

Default, Transition, and Recovery:

# 2018 Annual Taiwan Structured Finance Default Study And Rating Transitions

May 21, 2019

## Key Takeaways

- We did not lower any of the five Taiwan structured finance ratings outstanding at the beginning of 2018, and we raised one.
- Despite some volatility in underlying assets, this was not sufficient to cause downward ratings movements in any transactions.
- 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%.

The credit quality of structured finance securities on which Taiwan Ratings Corp. has assigned ratings improved during 2018. There was one upgrade and no downgrades or defaults among the five ratings outstanding at the beginning of the year.

This S&P Global Fixed Income Research 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 onwards. 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.

## Most Ratings Remained Stable In 2018

Of the five ratings outstanding at the beginning of 2018, one was raised, and two were withdrawn or discontinued during the year. The remaining two ratings remained stable and there were no defaults in 2018 (see table 1).

### GLOBAL FIXED INCOME RESEARCH

Andrew H South  
London  
+44-20-7176-3712  
andrew.south  
@spglobal.com

### SECONDARY CONTACT

Caroline Shih  
Taipei  
+886-2-8722-5859  
caroline.shih  
@spglobal.com  
caroline.shih  
@taiwanratings.com.tw

Table 1

**Taiwan Ratings' Structured Finance Rating Transitions, 2018 (%)**

From/to	Beginning no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	2	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
twAA	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
twA	2	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
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. Copyright © by Taiwan Ratings Corp. All rights reserved.

Ratings outstanding at the beginning of 2018 were distributed across asset-backed securities (ABS) and a collateralized bond obligation (CBO) (see table 2).

Table 2

**Taiwan Ratings' Structured Finance Transition And Default Summary, 2018 (By Asset Class)**

Asset class	Ratings (no.)	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)
ABS Other	4	100.0	0.0	0.0	0.0
SC Cash Flow Corporate Bond CBO	1	0.0	100.0	0.0	0.0
Overall	5	80.0	20.0	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. Copyright © by Taiwan Ratings Corp. All rights reserved.

The rating we raised in 2018 was in a CBO transaction, due to the improved credit profile. Stable counterparty support as well as a conservative deal arrangement underpin the stability of our other structured finance ratings in 2018. Despite some volatility in underlying assets throughout the year, this was not sufficient to cause ratings movements in any transactions. We withdrew our rating on two asset-backed securities following their full redemption in 2018.

**Stability Correlated With Ratings Over Time**

Considering a longer time frame, 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 2018. 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

**Taiwan Ratings' Structured Finance Rating Transitions, One-Year Weighted-Average, 2004-2018 (%)**

From/to	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	63.8	2.9	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	31.4
twAA	9.1	58.4	0.0	0.0	1.3	0.0	2.6	0.0	0.0	0.0	28.6
twA	7.0	11.0	60.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	20.0
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. Copyright © by Taiwan Ratings Corp. All rights reserved.

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 2018) indicates that higher ratings tend to have more ratings stability (see table 4).

Table 4

**Taiwan Ratings' Structured Finance Rating Transition Rates, One-Year Weighted-Average, 2004-2018 (%) (By Rating Category)**

From	Stable (%)	Upgrades (%)	Downgrades* (%)	Defaults (%)
twAAA	95.2	0.0	4.8	0.0
twAA	80.5	14.3	5.2	0.0
twA	72.0	25.0	3.0	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 Income Research. Copyright © by Taiwan Ratings Corp. All rights reserved.

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 2018. These lifetime transitions show a similar pattern to the one-year average transition rates shown in table 4. From 2003 to 2018, 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

**Taiwan Ratings' Structured Finance Rating Transitions, Original-To-Current, 2003-2018 (%)**

From/to	Original no. of ratings	twAAA	twAA	twA	twBBB	twBB	twB	twCCC	twCC	twC	D	NR
twAAA	23	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	91.3
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	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.6	89.3
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. Copyright © by Taiwan Ratings Corp. All rights reserved.

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

**Taiwan Ratings' Structured Finance Transition And Default Summary, Original-To-Current, 2003-2018 (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. Copyright © by Taiwan Ratings Corp. All rights reserved.

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 2018, 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 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

**Taiwan Ratings' Structured Finance Transition And Default Summary, Original-To-Current, 2003-2018 (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
2017	0	N/A	N/A	N/A	N/A
Overall	91	39.6	49.5	11.0	4.4

## **Related Criteria And Research**

### **Related Criteria**

- Understanding Taiwan Ratings' Rating Definitions, June 26, 2018

### **Related Research**

- Asia-Pacific Quarterly Forecasts: Tougher Trade Winds Through 2019, April 3, 2019
- Credit Conditions Asia-Pacific: The Fed Pauses, China Eases, March 28, 2019
- Taiwan Ratings Corp: 2018 Ratings Roundup Report, [www.taiwanratings.com](http://www.taiwanratings.com), Jan. 7, 2019
- 2019 Taiwan Credit Outlook: Taiwanese Enterprises Face Escalating Risks If Sino-U.S. Trade Tensions Worsen, [www.taiwanratings.com](http://www.taiwanratings.com), Dec. 20, 2018
- Glossary Of Taiwan Securitization Terms, [www.taiwanratings.com](http://www.taiwanratings.com) - April 30, 2010

(Unless otherwise stated, these articles are published on [www.standardandpoors.com](http://www.standardandpoors.com), access to which requires a registered account)

## **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, 2018. 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 some time 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 2018 transition rates by determining the ratings on each security outstanding at the start of 2018 and determining the ratings on those same securities at the end of 2018. 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 2018. 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 the same respectively over the transition window. During this process, we count each security only once, even if 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.

*This report does not constitute a rating action.*

Copyright © 2019 by Taiwan Ratings Corporation (TRC). All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of TRC. The Content shall not be used for any unlawful or unauthorized purposes. TRC and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively TRC Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. TRC Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. TRC DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall TRC be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. TRC's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. TRC assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. TRC does not act as a fiduciary or an investment advisor except where registered as such. While TRC has obtained information from sources it believes to be reliable, TRC does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, TRC reserves the right to assign, withdraw or suspend such acknowledgement at any time and in its sole discretion. TRC disclaims any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

TRC keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of TRC may have information that is not available to other TRC business units. TRC has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

TRC receives compensation for its solicited ratings and certain analyses, normally from issuers, originators, arrangers, or underwriters of securities or from obligors. TRC reserves the right to disseminate its opinions and analyses. TRC's public ratings and analyses are made available on its Web sites, [www.taiwanratings.com](http://www.taiwanratings.com) (free of charge), and [rs.taiwanratings.com.tw](http://rs.taiwanratings.com.tw) (subscription), and may be distributed through other means, including via TRC publications and third-party redistributors. Please click [here](#) for any other conflict of interests that may affect the credit rating as requested by the regulator.