Middle-Market CLO And Private Credit Quarterly:
A Steeper Path Ahead?

Q2 2023

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This report does not constitute a rating action

Middle-Market Lending Key Takeaways

Takeaways

- The slowdown in economic growth, coupled with inflationary pressures and rising interest rates--and the consequent pressure on margins--weighed heavily on companies with high leverage and low interest coverage ratios. Full-year 2022 saw more credit estimate upgrades than downgrades, but this trend reversed in fourth-quarter 2022 and is continuing into 2023. This mirrors what has happened among rated loan issuers since May 2022, when downgrades outpaced upgrades for the first time in 16 months. Credit estimate downgrades outpaced upgrades by a ratio of 1.7 to 1 in first-quarter 2023 (see slides 10 and 11).
- March 2023 was a busy month for broadly syndicated loan (BSL) defaults, with more defaults than the prior five months combined. The trailing 12-month default rate is now 1.35%, the highest level since May of 2021. Among rated loan issuers, we expect the trailing-12-month Morningstar LSTA Leveraged Loan Index default rate to increase to 2.5% by December 2023 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 continue to receive notices 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.
- Selective defaults continue to rise as companies restructure terms of payment given macroeconomic headwinds. We expect selective defaults to continue to rise as more companies look to restructure outside of the bankruptcy process. From 2020 through third-quarter 2021, conventional defaults among credit-estimated obligors were significantly lower than conventional defaults among rated BSL loan issuers, partly due to many amendments and other actions taken on middle-market loans that averted payment defaults (see slide 13).
- Recurring revenue loans represent a small proportion of our outstanding credit estimates (currently about 60 companies). The average EBITDA for these companies is under $4 million, and 70% have a credit estimate score in the 'ccc' range. The remaining are 'b-'.

Key Risks

- S&P Global Ratings forecasts a mild recession for the U.S. in 2023. Our forecast for GDP for full-year 2023 is 0.7%.
- Cost inflation, supply issues, and labor constraints leading to margin compression could result in a pickup in credit estimate downgrades.

Middle-Market CLO Key Takeaways

Takeaways

- Credit metrics for middle-market collateralized loan obligation (CLO) collateral have deteriorated slightly since the middle of last year but remained stable in first-quarter 2023. Loans from 'B-' companies (both credit estimated and rated) within middle-market CLOs represent 73.6% of total collateral, compared to 30.5% for BSL CLOs. Exposure to 'CCC' range companies in middle-market CLOs is 10.3%, up from 8.8% last August, and exposure to defaulted assets remains low at 0.27% (see slide 14).
- Middle-market CLO junior overcollateralization (O/C) test ratios have an average cushion of 7.23%, leaving room to withstand considerable deterioration before failing. However, there are a range of results across transactions. Five middle-market CLOs did see larger drops in their junior O/C ratio in first-quarter 2023, ranging from 0.75% to 1.8% due to idiosyncratic defaults.
- The typical middle-market CLO portfolio has lower obligor diversity than a BSL CLO. 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 20 for a full matrix).
- The top 250 obligors in middle-market CLOs represent about 42% of total assets, compared to 53% of total assets for BSL CLOs.
- Software is the largest sector in middle-market CLOs by far (15.6% of total assets by par amount, see slide 17), but the individual companies tend to be less widely held than some other sectors. Of the top 10 companies held across three or more middle market CLO managers, five are in the insurance sector and only one is in the software sector (see slide 21).
- 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.
- Quarter over quarter, the maturity wall among middle-market loans has pushed out somewhat. Currently, 4.4% of loans in middle-market CLOs mature in 2023, compared with 5.3% at the start of 2023. About half of these loans are to companies with a credit estimate or rating in the 'CCC' range (see slide 16).
- Middle-market CLOs saw few downgrades during the pandemic, with only seven ratings lowered during 2020. This is about 1.3% of outstanding middle-market CLO ratings at the time, versus 13.0% of BSL CLO ratings lowered during 2020. On slide 15, we discuss some of the reasons why.

Data From Selected Slides

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

Credit Estimates | Median Leverage And Interest Coverage By Sector

Top 10 industries with the highest S&P Global Ratings-calculated leverage ratios in first-quarter 2023

Industry	Median of debt/EBITDA (x)
Internet software and services	8.47
Insurance	8.33
Software	8.10
Leisure products	7.64
IT Services	7.64
Diversified consumer services	7.49
Aerospace and defense	7.47
Healthcare providers and services	7.21
Capital markets	6.75
Commercial services and supplies	6.55

Includes sectors with four or more Credit Estimates outstanding. Source: S&P Global Ratings.

Top 10 industries with the lowest S&P Global Ratings-calculated interest coverage ratios in first-quarter 2023

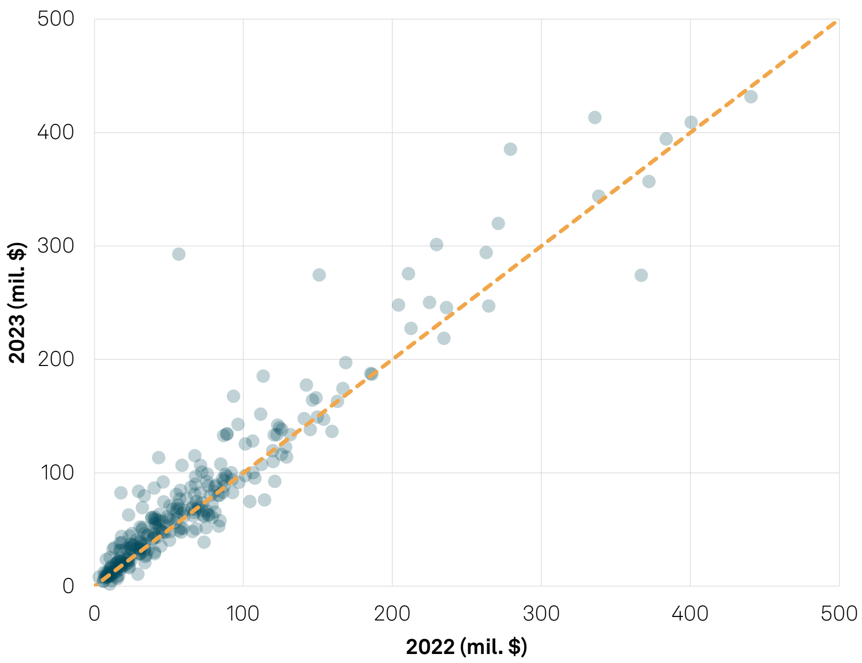
Industry	Median interest coverage (x)
Software	1.03
Insurance	1.17
Internet software and services	1.31
Diversified consumer services	1.33
IT services	1.34
Aerospace and defense	1.36
Professional services	1.39
Healthcare providers and services	1.44
Food products	1.46
Leisure products	1.49

Includes sectors with four or more Credit Estimates outstanding. Source: S&P Global Ratings.

Credit Estimates | Revenue And EBITDA Trends

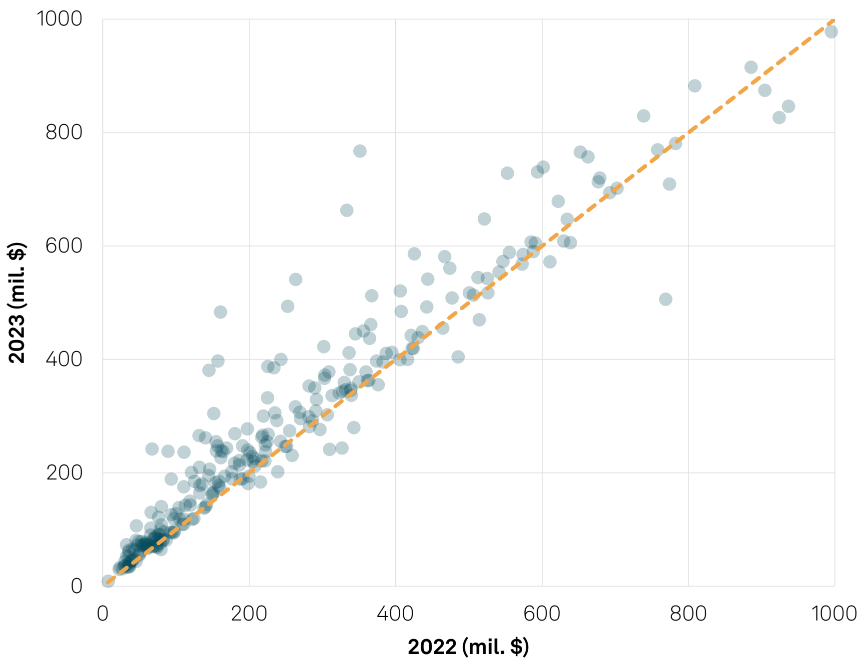
Change in metrics for credit estimated obligors (2022 reviews vs. 2023 reviews)

EBITDA: 2022 vs. 2023



Source: S&P Global Ratings.

Revenue: 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 earnings and EBITDA.
- For reviews done in 2023, revenue and EBITDA have continued to grow due in part to acquisitions.
- The median growth of revenue and EBITDA year over year was 13% and 9%, respectively.

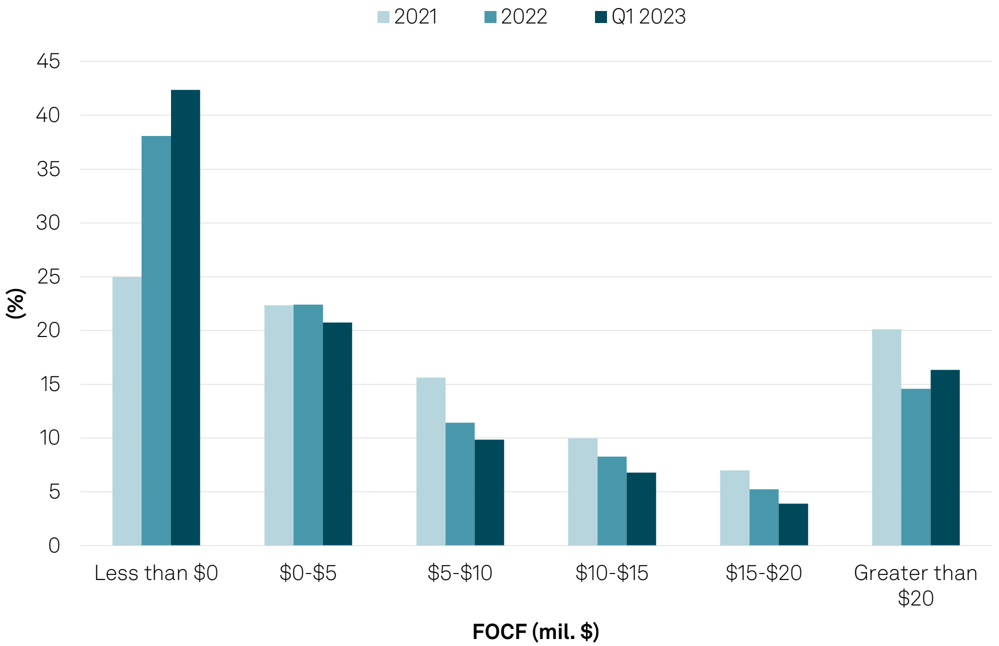
Credit Estimates | EBITDA And Free Operating Cash Flow Distribution

- The increased size of companies' revenue and EBITDA is reflected in our 2023 reviews of credit-estimated companies.
- About 40% of companies with greater than $70 million of EBITDA generated negative free operating cash flow (FOCF).

EBITDA

Source: S&P Global Ratings.

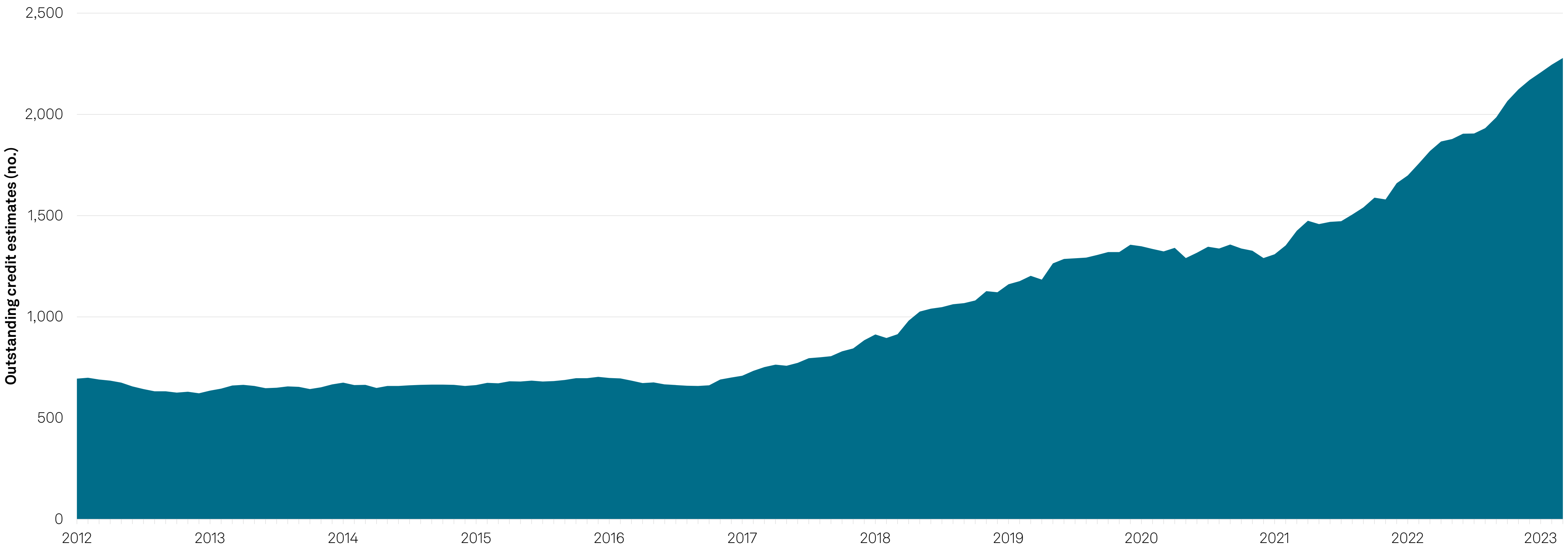
Free operating cash flow



Source: S&P Global Ratings.

Credit Estimates | Growth In Outstanding Credit Estimates

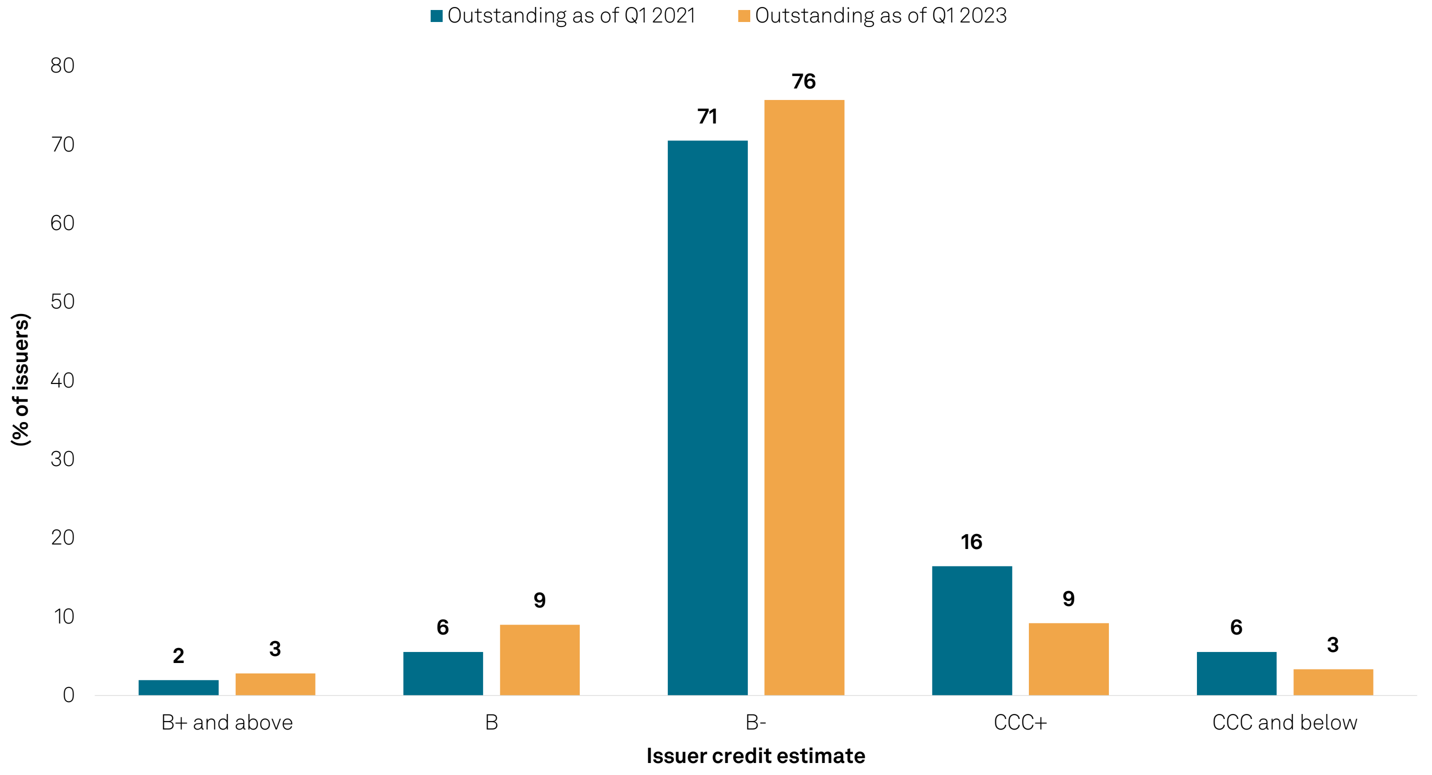
Number of outstanding S&P Global Ratings credit estimates (2012–Q1 2023)*



*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 Score Distribution: 2021 Vs. 2023

Overall credit estimate distribution by issuer count*

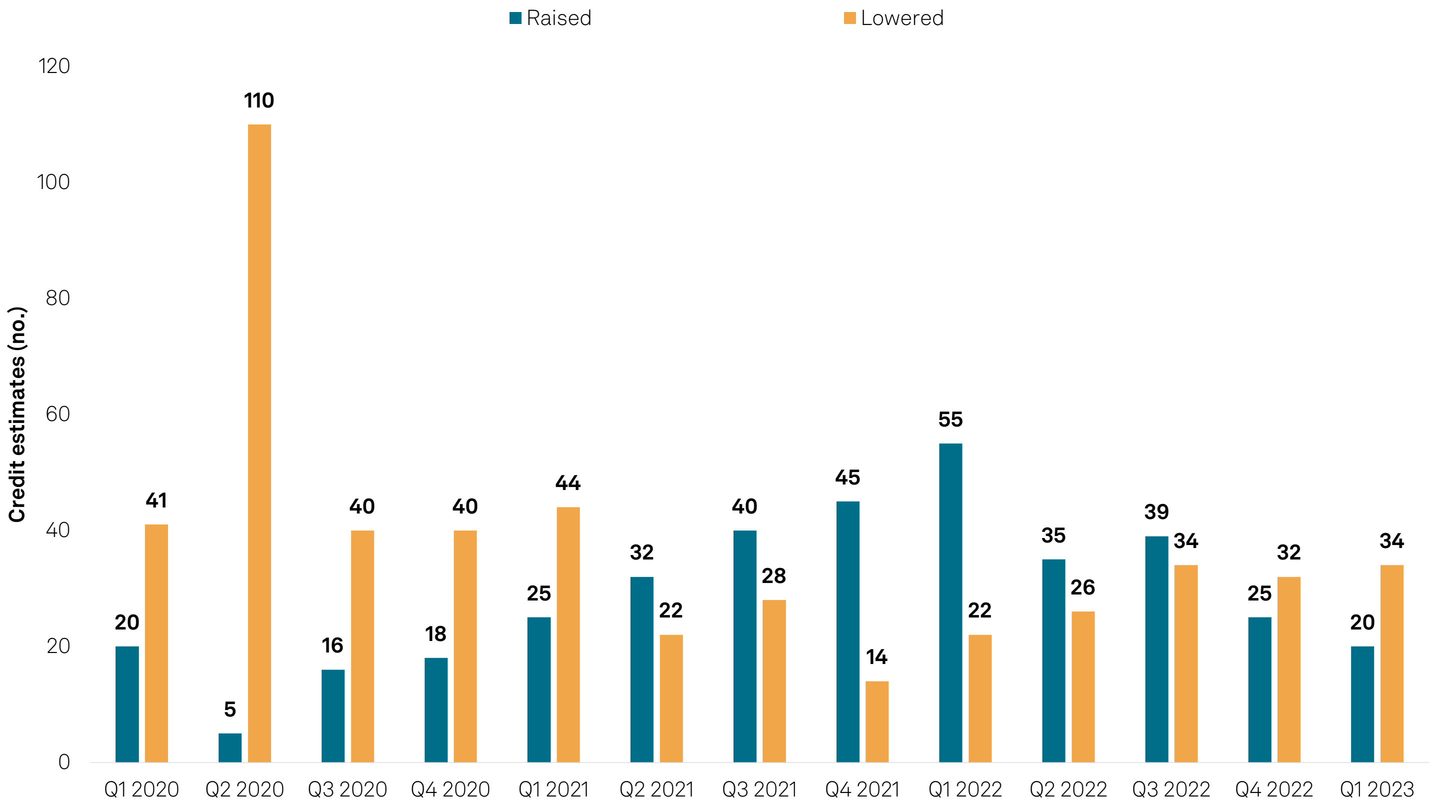


- Before the pandemic, about 75% of our outstanding credit estimates were ‘b-’.
- This dropped to about 71% after the pandemic induced downgrades of ‘b-’ credit estimates into the ‘ccc’ category.
- By 2023, over 75% of outstanding credit estimates were back at ‘b-’ as performance of companies rebounded, 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 a small number of 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-Q1 2023)



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 second-quarter 2021 through the third-quarter 2022, upgrades outpaced downgrades.
- We can expect to see downgrades rise due to margin compression from increased borrowing costs and inflation, as well as overall recessionary concerns.

Credit Estimates | Raised And Lowered By Sector

As Of Q1 2023

20 upgrades in Q1 2023

	Top five sectors upgraded	Overall percentage of upgrades (%)	Sector exposure of total credit estimates (%)
1	Commercial services and supplies	35.0	6.1
2	Media	10.0	3.9
3	Hotels, restaurants, and leisure	10.0	1.7
4	Professional services	10.0	6.3
5	Healthcare technology	10.0	4.3

34 downgrades in Q1 2023

	Top five sectors downgraded	Overall percentage of downgrades (%)	Sector exposure of total credit estimates (%)
1	Software	14.7	14.1
2	Healthcare equipment and supplies	8.8	2.6
3	Aerospace and defense	5.9	1.5
4	IT services	5.9	4.3
5	Insurance	5.9	4.1

Source: S&P Global Ratings.

Drivers of raised credit estimates:

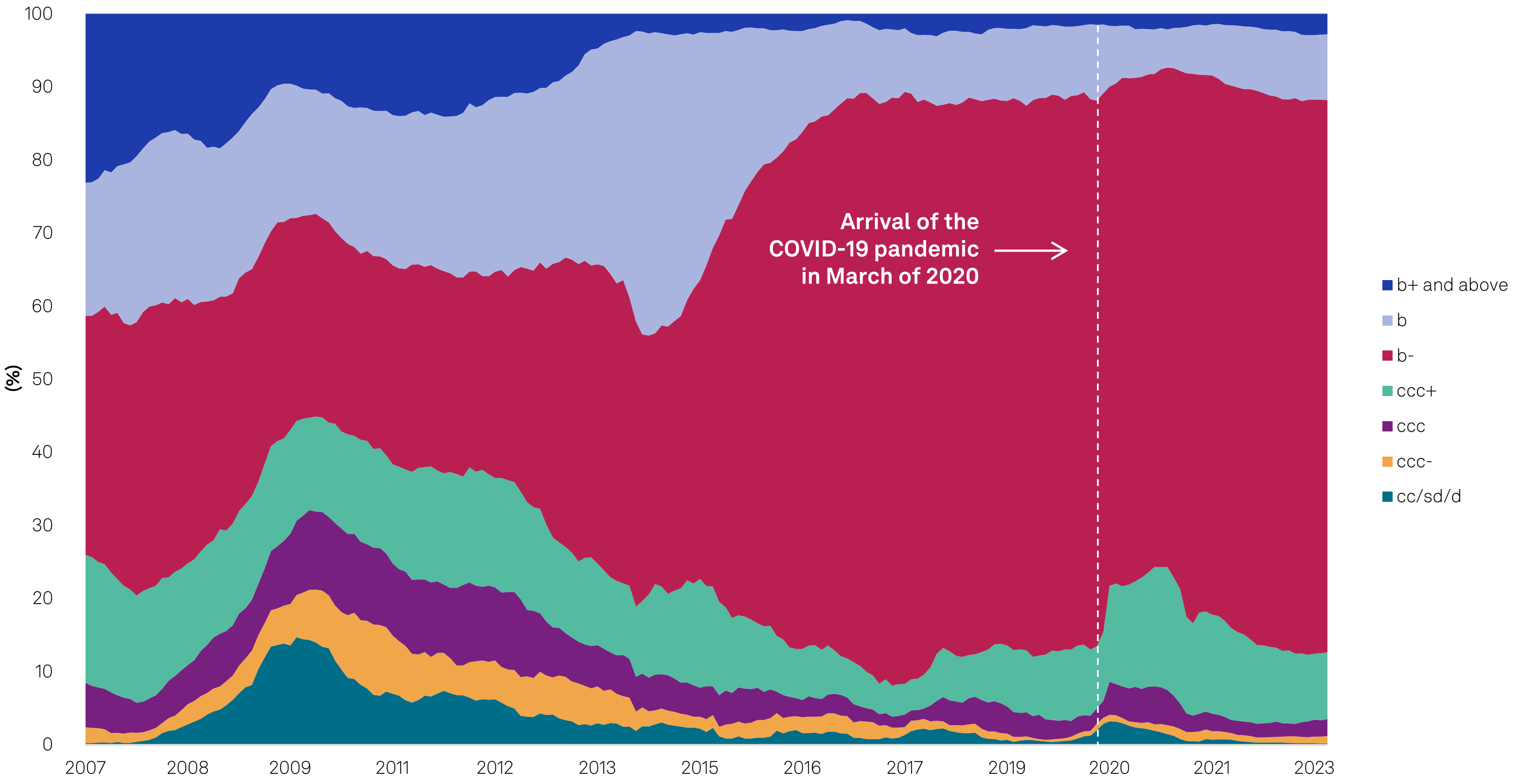
- Growth in EBITDA
- Decrease in leverage
- Increased market share
- Improved interest coverage
- Better operational performance
- Ability to pass on increased costs

Drivers of lowered credit estimates:

- High leverage
- Weak liquidity
- Refinancing risk
- Negative cash flows
- Inflationary pressure
- Increased borrowing costs

Credit Estimates | Credit Quality Over The Years

Outstanding credit estimate distribution by issuer count (2007–Q1 2023)*

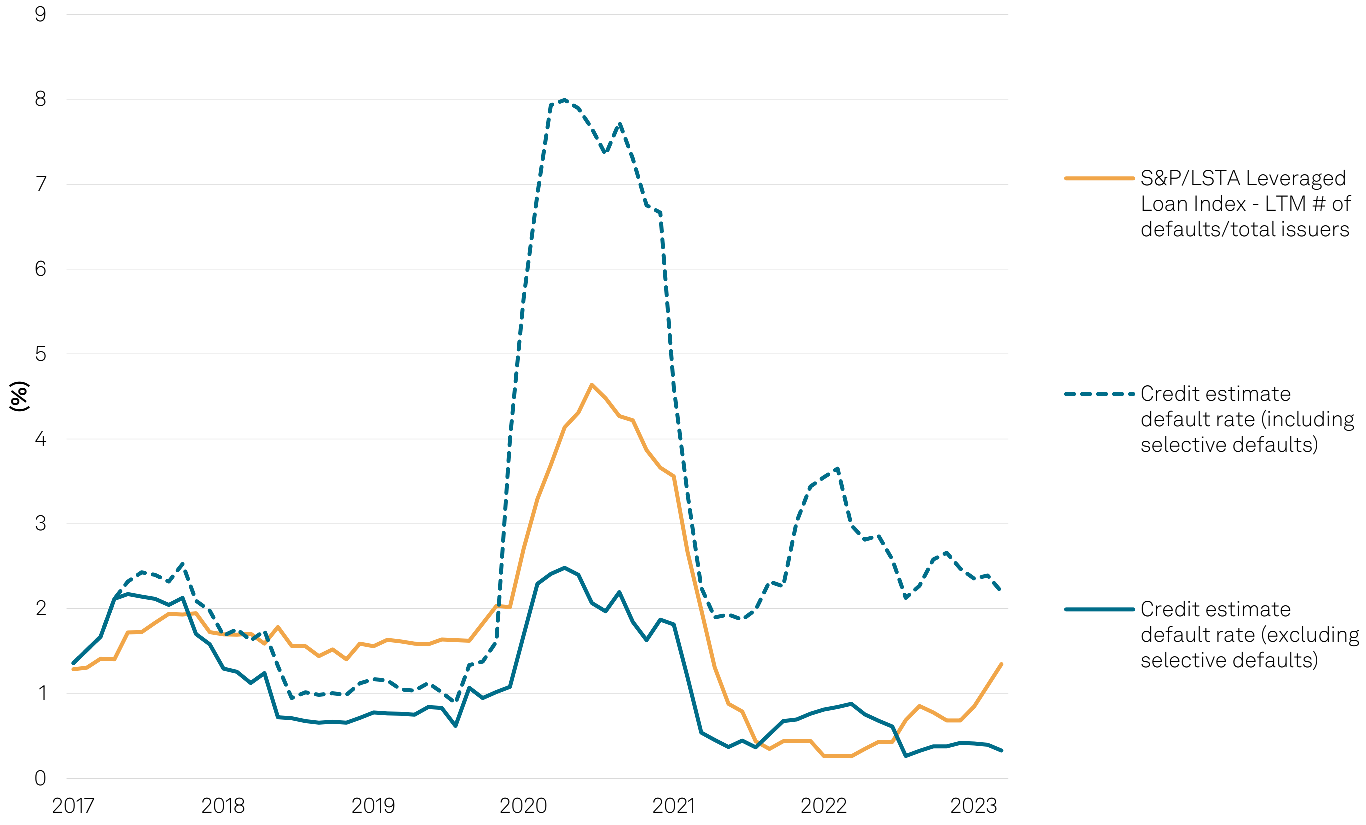


*Covers all outstanding S&P Global Ratings U.S. credit estimates, including estimates for obligors not currently held within a CLO transaction. CLO--Collateralized loan obligation.
Source: S&P Global Ratings.

- 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 $35 million, and the median adjusted debt was about $235 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 | Default Rate Comparison

One-year lagging default rate: credit estimates vs. LSTA index



Source: S&P Global Ratings.

- After dipping to 0.26% in April, the Morningstar LSTA Leveraged Loan Index default rate (yellow line) among rated issuers increased to 1.35% in March, the highest in over two years.
- 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. However, it has started picking up again given the credit conditions.
- 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.
- From 2020 through third-quarter 2021, conventional defaults among credit-estimated obligors were significantly lower than conventional defaults among rated BSL loan issuers, partly due to amendments and other actions that averted payment defaults.
- This raised the level of selective defaults among credit-estimated issuers while decreasing the level of payment defaults.

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)	Non-performing (%)(i)	SPWARF	Jr. O/C test cushion (%)	Current par (% target par)
Jan. 1, 2022	71.75	10.15	8.86	0.30	3858	6.63	100.76
Feb. 1, 2022	70.54	9.54	10.05	0.23	3870	6.71	100.81
March 1, 2022	71.75	9.06	8.97	0.27	3842	6.90	100.86
April 1, 2022	70.66	9.10	9.80	0.26	3856	6.93	100.90
May 1, 2022	73.04	8.92	7.45	0.35	3812	6.83	100.97
June 1, 2022	73.09	9.22	7.12	0.31	3805	6.96	101.00
July 1, 2022	74.19	9.12	7.16	0.37	3819	7.01	101.05
Aug. 1, 2022	73.61	8.80	8.27	0.32	3840	7.03	101.08
Sept. 1, 2022	73.02	9.06	8.10	0.26	3829	7.02	101.12
Oct. 1, 2022	73.59	9.00	7.74	0.24	3824	7.06	101.16
Nov. 1, 2022	73.72	9.54	7.30	0.22	3827	7.14	101.18
Dec. 1, 2022	73.51	9.82	7.13	0.22	3822	7.13	101.18
Jan. 1, 2023	73.71	10.28	6.40	0.21	3813	7.08	101.23
Feb. 1, 2023(ii)	73.45	10.69	6.33	0.35	3829	7.13	101.22
March 1, 2023(ii)	72.76	10.55	6.92	0.38	3839	7.14	101.18
April 1, 2023(ii)	73.60	10.30	6.61	0.27	3827	7.23	101.27

(i)By par amount as proportion of total CLO collateral. (ii)A handful of transactions have dropped off this index for the calculation of February 2023, March 2023, and April 2023 metrics as they have exited the reinvestment period in 2023. CLO--Collateral loan obligation. CE--Credit enhancement. O/C--Overcollateralization. SPWARF-S&P Global Ratings' weighted average rating factor.-Source: S&P Global Ratings.

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

U.S. BSL CLO and middle-market CLO rating changes (2020-Q1 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	Total
BSL CLOs	3,786	Downgrades		19	464	10	4	7	2	4	5	1	3	3	7	**529**
		Upgrades			5	5		17	23	200	4	70	2	3	2	**331**
MM CLOs	553	Downgrades			7											**7**
		Upgrades							2	13	2	5	2	2		**26**

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.

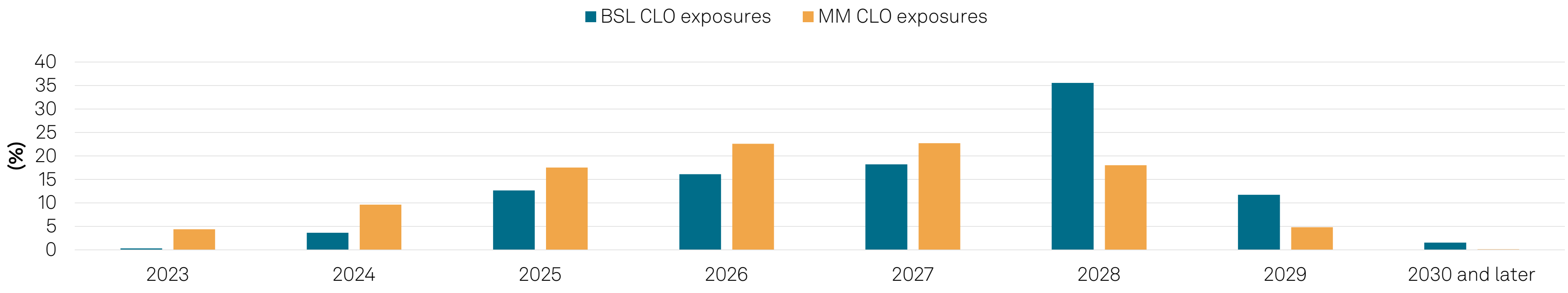
2) **Fewer loan payment defaults:** In 2020, parties to middle-market loan agreements were able to amend loan terms in ways that avoided payment defaults and bankruptcy. This took different forms: rolling scheduled amortization into the final bullet, allowing a company to PIK upcoming interest payments, 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 on these loans (see slide 10).

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.

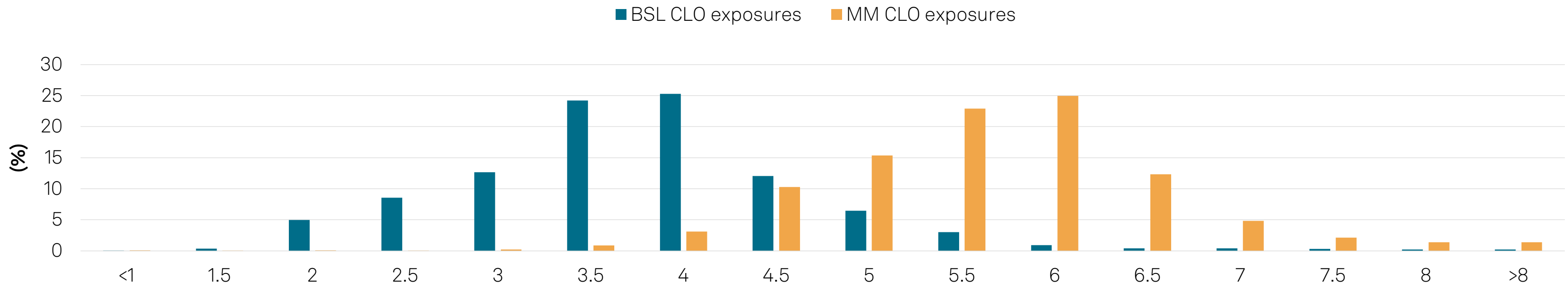
Middle-Market CLOs | Maturity Wall And Loan Spreads Vs. BSL CLO Assets

BSL CLO vs. MM CLO loan maturity wall



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

BSL CLO vs. MM CLO loan spreads

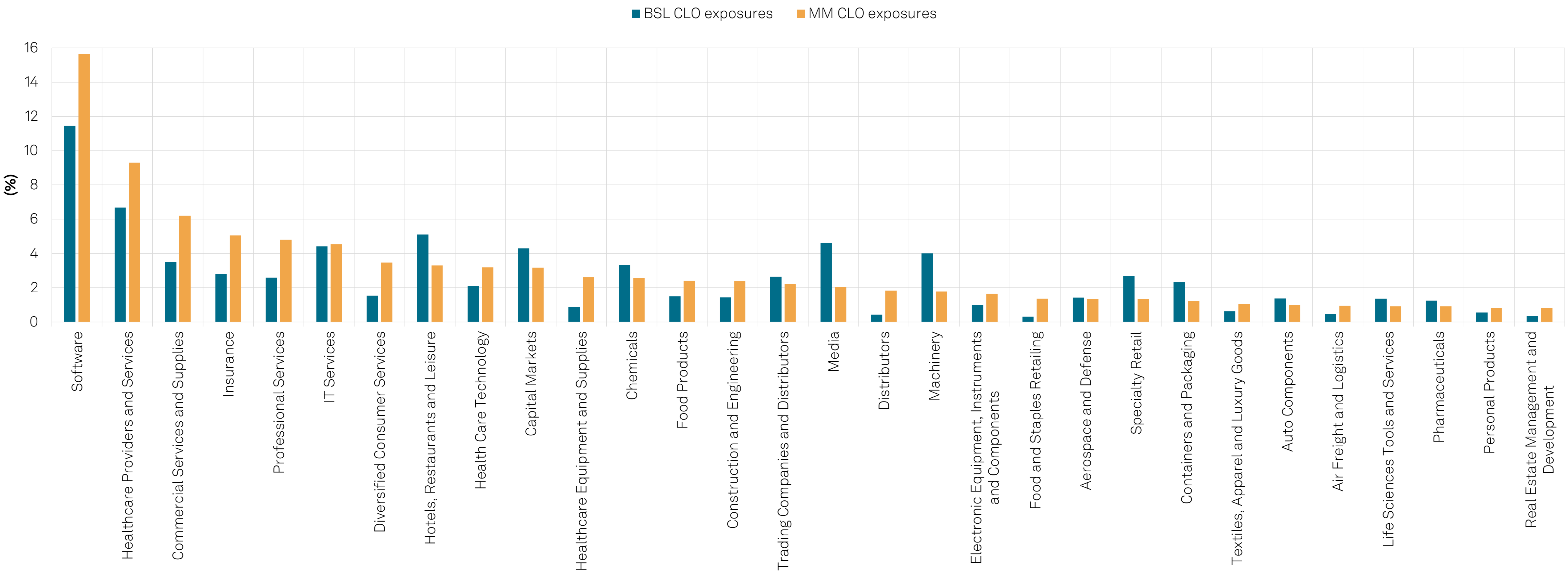


MM--Middle market. BSL--Broadly syndicated loan. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

- The maturity wall for loans within BSL CLOs is pushed out considerably further than for the loans within middle-market (MM) CLO transactions.
- Spreads above LIBOR/secured overnight financing rate (SOFR) are higher for loans in MM CLOs by an average of about 1.9% compared to loans in BSL CLO transactions.
- Credit spreads widened for both MM and BSL new issue loans starting in late first-quarter 2022 for BSL loans and third-quarter 2022 for MM loans.
- For MM CLO loans, roughly half of the 2023 maturities are credit estimated 'ccc+' or below.

Middle-Market CLOs | Software And Healthcare Are Largest Industries

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

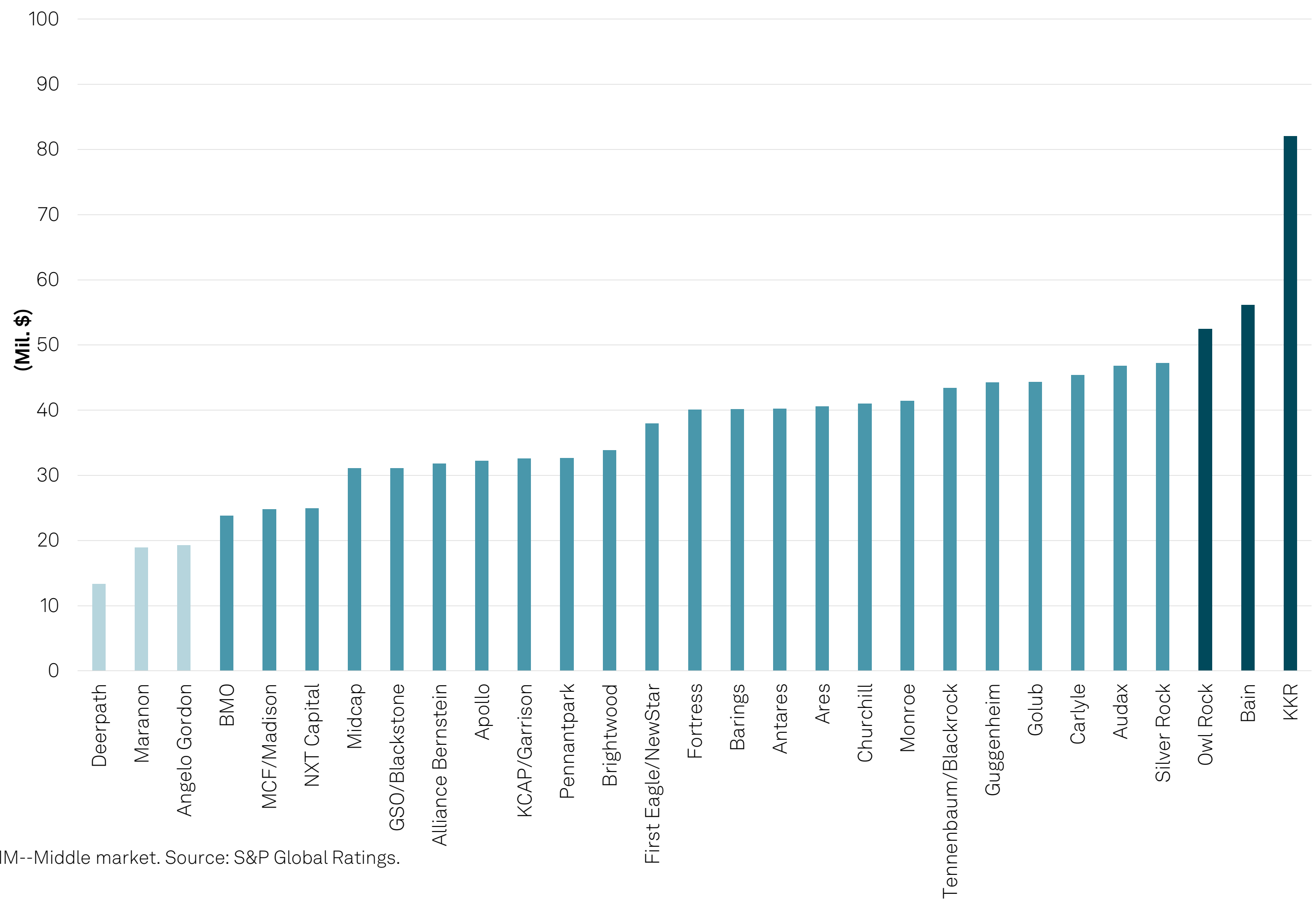


MM--Middle market. BSL--Broadly syndicated loan. CLO--Collateralized loan obligation. Source: S&P Global Ratings.

S&P Global Ratings

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 1,600 issuers with loans held across the MM CLOs we rate, about the same number of obligors with loans held across 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 | First-Quarter 2023 Middle-Market Manager Metrics

Manager	Largest GIC Industry	Largest GICS industry (%)	No. of GICS Industries	Largest issuer exposure (%)	No. of issuers	DG:UG ratio in Q1 2023(i)	Credit estimated issuers (%)	Median EBITDA of CE Issuers	SPWARF (ii)	WAS (%)	WAM	% of MM CLO assets unique to manager	Manager with largest overlap	Proportion overlap (%)
Alliance Bernstein	Software	32.13	24	1.97	132	4:2	89.60	31.81	3880	5.66	3.81	47.21	Ares	5.74
Angelo Gordon/Twin Brook	Healthcare providers and services	18.30	28	2.14	75	1:1	89.75	19.33	3900	5.81	2.44	79.53	Midcap	3.09
Antares	Healthcare providers and services	11.55	45	0.86	285	8:4	88.97	40.22	3767	5.16	3.28	31.35	Churchill	12.49
Apollo	Professional services	16.78	15	5.64	25	0:0	81.98	32.24	3954	5.53	4.14	21.97	Midcap	8.49
Ares	Software	15.67	40	1.86	226	5:2	59.13	40.54	3743	5.28	3.68	28.98	Audax	12.07
Audax	Software	16.65	39	1.09	246	9:2	14.45	46.81	3548	4.45	4.20	28.86	Monroe	14.67
Bain	Professional services	12.75	25	3.29	42	1:0	91.27	56.11	3904	6.03	3.62	43.96	Antares	5.85
Barings	Software	17.69	39	2.46	136	6:2	82.46	40.16	3677	5.26	3.63	36.17	Churchill	10.14
BMO	Healthcare providers and services	15.89	42	1.72	154	2:0	84.60	23.84	3992	5.12	3.21	48.96	Antares	7.35
Brightwood	Healthcare providers and services	21.70	25	4.69	61	2:1	84.64	33.87	3556	6.38	3.15	70.01	KCAP/Garrison	4.27
Carlyle	Software	11.44	27	3.30	65	2:1	81.69	45.40	3866	6.14	3.90	20.36	KKR	5.60
Churchill	Healthcare providers and services	9.25	45	1.38	215	3:2	76.47	40.99	3796	5.18	3.93	27.93	Antares	12.49
Deerpath	Healthcare providers and services	22.94	39	2.22	139	6:1	81.02	13.33	3847	5.65	3.14	71.66	BMO	5.01
First Eagle/NewStar	Healthcare providers and services	14.74	50	2.30	197	7:4	63.78	37.97	3741	5.54	3.65	39.25	Antares	6.43
Fortress	Hotels, restaurants and leisure	12.93	42	4.35	137	4:2	63.50	40.09	3794	6.57	3.62	59.68	Silver Rock	6.92
Golub	Software	24.87	44	1.53	273	3:1	87.95	44.32	3897	5.68	3.73	54.42	Antares	8.03
GSO/Blackstone	Hotels, restaurants, and leisure	17.69	19	9.45	30	2:1	44.17	31.14	3868	5.20	2.43	29.32	First Eagle/NewStar	3.11
Guggenheim	Software	11.92	44	3.09	138	4:4	44.96	44.28	3888	5.07	4.08	33.87	Ares	7.74
KCAP/Garrison	Software	18.62	42	2.60	128	5:7	47.02	32.60	3862	5.57	3.61	22.53	Ares	8.80
KKR	Healthcare providers and services	13.04	25	3.46	66	0:1	74.63	82.02	4045	6.10	4.37	44.38	Golub	7.61
Maranon	Commercial services and supplies	9.12	31	2.35	103	2:0	92.11	18.93	3790	5.56	3.25	52.24	MCF/Apogem	6.35
MCF/Apogem	Healthcare providers and services	11.64	43	1.67	203	2:6	91.70	24.83	3711	5.20	3.53	36.90	Ares	9.16
Midcap	Healthcare providers and services	9.37	46	1.73	207	4:1	89.36	31.10	3875	5.74	3.56	40.50	Apollo	8.49
Monroe	Software	16.14	37	1.24	131	4:2	33.12	41.40	3599	4.90	4.50	28.17	Audax	14.67
NXT Capital	Healthcare providers and services	15.41	30	2.20	102	3:1	91.27	24.98	3926	5.21	3.23	34.3	Antares	9.39
Owl Rock	Software	20.76	40	3.90	159	3:3	83.63	52.46	3699	5.87	3.88	18.26	Antares	8.33
Pennantpark	Media	10.93	34	2.15	109	2:1	80.94	32.61	3790	5.88	3.22	43.72	First Eagle/NewStar	6.28
Silver Rock	Commercial services and supplies	11.30	30	3.12	44	0:1	54.31	47.24	3744	6.77	3.53	57.64	Fortress	6.92
Tennenbaum/Blackrock	Software	26.12	43	1.44	177	3:1	74.42	43.47	3783	5.73	4.14	31.64	Ares	9.39

(i)Based on Q4 2022 exposure to companies with ratings/credit estimates raised & lowered in Q1 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: First-Quarter 2023 Asset Overlap By Manager

(%)	Alliance Bernstein	Angelo Gordon/ Twin Brook	Antares	Apollo	Ares	Audax	Bain	Barings	BMO	Brightwood	Carlyle	Churchill	Deerpath	First Eagle/ NewStar	Fortress	Golub	GSO/Blackstone	Guggenheim	KCAP/Garrison	KKR	Maranon	MCF/Apogem	Midcap	Monroe	NXT Capital	Owl Rock	Pennantpark	Silver Rock	Tennenbaum/ Blackrock
Alliance Bernstein		0.00	2.59	0.00	5.74	0.88	1.76	1.39	1.36	0.86	3.66	2.28	1.57	0.00	3.02	5.65	0.30	1.83	4.74	3.22	1.52	3.85	4.86	1.26	2.76	3.44	1.59	2.05	4.65
Angelo Gordon/ Twin Brook	0.00		0.23	0.00	0.23	0.00	0.00	0.13	2.14	0.00	0.00	0.48	0.00	1.07	0.00	0.00	0.69	0.00	0.00	0.00	1.33	0.25	3.09	0.00	0.33	0.00	0.25	0.00	0.00
Antares	2.59	0.23		0.00	8.84	5.04	5.85	10.04	7.35	0.97	3.08	12.49	1.40	6.43	1.58	8.03	0.30	2.63	3.83	3.49	5.06	8.49	4.51	2.98	9.39	8.33	4.98	0.77	7.10
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	2.10	0.00	0.00	2.52	0.00	0.73	0.00	0.00	0.79	8.49	0.54	0.00	0.00	2.64	0.00	0.00
Ares	5.74	0.23	8.84	0.00		12.07	1.82	4.78	2.18	0.52	2.18	6.46	0.31	3.24	2.76	7.76	1.77	7.74	8.80	6.05	2.41	9.16	4.97	8.91	1.46	5.28	1.30	0.00	9.39
Audax	0.88	0.00	5.04	0.00	12.07		1.55	1.94	0.63	0.47	2.27	9.11	3.66	4.69	3.01	1.16	0.80	5.46	8.17	0.22	2.17	3.84	0.45	14.67	0.45	4.03	3.41	0.00	3.71
Bain	1.76	0.00	5.85	0.00	1.82	1.55		2.23	0.00	0.00	0.00	2.25	0.00	4.49	1.44	1.68	0.00	0.00	0.89	0.00	0.00	0.59	0.33	0.55	2.96	3.55	1.58	0.00	3.11
Barings	1.39	0.13	10.04	0.06	4.78	1.94	2.23		5.45	1.51	2.78	10.14	0.38	5.71	0.99	0.66	1.80	1.85	2.51	1.79	3.07	2.47	5.06	5.13	6.92	1.40	3.35	1.48	2.57
BMO	1.36	2.14	7.35	0.00	2.18	0.63	0.00	5.45		1.05	0.64	1.71	5.01	2.02	0.00	0.53	0.36	1.54	5.75	0.00	5.57	3.30	4.40	0.94	5.80	0.91	0.83	1.24	0.00
Brightwood	0.86	0.00	0.97	0.00	0.52	0.47	0.00	1.51	1.05		0.49	1.29	0.00	1.20	1.23	0.95	0.00	0.00	4.27	0.83	0.00	0.46	1.39	0.90	0.00	0.35	1.78	2.91	3.14
Carlyle	3.66	0.00	3.08	0.00	2.18	2.27	0.00	2.78	0.64	0.49		1.91	0.00	4.60	0.48	1.05	1.44	3.13	2.42	5.60	0.00	2.63	3.40	1.74	0.00	4.80	2.71	4.18	1.93
Churchill	2.28	0.48	12.49	0.00	6.46	9.11	2.25	10.14	1.71	1.29	1.91		1.41	5.41	0.57	4.70	1.51	2.35	4.87	1.54	4.09	7.02	4.02	10.15	3.15	3.36	2.57	0.00	6.59
Deerpath	1.57	0.00	1.40	0.00	0.31	3.66	0.00	0.38	5.01	0.00	0.00	1.41		1.61	0.53	0.15	0.46	0.04	2.87	0.00	0.00	0.98	0.00	1.47	1.21	0.81	1.92	0.00	0.00
First Eagle/NewStar	0.00	1.07	6.43	2.10	3.24	4.69	4.49	5.71	2.02	1.20	4.60	5.41	1.61		3.31	1.29	3.11	5.19	5.52	0.00	2.26	4.97	4.92	5.53	4.35	0.83	6.28	0.00	5.79
Fortress	3.02	0.00	1.58	0.00	2.76	3.01	1.44	0.99	0.00	1.23	0.48	0.57	0.53	3.31		1.23	0.13	3.40	4.34	1.02	0.00	0.00	1.89	0.93	1.26	3.76	1.08	6.92	4.12
Golub	5.65	0.00	8.03	0.00	7.76	1.16	1.68	0.66	0.53	0.95	1.05	4.70	0.15	1.29	1.23		0.12	1.17	3.80	7.61	0.92	3.37	1.31	0.46	2.18	6.58	0.60	0.13	7.68
GSO/Blackstone	0.30	0.69	0.30	2.52	1.77	0.80	0.00	1.80	0.36	0.00	1.44	1.51	0.46	3.11	0.13	0.12		0.32	2.24	0.00	1.44	0.55	2.04	0.65	0.48	0.00	1.62	0.00	0.00
Guggenheim	1.83	0.00	2.63	0.00	7.74	5.46	0.00	1.85	1.54	0.00	3.13	2.35	0.04	5.19	3.40	1.17	0.32		4.28	2.26	1.53	0.11	1.75	6.88	0.00	5.05	2.03	1.51	7.19
KCAP/Garrison	4.74	0.00	3.83	0.73	8.80	8.17	0.89	2.51	5.75	4.27	2.42	4.87	2.87	5.52	4.34	3.80	2.24	4.28		0.00	1.79	0.30	3.99	5.27	1.62	1.07	6.22	1.00	4.18
KKR	3.22	0.00	3.49	0.00	6.05	0.22	0.00	1.79	0.00	0.83	5.60	1.54	0.00	0.00	1.02	7.61	0.00	2.26	0.00		1.06	1.47	2.81	2.17	1.43	4.12	0.00	0.00	6.86
Maranon	1.52	1.33	5.06	0.00	2.41	2.17	0.00	3.07	5.57	0.00	0.00	4.09	0.00	2.26	0.00	0.92	1.44	1.53	1.79	1.06		6.35	2.85	0.44	4.79	0.89	2.25	0.00	4.18
MCF/Apogem	3.85	0.25	8.49	0.79	9.16	3.84	0.59	2.47	3.30	0.46	2.63	7.02	0.98	4.97	0.00	3.37	0.55	0.11	0.30	1.47	6.35		7.32	1.57	6.81	2.40	3.19	0.53	3.53
Midcap	4.86	3.09	4.51	8.49	4.97	0.45	0.33	5.06	4.40	1.39	3.40	4.02	0.00	4.92	1.89	1.31	2.04	1.75	3.99	2.81	2.85	7.32		3.34	3.82	0.10	2.88	0.00	3.51
Monroe	1.26	0.00	2.98	0.54	8.91	14.67	0.55	5.13	0.94	0.90	1.74	10.15	1.47	5.53	0.93	0.46	0.65	6.88	5.27	2.17	0.44	1.57	3.34		1.11	1.79	2.05	1.08	6.54
NXT Capital	2.76	0.33	9.39	0.00	1.46	0.45	2.96	6.92	5.80	0.00	0.00	3.15	1.21	4.35	1.26	2.18	0.48	0.00	1.62	1.43	4.79	6.81	3.82	1.11		3.29	5.03	0.00	2.29
Owl Rock	3.44	0.00	8.33	0.00	5.28	4.03	3.55	1.40	0.91	0.35	4.80	3.36	0.81	0.83	3.76	6.58	0.00	5.05	1.07	4.12	0.89	2.40	0.10	1.79	3.29		2.80	0.00	6.42
Pennantpark	1.59	0.25	4.98	2.64	1.30	3.41	1.58	3.35	0.83	1.78	2.71	2.57	1.92	6.28	1.08	0.60	1.62	2.03	6.22	0.00	2.25	3.19	2.88	2.05	5.03	2.80		2.33	5.53
Silver Rock	2.05	0.00	0.77	0.00	0.00	0.00	0.00	1.48	1.24	2.91	4.18	0.00	0.00	0.00	6.92	0.13	0.00	1.51	1.00	0.00	0.00	0.53	0.00	1.08	0.00	0.00	2.33		4.91
Tennenbaum/ Blackrock	4.65	0.00	7.10	0.00	9.39	3.71	3.11	2.57	0.00	3.14	1.93	6.59	0.00	5.79	4.12	7.68	0.00	7.19	4.18	6.86	4.18	3.53	3.51	6.54	2.29	6.42	5.53	4.91	

Source: S&P Global Ratings.

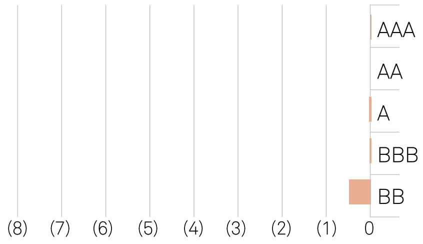
Middle-Market CLOs | Top 30 Obligors Held By More Than Two Managers

#	Company	Manager count (no.)	Total par ($)	GICS Industry
1	ALERA GROUP HOLDINGS, INC.	9	368,978,970	Insurance
2	DRILLING INFO, INC.	9	322,366,737	Software
3	RSC INSURANCE BROKERAGE, INC	8	448,024,206	Insurance
4	Edgewood Partners Holdings, LLC	7	387,040,835	Insurance
5	HIG Holdings, Inc.	7	139,507,319	Insurance
6	INTEGRITY MARKETING ACQUISITION, LLC	6	316,826,912	Insurance
7	PC FOY HOLDINGS, LLC	6	181,916,357	Insurance
8	IG Investments Holdings LLC	6	175,310,138	IT Services
9	ALPINE ACQUISITION CORP. II	6	165,356,648	Commercial services and supplies
10	WEG HOLDINGS, LLC	6	153,466,563	Capital markets
11	CM GROUP LTD.	6	134,697,176	IT services
12	ARCH GLOBAL PRECISION, LLC	6	131,069,829	Machinery
13	OMNI PARENT, LLC	6	114,923,233	Transportation infrastructure
14	ULTIMATE BAKED GOODS INTERMEDIATE LLC	6	112,124,484	Food and staples retailing
15	PEACH STATE LABS, LLC	6	32,394,080	Chemicals
16	GS INTERMEDIATE, INC.	5	385,993,247	Software
17	DILIGENT CORPORATION	5	327,221,682	Software
18	MRI Intermediate Holdings LLC	5	202,839,299	Software
19	OHIO TRANSMISSION CORPORATION	5	199,162,447	Trading companies and distributors
20	LONG'S DRUGS INCORPORATED	5	162,100,014	Food and staples retailing
21	RHODE HOLDINGS INC.	5	142,756,498	Software
22	TL LIGHTING HOLDINGS, LLC	5	134,811,432	Auto components
23	ECMI HOLDINGS, LLC	5	130,336,170	Construction materials
24	AWP HOLDING COMPANY	5	126,742,309	Commercial services and supplies
25	PROCARE SOFTWARE HOLDINGS, LLC	5	119,675,298	Software
26	RN ENTERPRISES, LLC	5	101,573,579	Health care technology
27	Bright Now! Dental Inc.	5	97,049,144	Healthcare providers and services
28	MID ATLANTIC CAPITAL GROUP, INC.	5	95,264,666	Capital markets
29	BADGER SPORTSWEAR INTERMEDIARY, LLC	5	82,284,156	Textiles, apparel, and luxury goods
30	FINELINE TECHNOLOGIES	5	78,849,405	Commercial services and supplies

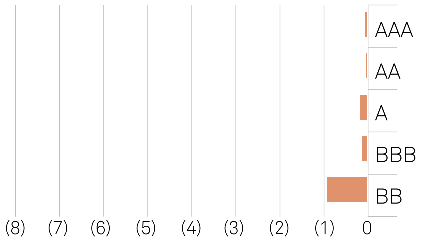
Source: S&P Global Ratings.

- There are about 1,600 credit-estimated issuers with loans in our rated MM CLO transactions, about the same number of obligors contained in our rated BSL CLOs.
- Compared to the obligors in BSL CLOs, there is far less overlap in MM CLOs; for example, the most widely held obligor in BSL CLOs is held by nearly every CLO manager, while the top obligor in MM CLOs is held by just nine managers.
- The list of obligors on this slide is based off the most recent trustee reports we have received for MM CLOs and represents the top 30 obligors held by multiple managers.
- The par amount given in the table is the total exposure across S&P Global Ratings-rated middle-market CLOs.
- Several of the most widely names have changed since the end of fourth-quarter 2022, with several insurance brokerages moving up in the rankings.

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

Scenario		Impact on CLO	Model Determined Impact - Average Notch Downgrade
10% Default Scenario	10% of performing assets within each MM portfolio defaults with 50% recovery	5% par loss within all MM portfolios	

CLO tranche rating	0	-1	-2	-3	-4	-5	-6	-7 or more	WA notches	Spec.-grade	'CCC' category	Below 'CCC-'
AAA	98.1%	1.9%							0.02			
AA	100.0%								0.00			
A	95.1%	4.9%							0.05			
BBB	95.6%	4.4%							0.04	4.4%		
BB	88.9%	2.8%		2.8%				5.6%	0.50	100.0%		5.6%

Scenario		Impact on CLO	Model Determined Impact - Average Notch Downgrade
15% Default Scenario	15% of performing assets within each MM portfolio defaults with 50% recovery	7.5% par loss within all MM portfolios	

CLO tranche rating	0	-1	-2	-3	-4	-5	-6	-7 or more	WA notches	Spec.-grade	'CCC' category	Below 'CCC-'
AAA	95.0%	5.0%							0.05			
AA	98.0%	2.0%							0.02			
A	88.9%	6.2%	4.9%						0.16			
BBB	91.2%	7.4%		1.5%					0.12	5.9%		
BB	66.7%	16.7%	5.6%		2.8%			8.3%	0.97	100.0%	2.8%	8.3%

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

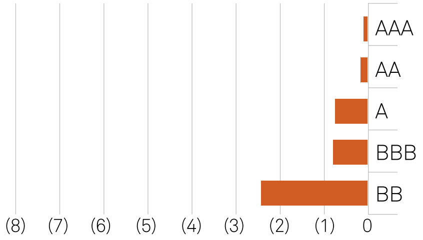
- We applied a series of five hypothetical stress scenarios to a sample of 65 of our rated middle-market CLO transactions still within their reinvestment periods, generating quantitative analysis for each one using our CLO rating models (CDO Evaluator and S&P Cash Flow Evaluator).
- The first four scenarios feature increasing levels of collateral default stress, while the fifth scenario assumes that all 'ccc' category obligors default with a 50% recovery and all 'b-' obligors are lowered to a rating of 'ccc+'.
- 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?

20% Default Scenario

20% of performing assets within each MM portfolio defaults with 50% recovery

10% par loss within all MM portfolios

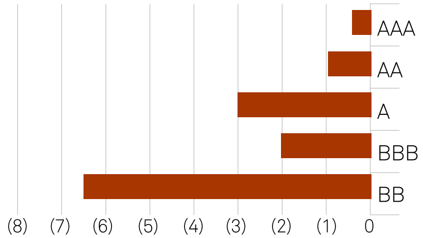


CLO tranche rating	0 (%)	-1 (%)	-2 (%)	-3 (%)	-4 (%)	-5 (%)	-6 (%)	-7 or more (%)	WA notches	Spec.-grade (%)	'CCC' category (%)	Below 'CCC-' (%)
AAA	90.6	9.4							0.09			
AA	89.1	6.9	4.0						0.15			
A	53.1	27.2	16.0	1.2	2.5				0.73	1.2		
BBB	36.8	54.4	5.9		2.9				0.78	57.4		
BB	16.7	27.8	19.4	8.3	11.1	5.6		11.1	2.42	100.0	11.1	11.1

30% Default Scenario

30% of performing assets within each MM portfolio defaults with 50% recovery

15% par loss within all MM portfolios



CLO tranche rating	0 (%)	-1 (%)	-2 (%)	-3 (%)	-4 (%)	-5 (%)	-6 (%)	-7 or more (%)	WA notches	Spec.-grade (%)	'CCC' category (%)	Below 'CCC-' (%)
AAA	57.5	40.6	1.9						0.44			
AA	41.6	28.7	23.8	1.0	5.0				0.99			
A	2.5	6.2	25.9	27.2	25.9	12.3			3.05	17.3		
BBB	2.9	51.5	20.6	11.8	7.4	1.5		4.4	2.06	97.1	1.5	2.9
BB		8.3			2.8	2.8		86.1	6.56	100.0	5.6	86.1

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, more than 98% of the CLO 'AAA' ratings either remain 'AAA' or are downgraded one notch to 'AA+', and none are lowered by more than two notches (i.e., below 'AA').
- 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), the average MM CLO 'BBB' tranche rating was lowered by slightly more than two notches, 1.5% of the CLO ratings were lowered into the 'CCC' range, and 2.9% of the CLO tranches defaulted.

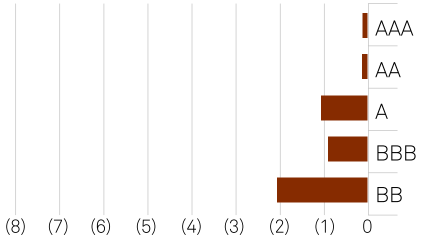
S&P Global Ratings

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

'CCC' Default/'B-' Downgrade Scenario

All current 'CCC' category exposures (16.7% on average) default with 50% recovery; all current 'B-' exposures (71.4% on average) experience downgrade to 'CCC+'

Par loss of 8.4% on average; 71.4% of portfolio get downgraded into 'CCC' bucket



CLO tranche rating	0 (%)	-1 (%)	-2 (%)	-3 (%)	-4 (%)	-5 (%)	-6 (%)	-7 or more (%)	WA notches	Spec.-grade (%)	'CCC' category (%)	Below 'CCC-' (%)
AAA	88.8	11.3							0.11			
AA	92.1	4.0	4.0						0.12			
A	43.2	19.8	29.6	3.7	2.5	1.2			1.06	1.2		
BBB	30.9	55.9	7.4	4.4	1.5				0.90	69.1		
BB	36.1	22.2	13.9	5.6	5.6			16.7	2.06	100.0	5.6	16.7

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

- In contrast to the four previous scenarios, each of which envisioned a set proportion of CLO collateral defaulting, our fifth scenario starts with the credit estimates.
- In this scenario, we assume that every company with a credit estimate in the 'ccc' range experiences a default, and every company with a credit estimate of 'b-' is lowered to 'ccc+'.
- This led to an assumed 16.7% of MM CLO collateral defaulting, and another 71.4% being lowered to a credit estimate of 'ccc+' from 'b-'.
- As with the other scenarios, the senior CLO tranche ratings showed only modest movement under this stress, with the impact increasing on lower-rated CLO tranches.

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	About 98% of credit estimates are 'b-' or lower	About 36% of rated issuers in BSL CLOs are 'B-' or lower by par amount
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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