



Default, Transition, and Recovery: 2016 Annual Taiwan Structured Finance Default Study And Rating Transitions

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Taiwan Ratings
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May 31, 2017

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The credit quality of structured finance securities on which Taiwan Ratings Corp. has assigned ratings remained stable during 2016, continuing a trend that began in 2010. There were no upgrades, downgrades or defaults among the five ratings outstanding at the beginning of the year.

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 91 long-term ratings from 30 Taiwan-originated structured finance transactions that we rated from 2003 to 2016. 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:

- We did not raise or lower any of the five Taiwan structured finance ratings outstanding at the beginning of 2016.
- Despite certain volatility in collateral performance, the magnitude of deterioration has not been enough to cause ratings volatility in affected transactions in 2016.
- Of the 91 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 4.4%.
- The lifetime upgrade rate stands at 49.5%, while the lifetime downgrade rate is at 11.0%.

Ratings Remained Stable In 2016

Of the five ratings outstanding at the beginning of 2016, one was withdrawn or discontinued during the year. The remaining four ratings remained stable and there were no defaults in 2016 (see table 1).

Table 1 | [Download](#)

Taiwan Ratings' Structured Finance Rating Transitions, 2016 (%)												
From/to	Beginning no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	2	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
twAA	2	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
twA	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
twBB	0	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
twCCC	0	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
twC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NR--Not rated. N/A--Not applicable. Source: S&P Global Fixed Income Research.

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Ratings outstanding at the beginning of 2016 were distributed across asset-backed securities (ABS) and a collateralized bond obligation (CBO) (see table 2).

Table 2 | [Download](#)

Taiwan Ratings' Structured Finance Transition And Default Summary, 2016, By asset class					
Asset class	Ratings (no.)	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)
ABS Commercial Other	1	100.0	0.0	0.0	0.0
ABS Equipment	1	100.0	0.0	0.0	0.0
ABS Other	2	100.0	0.0	0.0	0.0
SC Cash Flow Corporate Bond CBO	1	100.0	0.0	0.0	0.0
Overall	5	100.0	0.0	0.0	0.0

*Including defaults. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Fixed Income Research.

Despite certain volatility on collateral performance of some transactions, the magnitude of deterioration has not been enough to cause ratings volatility in affected transactions. Stable creditworthiness among transaction counterparties also contributed to the stable structured finance ratings across all asset classes.

Stability Correlated With Ratings Over Time

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 2016. 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 Rating Transitions, One-Year Weighted-Average, 2004-2016 (%)											
From/to	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	64.0	3.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	31.0
twAA	9.3	57.3	0.0	0.0	1.3	0.0	2.7	0.0	0.0	0.0	29.3
twA	7.3	11.5	59.4	0.0	0.0	0.0	1.0	1.0	0.0	0.0	19.8
twBBB	2.7	2.7	15.1	67.1	0.0	0.0	1.4	1.4	0.0	0.0	9.6
twBB	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	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
twCCC	0.0	0.0	0.0	11.1	0.0	0.0	44.4	0.0	0.0	22.2	22.2
twCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
twC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NR--Not rated. N/A--Not applicable. Source: S&P Global Fixed Income Research.

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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 2016) indicates that higher ratings tend to have more ratings stability (see table 4).

Table 4 | Download

Taiwan Ratings' Structured Finance Rating Transition Rates, One-Year Weighted-Average, 2004-2016 (%), By Rating Category					
From	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)	
twAAA	95.0	0.0	5.0	0.0	
twAA	81.3	13.3	5.3	0.0	
twA	70.8	26.0	3.1	0.0	
twBBB	68.5	28.8	2.7	0.0	
twBB	0.0	100.0	0.0	0.0	
twB	N/A	N/A	N/A	N/A	
twCCC	33.3	22.2	44.4	22.2	
twCC	0.0	0.0	100.0	100.0	
twC	N/A	N/A	N/A	N/A	

*Including defaults. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. N/A--Not applicable. Source: S&P Global Fixed

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 2016. These lifetime transitions show a similar pattern to the one-year average transition rates shown in table 4. From 2003 to 2016, among the 91 ratings that we initially assigned, we subsequently raised, withdrew after full redemption, or made no changes to about 96% (see table 5).

Table 5 | Download

Taiwan Ratings' Structured Finance Rating Transitions, Original-To-Current, 2003-2016 (%)												
From/to	Original no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	23	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	82.6
twAA	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	94.1
twA	28	0.0	3.6	7.1	0.0	0.0	0.0	0.0	0.0	0.0	3.6	85.7
twBBB	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	95.5
twBB	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
twB	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
twCCC	0	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
twC	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NR--Not rated. N/A--Not applicable. Source: S&P Global Fixed Income Research.

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 4.4%, 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 Transition And Default Summary, Original-To-Current, 2003-2016, By Asset Class					
Asset class	Ratings (no.)	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)
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	6	50.0	50.0	0.0	0.0
ABS Other	4	100.0	0.0	0.0	0.0
CMBS Other	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 CDO	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
Overall	91	39.6	49.5	11.0	4.4

*Including defaults. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Fixed Income Research.

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 2016, there have been four defaults in a single transaction out of the 91 long-term ratings we assigned, representing a 4.4% default rate overall and a 44.4% default rate with the CDO of

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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 Transition And Default Summary, Original-To-Current, 2003-2016, By Vintage					
Vintage	Ratings (no.)	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)
2003	9	33.3	66.7	0.0	0.0
2004	17	41.2	58.8	0.0	0.0
2005	10	40.0	20.0	40.0	40.0
2006	16	37.5	37.5	25.0	0.0
2007	26	30.8	61.5	7.7	0.0
2008	1	0.0	100.0	0.0	0.0
2009	3	33.3	66.7	0.0	0.0
2010	3	66.7	33.3	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
2016	2	100.0	0.0	0.0	0.0
Total	91	39.6	49.5	11.0	4.4

*Including defaults. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. N/A--Not applicable. Source: S&P Global Fixed Income Research.

Related Criteria And Research

Related Criteria

- **Understanding Taiwan Ratings' Rating Definitions**, www.taiwanratings.com - Nov. 18, 2014

Related Research

- **Asia-Pacific Credit Conditions Q2 2017: Top Risk Is Uncertain U.S. Trade Tax Policy** - Mar. 28, 2017
- **2017 Taiwan Credit Outlook: Volatility Stirs Beneath The Calm Surface** - Jan. 17, 2017
- **Taiwan Ratings Corp: 2016 Ratings Roundup Report**, www.taiwanratings.com - Jan. 11, 2017
- **Asia-Pacific Credit Outlook 2017: Trump, Growth, And Risks** - Nov. 28, 2016
- **Glossary Of Taiwan Securitization Terms**, www.taiwanratings.com - April 30, 2010

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Appendix: Terminology, Data Selection, And Calculation Approaches

This Appendix discusses the data and calculations, and explains the terminology we use in this report.

Issues included in this study

The study analyzes the rating histories of 91 Taiwan structured finance instruments that Taiwan Ratings Corp. first rated between 2003 and Dec. 31, 2016. The term "structured finance" in this report refers to ABS, CMBS, RMBS, structured credit, and single-name synthetic transactions. For some analyses, we break down these sectors further into subsectors.

Vintage definition

In this report we classify securities' vintage based on the date on which we first assigned a rating. Usually this is close to the security's original issuance date. However, in some cases we may first assign a rating to a security sometime after closing.

Rating transitions

Our rating transition statistics use a "static pool" approach. To calculate the transition statistics over a given time period (or "transition window"), we consider the static pool of ratings outstanding at the beginning of that time period. The transition statistics for that static pool of ratings are then based on the movements in ratings between the start and end of the transition window. For instance, we calculate the 2016 transition rates by determining the ratings on each security outstanding at the start of 2016 and determining the ratings on those same securities at the end of 2016. For "original-to-current" transitions, we give each rating under consideration its own transition window, from the date we originally assigned a rating to the end of 2016. We then calculate statistics such as upgrade, downgrade, and stability rates, equivalent to the proportion of securities in the static pool whose ratings moved up, down, or remained that same respectively over the transition window. During this process, we count each security only once, even the security experienced more than one rating change during the transition window being observed. In other words, we use a security's rating at the start and end of the transition window to calculate the transition rates, disregarding any interim rating changes.

Rating modifiers

We use rating modifiers ('+' and '-') to calculate the upgrade, downgrade, and stability rates quoted in the text, tables, and charts throughout this study. However, the transition matrices in this report show only 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 transition statistics we cite in this report. However, in the corresponding transition matrices, these transitions would appear in the cells corresponding to a stable rating category classification, such as 'twAA' to 'twAA', or 'twBBB' to 'twBBB'.

Rating discontinuance or withdrawal

We may discontinue ratings when, for example, a rated obligation's payments have been made in full in accordance with its terms or when a rated issue matures. Ratings may also be withdrawn, for example, because of a lack of sufficient information of satisfactory quality or at the issuer's request. In these cases, the rating may change to 'NR' (not rated). When we withdraw or discontinue ratings within the transition window under consideration we may either derive our reported statistics by classifying the rating transition as a move to 'NR' (the "NR-included" approach), or—for some other analyses—we may classify the transition as a move to the last "non-NR" rating before withdrawal or discontinuance (the "NR-adjusted" approach). In the text of this report, when we refer to upgrade and downgrade rates, for example, we use the latter approach. In the tables and charts, we clarify the approach used in the footnotes. We do not include a security with a withdrawn rating at the beginning of a transition window in the transition and default rate calculations for that period.

Treatment of 'D' ratings

Counts of defaults and default rate statistics in this report are based on securities whose ratings we lowered to 'D'. For the purposes of this report, when a security's rating has moved to 'D', we consider this a terminal state and do not, for example, include such a security in any transition windows that start on a subsequent date. In practice, however, some securities whose ratings have migrated to 'D' may later once again be assigned a different rating. This can occur, for example, if the defaulted security is subsequently restructured to different terms, such as a lower coupon. In these cases, we treat the security's post-default rating history as if it were a new security, beginning from the date that the rating changed from 'D'. Where we segment statistics by vintage, however, we continue to base the vintage on the date we originally assigned a rating to the security.

Weighted-average transition and default rate calculation

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

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

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