Private Credit And Middle-Market CLO Quarterly:

The Times They Are A-Changin'

Q4 2024

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This report does not constitute a rating action

Q4 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 third quarter, a total of 870 credit estimates were issued, of which 183 were new and 687 were refreshes of existing credit estimates. Year to date, S&P Global Ratings has completed an aggregate of 2,590 credit estimates, of which 634 are new and the remaining are refreshes of existing estimates. Our view on credit estimates serves as a good proxy for our perspective on the broader direct lending market as portions of loans held in the middle-market CLOs we rate are allocated by CLO managers/GPs to other funds and vehicles they manage. 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, an indication of the size of the direct lending portion of the private credit market.

Credit Estimate Changes: Upgrades Up, Downgrades Down (But Still Elevated)

The third quarter saw a total of 88 credit estimate downgrades, compared to 98 in the second quarter, bringing the total downgrades for the first three quarters of the year to 269 **(see slide 14)**. For the third quarter, 13% of the credit estimates reviewed (excluding new estimates) resulted in downgrades; this compares to 14% of entities that were downgraded in the first half of the year. Nine percent were upgraded in the third quarter, compared to 6% for the first half, and the remaining 78% of the reviews were affirmations.

We think credit performance issues have bottomed out for the most part. Given the resilience and sustained growth of the U.S. economy, some stabilization in inflation and efforts companies have taken to contain costs, we expect downgrades to have peaked (although they will likely continue to outnumber upgrades for the next few quarters). Further, the reduction in SOFR from the Fed's rate cut in September (with more cuts likely to come), coupled with the repricing of many loans in the private credit space, should ease the pressure on credit metrics like interest coverage and free operating cash flow for these issuers.

The clarity around the direction of rates should lead to some convergence around valuation, and we will likely see a pickup in sponsor exits. The reduction in the all-in yield will also reduce the cost of financing and ease liquidity pressure. These two factors will help moderate requests by managers for maturity extensions on loans, and conversion of cash interest to payment in kind (PIK)--the two biggest drivers of Selective Defaults on our credit estimates **(see slides 18 and 19)**.

Broadly Syndicated loan Loan Agreements Versus Direct Lending Loan Agreements

We recently compared loan agreements for 22 companies that moved from the broadly syndicated loan (BSL) market to refinance in the private credit market. Based on our review of the provisions in the sampled agreements, we believe provisions get tightened in private credit for most of the loans refinancing out of the syndicated loan market **(see slide 20)**.

Q4 2024 Update | Private Credit And Middle-Market CLOs

Middle-Market CLO Issuance Sets A Record

Middle-market (MM) CLO issuance continues to be robust. By the end of September, it had reached a milestone: $27.25 billion of new MM CLOs issued in the first three quarters of 2024, surpassing the full-year tally for 2023 and every year before **(see slide 21)**, even with another three months to go. As a percentage of total U.S. CLO issuance, this is lower than last year (19.2% versus 23.4% for full-year 2023) due to very robust BSL CLO issuance. Investor demand for MM CLOs continues to be strong for the same reasons it has been in the recent past. Based on three-month rolling average credit spreads, the basis between new issue MM CLO 'AAA' tranches and BSL 'AAA' tranches has settled at about 30 basis points. This is a lot tighter than it was a year ago (64 basis points in Sept. 2023) but is still appealing in a spread-constrained environment. The broader interest in everything private credit related also helps, as does the strong rating performance MM CLOs have seen during the pandemic and since.

MM CLO Credit Metrics Are (Mostly) Stable

The pace of credit estimate downgrades continues to moderate, and upgrades continue to increase **(see slide 14)**, causing the credit estimate downgrade-to-upgrade ratio to continue to improve. As a result, MM CLO credit metrics have remained stable over the past several months and look reasonably healthy by historical standards. The average reinvesting MM CLO 'CCC' (or 'ccc') basket was at 15.32% in late September, compared to 16.03% back in June (and a typical MM CLO 'CCC' threshold of 17.50%). The SPWARF metric, a measure of portfolio rating quality, was at 3871 in September versus 3879 back in June, a slight improvement, and the average junior O/C test cushion deteriorated just slightly over the same period, at 6.28% in September versus 6.36% back in June.

These are averages across our index of MM CLOs, and individual transactions can and will vary. In previous quarters we've noted the vintage effect, where CLOs (both BSL and MM) originated prior to the pandemic shutdowns in Q1 2020 have notably weaker metrics than CLOs originated afterwards. Metrics for the two sets of CLOs converged during 2022 and 2023, as higher interest rates and slowing growth put stress on leveraged borrowers, leading to collateral downgrades for both CLO cohorts. This quarter, we compared metrics for the top 20% of MM CLOs (as ranked by change in junior O/C since October of 2023) to the bottom 20% **(see slide 23)**. The differences are significant: MM CLOs in the bottom quintile lost 1.1% of par over the past year, while MM CLOs in the top quintile gained 0.30% of par over the same period. The average metrics are healthy, but there's a distribution around the mean and some individual CLOs are less healthy.

MM CLO Ratings

As always, it's worth keeping in mind the strong performance MM CLO ratings have shown historically, with only eight ratings lowered since the start of 2020, including the pandemic **(see slide 38)**. That number could increase: October saw three ratings from one MM CLO transaction placed on CreditWatch negative, including a 'A-'(sf) rated class, as part of a batch of CreditWatch placements (see "Twenty-Two CLO Ratings Placed On CreditWatch Positive And Nine Placed On CreditWatch Negative," published on Oct. 9, 2024). The CLO in question had 'CCC' asset exposure of 31%, had seen its junior overcollateralization (O/C) test ratio decline to 122.35% from 130.16% at close, and is failing three O/C tests. On a brighter note, in the same CreditWatch press release, we also saw three ratings from another MM CLO placed on CreditWatch positive.

New And Interesting

This quarter, for the first time, we've broken out corporate credit metrics (EBITDA, leverage, and interest coverage) by the number of managers that hold the loan, providing an interesting view of how metrics vary between widely-held obligors and less widely-held ones **(see slide 34)**.

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Credit Metrics | Median Leverage Trends, And First-Half Vs. Third-Quarter Comparison

Metrics for companies with credit estimates updated during first three quarters 2024

S&P Global Ratings-calculated leverage ratios* through third-quarter YTD 2024

For the top 10 most represented sectors

Industry	Median of debt/EBITDA (x)	Obligors (no.)
Software	7.84	252
Healthcare Providers and Services	7.15	226
Commercial Services and Supplies	6.54	156
Professional Services	6.16	146
Construction and Engineering	5.57	97
IT Services	6.30	95
Diversified Consumer Services	7.06	90
Media	6.22	87
Hotels, Restaurants and Leisure	6.21	57
Health Care Technology	6.24	55
All sectors	**6.33**	**2,189**

*Only includes the most recent analysis if a credit estimate was completed multiple times through the year. YTD--Year to date. Source: S&P Global Ratings.

S&P Global Ratings-calculated leverage ratios first half vs. third-quarter comparison

For the top 10 most represented sectors

	Median of debt/EBITDA (x)		
Industry	H1	Q3	Change
Software	8.15	8.22	+0.07
Healthcare Providers and Services	7.11	8.02	+0.90
Commercial Services and Supplies	6.54	6.62	+0.08
Professional Services	6.16	6.23	+0.07
IT Services	6.33	6.32	-0.01
Construction and Engineering	5.77	5.53	-0.24
Diversified Consumer Services	6.93	8.15	+1.22
Media	6.19	6.40	+0.21
Hotels, Restaurants and Leisure	6.22	5.49	-0.73
Health Care Technology	6.55	6.26	-0.29
All sectors	**6.33**	**6.68**	**+0.35**

For a limited no. of credits in first-half 2024, we revised our calculation of leverage to include a transaction subsequent to their most recent financials. Source: S&P Global Ratings.

Credit Metrics | Median Coverage Trends, And First-Half Vs. Third-Quarter Comparison

Metrics for companies with credit estimates updated during first three quarters 2024

S&P Global Ratings-calculated coverage ratios* through third-quarter YTD 2024

for the top 10 most represented sectors

Industry	Median EBITDA cash interest coverage (x)	Median FOCF** + cash interest coverage (x)	Obligors (no.)
Software	1.16	0.88	252
Healthcare Providers and Services	1.46	1.03	226
Commercial Services and Supplies	1.53	0.97	156
Professional Services	1.59	1.03	146
Construction and Engineering	1.85	0.96	97
IT Services	1.53	1.14	95
Diversified Consumer Services	1.56	1.05	90
Media	1.51	1.05	87
Hotels, Restaurants and Leisure	1.91	1.30	57
Health Care Technology	1.58	1.15	55
All sectors	**1.55**	**1.07**	**2,189**

*Only includes the most recent analysis if a credit estimate was completed multiple times through the year. **FOCF = CFO - Capex. FOCF--Free operating cash flow. YTD--Year to date.
Source: S&P Global Ratings.

S&P Global Ratings-calculated coverage ratios first-half vs. third-quarter comparison

for the top 10 most represented sectors

	Median EBITDA cash interest (x)			Median FOCF* + cash interest coverage (x)		
Industry	**H1**	**Q3**	**Change**	**H1**	**Q3**	**Change**
Software	1.12	1.15	+0.03	0.85	0.96	+0.11
Healthcare Providers and Services	1.47	1.28	-0.19	0.98	1.07	+0.09
Commercial Services and Supplies	1.48	1.60	+0.12	0.92	1.03	+0.11
Professional Services	1.60	1.53	-0.07	1.01	1.02	+0.01
IT Services	1.52	1.47	-0.05	1.13	1.10	-0.03
Construction and Engineering	1.80	1.87	+0.07	0.96	1.03	+0.07
Diversified Consumer Services	1.61	1.20	-0.41	1.12	0.69	-0.43
Media	1.50	1.56	+0.06	1.16	0.97	-0.19
Hotels, Restaurants and Leisure	1.84	2.13	+0.29	1.25	1.43	+0.18
Health Care Technology	1.44	1.60	+0.16	1.16	1.02	-0.14
All sectors	**1.56**	**1.49**	**-0.07**	**1.06**	**1.07**	**+0.01**

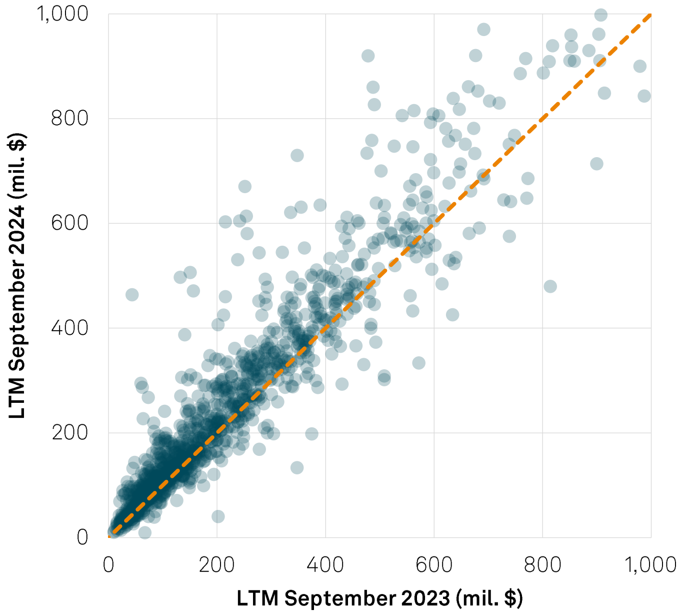
*FOCF = CFO - Capex. FOCF--Free operating cash flow. YTD--Year to date. Source: S&P Global Ratings.

Credit Metrics | Revenue, EBITDA, And Leverage Trends

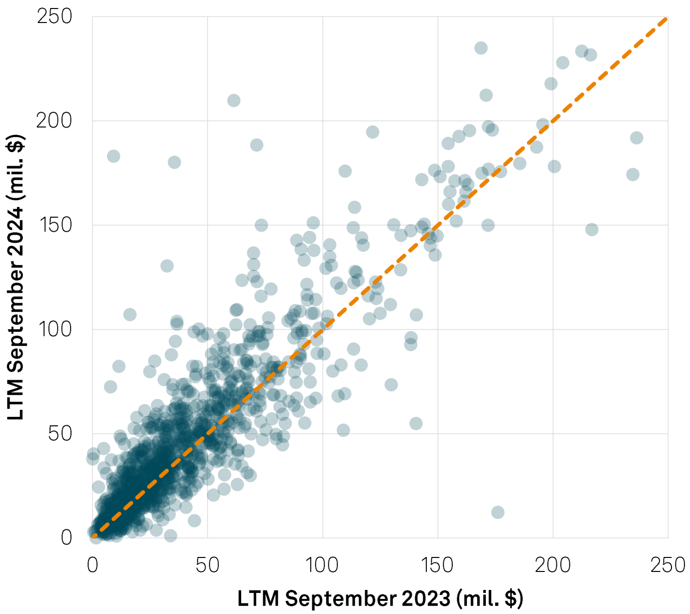
Change in metrics for credit-estimated obligors (LTM September 2023 reviews vs. LTM September 2024 reviews)

- Revenue and EBITDA increased year over year in 74% and 61% of cases, respectively.
- Leverage went up in 50% of the cases, driven mostly by add-on and tuck-in acquisitions.
- Median revenue and EBITDA increased by 18% and 33%, respectively, while median leverage went up by 28%.

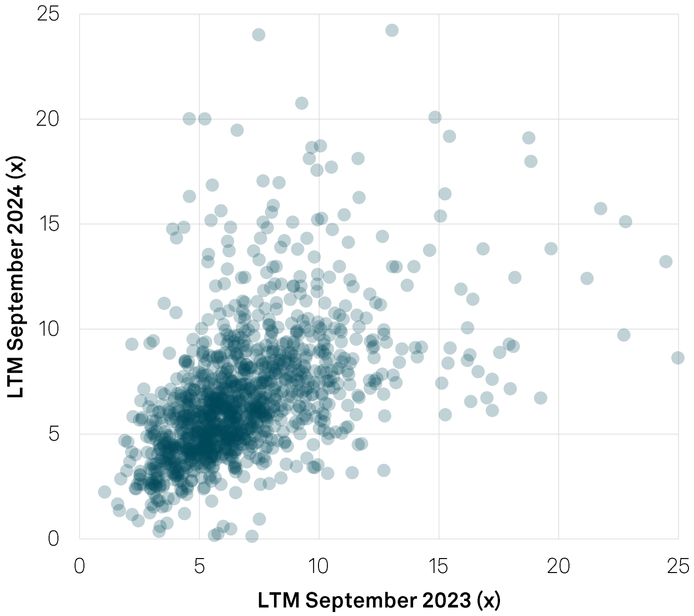
Revenue



EBITDA



Leverage



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

Credit Metrics | Sector Trends

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

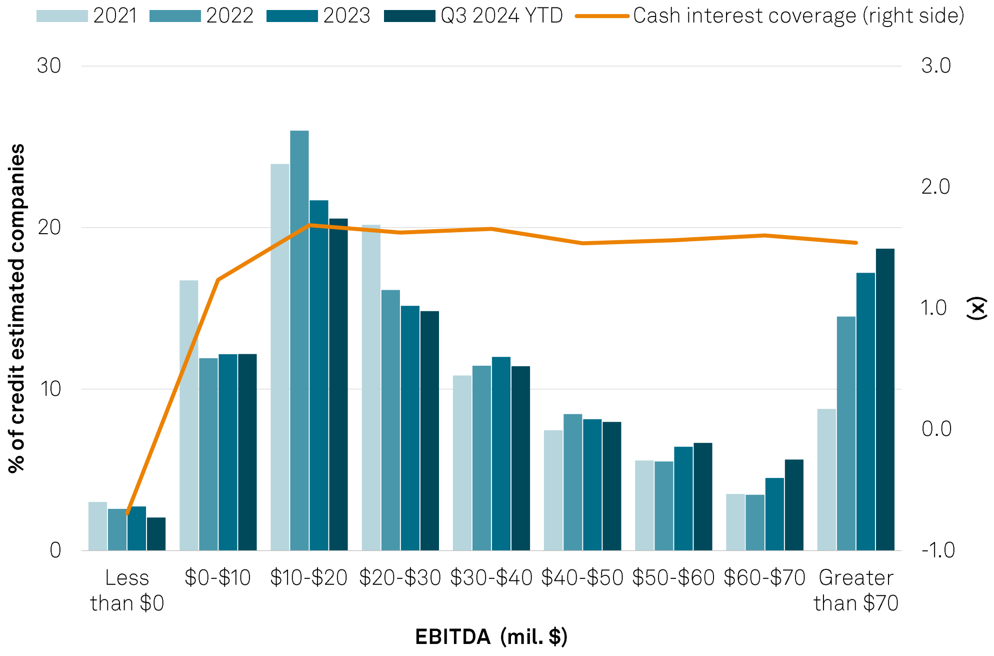
Industry	Median change in revenue (%)	Median change in EBITDA (%)	Median change in leverage (%)	Obligors (no.)
Software	+12.9	+13.4	-8.7	157
Healthcare providers and services	+16.5	+16.2	+2.6	148
Commercial services and supplies	+13.8	+13.5	-0.4	101
Professional services	+10.9	+11.2	-2.7	77
IT services	+7.5	+13.2	-0.1	63
Construction and engineering	+22.2	+25.9	+16.8	53
Diversified consumer services	+24.3	+25.5	+1.9	49
Media	+6.1	-4.4	+2.6	47
Health care technology	+11.1	+0.8	+0.5	40
Machinery	+12.8	+9.8	+11.1	36

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

Credit Metrics | EBITDA And Free Operating Cash Flow Distribution

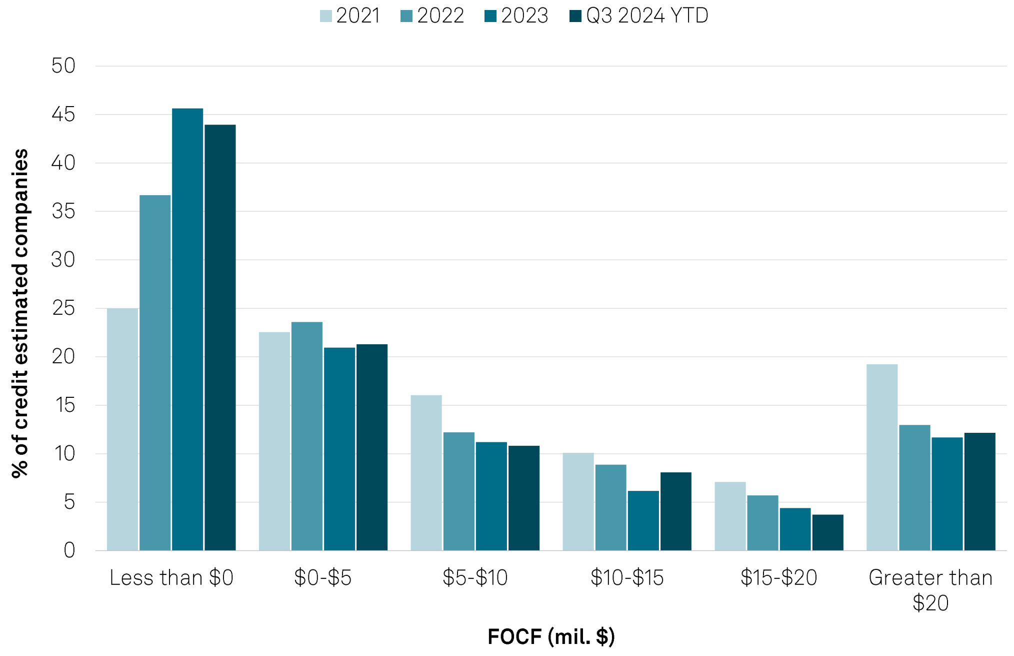
- 2% of companies reviewed this year had negative EBITDA, while 44% had negative FOCF, indicating the significant interest payments incurred by issuers.
- Of the companies with recurring revenue loan structures, 25% generated negative EBITDA (more on recurring revenue on slide 10).

EBITDA and cash interest coverage



Source: S&P Global Ratings.

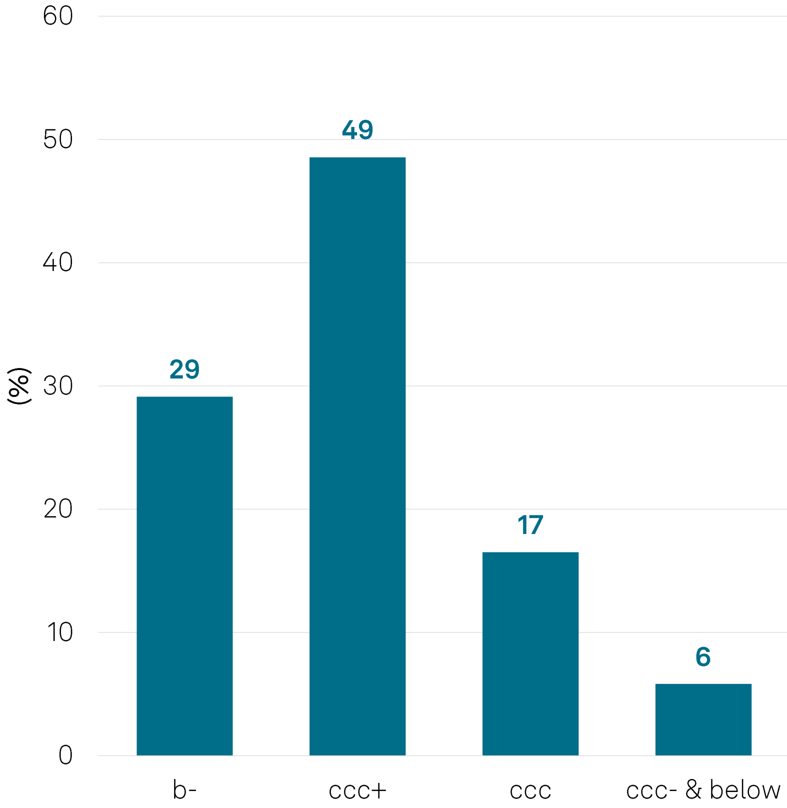
Free operating cash flow



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

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

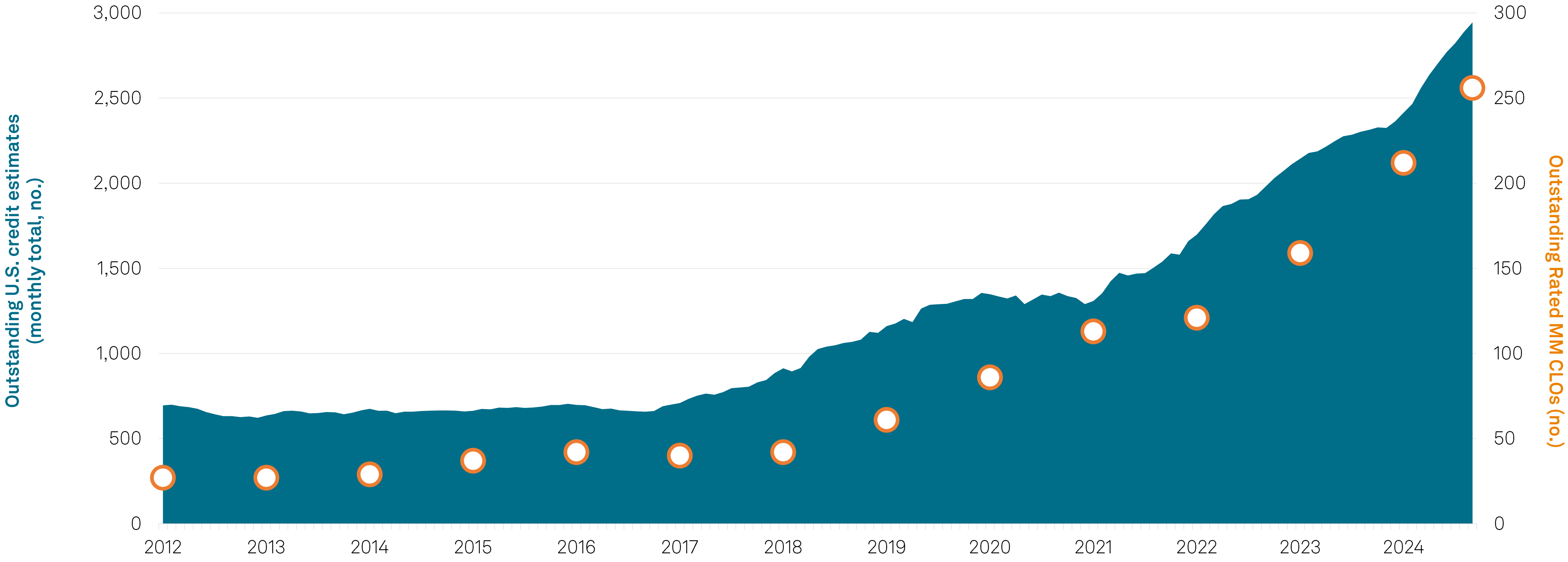
Metrics (median)	**Total outstanding**
No. of deals	103
EBITDA (mil. $)	7.73
Leverage (x)	20.79
Cash interest coverage (x)	0.46
Interest coverage (x)	0.38
Capex (mil. $)	1.23
Cash balance (mil. $)	17.58
FOCF to debt (%)	-5.11
Liquidity ratio (x)	1.73

Source: S&P Global Ratings.

- Recurring revenue companies represent a small proportion (<5%) of our outstanding credit estimates, typically for software companies.
- 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 72% of them have ‘adequate’ liquidity.
- Through third-quarter 2024 YTD, we saw 11 downgrades and four upgrades, accounting for 18% and 6%, 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–Q3 2024)*



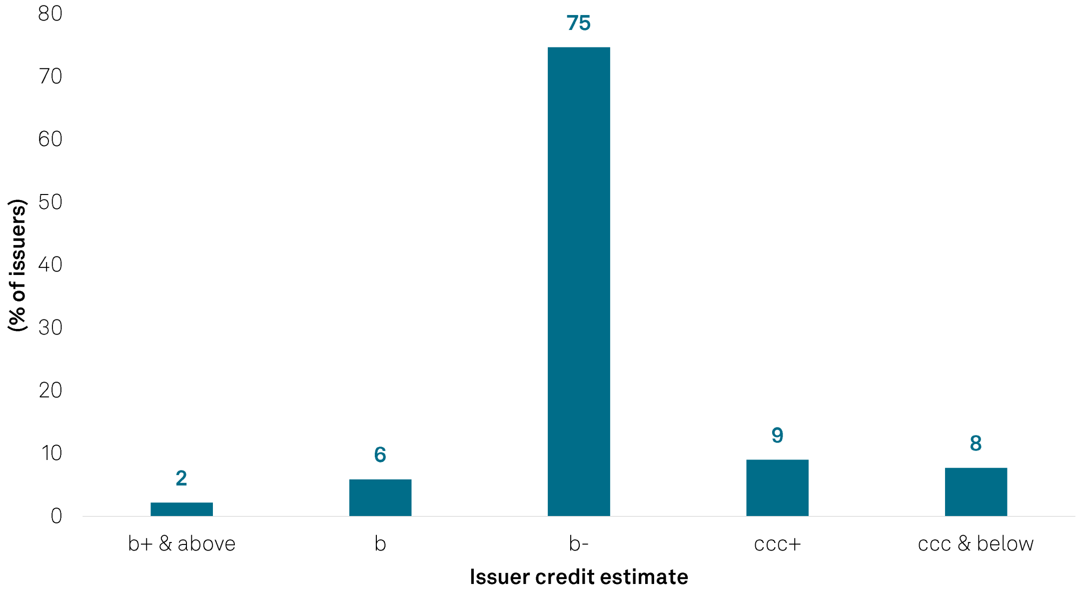
*Covers all outstanding S&P Global Ratings U.S. credit estimates, including a small number of estimates for obligors not currently held within a CLO transaction. CE--Credit estimate. MM--Middle market. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

S&P Global
Ratings

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

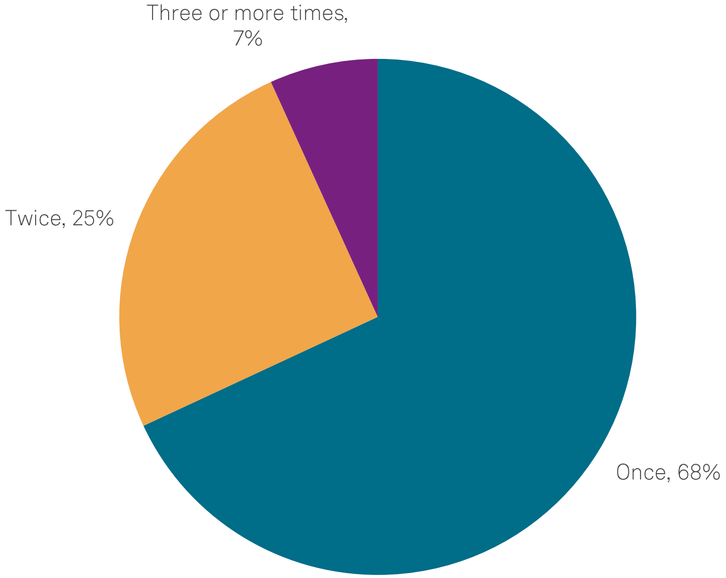
- For credit-estimated companies reviewed in third-quarter 2024, the median EBITDA was $34 million, and the median-adjusted debt was about $228 million.
- For credit-estimated companies reviewed in the first three quarters of 2024 the median EBITDA was $31 million, and the median-adjusted debt was about $190 million.

Credit estimates outstanding as of Q3 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 September 2024

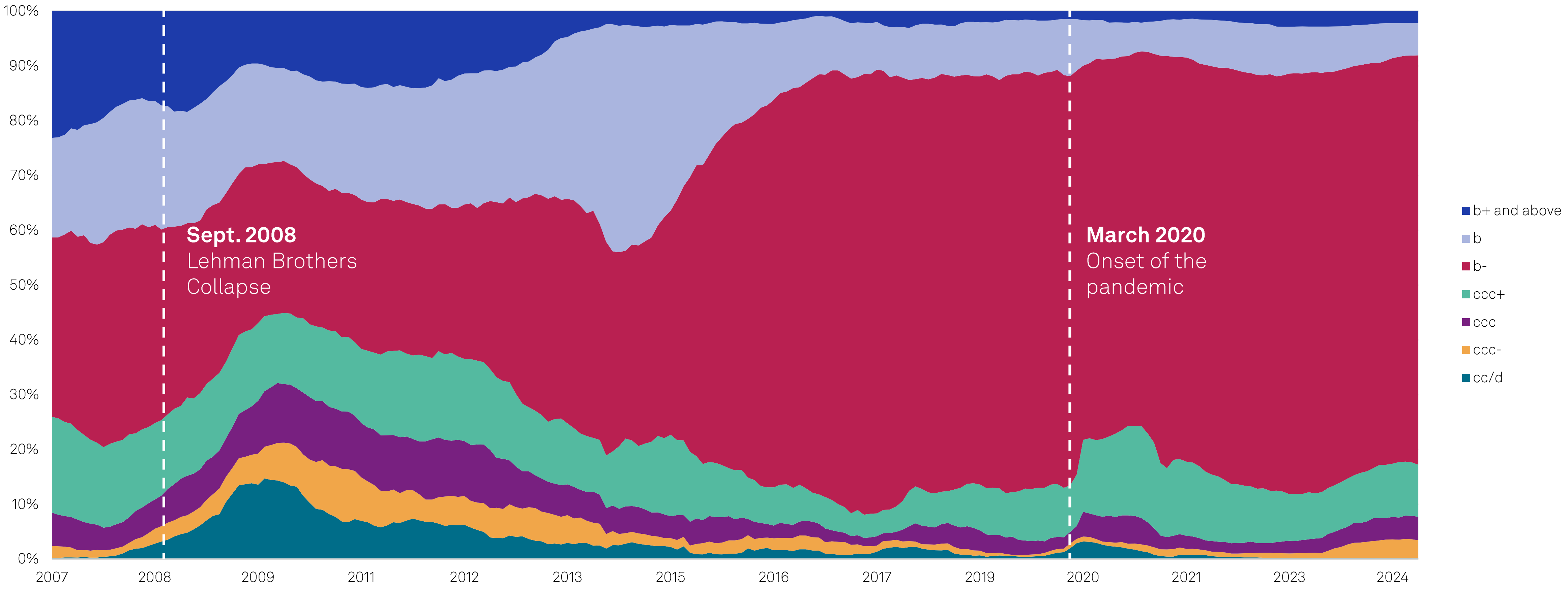


LTM--Last 12 months. Source: S&P Global Ratings.

S&P Global
Ratings

Credit Estimates | Credit Quality Over The Years

Outstanding credit estimate distribution (2007–Q3 2024)*

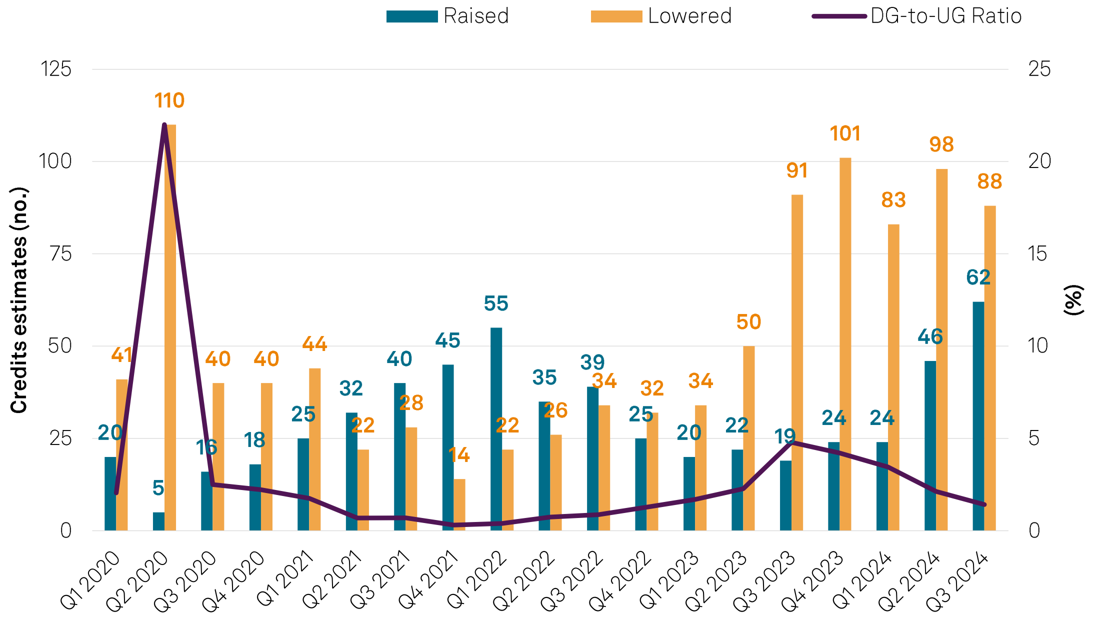


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

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 1.4 from 2.1 quarter over quarter.
- For the companies reviewed in the first three quarters of 2024, 79% were affirmed, 14% were downgraded, and 7% were upgraded, a similar breakout as in 2023.

Credit estimates raised and lowered (Q1 2020-Q3 2024)



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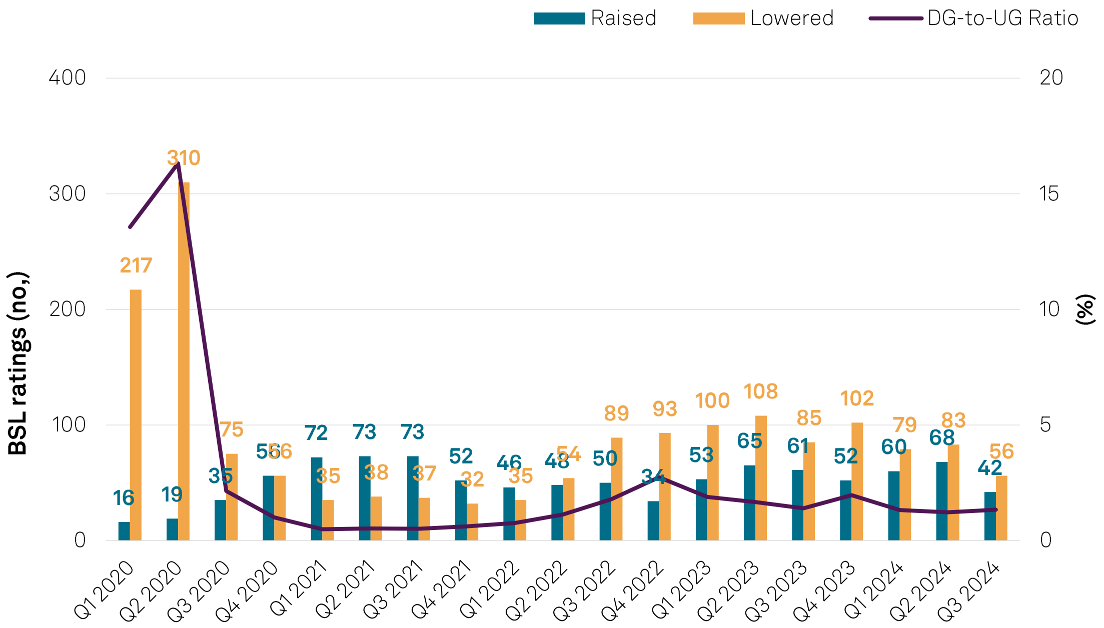
Source: S&P Global Ratings.

BSL ratings raised and lowered (Q1 2020-Q3 2024)



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

Upgrades And Downgrades | Credit Estimate Transitions

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

Credit estimate score as of Sept. 30, 2024 (%)

Credit estimate score as of Sept. 30, 2023 (%)	**‘b+’ and above**	**‘b'**	**‘b-’**	**‘ccc+’**	**‘ccc’**	**‘ccc-’**	**Below ‘ccc-’**	**Score withdrawn**
‘b+’ and above	61	17						22
‘b’	1	62	22	2	2			11
‘b-’		1	81	5	4	2		7
‘ccc+’			16	53	10	7	1	13
‘ccc’			15	17	27	13	5	23
‘ccc-’		2	8	11	9	47	4	19
Below ‘ccc-’					11		89	

Source: S&P Global Ratings.

- The y-axis represents the credit estimate score on Sept. 30, 2023, and the x-axis represents the credit estimate score on Sept. 30, 2024.
- 81% of ‘b-’ credit estimate scores were affirmed during the year.
- Approximately 11% 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

269 downgrades and 132 upgrades in the first three quarters of 2024

	Sector	Sector exposure of total credit estimates (%)	Downgrades (no.)	Upgrades (no.)	DG-to-UG Ratio
1	Software	11.5	27	22	1.2
2	Healthcare providers and services	10.3	36	18	2.0
3	Commercial services and supplies	7.1	15	9	1.7
4	Professional services	6.7	11	6	1.8
5	Construction and engineering	4.4	10	5	2.0
6	IT services	4.3	12	7	1.7
7	Diversified consumer services	4.1	10	2	5.0
8	Media	4.0	13	6	2.2
9	Hotels, restaurants, and leisure	2.6	3	2	1.5
10	Health care technology	2.5	6	6	1.0
11	Machinery	2.4	6	0	n/a
12	Food products	2.4	8	1	8.0
13	Chemicals	2.4	19	2	9.5
14	Trading companies and distributors	2.2	7	2	3.5
15	Healthcare equipment and supplies	2.1	6	1	6.0

Source: S&P Global Ratings.

Credit-estimate downgrades were driven by:

- Unsustainable capital structures with elevated leverage;
- Liquidity concerns;
- Weakened operating performance;
- Negative cash flow driven by higher interest rates; and
- Upcoming maturities with no refinancing plans in place.

Upgrades And Downgrades | Does Company Size Affect Performance?

- We wanted to determine if there was a size effect on performance of credit.
- 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 12 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	199	193
Average debt size	360	305

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

EBITDA size (mil $.)

	All CEs	Downgraded CEs
Median EBITDA size	32	19
Average EBITDA size	52	27

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

Debt size (mil. $)

	All CEs	Defaulted CEs
Median debt size	199	186
Average debt size	360	346

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

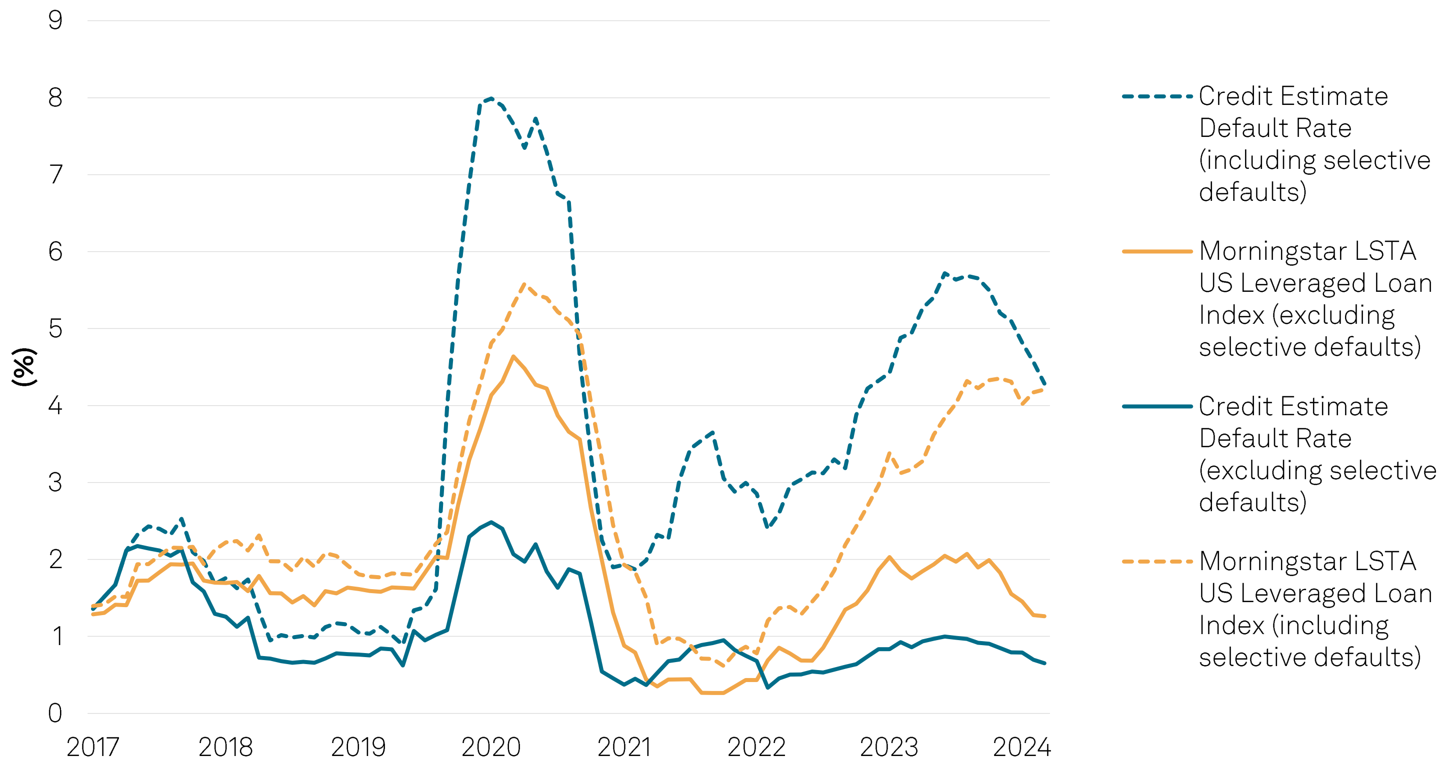
EBITDA size (mil. $)

	All CEs	Defaulted CEs
Median EBITDA size	32	19
Average EBITDA size	52	31

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. Selective defaults are primarily driven by A-to-E or interest deferral as companies continue to address liquidity concerns.
- Among BSL issuers, the LSTA Leveraged Loan Index default trended down towards 1.26% 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 4.21%, closer to our aggregate defaults/selective defaults of 4.29%.
- Other default studies' outcomes may differ because of methodology and universe sampled.

Defaults | Credit Estimate Selective Defaults Moderate

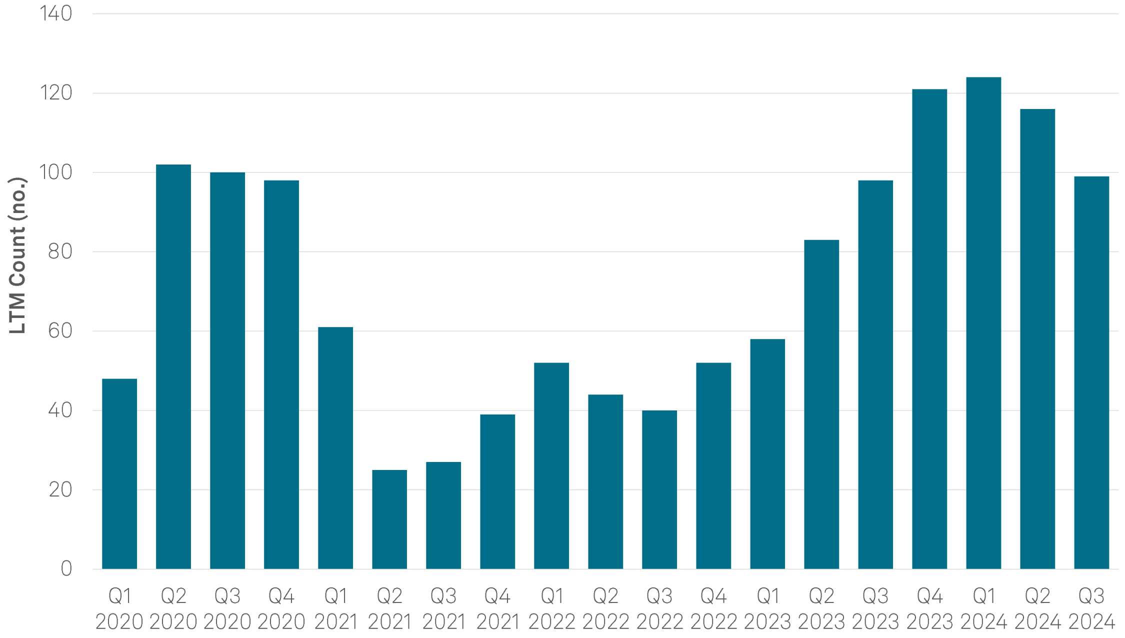
- The biggest reasons for selective defaults this year were PIK (72%), followed by A-to-E transactions (37%), with the remaining 10% doing both.

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

Credit estimate score post-selective default

Credit estimate score pre-'SD'	'b-'	'ccc+'	'ccc'	'ccc-'	'cc'
'b-'	14	2	3	7	2
'ccc+'		7	5	1	
'ccc'	3	3	19	1	1
'ccc-'	5	4	3	13	
'cc'				1	

LTM count of selective defaults (Q1 2020–Q3 2024)

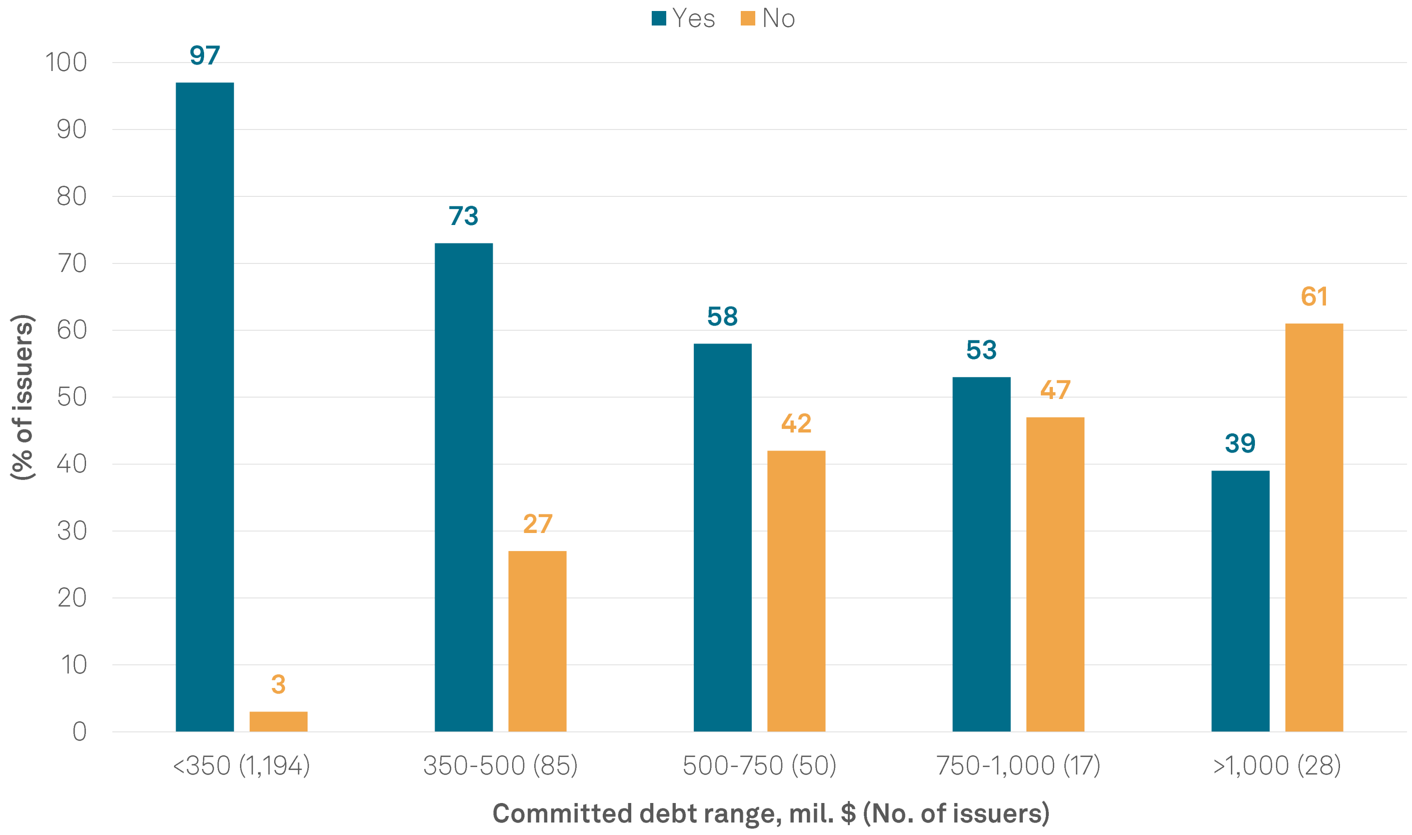


As of third quarter-2024, we are still receiving selective default notices from managers and incorporating them into our dataset.

*Does not include credits for which where withdrawn post-SD. SD--Selective default. LTM--Last 12 months. Source: S&P Global Ratings.

Loan Documents | Direct Lending Companies Have Tighter Loan Docs

Presence of maintenance covenants in 1,200+ private credit agreements reviewed

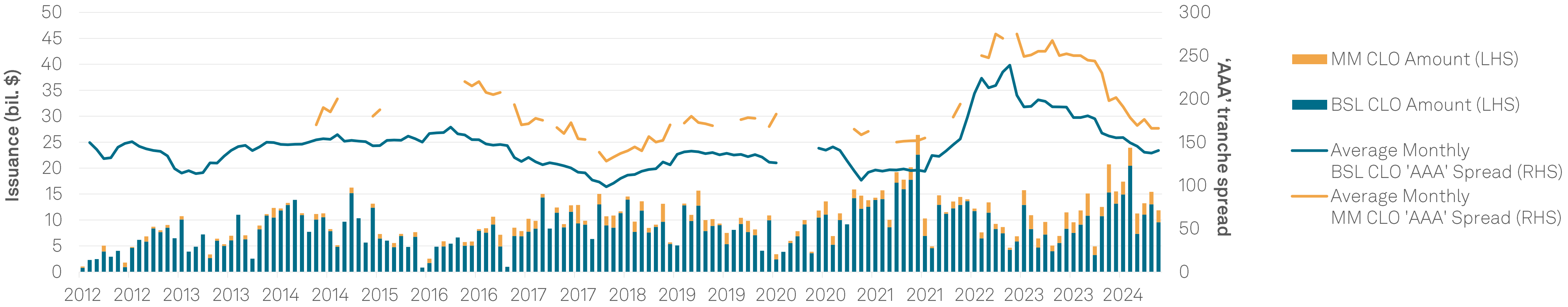


Source: S&P Global Ratings. Committed debt includes term loans and delayed-draw term loans.

- Of the 17 issuers that had covenant-lite structures in the BSL market, eight required a financial maintenance covenant on moving to the private credit market.
- Of the 22 BSL agreements, eight did not cap anticipated cost savings/synergy that could be added back to agreement-defined EBITDA. When the entities transitioned to private credit, synergy and cost saving was capped in all but one case (where the deal dispensed with the EBITDA-based covenant and switched to a liquidity covenant). However, one deal that did have a cap for cost saving in BSL removed it when it moved to private credit.
- Six issuers did a deal in the BSL market much after 2017 (J Crew transaction) and still did not include a J. Crew blocker. When they were refinanced in the private credit market, five of them added a blocker, and the sixth one removed the concept of unrestricted subsidiaries altogether.

CLO Issuance | MM CLO New Issue Tally Exceeds Full Year 2023, Sets Record

U.S. BSL & MM CLO issuance by month, along with benchmark CLO ‘AAA’ tranche spreads



		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023 through Sept.	2024 through Sept.	Change
New Issue	BSL CLOs	$50.11	$78.12	$117.78	$93.76	$64.01	$103.58	$112.88	$103.65	$82.21	$164.97	$116.99	$88.71	$65.55	$114.65	74.92%
	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	$18.38	$27.25	48.26%
	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**	**$83.92**	**$141.90**	**69.08%**
	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%	**21.90%**	**19.20%**	
Reset/Refi	BSL CLOs	$0.00	$0.00	$0.00	$0.00	$39.73	$161.53	$151.97	$41.33	$30.39	$237.61	$17.35	$21.55	$9.08	$189.97	1991%
	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	$0.81	$12.75	1471%
	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**	**$9.89**	**$202.72**	**1949%**

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

CLO Performance | Average MM CLO Credit Metrics Have Been Mostly Stable Over Past Year

Credit metrics averaged across 63 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
9/30/2023(i)	71.82	11.72	5.78	0.43	3842	6.69	100.60
10/31/2023(i)	70.59	12.85	6.02	0.45	3864	6.63	100.59
11/30/2023(i)	69.74	13.64	6.25	0.46	3884	6.59	100.57
12/31/2023(i)	68.14	14.76	6.77	0.49	3914	6.59	100.59
1/31/2024(i)	68.04	14.31	7.15	0.59	3919	6.48	100.54
2/29/2024(i)	68.75	14.06	7.38	0.56	3928	6.45	100.52
3/31/2024(i)	68.37	14.25	7.47	0.62	3932	6.45	100.49
4/30/2024(i)	68.88	14.80	6.59	0.68	3930	6.41	100.46
5/31/2024(i)	70.41	14.86	5.09	0.67	3894	6.42	100.48
6/30/2024(i)	71.11	16.03	3.82	0.48	3879	6.36	100.50
7/31/2024(i)	71.90	15.99	3.36	0.37	3866	6.32	100.44
8/31/2024(ii)	72.48	15.61	3.28	0.52	3873	6.28	100.42
9/23/2024(iii)	72.40	15.32	3.72	0.48	3871	6.28	100.42

(i)Index metrics based on end of month ratings and pricing data and as of month portfolio data available. (ii)Index metrics based on August 31, 2024, ratings and latest portfolio data available to us. (iii)Index metrics based on Sept. 23, 2024, ratings and latest portfolio data available to us. CLO--Collateralized loan obligation. C/E--Credit enhancement. SPWARF--S&P Global Ratings' weighted average rating factor. O/C--Overcollateralization. Source: S&P Global Ratings.

CLO Performance | Looking Beyond The Averages: Top 20% And Bottom 20%

Credit metrics for best performing quintile of MM CLOs*

As of date	'B-' (%)	'CCC' category (%)	No rating/CE (%)	Nonperforming assets (%)	SPWARF	Jr. O/C cushion (%)	% of target par
9/30/2023(i)	72.20	10.27	8.12	0.39	3888	6.17	100.91
10/31/2023(i)	71.46	11.10	8.16	0.33	3897	6.23	100.96
11/30/2023(i)	70.95	10.93	8.88	0.33	3912	6.45	101.00
12/31/2023(i)	70.47	11.44	8.86	0.33	3919	6.48	101.03
1/31/2024(i)	70.32	11.07	9.56	0.27	3920	6.32	101.02
2/29/2024(i)	71.57	10.55	9.35	0.14	3900	6.55	101.00
3/31/2024(i)	70.41	11.70	9.52	0.09	3920	6.58	101.04
4/30/2024(i)	69.27	12.50	9.63	0.24	3945	6.49	101.07
5/31/2024(i)	70.39	12.67	8.31	0.27	3914	6.61	101.14
6/30/2024(i)	71.72	13.62	6.67	0.11	3885	6.66	101.17
7/31/2024(i)	71.91	14.17	6.33	0.10	3894	7.10	101.28
8/31/2024(ii)	72.64	14.66	5.49	0.10	3892	7.03	101.29
9/23/2024(iii)	72.54	13.99	6.02	0.10	3883	7.03	101.29

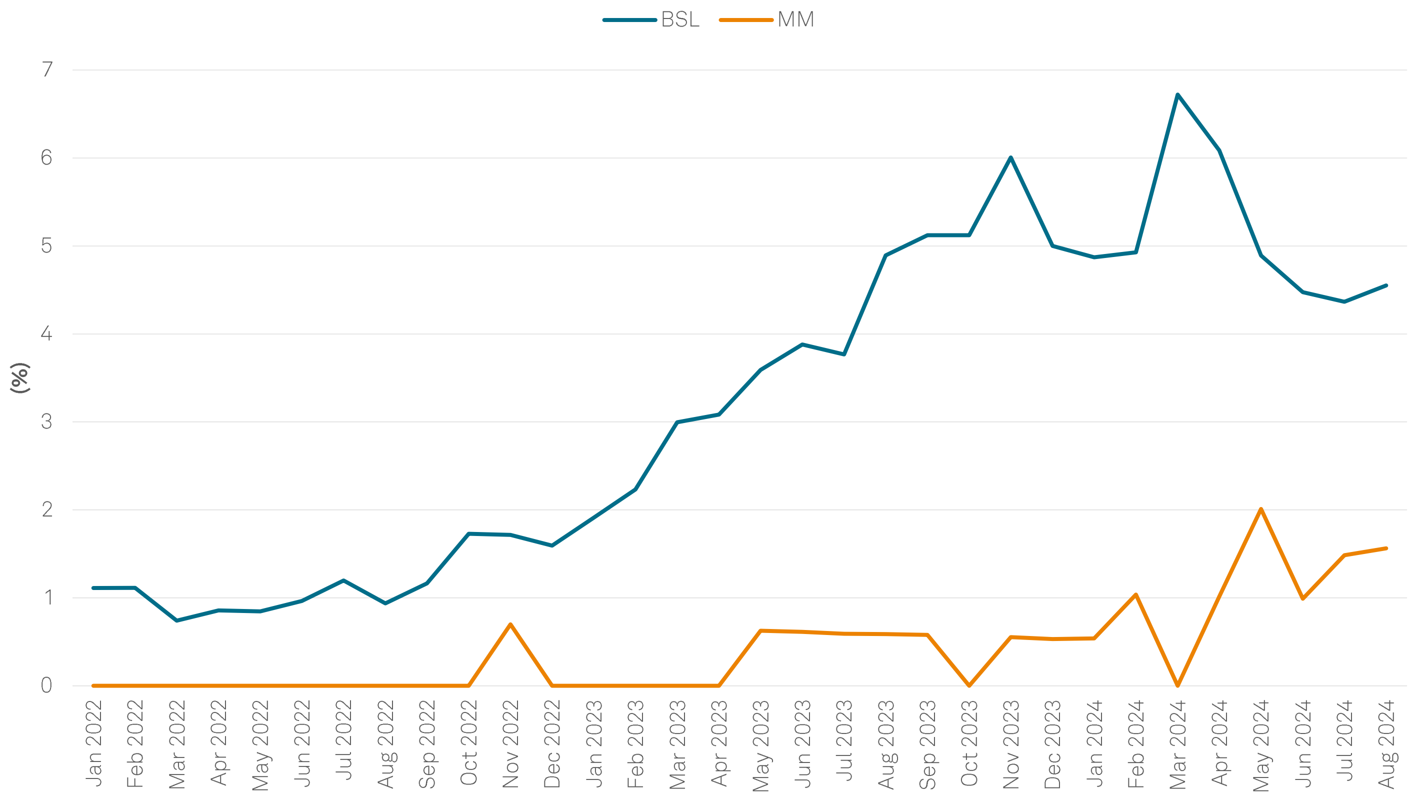
Credit metrics for worst performing quintile of MM CLOs*

As of date	'B-' (%)	'CCC' category (%)	No rating/CE (%)	Nonperforming assets (%)	SPWARF	Jr. O/C cushion (%)	% of target par
9/30/2023(i)	66.62	14.25	5.42	0.52	3854	4.96	100.37
10/31/2023(i)	65.72	15.49	5.58	0.48	3875	4.74	100.24
11/30/2023(i)	64.65	16.17	5.69	0.48	3891	4.62	100.24
12/31/2023(i)	62.72	17.53	6.03	0.57	3920	4.54	100.27
1/31/2024(i)	62.48	16.72	6.49	0.93	3937	4.13	100.04
2/29/2024(i)	62.04	17.42	7.08	0.87	3968	4.00	100.02
3/31/2024(i)	62.04	16.54	7.11	1.48	3986	3.83	99.79
4/30/2024(i)	62.42	16.88	7.16	1.42	3995	3.57	99.67
5/31/2024(i)	64.09	18.06	4.85	1.32	3956	3.51	99.61
6/30/2024(i)	64.26	19.59	3.77	0.81	3932	3.16	99.64
7/31/2024(i)	64.14	20.84	3.45	0.47	3934	2.84	99.39
8/31/2024(ii)	65.63	19.34	3.05	0.96	3941	2.49	99.25
9/23/2024(iii)	66.31	18.10	3.48	1.00	3928	2.49	99.25

(i)index metrics based on end of month ratings and pricing data and as of month portfolio data available. (ii)index metrics based on Aug. 31, 2024, ratings and pricing data and latest portfolio data available to us. (iii)index metrics based on Sept. 23, 2024, ratings and pricing data and latest portfolio data available to us. *Top and bottom 20% of CLOs ranked by change in junior O/C test cushion over past year across our index of reinvesting MM CLOs. See previous slide for full sample. CE--Credit estimate. SPWARF--S&P Global Ratings' weighted average rating factor. O/C--Overcollateralization. Source: S&P Global Ratings.

CLO Performance | MM CLO O/C Test Fails Tick Up, But Still Below BSL CLOs

Proportion of outstanding U.S. CLOs with O/C test failures

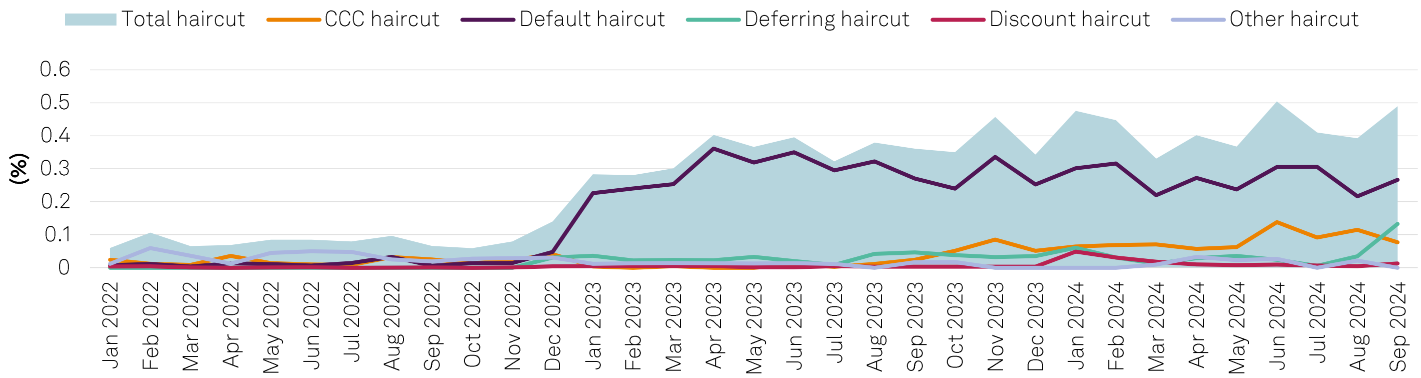


O/C--Overcollateralization. CLO--Collateralized loan obligation. BSL--Broadly syndicated loan. MM--Middle manager. Source: S&P Global Ratings.

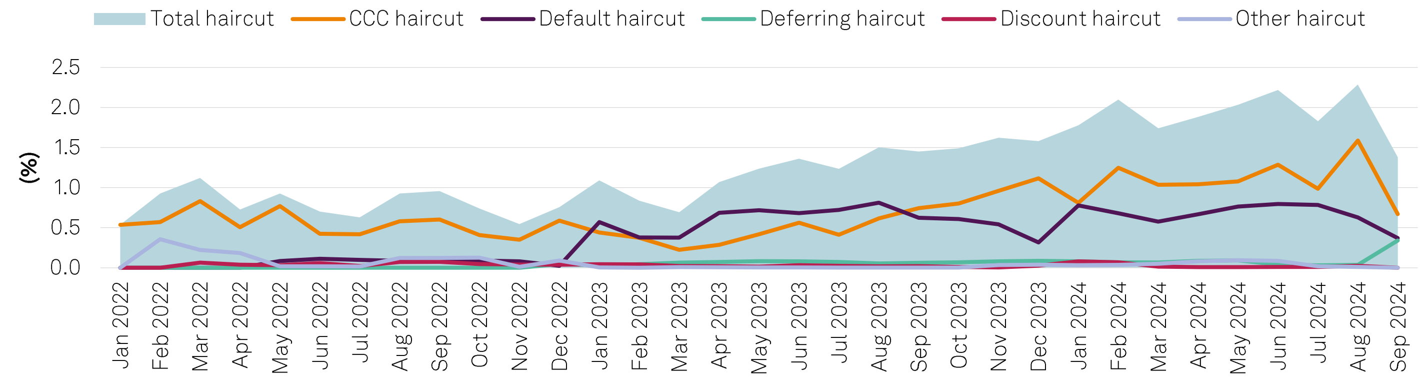
- As of October 2024, five MM CLOs are failing one or more O/C tests. All five are failing their ‘BB’ tranche O/C tests, and some are also failing O/C tests for more senior tranches.
- Key reasons for the O/C test failures include notable par loss, large excess ‘CCC’ asset haircuts, and notable exposure to defaulted and deferring assets. Some of the CLOs have also seen an increasing ‘CCC’ exposure due to increased concentration in their amortization phase.
- Given the generally lower levels of portfolio diversity of MM CLOs (relative to BSL CLOs), the haircuts from just two-to-three defaults and/or deferring exposures had a significant impact on O/C cushions.
- Deals currently failing their investment-grade O/C tests experienced two or more of the attributes above;
- Deals currently failing just their ‘BB’ O/C tests mostly experienced one of the attributes above.

CLO Performance | Uptick In Haircuts From Deferring Assets

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



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



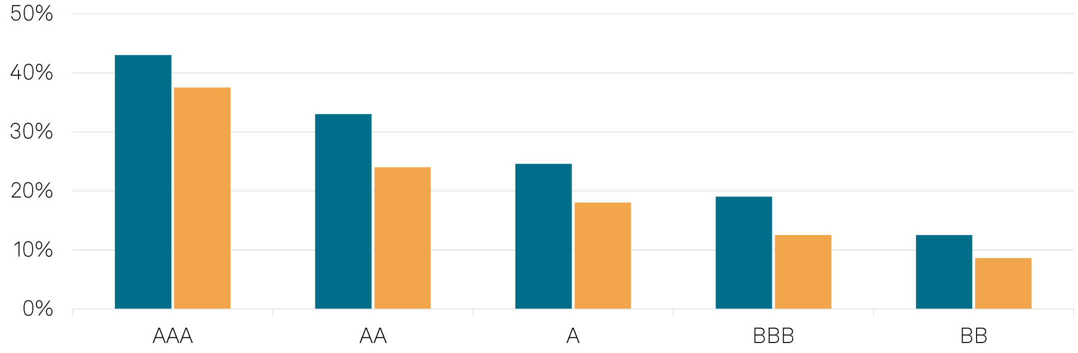
O/C--Overcollateralization. MM--Middle market. Source: S&P Global Ratings.

- O/C cushions across reinvesting U.S. MM CLOs have declined slightly over the past 12 months, but most deals still have a significant cushion at the end of third-quarter 2024 (6.28%).
- The O/C haircuts for the reinvesting U.S. MM CLOs mostly come from default exposures; though in third quarter, there has been an uptick in haircuts from deferring assets.
- Most reinvesting deals are not 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. Similar to the reinvesting deals, there has also been a slight uptick in haircuts from deferring assets across the amortizing deals.
- Despite the higher average haircuts, the junior O/C cushions for amortizing transactions are higher than reinvesting transactions due to senior note paydowns.

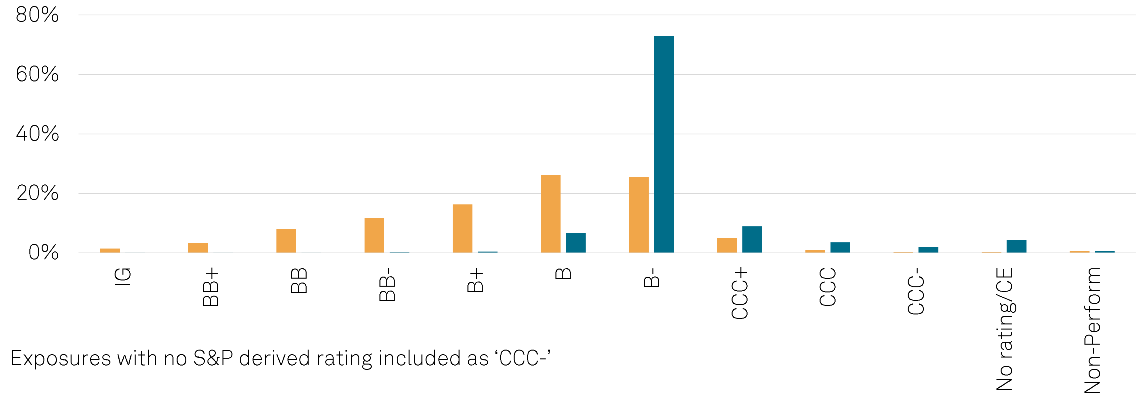
BSL And MM CLOs | BSL CLO And MM CLO Metrics Compared

■ Middle-market CLOs ■ Broadly syndicated loan CLOs

Median subordination of CLO tranches

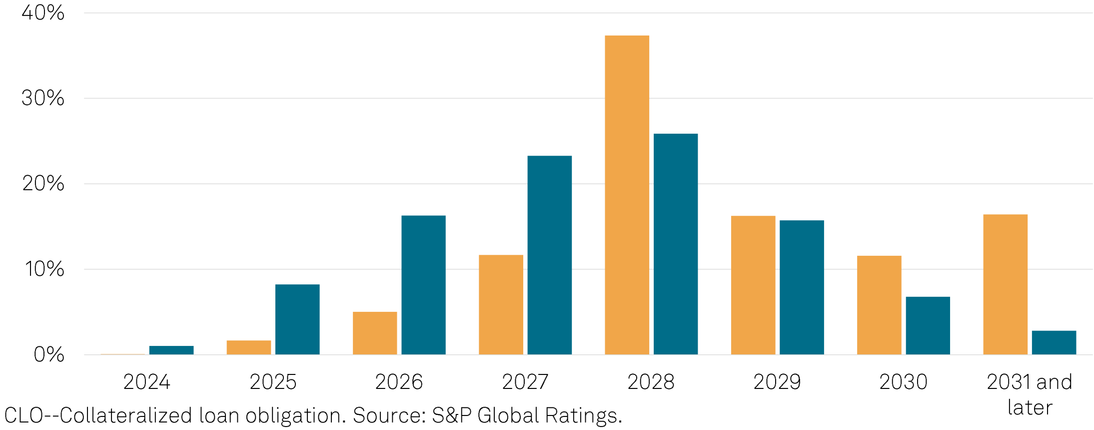


Ratings distribution of CLO obligors



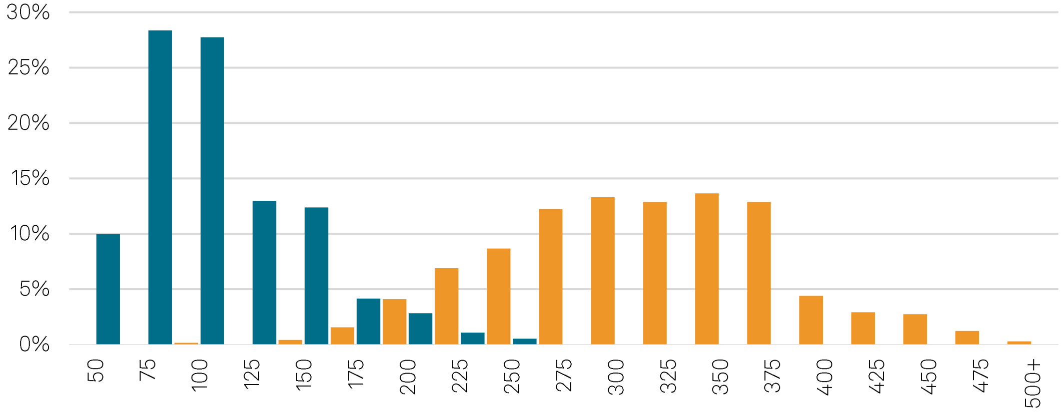
Exposures with no S&P derived rating included as 'CCC-'

Maturity distribution of CLO assets



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

Number of obligors in each reinvesting CLO



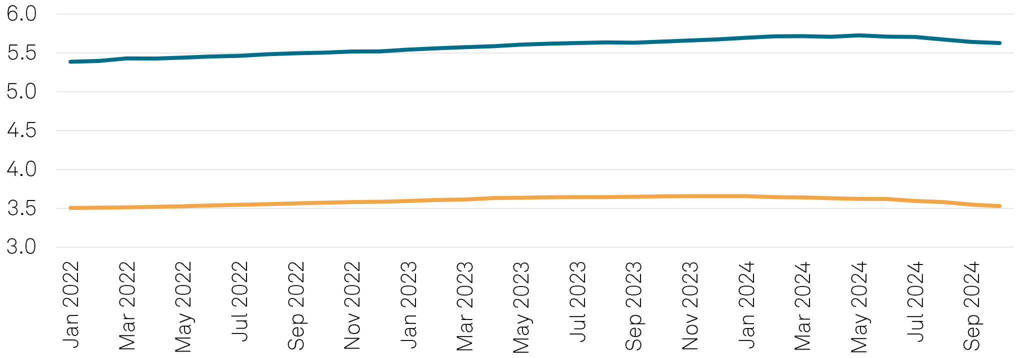
S&P Global
Ratings

BSL And MM CLOs | Comparison Of Performance Trends

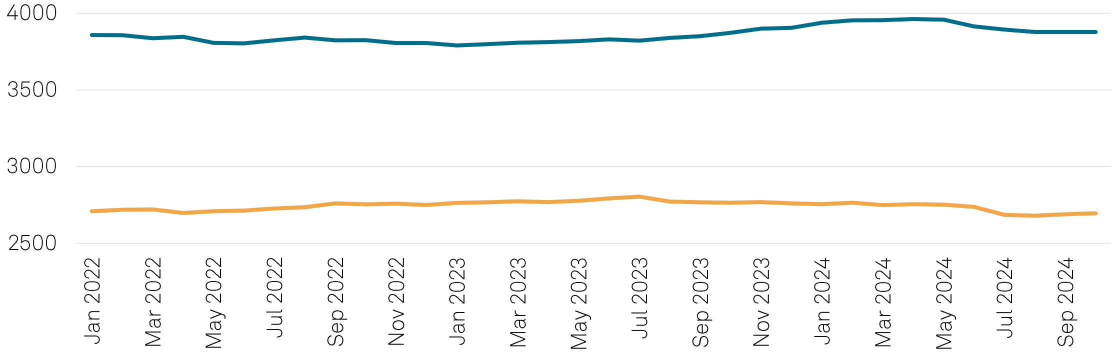
- Increase in loan re-financings have reduced the weighted average spread and increased the weighted average maturity of CLO portfolios.

🟦 Middle-market CLOs 🟧 Broadly syndicated loan CLOs

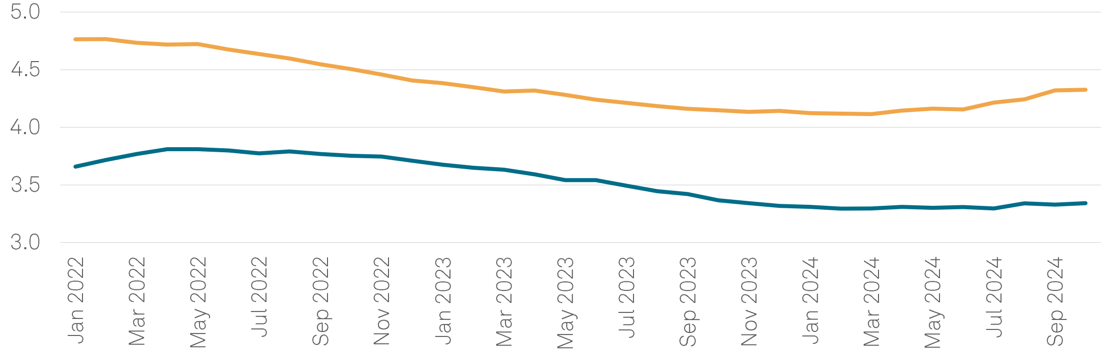
Weighted average spread (%)



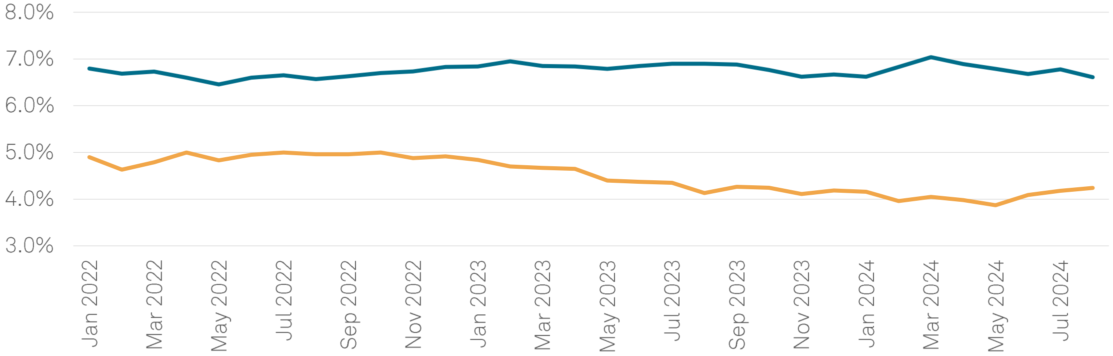
S&P Global Ratings' weighted average rating factor (SPWARF)



Weighted average maturity (years)



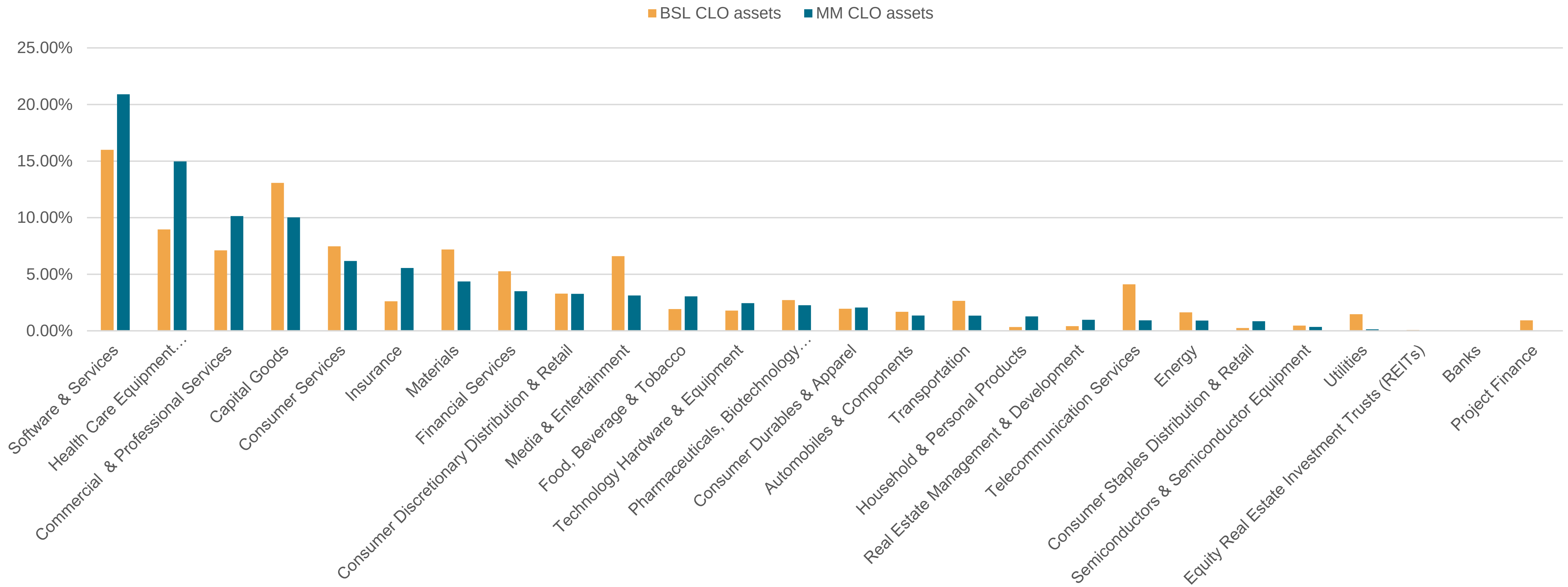
Average junior overcollateralization test cushion (%)*



*Junior O/C test data is through August 2024. 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.

Managers | Third-Quarter 2024 Manager Metrics

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 Q3 2024 (no.)(i)	Downgrades in Q3 2024 (no.)(i)	Credit estimated issuers (%)	Proportion credit estimated in Q3 2024 (%)	SPWARF(ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
Alliance Bernstein(13)	30.56	Software	24	2.01	149	137	1	4	95.72	32.14	3862	5.51	3.66	49.82	Blue Owl	6.30
Angelo Gordon/Twin Brook(2)	24.02	Healthcare providers and services	31	2.40	84	81	1	6	97.12	16.81	4052	5.88	2.03	81.76	Maranon	1.31
Antares(14)	13.00	Healthcare providers and services	47	1.13	353	310	8	12	94.75	37.80	3795	5.46	3.21	28.95	Churchill	11.71
Apollo(1)	13.83	Professional services	17	5.83	25	24	1	2	96.33	40.71	3973	5.64	2.78	3.67	Midcap	13.06
Ares(7)	18.47	Software	36	1.91	219	149	1	9	64.87	31.45	3894	5.29	3.21	29.27	Audax	10.32
Audax(7)	12.30	Healthcare providers and services	39	1.70	295	85	2	5	32.11	24.29	3638	4.87	4.19	28.38	Monroe	15.46
Bain(3)	12.03	Software	32	2.75	93	66	1	1	92.20	25.87	3773	5.93	3.87	49.17	Antares	7.89
Barings(7)	17.56	Software	37	2.65	149	116	5	5	90.10	51.41	3949	5.50	2.93	38.95	Antares	8.68
Blackrock(8)	27.73	Software	37	1.76	176	127	6	6	74.57	23.77	3999	5.83	3.75	31.33	Ares	9.34
Blue Owl(30)	23.15	Software	42	2.41	247	164	5	4	85.83	31.64	3750	5.79	4.20	33.70	HPS	13.87
BMO(4)	20.97	Healthcare providers and services	38	1.63	171	160	4	11	95.02	26.87	4017	5.41	2.85	47.01	Antares	6.05
Brightwood(6)	18.65	Healthcare providers and services	37	4.71	89	71	2	0	86.30	24.20	3819	6.46	2.67	63.34	Blackrock	3.97
Carlyle(1)	12.50	Software	29	3.14	78	66	1	2	88.77	40.31	3656	6.16	3.85	24.71	Blue Owl	8.48
Churchill(8)	10.44	Healthcare providers and services	46	1.36	265	218	9	11	88.85	39.92	3819	5.41	3.70	29.76	Antares	11.71
CIFC(1)	13.02	Healthcare providers and services	26	2.52	66	61	0	4	93.70	48.78	3736	6.22	2.83	54.36	Deerpath	8.71
Deerpath(8)	18.33	Healthcare providers and services	34	1.89	138	111	0	6	91.91	27.81	3875	5.83	3.02	69.85	CIFC	8.71

(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.

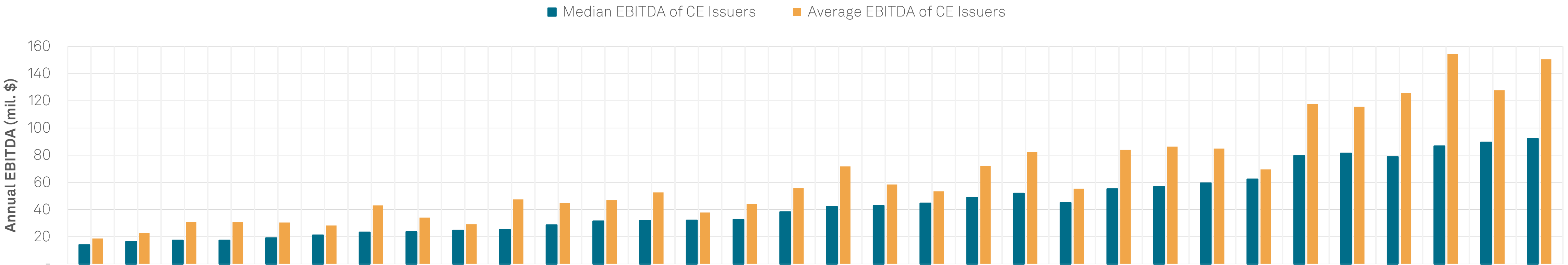
Managers | Third-Quarter 2024 Manager Metrics (Continued)

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 Q3 2024 (no.)(i)	Downgrades in Q3 2024 (no.)(i)	Credit estimated issuers (%)	Proportion credit estimated in Q3 2024 (%)	SPWARF(ii)	WAS (%)	WAM (years)	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
First Eagle/NewStar(5)	18.60	Healthcare providers and services	42	2.32	165	66	2	4	61.47	37.21	4147	5.74	3.13	44.05	Monroe	5.12
Fortress(6)	14.44	Software	40	3.53	125	78	1	1	67.91	14.24	4161	6.15	3.34	58.05	Blue Owl	5.78
Golub(29)	27.26	Software	42	1.67	285	234	7	9	94.11	30.11	3910	5.55	3.54	43.36	Blue Owl	11.22
Guggenheim(3)	13.26	Software	42	3.16	136	46	2	0	60.23	23.80	4015	5.69	4.15	27.77	HPS	7.38
HPS(2)	11.23	Software	41	1.79	163	98	4	3	68.86	37.87	3926	5.92	4.54	37.24	Blue Owl	13.87
KCAP/Garrison(4)	13.14	Software	31	2.94	109	53	4	4	54.87	33.93	4435	5.74	3.15	22.48	Audax	7.72
KKR(2)*	16.62	Software	21	4.28	53	43	1	0	86.81	27.48	4113	5.87	3.22	11.67	Carlyle	6.50
Maranon(7)	10.74	Professional services	34	2.00	140	123	2	5	93.65	30.77	3871	5.74	2.80	59.46	MCF/ Apogem	6.15
MCF/Apogem(10)	12.41	Insurance	39	1.59	231	211	0	2	92.99	17.56	3892	5.39	3.14	37.86	Churchill	9.26
Midcap(10)	9.14	Healthcare providers and services	49	1.11	252	211	7	13	90.65	34.01	4000	5.69	3.27	41.30	Apollo	13.06
Monroe(1)	13.71	Software	36	1.38	124	52	2	0	41.51	25.23	3697	5.05	3.80	20.14	Audax	15.46
MSD(1)	12.25	Media	20	3.99	41	19	1	0	48.54	19.03	3669	5.81	4.23	41.23	Silver Point	4.26
NXT Capital(1)	16.69	Healthcare providers and services	22	2.26	69	64	1	5	93.88	42.02	4133	5.35	2.88	37.70	Barings	4.61
Pennantpark(8)	11.85	Professional services	34	1.86	137	98	0	5	82.35	20.56	3899	5.87	3.09	44.88	Blackrock	6.68
PGIM(1)	9.74	Construction and engineering	29	2.99	49	46	0	2	96.32	20.79	3930	6.71	3.44	79.66	Blackrock	1.58
Silver Point(2)	11.67	Software	31	2.93	61	39	0	1	70.97	12.61	3858	6.47	4.18	53.81	Fortress	5.62

(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(8)	Angelo Gordon/Twin Brook(2)	First Eagle/NewStar(5)	Maranon(7)	CIFC(1)	PGIM(1)	Pennantpark(8)	BMO(4)	NXT Capital(1)	MCF/Apogem(10)	Brightwood(6)	Barings(7)	Alliance Bernstein(13)	Apollo(1)	Midcap(10)	Churchill(8)	Blackrock(8)	Monroe(1)	Bain(3)	Antares(14)	Fortress(6)	KCAP/Garrison(4)	Golub(29)	Ares(7)	Audax(7)	Silver Point(2)	Carlyle(1)	Blue Owl(30)	KKR(2)	MSD(1)	Guggenheim(3)	HPS(2)
Less than 10 mil. (%)	33.81	28.81	18.73	22.94	18.61	18.11	10.13	7.85	7.28	9.84	6.49	5.89	6.27	10.82	12.09	3.88	11.14	4.68	6.64	3.61	7.67	3.06	2.19	2.21	0.00	0.00	0.31	2.13	4.16	0.00	0.00	0.44
Less than 25 mil. (%)	67.05	58.93	51.12	59.29	62.53	65.28	43.52	48.46	50.40	44.77	38.80	27.27	29.47	31.26	32.77	24.29	23.87	29.62	34.77	12.83	18.08	23.26	10.26	10.88	16.44	11.24	3.35	4.04	8.68	0.00	8.11	4.51

*Denotes managers where all rated transactions are amortizing.

MM--Middle market. CLO--Collateralized loan obligation. CE--Credit estimate.

Source: S&P Global Ratings.

Managers | Third-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	Guggenheim	HPS	KCAP/Garrison	KKR	Maranon	MCF/Apogem	Midcap	Monroe	MSD	NXT Capital	Pennantpark	PGIM	Silver Point
Alliance Bernstein		0.0	2.2	0.0	5.0	1.0	1.5	0.3	5.8	6.3	1.0	1.1	4.1	2.6	2.0	2.3	0.0	4.1	5.6	1.7	4.2	3.5	2.7	0.4	2.8	3.3	1.6	0.5	2.2	1.2	0.0	2.3
Angelo Gordon/ Twin Brook	0.0		0.3	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.6	0.9	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.3	0.9	0.0	0.0	0.0	1.1	0.0	0.0
Antares	2.2	0.3		0.3	9.5	7.2	7.9	8.7	7.2	9.8	6.1	0.4	5.4	11.7	0.6	0.9	2.8	1.3	10.5	2.2	5.4	2.9	3.6	3.7	8.4	4.4	2.5	0.6	3.0	5.0	0.0	1.1
Apollo	0.0	0.0	0.3		0.0	0.0	3.0	1.1	0.0	0.0	0.2	1.5	0.0	0.4	0.0	0.0	2.6	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.2	13.1	0.6	0.0	0.0	2.1	0.0	0.0
Ares	5.0	0.2	9.5	0.0		10.3	2.2	4.1	9.3	4.9	1.7	0.7	2.5	6.9	1.5	0.4	3.1	2.3	7.8	7.0	5.6	7.3	2.8	2.6	7.9	4.7	8.4	1.1	0.3	2.5	0.0	0.0
Audax	1.0	0.2	7.2	0.0	10.3		2.1	1.1	5.7	5.0	0.9	0.0	2.5	9.8	0.6	1.7	5.1	3.1	3.2	4.2	4.6	7.7	1.0	3.4	5.3	1.6	15.5	0.8	0.2	6.4	0.0	0.4
Bain	1.5	0.0	7.9	3.0	2.2	2.1		2.3	1.2	1.6	0.5	1.4	1.9	1.6	0.0	0.0	4.9	0.5	2.4	0.0	0.7	0.8	0.0	0.0	1.7	2.8	0.8	0.2	0.4	2.3	1.3	0.0
Barings	0.3	0.4	8.7	1.1	4.1	1.1	2.3		2.6	1.3	3.8	1.1	5.4	6.8	0.0	0.1	4.0	0.3	1.5	0.8	0.6	2.8	1.1	1.4	1.6	2.9	3.4	0.3	4.6	2.8	0.0	1.7
Blackrock	5.8	0.0	7.2	0.0	9.3	5.7	1.2	2.6		9.1	0.0	4.0	6.3	6.0	0.3	0.5	4.8	4.5	7.4	6.8	8.0	3.3	4.2	2.6	4.0	2.4	4.6	0.3	0.3	6.7	1.6	3.1
Blue Owl	6.3	0.0	9.8	0.0	4.9	5.0	1.6	1.3	9.1		0.5	0.0	8.5	2.3	0.0	0.6	0.8	5.8	11.2	4.3	13.9	1.0	5.0	1.3	2.9	1.0	1.9	3.0	0.8	2.5	0.0	1.3
BMO	1.0	0.5	6.1	0.2	1.7	0.9	0.5	3.8	0.0	0.5		0.5	0.7	2.2	0.4	3.6	2.2	0.0	0.6	0.9	0.1	6.4	0.0	4.5	4.4	2.5	1.6	0.0	4.3	0.2	1.0	0.0
Brightwood	1.1	0.0	0.4	1.5	0.7	0.0	1.4	1.1	4.0	0.0	0.5		0.8	1.7	0.7	0.7	0.4	2.1	0.7	0.0	1.0	4.8	1.2	0.4	0.4	1.5	0.9	1.1	0.0	1.8	0.0	0.0
Carlyle	4.1	0.0	5.4	0.0	2.5	2.5	1.9	5.4	6.3	8.5	0.7	0.8		2.4	0.0	0.0	1.8	3.2	6.0	2.6	6.1	2.0	6.5	1.1	2.3	2.0	1.4	0.2	0.0	1.4	0.6	4.6
Churchill	2.6	0.6	11.7	0.4	6.9	9.8	1.6	6.8	6.0	2.3	2.2	1.7	2.4		2.6	1.6	3.3	0.0	3.9	3.2	1.5	2.8	1.3	3.2	9.3	6.9	8.5	0.3	1.1	3.0	0.0	0.2
CIFC	2.0	0.9	0.6	0.0	1.5	0.6	0.0	0.0	0.3	0.0	0.4	0.7	0.0	2.6		8.7	2.3	0.6	0.1	0.0	0.4	1.8	0.0	5.6	1.2	0.0	2.8	0.0	0.0	1.6	1.5	0.0
Deerpath	2.3	0.5	0.9	0.0	0.4	1.7	0.0	0.1	0.5	0.6	3.6	0.7	0.0	1.6	8.7		1.3	0.4	0.0	0.0	0.3	2.1	0.0	0.0	1.0	0.0	0.9	0.0	0.2	1.2	1.1	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 | Third-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	Guggenheim	HPS	KCAP/Garrison	KKR	Maranon	MCF/Apogem	Midcap	Monroe	MSD	NXT Capital	Pennantpark	PGIM	Silver Point
First Eagle/ NewStar	0.0	0.7	2.8	2.6	3.1	5.1	4.9	4.0	4.8	0.8	2.2	0.4	1.8	3.3	2.3	1.3		1.3	0.3	2.4	0.6	4.2	0.0	1.6	2.2	3.8	5.1	0.0	2.8	3.9	0.0	0.0
Fortress	4.1	0.0	1.3	0.0	2.3	3.1	0.5	0.3	4.5	5.8	0.0	2.1	3.2	0.0	0.6	0.4	1.3		0.9	2.6	4.8	2.0	0.7	0.0	0.0	1.1	0.7	0.0	0.0	1.2	1.1	5.6
Golub	5.6	0.0	10.5	0.0	7.8	3.2	2.4	1.5	7.4	11.2	0.6	0.7	6.0	3.9	0.1	0.0	0.3	0.9		2.2	8.5	4.1	3.9	1.1	3.1	1.6	0.3	0.4	0.9	0.7	0.4	0.5
Guggenheim	1.7	0.0	2.2	0.0	7.0	4.2	0.0	0.8	6.8	4.3	0.9	0.0	2.6	3.2	0.0	0.0	2.4	2.6	2.2		7.4	4.7	0.0	0.9	1.1	1.1	5.3	2.2	0.0	1.0	0.0	3.0
HPS	4.2	0.0	5.4	0.0	5.6	4.6	0.7	0.6	8.0	13.9	0.1	1.0	6.1	1.5	0.4	0.3	0.6	4.8	8.5	7.4		2.0	6.0	1.2	1.2	3.0	3.6	3.1	0.0	3.7	0.0	0.3
KCAP/Garrison	3.5	0.0	2.9	1.5	7.3	7.7	0.8	2.8	3.3	1.0	6.4	4.8	2.0	2.8	1.8	2.1	4.2	2.0	4.1	4.7	2.0		0.0	1.5	1.2	2.1	5.5	0.8	1.4	6.5	0.7	1.3
KKR	2.7	0.0	3.6	0.0	2.8	1.0	0.0	1.1	4.2	5.0	0.0	1.2	6.5	1.3	0.0	0.0	0.0	0.7	3.9	0.0	6.0	0.0		1.2	0.2	1.6	1.1	1.3	0.0	0.0	0.0	0.0
Maranon	0.4	1.3	3.7	0.0	2.6	3.4	0.0	1.4	2.6	1.3	4.5	0.4	1.1	3.2	5.6	0.0	1.6	0.0	1.1	0.9	1.2	1.5	1.2		6.2	1.6	1.3	0.0	2.9	2.3	0.0	1.5
MCF/Apogem	2.8	0.3	8.4	1.2	7.9	5.3	1.7	1.6	4.0	2.9	4.4	0.4	2.3	9.3	1.2	1.0	2.2	0.0	3.1	1.1	1.2	1.2	0.2	6.2		7.1	2.1	1.1	4.5	3.5	1.0	0.4
Midcap	3.3	0.9	4.4	13.1	4.7	1.6	2.8	2.9	2.4	1.0	2.5	1.5	2.0	6.9	0.0	0.0	3.8	1.1	1.6	1.1	3.0	2.1	1.6	1.6	7.1		2.0	0.5	1.7	4.1	1.1	0.3
Monroe	1.6	0.0	2.5	0.6	8.4	15.5	0.8	3.4	4.6	1.9	1.6	0.9	1.4	8.5	2.8	0.9	5.1	0.7	0.3	5.3	3.6	5.5	1.1	1.3	2.1	2.0		1.1	0.7	3.6	0.0	0.0
MSD	0.5	0.0	0.6	0.0	1.1	0.8	0.2	0.3	0.3	3.0	0.0	1.1	0.2	0.3	0.0	0.0	0.0	0.0	0.4	2.2	3.1	0.8	1.3	0.0	1.1	0.5	1.1		0.0	2.3	0.0	4.3
NXT Capital	2.2	0.0	3.0	0.0	0.3	0.2	0.4	4.6	0.3	0.8	4.3	0.0	0.0	1.1	0.0	0.2	2.8	0.0	0.9	0.0	0.0	1.4	0.0	2.9	4.5	1.7	0.7	0.0		3.0	0.0	0.0
Pennantpark	1.2	1.1	5.0	2.1	2.5	6.4	2.3	2.8	6.7	2.5	0.2	1.8	1.4	3.0	1.6	1.2	3.9	1.2	0.7	1.0	3.7	6.5	0.0	2.3	3.5	4.1	3.6	2.3	3.0		0.0	1.3
PGIM	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.6	0.0	1.0	0.0	0.6	0.0	1.5	1.1	0.0	1.1	0.4	0.0	0.0	0.7	0.0	0.0	1.0	1.1	0.0	0.0	0.0	0.0		0.0
Silver Point	2.3	0.0	1.1	0.0	0.0	0.4	0.0	1.7	3.1	1.3	0.0	0.0	4.6	0.2	0.0	0.0	0.0	5.6	0.5	3.0	0.3	1.3	0.0	1.5	0.4	0.3	0.0	4.3	0.0	1.3	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 | Do Credit Metrics Vary For Widely-Held Assets?

Differences in issuer credit metrics by number of managers holding loans

No. of CLO managers holding company	Count of companies (no.)	% CE exposure across S&P Global Ratings-rated MM CLOs	CLO par weighted average S&PGR EBITDA	CLO obligor median S&PGR EBITDA	CLO par weighted average S&PGR interest coverage ratio	CLO obligor median S&PGR interest coverage ratio	CLO par weighted average S&PGR leverage	CLO obligor median S&PGR leverage
1	1,333	30.17	41.33	21.28	1.69	1.58	7.41	6.16
2	562	28.22	55.92	34.03	1.57	1.51	8.47	6.60
3	223	16.65	83.09	52.89	1.56	1.48	8.31	6.87
4	92	9.23	115.96	60.25	1.34	1.45	7.32	7.25
5	44	7.12	154.05	92.86	1.19	1.28	9.84	7.99
6	17	3.34	241.98	199.04	1.29	1.19	8.48	7.92
7	15	2.62	143.82	142.90	1.02	1.08	11.23	9.58
8	3	0.78	268.97	308.81	0.97	0.96	10.39	9.89
9	2	0.68	595.71	595.71	0.99	0.99	9.37	9.37
10	1	0.56	472.68	472.68	1.18	1.18	9.04	9.04
11	1	0.62	488.28	488.28	1.52	1.52	7.53	7.53

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

- Unsurprisingly, credit-estimated issuers with larger EBITDA are likely to be held across multiple MM CLO managers.
- Over half of credit-estimated issuers (by count) are unique to a single CLO manager.
- Smaller EBITDA issuers held by one CLO manager or a small number of managers tend to have higher interest coverage ratios and lower leverage.
- Metrics used in this table were S&P Global Ratings-calculated.

Managers | CLO Asset Credit Distribution By Manager

Credit distribution across rated MM CLO assets

Manager (S&PGR MM CLOs)	'BBB-' or above (%)	'BB+' (%)	'BB' (%)	'BB-' (%)	'B+' (%)	'B' (%)	'B-' (%)	'CCC+' (%)	'CCC' (%)	'CCC-' (%)	No rating/ CE (%)	Below 'CCC-' (%)	Earliest trustee report in data set	Latest trustee report in data set
Alliance Bernstein(13)	0.00	0.00	0.00	0.00	0.00	3.14	76.17	14.09	2.42	0.60	3.57	0.00	7/18/2024	8/21/2024
Angelo Gordon/Twin Brook(2)	0.00	0.00	0.00	0.00	0.00	0.00	75.63	4.10	7.44	9.94	2.88	0.00	8/6/2024	9/6/2024
Antares(14)	0.16	0.00	0.00	0.00	0.00	8.53	75.09	7.11	5.43	2.32	1.12	0.25	8/7/2024	9/12/2024
Apollo(1)	0.00	0.00	0.00	0.00	0.00	8.05	62.63	17.47	2.39	5.79	3.67	0.00	9/3/2024	9/3/2024
Ares(7)	0.00	0.00	0.00	0.00	0.00	6.82	74.89	7.34	3.22	4.34	2.46	0.93	7/8/2024	8/1/2024
Audax(7)	0.00	0.00	0.00	0.29	0.46	19.99	65.60	8.53	1.46	0.79	2.88	0.00	8/6/2024	9/6/2024
Bain(3)	0.16	0.00	0.16	0.49	0.49	7.04	73.52	11.31	4.23	0.00	2.58	0.00	8/8/2024	8/9/2024
Barings(7)	0.00	0.00	0.00	0.00	0.49	6.62	70.59	6.18	9.07	2.58	3.76	0.70	8/5/2024	8/8/2024
Blackrock(8)	0.00	0.00	0.00	0.00	0.19	13.05	60.00	11.01	4.64	7.02	2.68	1.42	8/6/2024	9/6/2024
Blue Owl(30)	0.00	0.00	0.00	0.00	0.47	6.75	78.00	10.13	1.68	0.32	2.62	0.04	7/8/2024	9/9/2024
BMO(4)	0.00	0.00	0.00	0.00	0.00	3.96	71.84	9.33	5.75	3.20	4.79	1.13	7/31/2024	8/31/2024
Brightwood(6)	0.00	0.00	0.00	0.00	2.63	11.99	65.40	6.56	2.95	5.02	5.45	0.00	8/1/2024	9/12/2024
Carlyle(1)	0.00	0.00	0.00	0.00	3.20	6.87	79.91	5.84	0.00	0.00	4.17	0.00	7/24/2024	7/24/2024
Churchill(8)	0.00	0.00	0.00	0.00	0.69	5.46	78.79	5.99	3.35	1.83	3.40	0.48	8/7/2024	8/7/2024
CIFC(1)	0.00	1.75	0.00	0.00	0.00	6.64	77.70	5.12	3.52	1.77	3.49	0.00	8/6/2024	8/6/2024
Deerpath(8)	0.00	0.00	0.00	0.00	0.00	3.64	80.67	3.07	2.20	3.76	6.65	0.00	6/11/2024	9/12/2024
First Eagle/NewStar(5)	0.00	0.00	0.00	0.60	1.29	7.30	58.63	12.09	3.39	1.93	12.73	2.03	8/3/2024	9/16/2024
Fortress(6)	0.00	0.00	0.50	5.07	2.11	6.59	58.18	4.59	2.67	3.14	11.90	5.25	7/31/2024	8/31/2024
Golub(29)	0.00	0.00	0.00	0.00	0.00	3.42	75.61	11.08	4.42	0.62	4.38	0.46	7/22/2024	8/30/2024
Guggenheim(3)	0.00	0.00	0.03	0.00	1.97	8.19	60.83	10.40	3.09	0.61	14.69	0.19	8/8/2024	8/12/2024
HPS(2)	0.00	0.00	0.00	0.49	2.69	8.48	64.39	6.57	1.31	0.76	15.29	0.00	8/5/2024	8/8/2024
KCAP/Garrison(4)	0.00	0.00	0.00	0.00	0.93	5.43	57.78	7.01	11.40	7.56	4.16	5.72	8/2/2024	8/8/2024
KKR(2)*	0.00	0.00	0.00	0.00	0.00	3.86	68.96	4.51	0.00	11.53	11.14	0.00	8/30/2024	8/30/2024
Maranon(7)	0.00	0.00	0.00	0.00	0.00	3.40	79.20	7.00	4.68	2.35	3.07	0.30	8/5/2024	9/4/2024
MCF/Apogem(10)	0.00	0.00	0.00	0.00	0.00	6.13	77.94	4.29	1.41	4.12	5.14	0.97	8/8/2024	8/12/2024
Midcap(10)	0.00	0.00	0.00	0.00	0.00	7.19	67.17	10.62	3.86	2.68	7.77	0.71	7/3/2024	9/6/2024
Monroe(1)	0.00	0.00	0.00	0.00	0.56	22.66	58.24	12.52	1.10	0.52	4.09	0.31	8/8/2024	8/8/2024
MSD(1)	0.00	0.00	0.00	0.00	13.19	9.79	56.07	9.18	0.00	2.66	9.11	0.00	8/30/2024	8/30/2024
NXT Capital(1)	0.00	0.00	0.00	0.00	1.99	0.66	68.91	9.50	6.73	6.01	4.13	2.07	8/8/2024	8/8/2024
Pennantpark(8)	0.00	0.00	0.00	0.00	0.83	4.54	75.35	7.40	3.28	3.08	5.01	0.49	7/2/2024	8/12/2024
PGIM(1)	0.00	0.00	0.00	0.00	0.00	5.49	79.85	5.42	0.00	4.60	2.10	2.54	8/31/2024	8/31/2024
Silver Point(2)	0.00	0.00	0.00	0.00	5.22	18.17	54.14	10.54	2.38	0.00	6.82	2.73	8/1/2024	9/3/2024

Based on most recent trustee report available to us and ratings/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.

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.
- Our outlook for both BSL and MM CLO ratings remains stable, especially for more senior, higher-rated CLO tranches, given the structural protections built into CLOs and rating cushions available to support most tranches. CLO tranche rating downgrades should mostly be from subordinate tranches of amortizing CLOs originated prior to the 2020 pandemic.
- From 2021 onward, each year has seen more CLO ratings raised than lowered, despite the challenging economic environment in 2022 and 2023.

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

U.S. BSL CLO UG

Original rating category	2020	2021	2022	2023	2024*	Total (since 2020)
AAA						**0**
AA	5	39	14	29	52	**139**
A	6	47	18	30	45	**146**
BBB	1	46	20	18	18	**103**
BB		73	24	7	1	**105**
B	1	45	5	1		**52**
Grand total	13	250	81	85	116	**545**

U.S. MM CLO UG

Original rating category	2020	2021	2022	2023	2024*	Total (since 2020)
AAA						**0**
AA		3	3		12	**18**
A		5	4	2	13	**24**
BBB		4	3	3	6	**16**
BB		3	2	2	2	**9**
B						**0**
Grand total	0	15	12	7	33	**67**

US BSL CLO DG

Original rating category	2020	2021	2022	2023	2024*	Total (since 2020)
AAA						**0**
AA	3					**3**
A	11					**11**
BBB	91	5		2	1	**99**
BB	282	7	5	31	28	**353**
B	105	5	5	15	7	**137**
Grand total	492	17	10	48	36	**603**

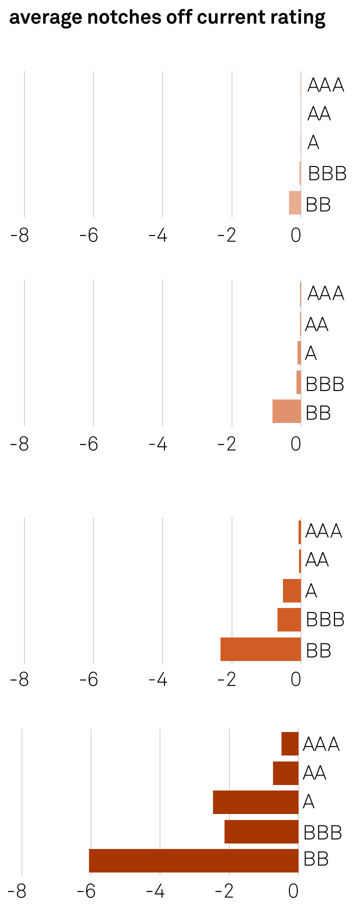
U.S. MM CLO DG

Original rating category	2020	2021	2022	2023	2024*	Total (since 2020)
AAA						**0**
AA						**0**
A	1					**1**
BBB						**0**
BB	5				1	**6**
B	1					**1**
Grand total	7	0	0	0	1	**8**

*Through Q3 2024. 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



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

- 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 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 61 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	4,228	0	1,917
AA (sf)	616	1	0	3,364	0	1,590
A (sf)	790	5	0	2,794	0	1,360
BBB (sf)	783	9	0	2,622	0	1,406
BB (sf)	565	22	0	2,083	10	1,097
B (sf)	28	3	0	410	11	173
Total	**4,322**	**40**	**0**	**15,501**	**21**	**7,543**

(i)Original rating counts as of September 16, 2024. (ii)CLO tranche default counts as of September 27, 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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