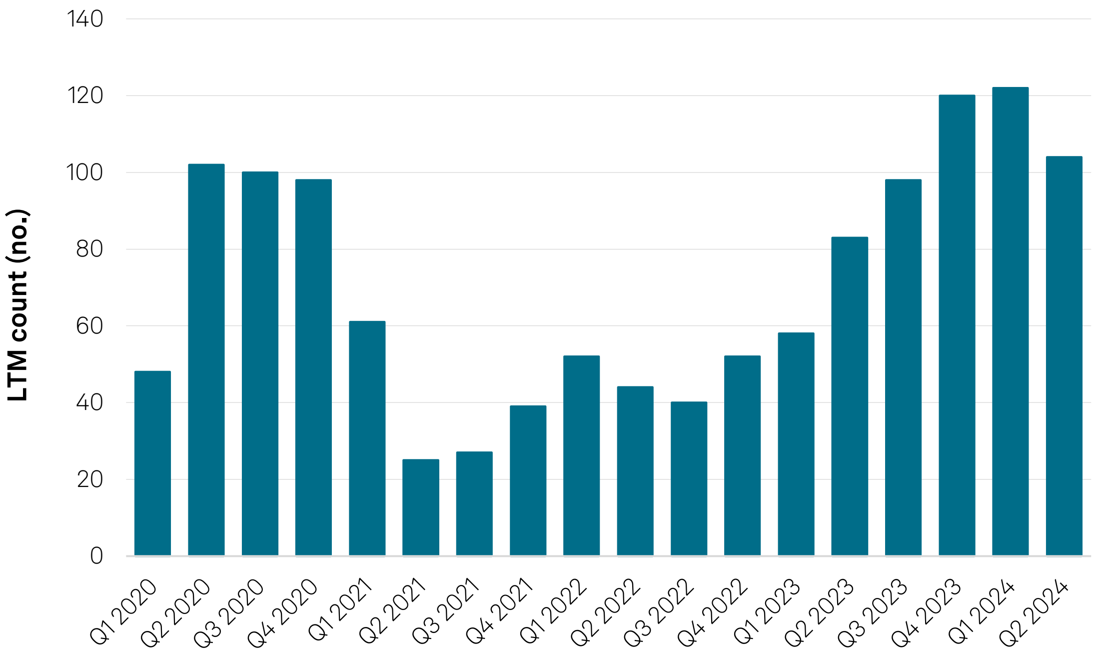
- The biggest reasons for selective defaults this year were PIK (69%) followed by A-to-E transactions (41%), while 9% did both.

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

Credit estimate score post-selective default (columns); Credit estimate score pre-'SD' (rows)

	'b-'	'ccc+'	'ccc'	'ccc-'	'cc'
'b-'	18	3	4	12	2
'ccc+'	2	6	1		
'ccc'	2	2	23	2	3
'ccc-'		3	3	9	

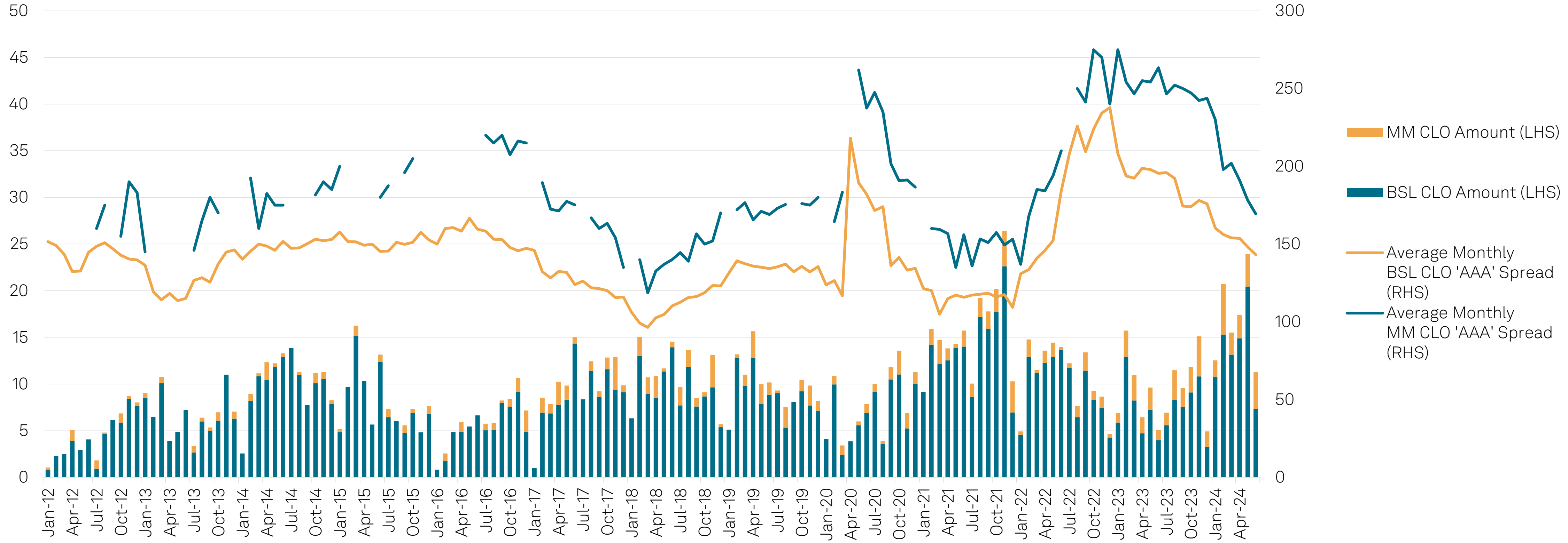
LTM count of selective defaults (Q1 2020–Q2 2024)



As of second 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 | Strong Middle-Market CLO Issuance And A Tightening Basis To BSL CLOs

U.S. CLO new issuance by month (U.S. bil. $) with average 'AAA' spread over benchmark*



*Prior to January 2022, new issue CLO traches were priced as a credit spread above LIBOR; from January 2022 onward, this shifted to SOFR. Since SOFR is a risk-free rate, this was reflected in CLO credit spreads.
BSL--Broadly syndicated loan. MM--Middle market. CLO--Collateralized loan obligation. Source: Pitchbook LCD, S&P Global Ratings..

CLO Performance | MM CLO ‘CCC’ Buckets Up Over Past Year

- 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 a robust 6.4%.

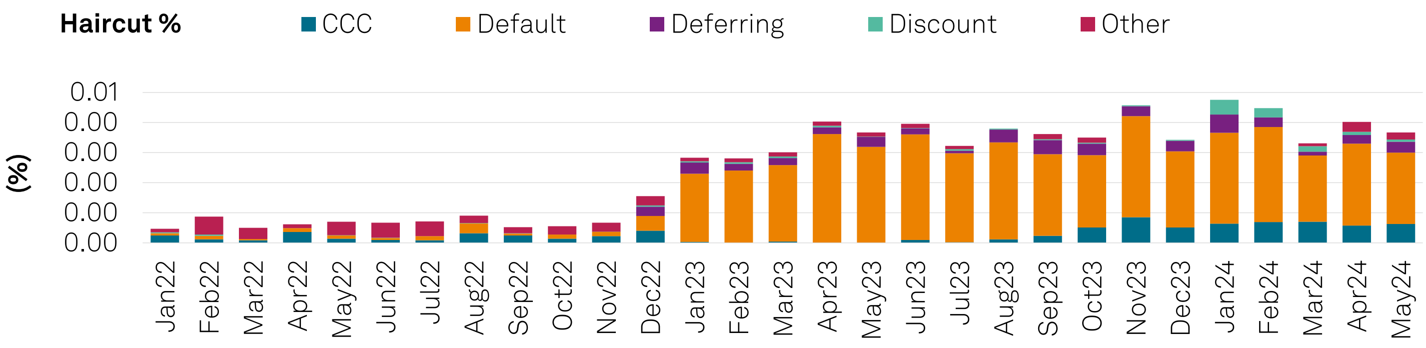
Credit metrics averaged across 61 reinvesting S&P Global Ratings-rated middle-market CLOs

As of date	'B-' (%)	'CCC' category (%)	No rating/CE (%)	Nonperforming assets (%)	SPWARF	Jr. O/C cushion (%)	% of target par
7/31/2023(i)	72.04	10.48	6.11	0.37	3816	6.87	100.76
8/31/2023(i)	71.72	11.33	5.79	0.47	3834	6.77	100.76
9/30/2023(i)	71.57	11.91	6.07	0.44	3854	6.77	100.74
10/31/2023(i)	70.33	12.99	6.35	0.46	3875	6.72	100.74
11/30/2023(i)	69.39	13.89	6.51	0.44	3894	6.69	100.68
12/31/2023(i)	67.60	15.09	7.11	0.48	3927	6.69	100.70
1/31/2024(i)	67.44	14.60	7.59	0.59	3935	6.53	100.65
2/29/2024(i)	68.26	14.38	7.72	0.56	3941	6.53	100.63
3/31/2024(i)	67.98	14.55	7.82	0.60	3946	6.51	100.59
4/30/2024(i)	68.36	15.27	6.87	0.71	3948	6.47	100.57
5/31/2024(i)	69.98	15.32	5.24	0.74	3912	6.42	100.59
6/30/2024(ii)	70.90	16.27	3.91	0.53	3888	6.44	100.60
7/21/2024(iii)	71.57	16.13	3.50	0.54	3880	6.44	100.60

(i)Index metrics based on end of month ratings and pricing data and as of month portfolio data available. (ii)Index metrics based on June 30, 2024, ratings and latest portfolio data available to us. (iii)Index metrics based on July 21, 2024, ratings and latest portfolio data available to us. C/E--Credit enhancement. SPWARF--S&P Global Ratings’ weighted average rating factor. O/C---Overcollateralization. Source: S&P Global Ratings.

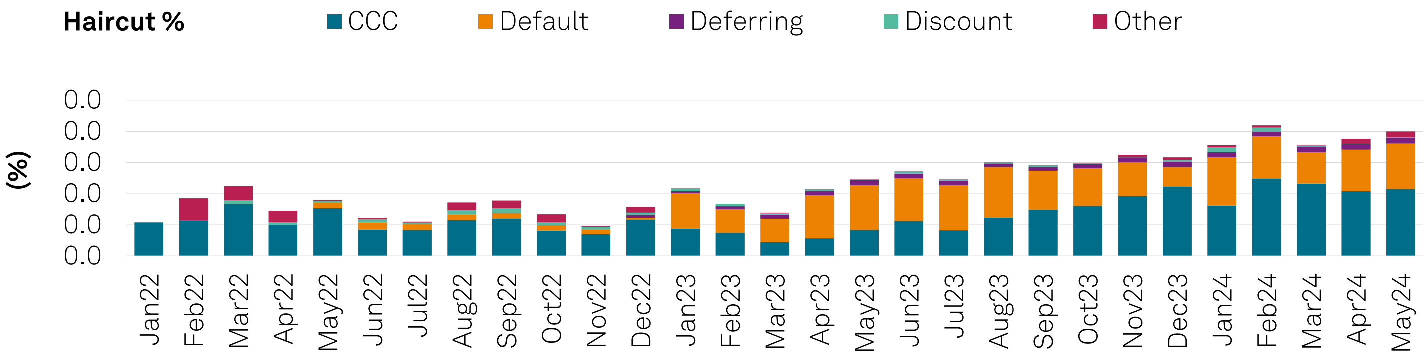
CLO Performance | MM CLO O/C Test Haircuts Remain Modest

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



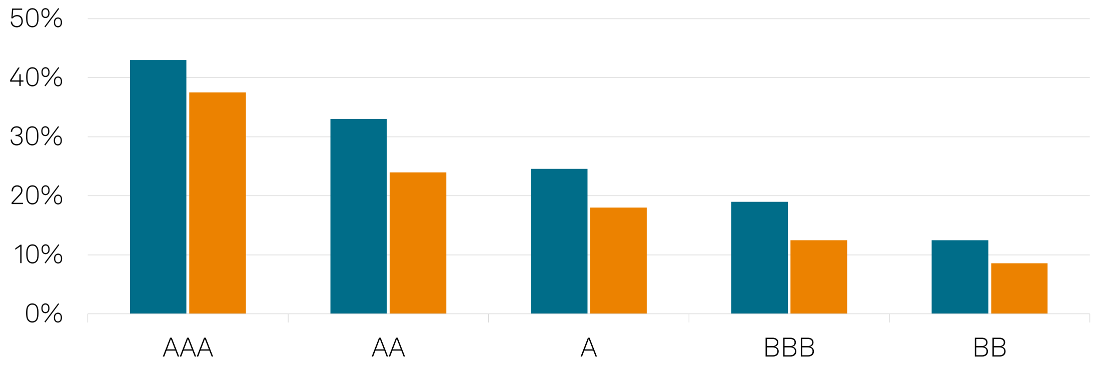
O/C—Overcollateralization. MM--Middle market. Source: S&P Global Ratings.

- 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 second-quarter 2024 (6.31%).
- 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.

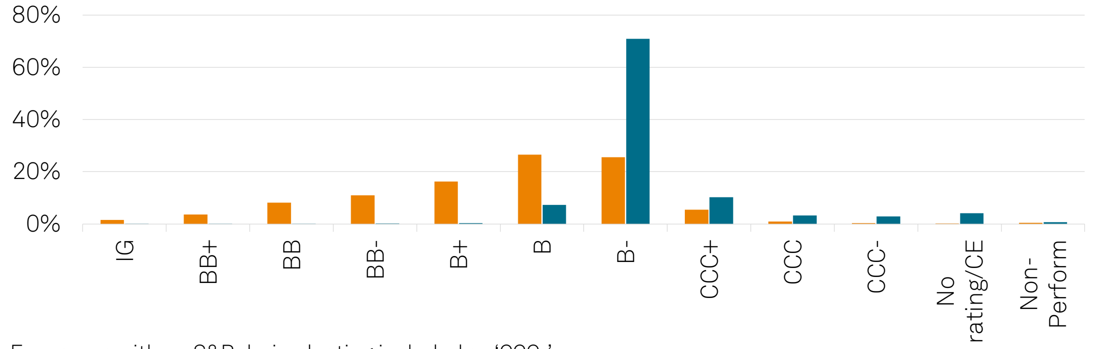
BSL And MM CLOs | BSL CLO And MM CLO Metrics Compared

Middle-market CLOs   Broadly syndicated loan CLOs

Median subordination of CLO tranches

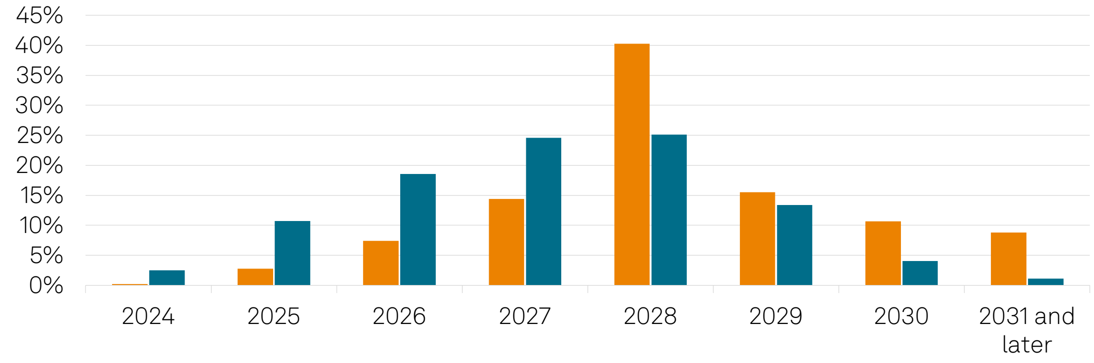


Ratings distribution of CLO obligors

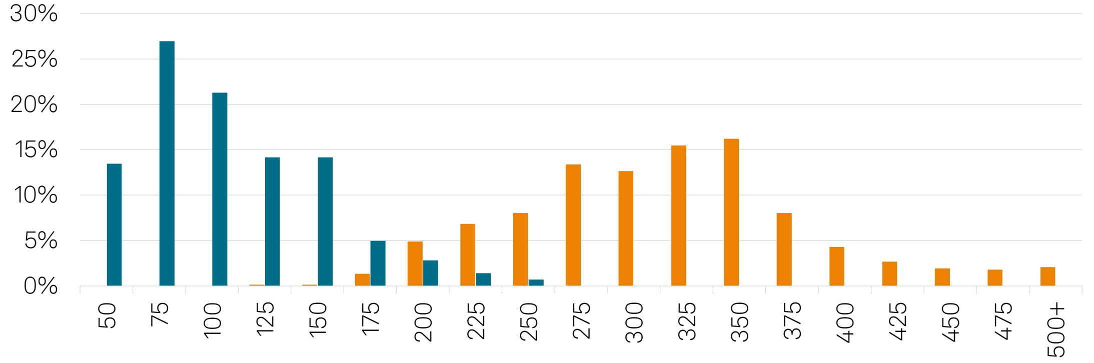


Exposures with no S&P derived rating included as 'CCC-'

Maturity distribution of CLO assets



Number of obligors in each reinvesting CLO



Source: S&P Global Ratings.

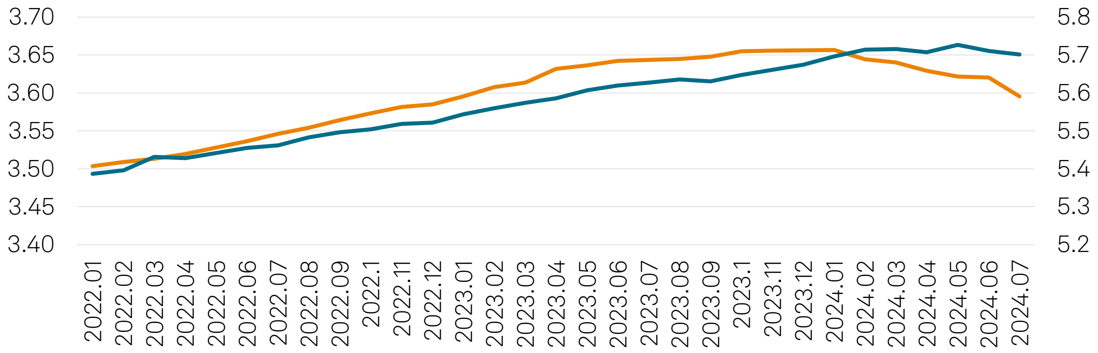
S&P Global Ratings

BSL And MM CLOs | Comparison Of Performance Trends

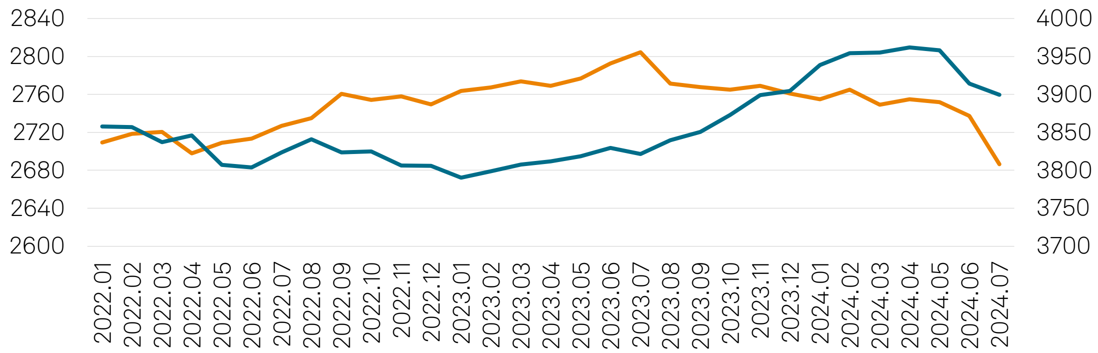
- A large volume of new CLOs going effective and being added to the dataset has had an effect on the metrics, especially the SPWARF values.

Middle-market CLOs (RHS) Broadly syndicated loan CLOs (LHS)

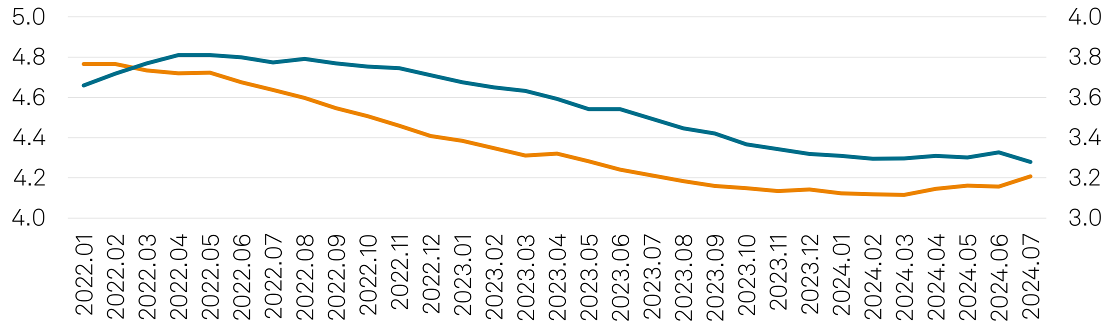
Weighted average spread (%)



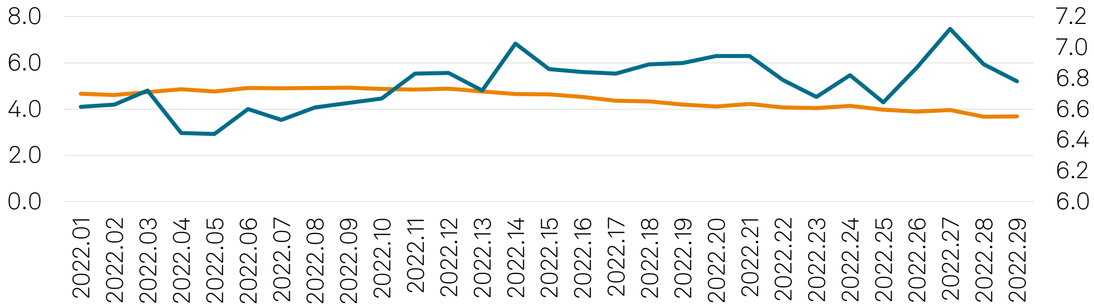
S&P Global Ratings' weighted average rating factor



Weighted average maturity (years)



Junior overcollateralization test cushion (%)



Source: S&P Global Ratings.

BSL And MM CLOs | Exposure To ‘CCC’ Assets: New Issue CLOs Vs. Resets

MM CLO exposure to 'CCC’ assets at close

Closing date	New issue CLOs (%)	CLO resets (%)
Q1 2023	5.95	N/A(i)
Q2 2023	9.57	10.83
Q3 2023	8.37	18.18
Q4 2023	9.87	10.49
Q1 2024	9.51	15.88
Q2 2024(ii)	8.87	13.01

BSL CLO exposure to 'CCC’ assets at close

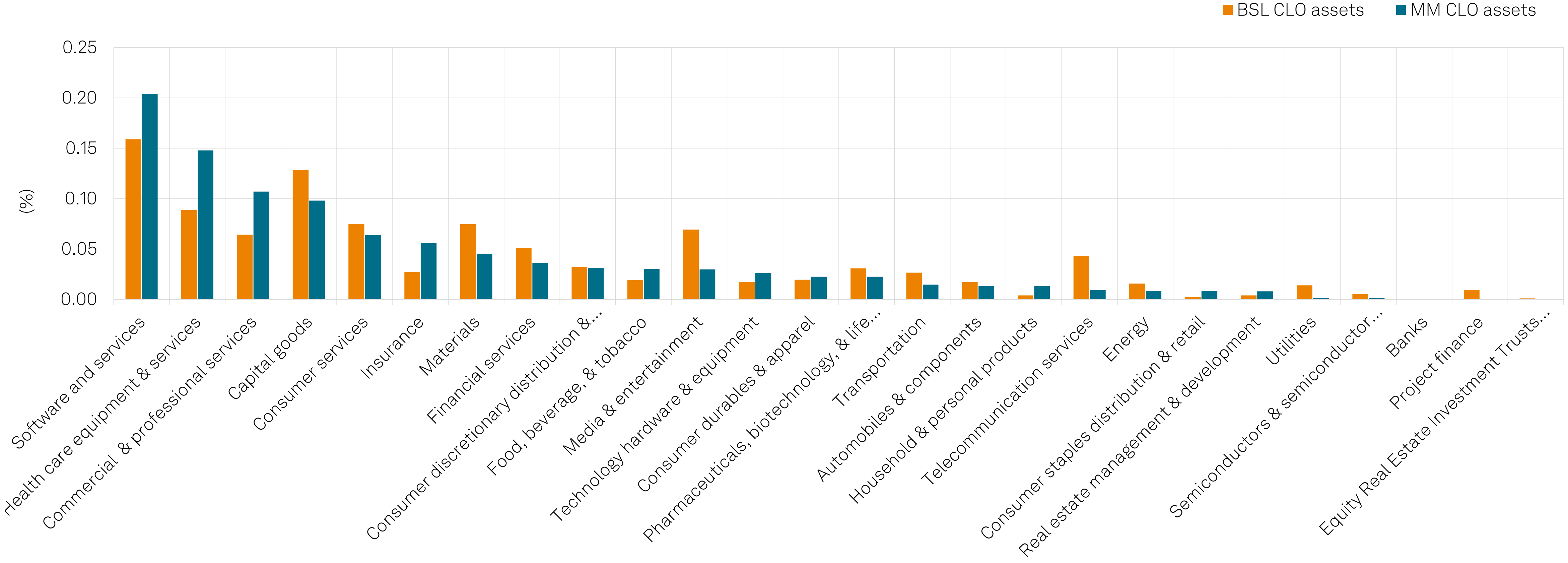
Closing date	New issue CLOs (%)	CLO resets (%)
Q1 2023	2.36	N/A(i)
Q2 2023	1.96	N/A(i)
Q3 2023	2.11	5.68
Q4 2023	2.22	5.80
Q1 2024	1.61	5.89
Q2 2024(ii)	2.45	5.80

(i)Sample size too small. (ii)Based on latest data available as of July 1, 2024, some new issue/resets have not issued their first trustee reports yet. BSL--Broadly syndicated loan. MM--Middle market. UG--Upgrade. DG--Downgrade. Source: S&P Global Ratings.

- MM CLO new issuance and resets made up a notable proportion of overall US CLO issuance in 2023.
- BSL new issuance and reset volumes rose notably during the first half of 2024.
- We compared the ‘CCC’ buckets of new issue and reset transactions that have closed over the past six quarters.
- We find across the BSL transactions, the average ‘CCC’ bucket was about 2% across the new issue transactions, while the average across resets was closer to 6%.
- Given the lower overlap across MM CLO portfolios (relative to the BSL CLO portfolios), we find there is higher variance in ‘CCC’ buckets across the MM CLOs closed in 2023 and 2024, particularly across the MM CLO resets.

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 | Second-Quarter 2024 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.)	Upgrades in Q2 2024 (no.)(i)	Downgrades in Q2 2024 (no.)(i)	Credit estimated issuers (%)	Proportion credit estimated in Q2 2024 (%)	SPWARF(ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
Alliance Bernstein(13)	30.64	Software	21	1.98	141	132	2	4	96.34	1.30	3896	5.66	3.58	47.38	Blue Owl	6.58
Angelo Gordon/Twin Brook(2)	24.10	Healthcare providers and services	34	2.36	90	85	0	13	97.64	18.18	3908	5.87	2.13	81.83	Maranon	1.54
Antares(12)	12.13	Healthcare providers and services	46	1.08	348	294	5	13	92.56	1.26	3880	5.46	3.09	29.55	Churchill	12.07
Apollo(1)	12.89	Professional Services	17	5.46	27	26	0	2	96.43	3.43	3907	5.65	3.12	9.03	Midcap	13.38
Ares(7)	18.10	Software	36	1.86	228	157	2	8	64.51	5.50	3861	5.36	3.27	27.98	Audax	11.08
Audax(7)	12.06	Healthcare providers and services	38	1.26	296	93	1	6	34.72	6.94	3628	4.97	4.25	24.73	Monroe	15.53
Bain(3)	9.47	Software	33	2.80	84	57	1	1	86.91	7.06	3874	5.93	3.92	44.74	Antares	8.29
Barings(7)	21.15	Software	36	2.39	166	124	6	4	86.78	2.88	3920	5.53	3.00	38.40	Antares	9.18
Blackrock(8)	27.27	Software	38	1.69	175	130	2	9	75.51	9.81	3942	5.86	3.81	29.19	Blue Owl	9.69
Blue Owl(24)	23.33	Software	43	1.87	229	154	3	7	86.88	3.80	3795	5.99	4.16	35.00	HPS	13.96
BMO(4)	18.43	Healthcare providers and services	39	1.63	171	150	2	10	89.80	5.78	4102	5.38	3.03	47.88	KCAP/Garrison	6.47
Brightwood(5)	18.60	Healthcare providers and services	28	4.77	82	62	2	1	84.01	2.90	3831	6.43	2.65	60.75	KCAP/Garrison	4.55
Carlyle(1)(iii)	11.04	Software	23	3.68	57	51	2	6	90.10	0.00	3963	6.01	3.17	13.95	KKR	5.43
Churchill(8)	10.54	Healthcare providers and services	46	1.37	274	211	3	5	83.01	6.99	3865	5.38	3.63	26.84	Antares	12.07
CIFC(1)	11.64	Healthcare providers and services	28	2.54	62	58	1	3	93.09	20.72	3667	6.30	2.93	55.56	Deerpath	9.21
Deerpath(7)	19.86	Healthcare providers and services	32	2.10	131	106	1	3	89.28	5.69	3883	5.89	2.98	67.94	CIFC	9.21

(i)Based on quarterly exposure to companies with credit estimates raised and lowered during the quarter. (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.

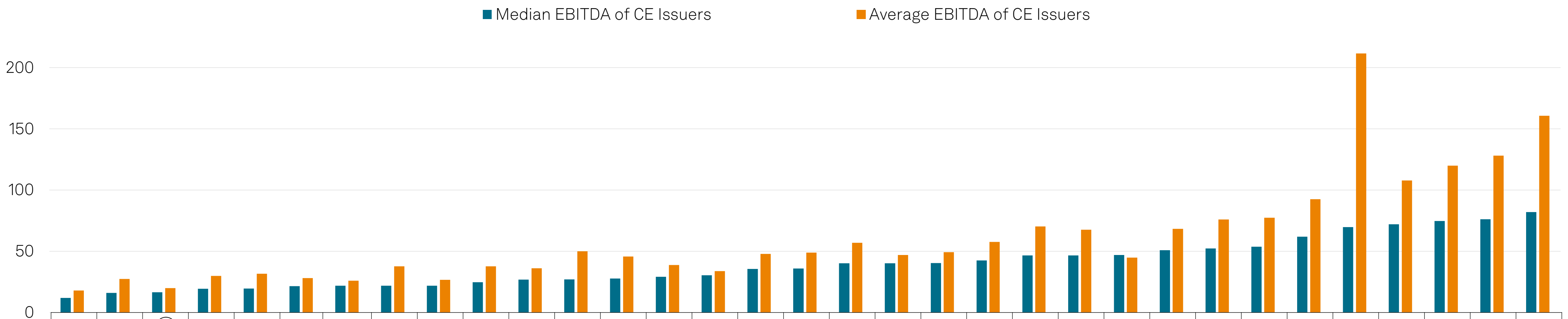
Managers | Second-Quarter 2024 Manager Metrics (2 of 2)

Manager (No. S&P MM CLOs)	Largest GICS Industry (%)	Largest GICS Industry	GICS industries (No.)	Largest issuer exposure (%)	Issuers (No.)	Issuers credit estimated (No.)	Upgrades in 2Q2024 (No.) (i)	Downgrades in 2Q2024 (No.) (i)	Credit estimated issuers (%)	Proportion credit estimated in Q2 2024 (%)	SPWARF (ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
First Eagle/NewStar(5)	18.34	Healthcare Providers and Services	43	2.55	167	65	0	4	62.13	4.01	4101	5.68	3.17	41.53	Blackrock	6.34
Fortress(7)	14.40	Hotels, Restaurants and Leisure	41	4.19	131	75	2	1	66.00	1.76	4174	6.30	3.20	58.10	Blue Owl	5.45
Golub(29)	27.47	Software	40	1.66	276	230	4	9	95.56	4.03	3891	5.66	3.43	45.29	Blue Owl	11.18
GSO/Blackstone(1)(iii)	35.02	Hotels, Restaurants and Leisure	9	22.96	12	5	0	1	47.86	0.00	4217	5.27	1.49	34.65	Apollo	3.27
Guggenheim(3)	15.77	Software	42	2.59	143	42	1	2	53.96	3.12	4027	5.67	4.24	32.92	Blackrock	7.63
HPS(2)	13.45	Software	37	1.86	155	97	1	2	69.27	6.75	3759	6.01	4.49	35.85	Blue Owl	13.96
KCAP/Garrison(4)	13.18	Software	33	2.76	116	52	0	7	50.56	2.00	4476	5.73	3.22	24.48	Ares	9.16
KKR(1)(iii)	14.15	Healthcare Providers and Services	21	3.57	45	34	0	2	84.58	5.01	4069	5.86	3.97	40.30	Blue Owl	5.60
Maranon(6)	10.86	Professional Services	33	2.06	121	108	5	7	94.78	8.64	3837	5.68	2.78	53.61	MCF/Apogem	6.06
MCF/Apogem(9)	10.85	Insurance	39	1.56	235	216	1	14	94.37	5.10	3859	5.41	3.20	37.60	Churchill	9.23
Midcap(12)	10.30	Healthcare Providers and Services	48	1.07	243	202	3	14	88.85	3.40	4015	5.79	3.25	39.30	Apollo	13.38
Monroe(1)	14.78	Software	36	1.27	134	49	3	0	36.01	5.52	3786	4.92	3.90	26.48	Audax	15.53
MSD(1)	14.47	Media	20	4.23	40	17	0	0	47.37	6.70	3439	5.84	4.08	31.30	HPS	5.71
NXT Capital(1)	18.08	Healthcare Providers and Services	24	2.17	75	65	3	3	88.63	1.28	4061	5.42	3.04	39.39	MCF/Apogem	4.51
Pennantpark(7)	11.35	Professional Services	35	1.87	133	90	3	8	79.22	8.35	3981	5.93	3.00	43.78	KCAP/Garrison	7.29
PGIM(2)	13.92	Commercial Services and Supplies	27	3.26	48	46	0	0	96.93	2.19	3795	6.69	3.91	82.15	Blackrock	1.55
Silver Point(2)	14.53	Commercial Services and Supplies	29	2.78	58	37	0	0	70.28	11.24	3785	6.57	4.12	49.77	Blackrock	3.96

(i)Based on quarterly exposure to companies with credit estimates raised and lowered during the quarter. (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)	Maranon(6)	Angelo Gordon/Twin Brook(2)	PGIM(2)	First Eagle/NewStar(5)	BMO(4)	NXT Capital(1)	MCF/Apogem(9)	CIFC(1)	Alliance Bernstein(13)	Brightwood(5)	Pennantpark(7)	Barings(7)	Midcap(12)	Apollo(1)	Churchill(8)	Monroe(1)	Antares(12)	KCAP/Garrison(4)	Bain(3)	Blackrock(8)	Golub(29)	Carlyle(1)*	GSO/Blackstone(1)*	Ares(7)	Audax(7)	Fortress(7)	Blue Owl(24)	Silver Point(2)	Guggenheim(3)	KKR(1)*	HPS(2)	MSD(1)
Less than 10 mil. (%)	38.49	19.68	18.57	12.92	15.86	10.74	9.83	10.10	18.88	12.00	3.76	4.35	1.75	9.08	0.00	2.11	4.89	5.12	4.32	5.73	12.53	2.57	7.74	0.00	0.84	0.71	3.19	3.98	0.74	1.16	2.61	0.46	0.00
Less than 25 mil. (%)	68.87	62.55	70.97	65.80	54.12	52.30	55.14	50.82	60.45	42.89	41.24	40.31	29.37	32.70	36.08	28.45	35.38	17.95	26.38	35.73	23.09	13.07	23.20	6.81	12.49	18.57	16.04	8.37	14.09	9.43	9.84	6.39	0.00

*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: Second-Quarter 2024 Asset Overlap By Manager (%)

	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	PGIM	Silver Point
Alliance Bernstein		0.0	1.8	0.0	4.7	1.3	1.5	1.0	6.4	6.6	1.2	1.2	2.6	2.4	1.9	2.4	0.0	3.9	5.7	0.2	1.4	5.0	3.5	2.7	1.0	2.9	3.6	1.2	0.0	2.0	1.4	0.0	1.5
Angelo Gordon/Twin Brook	0.0		0.3	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.5	0.5	0.0	0.7	0.9	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.3	0.7	0.0	0.0	0.2	0.5	0.0	0.0
Antares	1.8	0.3		0.3	10.4	6.7	8.3	9.2	8.0	9.9	6.0	0.4	2.8	12.1	0.7	1.0	3.2	0.7	9.4	0.2	2.2	4.7	2.4	3.7	3.5	8.6	4.4	2.7	0.5	3.4	4.7	0.0	0.7
Apollo	0.0	0.0	0.3		0.0	0.0	2.4	0.9	0.0	0.0	0.2	1.6	0.0	0.4	0.0	0.0	2.5	0.0	0.0	3.3	0.0	0.0	1.4	0.0	0.0	1.1	13.4	0.5	0.0	0.0	2.6	0.0	0.0
Ares	4.7	0.2	10.4	0.0		11.1	2.3	4.9	9.4	3.9	1.7	0.3	2.5	6.9	1.5	0.7	3.2	1.8	7.5	0.7	7.3	5.9	9.2	2.9	2.5	8.3	4.7	8.3	1.7	0.3	3.1	0.0	0.0
Audax	1.3	0.2	6.7	0.0	11.1		2.1	2.0	5.8	5.1	1.1	0.4	3.0	11.3	0.6	2.2	5.6	3.3	3.6	0.0	4.5	5.7	8.1	1.5	3.4	5.8	1.7	15.5	1.6	0.2	6.6	0.0	0.4
Bain	1.5	0.0	8.3	2.4	2.3	2.1		2.2	1.2	1.3	0.5	1.1	1.0	1.2	0.0	0.0	5.1	0.6	1.7	0.0	0.0	0.8	0.8	0.0	0.0	1.8	2.0	0.8	0.0	0.4	2.3	1.4	0.0
Barings	1.0	0.4	9.2	0.9	4.9	2.0	2.2		2.2	1.8	3.8	0.9	3.3	7.5	0.0	0.1	4.0	0.8	1.9	0.0	1.3	2.1	2.4	0.0	1.7	2.8	3.2	3.0	1.2	4.5	2.2	0.0	1.5
Blackrock	6.4	0.0	8.0	0.0	9.4	5.8	1.2	2.2		9.7	0.0	3.9	0.6	6.1	0.2	0.5	6.3	4.5	7.5	0.0	7.6	9.3	3.0	5.1	3.9	4.3	3.5	5.1	1.6	0.3	6.5	1.6	4.0
Blue Owl	6.6	0.0	9.9	0.0	3.9	5.1	1.3	1.8	9.7		0.7	0.1	3.0	2.6	0.0	0.7	0.5	5.5	11.2	0.0	3.9	14.0	0.6	5.6	1.2	3.3	1.1	1.8	3.4	1.2	2.7	0.0	0.7
BMO	1.2	0.5	6.0	0.2	1.7	1.1	0.5	3.8	0.0	0.7		0.6	0.7	1.9	0.0	3.5	2.4	0.0	0.6	0.0	0.9	0.1	6.5	0.0	4.0	4.4	2.7	1.7	0.0	4.4	0.5	1.0	0.0
Brightwood	1.2	0.5	0.4	1.6	0.3	0.4	1.1	0.9	3.9	0.1	0.6		0.4	1.5	0.4	0.5	0.4	2.4	0.5	0.0	0.0	1.0	4.5	2.8	0.4	0.4	1.4	0.6	1.1	0.0	1.9	0.0	0.9
Carlyle	2.6	0.0	2.8	0.0	2.5	3.0	1.0	3.3	0.6	3.0	0.7	0.4		2.9	0.0	0.0	4.6	0.8	2.4	1.6	3.7	3.3	1.8	5.4	0.0	2.1	1.6	2.1	0.0	0.0	1.0	0.6	2.9
Churchill	2.4	0.7	12.1	0.4	6.9	11.3	1.2	7.5	6.1	2.6	1.9	1.5	2.9		2.6	1.3	3.2	0.2	3.7	0.3	3.2	2.0	3.3	1.2	3.8	9.2	6.0	8.2	0.7	1.3	2.8	0.0	0.0
CIFC	1.9	0.9	0.7	0.0	1.5	0.6	0.0	0.0	0.2	0.0	0.0	0.4	0.0	2.6		9.2	1.8	0.7	0.1	0.0	0.0	0.5	1.6	0.0	5.5	1.3	0.0	1.2	0.0	0.0	3.4	1.3	0.0
Deerpath	2.4	0.3	1.0	0.0	0.7	2.2	0.0	0.1	0.5	0.7	3.5	0.5	0.0	1.3	9.2		1.3	0.5	0.1	0.0	0.0	0.4	2.7	0.0	0.0	1.0	0.0	0.9	0.2	0.2	2.6	0.9	0.0

The overlap metric we calculate considers dollar weighted exposure (% exposure) and is the sum of the like exposures (as a percentage) between two managers. Specifically, it is the sum of the lower % exposure of each exposure between two managers. For example, assume manager A and manager B have asset ABC and asset XYZ in common, and ABC is worth 5% of manager A exposure while XYZ is worth 2% of manager A exposure. ABC is worth 2% of manager B exposure, while XYZ is worth 5% of manager B exposure. The overlap between manager A and B is 2% + 2% = 4%. Source: S&P Global Ratings.

Managers | The Matrix: Second-Quarter 2024 Asset Overlap By Manager (%) Continued

	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	PGIM	Silver Point
First Eagle/NewStar	0.0	0.7	3.2	2.5	3.2	5.6	5.1	4.0	6.3	0.5	2.4	0.4	4.6	3.2	1.8	1.3		1.9	0.3	1.9	2.7	1.3	4.4	0.0	2.9	2.5	4.0	4.5	1.0	2.7	4.9	0.0	0.0
Fortress	3.9	0.0	0.7	0.0	1.8	3.3	0.6	0.8	4.5	5.5	0.0	2.4	0.8	0.2	0.7	0.5	1.9		0.6	0.0	2.9	3.4	2.6	0.7	0.0	0.0	1.5	0.8	1.2	0.0	1.4	1.1	3.8
Golub	5.7	0.0	9.4	0.0	7.5	3.6	1.7	1.9	7.5	11.2	0.6	0.5	2.4	3.7	0.1	0.1	0.3	0.6		0.0	1.6	8.7	4.4	5.1	1.1	3.1	1.6	0.7	0.4	1.0	0.8	0.4	0.4
GSO/Blackstone	0.2	0.0	0.2	3.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	0.0	0.0	1.9	0.0	0.0		0.0	0.0	1.1	0.0	0.3	0.3	0.8	0.3	0.0	0.0	1.0	0.0	0.0
Guggenheim	1.4	0.0	2.2	0.0	7.3	4.5	0.0	1.3	7.6	3.9	0.9	0.0	3.7	3.2	0.0	0.0	2.7	2.9	1.6	0.0		7.6	4.4	0.0	1.0	1.1	1.0	5.6	1.1	0.0	1.1	0.0	0.9
HPS	5.0	0.0	4.7	0.0	5.9	5.7	0.8	2.1	9.3	14.0	0.1	1.0	3.3	2.0	0.5	0.4	1.3	3.4	8.7	0.0	7.6		1.7	5.5	1.3	1.2	2.9	4.3	5.7	0.0	3.3	0.0	0.0
KCAP/Garrison	3.5	0.0	2.4	1.4	9.2	8.1	0.8	2.4	3.0	0.6	6.5	4.5	1.8	3.3	1.6	2.7	4.4	2.6	4.4	1.1	4.4	1.7		0.0	2.0	0.6	2.0	5.3	0.8	1.3	7.3	0.0	1.2
KKR	2.7	0.0	3.7	0.0	2.9	1.5	0.0	0.0	5.1	5.6	0.0	2.8	5.4	1.2	0.0	0.0	0.0	0.7	5.1	0.0	0.0	5.5	0.0		1.3	0.3	1.2	1.0	1.7	0.0	0.0	0.0	0.0
Maranon	1.0	1.5	3.5	0.0	2.5	3.4	0.0	1.7	3.9	1.2	4.0	0.4	0.0	3.8	5.5	0.0	2.9	0.0	1.1	0.3	1.0	1.3	2.0	1.3		6.1	1.7	1.2	0.0	3.3	2.0	0.0	1.5
MCF/Apogem	2.9	0.3	8.6	1.1	8.3	5.8	1.8	2.8	4.3	3.3	4.4	0.4	2.1	9.2	1.3	1.0	2.5	0.0	3.1	0.3	1.1	1.2	0.6	0.3	6.1		7.4	1.7	0.9	4.5	3.3	1.0	0.2
Midcap	3.6	0.7	4.4	13.4	4.7	1.7	2.0	3.2	3.5	1.1	2.7	1.4	1.6	6.0	0.0	0.0	4.0	1.5	1.6	0.8	1.0	2.9	2.0	1.2	1.7	7.4		2.1	0.8	1.8	4.3	1.5	0.3
Monroe	1.2	0.0	2.7	0.5	8.3	15.5	0.8	3.0	5.1	1.8	1.7	0.6	2.1	8.2	1.2	0.9	4.5	0.8	0.7	0.3	5.6	4.3	5.3	1.0	1.2	1.7	2.1		2.8	0.7	2.7	0.0	0.0
MSD	0.0	0.0	0.5	0.0	1.7	1.6	0.0	1.2	1.6	3.4	0.0	1.1	0.0	0.7	0.0	0.2	1.0	1.2	0.4	0.0	1.1	5.7	0.8	1.7	0.0	0.9	0.8	2.8		0.0	2.0	0.0	2.8
NXT Capital	2.0	0.2	3.4	0.0	0.3	0.2	0.4	4.5	0.3	1.2	4.4	0.0	0.0	1.3	0.0	0.2	2.7	0.0	1.0	0.0	0.0	0.0	1.3	0.0	3.3	4.5	1.8	0.7	0.0		2.7	0.0	0.0
Pennantpark	1.4	0.5	4.7	2.6	3.1	6.6	2.3	2.2	6.5	2.7	0.5	1.9	1.0	2.8	3.4	2.6	4.9	1.4	0.8	1.0	1.1	3.3	7.3	0.0	2.0	3.3	4.3	2.7	2.0	2.7		0.0	1.5
PGIM	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.6	0.0	1.0	0.0	0.6	0.0	1.3	0.9	0.0	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.5	0.0	0.0	0.0	0.0		0.0
Silver Point	1.5	0.0	0.7	0.0	0.0	0.4	0.0	1.5	4.0	0.7	0.0	0.9	2.9	0.0	0.0	0.0	0.0	3.8	0.4	0.0	0.9	0.0	1.2	0.0	1.5	0.2	0.3	0.0	2.8	0.0	1.5	0.0	

The overlap metric we calculate considers dollar weighted exposure (% exposure) and is the sum of the like exposures (as a percentage) between two managers. Specifically, it is the sum of the lower % exposure of each exposure between two managers. For example, assume manager A and manager B have asset ABC and asset XYZ in common, and ABC is worth 5% of manager A exposure while XYZ is worth 2% of manager A exposure. ABC is worth 2% of manager B exposure, while XYZ is worth 5% of manager B exposure. The overlap between manager A and B is 2% + 2% = 4%. Source: S&P Global Ratings.

Managers | CLO Asset Credit Distribution By Manager

Credit distribution across rated MM CLO exposures (%)

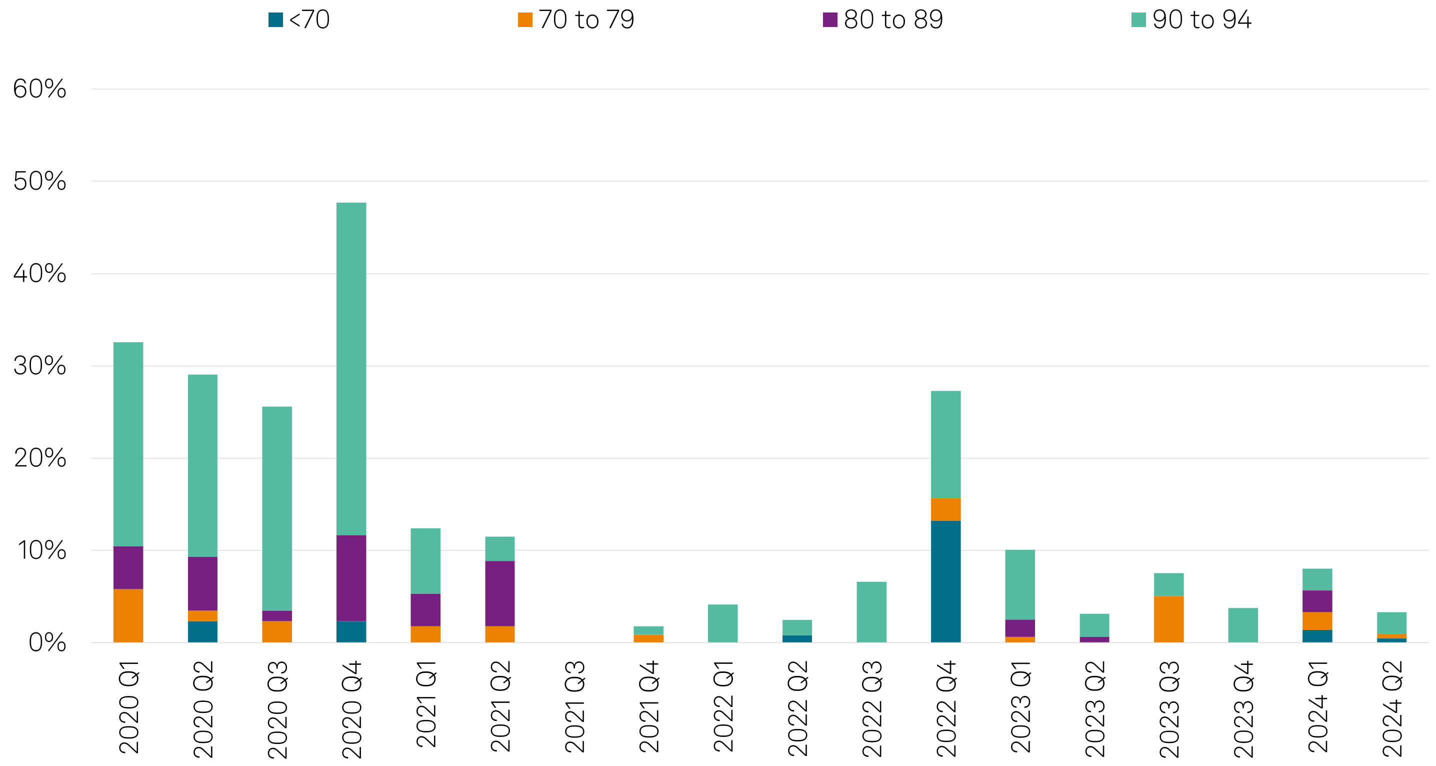
Manager (S&P MM CLOs)	'BBB-' or above	'BB+'	'BB'	'BB-'	'B+'	'B'	'B-'	'CCC+'	'CCC'	'CCC-'	No rating/ CE	Nonperforming	Earliest trustee report in data set	Latest trustee report in data set
Alliance Bernstein(13)	0.0	0.0	0.0	0.0	0.0	3.0	73.5	16.3	2.9	1.5	2.8	0.0	5/8/2024	6/14/2024
Angelo Gordon/Twin Brook(2)	0.0	0.0	0.0	0.0	0.0	0.0	82.9	4.0	4.8	5.8	2.4	0.0	5/6/2024	5/6/2024
Antares(12)	0.0	0.0	0.0	0.0	0.0	7.1	72.5	9.6	4.3	4.0	2.2	0.3	1/11/2024§	5/14/2024
Apollo(1)	0.0	0.0	0.0	0.0	0.0	7.6	69.1	12.0	2.2	5.5	3.6	0.0	4/30/2024	4/30/2024
Ares(7)	0.0	0.0	0.0	0.0	0.0	7.6	77.0	6.5	2.7	3.6	1.1	1.5	5/1/2024	5/2/2024
Audax(7)	0.0	0.0	0.0	0.0	1.0	19.8	67.0	7.4	1.7	0.4	2.4	0.2	5/6/2024	5/6/2024
Bain(3)	0.0	0.0	0.2	0.5	0.2	7.5	69.0	11.9	3.4	0.0	7.3	0.0	5/8/2024	5/9/2024
Barings(7)	0.0	0.0	0.0	0.0	0.7	10.1	65.4	8.3	4.4	4.1	7.0	0.0	5/3/2024	6/7/2024
Blackrock(8)	0.0	0.0	0.0	0.0	0.0	15.0	58.1	12.7	6.9	4.6	1.7	1.0	4/10/2024	5/8/2024
Blue Owl(24)	0.0	0.0	0.0	0.0	0.4	6.6	74.2	13.8	1.8	0.8	2.4	0.0	4/22/2024	5/8/2024
BMO(4)	0.0	0.0	0.0	0.0	0.0	4.3	68.0	8.3	3.5	5.0	10.0	0.9	4/3/2024	5/31/2024
Brightwood(5)	0.0	0.0	0.0	0.0	3.2	12.3	61.5	10.1	3.2	6.6	3.1	0.0	5/3/2024	5/14/2024
Carlyle(1)*	0.0	0.0	0.0	0.0	2.4	9.1	56.4	17.3	7.3	6.0	1.5	0.0	4/24/2024	4/24/2024
Churchill(8)	0.0	0.0	0.0	0.0	0.5	8.1	72.9	8.5	2.1	2.2	5.1	0.7	3/7/2024§	6/4/2024
CIFC(1)	0.0	1.8	0.0	0.0	0.0	9.1	77.9	4.8	2.3	0.0	4.1	0.0	4/8/2024	4/8/2024
Deerpath(7)	0.0	0.0	0.0	0.0	0.0	4.1	79.5	3.3	2.3	2.3	8.5	0.0	5/14/2024	5/14/2024
First Eagle/NewStar(5)	0.0	0.0	0.0	1.0	1.5	7.6	59.1	13.0	2.2	3.9	9.6	2.1	5/3/2024	5/15/2024
Fortress(7)	0.0	0.0	0.1	6.0	0.2	10.0	55.4	5.6	4.0	3.2	9.9	5.7	3/31/2024	4/30/2024
Golub(29)	0.0	0.0	0.0	0.0	0.0	4.1	75.4	12.6	3.1	2.2	2.1	0.6	4/8/2024	5/24/2024
GSO/Blackstone(1)*	0.0	7.4	0.0	0.0	0.0	0.0	56.4	0.0	0.0	2.9	32.4	0.9	5/6/2024	5/6/2024
Guggenheim(3)	0.0	0.0	0.0	0.1	2.1	9.4	58.0	8.6	8.7	0.1	12.9	0.2	5/8/2024	5/13/2024
HPS(2)	0.0	0.0	0.0	1.6	1.8	11.1	67.7	7.2	1.2	0.8	8.5	0.0	5/3/2024	5/8/2024
KCAP/Garrison(4)	0.0	0.0	0.0	0.0	0.9	7.6	52.7	10.3	9.7	7.4	5.1	6.3	4/10/2024	5/8/2024
KKR(1)*	0.0	0.0	0.0	0.0	0.0	5.8	69.1	4.3	2.6	4.1	13.5	0.6	4/30/2024	4/30/2024
Maranon(6)	0.0	0.0	0.0	0.0	0.0	3.7	82.3	4.4	2.3	5.9	1.0	0.4	5/3/2024	5/3/2024
MCF/Apogem(9)	0.0	0.0	0.0	0.0	0.0	6.5	77.9	5.1	1.9	4.5	3.2	0.7	4/8/2024	5/10/2024
Midcap(12)	0.0	0.0	0.0	0.0	0.0	7.7	65.7	9.1	3.6	5.0	8.7	0.3	5/6/2024	5/13/2024
Monroe(1)	0.0	0.0	0.0	0.0	1.5	20.8	56.4	13.8	1.0	0.0	5.0	1.4	5/8/2024	5/8/2024
MSD(1)	0.0	0.0	0.0	0.0	10.0	12.5	69.1	8.3	0.0	0.0	0.0	0.0	5/1/2024	5/1/2024
NXT Capital(1)	0.0	0.0	0.0	0.0	1.9	0.6	69.9	8.1	3.0	7.0	9.5	0.0	5/8/2024	5/8/2024
Pennantpark(7)	0.0	0.0	0.0	0.0	0.5	4.9	70.1	10.9	3.2	2.6	7.1	0.6	4/3/2024	5/10/2024
PGIM(2)	0.0	0.0	0.0	0.0	0.0	4.1	83.8	3.9	0.0	5.1	3.1	0.0	2/29/2024§	4/30/2024
Silver Point(2)	0.0	0.0	0.0	0.0	4.3	23.8	50.0	12.6	2.1	0.0	4.6	2.5	5/1/2024	5/1/2024

Based on most recent trustee report available to us as of Jul. 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.

Managers | Discount Asset Sales/Collateral Substitutions, 2020 - Q2 2024

Proportion of outstanding MM CLOs with trades below par



Source: S&P Global Ratings.

- A large majority of MM CLOs are well above their target par balances, and most transactions experience increases in par during their reinvestment periods.
- Occasionally, we see some transactions experience declines in portfolio par balances due to sales at discounts.
- The chart shows a proportion of outstanding rated MM CLOs that have recorded a sale at a discount, though position size as a percentage of the portfolio varies.
- Relative to BSL CLOs, MM CLOs rarely sell at distressed prices; though, when they do, these trades can lead to notable par loss (as MM CLO portfolios tend to be less diverse).

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(13)	96.34	132	87.01	79	3.14	4	5/8/2024	6/14/2024
Angelo Gordon/Twin Brook(2)	97.64	85	94.53	47	5.82	7	5/6/2024	5/6/2024
Antares(12)	92.56	294	95.82	116	4.05	11	1/11/2024§	5/14/2024
Apollo(1)	96.43	26	96.60	20	9.81	2	4/30/2024	4/30/2024
Ares(7)	64.51	157	90.17	90	2.84	7	5/1/2024	5/2/2024
Audax(7)	34.72	93	91.90	57	1.64	3	5/6/2024	5/6/2024
Bain(3)	86.91	57	86.48	38	6.45	3	5/8/2024	5/9/2024
Barings(7)	86.78	124	96.06	55	5.17	7	5/3/2024	6/7/2024
Blackrock(8)	75.51	129	85.24	52	11.03	13	4/10/2024	5/8/2024
Blue Owl(24)	86.88	154	80.38	67	4.59	8	4/22/2024	5/8/2024
BMO(4)	89.80	150	92.62	94	5.13	9	4/3/2024	5/31/2024
Brightwood(5)	84.01	62	86.61	38	9.02	3	5/3/2024	5/14/2024
Carlyle(1)*	90.10	51	92.13	36	7.64	4	4/24/2024	4/24/2024
Churchill(8)	83.01	211	95.36	94	4.58	9	3/7/2024§	6/4/2024
CIFC(1)	93.09	58	92.52	42	6.49	5	4/8/2024	4/8/2024
Deerpath(7)	89.28	106	94.00	65	5.12	6	5/14/2024	5/14/2024

Based on most recent trustee report available to us as of July 1, 2024. *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.

- Over 500 sponsors are affiliated with the 2,100+ issuers that have been credit estimated since 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.

PE Sponsors | Sponsor Diversity In MM CLO Collateral Pools Continued

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
First Eagle/NewStar(5)	62.13	65	90.20	44	4.60	4	5/3/2024	5/15/2024
Fortress(7)	66.00	75	56.64	37	4.77	3	3/31/2024	4/30/2024
Golub(29)	95.56	230	90.10	99	7.51	11	4/8/2024	5/24/2024
GSO/Blackstone(1)*	47.86	5	79.31	3	22.96	1	5/6/2024	5/6/2024
Guggenheim(3)	53.96	42	90.34	22	6.82	5	5/8/2024	5/13/2024
HPS(2)	69.27	97	81.25	60	3.10	3	5/3/2024	5/8/2024
KCAP/Garrison(4)	50.56	52	94.76	39	4.31	3	4/10/2024	5/8/2024
KKR(1)*	84.58	34	85.85	21	11.32	4	4/30/2024	4/30/2024
Maranon(6)	94.78	108	96.06	70	5.34	4	5/3/2024	5/3/2024
MCF/Apogem(9)	94.37	216	94.53	117	3.49	8	4/8/2024	5/10/2024
Midcap(12)	88.85	202	92.83	111	3.65	7	5/6/2024	5/13/2024
Monroe(1)	36.01	49	90.11	37	2.10	2	5/8/2024	5/8/2024
MSD(1)	47.37	17	74.01	12	5.32	2	5/1/2024	5/1/2024
NXT Capital(1)	88.63	65	99.01	46	6.26	3	5/8/2024	5/8/2024
Pennantpark(7)	79.22	90	93.46	55	6.39	7	4/3/2024	5/10/2024
PGIM(2)	96.93	46	83.67	33	7.15	3	2/29/2024§	4/30/2024
Silver Point(2)	70.28	36	80.04	27	3.75	2	5/1/2024	5/1/2024

Based on most recent trustee report available to us as of July 1, 2024. *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.

S&P Global Ratings

CLO Rating Actions | No U.S. CLO 'AAA' Tranche Ratings Lowered Since 2012

- No 'AAA' rated U.S. CLO tranche has been downgraded since 2012, and that was for a CLO 1.0 transaction. No CLO 'AAA' tranche has ever defaulted.
- 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.

U.S. BSL and MM CLO rating upgrades and downgrades (2020-Q2 2024)

U.S. BSL CLO UG

Orig. rating category	2020	2021	2022	2023	1H 2024	Total (since 2020)
AAA						
AA	5	39	14	29	26	113
A	6	47	18	30	27	128
BBB	1	46	20	18	11	96
BB		73	24	7	1	105
B	1	45	5	1		52
Grand total	13	250	81	85	65	494

U.S. MM CLO UG

Orig. rating category	2020	2021	2022	2023	1H 2024	Total (since 2020)
AAA						
AA		3	3		11	17
A		5	4	2	12	23
BBB		4	3	3	5	15
BB		3	2	2	1	8
B						
Grand total	0	15	12	7	29	63

US BSL CLO DG

Orig. rating category	2020	2021	2022	2023	1H 2024	Total (since 2020)
AAA						
AA	3					3
A	11					11
BBB	91	5		2	1	98
BB	282	7	5	31	17	342
B	105	5	5	15	7	137
Grand total	492	17	10	48	25	592

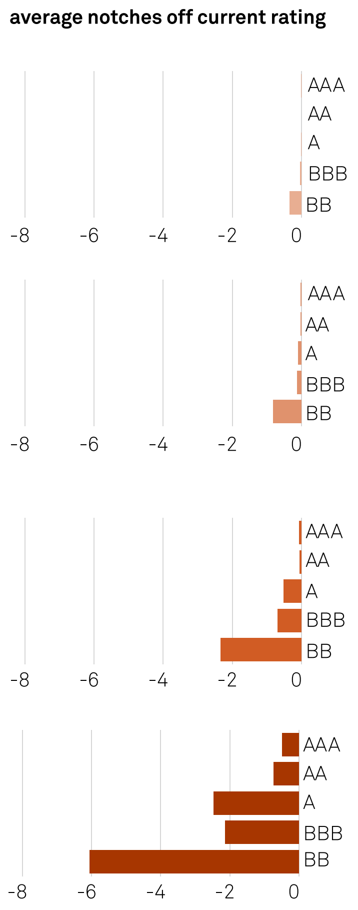
U.S. MM CLO DG

Orig. rating category	2020	2021	2022	2023	1H 2024	Total (since 2020)
AAA						0
AA						0
A	1					2
BBB						0
BB	5				1	6
B	1					1
Grand total	7	0	0	0	1	9

BSL--Broadly syndicated loan. MM--Middle market. UG--Upgrade. DG--Downgrade. Source: S&P Global Ratings.

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

	Scenario	Impact across CLO sample
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.

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

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.

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®.

Data For Selected Slides

Download a copy of the data from many of the charts and tables in the slides.

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