

**Default, Transition, and  
Recovery: 2015 Annual Taiwan  
Structured Finance Default  
Study And Rating Transitions**

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**中華信用評等**  
***Taiwan Ratings***

An S&P Global Ratings Partner

# **Default, Transition, and Recovery: 2015 Annual Taiwan Structured Finance Default Study And Rating Transitions**



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The credit quality of structured finance securities on which Taiwan Ratings Corp. has assigned ratings remained stable during 2015, continuing a trend that began in 2010. There were no downgrades or defaults among the six ratings outstanding at the beginning of the year, and we raised one rating over the period.

This study documents default and transition rates for structured finance securities--also referred to as securitization notes or tranches--rated by Taiwan Ratings. The study covers 89 long-term ratings from 29 Taiwan-originated structured finance transactions that we rated from 2003 to 2015. We note that the statistics presented in this study should not be generalized to draw conclusions about the credit performance of other new or existing structured finance transactions, because of the relatively small number of securities included in this study, the short time period involved, the concentration on certain securitized collateral types, and the limited number of defaults that occurred during the period under review. For these reasons, comparisons between this study and other similar studies may be misleading.

### Overview:

- Of the six Taiwan structured finance ratings outstanding at the beginning of 2015, we lowered none during the year and there were no defaults, while we raised one rating.
- Stable collateral performance and the structural deleveraging of sequential-pay transactions continue to explain the ratings stability in 2015.
- Of the 89 Taiwan structured finance ratings we have assigned since the beginning of 2003, there have been four defaults in total, giving an overall lifetime default rate of 4.5%.
- The lifetime upgrade rate stands at 50.6%, while the lifetime downgrade rate is at 11.2%.

### Most Ratings Remained Stable In 2015

Of the six ratings outstanding at the beginning of 2015, one was withdrawn or discontinued during the year. Of the remaining five ratings, we raised one to 'twAA' from 'twA'. There were no defaults in 2015 (see table 1).

Table 1 | [Download](#)

Taiwan Ratings' Structured Finance 2015 Rating Transition Matrix (%)\*

From/To§	Beginning no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	D	NR	Upgrade/Stable /NR	Downgrade
twAAA	3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	100.0	0.0
twAA	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
twA	2	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
twBBB	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twBB	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twB	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCCC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\*We used full rating categories when determining the downgrade rate in this table, i.e., we would include a downgrade to a lower rating category (such as 'twAA' to 'twA+') but not a downgrade within a rating category (such as 'twAA' to 'twAA-'). §Ratings with modifiers (+ and -) are aggregated with other ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are all classified within the 'twAA' category in this table. NR--Not rated. Ratings may migrate to 'NR', for example, if the securities are repaid in full. Source: Taiwan Ratings Corp.

## Default, Transition, and Recovery: 2015 Annual Taiwan Structured Finance Default Study And Rating Transitions

Ratings outstanding at the beginning of 2015 were distributed across asset-backed securities (ABS) and a collateralized bond obligation (CBO). The only upward rating transition during 2015 occurred on a transaction in the ABS Equipment subsector (see table 2).

The observed rating stability can be attributed to stable collateral performance, as well as the deleveraging of sequential-pay structures. Stable creditworthiness among transaction counterparties also contributed to the stable structured finance ratings across all asset classes.

Table 2 | [Download](#)

Taiwan Ratings' Structured Finance 2015 Rating Transition Rates, By Asset Class (%)*					
Asset Class	Beginning no. of ratings	Stable	Upgrade	Downgrade§	Default
ABS Commercial Other	1	100.0	0.0	0.0	0.0
ABS Equipment	4	75.0	25.0	0.0	0.0
SC Cash Flow Corporate Bond CBO	1	100.0	0.0	0.0	0.0
Total	6	83.3	16.7	0.0	0.0

\*Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades in this table. Ratings that we withdrew during the year are classified based on the last rating before withdrawal. §The downgrade rate includes defaults. ABS--Asset-backed securities. CBOs--Collateralized bond obligations. RMBS--Residential mortgage-backed securities. SC--Structured credit. Source: Taiwan Ratings Corp.

### Stability Rate Correlates With Ratings

Considering a longer timeframe, we calculated the one-year weighted-average rating transition matrix. For weighted-average transitions, we calculate the individual transition rates of different static pools of ratings outstanding at the beginning of each calendar year from 2004 to 2015. We then create a single averaged matrix, weighted by the number of ratings in each static pool. On this basis, Taiwan structured finance ratings have maintained high one-year rates of upgrade, stability, or withdrawal across most rating categories, on average (see table 3).

Table 3 | [Download](#)

Taiwan Ratings' Structured Finance Weighted Average One-Year Rating Transition Matrix, 2004-2015 (%)*												
From/To§	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	D	NR	Upgrade/Stable /NR	Downgrade
twAAA	63	3.1	1.0	0.0	0.0	0.0	1.0	0.0	0.0	31.6	94.9	5.1
twAA	10	57.5	0.0	0.0	1.4	0.0	2.7	0.0	0.0	28.8	95.9	4.1
twA	7	11.6	58.9	0.0	0.0	0.0	1.1	1.1	0.0	20.0	97.9	2.1
twBBB	3	2.7	15.1	67.1	0.0	0.0	1.4	1.4	0.0	9.6	97.3	2.7
twBB	0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
twB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCCC	0	0.0	0.0	11.1	0.0	0.0	44.4	0.0	22.2	22.2	77.8	22.2
twCC	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0

\*We used full rating categories when determining the downgrade rate in this table, i.e., we would include a downgrade to a lower rating category (such as 'twAA' to 'twA+') but not a downgrade within a rating category (such as 'twAA' to 'twAA-'). §Ratings with modifiers (+ and -) are aggregated with other ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are all classified within the 'twAA' category in this table. N/A--Not applicable. NR--Not rated. Ratings may migrate to 'NR', for example, if the securities are repaid in full. Source: Taiwan Ratings Corp.

The one-year average stability rate (defined as the proportion of ratings unchanged in the year and averaged across the calendar years from 2004 to 2015) indicates that higher ratings tend to have more ratings stability (see table 4).

*Default, Transition, and Recovery: 2015 Annual Taiwan Structured Finance Default Study And Rating Transitions*

**Table 4 | [Download](#)**

**Taiwan Ratings' Structured Finance Weighted Average One-Year Rating Transition Rates, 2004-2015 (%)\***

From§	Stable	Upgrade	Downgradet
twAAA	94.9	0.0	5.1
twAA	80.8	13.7	5.5
twA	70.5	26.3	3.2
twBBB	68.5	28.8	2.7
twBB	0.0	100.0	0.0
twB	0.0	0.0	0.0
twCCC	33.3	22.2	44.4
twCC	0.0	0.0	100.0

\*Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades in this table. Ratings that we withdrew during any one-year transition window are classified based on the last rating before withdrawal. §Ratings with modifiers (+ and -) are aggregated with other ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are all classified within the 'twAA' category in this table. †The downgrade rate includes defaults. Source: Taiwan Ratings Corp.

We also calculate lifetime transition rates, where we take all the ratings we have assigned beginning in 2003 and consider their transition from the original rating date to the end of 2015. These lifetime transitions show a similar pattern to the one-year average transition rates shown in table 4. From 2003 to 2015, among the 89 ratings that we initially assigned, we subsequently raised, withdrew after full redemption, or made no changes to about 95.5% (see table 5).

**Table 5 | [Download](#)**

**Taiwan Ratings' Structured Finance Original-To-Current Rating Transition Matrix, 2003-2015 (%)\***

Original/Last Ratings§	Original no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	D	NR	Upgrade / Stable / NR	Downgrade
twAAA	22	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	86.4	95.5	4.5
twAA	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	94.1	94.1	5.9
twA	27	0.0	7.4	3.7	0.0	0.0	0.0	0.0	0.0	3.7	85.2	96.3	3.7
twBBB	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	95.5	95.5	4.5
twBB	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0
twB	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCCC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\*We used full rating categories when determining the downgrade rate in this table, i.e. we would include a downgrade to a lower rating category (such as 'twAA' to 'twA+') but not a downgrade within a rating category (such as 'twAA' to 'twAA-'). §Ratings with modifiers (+ and -) are aggregated with other ratings in the same category. For instance, 'twAA+', 'twAA', and 'twAA-' are all classified within the 'twAA' category in this table. N/A--Not applicable. NR--Not rated. Ratings may migrate to 'NR', for example, if the securities are repaid in full. Source: Taiwan Ratings Corp.

Table 5 also provides a gauge of default rates segmented by the category of rating initially assigned. The overall lifetime default rate of our Taiwan structured finance ratings has been about 4.5%, due to four defaults in a single transaction. The differences between default rates at each rating category are relatively minor and there is no clear pattern showing that higher ratings have shown a lower default rate. However, this is likely due to the limited number of defaults and small sample sizes.

## CLOs And REATs Have Seen The Most Lifetime Upgrades

Collateralized loan obligations (CLOs)--denoted in table 6 as "SC Cash Flow Corporate Loan CLO"--have the highest lifetime upgrade rate of 79%, followed by real estate asset trusts (REATs)--denoted as commercial mortgage-backed securities (CMBS)--with a lifetime upgrade rate of 67%.

Table 6 | [Download](#)

### Taiwan Ratings' Structured Finance Original-To-Current Rating Transition Rates, By Asset Class, 2003-2015\*

Asset Class	Original no. of ratings	Stable	Upgrade	Downgrade§	Default
ABS Commercial-Other	1	100.0	0.0	0.0	0.0
ABS Consumer-Other	1	100.0	0.0	0.0	0.0
ABS Equipment	8	62.5	37.5	0.0	0.0
CMBS	6	33.3	66.7	0.0	0.0
RMBS Prime	10	70.0	30.0	0.0	0.0
SC Cash Flow CDO of CDOs	9	11.1	0.0	88.9	44.4
SC Cash Flow Corporate Bond CBO	19	42.1	47.4	10.5	0.0
SC Cash Flow Corporate Loan CLO	33	21.2	78.8	0.0	0.0
SC-Other	2	100.0	0.0	0.0	0.0
Total	89	38.2	50.6	11.2	4.5

\*Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades in this table. Ratings that we withdrew are classified based on the last rating before withdrawal. §The downgrade rate includes defaults. ABS--Asset-backed securities. CDO--Collateralized debt obligations. CMBS--Commercial mortgage-backed securities. RMBS--Residential mortgage-backed securities. SC--Structured credit. Source: Taiwan Ratings Corp.

The positive rating movements of CLOs were due to their quick accumulation of credit enhancement on the notes' sequential-pay 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 ABS and RMBS sectors had higher rating stability rates than most other asset classes, meaning fewer upgrades and downgrades over their lifetimes. This has mainly been due to stable collateral performance, despite some economic uncertainty and capital market volatility in recent years. The more diversified nature of the collateral pools in these asset classes also helped to reduce the impact of individual asset performance on portfolio credit quality.

The highest lifetime downgrade rate has been among CDOs of CDOs--denoted as "SC Cash Flow CDO of CDOs"--and this subsector also showed the only defaults. From 2003 to 2015, there have been four defaults in a single transaction out of the 89 long-term ratings we assigned, representing a 4.5% default rate overall and a 44.4% default rate with the CDO of CDOs subsector. We attribute the weaker credit performance of this subsector to the credit quality deterioration of referenced global corporate obligors during 2008 and 2009.

Subsectors' rating transition rates varied by vintage year--i.e. the year in which the transaction was issued (see table 7). Most CDO of CDO transactions were originated in 2005 and 2006, and all the defaults were in a single 2005 vintage transaction.

Table 7 | [Download](#)

**Taiwan Ratings' Structured Finance Original-To-Current Rating Transition, By Issuance (Vintage) Year, 2003-2015 (%)\***

Vintage Year	Number of ratings	Stable	Upgrade	Downgrades§	Default
2003	9	33.3	66.7	0.0	0.0
2004	18	44.4	55.6	0.0	0.0
2005	13	38.5	30.8	30.8	30.8
2006	15	33.3	40.0	26.7	0.0
2007	27	33.3	59.3	7.4	0.0
2008	1	0.0	100.0	0.0	0.0
2009	0	N/A	N/A	N/A	N/A
2010	2	50.0	50.0	0.0	0.0
2011	2	50.0	50.0	0.0	0.0
2012	0	N/A	N/A	N/A	N/A
2013	0	N/A	N/A	N/A	N/A
2014	2	100.0	0.0	0.0	0.0
2015	0	N/A	N/A	N/A	N/A
Total	89	38.2	50.6	11.2	4.5

\*Rating modifiers (+ and -) are used when determining rating transitions such as upgrades and downgrades in this table. Ratings that we withdrew are classified based on the last rating before withdrawal. §The downgrade rate includes defaults. Source: Taiwan Ratings Corp.

## Related Criteria And Research

### Related Criteria

- **Understanding Taiwan Ratings' Rating Definitions**, [www.taiwanratings.com](http://www.taiwanratings.com), Nov. 18, 2014

### Related Research

- **Asia-Pacific Credit Outlook 2Q 2016: Downgrade Momentum Will Continue**, April 12, 2016
- **Credit Conditions: China, Commodities, And Capital Flows Make For A Choppy Ride For Asia-Pacific In 2Q 2016**, April 12, 2016
- **2016 Taiwan Credit Outlook: Entities Face A Rising Tide Of Challenges**, [www.taiwanratings.com](http://www.taiwanratings.com), Jan. 25, 2016
- **Taiwan Ratings Corp: 2015 Ratings Roundup Report**, [www.taiwanratings.com](http://www.taiwanratings.com), Jan. 8, 2016
- **Glossary Of Taiwan Securitization Terms**, [www.taiwanratings.com](http://www.taiwanratings.com), April 30, 2010

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## APPENDIX: Methodology And Terminology

This section discusses the data and methodology, and explains the terminology we use in this report.

### Data

This report analyzes the full-year 2015 Taiwan rating transitions, as well as average one-year transitions and lifetime transitions. Transitions for 2015 are based on a static pool comprising all ratings outstanding on Jan. 1, 2015. We compile average one-year transitions by averaging the results of similar analyses for distinct static pools of all ratings outstanding on Jan. 1 of preceding years, back to 2004. We base the lifetime (i.e. original-to-current) transitions on the set of all Taiwan structured finance ratings we originally assigned, and their transitions up until the end of 2015.

### **Rating transition**

The rating transition of any static pool is based on the rating on each security at the start and end of the observed transition window. For instance, we calculate the 2015 transition rates by determining the ratings on each security at the start and end of 2015. We then tabulate these ratings to depict the percentage of ratings that stayed the same and the percentage of ratings raised or lowered to other rating levels. During this process, we count every security only once, even if a security experienced more than one rating change during the transition window being observed. In other words, we use the rating on a security at the start and end of the transition window to calculate the transition rates, disregarding any interim rating changes.

### **Weighted-average transition**

For weighted-average transition rates, we calculate the individual transition rates of different static pools. We then create a single averaged matrix, weighted by the number of ratings in each static pool. We use this technique, for example, to determine the average one-year transition rates by analyzing different static pools over different one-year periods.

### **Transition window**

A transition window refers to a period in which we observe the behavior of the rating on a security. In this study, the 2015 transition window begins at the start of 2015 and ends at the end of 2015, for the 2015 transition performance. For historical averages, transition windows used to compile the average transition rates correspond to calendar years. For lifetime transitions, we give each rating under consideration its own transition window, from original rating date to the end of 2015.

### **Rating modifiers**

We use rating modifiers ('+' and '-') to calculate the upgrade, downgrade, and stability rates quoted in the text throughout this study. However, most of the transition matrices in this report use the less granular full rating categories for practical reasons. In other words, we count transitions such as 'twAA' to 'twAA+' as an upgrade and 'twBBB+' to 'twBBB-' as a downgrade, in the text. In the corresponding transition matrix, these transitions appear as stable ratings such as 'twAA' to 'twAA', or 'twBBB' to 'twBBB'.

### **Rating withdrawal**

When we withdraw or discontinue ratings due to redemptions within the transition window under consideration, for example, we may use the last rating before withdrawal in the transition rate calculation. The approach used is described in the footnotes to the tables in this report.

*Only a rating committee may determine a rating action and this report does not constitute a rating action.*



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