S&P Global
Ratings

Middle-Market CLO And Private Credit Quarterly: Navigating The Post-Pandemic Economy

Q3 2023

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This report does not constitute a rating action

Middle-Market Lending Key Takeaways

Takeaways

- For the third consecutive quarter, U.S. credit estimate downgrades outpaced upgrades as the effect of high-interest burden from the increase in benchmark rates and inflationary pressures challenged companies' financial and operational performances. During the second quarter, a total of 50 entities were downgraded, bringing the aggregate downgrade for the first half of 2023 to 84. This compares to 22 upgrades in the second quarter and 42 upgrades for the first half of the year, for an overall upgrade-to-downgrade ratio of 1:2.
- We continue to receive notice of material changes ("specified amendments") for credit-estimated companies in different sectors. The most common instances include allowing a company to pay-in-kind (PIK) upcoming interest payments, push out loan maturities, or reschedule interest or principal. We also saw one company file for bankruptcy during the quarter, with the lenders likely acquiring the company out of bankruptcy.
- Defaults rose in the syndicated loan market too. The trailing 12-month Morningstar LSTA US Leveraged Loan Index default rate went up all the way to 1.71% at the end of June, from 1.35% at the end of the first quarter. Among rated loan issuers, we expect the trailing-12-month Morning star LSTA US Leveraged Loan Index default rate to increase to 2.5% by March 2024 under our base case, which is in line with the long-term historical average rate of 2.5%. Under our pessimistic case, we think defaults could increase to 4.5% over the same period.
- We expect downgrades to dominate upgrades for the rest of the year; we also expect selective defaults to rise as more companies will look to restructure outside of the bankruptcy process.
- Recurring revenue loans represent a small proportion of our outstanding credit estimates (currently about 60 companies). The median EBITDA for these companies is about $7 million, and 70% have a credit estimate score in the 'ccc' range. The remaining are 'b-'.

Key risks

- Higher-for-longer rate environment will be a drain on the free operating cash flow (FOCF) for small growth companies that have high debt levels to begin with.
- Cost inflation, supply issues, and labor constraints leading to margin compression will all result in more credit estimate downgrades.

Middle-Market CLO Key Takeaways

Takeaways

- Middle-market CLOs have seen significant volume this year, even as the corporate credit landscape still faces higher interest rates and slowing growth. Through July 21st, year-to-date BSL CLO issuance is down 37%, while middle-market CLO issuance is up 103% over the same period last year.
- Credit metrics for middle-market collateralized loan obligation (CLO) assets changed little during the second quarter of 2023 (see slide 15):
    - Average exposure to loans from 'CCC' range companies is now 10.64%, up from 9.61% at the end of first-quarter 2023.
    - Defaulted assets in middle-market CLOs ticked up slightly but remain low at 0.35%, up from 0.28%.
    - The average S&P Global Rating's weighted average rating factor (SPWARF) was virtually unchanged at 3810, versus 3800 last quarter.
- Middle-market CLO junior overcollateralization (O/C) ratios have an average cushion of 7.43%, unchanged over the past quarter (see slide 15). Three middle-market CLOs saw material junior O/C test declines over the past quarter, ranging from 0.90% to 1.50%.
- Loans from 'B-' companies (both credit estimated and rated) in middle-market CLOs represent 73.5% of total collateral, versus 29.45% for broadly syndicated loan (BSL) CLOs. However, middle-market CLO tranches have considerably more par subordination than tranches from BSL CLOs. For example, the average middle-market CLO 'AAA' tranche has 42.5% par subordination, versus 36% for the average BSL CLO 'AAA' tranche (see slide 16).
- The typical middle-market CLO portfolio has lower obligor diversity than a BSL CLO (slide 16). Given that many middle-market CLO managers originate some of the assets in their portfolios, there is also a high degree of asset overlap between CLOs from a given manager. However, there is much lower asset overlap and greater asset diversity between CLOs from *different* middle-market CLO managers--only about 2.5% asset overlap on average (see slide 21).
- Software and healthcare providers and services are the two largest sectors within both middle-market and BSL CLOs. The average middle-market CLO has 15.74% of its assets in software companies versus 11.48% for the average BSL CLO, and 9.16% of its assets in healthcare providers and services versus 6.63% for the average BSL CLO (see slide 17).
- The median EBITDA for credit-estimated companies varies significantly across middle-market CLO managers. We provide median EBITDA and other metrics at the CLO manager level on slide 19.
- We updated our annual middle-market CLO rating stress scenarios, where we subject the transactions to a series of hypothetical collateral default scenarios and assess the impact on the ratings assigned to the CLOs. Slides 23 and 24 provide a summary of the results.

Data For Selected Slides

Click here to download a copy of the data from many of the charts and tables in the slides.

Credit Estimates | Median Leverage And Interest Coverage By Sector

Metrics for companies with credit estimates updated in first half of 2023

Top 10 industries with the highest S&P Global Ratings-calculated leverage ratios after factoring in the higher benchmark rate

Industry	Median of debt/EBITDA (x)	Number of obligors
Household products	12.31	4
Internet software and services	8.47	4
Software	8.09	130
Insurance	8.06	32
Diversified consumer services	7.65	48
Personal products	7.46	10
Capital markets	7.45	6
Construction materials	7.38	4
Pharmaceuticals	7.21	8
Healthcare providers and services	7.12	118

Excludes sectors with fewer than four credit estimates outstanding. Source: S&P Global Ratings.

Top 10 industries with the lowest S&P Global Ratings-calculated interest coverage ratios after factoring in the higher benchmark rate

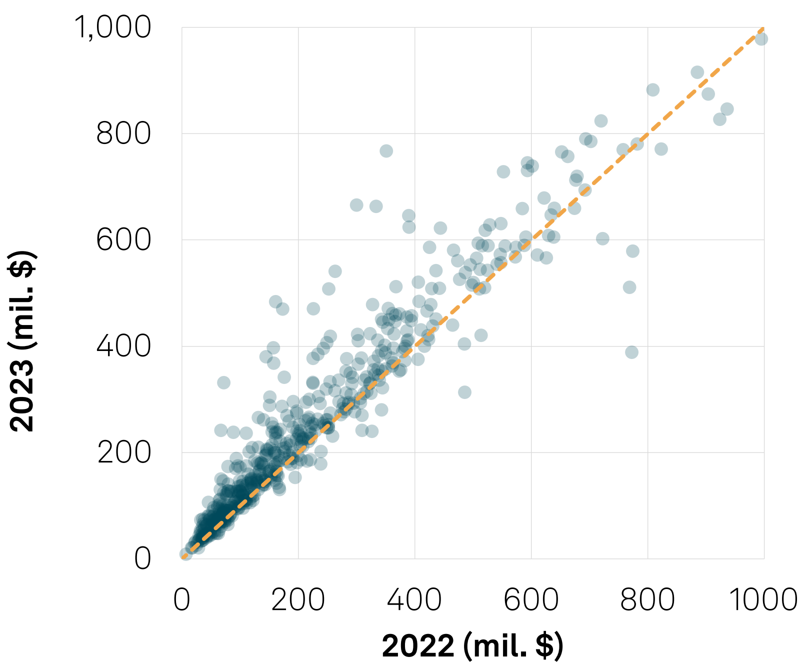
Industry	Median interest coverage (x)	Number of obligors
Household products	1.01	4
Software	1.03	130
Insurance	1.15	32
Personal products	1.21	10
Diversified financial services	1.28	11
Diversified consumer services	1.29	48
Internet software and services	1.31	4
Pharmaceuticals	1.34	8
Aerospace and defense	1.35	16
Household durables	1.37	8

Excludes sectors with fewer than four credit estimates outstanding. Source: S&P Global Ratings.

Credit Estimates | Revenue And Leverage Trends

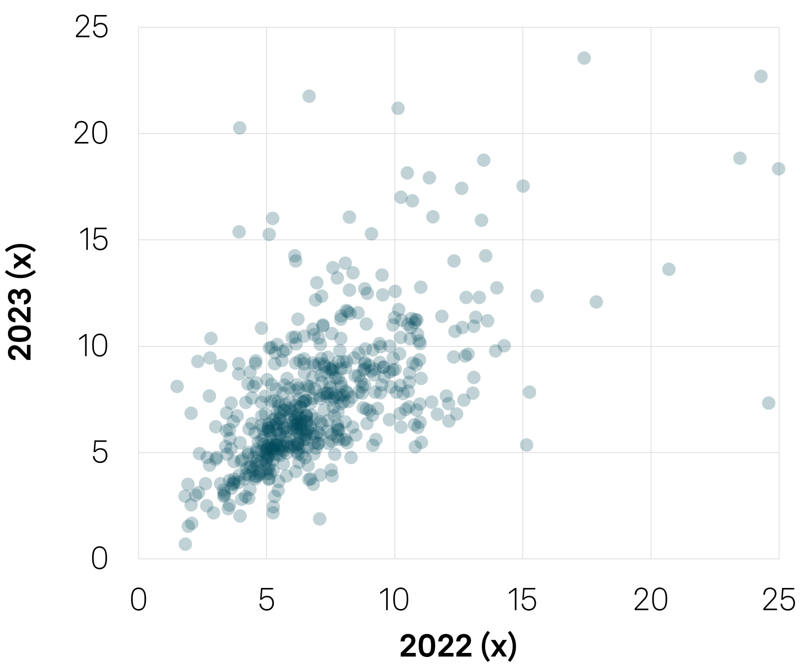
Change in metrics for credit estimated obligors (2022 reviews vs. 2023 reviews)

Revenue: 2022 vs. 2023



Source: S&P Global Ratings.

Leverage: 2022 vs. 2023



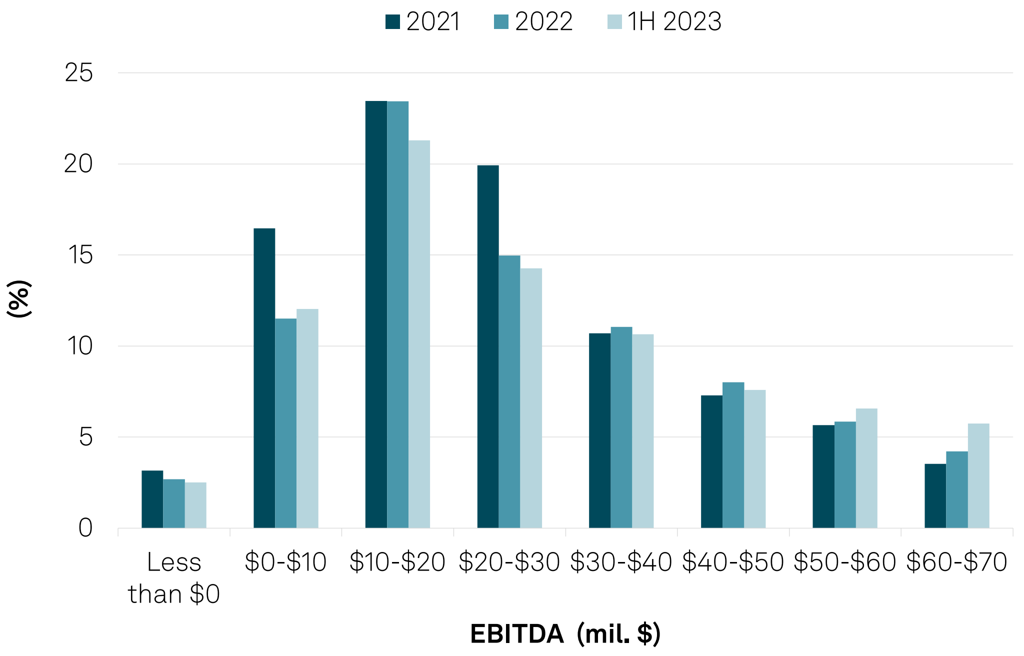
Source: S&P Global Ratings.

- Each point in the scattergrams represent a single credit-estimated company.
- Points above the trendline indicate growth in revenue and leverage.
- For reviews done in 2023, revenue has continued to grow due in part to acquisitions.
- Revenue and EBITDA increased year over year in 81% and 62% of cases, respectively. Still, leverage increased in 52% of cases.
- For reviews done, median revenue and EBITDA increased by 20% and 27%, respectively, while leverage went up by 24%.

Credit Estimates | EBITDA And Free Operating Cash Flow Distribution

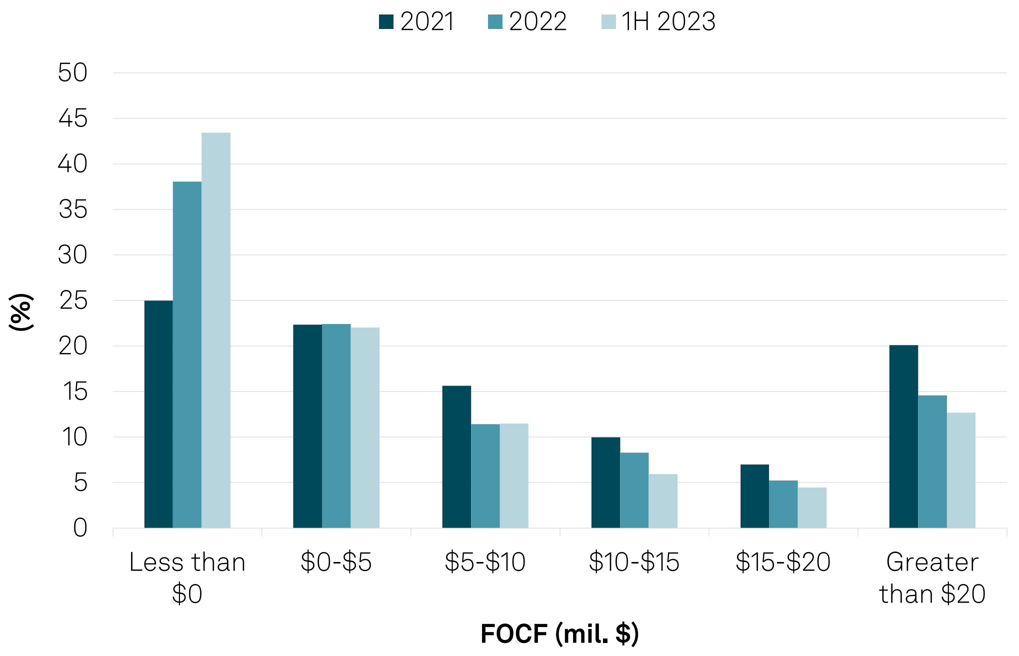
- Roughly 3% of companies reviewed in the first half of 2023 generated negative EBITDA.
- About 43% of companies reviewed in the first half of 2023 generated negative free operating cash flow (FOCF) after applying higher benchmark rates.
- The negative FOCF in part also reflects companies continuing to invest in capital expenditure.

EBITDA



Source: S&P Global Ratings.

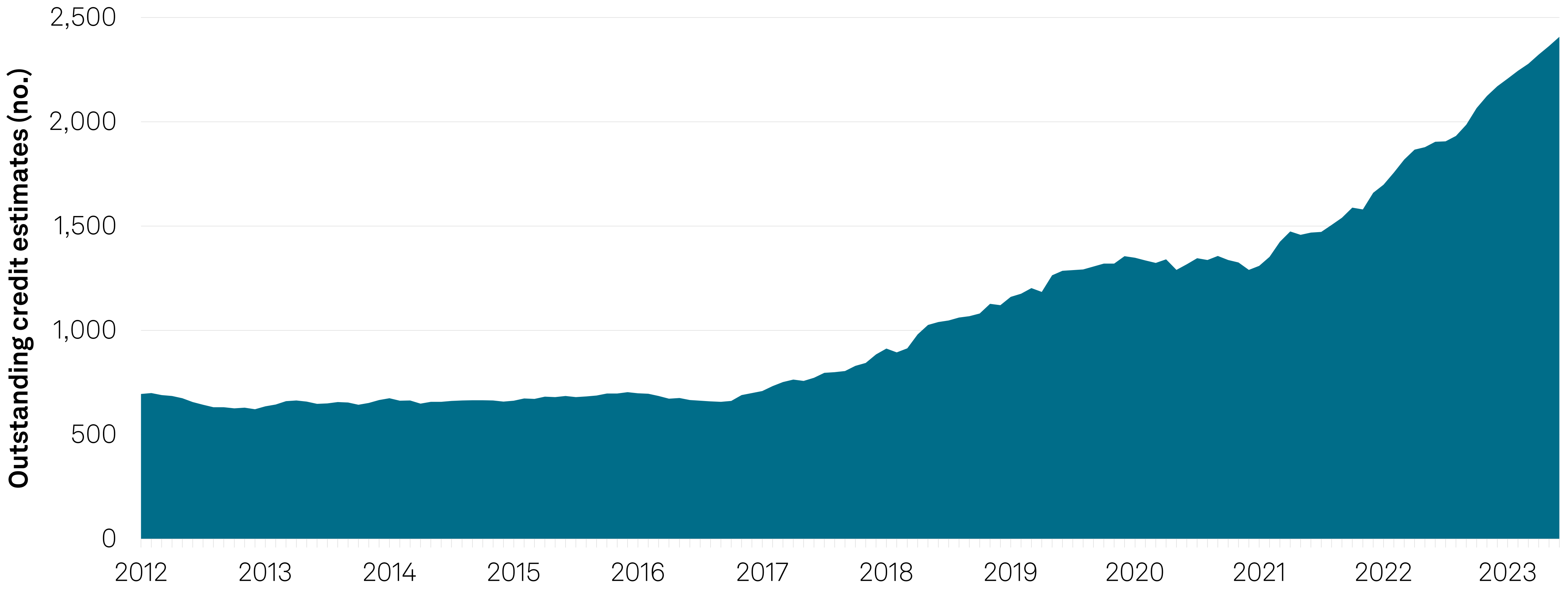
Free operating cash flow



Source: S&P Global Ratings.

Credit Estimates | Growth In Outstanding Credit Estimates

All outstanding S&P Global Ratings credit estimates (2012–Q2 2023)*

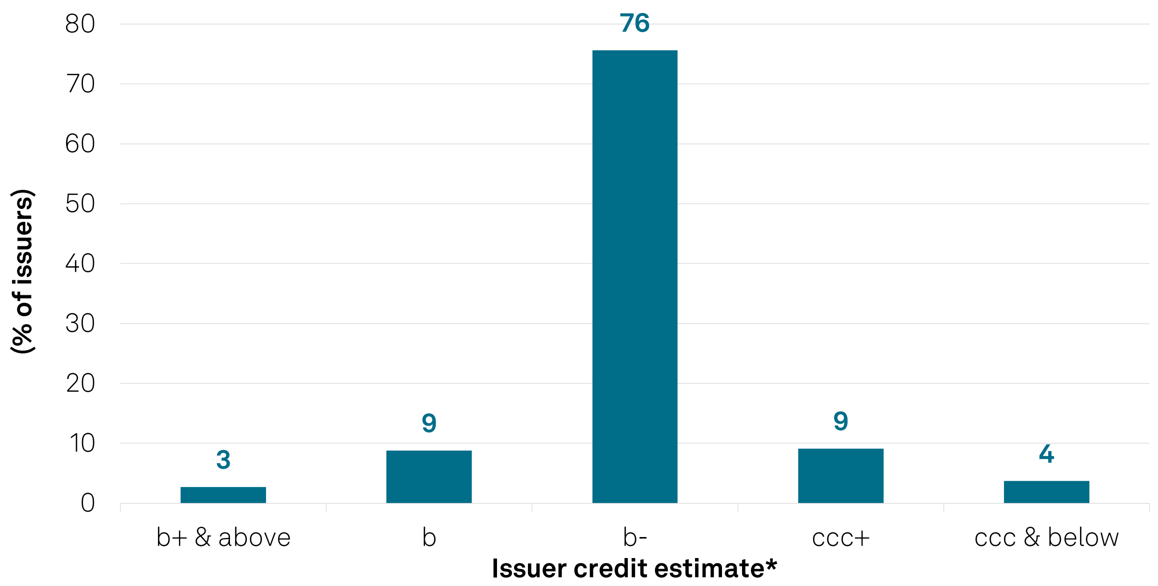


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including a small number of estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

Credit Estimates | Credit Estimate Scores As Of Second-Quarter 2023

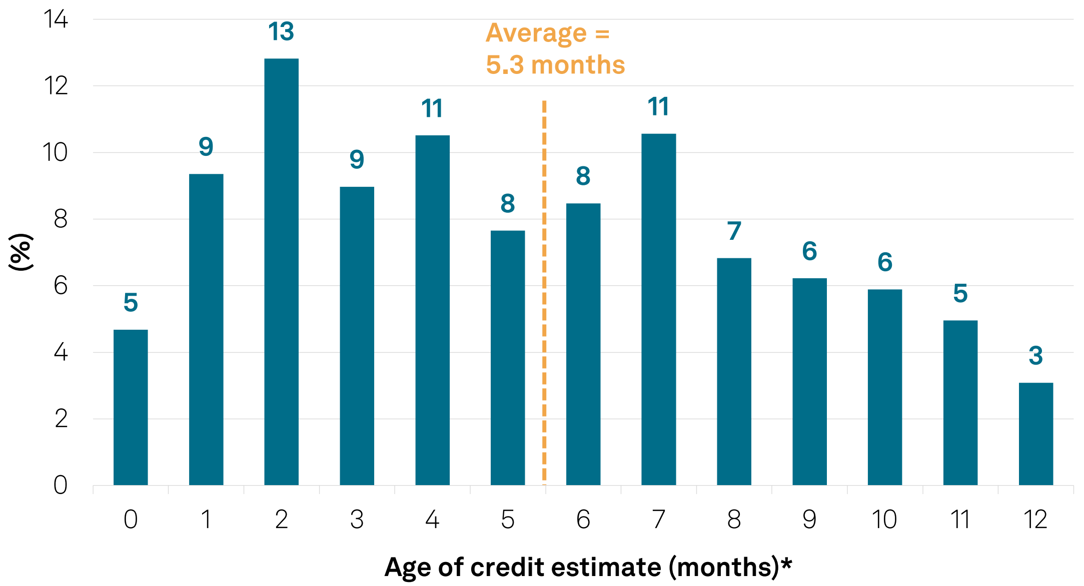
- Many of the companies we assign credit estimates to are financial sponsor-owned and generally highly levered.
- For credit-estimated companies reviewed in 2023, the median EBITDA was $30 million, and the median adjusted debt was about $195 million.
- Due to their weaker business and financial risk profiles, a large majority of these companies tend to have credit estimate scores at the lower end of the credit spectrum, especially ‘b-’.
- Credit estimates are updated at least every 12 months, but in practice the average time since last review of outstanding estimates is shorter – just over 5 months.

Credit estimates outstanding as of second-quarter 2023



*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.

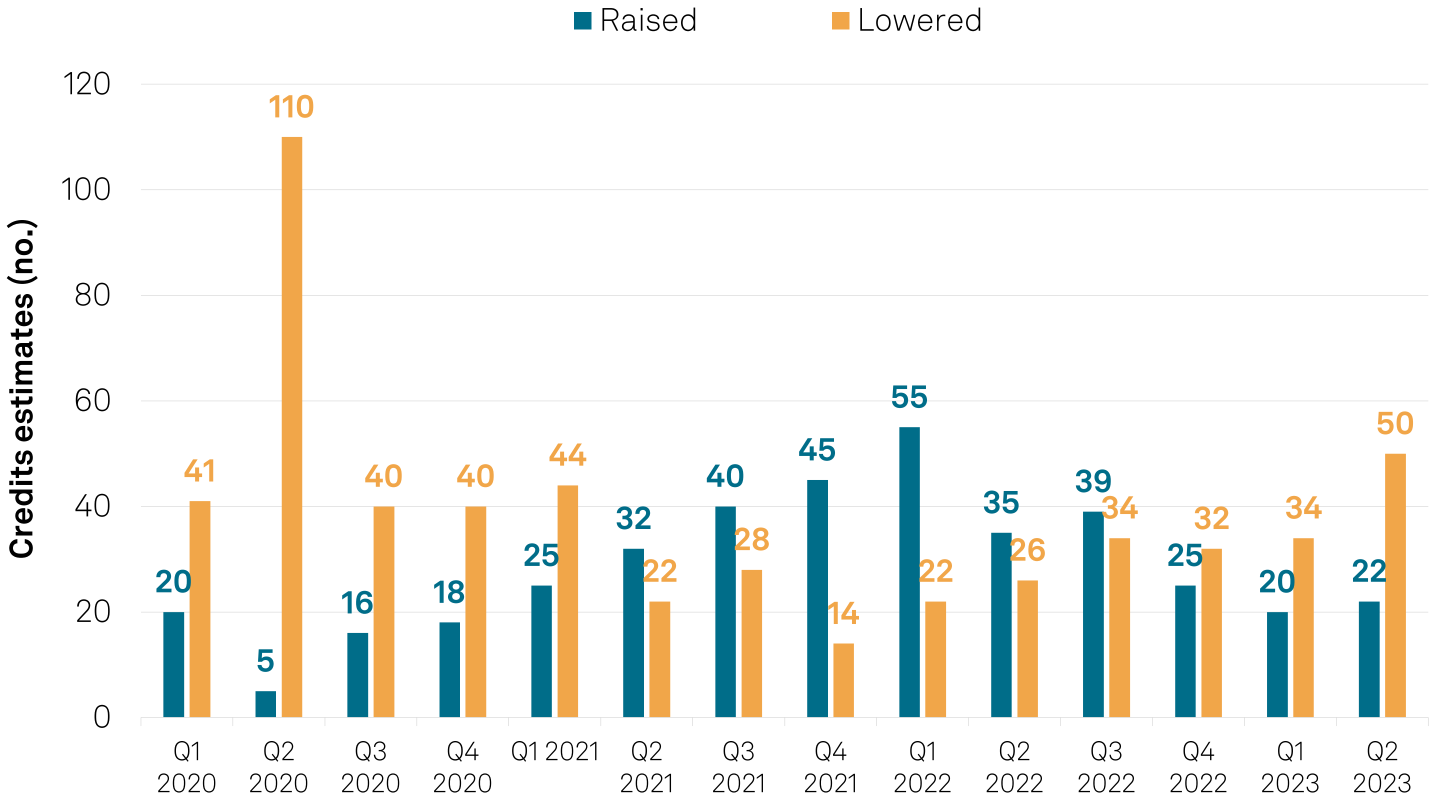
Credit estimates by number of months since last update



*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.

Credit Estimates | Credit Estimates Raised And Lowered

Credit estimates raised and lowered by quarter (Q1 2020-Q2 2023)



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

- Downgrades peaked in the second quarter of 2020 due to the pandemic as we lowered credit estimate scores to 'ccc'/'sd'/'d' on over 85 entities.
- From the second-quarter of 2021 through the third-quarter of 2022, upgrades outpaced downgrades. However, that trend changed in the third quarter of 2022.
- In second-quarter 2023, we saw the highest number of downgrades since second-quarter 2020. So far in 2023, downgrades have surpassed upgrades 2:1.

Credit Estimates | Raised And Lowered By Sector

As of second-quarter 2023

42 upgrades in 1H 2023

	Top five sectors upgraded	Overall percentage of upgrades (%)	Sector exposure of total credit estimates (%)
1	Commercial services and supplies	21.4	6.8
2	Media	7.1	3.5
3	Software	7.1	12.6
4	Hotels, restaurants, and leisure	7.1	1.9
5	Health care technology	4.8	3.6

84 downgrades in 1H 2023

	Top five sectors downgraded	Overall percentage of downgrades (%)	Sector exposure of total credit estimates (%)
1	Software	15.5	12.6
2	Healthcare providers and services	11.9	10.9
3	Healthcare equipment and supplies	8.3	3.4
4	Commercial services and supplies	6.0	6.8
5	Health care technology	4.8	3.6

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

Drivers of raised credit estimates:

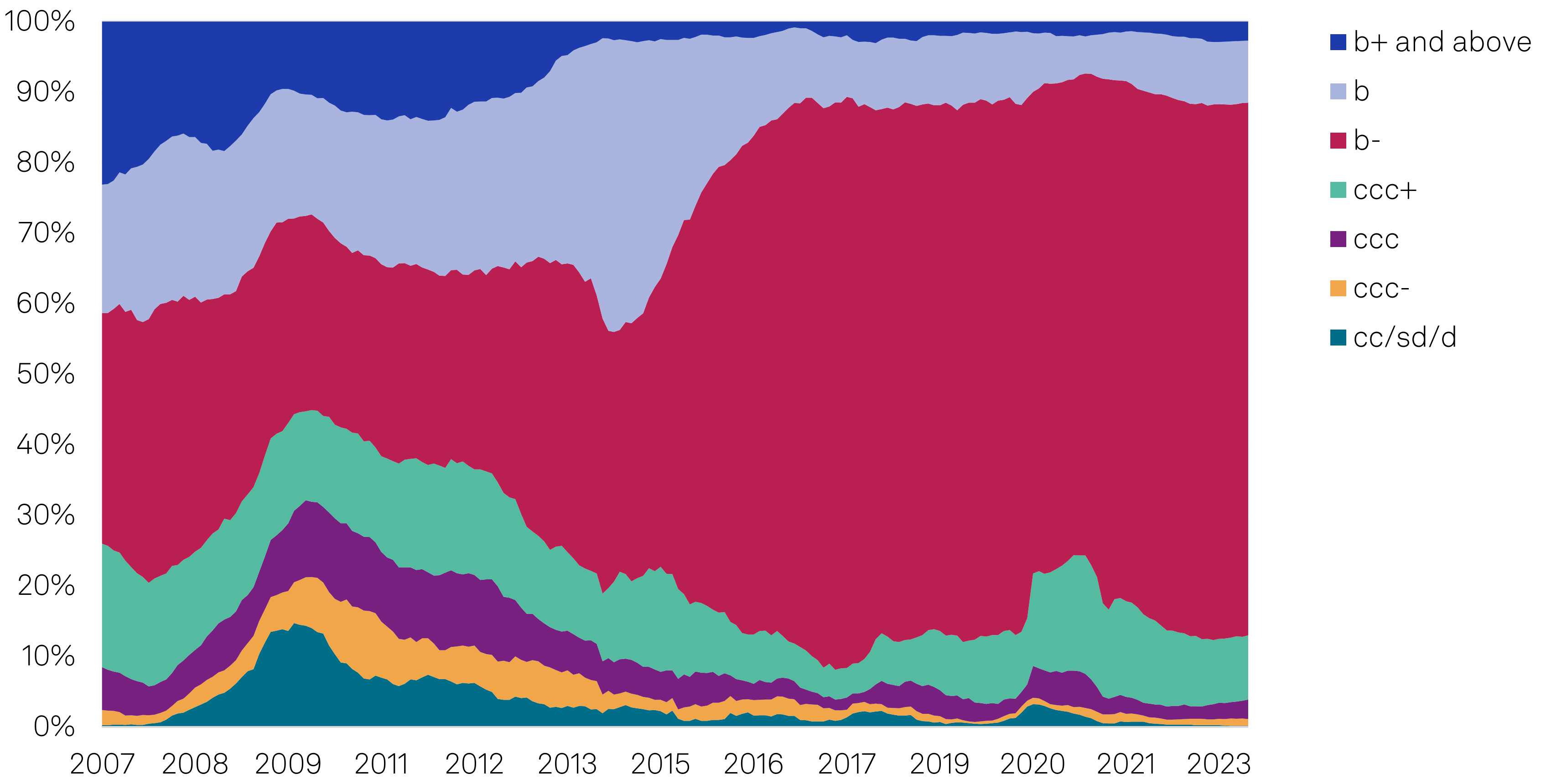
- Debt paydown
- Growth in EBITDA
- Increased market share
- Improved interest coverage
- Better operational performance
- Ability to pass on increased costs

Drivers of lowered credit estimates:

- High leverage
- Weak liquidity
- Refinancing risk
- Negative cash flows
- Inflationary pressure
- Interest coverage stress

Credit Estimates | Credit Quality Over The Years

Outstanding credit estimate distribution by issuer count (2007–Q2 2023)*



- Before the pandemic, about 75% of our outstanding credit estimates were 'b-'.
- This dropped to about 71% after the pandemic induced downgrades of 'b-' credit estimates into the 'ccc' category.
- By 2023, over 75% of outstanding credit estimates were back at 'b-' as performance of companies rebounded, and many obligors saw their credit estimates raised back to 'b-' from the 'ccc' range.

*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.

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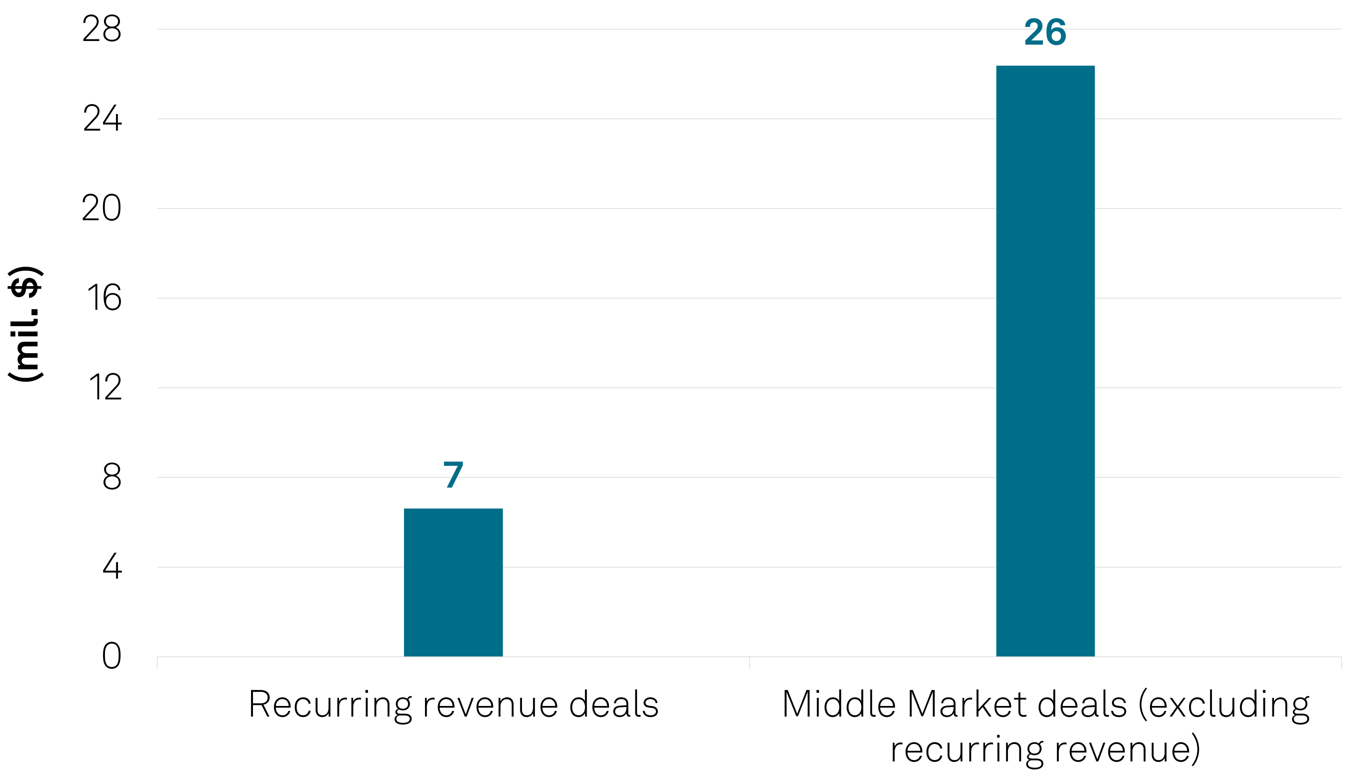
Credit Estimates | Recurring Revenue

Median EBITDA for recurring revenue vs. non-recurring revenue obligors

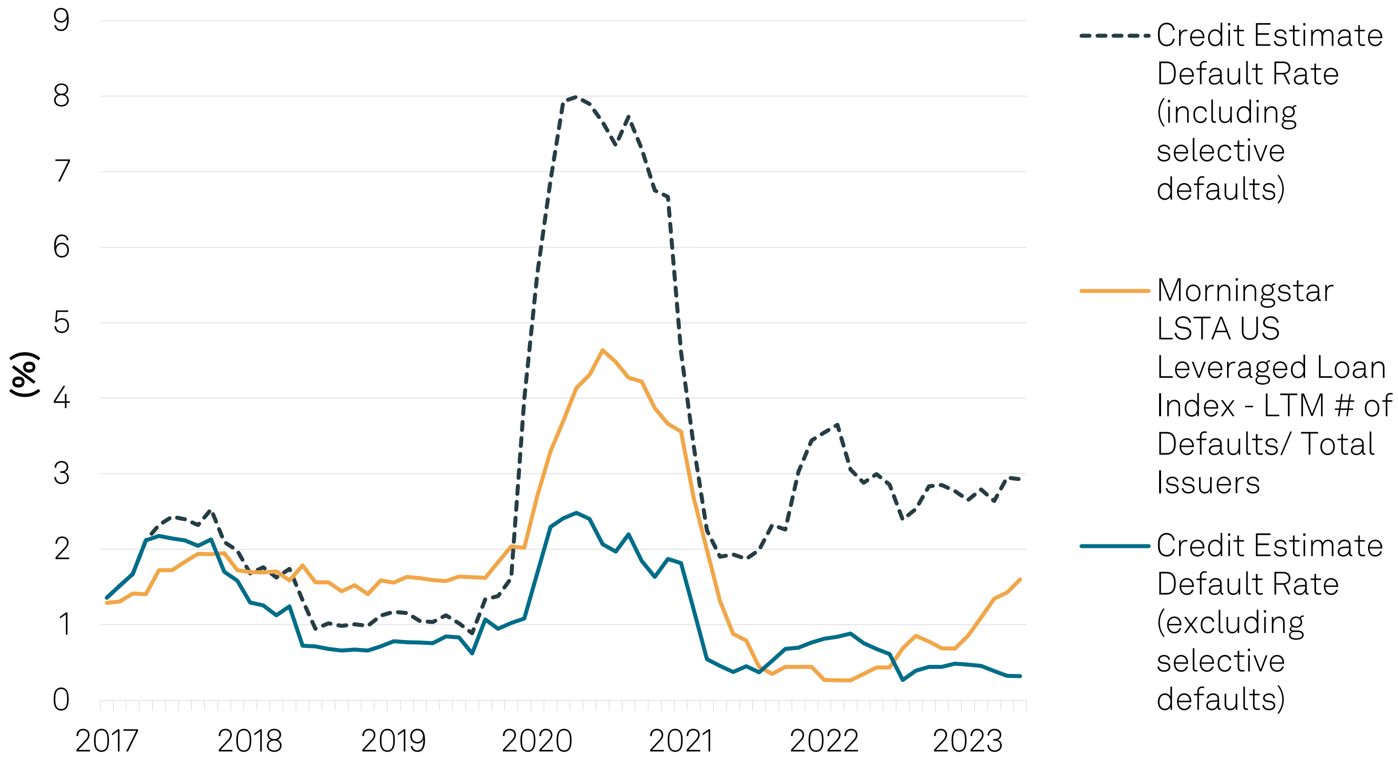


Source: S&P Global Ratings.

- Credit agreements for recurring revenue deals include unique features to support their business needs, such as an unconventional recurring revenue (and not EBITDA-based) leverage covenant and cash retention measures.
- In a higher-for-longer rate environment, increased debt servicing charges will exert pressure on recurring-revenue companies to prioritize liquidity. This may be at the expense of upfront investments and could affect their long-term trajectory and growth.
- Recurring revenue deals compare unfavorably on metrics such as EBITDA and FOCF compared to other middle-market deals.

Credit Estimates | Default Rate Comparison

One-year lagging default rate: credit estimates vs. Morningstar LSTA U.S. Leveraged Loan index



- After dipping to 0.26% in April 2022, the Morningstar LSTA US Leveraged Loan Index default rate (yellow line) among rated issuers increased to 1.86% in June.
- The dashed blue line in the chart, which includes both selective and conventional defaults among credit-estimated issuers, declined sharply to roughly 2.0% in August 2022 after peaking at nearly 8% in 2020. It has been hovering between 2% and 3% since.
- Even though the number of defaults for credit-estimated obligors continues to increase, the credit estimate default rate has been moderated by the addition of new estimates which increase the denominator.
- Further, a handful of selective defaults have fallen off the trailing 12-month count in recent months, decreasing the numerator in our calculation.
- If we exclude selective defaults and focus only on conventional defaults among credit estimated issuers (solid blue line), the default rate was much lower, increasing to about 2.5% and trending under 50 basis points (bps) since August of last year.

Source: S&P Global Ratings and Pitchbook/LCD.
Chart includes Credit Estimate default data through May 2023; we are still receiving specified amendment notices for June and aggregating them into the data set.

Middle-Market CLOs | Credit Metrics Hold Steady

Credit metrics for collateral in reinvesting S&P Global Ratings-rated middle-market CLOs

Date	'B-' exposure (%)(i)	'CCC' exposure (%)(i)	No rating/CE (%) (i)	Nonperforming (%)(i)	SPWARF	Jr. O/C test cushion (%)	Current par (% target par)
7/31/2022(ii)	72.16	10.97	6.14	0.21	3828	7.29	100.85
8/31/2022(ii)	72.69	9.48	7.00	0.13	3808	7.31	100.85
9/30/2022(ii)	72.87	9.53	7.07	0.12	3811	7.38	100.81
10/31/2022(ii)	73.76	8.88	6.96	0.12	3796	7.49	100.93
11/30/2022(ii)	73.21	9.57	6.58	0.16	3799	7.49	100.96
12/31/2022(ii)	73.23	9.62	6.62	0.14	3794	7.57	100.97
1/31/2023(ii)	73.56	10.05	6.05	0.21	3796	7.57	100.95
2/28/2023(ii)	73.07	10.56	5.72	0.27	3803	7.52	100.88
3/31/2023(ii)	73.40	9.61	6.40	0.28	3800	7.43	100.98
4/30/2023(ii)	73.46	10.19	6.10	0.29	3806	7.51	101.06
5/31/2023(ii)	73.54	10.75	5.89	0.27	3817	7.47	100.99
6/30/2023(iii)	73.40	10.13	6.36	0.33	3808	7.43	101.01
7/10/2023(iv)	73.53	10.64	5.78	0.35	3810	7.43	101.01

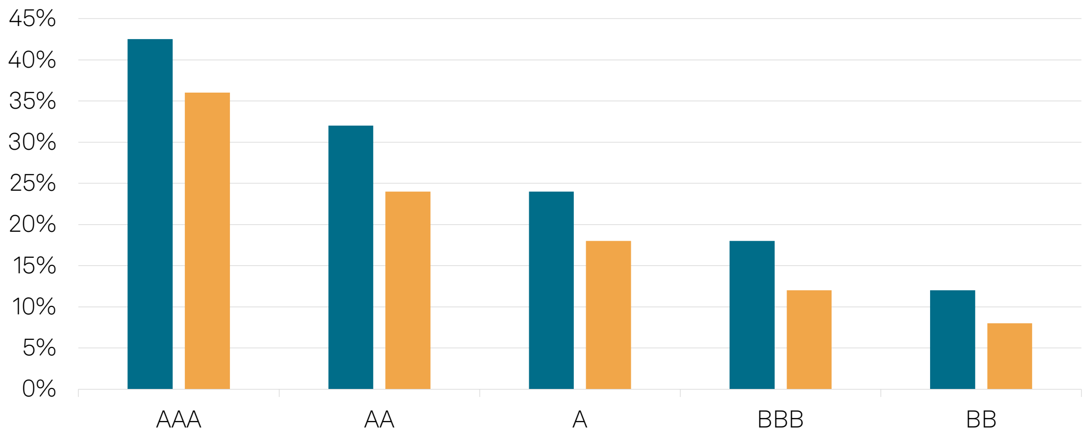
(i)By par amount as proportion of total CLO collateral.

(ii)Index metrics based on end-of-month ratings data and as of month portfolio data available. (iii)Index metrics based on June 30, 2023, ratings data and latest portfolio data available to us. (iv)Index metrics based on July 10, 2023, ratings data and latest portfolio data available to us.- CLO--Collateral loan obligation. CE--Credit enhancement. O/C--Overcollateralization. SPWARF-S&P Global Ratings' weighted average rating factor. Source: S&P Global Ratings.

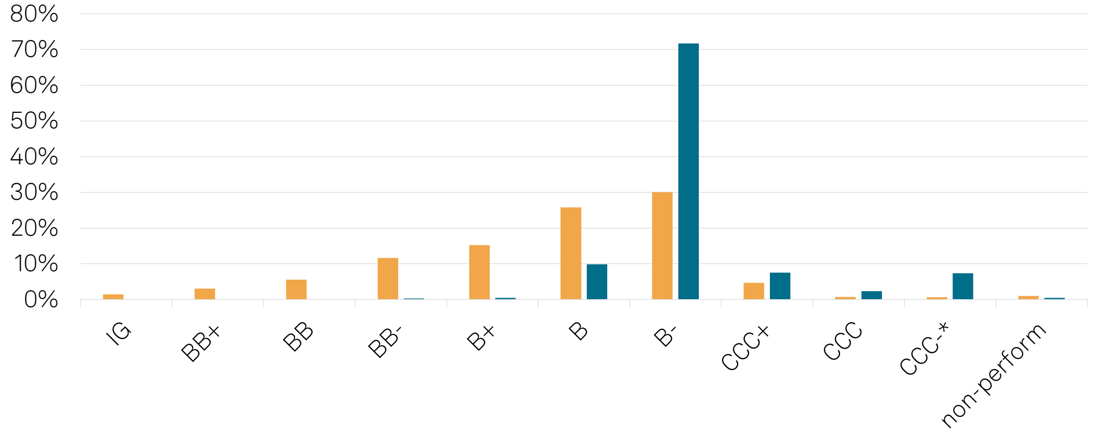
Snapshot: Middle-Market CLOs Vs. BSL CLOs

Middle market CLOs   Broadly syndicated loan CLOs

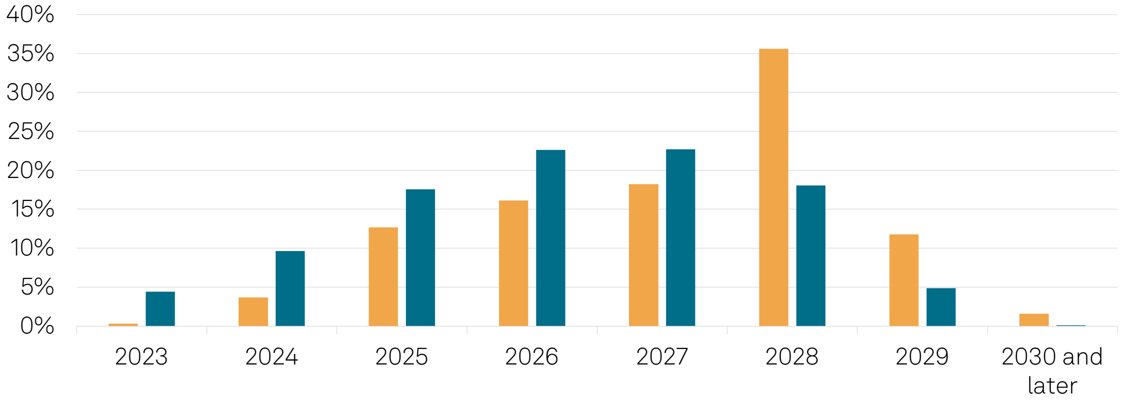
Median subordination of CLO tranches



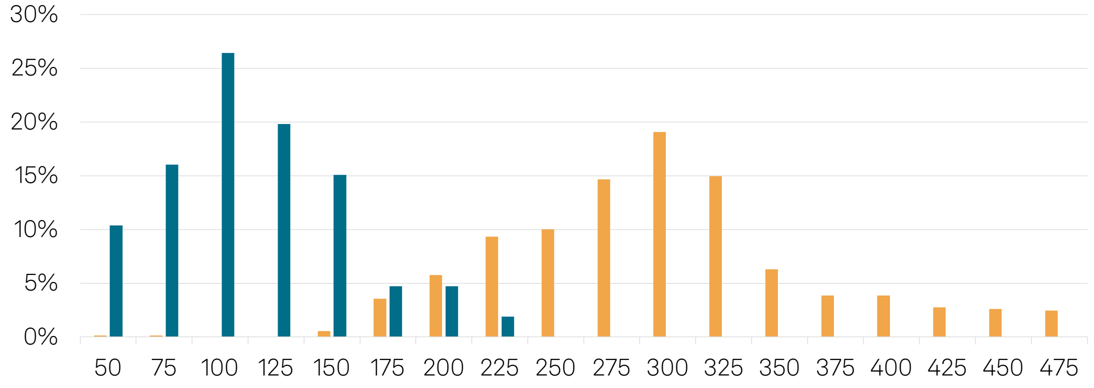
Ratings distribution of CLO obligors



Maturity distribution of CLO assets



Number of obligors in each CLO



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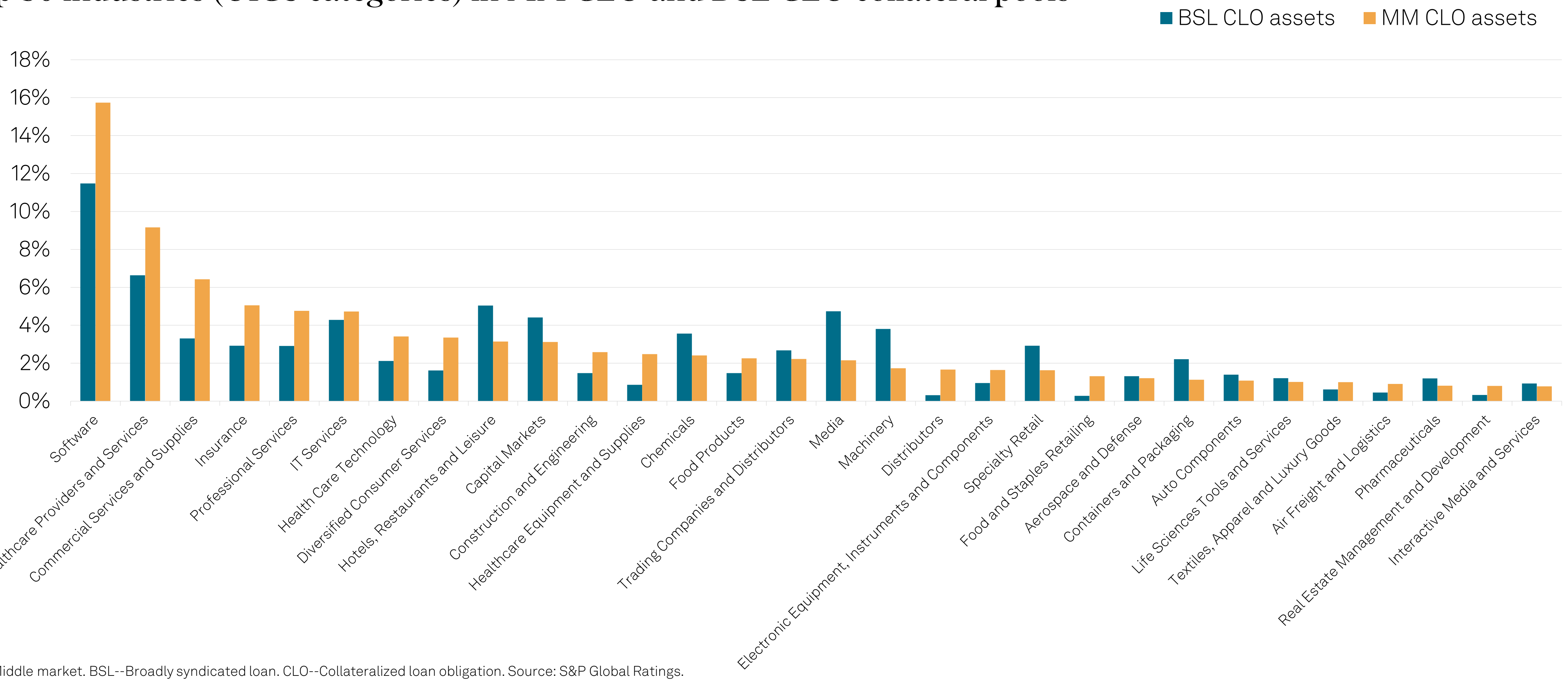
Middle-Market CLOs | Software And Healthcare Are Largest Industries

Top 30 industries (GICS categories) in MM CLO and BSL CLO collateral pools



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

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Middle-Market CLOs | Few Downgrades In 2020 (And None Since)

U.S. BSL CLO and middle-market CLO rating changes (2020-Q2 2023)

CLO type	Total ratings (mid-2020)	Rating action	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Total
BSL CLOs	3,786	Downgrades		19	464	10	4	7	2	4	5	1	3	3	7	5	534
		Upgrades			5	5		17	23	200	4	70	2	3	2	6	337
MM CLOs	553	Downgrades			7												7
		Upgrades							2	13	2	5	2	2		4	30

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

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

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

2) **Fewer loan payment defaults:** In 2020, parties to middle-market loan agreements were able to amend loan terms in ways that avoided payment defaults and bankruptcy. This took different forms: rolling scheduled amortization into the final bullet, allowing a company to PIK upcoming interest payments, pushing out loan maturities, etc. S&P Global Ratings treated some of these as selective defaults, but they reduced the level of conventional (payment) defaults (see slide 14).

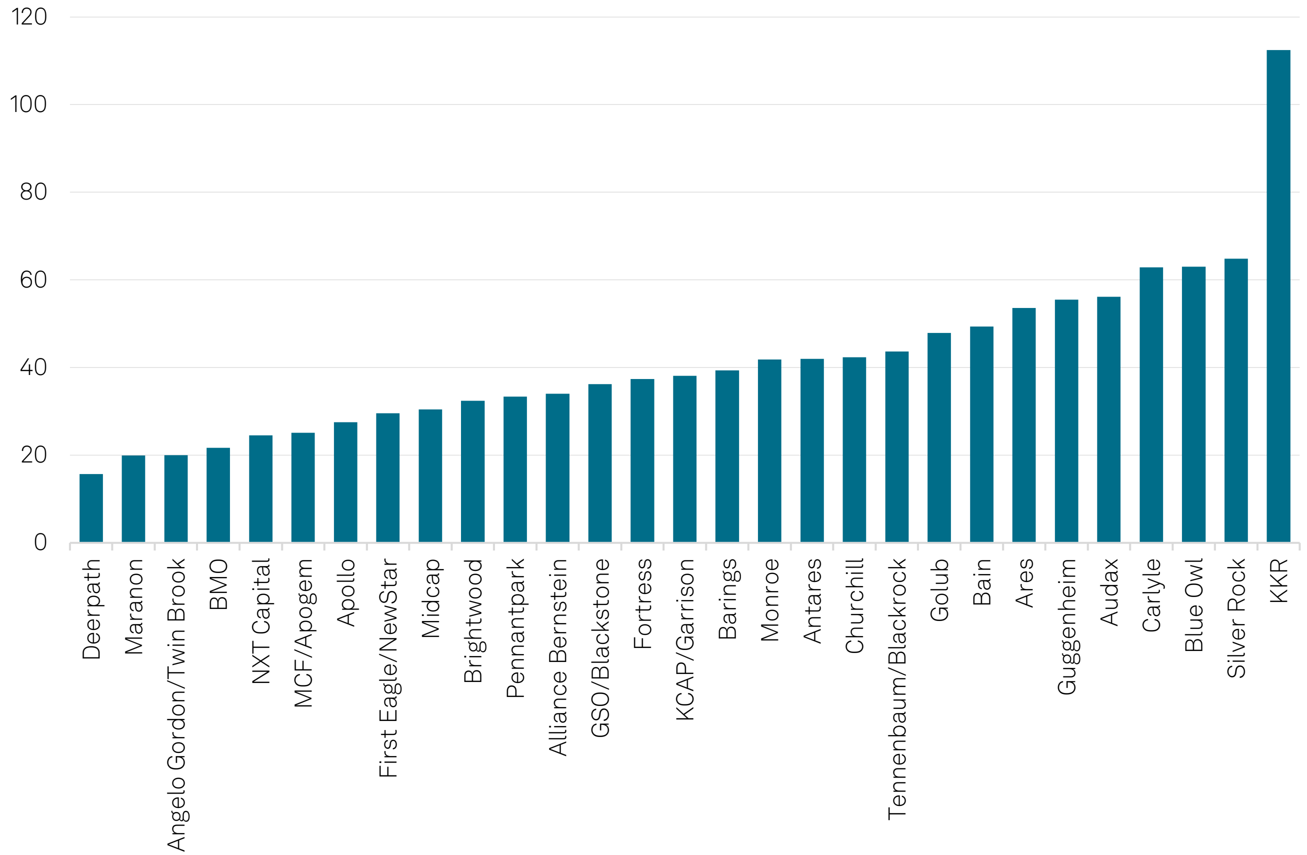
3) **Some sponsors injected cash into their companies:** This was done because, in some cases, sponsors saw value in infusing equity rather than losing control of the company in a payment default/bankruptcy scenario. In a more protracted downturn, however, the economic incentives to do this might be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

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

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

Middle-Market CLOs | Company Size Varies By Middle-Market CLO Manager

Median EBITDA of credit-estimated issuers held by MM CLO managers



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

- There are about 1,700 issuers with loans held across the MM CLOs we rate, almost as many as the loans held in the BSL CLOs we rate.
- Since 2017, several managers have issued their inaugural MM CLO, adding to the number of unique credit estimated issuers.
- MM CLO managers may have a specialty across certain industries as well as certain sized companies.
  - Lower middle market: < $20 million
  - Core middle market: $20 million to $50 million
  - Upper middle market: $50 million to $100 million
- Median EBITDA of loans held by MM CLO managers can vary widely.

Middle-Market CLOs | Second-Quarter 2023 Middle-Market Manager Metrics

Manager	Largest GIC industry	Largest GICS industry (%)	No. of GICS ndustries	Largest issuer exposure (%)	No. of issuers	DG:UG ratio in Q2 2023(i)	Credit estimated issuers (%)	Proportion Credit Estimated In 2Q2023	Median EBITDA of CE Issuers	Average EBITDA of CE Issuers	SPWARF(ii)	WAS (%)	WAM	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
Alliance Bernstein	Software	34.72	24	1.97	134	2:2	91.97	19.39	33.99	59.13	3839	5.68	3.63	46.24	Blue Owl	6.42
Angelo Gordon/Twin Brook	Healthcare providers and services	16.41	31	2.17	75	1:0	89.64	11.64	19.96	19.78	3956	5.86	2.35	81.01	Midcap	1.72
Antares	Healthcare providers and services	11.35	44	1.16	300	4:2	89.47	23.71	41.96	60.81	3805	5.30	3.14	31.03	Churchill	12.38
Apollo	Professional services	13.42	16	5.65	25	2:1	85.57	51.12	27.52	32.66	3872	5.53	3.89	14.43	Midcap	11.08
Ares	Software	16.01	40	1.84	228	5:2	58.54	25.93	53.62	82.08	3795	5.30	3.50	26.70	Audax	12.78
Audax	Software	14.68	41	0.96	290	2:0	21.42	6.09	56.13	90.51	3615	4.62	4.19	27.25	Monroe	15.11
Bain	Professional services	13.10	26	3.38	41	1:2	88.59	46.36	49.31	38.04	3929	6.07	3.46	42.82	Antares	9.15
Barings	Software	15.87	37	2.46	137	0:0	79.89	23.68	39.35	59.31	3724	5.30	3.45	35.29	Churchill	10.28
Blue Owl	Software	25.71	42	3.14	205	7:2	81.06	34.22	62.99	105.04	3759	5.91	4.14	36.16	Antares	9.09
BMO	Healthcare providers and services	15.70	44	1.57	156	6:2	85.26	31.24	21.66	30.63	4067	5.15	3.07	50.06	Antares	6.75
Brightwood	Healthcare providers and services	21.95	24	4.70	61	0:0	83.58	13.66	32.42	48.47	3585	6.41	2.94	68.01	KCAP/Garrison	4.11
Carlyle	Software	11.99	27	3.34	65	2:1	78.36	25.19	62.86	80.99	3890	6.18	3.86	15.37	KKR	5.75
Churchill	IT services	9.33	44	1.39	220	6:2	76.35	26.84	42.30	58.46	3819	5.21	3.83	28.18	Antares	12.38
Deerpath	Healthcare providers and services	17.03	40	1.90	153	4:1	83.40	9.70	15.68	24.05	3846	5.80	3.33	76.36	BMO	3.79

(i)Based on Q1 2023 exposure to companies with ratings/credit estimates raised & lowered in Q2 2023. Includes both rated obligors and credit estimated obligors. (ii)Assets without credit estimate (or other derived S&P Global Ratings' rating) treated as 'ccc-' for purposes of SPWARF calculation. Includes both rated and credit estimated obligors. MM--Middle-market. CLO--Collateralized loan obligation. DG--Downgrade. UG--Upgrade. SPWARF--S&P Global Ratings weighted average rating factor. WAS--Weighted average spread. WAM--Weighted average maturity. Source: S&P Global Ratings.

Middle-Market CLOs | Second-Quarter 2023 Middle-Market Manager Metrics Continued...

Manager	Largest GIC industry	Largest GICS industry (%)	No. of GICS ndustries	Largest issuer exposure (%)	No. of issuers	DG:UG ratio in Q2 2023(i)	Credit estimated issuers (%)	Proportion Credit Estimated In 2Q2023	Median EBITDA of CE Issuers	Average EBITDA of CE Issuers	SPWARF(ii)	WAS (%)	WAM	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
First Eagle/NewStar	Healthcare providers and services	15.03	48	2.28	199	0:0	61.36	14.80	29.52	41.30	3749	5.57	3.46	40.18	Pennantpark	6.07
Fortress	Hotels, restaurants, and leisure	13.72	44	4.37	140	2:0	64.26	9.80	37.38	57.53	3769	6.49	3.51	61.85	Silver Rock	6.15
Golub	Software	23.88	45	1.57	272	5:3	89.77	28.48	47.86	79.95	3848	5.68	3.67	52.64	Antares	8.81
GSO/Blackstone	Hotels, restaurants, and leisure	18.25	19	9.75	28	0:0	45.45	26.26	36.18	34.53	3632	5.14	2.19	30.07	First Eagle/NewStar	3.14
Guggenheim	Software	11.32	42	3.04	137	0:0	45.82	6.60	55.51	65.93	3911	5.07	3.86	32.51	Ares	7.77
KCAP/Garrison	Software	14.73	40	2.56	128	1:2	44.41	12.82	38.08	53.67	4092	5.69	3.44	23.43	Ares	9.26
KKR	Healthcare providers and services	12.63	25	3.52	67	1:1	77.36	19.73	112.47	146.63	3991	6.09	4.15	40.39	Golub	7.64
Maranon	Professional services	9.32	35	2.12	120	3:0	91.41	22.70	19.90	35.54	3858	5.62	3.16	54.07	MCF/Apogem	5.92
MCF/Apogem	Healthcare providers and services	11.93	43	1.64	211	4:0	91.49	18.85	25.13	62.26	3732	5.25	3.32	37.11	Ares	8.98
Midcap	Healthcare providers and services	9.93	45	1.54	233	7:8	86.71	41.72	30.40	46.24	3937	5.79	3.49	41.71	Apollo	11.08
Monroe	Software	16.42	34	1.23	132	0:0	34.36	12.08	41.85	60.26	3664	4.92	4.26	27.17	Audax	15.11
NXT Capital	Healthcare providers and services	16.25	28	2.33	96	1:0	91.03	29.81	24.53	76.86	3934	5.34	3.08	32.27	Antares	7.62
Pennantpark	Media	10.09	35	1.89	135	2:2	77.44	35.42	33.32	60.59	3756	5.85	3.20	42.57	KCAP/Garrison	7.97
Silver Rock	Commercial Services and Supplies	9.21	30	3.34	42	1:0	47.29	19.70	64.86	80.85	4026	6.77	3.65	51.02	Fortress	6.15
Tennenbaum/Blackrock	Software	26.33	40	1.46	176	6:4	74.94	26.76	43.64	65.97	3807	5.72	3.95	31.32	Ares	9.43

(i)Based on Q1 2023 exposure to companies with ratings/credit estimates raised & lowered in Q2 2023. Includes both rated obligors and credit estimated obligors. (ii)Assets without credit estimate (or other derived S&P Global Ratings' rating) treated as 'ccc-' for purposes of SPWARF calculation. Includes both rated and credit estimated obligors. MM--Middle-market. CLO--Collateralized loan obligation. DG--Downgrade. UG--Upgrade. SPWARF--S&P Global Ratings weighted average rating factor. WAS--Weighted average spread. WAM--Weighted average maturity. Source: S&P Global Ratings.

Middle-Market CLOs | The Matrix: Q2 2023 Asset Overlap By Manager

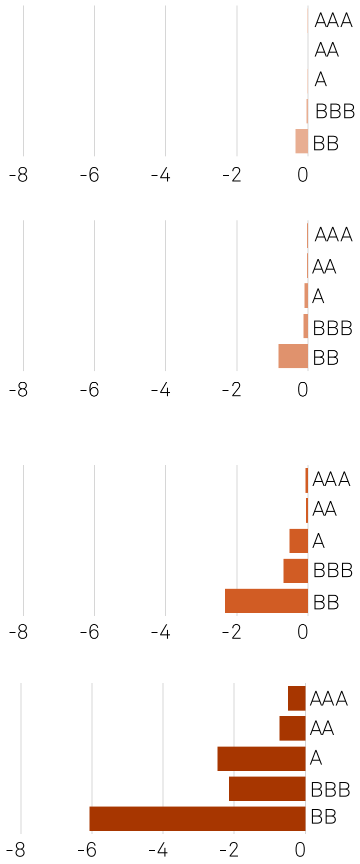
	Alliance Bernstein	Angelo Gordon/Twin Brook	Antares	Apollo	Ares	Audax	Bain	Barings	Blue Owl	BMO	Brightwood	Carlyle	Churchill	Deerpath	First Eagle/NewStar	Fortress	Golub	GSO/Blackstone	Guggenheim	KCAP/Garrison	KKR	Maranon	MCF/Apogem	Midcap	Monroe	NXT Capital	Pennantpark	Silver Rock	Tennenbaum/Blackrock
Alliance Bernstein		0.00	2.45	0.00	5.90	1.38	1.66	1.39	6.42	1.60	0.85	3.67	2.22	1.83	0.00	3.16	5.44	0.30	1.78	4.74	3.35	1.36	3.79	4.53	1.45	2.88	1.53	2.31	4.91
Angelo Gordon/Twin Brook	0.00		0.20	0.00	0.23	0.00	0.00	0.13	0.00	0.66	0.00	0.00	0.47	0.00	1.08	0.00	0.00	0.69	0.00	0.00	0.00	1.36	0.43	1.72	0.00	0.34	0.40	0.00	0.00
Antares	2.45	0.20		0.00	9.26	5.44	9.15	9.40	9.09	6.75	0.86	3.12	12.38	1.19	5.81	1.17	8.81	0.27	2.34	3.42	3.67	4.61	7.09	3.66	3.04	7.62	4.17	0.68	7.46
Apollo	0.00	0.00	0.00		0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00	0.00	2.60	0.00	0.72	0.00	0.00	0.95	11.08	0.53	0.00	2.69	0.00	0.00
Ares	5.90	0.23	9.26	0.00		12.78	1.80	4.87	5.32	2.15	0.52	2.46	6.92	0.29	3.45	2.75	7.82	1.68	7.77	9.26	6.29	2.38	8.98	5.06	9.07	1.44	2.55	0.00	9.43
Audax	1.38	0.00	5.44	0.00	12.78		1.68	2.14	5.46	0.66	0.47	3.18	10.84	2.96	5.43	2.59	2.23	0.70	6.09	9.07	0.58	2.72	4.45	0.92	15.11	0.35	6.40	0.00	3.83
Bain	1.66	0.00	9.15	0.00	1.80	1.68		2.28	2.45	0.00	0.00	0.00	1.92	0.00	4.55	1.45	1.24	0.00	0.00	0.87	0.00	0.00	0.58	0.29	0.55	3.11	1.58	0.00	3.06
Barings	1.39	0.13	9.40	0.06	4.87	2.14	2.28		1.39	5.47	1.51	1.66	10.28	0.33	5.84	0.98	1.04	1.81	1.85	2.90	1.79	2.95	2.39	4.95	5.23	7.42	3.38	1.64	2.57
Blue Owl	6.42	0.00	9.09	0.00	5.32	5.46	2.45	1.39		0.95	0.27	5.56	3.15	0.80	1.04	6.05	7.34	0.00	3.95	1.15	5.03	0.80	2.88	0.31	1.79	2.09	2.56	0.33	7.63
BMO	1.60	0.66	6.75	0.00	2.15	0.66	0.00	5.47	0.95		1.05	0.79	1.98	3.79	1.94	0.00	0.49	0.37	1.56	5.93	0.00	5.45	3.30	3.21	0.93	5.87	0.66	1.25	0.00
Brightwood	0.85	0.00	0.86	0.00	0.52	0.47	0.00	1.51	0.27	1.05		0.49	1.29	0.46	1.21	1.23	0.95	0.00	0.00	4.11	0.84	0.17	0.46	1.22	0.47	0.00	1.91	2.96	3.03
Carlyle	3.67	0.00	3.12	0.00	2.46	3.18	0.00	1.66	5.56	0.79	0.49		1.91	0.00	4.88	0.49	2.90	1.46	3.40	2.73	5.75	0.00	2.21	3.06	1.75	0.00	1.49	3.00	0.95
Churchill	2.22	0.47	12.38	0.00	6.92	10.84	1.92	10.28	3.15	1.98	1.29	1.91		1.29	4.87	0.57	4.34	1.49	2.36	3.80	1.54	4.26	6.95	3.79	9.90	3.16	2.52	0.00	6.81
Deerpath	1.83	0.00	1.19	0.00	0.29	2.96	0.00	0.33	0.80	3.79	0.46	0.00	1.29		1.49	0.53	0.15	0.36	0.04	2.91	0.00	0.00	0.85	0.00	1.24	0.93	2.71	0.00	0.61
First Eagle/NewStar	0.00	1.08	5.81	2.13	3.45	5.43	4.55	5.84	1.04	1.94	1.21	4.88	4.87	1.49		2.19	0.98	3.14	4.75	5.09	0.00	2.97	4.74	4.51	5.32	4.05	6.07	0.00	5.84
Fortress	3.16	0.00	1.17	0.00	2.75	2.59	1.45	0.98	6.05	0.00	1.23	0.49	0.57	0.53	2.19		1.19	0.01	3.34	4.44	1.03	0.00	0.00	1.88	1.02	1.27	1.43	6.15	4.29
Golub	5.44	0.00	8.81	0.00	7.82	2.23	1.24	1.04	7.34	0.49	0.95	2.90	4.34	0.15	0.98	1.19		0.10	1.33	3.80	7.64	0.91	3.16	1.34	0.65	2.19	0.85	0.13	7.62
GSO/Blackstone	0.30	0.69	0.27	2.60	1.68	0.70	0.00	1.81	0.00	0.37	0.00	1.46	1.49	0.36	3.14	0.01	0.10		0.33	1.43	0.00	1.38	0.54	1.56	0.66	0.50	1.28	0.00	0.00
Guggenheim	1.78	0.00	2.34	0.00	7.77	6.09	0.00	1.85	3.95	1.56	0.00	3.40	2.36	0.04	4.75	3.34	1.33	0.33		3.94	2.28	1.38	0.11	1.51	7.39	0.00	2.52	1.53	7.29
KCAP/Garrison	4.74	0.00	3.42	0.72	9.26	9.07	0.87	2.90	1.15	5.93	4.11	2.73	3.80	2.91	5.09	4.44	3.80	1.43	3.94		0.00	1.75	0.29	3.27	4.36	2.59	7.97	0.98	4.29
KKR	3.35	0.00	3.67	0.00	6.29	0.58	0.00	1.79	5.03	0.00	0.84	5.75	1.54	0.00	0.00	1.03	7.64	0.00	2.28	0.00		1.08	1.35	2.73	2.13	1.52	0.00	0.00	6.87
Maranon	1.36	1.36	4.61	0.00	2.38	2.72	0.00	2.95	0.80	5.45	0.17	0.00	4.26	0.00	2.97	0.00	0.91	1.38	1.38	1.75	1.08		5.92	2.43	0.61	4.90	2.44	1.24	4.30
MCF/Apogem	3.79	0.43	7.09	0.95	8.98	4.45	0.58	2.39	2.88	3.30	0.46	2.21	6.95	0.85	4.74	0.00	3.16	0.54	0.11	0.29	1.35	5.92		7.73	1.70	5.79	2.55	0.52	4.03
Midcap	4.53	1.72	3.66	11.08	5.06	0.92	0.29	4.95	0.31	3.21	1.22	3.06	3.79	0.00	4.51	1.88	1.34	1.56	1.51	3.27	2.73	2.43	7.73		3.34	3.66	3.30	0.32	3.24
Monroe	1.45	0.00	3.04	0.53	9.07	15.11	0.55	5.23	1.79	0.93	0.47	1.75	9.90	1.24	5.32	1.02	0.65	0.66	7.39	4.36	2.13	0.61	1.70	3.34		1.77	3.79	1.07	6.51
NXT Capital	2.88	0.34	7.62	0.00	1.44	0.35	3.11	7.42	2.09	5.87	0.00	0.00	3.16	0.93	4.05	1.27	2.19	0.50	0.00	2.59	1.52	4.90	5.79	3.66	1.77		3.49	0.00	2.72
Pennantpark	1.53	0.40	4.17	2.69	2.55	6.40	1.58	3.38	2.56	0.66	1.91	1.49	2.52	2.71	6.07	1.43	0.85	1.28	2.52	7.97	0.00	2.44	2.55	3.30	3.79	3.49		2.24	5.87
Silver Rock	2.31	0.00	0.68	0.00	0.00	0.00	0.00	1.64	0.33	1.25	2.96	3.00	0.00	0.00	0.00	6.15	0.13	0.00	1.53	0.98	0.00	1.24	0.52	0.32	1.07	0.00	2.24		4.66
Tennenbaum/Blackrock	4.91	0.00	7.46	0.00	9.43	3.83	3.06	2.57	7.63	0.00	3.03	0.95	6.81	0.61	5.84	4.29	7.62	0.00	7.29	4.29	6.87	4.30	4.03	3.24	6.51	2.72	5.87	4.66	

Source: S&P Global Ratings.

Rating Stress Scenarios | How Resilient Are Middle-Market 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

Model-determined impact: average notches off current rating



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).
- 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.

Rating Stress Scenarios | How Resilient Are Middle-Market CLO Ratings?

Hypothetical stress scenario results

Scenario One: 10% default / 5% par loss

Current Tranche Rating	Average CLO Tranche Rating Movement Under Scenario											
	0	-1	-2	-3	-4	-5	-6	-7 or more	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

Current Tranche Rating	Average CLO Tranche Rating Movement Under Scenario											
	0	-1	-2	-3	-4	-5	-6	-7 or more	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

Current Tranche Rating	Average CLO Tranche Rating Movement Under Scenario											
	0	-1	-2	-3	-4	-5	-6	-7 or more	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

Current Tranche Rating	Average CLO Tranche Rating Movement Under Scenario											
	0	-1	-2	-3	-4	-5	-6	-7 or more	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 5 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.

Snapshot | Middle-Market Vs. BSL CLOs

	Middle-market loan CLOs (MM CLOs)	Broadly syndicated loan CLOs (BSL CLOs)
Proportion of U.S. CLOs (1Q 2023)	About 9% of total U.S. CLOs by par About 16% of SPGR-rated CLOs by par	About 91% of total U.S. CLOs by par About 84% of SPGR-rated U.S. CLOs by par
Size of median CLO (par $)	About $475 million	About $500 million

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

Source of CLO collateral	Some MM CLO managers (or their affiliates) are direct lenders and issue some/most of the loans in their CLOs	BSL CLO managers purchase the loans for their CLOs in the open market to create a portfolio
Typical issuer motivation	Some MM CLO managers use CLOs as a means to fund their loan business and maintain diverse funding sources	BSL CLO managers typically use BSL CLOs as a means to build assets under management and generate fee income
CLO manager relationship with borrower	Direct lender or Investor	Investor
Risk retention	MM CLOs are generally subject to risk retention since the manager is the issuer of some/all the loans in the CLO	U.S. BSL CLOs are generally not subject to risk retention since the manager acquires the loans in the open market
Loan covenants	The smaller the loan, the more likely it is to have maintenance covenants and more restrictive provisions*	Covenant-lite loans are the norm (80% plus of BSL loan market) along with looser provisions
CLO equityholder	Most MM CLO managers hold their CLO equity, although some are now exploring syndicating	Historically most BSL CLO managers have placed CLO equity with third-party investors, although this hasn’t been true in 2023 year to date
Junior-most ‘AAA’ subordination	Typically ranges from 40% to 46% (median is 43%)	Typically ranges from 34% to 39% (median is 36%)
Source of ratings/implied ratings	Credit estimates typically cover > 60% of the issuers in MM CLOs	S&P Global Ratings has ratings on more than 95% of BSL loan issuers
Rating/credit estimate profile	See slide 16	See slide 16
Typical spreads of loans within portfolio	See slide 16	See slide 16
Maturity of loans	See slide 16	See slide 16
Number of obligors in CLO pool	Typical MM CLO has loans from 50 to 80 companies	Typical BSL CLO has loans from over 200 companies
Number of industries in CLO pool	Typical MM CLO 15 to 20 industries	Typical BSL CLO has loans from ≈ 24 industry sectors

Source: S&P Global Ratings.

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