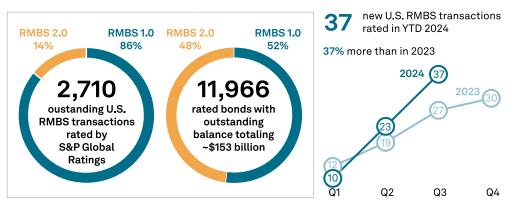
Market Insights Sector Intelligence | U.S. RMBS

Oct. 31, 2024

This report does not constitute a rating action.



819 transactions had a rating actions in YTD 2024



Upgrades outpaced downgrades three to one in YTD 2024

*Downgrades excludes rating actions to 'D (sf) from 'CC (sf)' where we determined ultimate repayment of missed interest unlikely at any rating level. Data as of Oct. 3, 2024. YTD--Year to date. Source: S&P Global Ratings.

Key Takeaways

- Through third-quarter 2024, S&P Global Ratings assigned ratings to 37 new RMBS transactions totaling approximately \$38.5 billion, 33% more than 2023 by issue size.
- We conducted surveillance reviews on over 2,500 transactions and took rating actions on 810 transactions. Upgrades outpaced downgrades three to one through September 2024, when excluding downgrades lowered to 'D (sf)' (default) from 'CC (sf)' ("virtual certainty" of default) in our RMBS 1.0 portfolio (see Surveillance Summary).
- S&P Global Ratings expects non-agency RMBS issuance volume of about \$125 billion in 2024--a 60% increase from 2023--on the back of strong mortgage market fundamentals.
- S&P Global Ratings' nationwide overvaluation assessment rose approximately two
 percentage points to 16.6%, as home price appreciation outpaced wage growth in secondquarter 2024. Despite regional variations, nationwide overvaluation remains high, with
 92% of the MSAs still considered as overvalued.
- The rating impact of Hurricanes Helene and Milton on U.S. RMBS is likely to be limited given the average exposure within our rated deals is approximately 7.7%. However, we will continue to monitor the areas affected by the storms and provide updates as necessary.

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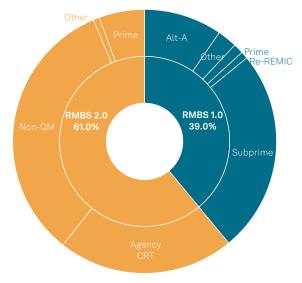
Rated U.S. RMBS Portfolio

The \$153 billion U.S. residential mortgage-backed securities (RMBS) portfolio that S&P Global Ratings rates can be divided into two distinct vintages: RMBS issued prior to 2009 (the RMBS 1.0 portfolio) and RMBS issued in or after 2009 (the RMBS 2.0 portfolio). Key takeaways from our rated portfolio include:

- RMBS 2.0 transactions comprise only 14% of the entire rated U.S. RMBS portfolio by transaction count, but they account for 61% by outstanding principal balance. This difference by outstanding balance continues to diverge as the RMBS 1.0 portfolio runs off (only about 4% of the original collateral remains) and the RMBS 2.0 portfolio grows.
- Through third-quarter 2024, we assigned ratings to 37 new transactions--a 37% increase relative to 2023 by count, partly attributable to a modest increase in origination volumes as a result of easing mortgage rates compared to 2023.

Chart 1

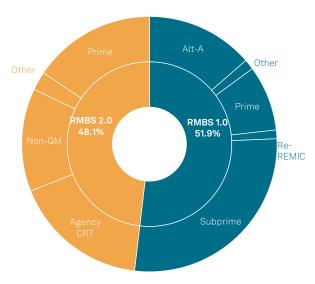
Distribution by balance (%)



Data as of Oct. 3, 2024. Non-QM--Non-qualified mortgage. Source: S&P Global Ratings.

Chart 2

Distribution by bond count (%)



Data as of Oct. 3, 2024. Non-QM--Non-qualified mortgage. Source: S&P Global Ratings.

Table 1 shows a breakdown of our RMBS 2.0 portfolio by rating category. The highlights include:

- We currently rate approximately \$93.1 billion in RMBS 2.0 transactions. The largest subsector by balance is non-qualified mortgage (non-QM; 54.0%), followed by agency credit risk transfer (CRT; 35.6%), and prime (9.2%).
- The higher percentage of 'A' and 'BBB' ratings (7.4% and 20.0%, respectively) within agency CRT reflects the issuers' use of CRT to shed credit risk at certain attachment points.
- Of the 9.2% RMBS 2.0 prime ratings outstanding, the dominant majority are rated 'AAA', reflecting the borrowers' stronger credit profiles.

Table 1

Distribution of bond balance per rating category by sector (%)

RMBS 2.0 transactions

Rating	category

Deal type	AAA	AA	Α	BBB	ВВ	В	ccc	Total
Agency CRT	0.0	0.2	7.4	20.0	6.2	1.7	0.0	35.5
Non-QM	34.1	6.6	5.6	3.5	2.4	1.8		54.0
Prime	8.1	0.6	0.2	0.1				9.2
Other(i)	0.7	0.3	0.1					1.3
Total(ii)	42.9	7.6	13.4	23.7	8.7	3.6	0.0	100.0

Data as of Oct. 3, 2024. (i)Includes servicer advance transactions. (ii)The total balance is approximately \$93.1 billion. CRT--Credit risk transfer. QM--Qualified mortgage. Source: S&P Global Ratings.

Table 2 shows a breakdown of our RMBS 1.0 portfolio by rating category. Some highlights of the portfolio include:

- We currently rate approximately \$59.7 billion in RMBS 1.0 transactions.
- Subprime transactions represent about 64% (by balance) of RMBS 1.0 transactions, with onethird of the outstanding classes rated either 'CC' or 'D', which generally indicates classes with unrealized or actual principal write-downs, with or without unrecoverable interest shortfall.
- Investment-grade classes (rated 'BBB-' or higher) represent approximately 14% (by balance) of RMBS 1.0 transactions.

Table 2

Distribution of bond balance per rating category by sector (%)

RMBS 1.0 transactions

Rating category

Deal type	AAA	AA	Α	BBB	ВВ	В	ccc	СС	D	Total
Alt-A	0.0	1.4	0.9	0.9	1.4	1.9	11.4	4.7	2.0	24.6
Prime		0.5	0.4	0.5	0.5	0.3	0.8		0.1	3.2
Re-REMIC		0.9	0.0	0.2			0.7		0.3	2.3
Subprime	0.4	1.2	1.7	2.3	3.0	5.4	24.3	11.1	14.3	63.8
Other		2.2	0.0	0.3	0.0	0.1	1.5	0.7	1.3	6.2
Total(i)	0.5	6.3	3.0	4.2	5.0	7.8	38.7	16.5	17.9	100.0

Data as of Oct. 3, 2024. (i)The total balance is approximately \$59.7 billion. Alt-A--Alternative-A. REMIC--Real estate mortgage investment conduit. Source: S&P Global Ratings.

Surveillance Summary

Through September 2024, S&P Global Ratings conducted surveillance reviews on over 2,500 transactions, which included rating actions on 810 RMBS 1.0 and 2.0 transactions. Of these rating actions, we affirmed 2,446 ratings, raised 753, and lowered 938, including downgrades to 'D (sf)' (default) from 'CC (sf)' ("virtual certainty" of default) in our RMBS 1.0 portfolio.

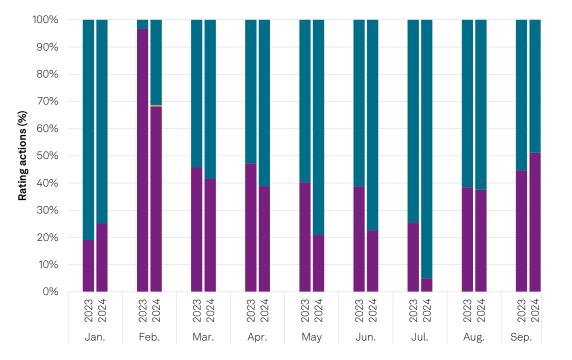
RMBS 2.0 Transactions

We took rating actions on 1,836 classes from 104 RMBS 2.0 transactions in year-to-date (YTD) 2024 (see charts 3 and 4). We made 471 upgrades, one downgrade, and 1,364 affirmations. The highlights include:

- Upgrades primarily reflect deleveraging, with transactions benefiting from minimal-to-no accumulated losses to date, and a growing percentage of credit support to the rated classes.
- One class from a non-QM transaction was downgraded to 'CCC' from 'B' in this period (see "GS Mortgage-Backed Securities Trust 2021-NQM1 Class B-2 Rating Lowered, Off Watch; Five Affirmed," published Feb. 1, 2024).

Chart 3

RMBS 2.0 surveillance rating activity in YTD 2024 vs. 2023 (cumulative)



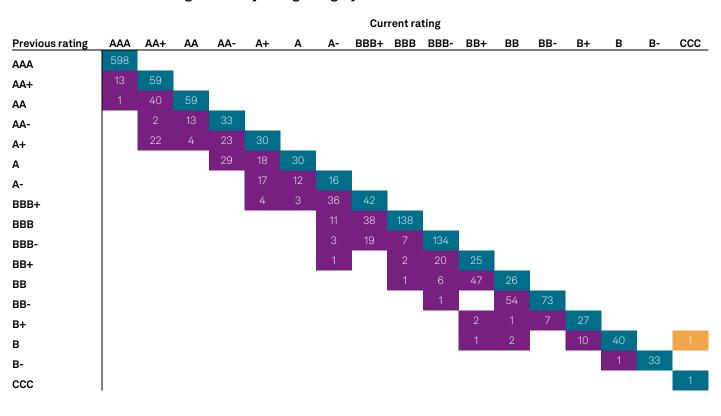
Affirmations

DowngradeUpgrade

YTD--Year to date. Source: S&P Global Ratings.

Chart 4

RMBS 2.0 surveillance rating actions by rating category in YTD 2024



YTD--Year to date. Source: S&P Global Ratings.

Downgrade

RMBS 1.0 Transactions

Affirmations

We took rating actions on 2,301 classes from 715 RMBS 1.0 transactions in YTD 2024 (see charts 5 and 6). We made 282 upgrades, 937 downgrades, and 1,082 affirmations. The highlights include:

• The upgrades generally reflect an increase in credit support for front-pay classes in transactions where principal could no longer be redistributed to more junior classes and excess interest could be used to compensate for potential delays in interest payments.

Upgrade

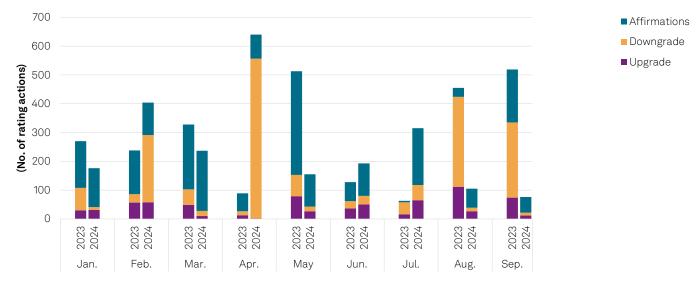
- The downgrades primarily reflect the erosion of credit support due to weak structural
 protections and/or missed interest payments, which are due to liquidity strain and creditrelated reduction in interest payment due to a preponderance of loan modifications in the
 pool.
- Of the 937 downgrades, 827 reflect classes that transitioned to 'D' from the 'CCC'/'CC' rating levels. Most of these rating transitions reflect our analysis of the transactions' interest shortfalls or missed interest payments on the affected classes. where reimbursement is unlikely as a result of the increase in interest rates.

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Chart 5

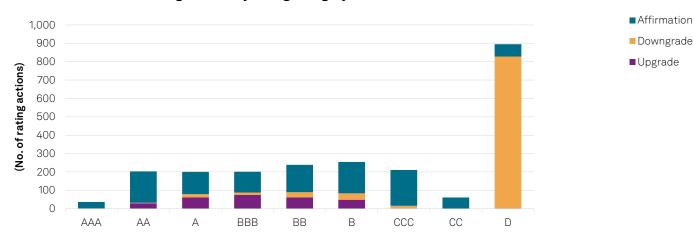
RMBS 1.0 surveillance rating activity in YTD 2024 vs. 2023 (cumulative)



YTD--Year to date. Source: S&P Global Ratings.

Chart 6

RMBS 1.0 surveillance rating actions by rating category in YTD 2024



Data as of Oct. 3, 2024. YTD--Year to date. Source: S&P Global Ratings.

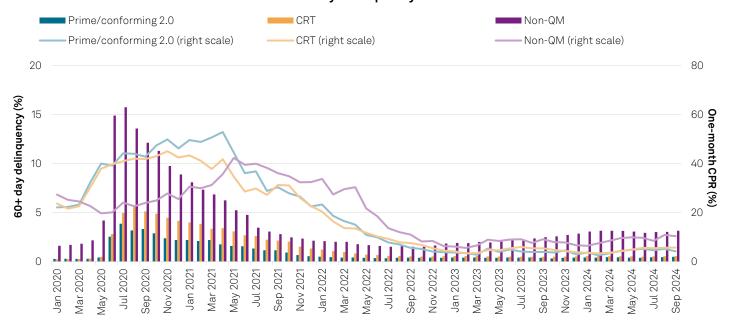
Delinquency And Conditional Prepayment Rate Highlights

Prime 2.0 and CRT 60+ days delinquency (DQ) levels continue to remain near post-pandemic lows. Non-QM delinquencies, on the other hand, have ticked up, with 30+ DQs around 5.4% and 60+ DQs around 3.2% as of the September 2024 performance period (see chart 7). Vintage breakout of delinquency levels indicates more recent non-QM vintages showing steeper increase in delinquency rates (see charts 8 and 9). For more on the loan characteristics by vintage, see "Peer comparison" section below.

U.S. RMBS prepayments as measured by one-month conditional prepayment rate, although marginally up, continues to remain near historic low levels. As many homeowners are tied in golden handcuffs of historic low mortgage rates, unwilling to sell and relocate in a higher rate environment, we expect prepayments to remain muted until mortgage rates start falling. It's important to emphasize that while prepayments certainly influence bond pricing, their credit effects are also important, given their contribution to deleveraging and impact on excess interest generation for certain structures that use spread as a form of credit enhancement.

Chart 7

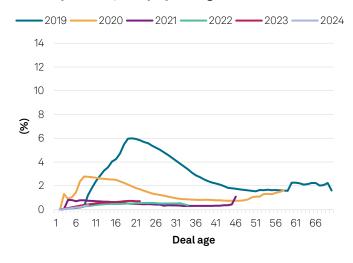
RMBS 2.0 transactions: one-month CPR and 60+ day delinquency



RMBS transactions rated by S&P Global Ratings. Data as of Oct. 1, 2024. CPR--Conditional prepayment rate. CRT--Credit risk transfer. Non-QM--Non-qualified mortgage. Source: S&P Global Ratings.

Chart 8

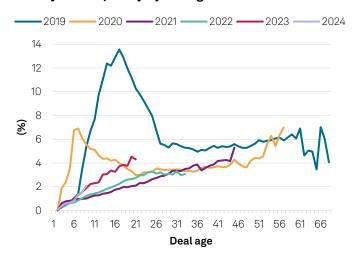
60+ days delinquency by vintage: CRT



Data as of Oct. 1, 2024. CRT--Credit Risk Transfer. Source: S&P Global Ratings.

Chart 9

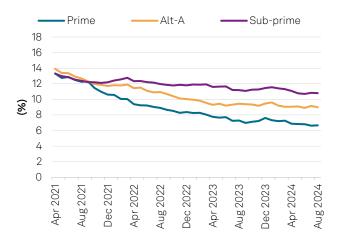
60+ days delinquency by vintage: non-QM



Data as of Oct. 1, 2024. Non-QM--Non-qualified mortgage. Source: S&P Global Ratings.

Chart 10

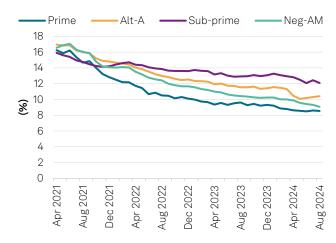
RMBS 1.0: 60+ day delinquency (pre-2005)



Data as of Oct. 1, 2024, 2024. Alt-A--Alternative-A. Source: S&P Global Ratings.

Chart 11

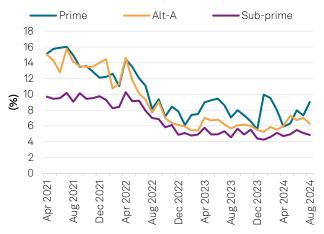
RMBS 1.0: 60+ day delinquency (2005-2008)



Data as of Oct. 1, 2024. Alt-A--Alternative-A. Source: S&P Global Ratings.

Chart 12

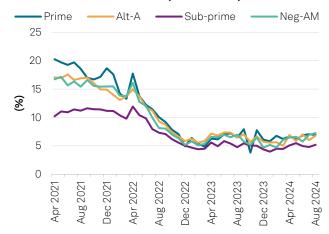
RMBS 1.0: one-month CPR (Pre-2005)



Data as of Oct. 1, 2024. CPR--Conditional prepayment rate. Alt-A--Alternative-A. Source: S&P Global Ratings.

Chart 13

RMBS 1.0: one-month CPR (2005-2008)



Data as of Oct. 1, 2024. CPR--Conditional prepayment rate. Alt-A--Alternative-A. Source: S&P Global Ratings.

Non-QM Spotlight On Short-Term Rentals

Debt service coverage ratio (DSCR) loans are mortgages on investor properties that are underwritten primarily based on the cash flow from the expected rental income. This market segment accounts for roughly half (by balance) of the mortgages backing the non-qualified mortgage (non-QM) securitizations rated by S&P Global Ratings between July 2022 and July 2024. DSCR loans have traditionally been associated with long-term (12-month) leases. However, the growing prevalence of Airbnb-style investments has led to increased origination and securitization of short-term rental (STR) DSCR loans, which we also see in non-QM pools, though they make up a relatively small portion (less than 10%).

STR DSCR loans have distinct characteristics that differentiate them from typical long-term rental (LTR) DSCR loans (see table 3). STR debt service coverage (DSC), which is generally derived from annual revenue (adjusted for vacancies and certain haircuts), is used for underwriting nightly, weekly, or monthly rental properties. However, LTR DSC predominately depends on annual rental revenue. In addition to DSC-related underwriting differences, STR DSCR loans differ from LTR DSCR loans in terms of the number of originators/aggregators that finance the loans, and idiosyncratic factors that could affect how STR DSCR loans perform relative to LTR DSCR loans.

Finally, as shown in chart 14 below, the rental yield for STR properties shows the same declining trend by property value as LTRs, but the yield for STRs is substantially higher than that of LTR properties. It's not surprising that STR properties command a higher yield. They have greater recurring expenses relative to LTRs, greater occupancy volatility, and exposure to seasonality and weather-related events (for example, a serious hurricane affecting Florida could deter tourists for an entire season).

For more details, see "Non-QM Spotlight On Short-Term Rentals", published Sept. 12, 2024.

Table 3

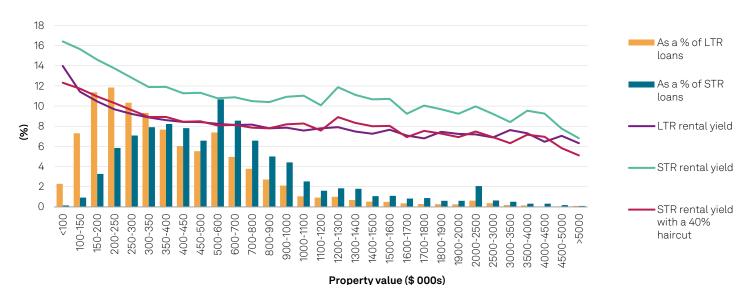
Collateral characteristics

	STR	LTR	Non-QM (i)
Closing balance (\$)	1,042,126,556	6,997,917,158	11,777,665,173
Transaction count	37	37	41
Closing loan count	2,178	23,579	19,304
Average loan balance (\$)	478,479	296,786	610,115
WA original CLTV ratio (%)	70.06	66.48	71.84
WA FICO score	744	735	739
WA current rate (%) (ii)	8.03	8.07	7.47
WA DSCR (non-zero)	1.35	1.11	N.A.
Single-family (including PUD) (%)	76.1	66.4	85.8
Two- to four-family homes (%)	6.1	22.9	5.5
Fixed-rate loans (%)	82.0	84.4	82.1
Adjustable-rate loans (%)	18.0	15.6	17.9
Loans with IO payments (%)	13.9	17.8	9.2
Purchase (%)	53.4	45.8	69.8
Cash-out refinancing (%)	36.5	43.1	22.6
Average spread to 30-year FRM (%) (iii)	2.18	1.89	1.92

(i)Includes loan and borrower characteristics for loans that aren't DSCR/investor loans but co-populate non-QM pools of the same vintages examined for the DSCR loans in our sample. (ii)This rate includes ARM loans. (iii)For fixed-rate mortgages using a two-month lagged FRM. The FRM is determined as a monthly average of the Freddie Mac survey rate. STR--Short-term rental. STR--Short-term rental. LTR--Long-term rental. QM--Qualified mortgage. ARM--Adjustable-rate mortgage. FRM--Fixed-rate mortgage. N.A.—Not available. Source: S&P Global Ratings.

Chart 14

Home values and rental yields of STR and LTR loans



We assumed a 2.0% tax and insurance combined rate was used for calculating DSCR at origination. STR--Short-term rental. LTR--Long-term rental. DSCR—Debt service coverage ratio. Source: S&P Global Ratings.

Peer Comparison (Non-QM Transactions)

S&P Global Ratings has rated 31 non-QM transactions as of third-quarter 2024 compared to the 22 for full-year 2023. The risk exposure as forecasted by 'AAA' loss coverage of S&P Global Ratings-rated non-QM transactions in 2024 is lower than that of its cohort in 2023. While this is primarily attributed to the shift in collateral characteristics and composition as compared to prior years (see table 4), we note that certain changes are partially driven by the subset of non-QM transactions rated by S&P Global Ratings. The prominent shift in the collateral composition in 2024 are:

- Reduction in 'Other' documentation type (DSCR/asset depletion) to 41.9% in 2024 from 61.9% in 2023. We consider 'Other' to be riskier than traditional or alternate documentation types. Concurrently, we see an uptick in 'Alternate' documentation type to 46.4% in 2024 from 28.5% in 2023. 'Alternate' documentation type loans are predominantly to self-employed borrowers, which has seen an increase from 2023.
- Credit scores have risen steadily over the past few years. The weighted average score climbed to 744 in 2024 from 733 in 2023. Combined with a stable original combined loan-to-value (CLTV) ratio remaining at levels similar to 2023, this indicates an overall improvement in pool quality.
- The weighted average coupon (WAC) continued increasing, to 8.3% in 2024 from 7.6% in 2023, and is significantly higher from 5.1% in 2022, due to the elevated interest rate environment in the past few years.
- There is an increase in the average loan balance of pools in the S&P Global Ratings-rated non-QM 2024 vintage at approximately \$443,000 compared to \$335,000 in 2023, due in small part to the increasing median home prices.
- The DSCR on business purpose investor loans has seen a continuing decline, with a DSCR of 1.09 in 2024 compared to 1.18 and 1.36 in 2023 and 2022, respectively.

Table 4 Rated non-QM transactions by issuance vintage(i)

	Transactions issued in							
Collateral characteristics	YTD 2024	2023	2022	2021	2020	2019	2018	
Closing pool balance billion. (\$)	14.55	7.42	20.36	18.62	10.84	18.71	6.57	
Transactions (no.)	31	22	52	57	31	46	18	
Closing loan count (no.)	32,854	22,216	51,288	50,568	29,660	46,633	16,506	
Avg. loan balance (\$)	442,909	334,216	396,934	368,123	365,541	401,290	398,153	
WA original CLTV ratio (%)	69.2	69.3	70.0	69.3	69.5	69.3	67.4	
WA current CLTV ratio (%)	68.9	68.8	69.5	67.8	68.6	68.6	66.6	
WA FICO score	744	733	736	730	716	715	712	
WA current rate (%)	8.3	7.6	5.1	5.4	6.1	6.4	6.4	
WA seasoning (months)	3	5	5	12	9	6	8	
WA debt-to-income ratio (%)	35.4	35.9	34.8	35.1	35.8	36.1	36.5	
WA DSCR (non-zero)	1.09	1.18	1.36	1.35	1.32	1.24	1.25	
Owner occupied (%)	45.5	31.4	41.6	53.7	56.9	63.0	64.9	
Investor (%)	51.9	66.8	56.3	43.2	39.6	33.3	31.8	
Single-family (including PUD) (%)	78.0	76.0	74.9	78.2	78.6	78.7	80.5	
Two- to four-family homes (%)	11.7	13.8	15.1	12.6	12.1	12.2	10.0	
Fixed-rate loans (%)	85.4	76.3	86.0	67.4	43.5	34.3	24.3	
Adjustable-rate loans (%)	14.6	23.7	14.0	32.6	56.5	65.7	75.7	
Loans with IO payments (%)	7.8	14.9	17.9	14.0	17.9	13.0	12.7	
Purchase (%)	63.0	54.9	52.5	53.4	47.7	53.6	55.5	
Cash-out refinancing (%)	28.4	35.9	35.4	31.3	40.3	36.0	33.2	
Full documentation (%)	15.5	9.6	16.1	24.1	28.3	32.5	31.3	
Alternative/bank statement documentation (%)	42.6	28.5	31.8	37.8	39.4	43.1	42.3	
Other/asset depletion/DSCR documentation (%)	41.9	61.9	52.0	38.2	32.3	24.5	26.4	
Self-employed borrowers (%)	46.0	49.1	45.8	46.8	51.2	54.2	60.0	
Loans with coborrowers (%)	18.8	18.1	20.9	22.3	26.9	27.8	28.7	
Loss estimation (%)								
'AAA' loss coverage	26.50	33.29	29.62	23.90	28.85	27.35	25.45	
'AAA' foreclosure frequency	46.21	55.67	53.05	48.65	56.55	52.59	51.60	
'AAA' loss severity	57.35	59.80	55.83	49.13	51.02	52.00	49.32	
'BBB' loss coverage	8.18	10.83	9.85	7.95	9.70	8.70	7.85	
'BBB' foreclosure frequency	23.77	31.30	30.00	27.55	32.10	27.54	26.78	
'BBB' loss severity	34.42	34.60	32.81	28.86	30.22	31.59	29.31	
'B' loss coverage	2.04	3.29	3.10	2.65	3.15	2.30	1.95	
'B' foreclosure frequency	8.29	13.51	13.28	12.56	14.63	10.07	9.80	
'B' loss severity	24.56	24.32	23.34	21.10	21.53	22.84	19.90	

(i)As of the transactions' closing date. WA--Weighted average. CLTV--Combined loan-to-value. DSCR--Debt service coverage ratio. PUD--Planned unit development. IO--Interest only. Source: S&P Global Ratings.

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Market Overview

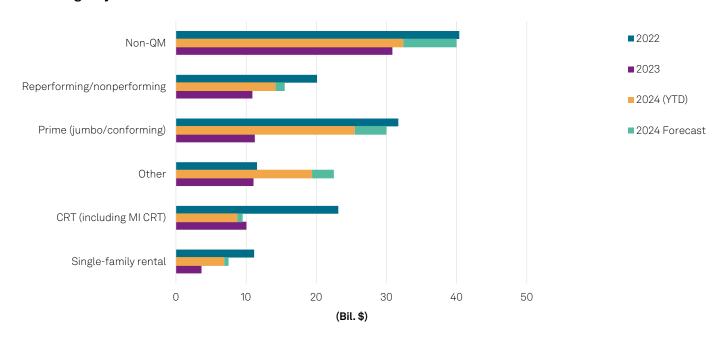
Non-Agency Issuance

As anticipated, the mortgage origination and securitization activity in 2024 has seen a year-over-year increase. Non-agency U.S. RMBS issuance through September 2024, at \$107 billion, has already surpassed the full-year issuance from 2023 of \$78 billion. The increase has been primarily driven by the prime jumbo/conforming sector, which has seen a 125% increase from 2023, and the continued strength of the non-QM market, which leads all subsectors with \$32 billion in YTD issuance. In addition, the issuance in the "Other" segment, which includes second liens/home equity lines of credit, reverse mortgages, residential transition loans, and shared appreciation assets, has also outpaced 2023 issuance.

We expect 2024 issuance to end around \$125 billion, a 60% increase from 2023, with muted issuance in the final quarter.

Chart 15

U.S. non-agency RMBS issuance



Non-QM--Non-qualified mortgage. CRT--Credit risk transfer. MI--Mortgage Insurance. Source: S&P Global Ratings.

Housing Is Still Overvalued

On Oct. 11, 2024, our nationwide overvaluation assessment increased to 16.6% from 14.3%, as per capita income growth lagged home price appreciation (HPA) (see "U.S. Home Price Overvaluation Ticks Up As Wage Growth Lags Home Price Gains," published Oct. 14, 2024).

As with our prior review, overvaluation remains high nationwide, with 92% of metropolitan statistical areas or divisions (MSAs) still overvalued. There is still substantial regional variation in both the number of overvalued MSAs and the extent of the overvaluation. For instance, numerous Florida MSAs (such as those in and around the Tampa area) are overvalued by more than 35%, while certain MSAs (including several in Northern California) remain undervalued by as much as 15%.

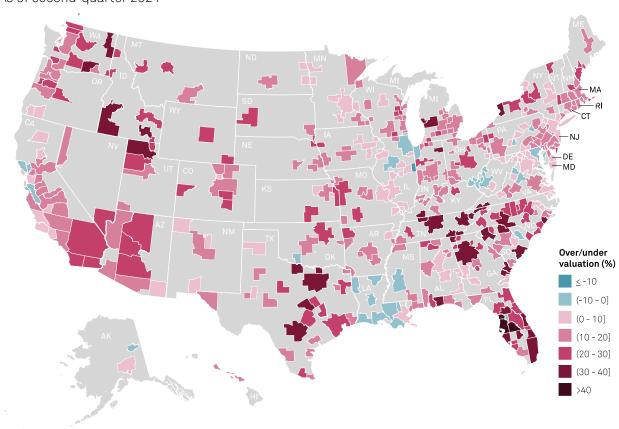
However, relative to our prior assessment, which is based on fourth-quarter 2023 data, the degree of over/undervaluation softened for the top 10 overvalued and undervalued MSAs. The average overvaluation of the top 10 overvalued MSAs decreased to 40.1% from 42.5%, while the average undervaluation of the top 10 undervalued MSAs was 8.1%, compared with the prior reading of 12.8%.

We believe the credit impact that home price overvaluation could have on U.S. RMBS will depend on the geographic distribution of the mortgage pools and the valuation dates of the underlying properties backing the loans in those pools.

Chart 16

U.S. over/undervaluation by MSA

As of second-quarter 2024



Non-seasonally adjusted All Transactions Home Price Index data. Ten MSAs depict combined data from two or more metropolitan divisions due to overlapping geographic locations. The HPA data from the metropolitan division with the highest core city population was chosen for each combined MSA. HPA--Home price appreciation. MSA--Metropolitan statistical area. Source: Federal Housing Finance Agency, S&P Global Ratings.

Impact Of Recent Hurricanes On Rated U.S. RMBS Likely To Be Limited

During the past few weeks, Hurricanes Helene and Milton had a major impact on Florida, Georgia, North Carolina, South Carolina, Tennessee, and Virginia, where high winds, rainfall, and storm surges caused extensive flooding. To assess the potential exposure of rated RMBS to the effects of the hurricanes, we have carried out a preliminary study that focuses on "affected areas",

defined here as the 126 counties, which qualify for the Federal Emergency Management Agency's (FEMA's) Individual Assistance Program.

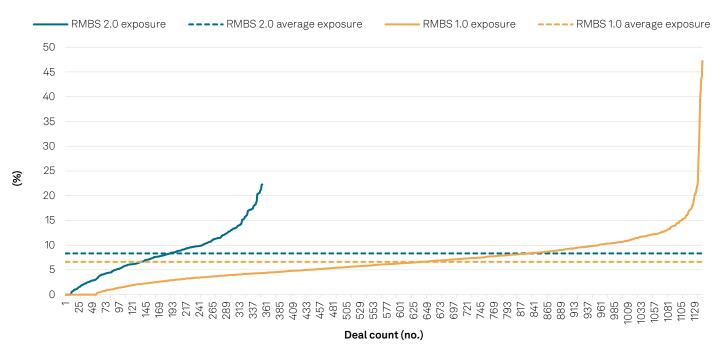
Of the roughly 1,500 rated transactions we analyzed, for which the rating on the highest rated tranche is greater than 'CCC', 188 RMBS 1.0 transactions and 107 RMBS 2.0 transactions have exposure greater than 10%. Chart 17 orders rated transactions in ascending order of disaster area exposure.

We don't expect there to be a significant impact on the performance of our rated transactions. However, the limited number of transactions that have more than 10% of collateral in regions affected by the hurricanes present a concentration risk and are a potential concern for disruptions in cash flows and even for eventual realized losses.

For more details, see "<u>Structured Finance Exposure To Hurricanes Helene And Milton And Their Ratings Impact</u>", published October 22, 2024.

Chart 17

Exposure to Hurricanes Helen and Milton for U.S. RMBS deals



Source: S&P Global Ratings.

Market Insights: Sector Intelligence | U.S. RMBS

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