# Middle-Market CLO And Private Credit Quarterly:
## Calm Amidst The Storm?

Q4 2022

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*This report does not constitute a rating action.*

# Middle-Market Lending Key Takeaways

- Select sectors are benefiting from the tailwinds of COVID-19 recovery even in the face of macro issues like inflation and rate hikes. Credit estimate upgrades continue to outpace downgrades by a ratio of 1.57 to 1 this year (year-to-date [YTD] through Q3) compared to 1.3 to 1 for all of 2021. Improved earnings and better balance sheets have seen many middle-market companies become candidates for upgrades.
- Despite the upgrades, the slowdown in economic growth, coupled with inflationary pressures and rising interest rates--and the consequent pressure on margins--could weigh heavily on companies with high leverage and low interest coverage ratios.
- Among rated loan issuers, we expect the trailing-12-month Leveraged Loan Index default rate to more than double to 2.0% by June 2023 under our base case, still under the long-term historical average rate of 2.5%. Under our pessimistic case, we think defaults could increase to 4.25% over the same period.
- From 2020 through third-quarter 2021, conventional defaults among credit estimated obligors were significantly lower than conventional defaults among rated broadly syndicated loan (BSL) loan issuers, partly due to many amendments and other actions on middle-market loans that averted payment defaults.
- This had the effect of raising the level of selective defaults among these issuers while decreasing the level of payment defaults (see slide 9).

**Key Risks**

- S&P Global Ratings forecasts a mild recession for the U.S. in 2023. We have lowered our GDP forecasts to 1.6% for 2022 and 0.2% for 2023.
- Cost inflation, supply issues, and labor constraints leading to margin compression could result in a pickup in credit estimate downgrades later this year and in 2023.
- With worsening macroeconomic conditions, we also expect selective defaults to again rise among credit estimated obligors.

# Credit Estimates | Median Leverage And Interest Coverage By Sector

## S&P Calculated Leverage (Excluding Preferred Shares) For 10 Highest Leverage Sectors

| Industry | Median of debt/EBITDA (x) |
|---|---|
| Real estate management and development | 12.70 |
| Road and rail | 10.25 |
| Internet software and services | 8.46 |
| Software | 8.00 |
| Household products | 7.80 |
| Food products | 7.77 |
| Aerospace and defense | 7.56 |
| Textiles, apparel, and luxury goods | 7.52 |
| Insurance | 7.37 |
| Wireless telecommunication services | 7.15 |

Source: S&P Global Ratings.

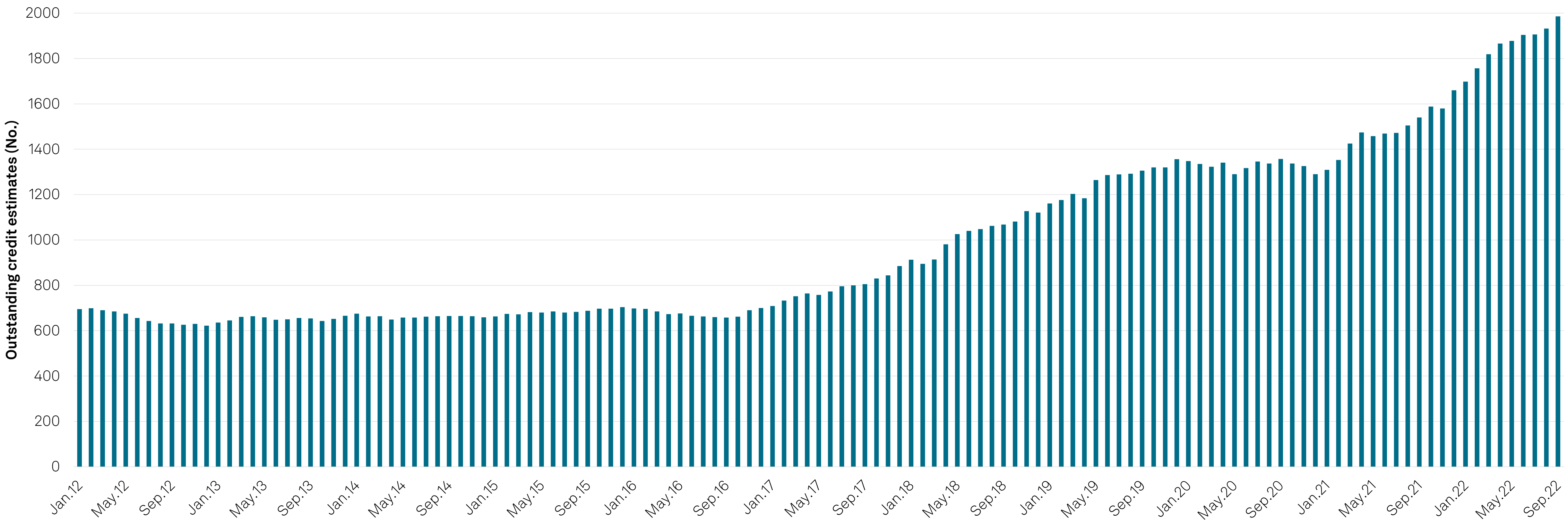
## S&P Calculated Interest Coverage For 10 Lowest Interest Coverage Sectors

| Industry | Median interest coverage (x) |
|---|---|
| Real estate management and development | 1.15 |
| Road and rail | 1.24 |
| Internet software and services | 1.27 |
| Wireless telecommunication services | 1.30 |
| Software | 1.35 |
| Aerospace and defense | 1.36 |
| Health care technology | 1.52 |
| Food products | 1.61 |
| Textiles, apparel, and luxury goods | 1.78 |
| Life sciences tools and services | 1.86 |

Source: S&P Global Ratings.

# Middle-Market CLOs | Growth In Outstanding Credit Estimates

## Number Of Outstanding S&P Credit Estimates (2012 – Q3 2022)




Source: S&P Global Ratings.

# Middle-Market CLOs | Credit Estimate Score Distribution

## Overall Credit Estimate Distribution By Issuer Count*

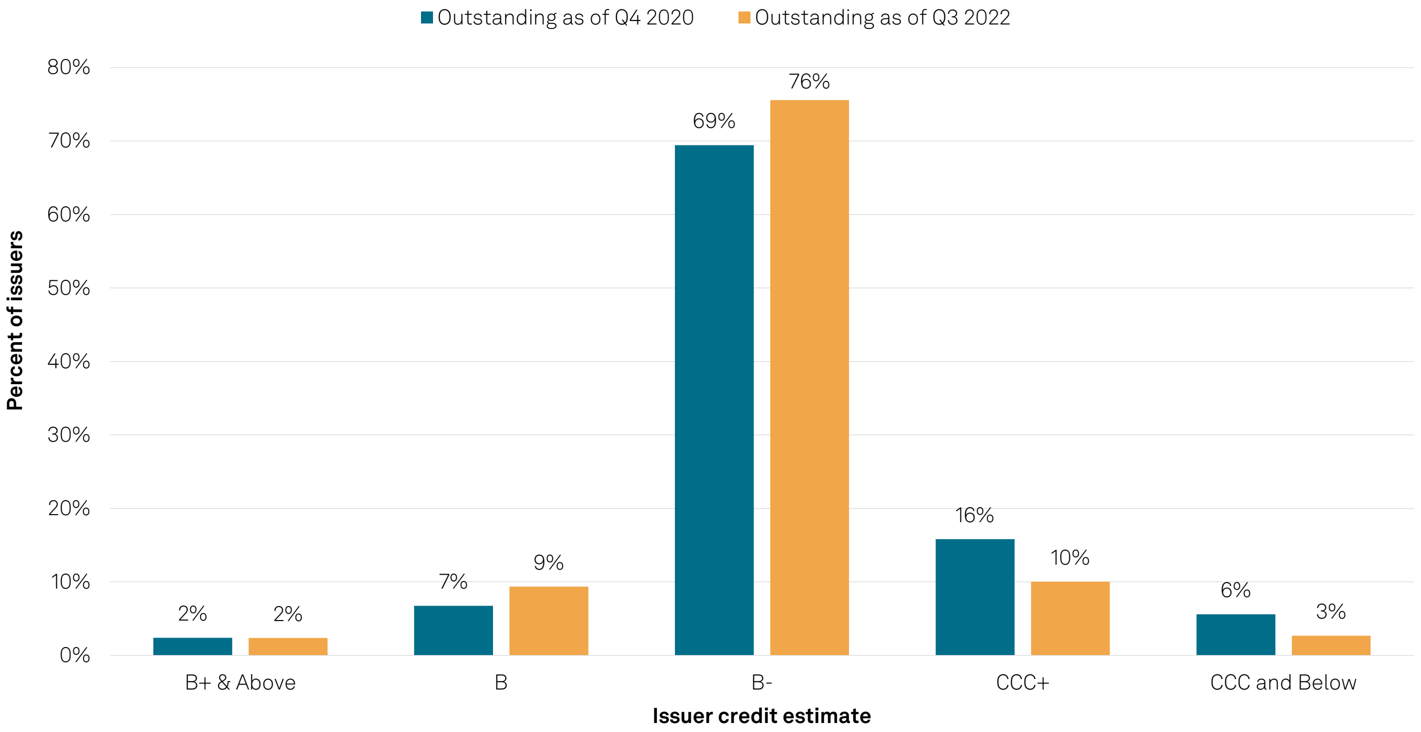


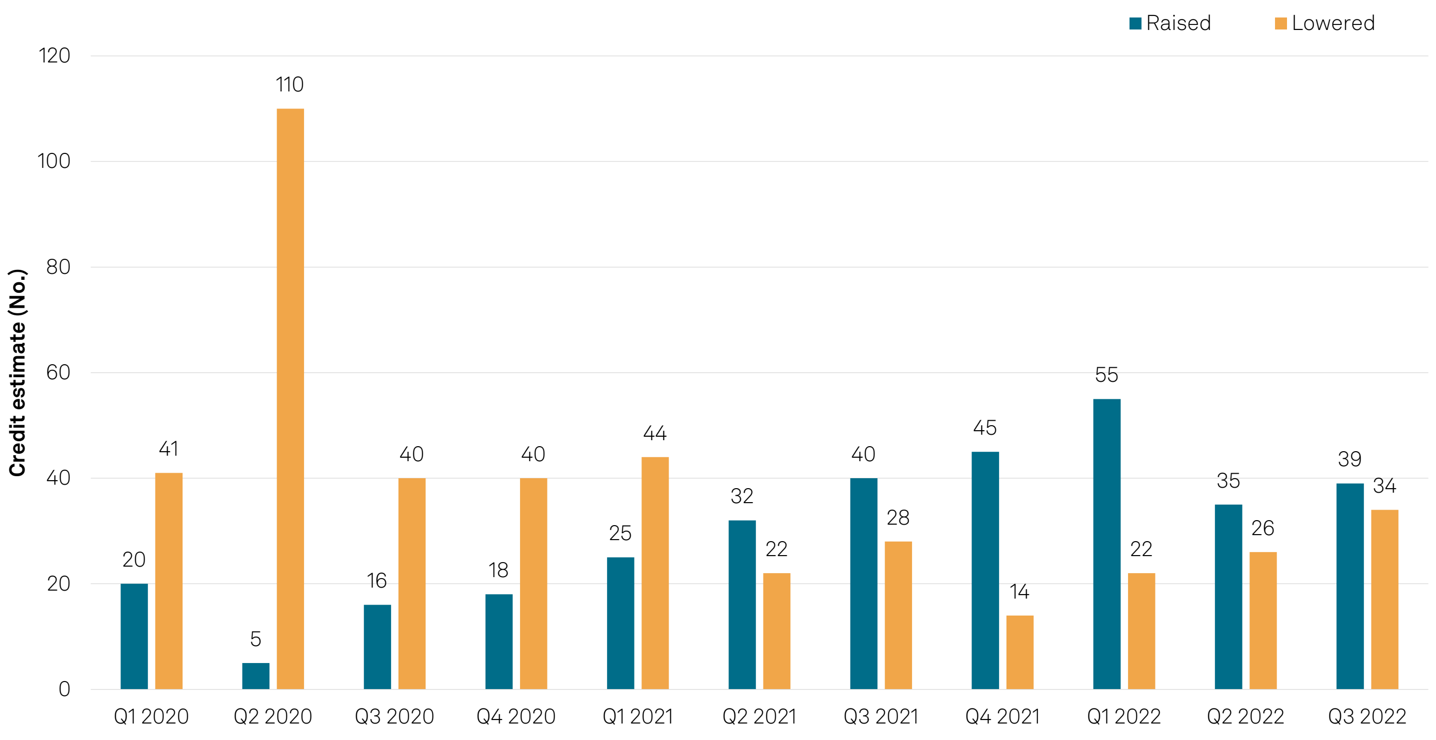

*Chart covers all outstanding credit estimates, including estimates for obligors not currently held within a CLO transaction.
Source: S&P Global Ratings.

- Before the pandemic, about 75% of our outstanding credit estimates were ‘b-’.
- This dropped to about 67% during the pandemic as ‘b-’ credit estimates got lowered into the ‘ccc’ category.
- By third-quarter 2022, over 75% of outstanding credit estimates were at back at ‘b-’ as performance of companies rebounded, and many obligors saw their credit estimates raised back to ‘b-’ from the ‘ccc’ range.

S&P Global Ratings

# Middle-Market CLOs | Credit Estimates Raised And Lowered

## Credit Estimates Raised And Lowered By Quarter (2020 - Q3 2022)




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 forward, upgrades have continued to outpace downgrades, but credit estimate downgrades have picked up momentum over the past several quarters.
- Cost inflation, supply issues, and labor constraints leading to margin compression could result in a pickup in credit estimate downgrades later this year and into 2023.

# Credit Estimates
## Raised And Lowered By Sector
As Of Q3 2022

| Top five sectors from which credit estimates were raised | | |
|---|---|---|
| 1 | Software | 10.9% |
| 2 | Hotels, restaurants and leisure | 10.1% |
| 3 | Healthcare providers and services | 9.3% |
| 4 | Commercial services and supplies | 6.2% |
| 5 | Diversified consumer services | 4.7% |

| Top five sectors from which credit estimates were lowered | | |
|---|---|---|
| 1 | Software | 17.1% |
| 2 | Food products | 8.5% |
| 3 | Healthcare providers and services | 7.3% |
| 4 | Commercial services and supplies | 6.1% |
| 5 | Professional services | 6.1% |

Source: S&P Global Ratings.

S&P Global
Ratings

**Drivers of raised credit estimates:**

- Growth in EBITDA
- Decrease in leverage
- Rebound from COVID-19
- Improved interest coverage
- Better operational performance

**Drivers of lowered credit estimates:**

- High leverage
- Weak liquidity
- Inflationary pressure
- Supply chain disruptions
- Acquisitive growth strategy

# Credit Estimates | Credit Quality Over The Years

- Many of the companies we assign credit estimates to are financial sponsor-owned and highly levered.
- The median EBITDA of these companies was $24 million, and the median adjusted debt was about $175 million.
- On account of 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-’.

## Outstanding Credit Estimate Distribution By Issuer Count, (2007 - Q3 2022)*

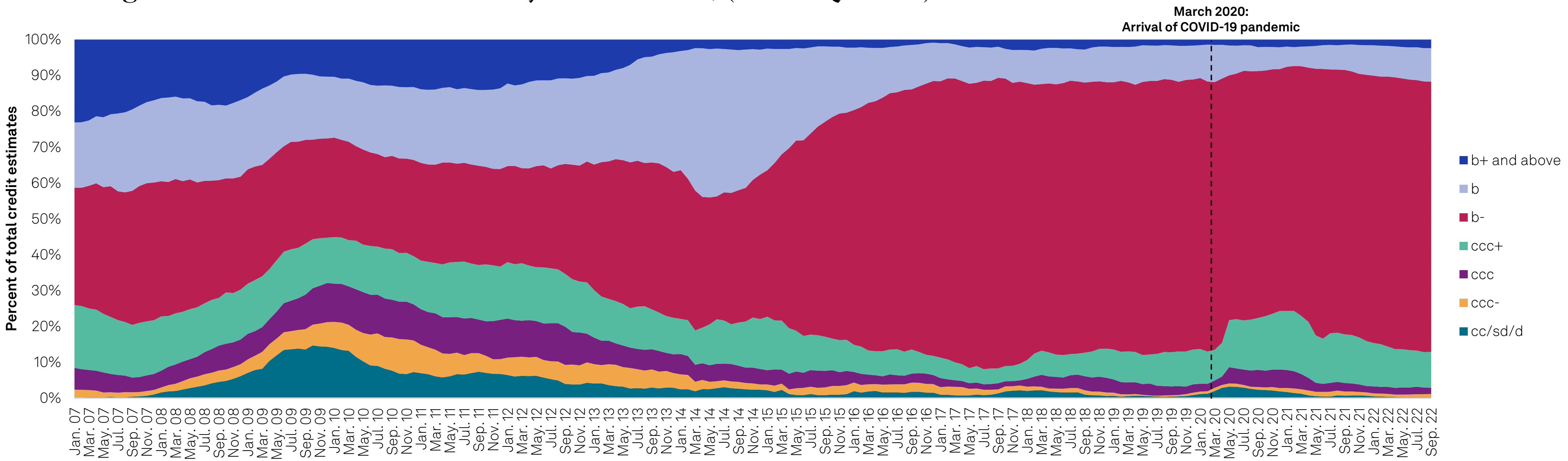


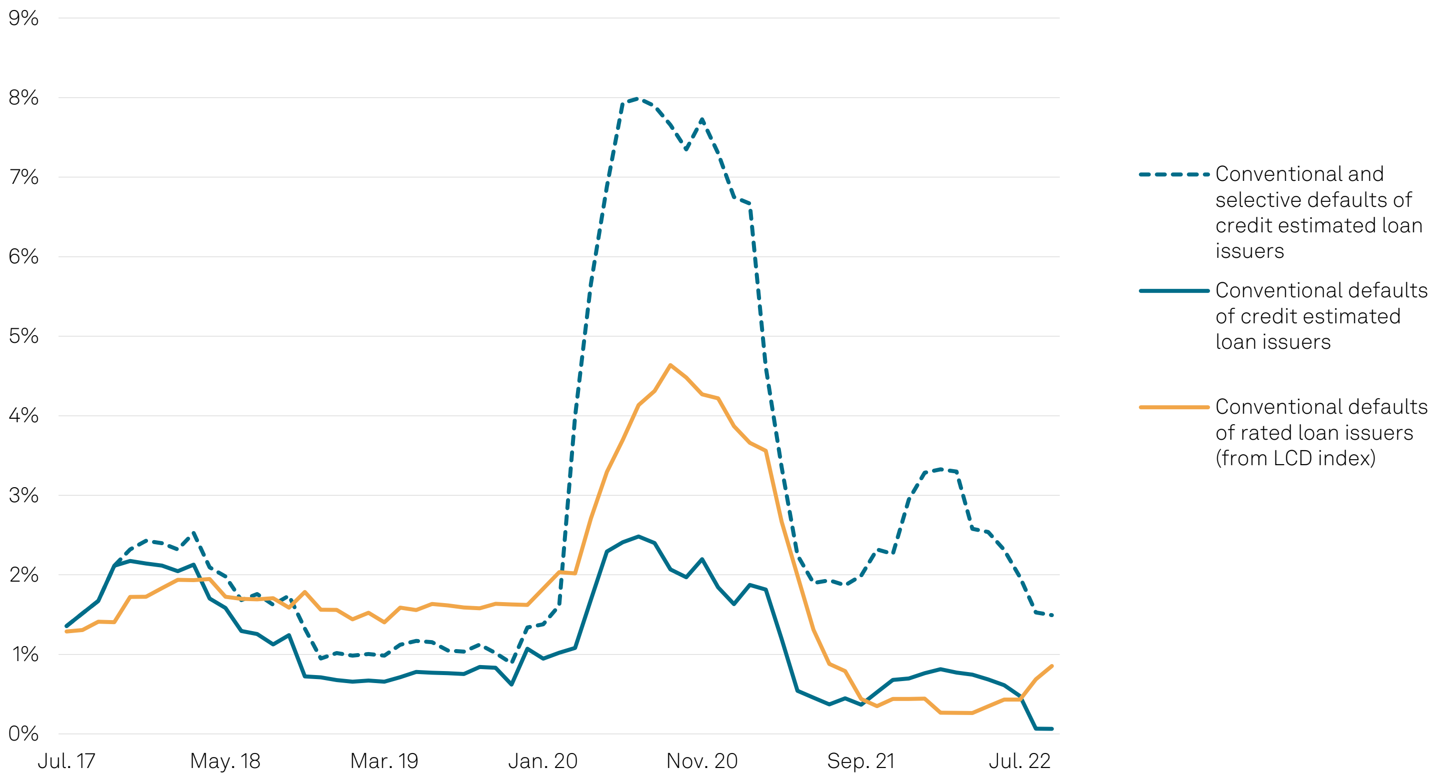

*Chart covers all outstanding credit estimates, including estimates for obligors not currently held within a CLO transaction.

Source: S&P Global Ratings.

S&P Global Ratings

# Middle-Market Loan Performance | Default Rate Comparison

## One-Year Lagging Default Rate: Credit Estimates Vs. LCD Index




Source: S&P Global Ratings.

- After dipping to 0.26% in April, the LCD Leverage Loan Index default rate (yellow line) among rated issuers increased to 0.85% in September.
- The dashed blue line, inclusive of both selective and conventional defaults among credit estimated issuers, declined sharply to below 1.5 % in September 2022 after peaking at nearly 8% in 2020.
- 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% in July 2020 before declining below 0.5% by August 2022.
- 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 on middle-market loans that averted payment defaults. This had the effect of raising the level of selective defaults among credit estimated issuers while decreasing the level of payment defaults.

# Middle-Market Loans | Credit Document Trends

There has been some loosening in middle-market credit agreements, such as a gradual increase in the ability to reclassify incremental borrowing.

Still, some controls are robust (i.e., the prevalence of maintenance covenants, limiting the transfer of intellectual property to unrestricted subsidiaries). Additionally, a small base of lenders and relationship-driven lending facilitate tighter credit agreements in middle-market loans than in the BSL market.

Based on our review of about 50 middle-market credit agreements that recently completed a M&A and LBO transactions

- There has been an upward tick in reclassifications drafted and executed in 2021, while the majority of those drafted and executed before 2021 were without this feature. In many of the credit agreements that do have the feature, the reclassification is automatic.
- Free-and-clear basket's size relative to the initial term loan borrowing ranged from 8% to 41%, with a mean of approximately 18%
- Most credit agreements that we reviewed had a financial maintenance covenant for the term loans, typically a variant of a leverage ratio (total, senior, first lien), while some had a second covenant, usually a fixed-charge coverage ratio. Only a few of the agreements had financial maintenance covenants that applied just to the revolving debt portion of the facility (covenant-lite loan structures)
- In 2021, the percentage of credit agreements that had unrestricted subsidiaries increased drastically, but all the ones we saw had provisions to limit the transfer of material intellectual property.

Source: Common Themes In Middle-Market Credit Agreements, published July 6, 2022.

# Middle-Market CLOs | Credit Metrics Hold Steady For Now

- The metrics below are averaged across an index of about 60 reinvesting S&P Global Ratings-rated U.S. middle-market (MM) CLOs issued across 21 different managers.
- The various credit metrics have held steady year to date, with default exposure and SPWARF remaining low so far.
- Par balance has continued to gradually increase, along with junior overcollateralization (O/C) test cushions.
- One MM CLO transaction is close to having most of its assets (47%) indexed to the Secured Overnight Financing Rate (SOFR).

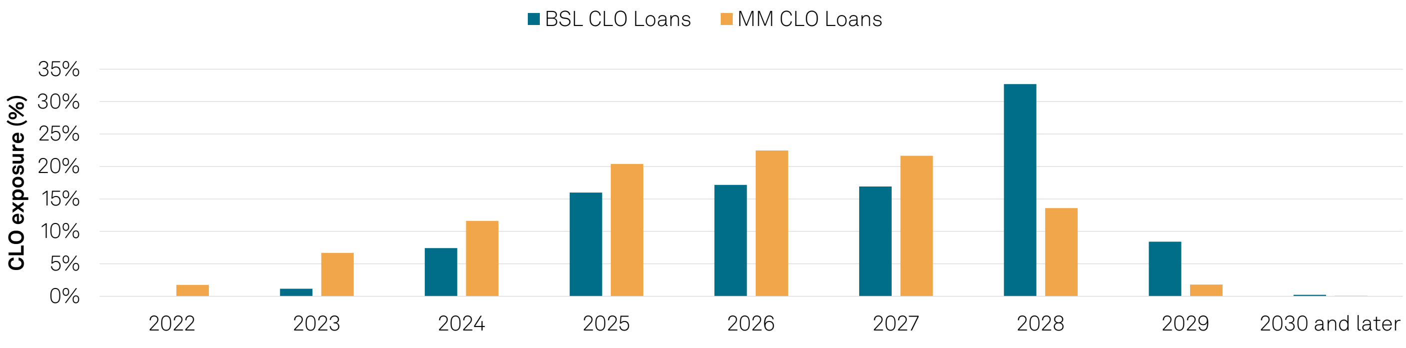
## Credit Metrics For Collateral In Reinvesting S&P Global Ratings-Rated Middle-Market CLOs

| Date | 'B-' exposure (%)* | 'CCC' exposure (%)* | No rating/CE (%)* | Non-performing (%)* | 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 |
| Mar. 1, 2022 | 71.75 | 9.06 | 8.97 | 0.27 | 3842 | 6.90 | 100.86 |
| Apr. 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 |
| Jun. 1, 2022 | 73.09 | 9.22 | 7.12 | 0.31 | 3805 | 6.96 | 101.00 |
| Jul. 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 |
| Sep. 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 |

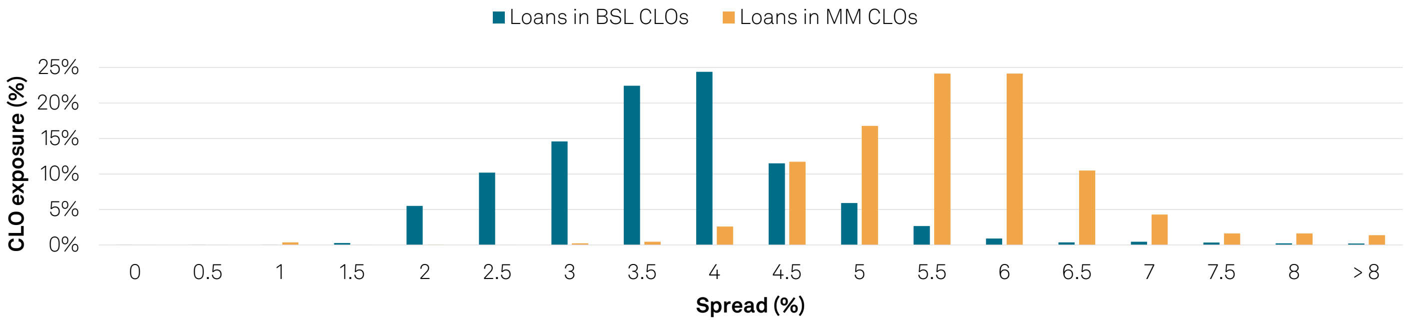
*By par amount as proportion of total CLO collateral. CLO--Collateral loan obligation. CE--Credit enhancement. O/C--Overcollateralization.
Source: S&P Global Ratings.

# Middle-Market CLOs | BSL Vs. Middle-Market CLOs

## BSL CLO Vs. MM CLO Loan Maturity Wall




## BSL CLO Vs. MM CLO Loan Spreads



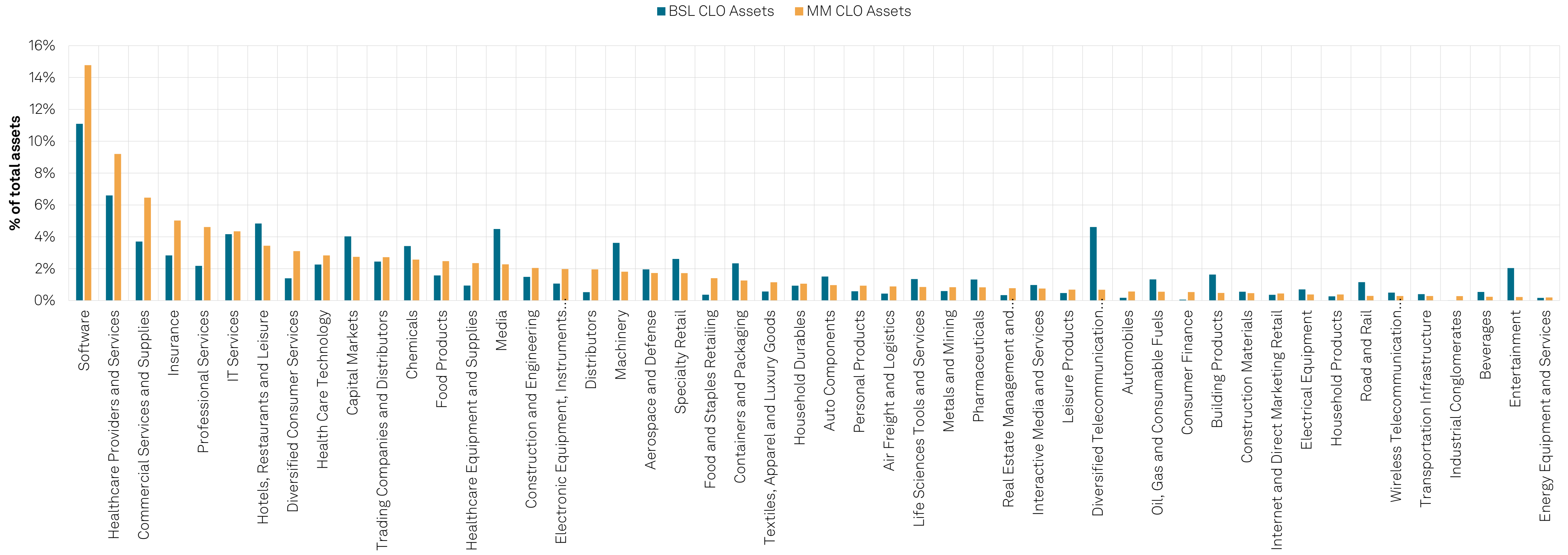

Source: S&P Global Ratings.

**Comparing BSL CLOs and MM CLOs:**

- The maturity wall for loans within BSL CLOs is pushed out considerably further than for the loans within MM CLO transactions.
- Spreads above LIBOR/SOFR are higher for loans in MM CLOs by an average of about 1.80% compared to loans in BSL CLO transactions.

# U.S. MM CLOs | Software And Healthcare Are The Largest Sectors

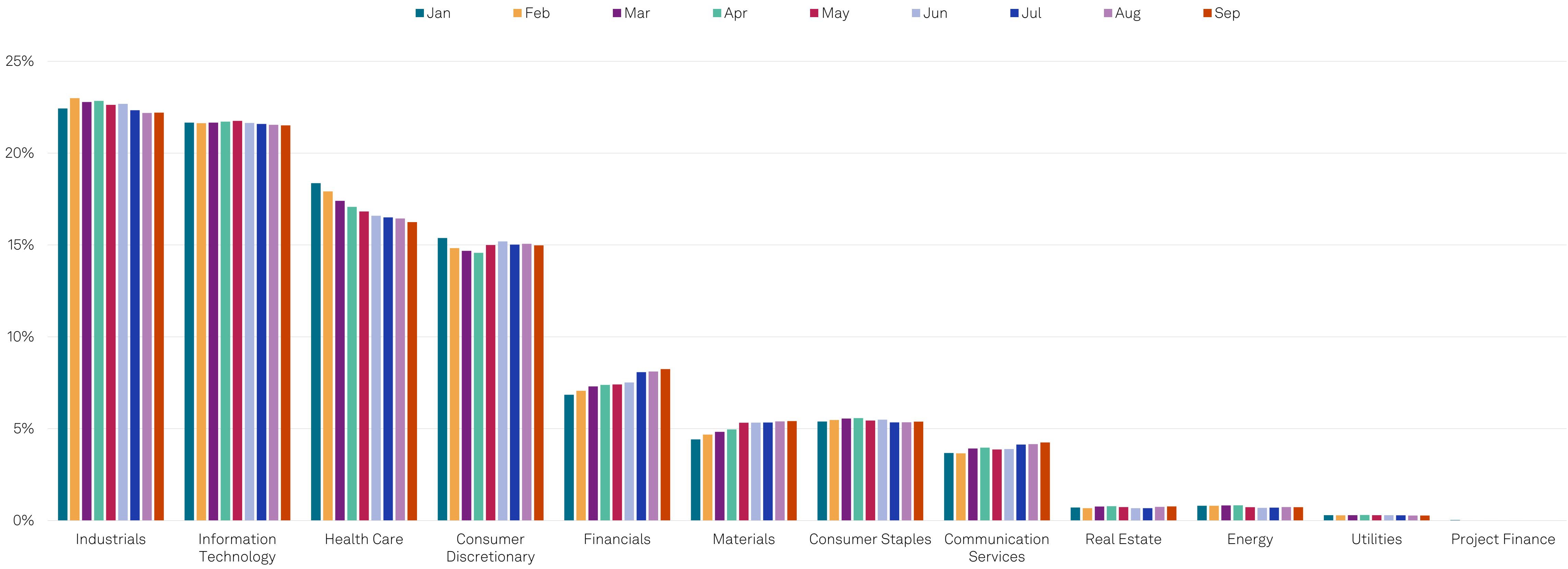
## Top 50 GICS Industry Categories In MM CLO Vs. BSL CLOs




Source: S&P Global Ratings.

# U.S. MM CLOs | Modest Decline In Healthcare Sector Loans In 2022

MM CLO Assets By GICS Sector (2022 Year To Date)




Source: S&P Global Ratings.

# U.S. MM CLOs | The Matrix: Asset Overlap By MM CLO Manager

| | AllianceBernstein | Angelo Gordon | Antares | Ares | Bain | Barings | BMO | Brightwood | Carlyle | Churchill | Deerpath | First Eagle/ NewStar | Fortress | Golub | GSO/Blackstone | Guggenheim | KCAP/Garrison | KKR | Maranon | MCF/Madison | Midcap | Monroe | NXT Capital | Owl Rock | Pennantpark | Silver Rock | Tennenbaum/ Blackrock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AllianceBernstein | | 0.0% | 2.6% | 5.6% | 2.0% | 1.4% | 1.4% | 1.0% | 4.8% | 2.2% | 0.8% | 0.0% | 1.8% | 5.3% | 0.3% | 1.3% | 5.3% | 1.8% | 1.8% | 3.2% | 5.8% | 0.9% | 2.9% | 2.8% | 1.8% | 2.1% | 3.7% |
| Angelo Gordon | 0.0% | | 0.2% | 0.2% | 0.0% | 0.1% | 2.1% | 0.0% | 0.0% | 0.6% | 0.0% | 1.2% | 0.0% | 0.0% | 0.7% | 0.0% | 1.9% | 0.0% | 1.3% | 0.3% | 2.9% | 0.0% | 0.3% | 0.0% | 0.3% | 0.0% | 0.0% |
| Antares | 2.6% | 0.2% | | 8.5% | 6.8% | 9.7% | 8.1% | 1.0% | 2.5% | 13.3% | 1.5% | 7.1% | 1.5% | 6.7% | 0.4% | 2.5% | 3.9% | 2.6% | 4.9% | 7.7% | 4.3% | 2.4% | 9.6% | 8.2% | 4.5% | 0.2% | 5.8% |
| Ares | 5.6% | 0.2% | 8.5% | | 3.3% | 5.5% | 2.4% | 0.6% | 1.2% | 5.6% | 0.3% | 4.1% | 3.0% | 6.6% | 3.0% | 6.3% | 8.6% | 5.9% | 2.0% | 6.2% | 3.8% | 8.6% | 1.6% | 5.3% | 1.2% | 0.0% | 8.1% |
| Bain | 2.0% | 0.0% | 6.8% | 3.3% | | 2.1% | 1.0% | 0.0% | 0.0% | 2.7% | 0.0% | 4.7% | 2.6% | 3.8% | 1.8% | 0.0% | 0.8% | 0.7% | 0.0% | 0.6% | 0.4% | 0.6% | 2.8% | 3.4% | 1.7% | 0.0% | 3.3% |
| Barings | 1.4% | 0.1% | 9.7% | 5.5% | 2.1% | | 5.7% | 1.5% | 3.0% | 10.9% | 0.5% | 5.7% | 1.4% | 0.7% | 1.9% | 2.7% | 2.7% | 1.5% | 3.6% | 3.2% | 5.0% | 4.8% | 7.4% | 1.3% | 2.6% | 1.1% | 2.4% |
| BMO | 1.4% | 2.1% | 8.1% | 2.4% | 1.0% | 5.7% | | 1.1% | 0.7% | 2.4% | 4.9% | 2.0% | 0.0% | 0.7% | 0.4% | 1.2% | 7.0% | 0.0% | 6.0% | 3.7% | 3.6% | 0.7% | 5.6% | 0.9% | 0.4% | 1.2% | 0.0% |
| Brightwood | 1.0% | 0.0% | 1.0% | 0.6% | 0.0% | 1.5% | 1.1% | | 0.5% | 1.1% | 0.0% | 1.1% | 1.4% | 1.1% | 0.0% | 0.0% | 4.2% | 0.8% | 0.0% | 0.5% | 1.1% | 1.0% | 0.0% | 0.4% | 1.7% | 3.0% | 2.5% |
| Carlyle | 4.8% | 0.0% | 2.5% | 1.2% | 0.0% | 3.0% | 0.7% | 0.5% | | 1.8% | 0.0% | 5.1% | 0.5% | 0.7% | 0.9% | 0.8% | 1.4% | 5.8% | 0.0% | 3.2% | 3.3% | 1.1% | 0.0% | 5.0% | 3.0% | 4.5% | 2.3% |
| Churchill | 2.2% | 0.6% | 13.3% | 5.6% | 2.7% | 10.9% | 2.4% | 1.1% | 1.8% | | 1.3% | 5.9% | 0.5% | 4.1% | 1.9% | 2.4% | 6.7% | 0.6% | 5.3% | 7.5% | 5.5% | 8.5% | 3.0% | 3.7% | 2.5% | 0.0% | 5.9% |
| Deerpath | 0.8% | 0.0% | 1.5% | 0.3% | 0.0% | 0.5% | 4.9% | 0.0% | 0.0% | 1.3% | | 1.0% | 0.5% | 0.1% | 0.6% | 0.2% | 2.7% | 0.0% | 0.0% | 1.2% | 0.0% | 1.7% | 1.5% | 1.1% | 0.9% | 0.0% | 1.0% |
| First Eagle/NewStar | 0.0% | 1.2% | 7.1% | 4.1% | 4.7% | 5.7% | 2.0% | 1.1% | 5.1% | 5.9% | 1.0% | | 3.7% | 1.7% | 6.0% | 4.9% | 6.2% | 0.5% | 2.9% | 6.1% | 6.1% | 5.2% | 4.3% | 0.5% | 6.9% | 0.0% | 5.0% |
| Fortress | 1.8% | 0.0% | 1.5% | 3.0% | 2.6% | 1.4% | 0.0% | 1.4% | 0.5% | 0.5% | 0.5% | 3.7% | | 1.2% | 0.7% | 3.4% | 3.6% | 1.1% | 0.0% | 0.0% | 1.2% | 0.9% | 1.4% | 3.6% | 1.2% | 8.6% | 3.0% |
| Golub | 5.3% | 0.0% | 6.7% | 6.6% | 3.8% | 0.7% | 0.7% | 1.1% | 0.7% | 4.1% | 0.1% | 1.7% | 1.2% | | 0.7% | 1.2% | 2.8% | 5.2% | 0.7% | 3.4% | 1.5% | 0.2% | 2.2% | 4.9% | 0.5% | 0.1% | 5.8% |
| GSO/Blackstone | 0.3% | 0.7% | 0.4% | 3.0% | 1.8% | 1.9% | 0.4% | 0.0% | 0.9% | 1.9% | 0.6% | 6.0% | 0.7% | 0.7% | | 0.9% | 2.2% | 0.0% | 1.8% | 0.6% | 1.7% | 0.6% | 0.5% | 0.0% | 1.5% | 0.0% | 0.0% |
| Guggenheim | 1.3% | 0.0% | 2.5% | 6.3% | 0.0% | 2.7% | 1.2% | 0.0% | 0.8% | 2.4% | 0.2% | 4.9% | 3.4% | 1.2% | 0.9% | | 3.6% | 2.7% | 2.4% | 0.0% | 1.6% | 5.5% | 0.0% | 4.8% | 1.8% | 1.6% | 7.3% |
| KCAP/Garrison | 5.3% | 1.9% | 3.9% | 8.6% | 0.8% | 2.7% | 7.0% | 4.2% | 1.4% | 6.7% | 2.7% | 6.2% | 3.6% | 2.8% | 2.2% | 3.6% | | 0.0% | 1.4% | 1.4% | 4.8% | 5.6% | 1.7% | 0.7% | 4.9% | 1.0% | 4.1% |
| KKR | 1.8% | 0.0% | 2.6% | 5.9% | 0.7% | 1.5% | 0.0% | 0.8% | 5.8% | 0.6% | 0.0% | 0.5% | 1.1% | 5.2% | 0.0% | 2.7% | 0.0% | | 0.0% | 0.3% | 2.7% | 2.2% | 1.4% | 3.5% | 0.0% | 0.0% | 5.9% |
| Maranon | 1.8% | 1.3% | 4.9% | 2.0% | 0.0% | 3.6% | 6.0% | 0.0% | 0.0% | 5.3% | 0.0% | 2.9% | 0.0% | 0.7% | 1.8% | 2.4% | 1.4% | 0.0% | | 4.1% | 2.8% | 0.4% | 4.6% | 1.2% | 1.9% | 0.0% | 5.0% |
| MCF/Madison | 3.2% | 0.3% | 7.7% | 6.2% | 0.6% | 3.2% | 3.7% | 0.5% | 3.2% | 7.5% | 1.2% | 6.1% | 0.0% | 3.4% | 0.6% | 0.0% | 1.4% | 0.3% | 4.1% | | 7.1% | 1.5% | 7.2% | 2.0% | 2.8% | 0.6% | 2.2% |
| Midcap | 5.8% | 2.9% | 4.3% | 3.8% | 0.4% | 5.0% | 3.6% | 1.1% | 3.3% | 5.5% | 0.0% | 6.1% | 1.2% | 1.5% | 1.7% | 1.6% | 4.8% | 2.7% | 2.8% | 7.1% | | 3.4% | 2.5% | 0.3% | 2.5% | 0.0% | 2.5% |
| Monroe | 0.9% | 0.0% | 2.4% | 8.6% | 0.6% | 4.8% | 0.7% | 1.0% | 1.1% | 8.5% | 1.7% | 5.2% | 0.9% | 0.2% | 0.6% | 5.5% | 5.6% | 2.2% | 0.4% | 1.5% | 3.4% | | 1.1% | 2.1% | 2.2% | 1.1% | 7.3% |
| NXT Capital | 2.9% | 0.3% | 9.6% | 1.6% | 2.8% | 7.4% | 5.6% | 0.0% | 0.0% | 3.0% | 1.5% | 4.3% | 1.4% | 2.2% | 0.5% | 0.0% | 1.7% | 1.4% | 4.6% | 7.2% | 2.5% | 1.1% | | 3.1% | 5.0% | 0.0% | 2.6% |
| Owl Rock | 2.8% | 0.0% | 8.2% | 5.3% | 3.4% | 1.3% | 0.9% | 0.4% | 5.0% | 3.7% | 1.1% | 0.5% | 3.6% | 4.9% | 0.0% | 4.8% | 0.7% | 3.5% | 1.2% | 2.0% | 0.3% | 2.1% | 3.1% | | 4.0% | 0.0% | 6.6% |
| Pennantpark | 1.8% | 0.3% | 4.5% | 1.2% | 1.7% | 2.6% | 0.4% | 1.7% | 3.0% | 2.5% | 0.9% | 6.9% | 1.2% | 0.5% | 1.5% | 1.8% | 4.9% | 0.0% | 1.9% | 2.8% | 2.5% | 2.2% | 5.0% | 4.0% | | 1.2% | 4.5% |
| Silver Rock | 2.1% | 0.0% | 0.2% | 0.0% | 0.0% | 1.1% | 1.2% | 3.0% | 4.5% | 0.0% | 0.0% | 0.0% | 8.6% | 0.1% | 0.0% | 1.6% | 1.0% | 0.0% | 0.0% | 0.6% | 0.0% | 1.1% | 0.0% | 0.0% | 1.2% | | 4.7% |
| Tennenbaum/Blackrock | 3.7% | 0.0% | 5.8% | 8.1% | 3.3% | 2.4% | 0.0% | 2.5% | 2.3% | 5.9% | 1.0% | 5.0% | 3.0% | 5.8% | 0.0% | 7.3% | 4.1% | 5.9% | 5.0% | 2.2% | 2.5% | 7.3% | 2.6% | 6.6% | 4.5% | 4.7% | |

Source: S&P Global Ratings.

S&P Global
Ratings

# U.S. MM CLOs | The Matrix: Asset Overlap By MM CLO Manager

| Manager | Largest GIC sector | Largest sector exposure (%) | No. of GIC industries | % of largest issuer exposure | No. of issuers | Proportion issuers CE (%) | SPWARF | WAS (%) | WAM | % of exposure unique to manager | Manager with largest overlap | Proportion overlap (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AllianceBernstein | Software | 29.43 | 25 | 2.06 | 130 | 80.82 | 3959 | 5.61 | 4.02 | 49.82 | Midcap | 5.78 |
| Angelo Gordon | Healthcare providers and services | 18.53 | 31 | 2.16 | 76 | 94.58 | 3735 | 5.74 | 2.73 | 16.37 | Midcap | 2.94 |
| Antares | Healthcare providers and services | 11.24 | 44 | 0.87 | 292 | 88.40 | 3713 | 5.09 | 3.69 | 32.02 | Churchill | 13.30 |
| Ares | Software | 14.18 | 39 | 1.93 | 210 | 60.21 | 3631 | 5.13 | 3.90 | 3.95 | Monroe | 8.63 |
| Bain | Professional services | 12.91 | 26 | 3.14 | 44 | 89.46 | 3847 | 6.03 | 4.04 | 1.58 | Antares | 6.84 |
| Barings | Software | 16.85 | 41 | 2.57 | 140 | 78.73 | 3683 | 5.20 | 4.04 | 8.55 | Churchill | 10.92 |
| BMO | Healthcare providers and services | 15.82 | 41 | 1.50 | 167 | 86.91 | 3863 | 5.03 | 3.57 | 47.77 | Antares | 8.08 |
| Brightwood | Commercial services and supplies | 21.49 | 25 | 4.83 | 61 | 76.47 | 3786 | 6.42 | 3.58 | 62.63 | KCAP/Garrison | 4.18 |
| Carlyle | Software | 12.26 | 21 | 3.62 | 58 | 86.45 | 3836 | 6.17 | 4.01 | 1.03 | KKR | 5.79 |
| Churchill | Healthcare providers and services | 8.97 | 44 | 1.49 | 185 | 77.18 | 3747 | 5.08 | 4.23 | 12.55 | Antares | 13.30 |
| Deerpath | Healthcare providers and services | 22.16 | 38 | 2.32 | 126 | 88.37 | 3644 | 5.59 | 3.37 | 68.17 | BMO | 4.89 |
| First Eagle/NewStar | Healthcare providers and services | 14.36 | 49 | 2.29 | 188 | 61.04 | 3820 | 5.39 | 3.90 | 9.23 | Antares | 7.09 |
| Fortress | Hotels, restaurants, and leisure | 16.83 | 40 | 4.33 | 129 | 65.89 | 3992 | 6.39 | 3.81 | 28.04 | Silver Rock | 8.58 |
| Golub | Software | 22.52 | 44 | 1.67 | 249 | 85.69 | 3947 | 5.55 | 3.90 | 47.05 | Antares | 6.69 |
| GSO/Blackstone | Hotels, restaurants, and leisure | 13.49 | 24 | 7.21 | 40 | 44.89 | 4014 | 5.10 | 2.85 | 0.47 | First Eagle/NewStar | 6.04 |
| Guggenheim | Software | 11.22 | 41 | 3.20 | 148 | 46.60 | 3824 | 5.05 | 4.31 | 7.63 | Tennenbaum/Blackrock | 7.30 |
| KCAP/Garrison | Software | 16.54 | 45 | 2.32 | 135 | 49.45 | 3760 | 5.54 | 3.94 | 19.27 | Ares | 8.57 |
| KKR | Software | 13.79 | 24 | 3.04 | 54 | 74.62 | 4047 | 6.16 | 4.37 | 10.70 | Ares | 5.93 |
| Maranon | Media | 8.76 | 31 | 2.30 | 104 | 86.56 | 3872 | 5.45 | 3.60 | 51.79 | BMO | 6.03 |
| MCF/Madison | Healthcare providers and services | 9.86 | 43 | 1.72 | 201 | 88.21 | 3790 | 5.11 | 3.81 | 36.23 | Antares | 7.67 |
| Midcap | Healthcare providers and services | 10.00 | 46 | 1.64 | 206 | 88.83 | 3876 | 5.64 | 3.71 | 42.38 | MCF/Madison | 7.08 |
| Monroe | Software | 15.84 | 36 | 1.25 | 125 | 33.99 | 3414 | 4.82 | 4.82 | 16.84 | Ares | 8.63 |
| NXT Capital | Healthcare providers and services | 13.55 | 31 | 2.12 | 104 | 94.02 | 3802 | 5.11 | 3.50 | 34.60 | Antares | 9.58 |
| Owl Rock | Software | 20.28 | 37 | 3.74 | 134 | 82.91 | 3735 | 5.82 | 4.23 | 23.00 | Antares | 8.18 |
| Pennantpark | Media | 10.39 | 32 | 2.22 | 104 | 81.07 | 3745 | 5.84 | 3.66 | 44.89 | First Eagle/NewStar | 6.92 |
| Silver Rock | Commercial services and supplies | 13.91 | 27 | 3.00 | 47 | 51.36 | 3920 | 6.80 | 3.98 | 11.17 | Fortress | 8.58 |
| Tennenbaum/Blackrock | Software | 25.94 | 44 | 1.88 | 171 | 71.36 | 3813 | 5.76 | 4.31 | 9.44 | Ares | 8.14 |

Source: S&P Global Ratings.

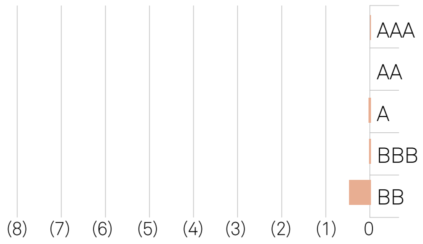
# U.S. MM CLOs | Top 30 Obligors Held By More Than Two Managers

| # | Company | Manager count | Total par ($) | GICS industry |
|---|---|---|---|---|
| 1 | Drilling Info Inc. | 9 | 317,828,009.63 | Software |
| 2 | Integrity Marketing Acquisition LLC | 7 | 287,265,667.88 | Insurance |
| 3 | RSC Insurance Brokerage Inc. | 6 | 383,154,955.63 | Insurance |
| 4 | Edgewood Partners Holdings LLC | 6 | 298,065,992.52 | Insurance |
| 5 | Alera Group Holdings Inc. | 6 | 272,276,243.70 | Insurance |
| 6 | WEG Holdings LLC | 6 | 129,206,371.91 | Capital markets |
| 7 | CM Group Ltd. | 6 | 124,645,161.58 | IT Services |
| 8 | Alpine Acquisition Corp. II | 6 | 115,493,129.97 | Commercial services and supplies |
| 9 | HIG Holdings Inc. | 6 | 115,454,839.54 | Insurance |
| 10 | Arch Global Precision LLC | 6 | 103,957,701.90 | Machinery |
| 11 | OMNI Parent LLC | 6 | 102,650,935.98 | Transportation infrastructure |
| 12 | National Spine | 6 | 60,244,499.99 | Healthcare providers and services |
| 13 | Peach State Labs LLC | 6 | 27,764,044.01 | Chemicals |
| 14 | Diligent Corp. | 5 | 309,518,763.56 | Software |
| 15 | MRI Intermediate Holdings LLC | 5 | 172,996,112.60 | Software |
| 16 | Ohio Transmission Corp. | 5 | 161,582,106.40 | Trading companies and distributors |
| 17 | AWP Holding Co. | 5 | 140,588,236.22 | Commercial services and supplies |
| 18 | TL Lighting Holdings LLC | 5 | 123,449,281.08 | Auto components |
| 19 | ECMI Holding LLC | 5 | 118,097,587.09 | Construction materials |
| 20 | PC FOY Holdings LLC | 5 | 114,546,146.74 | Insurance |
| 21 | Procare Software Holdings LLC | 5 | 111,188,021.49 | Software |
| 22 | Ultimate Baked Goods Intermediate LLC | 5 | 110,116,751.31 | Food and staples retailing |
| 23 | PGM Holdings Corp. | 5 | 107,695,758.20 | Insurance |
| 24 | Bright Now! Dental Inc. | 5 | 100,280,042.92 | Healthcare providers and services |
| 25 | Mid Atlantic Capital Group Inc. | 5 | 96,312,984.18 | Capital markets |
| 26 | Fineline Technologies | 5 | 76,517,183.65 | Commercial services and supplies |
| 27 | BAART Programs Inc. + Medmark Services Inc. | 5 | 73,994,489.38 | Healthcare providers and services |
| 28 | IRSG Holdings | 5 | 68,800,994.04 | Healthcare equipment and supplies |
| 29 | CHA Holdings Inc. | 5 | 35,054,490.36 | Construction and engineering |
| 30 | Eliassen Group Intermediate Inc. | 5 | 30,412,574.54 | IT services |

Source: S&P Global Ratings.

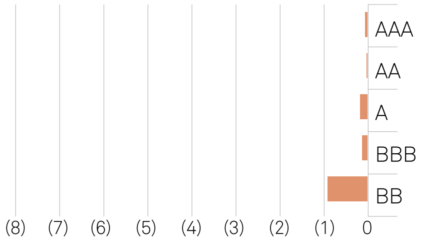
- There are about 1,600 issuers with loans in our rated middle-market CLO transactions, about the same number of obligors contained in our rated BSL CLOs.
- Compared to the obligors in BSL CLOs, there is far less overlap in middle-market CLOs; for example, the most widely held obligor in BSL CLOs is held by nearly every CLO manager, while the top obligor in middle market 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 middle-market 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.

# 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% |

Source: S&P Global Ratings.

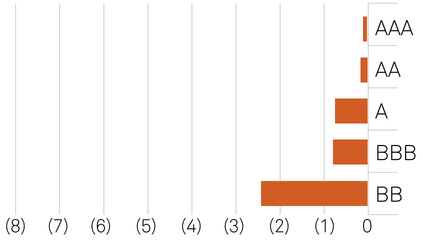
- We applied a series of five hypothetical stress scenarios to a sample of 65 of our rated middle-market CLO transactions still within their reinvestment periods, generating quantitative analysis for each one using our CLO rating models (CDO Evaluator and S&P Cash Flow Evaluator).
- The first four scenarios 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

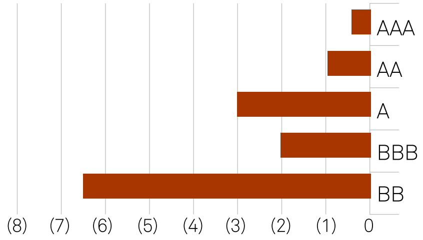



| CLO Tranche Rating | 0 | -1 | -2 | -3 | -4 | -5 | -6 | -7 or more | WA Notches | Spec-Grade | CCC Category | Below 'CCC-' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AAA | 90.6% | 9.4% | | | | | | | 0.09 | | | |
| AA | 89.1% | 6.9% | 4.0% | | | | | | 0.15 | | | |
| A | 53.1% | 27.2% | 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% |

Source: S&P Global Ratings.

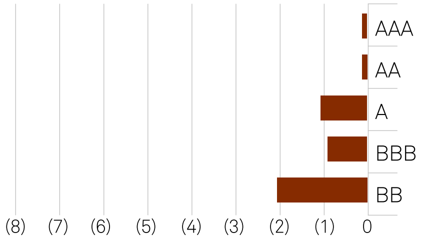
- Even under the most punitive of our scenarios, with 30% of the collateral in the CLOs defaulting with a 50% recovery, more than 98% of the CLO 'AAA' ratings either remain 'AAA' or are downgraded one notch to 'AA+' and none are lowered by more than two notches (i.e., below 'AA').
- As expected, ratings 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.

# 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% |

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.

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