

U.S. Structured Finance Chart Book: July 2024

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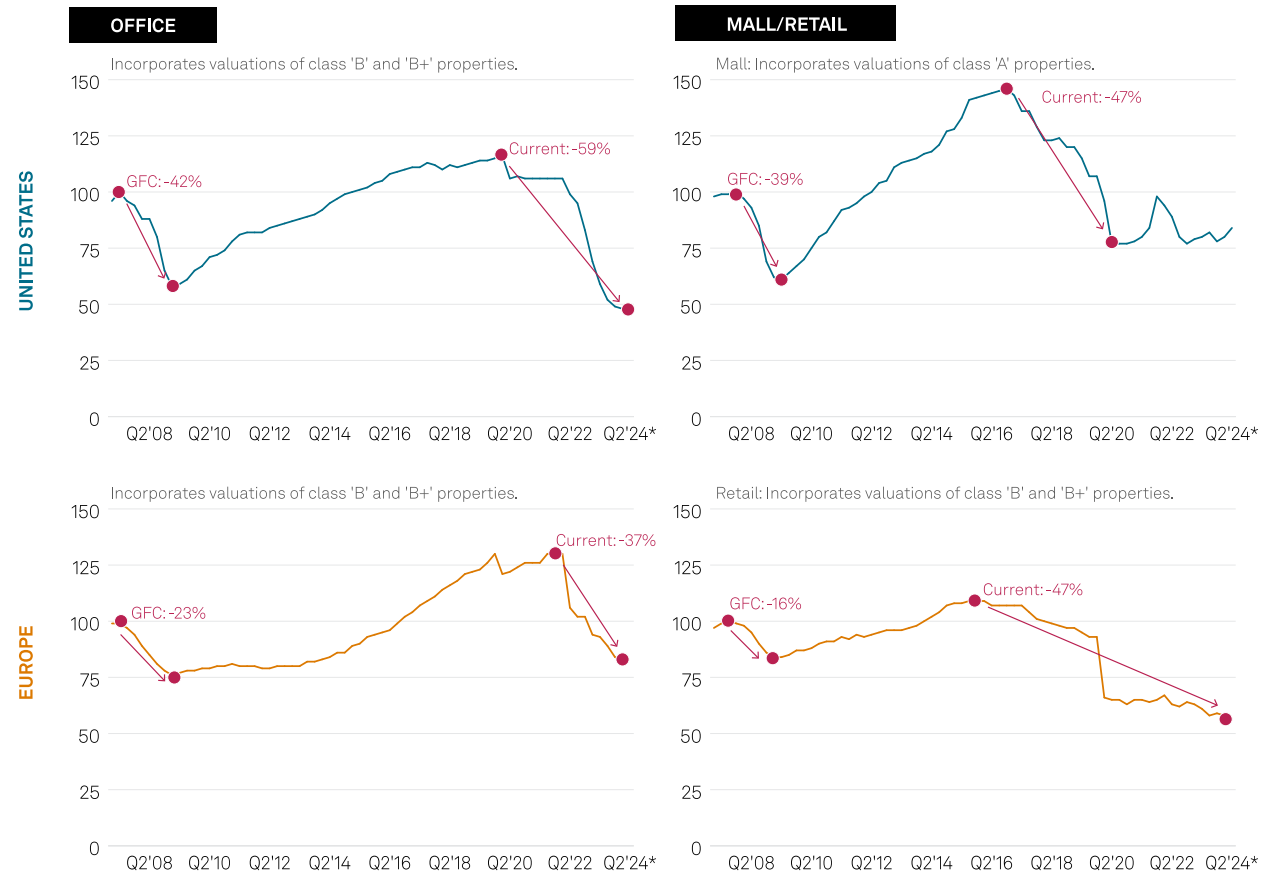




Highlights | Commercial Real Estate Market Stress Reflected In CMBS Downgrades

- Higher interest rates, e-commerce, and the jump in popularity of remote working introduced by the COVID-19 pandemic have produced unprecedented levels of stress in commercial real estate (CRE).
- Some segments are now facing greater market value declines than during the global financial crisis. In particular, the market value of office and retail properties has declined significantly over the past several years in both the U.S. and Europe.
- Given the persistent and severe deterioration in underlying CRE markets, we have lowered 732 of the 2,799 commercial mortgage-backed security (CMBS) ratings that were outstanding at the beginning of 2020—a downgrade rate of 26.2%. Of these, 134 tranches (4.8%) have defaulted. Over the same period, six tranches initially rated 'AAA' have defaulted (corresponding to a 0.6% default rate), in some cases suffering a principal loss.
- Higher interest rates continue to increase the challenge of refinancing commercial mortgage loans, and more defaults could follow, particularly for loans secured on lower-quality office properties in secondary locations. This could put further pressure on CMBS ratings.

Commercial real estate value indices, by subsector (index pts.)*



*Europe data as of Q1 2024, and U.S. data as of Q2 2024. GFC--Global financial crisis. Sources: Green Street Commercial Property Price Indices and S&P Global Ratings.

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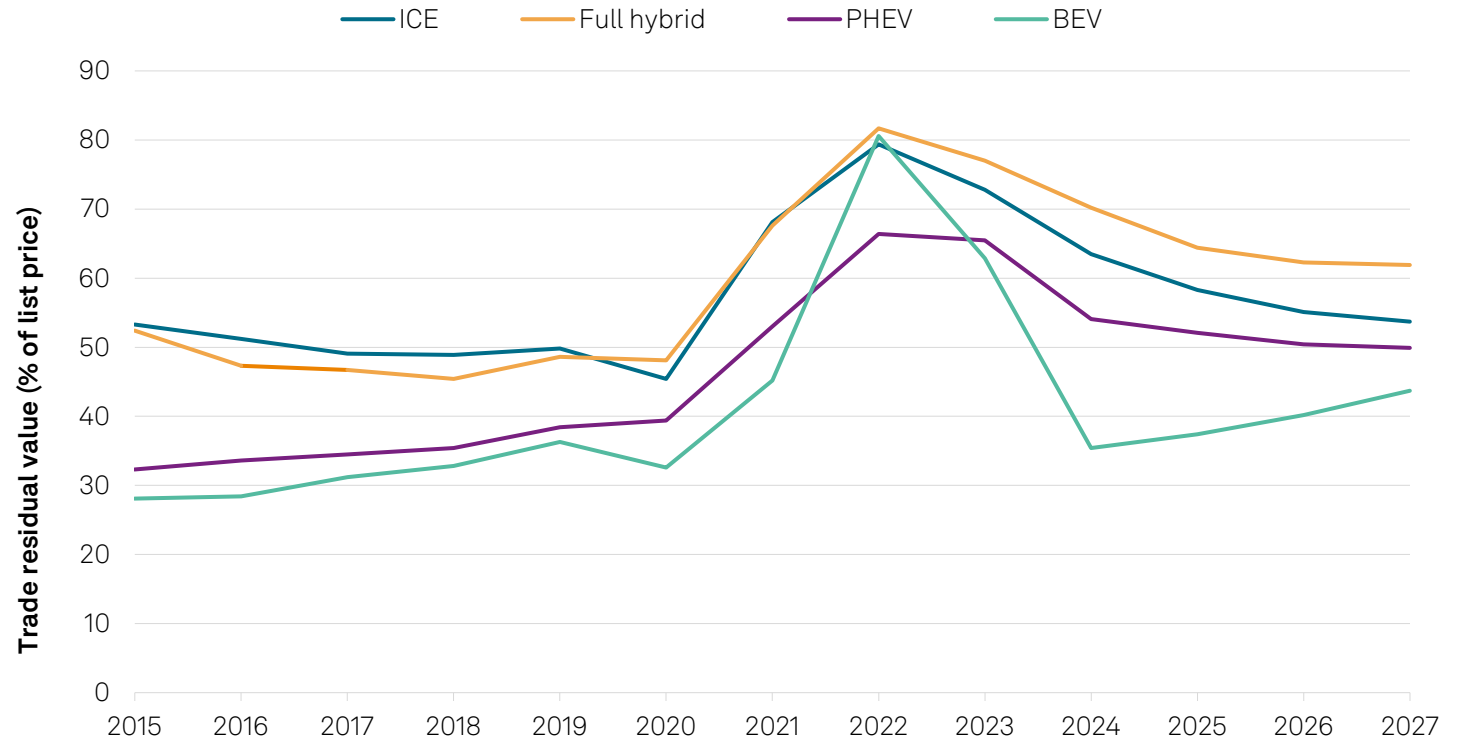
S&P Global
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Highlights | Electric Shock: How Engine Technology Affects Auto ABS Risk

- Vehicle electrification is here to stay. As the market for used battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) matures, more residual value information is becoming available for these engine types.
- A growing market share of BEVs and PHEVs will increase credit risk in auto asset-backed security (ABS) transactions. As BEVs and PHEVs currently depreciate more than internal combustion engine (ICE) vehicles and hybrid electric vehicles (HEVs), we have adjusted our recovery and residual value assumptions in securitized pools with more than 10% exposure to BEVs, and 30% and 20% exposure to PHEVs in European and North American transactions, respectively.
- Secondhand values will continue to face pressure in the near term, as demand for used BEVs and PHEVs may not keep pace with new registration growth, with added pressure from reduced new vehicle prices and improvements in battery technology and range.

U.S. residual value performance by fuel type*



*Values from 2024 to 2027 are forecasts. Residual value dataset is derived from wholesale auto transactions of three-year-old vehicles (sales-weighted). ICE—Internal combustion engine. PHEV—Plug-in hybrid electric vehicle. BEV—Battery electric vehicle. Source: Black Book, June 2024.

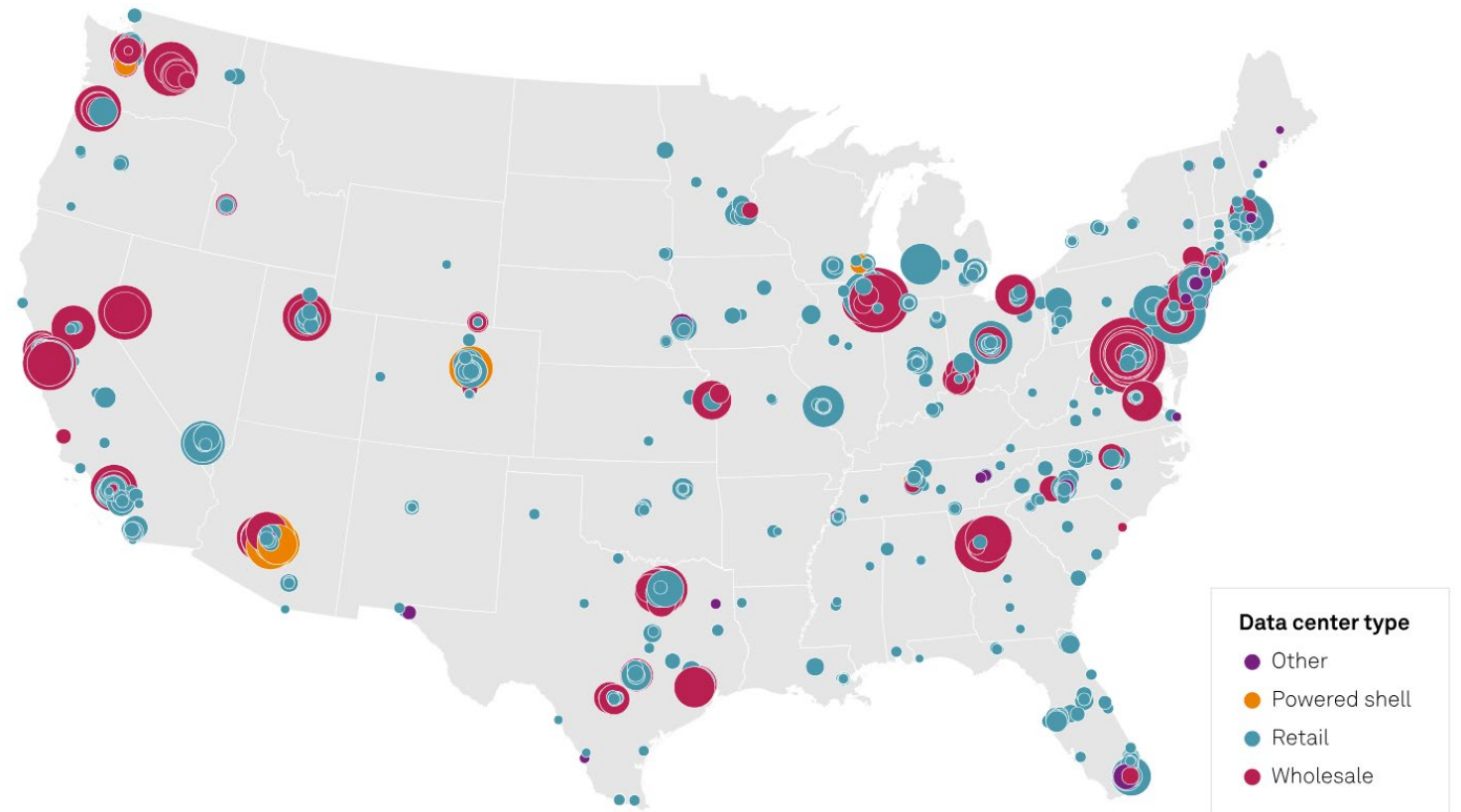
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Highlights | The Four Main Approaches To Rating Data Center Financings

- Recently, data centers have taken center stage in commercial real estate markets worldwide due to the exponential growth of data generation and the broad migration to cloud computing, remote work, and artificial intelligence.
- When rating transactions or companies backed by data center assets, we use one of four main analytical approaches: ABS, CMBS, corporate/REIT, or project finance. The approach we choose depends on several factors; most notably, the financing vehicle.
- To date, most data center-backed transactions have been structured as ABS, which offer operators a scalable, long-term financing option through a master trust setup.
- Related: [Data center securitization rating criteria.](#)

Operational data centers in the contiguous U.S.*



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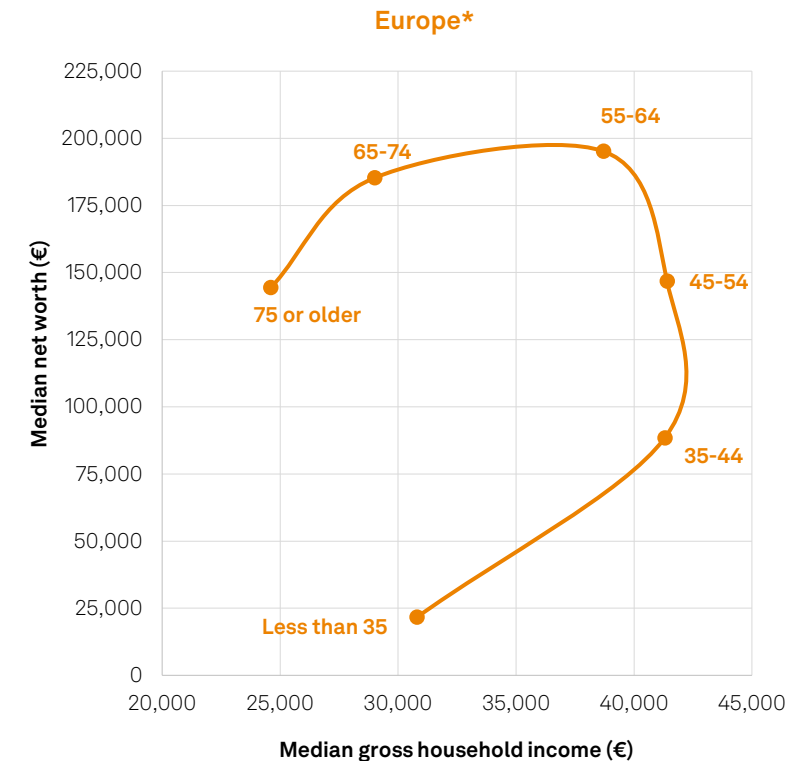
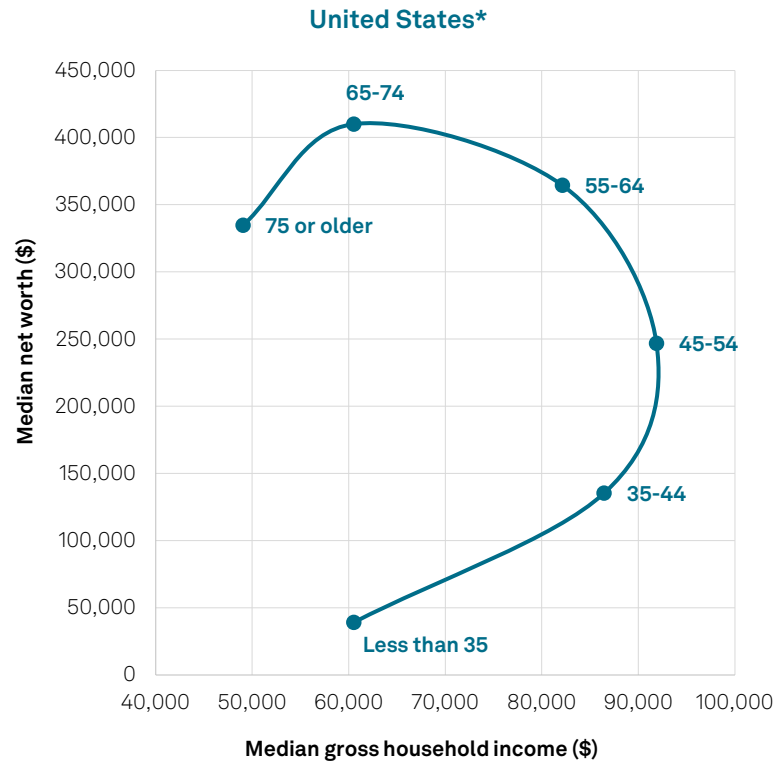
*Map data as of fourth-quarter 2023. The circles are sized according to kW of UPS utilization in each data center. kW—Kilowatt. UPS—Uninterruptable power supply.
Sources: S&P Global Market Intelligence 451 Research and S&P Global Ratings.



Highlights | ABS Frontiers: Aging Populations Could Drive Demand For Reverse Mortgages

- For at least four decades, many countries have seen an upward drift in the percentage of their populations that are aged over 60 years and nearing or in retirement. If the trend continues, demand for reverse mortgages could increase in the future, particularly because many seniors are asset rich and cash poor.
- With reverse mortgages, different paths of interest rates and home price appreciation can lead to varying rates of home equity erosion, posing risks to both the lender and borrower.
- S&P Global Ratings has established criteria for rating new transactions of reverse mortgages in the U.K., and we would likely borrow these to rate similar deals in other countries. This would involve a consideration of regional variation in housing finance and regulations along with key risks, some of which are contemplated in this article.

Annual income and net worth by age cohort



*Medians as of 2022. Sources: U.S. Federal Reserve and S&P Global Ratings.

*Medians derived from surveys conducted from 2019-2021. Sources: European Union Household Finance and Consumption Survey and S&P Global Ratings.

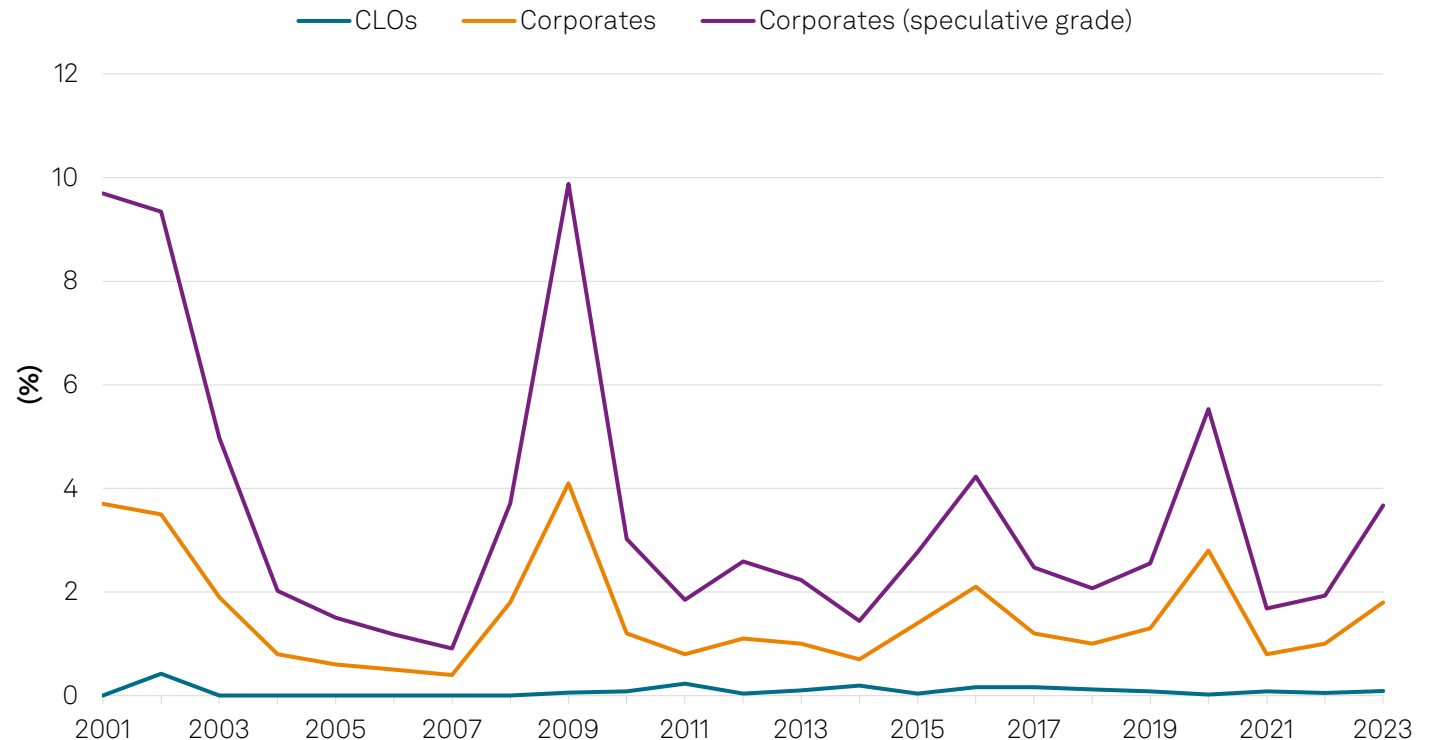
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Highlights | 2023 Annual Global Leveraged Loan CLO Default And Rating Transition Study

- Global collateralized loan obligation (CLO) defaults rose to eight tranches rated by S&P Global Ratings in 2023, up from six in 2022.
- All eight tranches that defaulted were from U.S. CLO 2.0 vintages, were initially rated in the 'BB' or 'B' categories and had been downgraded to the 'CCC' and 'CC' categories before 2021.
- The global CLO downgrade rate remained low but increased to near 0.5% in 2023 (from about 0.1% in 2022), while upgrades outnumbered downgrades and defaults for a third consecutive year.
- CLO performance trends were more positive in Europe, with no defaults or downgrades for a third consecutive year and the upgrade rate rising to a six-year high.
- An investment-grade ('BBB-' or higher) CLO tranche has not defaulted since 2010, and no U.S. or European leveraged loan CLO tranche originally rated 'AAA' has ever defaulted.

Annual global default rates: CLOs vs. corporates*

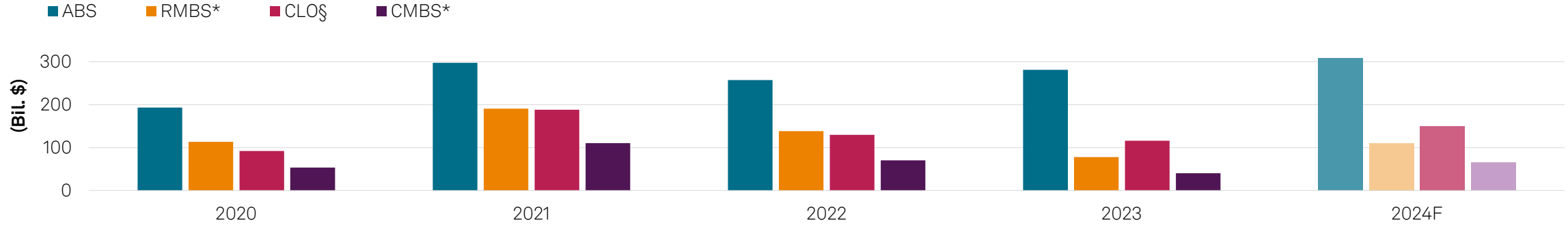


*Default rates for CLOs and corporates include all rated entities. Speculative-grade corporate default rates include only companies rated 'BB+' and below. CLO--Collateralized loan obligation. Source: S&P Global Ratings Credit Research and Insights.

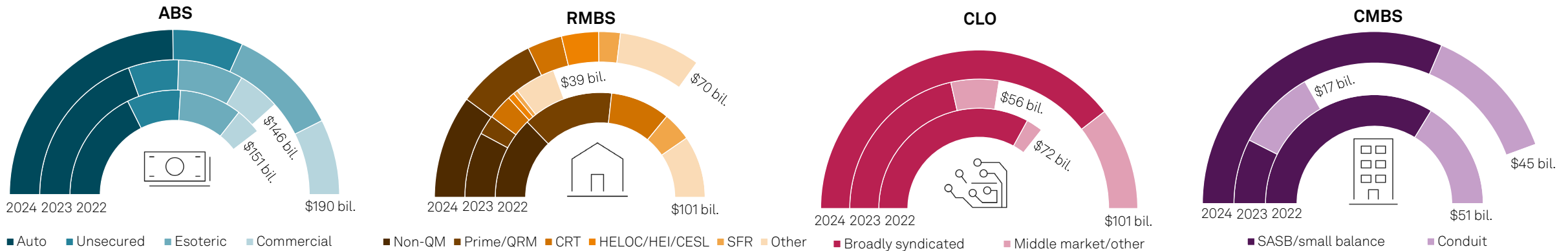
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Market-Wide Structured Finance Issuance | Total Structured Finance Issuance Up 58% Year-Over-Year Through The Second Quarter

Annual new issuance



New issuance through the end of June

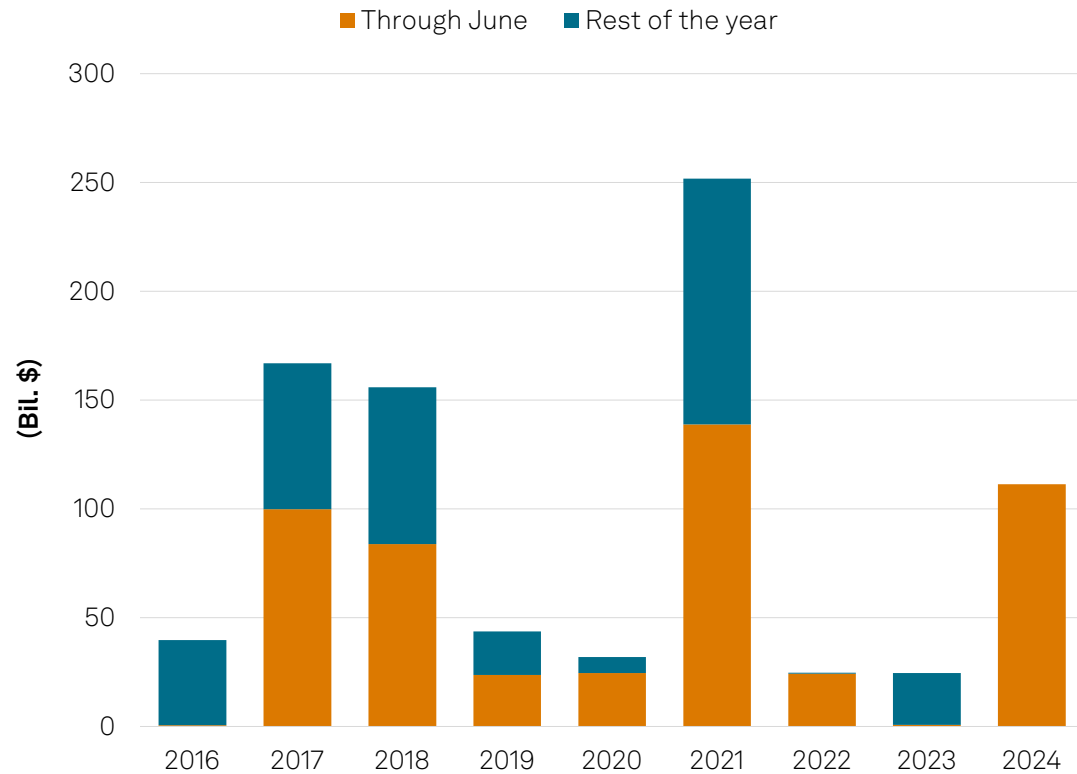


Note: Issuance volumes are rounded. New issuance volumes exclude CRE CLO transactions. *RMBS and CMBS issuance volumes exclude agency mortgage-backed securities. §CLO refinancing-reset volume is not considered new issuance. ABS—Asset-backed securities. RMBS—Residential mortgage-backed securities. CLO—Collateralized loan obligations. CMBS—Commercial mortgage-backed securities. Non-QM—Non-qualified mortgage. QRM—Qualified residential mortgage. CRE—Commercial real estate. F—Forecast. CRT—Credit risk transfer. HELOC—Home equity line of credit. HEI—Home equity investment. CESL—Closed-end second lien. SFR—Single-family rental. SASB—Single asset single borrower. Sources: S&P Global Ratings, Bloomberg, and Green Street.



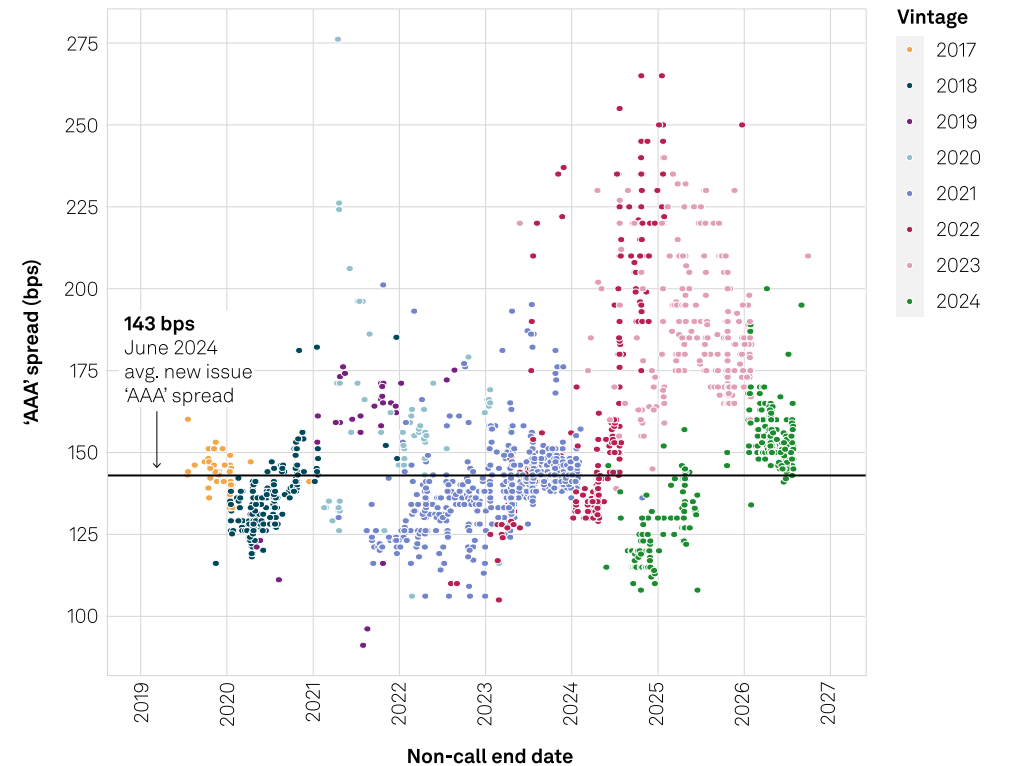
CLO Refinancings And Resets | Year-To-Date Issuance Close Behind 2021 Levels

CLO refinance/reset issuance volume



Source: Pitchbook LCD.

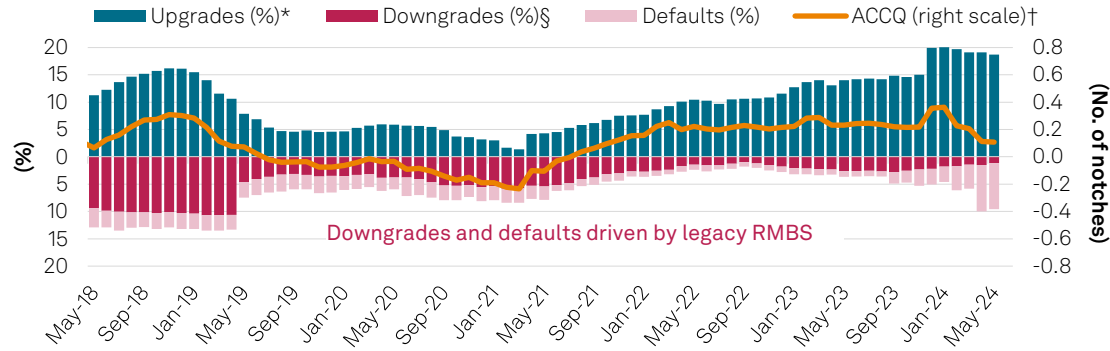
Outstanding U.S. BSL CLO 'AAA' spreads and non-call period end dates by vintage: 2021 vintage coming into play



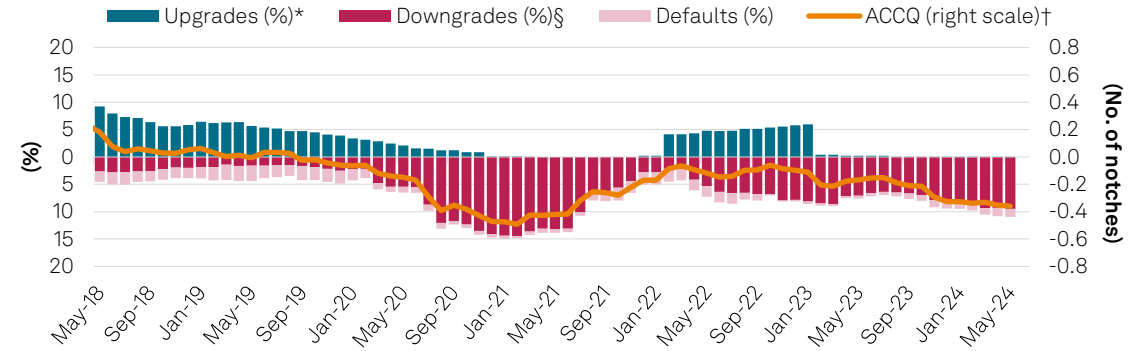
Note: The spreads of reinvesting transactions and transactions within two years of their reinvestment period end date are plotted. The spreads of transactions that have already refinanced or reset previously are plotted (vintage is adjusted to reflect most recent iteration of the CLO). BSL—Broadly syndicated loan. CLO—Collateralized loan obligations. Bps—Basis points. Sources: Pitchbook LCD and S&P Global Ratings.

Ratings Performance | Average Change In Credit Quality By Sector

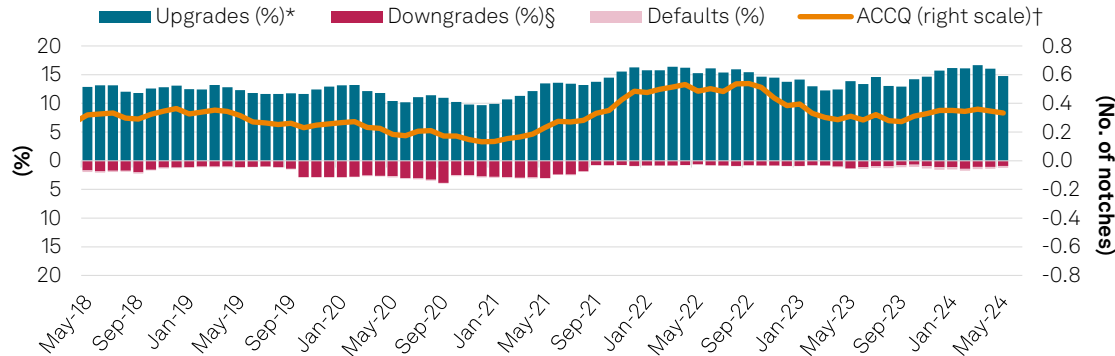
RMBS



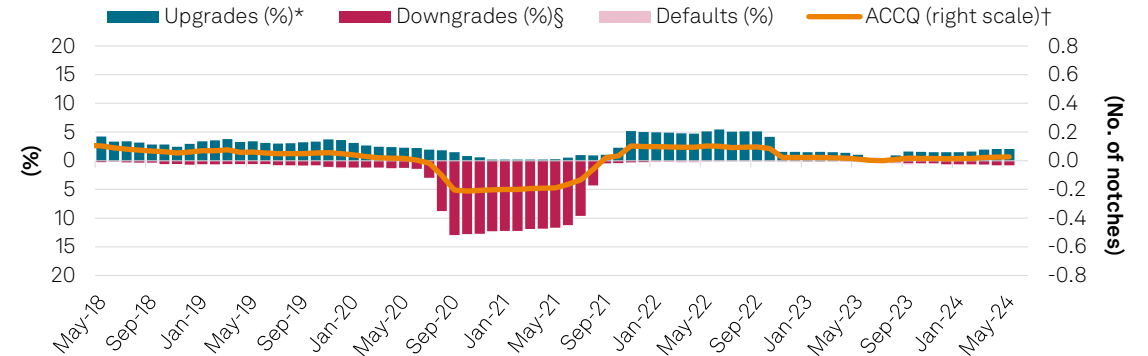
CMBS



ABS[‡]



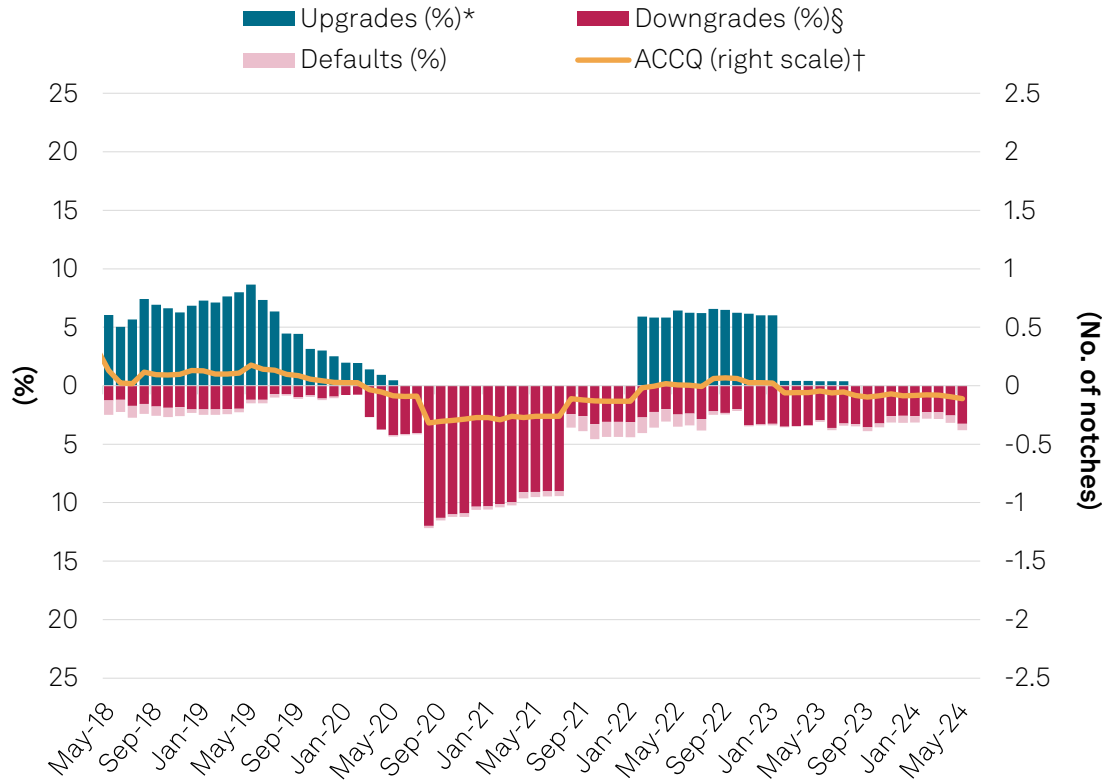
CLO



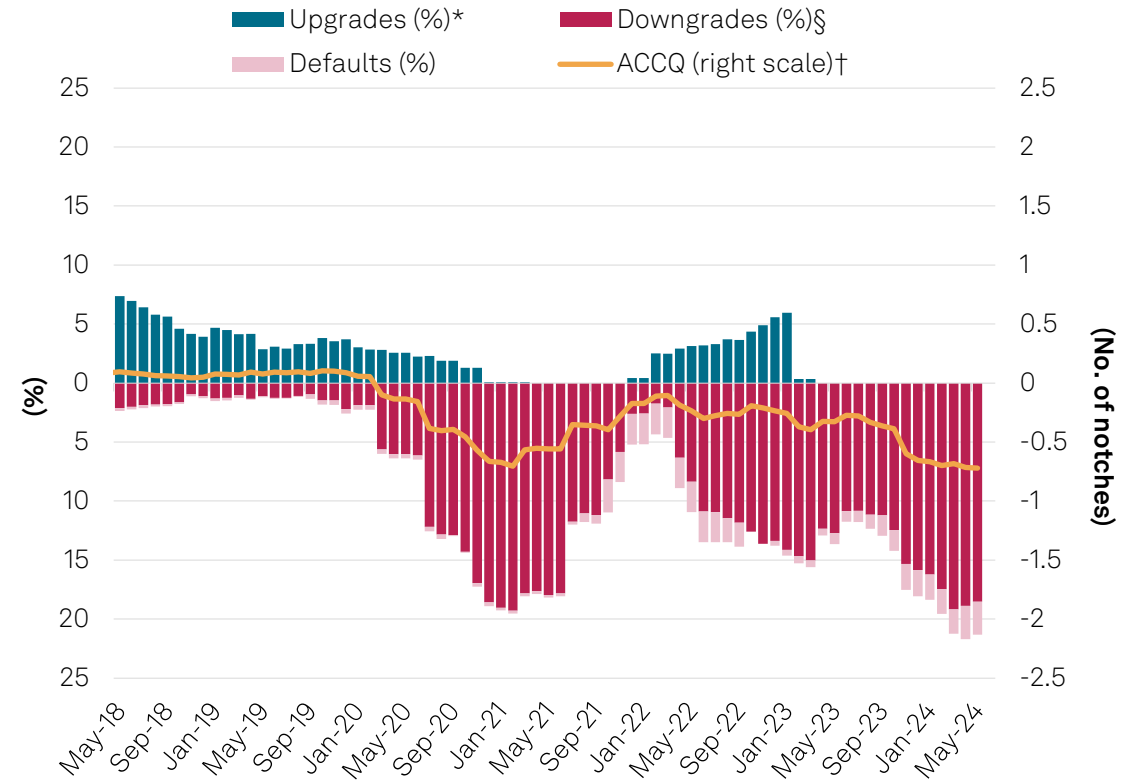
*Total number of upgrades (downgrades, defaults) divided by the total number of outstanding ratings in the sector on a trailing-12-month basis. Securities whose ratings migrated to NR over each period are classified based on their rating prior to NR.
 ‡The downgrade proportion excludes defaulted tranches. †The average number of notches by which ratings across all tranches in each sector changed on a trailing-12-month basis. ‡ABS includes ratings performance data from esoteric asset classes. RMBS—Residential mortgage-backed securities. CMBS—Commercial mortgage-backed securities. ABS—Asset-backed securities. CLO—Collateralized loan obligations. ACCQ—Average change in credit quality. NR—Not rated. Source: S&P Global Ratings.

Ratings Performance | Average Change In Credit Quality By CMBS Sub-Sector

Conduit CMBS



SASB CMBS



*Total number of upgrades (downgrades, defaults) divided by the total number of outstanding ratings in the sector on a trailing-12-month basis. Securities whose ratings migrated to NR over each period are classified based on their rating prior to NR. §The downgrade proportion excludes defaulted tranches. †The average number of notches by which ratings across all tranches in each sector changed on a trailing-12-month basis. CMBS—Commercial mortgage-backed securities. SASB—Single asset single borrower. ACCQ—Average change in credit quality. NR—Not rated. Source: S&P Global Ratings.

RMBS



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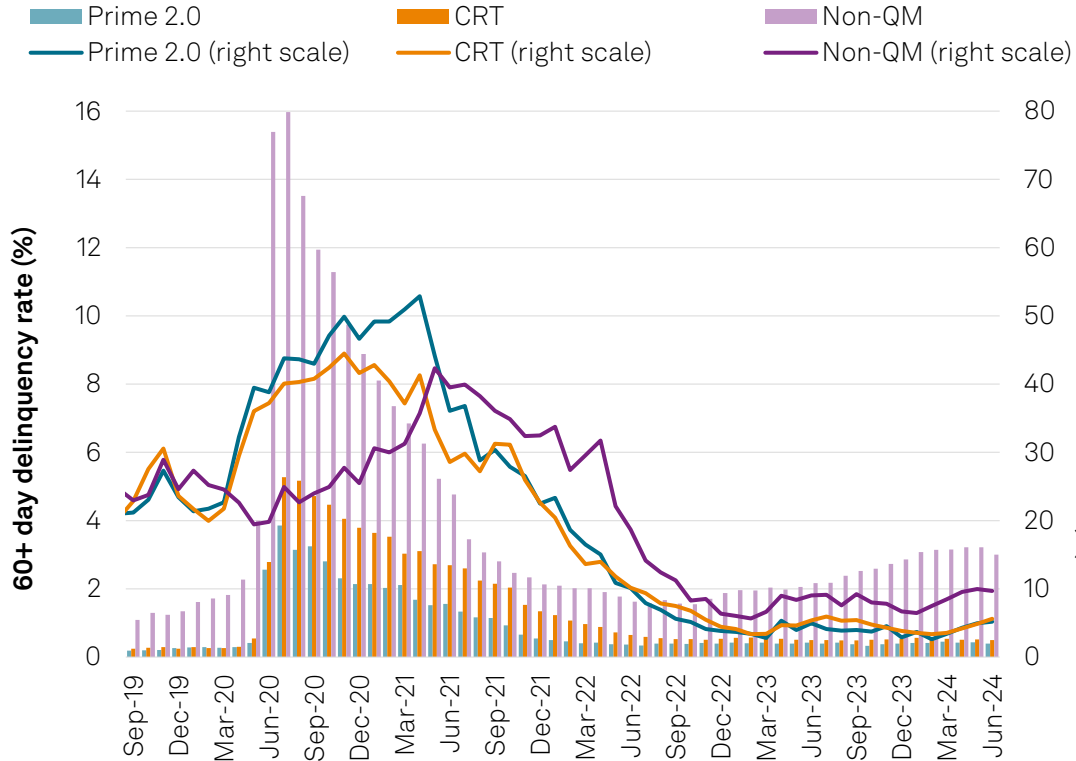
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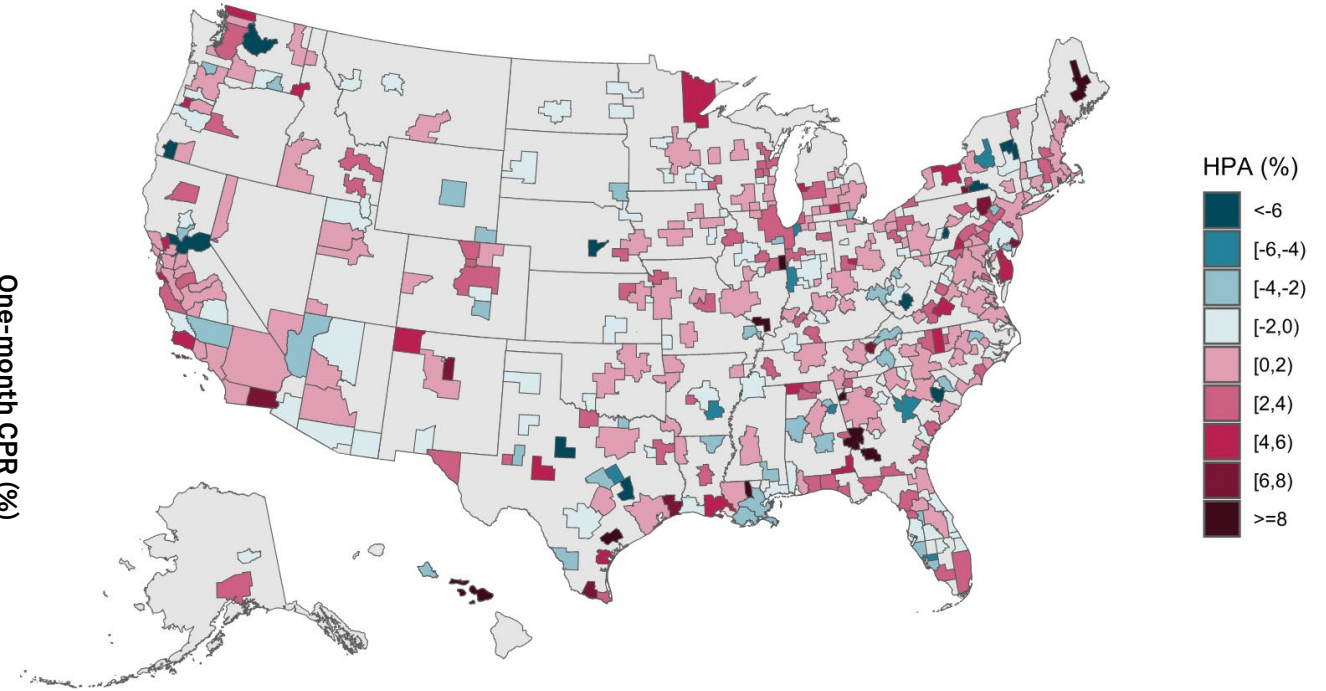
RMBS | Collateral Performance And Regional Home Price Appreciation Update

RMBS collateral performance*



*Data as of July 1, 2024. Based on loans backing RMBS transactions rated by S&P Global Ratings. RMBS--Residential mortgage-backed securities. CRT--Credit risk transfer. Non-QM--Non-qualified mortgage. CPR--Conditional prepayment rate. Source: S&P Global Ratings.

Fourth-quarter 2023 to first-quarter 2024 HPA, by MSA*



*Ten MSAs depict combined data from two or more metropolitan divisions due to overlapping geographic locations. The HPA rate from the metropolitan division with the highest core city population was chosen for each combined MSA. The Watertown-Fort Drum, N.Y., MSA is excluded due to insufficient transaction volume. MSA--Metropolitan statistical area. HPA--Home price appreciation. Sources: Federal Housing Finance Agency All Transactions Home Price Index and S&P Global Ratings.

CMBS



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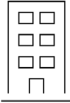
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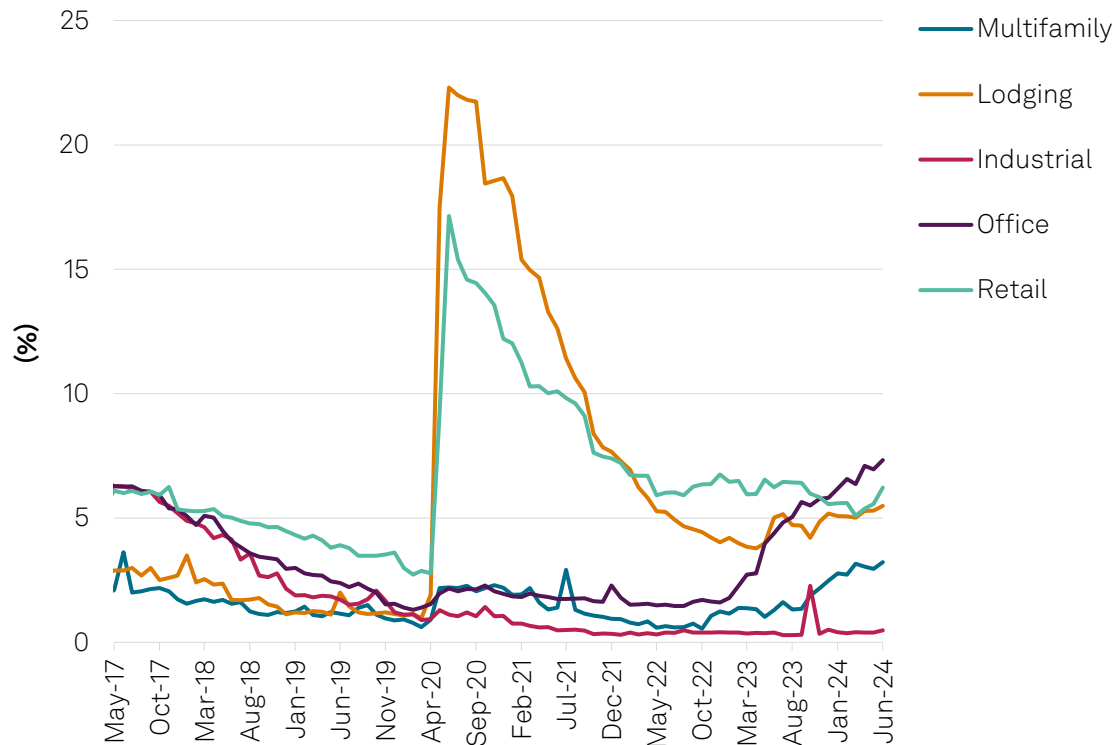
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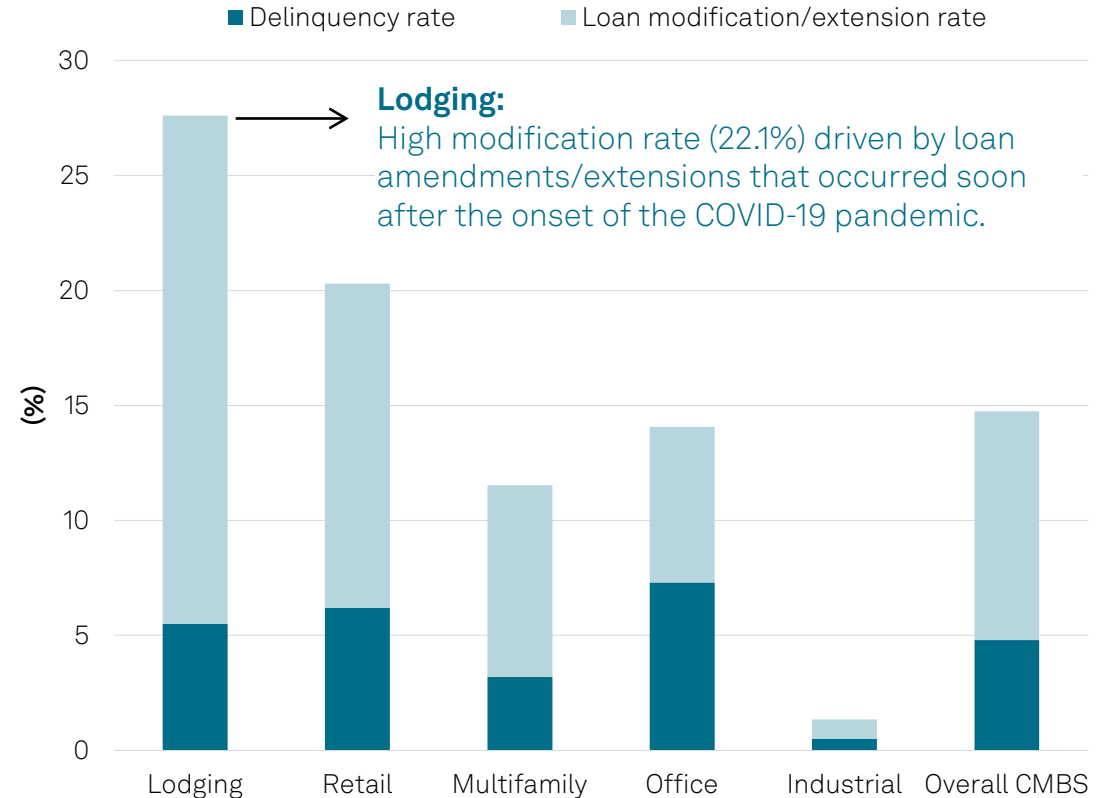
CMBS | Overall Delinquency Rate Reaches 4.8% In June; Balance Of Delinquent Loans Up 41% Year-Over-Year

Delinquency rate by property type*



*Based on loans backing commercial mortgage-backed security transactions rated by S&P Global Ratings. Source: S&P Global Ratings.

Delinquency and modification/extension rate by property type*



*Data as of June 2024. Based on loans backing commercial mortgage-backed security transactions rated by S&P Global Ratings. Source: S&P Global Ratings.

ABS



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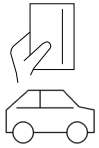
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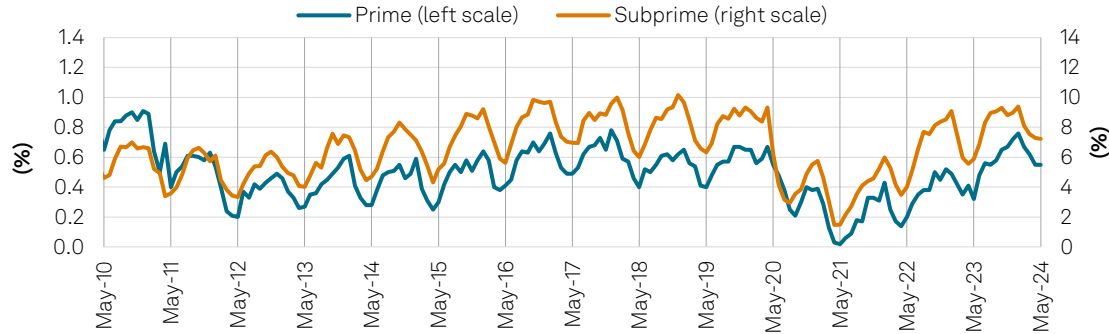
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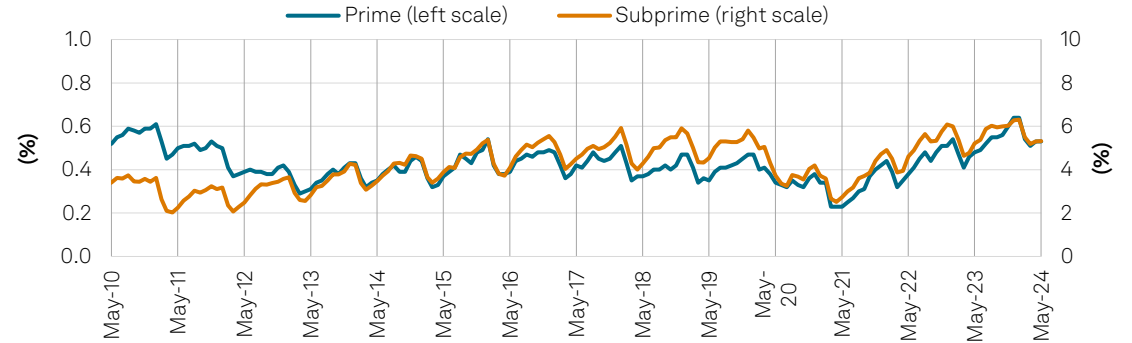


ABS | Auto Loan ABS Collateral Performance And Bankcard Credit Card Quality Index

Auto loan ABS net loss rates*

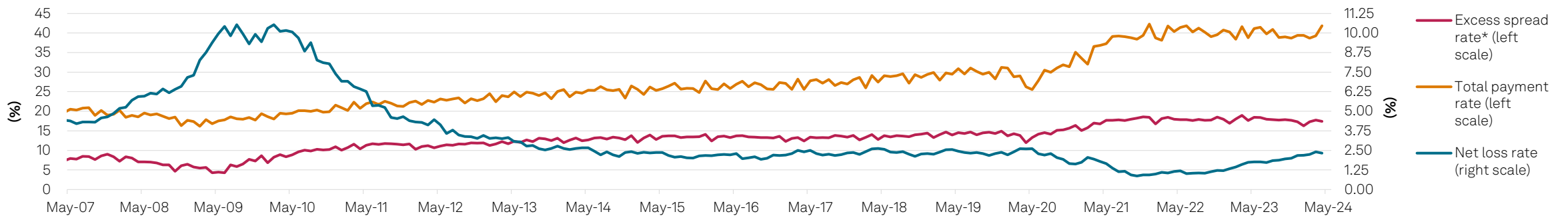


Auto loan ABS 60+ day delinquency rates*



*Based on auto loan ABS transactions rated by S&P Global Ratings. Monthly net loss rates are annualized. ABS--Asset-backed securities. Source: S&P Global Ratings.

Bankcard Credit Card Quality Index§



§Based on credit card ABS transactions rated by S&P Global Ratings. *Yield minus base funding rate minus charge-off rate. Monthly net loss rates and excess spread rates are annualized. Source: S&P Global Ratings.

Esoteric ABS



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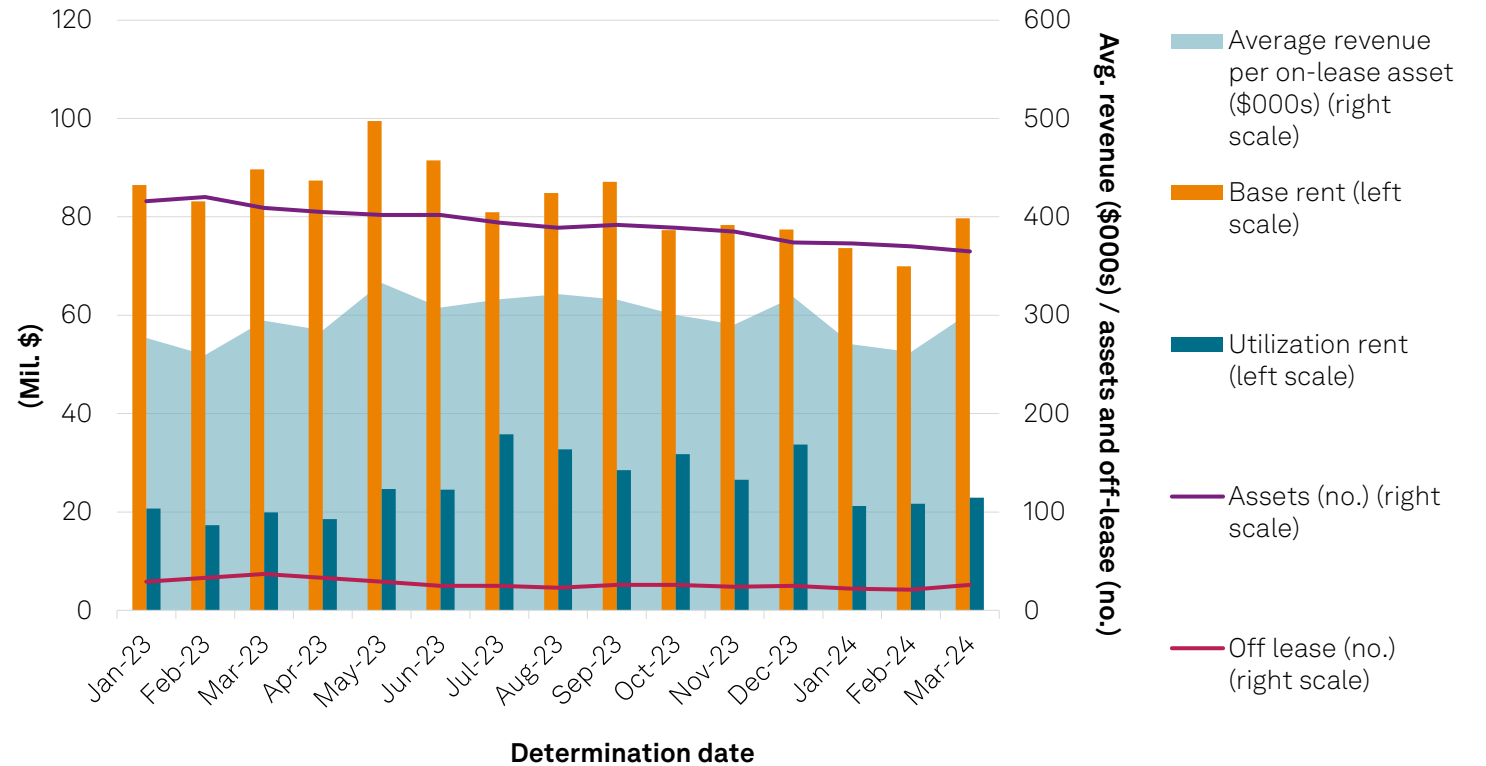
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Esoteric ABS | Aircraft ABS Performance Metrics

- U.S. aircraft ABS exhibited generally strong performance in 2023 and first-quarter 2024 as global air traffic surpassed 2019 levels for the first time in February 2024.
- Strong base and utilization rents, along with opportunistic disposition activities, improved the rated notes' paydown pace in 2023. Half-life appraisal values stabilized compared with the 2022 valuations and improved in the first part of 2024—a trend we expect to continue this year.
- Leases are increasingly being extended and, in some cases, for a longer duration than usual and at a higher base rent than the prior lease.
- In March 2024, we raised eight ratings and affirmed one rating that was placed on CreditWatch positive in December 2023.
- To access our latest Aircraft ABS Newsletter, [click here](#).

Monthly aircraft ABS trends since January 2023



Source: S&P Global Ratings.

CLO



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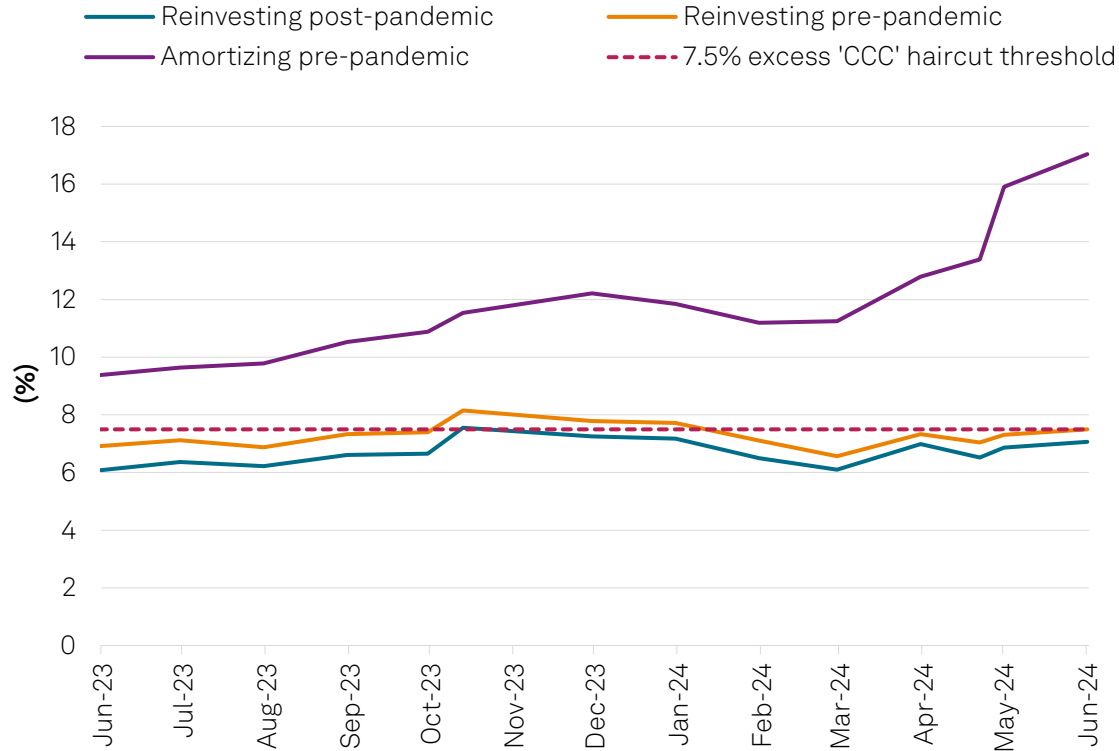
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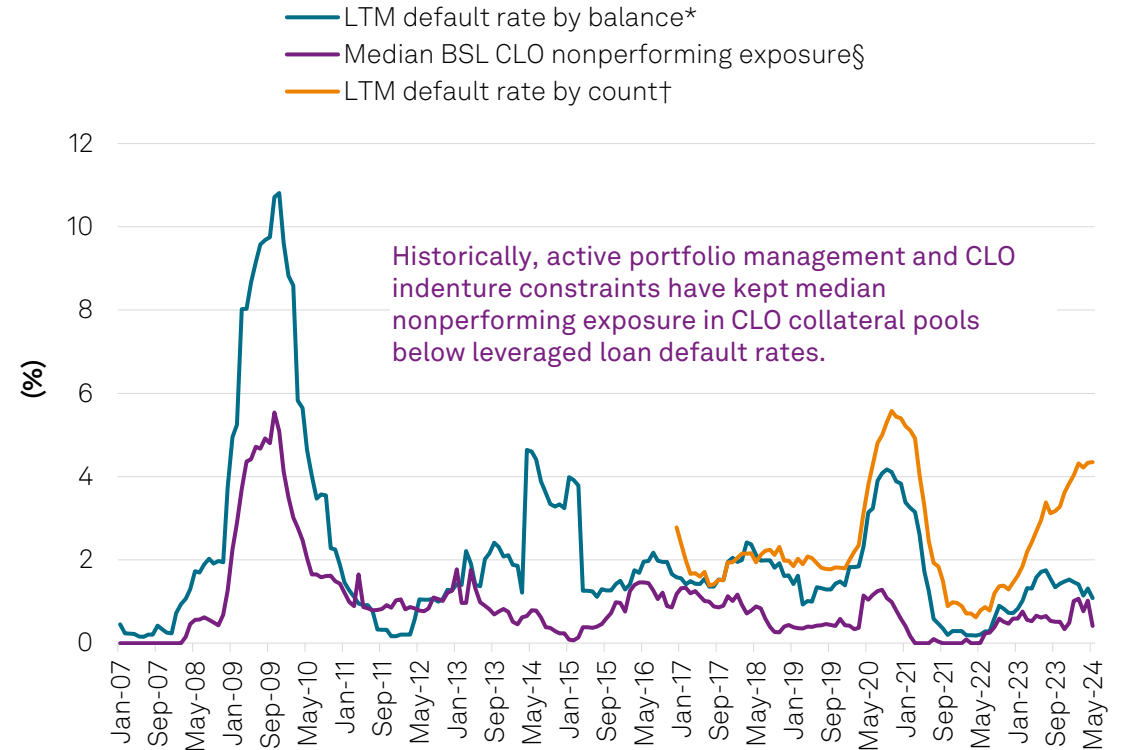
CLO | 'CCC'/Nonperforming Exposures And Leveraged Loan Default Rates

'CCC' exposure across U.S. BSL CLO Index*



*Dataset is derived from transactions included in our U.S. BSL CLO Insights Index. May and June 2024 datapoints are in progress and based on the most recent portfolio statistics available to us. BSL—Broadly syndicated loan. CLO—Collateralized loan obligation. Source: S&P Global Ratings' [U.S. CLO Insights dashboard](#).

Morningstar LSTA Leveraged Loan Index default rate vs. median nonperforming BSL CLO exposure



*Defaulted loan balance/total outstanding loan balance. §Among CLOs rated by S&P Global Ratings. †Count of issuer defaults and distressed exchanges/count of total issuers. BSL—Broadly syndicated loan. CLO—Collateralized loan obligation. LTM—Last 12 months. Sources: Morningstar LSTA Leveraged Loan Index and S&P Global Ratings.

ABCP/ Muni-Structured



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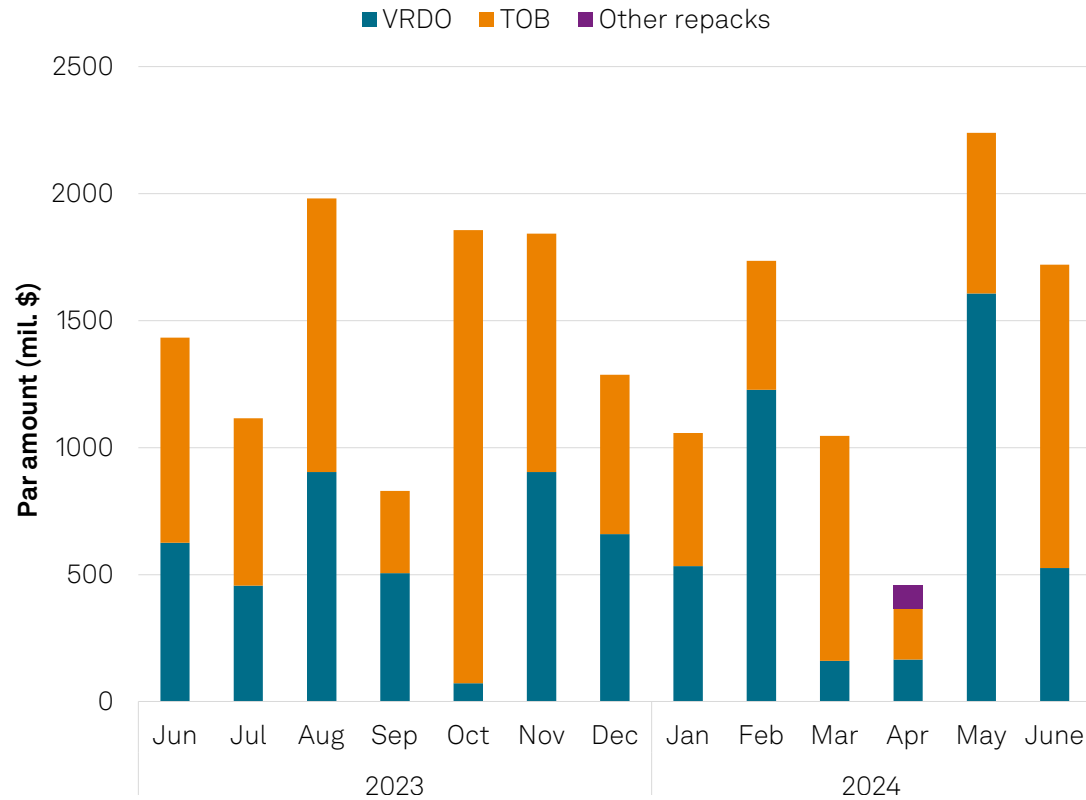
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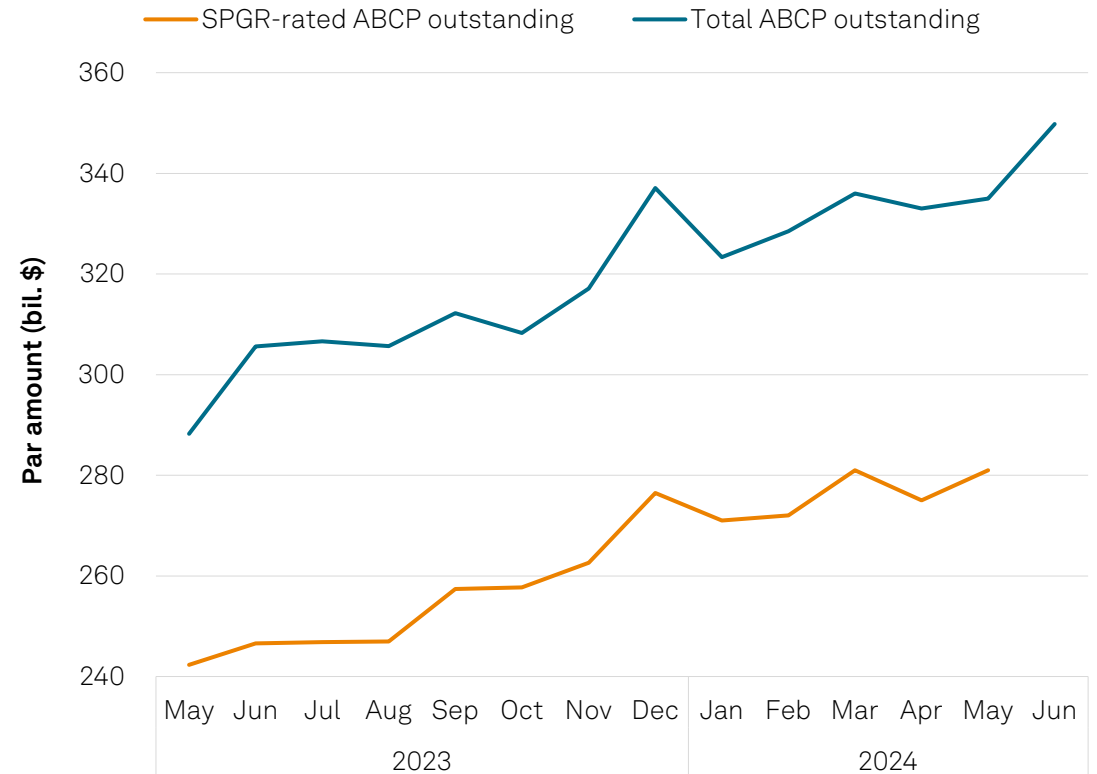
ABCP Muni-Structured | New Issuance And Outstanding Amounts

S&P Global Ratings-rated short-term variable rate municipal issuance



VRDO--Variable rate demand obligation. TOB--Tender option bond. Source: S&P Global Ratings.

ABCP outstanding



ABCP—Asset-backed commercial paper. Sources: S&P Global Ratings and U.S. Federal Reserve.



Recent Research

Sector	Publications
RMBS	CreditWeek: Is U.S. Housing Becoming (A Little) More Affordable?
CMBS	U.S. CMBS Update Q2 2024: Office Under Severe Distress; SASB Issuance Is Still Booming
	U.S. CMBS Delinquency Rate Rose 22 Bps To 4.8% In June 2024; Updates Provided On Modification Rate By Property Type
	Lower Margin For Error On Debt Service Coverage Raises U.S. CMBS Performance Risk
ABS	U.S. Auto Loan ABS Tracker: May 2024 Performance
	ABS Frontiers: Looming Basel 3.1 Rules Could Incentivize More Bank Securitization
Esoteric ABS	U.S. Aircraft ABS Newsletter: July 2024
	Structured Finance Esoteric Quarterly Roundup: Q2 2024
CLO	CLO Insights U.S. BSL Index: SPWARF Improves, But 'CCC' Buckets Remain Elevated; CLOs Outperform Loan Market In Exposure To Defaults
	U.S. And European BSL CLOs: A Comparative Overview (2024 Update)
ABCP/Muni-Structured	Inside Global ABCP: 2024 Update
	Q1 2024 Tender Option Bond Update: Issuance Plunges Amid High Financing Costs

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