

Rating Research Services

Sector Review:

Taiwan Ratings Corp.'s Structured Finance Default And Rating Transition Study, 2003-2013: Stable Credit Quality In 2013

Primary Credit Analyst:

Joe Lin; (886) 2 8722-5856; joe.lin@taiwanratings.com.tw

Secondary Contacts:

Aaron Lei; (886) 2 8722-5852; aaron.lei@taiwanratings.com.tw

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Sector Review: Taiwan Ratings Corp.'s Structured Finance Default And Rating Transition Study, 2003-2013: Stable Credit Quality In 2013

The credit quality of structured finance securities on which Taiwan Ratings Corp. has assigned ratings remained stable during 2013, a trend that began in 2010. This contrasts with a decline in the credit quality for the seventh consecutive year in 2013 of structured finance securities rated by Standard & Poor's Ratings Services, although downgrades have been less severe.

This study documents the historical default and transition rates for structured finance securities (also referred to as securitization notes) rated by Taiwan Ratings. The study covers 92 ratings (87 long-term ratings and five short-term ratings) from 31 Taiwan-originated structured finance transactions that we have rated from 2003 through 2013. It should be noted that the findings of this study may have several limitations due to the relatively small number of securities included in this study, the short time period involved, the concentration on certain asset types securitized, and the limited default events during this period of review. For this reason, the findings should not be generalized to understand the credit performance of other existing or new transactions; any comparison between this study and other similar studies may be misleading due to these limitations.

Overview:

- Stable collateral performance and the deleveraging of transactions with sequential-pay structures continue to explain the number of upgrades and rating affirmations exceeding downgrades in 2013; the total number of default events remains at four since 2003.
- The study shows that higher ratings are associated with higher credit stability or lower transition rates. This also reflects Taiwan's relatively stable economy and conservative deal structures.
- Collateralized loan obligations and real estate asset trust transactions experienced the highest rate of upgrades relative to other asset types.

Upgrades And Rating Stability Dominated In 2013

Upgrades and stable ratings led the ratings transition of Taiwan-originated structured finance securities in 2013, one rating was withdrawn and most remained stable with no downgrades or defaults during the year (see table 1).

Table 1

Taiwan Ratings' Structured Finance 2013 Rating Transition (%)													
From/to	Beginning number of ratings	'twAAA'	'twAA'	'twA'	'twBBB'	'twBB'	'twB'	'twCCC'	'twCC'	D'	NR	Upgrade/Stable/NR	Downgrade
'twAAA'	7	85.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.29	100.00	0.00
'twAA'	6	0.00	66.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.33	100.00	0.00
'twA'	2	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
'twBBB'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twBB'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twB'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twCCC'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twCC'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Ratings with modifiers (+ and -) are classified into the ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are classified as 'twAA' category in this transition table. NR means the securities were repaid in full and we withdrew the ratings for the redemptions. Source: Taiwan Ratings Corp.

The credit improvement and stability prevailed across all asset types in 2013 (see table 2). The results were mainly attributed to the stable collateral performance and lower leverage in rated transactions, helped by sequential pay structures and deleveraging. The stable creditworthiness of counterparties also contributed to stable structured finance ratings across all asset types.

Table 2

Taiwan Ratings' Structured Finance 2013 Rating Transition (%) By Asset Type					
Asset type	Beginning number of ratings	Stable	Upgrade	Downgrade	Default
Asset Backed Securities Commercial Other	1	100.00	0.00	0.00	0.00
Asset Backed Securities Equipment	4	100.00	0.00	0.00	0.00
Collateralized Debt Obligation Cash Flow CBO	7	71.43	28.57	0.00	0.00
Commercial Mortgage-Backed Securities	0	0.00	0.00	0.00	0.00
Residential Mortgage-Backed Securities Prime Jumbo	3	100.00	0.00	0.00	0.00
Total	15	86.67	13.33	0.00	0.00

Notes: Stable includes withdrawn ratings due to redemptions, for which the rating before withdrawal was the same as in the beginning of 2013. Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades. Source: Taiwan Ratings Corp.

We expect the underlying collateral performance of the outstanding structured finance transactions to remain largely stable in 2014, amid a stabilizing regional economy. This view is consistent with Standard & Poor's opinion on Asia-Pacific transactions (see "**Asia-Pacific Credit Outlook 2014: Structured Finance Ratings Likely To Remain Stable Despite Risks**," published Jan. 27, 2014, on Standard & Poor's RatingsDirect). Taiwan Ratings also provided a more detailed review on Taiwan's economic evolution and deal performance in 2013 in an article titled "**2013 Ratings Roundup Report**," published Dec. 30, 2013. The likely resilience of Taiwan-originated structured finance transactions is also due to the transactions' seasoned asset pools, sequential-pay structures, stable counterparty support, and structural protection for deal amortization if the credit quality of assets deteriorates quickly.

Transitions And Defaults Correlate With Ratings

The weighted average annual rating transitions have maintained high ratios of upgrades and stability for each rating category from 'twAAA' to 'twBBB' (ratings with modifiers included) in each assessment year (see table 3).

Table 3

Taiwan Ratings' Structured Finance Weighted Average One-Year Rating Transition (%), 2003 - 2013

From/ to	Beginning number of ratings	'twAAA'	'twAA'	'twA'	'twBBB'	'twBB'	'twB'	'twCCC'	'twCC'	'D'	NR	Upgrade/Stable/NR	Downgrade
'twAAA'	97	59.79	3.09	1.03	0.00	0.00	0.00	1.03	0.00	0.00	35.05	94.85	5.15
'twAA'	82	8.54	54.88	0.00	0.00	1.22	0.00	2.44	0.00	0.00	32.93	96.34	3.66
'twA'	102	6.86	9.80	57.84	0.00	0.00	0.00	0.98	0.98	0.00	23.53	98.04	1.96
'twBBB'	104	1.92	1.92	10.58	61.54	0.00	0.00	0.96	0.96	0.00	22.12	98.08	1.92
'twBB'	3	0.00	0.00	33.33	33.33	0.00	0.00	0.00	0.00	0.00	33.33	100.00	0.00
'twB'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twCCC'	9	0.00	0.00	0.00	11.11	0.00	0.00	44.44	0.00	22.22	22.22	77.78	22.22
'twCC'	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00

Notes: Ratings with modifiers (+ and -) are classified into the ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are classified as 'twAA' category in this transition table. 'NR' means the securities were repaid in full and we withdrew the ratings for the redemptions. 'Beginning no. of ratings' sums all ratings on the category at the beginning of each year. Source: Taiwan Ratings Corp.

The ratio of ratings stability, defined as ratings unchanged or securities fully repaid in the calendar year, indicates that higher ratings are associated with higher credit stability (see table 4). This finding is generally in line with Standard & Poor's global results and Taiwan Ratings' corporate default study.

Table 4

Taiwan Ratings' Structured Finance Weighted Average One-Year Rating Transition (%) On Stability, 2003 - 2013

From/to	Beginning number of ratings	Stable	Upgrade	Downgrade
'twAAA'	89	94.38	0.00	5.62
'twAA'	68	79.41	14.71	5.88
'twA'	91	71.43	25.27	3.30
'twBBB'	73	68.49	28.77	2.74
'twBB'	2	0.00	0.00	0.00
'twB'	0	0.00	100.00	0.00
'twCCC'	9	33.33	22.22	44.44
'twCC'	2	0.00	0.00	100.00

Note: Stable includes withdrawn ratings due to redemptions, for which the rating before withdrawal was the same as in the beginning of the each year. Ratings with modifiers (+ and -) are classified into the ratings in the same category. Source: Taiwan Ratings Corp.

Rating transitions in 2013 showed a similar pattern to the annual transition rates shown in table 4. From 2003 to 2013, among the 86 'twAAA', 'twAA', 'twA', and 'twBBB' ratings (with modifiers included) that we initially assigned, we subsequently raised, withdrew after full redemption, or made no changes to about 90% of the ratings (see table 5), and we lowered less than 10%.

Table 5

Taiwan Ratings' Structured Finance Rating Transition (%), 2003 - 2013													
Original last rating	Beginning number of ratings	'twAAA'	'twAA'	'twA'	'twBBB'	'twBB'	'twB'	'twCCC'	'twCC'	'D'	NR	Upgrade/Stable/ NR	Downgrade
'twAAA'	21	19.05	4.76	0.00	0.00	0.00	0.00	0.00	0.00	4.76	71.43	90.48	9.52
'twAA'	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.88	94.12	94.12	5.88
'twA'	26	3.85	7.69	7.69	0.00	0.00	0.00	0.00	0.00	3.85	76.92	96.15	3.85
'twBBB'	22	4.55	4.55	0.00	0.00	0.00	0.00	0.00	0.00	4.55	86.36	95.45	4.55
'twBB'	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00
'twB'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twCCC'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
'twCC'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Full rating categories are used when determining rating transitions such as upgrades and downgrades. Source: Taiwan Ratings Corp.

Table 5 also provides a gauge on transaction default rates in relation to the ratings initially assigned. The results generally echo the market perception that rating differences serve as an indication of the relative likelihood of defaults, but the differences between each rating category are not obvious. We believe this is due to the limited default events, the relatively small pool of ratings, and the short period covered in our analysis.

We are not reviewing the cumulative default rates for each rating category because the limited number of default events makes the cumulative default rates less reliable. Moreover, since most structured finance investors in Taiwan tend to buy securities upon their initial offerings and hold them throughout the transaction's maturity, we believe the rating transition default rates in table 5 should be of more relevance and offer greater insight.

Taiwan securitization transactions had higher upgrade and stability rates and lower downgrade rates in the rating transitions when compared with the global structured finance rating transitions tracked by Standard & Poor's (see tables 6 and 7). We believe this could be attributed to two reasons:

1. Taiwan's relatively stable economy in recent years and the typical sequential-pay structures and short reinvestment periods in Taiwan's transactions that support faster credit enhancement accumulation; and
2. The significant limitations of Taiwan Ratings' sample size. The local structured finance market began in 2003, and we have a much smaller rating universe and much shorter periods than the global universe (ratings on 87 securities over the past ten years in Taiwan, compared with nearly 122,000 ratings assigned globally from 1978 through 2013). As a result, the ratings migration in Taiwan could be sensitive to even a small number of rating actions, and the results could become not so meaningful.

Table 6

Standard & Poor's Global Structured Finance Weighted Average One-Year Rating Transition (%), 1978 - 2013

From/to	'AAA'	'AA'	'A'	'BBB'	'BB'	'B'	'CCC'	'CC'	'C'	'D'	NR
'AAA'	79.45	2.91	1.36	0.95	0.64	0.78	0.71	0.19	0.00	0.11	12.90
'AA'	3.69	74.48	3.59	2.30	1.72	2.03	3.34	0.89	0.01	0.29	7.65
'A'	0.93	3.53	72.42	4.06	2.54	2.36	4.36	1.71	0.00	0.55	7.55
'BBB'	0.47	0.92	2.78	69.03	4.67	4.32	6.51	3.18	0.00	1.30	6.83
'BB'	0.09	0.15	0.78	3.26	63.35	7.89	10.76	5.52	0.02	2.90	5.29
'B'	0.02	0.04	0.13	0.53	2.71	58.79	18.08	9.04	0.02	6.91	3.74
'CCC'	0.03	0.01	0.01	0.08	0.57	1.68	50.00	19.10	0.01	24.43	4.09
'CC'	0.00	0.00	0.00	0.01	0.01	0.13	0.11	52.91	0.00	44.93	1.90
'C'	0.00	0.00	0.00	0.00	0.00	0.00	2.11	0.00	58.95	36.84	2.11

Note: 'AAA' ratings from the same transaction are treated as a single rating in the calculation of this table. Full rating categories are used when determining rating transitions such as upgrades and downgrades. Each period's outstanding number of unique ratings is used for weighted average statistics. Source: Standard & Poor's Ratings Services.

Table 7

Standard & Poor's Global Structured Finance Rating Transitions (%), 1978 - 2013

Original/ last rating	Beginning number of ratings	'AAA'	'AA'	'A'	'BBB'	'BB'	'B'	'CCC'	'CC'	'C'	'D'	NR	Upgrade/ Stable/ NR	Downgrade
'AAA'	30,548	8.69	4.76	3.05	2.10	1.39	1.71	3.55	0.88	0.00	8.51	65.35	74.03	25.97
'AA'	26,196	1.16	10.18	3.64	2.24	2.95	3.49	6.23	2.48	0.00	27.16	40.46	51.80	48.20
'A'	25,495	0.58	1.75	11.06	2.29	1.87	2.52	6.59	3.71	0.00	31.28	38.35	51.74	48.26
'BBB'	24,144	0.26	0.56	1.19	8.47	1.98	2.16	4.40	4.66	0.00	42.82	33.49	43.98	56.02
'BB'	10,072	0.09	0.15	0.31	0.89	9.28	3.72	4.61	3.19	0.00	49.91	27.85	38.57	61.43
'B'	5,069	0.02	0.06	0.06	0.30	0.41	6.21	3.41	3.43	0.00	63.17	22.92	29.99	70.01
'CCC'	177	0.00	0.00	0.00	0.00	0.00	0.56	5.65	1.13	0.00	59.32	33.33	39.55	60.45
'CC'	14	0.00	0.00	0.00	0.00	0.00	0.00	7.14	14.29	0.00	35.71	42.86	64.29	35.71
'C'	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: AAA ratings from the same transaction are treated as a single rating in the calculation of this table. Full rating categories are used when determining rating transitions such as upgrades and downgrades. Source: Standard & Poor's Ratings Services.

CLOs And REATs Saw The Most Upgrades

From 2003 to 2013, collateralized loan obligations [CLOs, denoted in table 8 as "collateralized debt obligation cash flow CLO" (CDO Cash Flow CLO)] had the highest upgrade ratio of 79%, followed by real estate asset trusts [REATs, denoted as commercial mortgage-backed securities (CMBS), 67%]. The positive rating movements of CLOs were due to their quick accumulation of credit enhancements on the notes' sequential pay-down structure. The REAT upgrades were generally due to the transactions' robust tenant performance, even during times of economic stress, and the pickup of properties values.

The credit performance of asset-backed securities (ABS) and real estate mortgage-backed securities (RMBS) had higher rating stability ratio than other asset types, meaning less upgrades and downgrades during the observation period. This was mainly due to the stable collateral performance, despite some economic uncertainty and capital market volatility in recent years. The more-diversified pool nature of these asset types also helped to reduce the impact of individual asset performances on portfolio credit quality.

Collateralized bond obligations [CBOs, denoted as "collateralized debt obligation cash flow CBO" (CDO Cash Flow CBO)] had more mixed rating transitions during the study period, which can be attributed to their gradually increasing reliance on a small pool of obligors and counterparties following repayments of most of their underlying bonds. Such a concentrated asset portfolio makes CBO transactions more susceptible to rating changes on a single obligor or key counterparty.

From 2003 to 2013, there were four defaults out of the 87 long-term ratings we assigned, representing a 4.60% default rate. All defaults came from the CDO-Squared sector (denoted as "CDO Cash Flow CDO of CDO"). The adverse ratings movements mainly reflected the credit quality deterioration of referenced global corporate obligors during 2008-2009.

Table 8

Taiwan Ratings' Structured Finance Rating Transition (%) by Asset Type, 2003 - 2013

Asset type	Beginning number of ratings	Stable	Upgrade	Downgrade	Default
Asset Backed Securities Commercial Other	1	100.00	0.00	0.00	0.00
Asset Backed Securities Consumer Other	1	100.00	0.00	0.00	0.00
Asset Backed Securities Equipment	6	66.67	33.33	0.00	0.00
Collateralized Debt Obligation Cash Flow CBO	19	42.11	47.37	10.53	0.00
Collateralized Debt Obligation Cash Flow CDO of CDO	9	11.11	0.00	44.44	44.44
Collateralized Debt Obligation Cash Flow CLO	33	21.21	78.79	0.00	0.00
Collateralized Debt Obligation Other	2	100.00	0.00	0.00	0.00
Commercial Mortgage-Backed Securities	6	33.33	66.67	0.00	0.00
Residential Mortgage-Backed Securities Prime Jumbo	10	70.00	30.00	0.00	0.00
Total	87	37.93	50.57	6.90	4.60

Notes: Stable includes withdrawn ratings due to redemptions, for which the rating before withdrawal was the same as the initially assigned. Downgrade rate includes defaults. Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades. Source: Taiwan Ratings Corp.

Subsectors' rating transition rates varied by issuance year (the vintage, see table 9). Most CDO-Squared transactions originated in 2005 and 2006, while CLO and CBO issuances spanned from 2003 to 2008, explaining the fluctuation of cumulative rating transitions in those years.

Table 9

Taiwan Ratings' Structured Finance Rating Transition (%) By Issuance (Vintage) Year, 2003 - 2013

	Number of ratings	Stable	Upgrade	Downgrade	Default
2003	9	33.33	66.67	0.00	0.00
2004	17	41.18	58.82	0.00	0.00
2005	10	40.00	20.00	0.00	40.00
2006	16	37.50	37.50	25.00	0.00
2007	26	30.77	61.54	7.69	0.00
2008	1	0.00	100.00	0.00	0.00
2009	3	33.33	66.67	0.00	0.00
2010	3	66.67	33.33	0.00	0.00
2011	0	0.00	0.00	0.00	0.00
2012	0	0.00	0.00	0.00	0.00
2013	0	0.00	0.00	0.00	0.00
Total	87	37.93	50.57	6.90	4.60

Notes: Stable includes withdrawn ratings due to redemptions, for which the rating before withdrawal was the same as the initially assigned. Downgrade rate includes defaults. Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades. Source: Taiwan Ratings Corp.

Limited Observations From Short-Term Ratings

Taiwan Ratings has assigned five short-term ratings to securities issued in the asset-backed commercial paper market. Among these, two were related to account receivables transactions, two related to CDO transactions collateralized by RMBS, and one to CDOs backed by corporate bonds.

The two short-term ratings on the CDO of RMBS transactions had moderate negative rating transitions during the most recent economic downturn, because we lowered the rating from 'twA-2' to 'twA-3', before the securities were fully redeemed. In contrast, the other three short-term ratings remained unchanged before rating withdrawals on full redemption. There were no outstanding short-term rated securities in 2013.

Credit Deterioration Slowed For Global Structured Finance Securities In 2013

According to a study by Standard & Poor's, the credit quality of global structured finance securities fell for the seventh consecutive year in 2013, but credit deterioration has been slowing, because downgrades have been less severe in recent years. Standard & Poor's lowered 16.5% of all structured finance ratings in 2013, down from 32.3% in 2012 while the percentage of classes upgraded declined to 6.6% in 2013 from 9.1% in 2012. Overall, global structured ratings declined by an average of 0.4 notches in 2013, less than the 1.1 notches in 2011 and 0.9 notches in 2012. Standard & Poor's expects downgrade and default rates to continue to drop in 2014 with increased credit stability from improving sector fundamentals.

The performance of different asset sectors and regions remained divergent in 2013. U.S. CLO and U.S. consumer ABS continued to perform well, so did most structured finance securities in

the Asia-Pacific region, particularly Australian RMBS for their stable credit fundamental and collateral performances. U.S. residential-mortgage related securities have continued to dominate downgrades in 2013 but with lower severities, and downgrades were mostly caused by transactions' structural features and underlying collateral performance. 2013 was a turning point for U.S. CMBS because downgrades moderated, while we expect more stable credit conditions from strong liquidity, improving collateral performance, and transaction deleveraging.

In 2013, 86.9% of global structured securities rated 'AAA' by Standard & Poor's remained at 'AAA' or were paid off in full, and none defaulted, the same level as a year earlier. ABS had a 99.7% stability rate for 'AAA' rated securities in 2013, compared with 99.2% for CDOs, 96.6% for CMBS, and 78.2% for RMBS.

It should again be noted that the comparison of rating transition and default rates in Taiwan's structured finance securities to Standard & Poor's global results may not be so meaningful due to data limitations. There are many differences between Taiwan and the global studies, particularly the different rating scales used, which prevent meaningful comparison. Other limitations include the small number of ratings and the short time period for analysis, as well as the concentration of issuance in certain asset types, and the limited default events in Taiwan Ratings study.

Related Criteria And Research

Related Criteria

- **Understanding Taiwan Ratings Rating Definitions**, www.taiwanratings.com, Oct. 29, 2013

Related Research

- **Default Study: Global Structured Finance Default Study (1978-2013): Credit Deterioration Slows**, March 27, 2014
- **Credit Conditions: Largely Stable In Asia-Pacific, With A Dash Of Negative And A Focus On China's Financial Sector Risks**, March 26, 2014
- **Asia-Pacific Credit Outlook 2014: Structured Finance Ratings Likely To Remain Stable Despite Risks**, Jan. 27, 2014
- **2014 Taiwan Credit Outlook: Global Economic Recovery Could Reduce The Negative Rating Bias On Corporate Credits; Other Ratings To Remain Stable**, www.taiwanratings.com, Jan. 21, 2014
- **2013 Ratings Roundup Report**, www.taiwanratings.com, Dec. 30, 2013
- **Glossary Of Taiwan Securitization Terms**, www.taiwanratings.com, April 30, 2010

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APPENDIX: Methodology And Terminology

This section provides a detailed discussion of Taiwan Ratings' rating transition and default methodology. It also explains the study's terminology, including definitions of transition windows, rating modifiers versus full-rating categories, and the treatment of rating withdrawals.

Rating transition

The rating transition of a single static pool (cohort approach) is based on the rating of each security at the beginning and end of the observed transition window. For instance, we calculated the transition rates by determining the ratings of each security at the beginning and end of the period. We then tabulated these ratings in a two-dimensional table to calculate the percentage of ratings that stayed the same and the percentage of ratings that changed. During this process, we count every security only once, even if it had more than one rating change during the period. In other words, we use the rating on a security on the first day of the period and the last day of the period to calculate the transition rates, while disregarding the interim rating changes.

Weighted average transition

For weighted average transition rates, we calculate the individual transition rates of static pools as described earlier. We then create a single averaged matrix weighted by the number of ratings in each static pool.

Transition window

A transition window refers to a defined period in which we observe the rating transition for a given security. For example, the 2013 performance transition window starts on Jan. 1, 2013 and ends on Dec. 31, 2013. Transition windows for historical data also follow annual windows, running from January 1 to December 31 of the same year.

Rating modifiers

We use rating modifiers ("+" and "-") to calculate the upgrade and downgrade percentages, as well as the magnitude of rating changes throughout this study. However, some transition tables may use full rating categories for practical reasons. In other words, the use of a full rating category suggests that transitions from, for example, 'twAA' to 'twAA-' or from 'twBBB+' to 'twBBB-' are not considered as rating transitions because the rating remained within the full rating category.

Rating withdrawal

A security with a withdrawn rating at the beginning of a transition window is not included in the transition and default rate calculations for that period.

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