Default, Transition, and Recovery: 2014 Annual Taiwan Ratings Corp. Corporate Default Study And Rating Transitions

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Taiwan Ratings
A Standard & Poor's Ratings Partner

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In 2014, ratings on corporate entities and financial institutions rated by Taiwan Ratings Corp. (TRC) continued to demonstrate favorable credit conditions that have been in place for the past several years. Ratings stability (as measured by the proportion of ratings that remained the same at year-end) hit an all-time high, while TRC ratings have yet to see a default for the sixth straight year. This is consistent with expectations given the strong rating profile of issuers covered by TRC, which has not seen a speculative-grade rated issuer at the start of the last three years, as well as an improving domestic economy.

The negative relationship seen here between higher ratings and both ratings volatility and default frequency is consistent with other Standard & Poor's default studies.

Overview:

- Ratings stability--as measured by the percentage of issuers with the same ratings at the end of the year as at the beginning--reached an all-time high in 2014, at 91%. The stability ratio has also been generally increasing over the past 10 years.
- 2014 was the sixth straight year without a default among TRC's rated population.
- Taiwan Ratings Corp.'s ratings show a clear correspondence between rating and default remoteness, with default rates among investment-grade ratings well below those of speculative-grade ratings across all time frames. This finding is also consistent with Standard & Poor's global scale ratings' experience.

This default and rating transitions study closely examines the track record of the 292 corporate issuer credit ratings that TRC has assigned since operations began in 1998. This study primarily measures ratings migration over time and provides a quantitative measure of ratings distribution and movement. Ratings covered in this study are those on Taiwan-based obligors in the industrials, utilities, insurance, and financial institutions sectors. This includes public and confidentially rated entities, as well as those whose ratings we later withdrew.

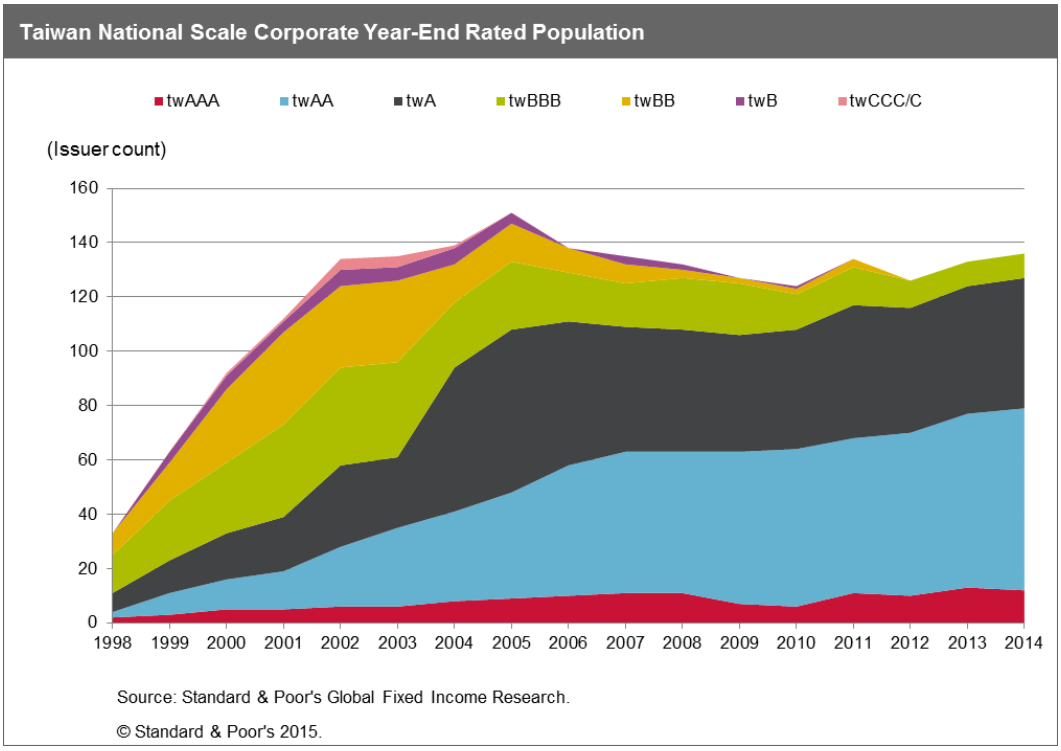
However, there remains a major difference in the implicit default risk between Standard & Poor's global scale and TRC's scale, which is positioned as a national scale. National scale credit ratings are calibrated to provide finer distinction of relative credit risk within a country only. (Standard & Poor's has assigned the government of Taiwan 'AA-/A-1+' unsolicited issuer credit ratings, with a stable outlook.) Because of the differences in the two ratings scales, we do not make any direct comparisons between TRC's and Standard & Poor's global ratings scale in this report. However, as a general rule, both ratings scales reflect the same principles: that higher ratings exhibit lower default rates and higher stability than lower ratings.

The population of Taiwan corporate and financial institutions (including insurance companies) ratings has been small, but meaningful, starting in 1999 with 33 active ratings, increasing to 133 by

the start of 2014. Historically, Taiwan corporate ratings have been heavily skewed toward investment-grade ratings, and this trend has only been increasing over time (see chart 1). In fact, for the third year in a row, Taiwan's corporate and financial institutions rating distribution started 2014 completely within investment-grade. Speculative-grade ratings in Taiwan have been steadily decreasing as a portion of the population since they peaked at 36% at the end of 2000. The heavy bias toward investment-grade ratings in Taiwan, combined with an improving economy in 2014, contributed to this extended absence of defaults among the rated population. Further, the continued sufficient liquidity within the local financial market continues to support the credit profiles of most of the large rated issuers.

Download Chart

Chart 1



Rating Actions Were Muted In 2014

To analyze rating actions during the year, we look at the rating at the start of the year and at the end of the year. During 2014, there were four upgrades and two downgrades. This is a decrease in the number of rating actions relative to 2013, which had nine upgrades and five downgrades (see table 1). Ratings stability (reflected in the percentage of unchanged ratings) also reached a relative high point in 2014. This is consistent with expectations considering the proportionately high credit quality of rated entities in Taiwan--as reflected in the preponderance of investment-grade ratings. In 2014, the percentage of changed ratings was just over 9%, which is a full 17% lower than the long-term weighted average of 26.5%. At 90.98%, this is the highest annual stability ratio among TRC ratings, barely beating out the 90.91% in 1999. After falling during the initial years under

examination, ratings stability has been increasing for the past 10 years. Also, in a number of the earlier years of this study, much of the ratings movement was in the form of upgrades and withdrawals.

Download Table

Table 1

Summary Of Annual Ratings Changes In Taiwan (1999-2014)

Year	Issuers as of Jan. 1	Upgrades (%)	Downgrades (%)*	Defaults (%)	Withdrawn ratings (%)	Changed ratings (%)	Unchanged ratings (%)	Downgrade/ upgrade ratio
1999	33	9.09	0.00	0.00	0.00	9.09	90.91	0.00
2000	63	3.17	12.70	1.59	3.17	20.63	79.37	4.00
2001	92	2.17	10.87	0.00	3.26	16.30	83.70	5.00
2002	112	16.96	18.75	0.00	12.50	48.21	51.79	1.11
2003	134	14.93	3.73	0.00	14.18	32.84	67.16	0.25
2004	135	56.30	2.96	0.00	8.89	68.15	31.85	0.05
2005	139	13.67	0.72	0.72	5.76	20.86	79.14	0.05
2006	151	15.89	2.65	0.66	16.56	35.76	64.24	0.17
2007	138	18.12	4.35	3.62	6.52	32.61	67.39	0.24
2008	135	4.44	5.19	1.48	5.93	17.04	82.96	1.17
2009	132	0.76	15.91	0.00	9.85	26.52	73.48	21.00
2010	127	4.72	3.15	0.00	7.09	14.96	85.04	0.67
2011	124	12.10	5.65	0.00	2.42	20.16	79.84	0.47
2012	134	2.99	2.99	0.00	11.19	17.16	82.84	1.00
2013	126	7.14	3.97	0.00	3.97	15.08	84.92	0.56
2014	133	3.01	1.50	0.00	4.51	9.02	90.98	0.50
Weighted average (1999-2014)		12.32	5.71	0.52	7.91	26.47	73.53	2.25

Note: Rating changes measured from rating as of Jan. 1 to rating as of Dec. 31 exlude all intermediate rating changes. *Excludes downgrades to 'D', shown separately in default column. Source: Standard & Poor's Global Fixed Income Research.

All of the upgrades in 2014 were due to changes Standard & Poor's made to its criteria for rating nonbank financial institutions. The revised criteria reflect increased emphasis on globally consistent measures of risk-adjusted capitalization, funding and liquidity, and business stability (see "Standard & Poor's Applies Its Revised NBFI Criteria To Rated Securities Firms In Asia-Pacific," published Dec. 11, 2014). Meanwhile, the downgrades in 2014 were not based on a criteria change, but rather were the results of the rating review process. The financial and industrial sectors each had one downgrade in 2014. Within industrials, United Microelectronics Corp. was downgraded because of its weakening technology position compared with substantial growth in the overall semiconductor foundry sector. In the financial sector, the lone downgrade was that of Standard Chartered Bank (Taiwan) Ltd., which resulted from the downgrade of its U.K.-based parent, given the local subsidiary's highly strategic role within the group.

By the end of the year, we saw 3.01% of issuers upgraded, 1.50% downgraded, and no defaults. This compares with long-term weighted annual averages of 12.36% for upgrades, 5.73% for downgrades, and 0.53% for defaults for Taiwan-based obligors.

In 2014, eight entities in Taiwan were assigned new ratings (see table 2). There were two new 'twAAA' rated entities--one each in financial institutions and corporates--two new financial institutions rated in the 'twAA' category, and four corporate entities in the 'twA' category.

Download Table

Table 2

New Issuer Sector Breakdown

	Financial institutions	Industrials and utilities	Total
1998	31	2	33
1999	25	5	30
2000	27	5	32
2001	9	14	23
2002	30	12	42
2003	9	10	19
2004	6	10	16
2005	9	10	19
2006	6	8	14
2007	9	4	13
2008	7	2	9
2009	2	3	5
2010	1	5	6
2011	4	4	8
2012	3	2	5
2013	7	3	10
2014	3	5	8
Total	**188**	**104**	**292**
% of total	64.4	35.6	100.0

Source: Standard & Poor's Global Fixed Income Research.

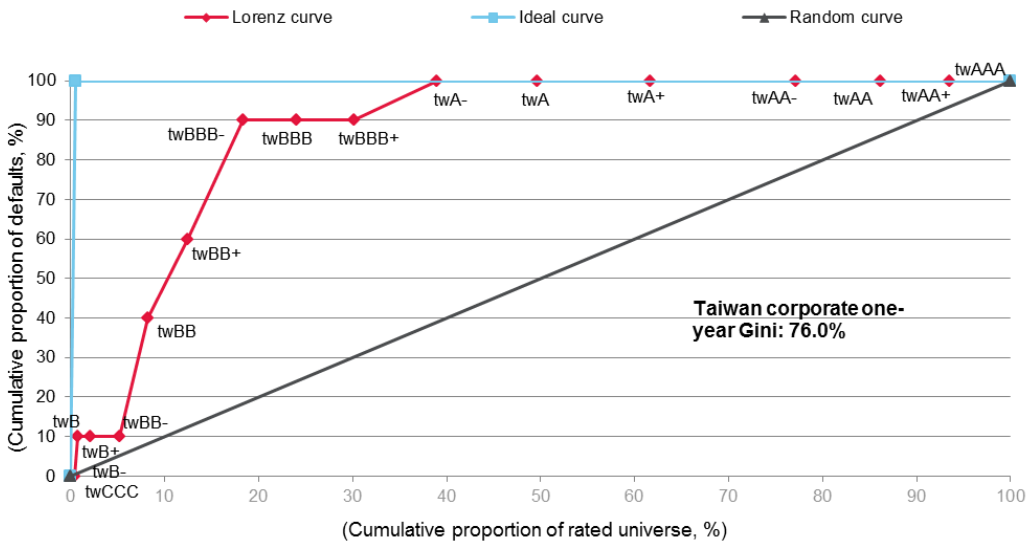
Lorenz Curves And Gini Coefficients

The Gini ratios are a measure of the rank-ordering power of ratings over a given time horizon. They are ratios of actual rank-ordering performance to theoretically perfect rank ordering. All of Standard & Poor's default studies have found a clear correlation between ratings and defaults: The higher the rating, the lower the observed frequency of default, and vice versa. Over each time span, lower ratings correspond to higher default rates. As expected, the Gini coefficients decline over time because longer time horizons allow for greater opportunity for credit degradation among higher-rated entities (see charts 2-4). For example, in the five-year Lorenz curve, 60% of defaults occurred in the speculative-grade category ('twBB+' or lower), while ratings of 'twBB+' or lower constituted only 17% of all corporate ratings. If the rank ordering of ratings had little predictive value, the cumulative share of defaulting corporate entities and the cumulative share of all entities at each rating would be nearly the same, producing a Gini ratio of zero (see Appendix: II Gini Methodology).

Download Chart

Chart 2

Taiwan Corporate One-Year Lorenz Curve And Gini Coefficient (1999-2014)

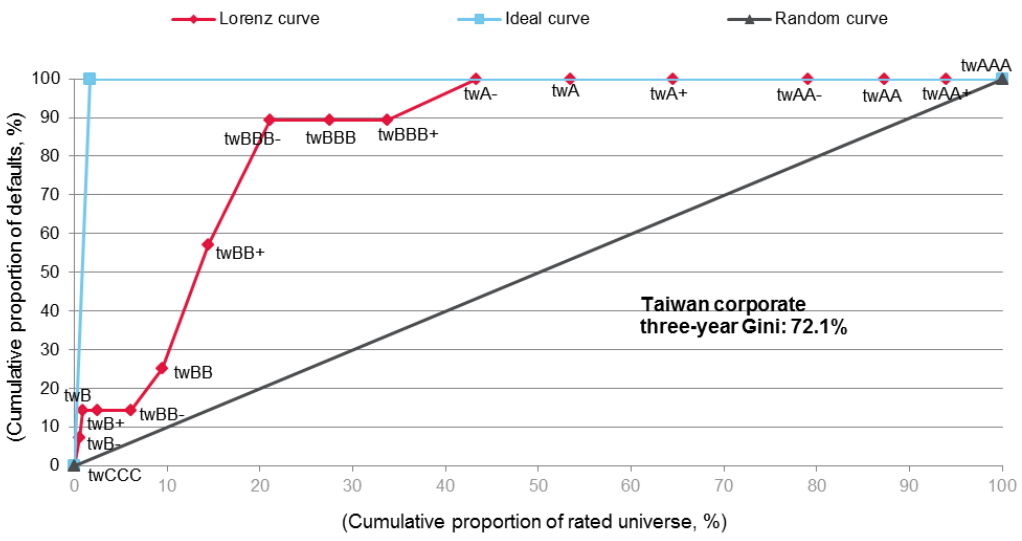


Source: Standard & Poor's Global Fixed Income Research.

Download Chart

Chart 3

Taiwan Corporate Three-Year Lorenz Curve And Gini Coefficient (1999-2014)



Source: Standard & Poor's Global Fixed Income Research.

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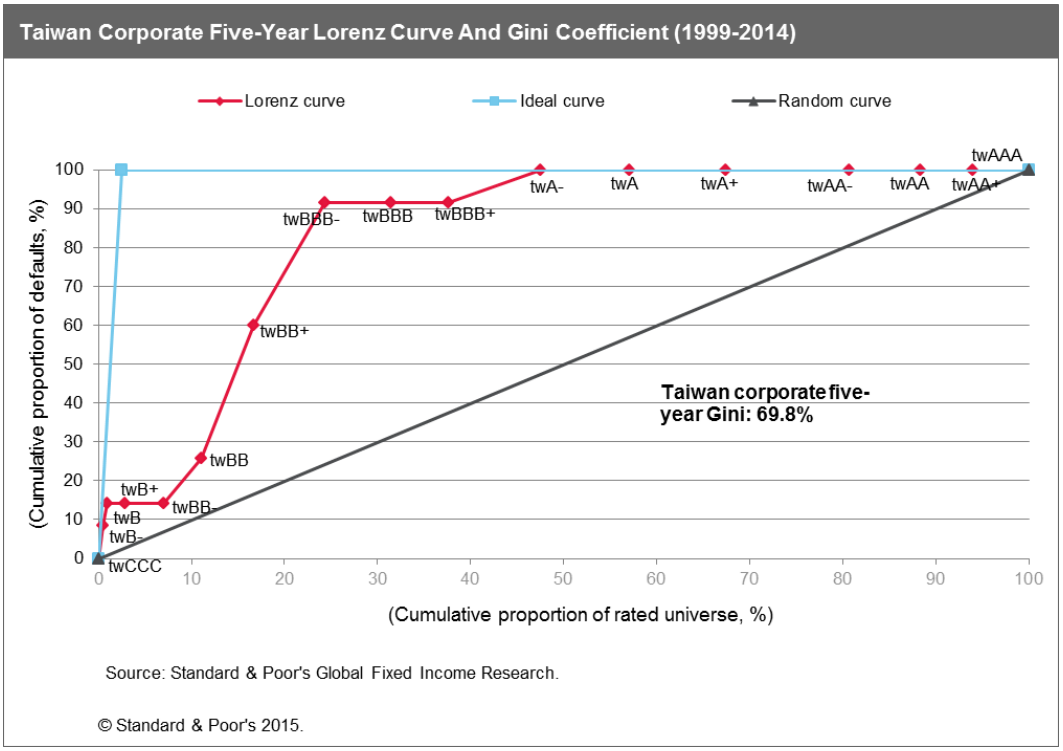
Chart 4



Ratings And Cumulative Default Rates Remained Negatively Correlated

This study found that defaults and ratings are negatively correlated, consistent with all of Standard & Poor's default studies. The higher the rating, the lower the incidence of default. This relationship remains even for a smaller rated population, as is the case with Taiwan-based entities. One exception is the 'twCCC'/'twCC' category, due to its very small data set. Here, we do not see any default activity for those ratings until the three-year horizon. However, by year four, this category's default rate is well above the 'twB' category's--in line with expectations.

Download Table

Table 3

Taiwan Cumulative Average Default Rates (1999-2014) (%)

	--Time Horizon (years)--									
Rating	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
twAAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
twAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
twA	0.17	0.35	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
twBBB	0.90	2.13	2.76	3.43	3.43	3.81	4.61	5.48	6.41	6.41
twBB	2.54	4.57	6.09	6.61	8.17	9.76	10.83	11.94	12.52	12.52
twB	2.50	7.50	10.00	10.00	12.57	15.14	20.62	26.50	29.44	29.44
twCCC/C	0.00	0.00	9.09	45.45	72.73	90.91	100.00	n/a	n/a	n/a
Investment grade	0.24	0.57	0.78	0.94	0.94	1.04	1.26	1.52	1.84	1.84
Speculative grade	2.42	4.84	6.85	8.90	11.80	14.30	16.45	18.23	19.16	19.16
All rated	0.52	1.14	1.63	2.09	2.60	3.16	3.78	4.40	4.87	4.87

N/A--Not applicable. Source: Standard & Poor's Global Fixed Income Research.

Transition Matrices

Transition matrices show how ratings behave over time, including movements to other rating categories, movements to default, and rating withdrawals (see tables 4-6). The results presented here are consistent with other Standard & Poor's default studies, in that there is a clear correspondence between higher ratings and lower default activity. This relationship holds over shorter time periods, as well as longer. Ratings stability is also generally higher among investment-grade issuers when compared to those with speculative-grade ratings. For example, over a one-year time frame, an average of 94.2% of 'twAA' rated issuers maintain this rating one year later, compared with only 59.4% of 'twBB' rated issuers. This general relationship is also true over longer horizons. A key observation when analyzing transition matrices that present averages computed over multiple static pools is that the standard deviations associated with each transition point in the matrix are large relative to the averages (outside of stability rates).

Download Table

Table 4

Taiwan One-Year Average Transition Rates (%)

From/To	twAAA	twAA	twA	twBBB	twBB	twB	twCCC/CC	D	NR
twAAA	86.18	8.94	0.00	0.00	0.00	0.00	0.00	0.00	4.88
	(15.92)	(13.76)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(7.19)
twAA	1.82	94.21	1.32	0.00	0.00	0.00	0.00	0.00	2.64
	(2.06)	(3.36)	(1.42)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(2.05)
twA	0.00	6.02	86.79	2.17	0.17	0.00	0.00	0.17	4.68
	(0.00)	(6.75)	(7.27)	(3.05)	(0.52)	(0.00)	(0.00)	(0.55)	(3.61)
twBBB	0.00	0.30	9.88	75.15	1.80	0.00	0.00	0.90	11.98
	(0.00)	(1.11)	(21.05)	(23.14)	(2.38)	(0.00)	(0.00)	(2.77)	(10.92)
twBB	0.00	0.00	1.02	11.68	59.39	1.02	0.51	2.54	23.86
	(0.00)	(0.00)	(2.47)	(15.93)	(26.15)	(2.59)	(1.15)	(5.72)	(17.29)
twB	0.00	0.00	0.00	0.00	10.00	45.00	7.50	2.50	35.00
	(0.00)	(0.00)	(0.00)	(0.00)	(9.43)	(29.29)	(16.53)	(9.07)	(35.02)
twCCC/CC	0.00	0.00	0.00	0.00	36.36	0.00	63.64	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(41.73)	(0.00)	(41.73)	(0.00)	(0.00)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Source: Standard & Poor's Global Fixed Income Research.

Download Table

Table 5

Taiwan Three-Year Average Transition Rates (%)

From/To	twAAA	twAA	twA	twBBB	twBB	twB	twCCC/CC	D	NR
twAAA	68.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00
	(23.98)	(23.60)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(9.16)
twAA	4.99	85.86	2.91	0.00	0.00	0.00	0.00	0.00	6.24
	(3.92)	(4.40)	(1.61)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(2.57)
twA	0.00	14.46	66.73	4.95	0.79	0.00	0.00	0.59	12.48
	(0.00)	(13.07)	(11.96)	(4.97)	(1.40)	(0.00)	(0.00)	(0.88)	(3.38)
twBBB	0.00	2.86	22.22	40.00	2.22	0.00	0.00	2.86	29.84
	(0.00)	(3.60)	(26.06)	(25.12)	(3.85)	(0.00)	(0.00)	(5.10)	(14.74)
twBB	0.00	0.00	5.08	22.34	19.29	0.00	1.02	6.09	46.19
	(0.00)	(0.00)	(7.76)	(13.94)	(19.18)	(0.00)	(2.20)	(12.14)	(16.97)
twB	0.00	0.00	2.50	2.50	7.50	2.50	15.00	10.00	60.00
	(0.00)	(0.00)	(6.18)	(7.78)	(10.27)	(6.18)	(25.42)	(12.17)	(32.20)
twCCC/CC	0.00	0.00	0.00	0.00	72.73	9.09	9.09	9.09	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(37.44)	(29.83)	(29.83)	(12.48)	(0.00)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Source: Standard & Poor's Global Fixed Income Research.

Download Table

Table 6

Taiwan Five-Year Average Transition Rates (%)

From/To	twAAA	twAA	twA	twBBB	twBB	twB	twCCC/CC	D	NR
twAAA	54.22	33.73	0.00	0.00	0.00	0.00	0.00	0.00	12.05
	(20.14)	(20.68)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(10.99)
twAA	6.83	80.05	3.28	0.00	0.00	0.00	0.00	0.00	9.84
	(6.31)	(5.83)	(1.57)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(2.62)
twA	0.00	19.66	54.13	4.85	0.73	0.00	0.00	0.73	19.90
	(0.00)	(15.69)	(17.09)	(3.57)	(1.18)	(0.00)	(0.00)	(0.93)	(6.51)
twBBB	0.00	6.94	28.82	22.22	0.35	0.00	0.00	3.82	37.85
	(0.00)	(6.76)	(25.83)	(16.07)	(1.60)	(0.00)	(0.00)	(5.34)	(18.01)
twBB	0.00	1.04	7.29	19.27	4.17	0.00	0.00	8.33	59.90
	(0.00)	(1.61)	(7.64)	(12.56)	(3.52)	(0.00)	(0.00)	(11.58)	(14.07)
twB	0.00	0.00	2.56	0.00	12.82	0.00	2.56	12.82	69.23
	(0.00)	(0.00)	(6.98)	(0.00)	(19.85)	(0.00)	(7.92)	(12.50)	(32.64)
twCCC/CC	0.00	0.00	0.00	0.00	18.18	9.09	0.00	72.73	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(40.28)	(12.56)	(0.00)	(37.68)	(0.00)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Source: Standard & Poor's Global Fixed Income Research.

Appendix I: Default Methodology And Definitions

An issuer credit rating reflects TRC's opinion of a company's overall capacity to pay its obligations (that is, its fundamental creditworthiness). This opinion focuses on the obligor's ability and willingness to meet its financial commitments on a timely basis, and it generally indicates the likelihood of default regarding all financial obligations of the firm. It is not necessary for a company to have rated debt in order to be assigned an issuer credit rating.

Specific issues are typically rated as high as or lower than the issuer rating, depending on their relative priority within the company's debt structure. For lower-rated entities, the issuer credit ratings are generally two notches higher than the subordinated debt ratings; otherwise they are generally one notch higher. Therefore, though a 'twBB+' issuer credit rating is generally paired with a 'twBB-' subordinated debt rating, a 'twAA' issuer credit rating usually corresponds to a 'twAA-' subordinated rating.

Standard & Poor's ongoing enhancement of the default database used to generate this study may lead to outcomes that differ to some degree from those reported in previous studies. However, this poses no continuity problem because each study reports statistics back to Dec. 31, 1998. Therefore, each annual default study is self-contained and effectively supersedes all previous versions.

Issuers included in this study

The study analyzes the rating histories of 292 companies on which TRC had assigned ratings as of Dec. 31, 1998, or that were first rated between that date and Dec. 31, 2014. These include industrials, utilities, insurance companies, financial holding companies, banks, securities firms, and other financial institutions in Taiwan with long-term credit ratings. The study includes publicly and confidentially rated entities as well as those whose ratings were withdrawn after initial assignment. The analysis excludes public information (pi) ratings and ratings based on the guarantee of another company. Structured finance vehicles, public-sector issuers, and sovereign issuers are the subject of separate default and transition studies and are excluded from this study.

Definition of default

A default event is recorded on the first occurrence of a payment default on any financial obligation, rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; an exception occurs when an interest payment missed on the due date is made within the grace period. Preferred stock is not considered a financial obligation; thus, a missed preferred stock dividend is not normally equated with default. However, we consider distressed exchanges as defaults whenever the debtholders are coerced into accepting substitute instruments with lower coupons, longer maturities, or any other diminished financial terms.

TRC will usually lower an issue rating to 'D' following a company's default on the corresponding obligation. In addition, 'SD' is used whenever we believe an obligor that has selectively defaulted on a specific issue or class of obligations will continue to meet its payment obligations on other issues or classes of obligations in a timely matter. A 'twR' issuer rating indicates that an obligor is under

regulatory supervision owing to its financial condition. This does not necessarily indicate a default event, but the regulator may have the power to favor one class of obligations over others or pay some obligations and not others. 'D', 'SD', and 'twR' issuer ratings are deemed defaults for the purpose of this study. A default is assumed to take place on the earliest of: the date TRC revised the ratings to 'D', 'SD', or 'twR'; the date when a debt payment was missed; the date a distressed exchange offer was announced; or the date the debtor filed for or was forced into bankruptcy.

Static pool methodology

TRC conducts its default studies on the basis of groupings called static pools. These are formed by grouping issuers by rating category at the beginning of each year covered by the study. Each static pool is followed from that point forward. All companies included in the study are assigned to one or more static pools. When an issuer defaults, that default is assigned back to all of the static pools to which the issuer belongs.

TRC uses the static pool methodology to avoid certain pitfalls in estimating default rates, to ensure that default rates account for rating migration, and to allow default rates to be calculated across multiperiod time horizons. Some methods for calculating default and rating transition rates might charge defaults against only the initial rating on the issuer--ignoring more recent rating changes that supply more current information. Other methods may calculate default rates using only the most recent year's default and rating data--this method may yield comparatively low default rates during periods of high rating activity because they ignore prior years' default activity.

The pools are static in the sense that their membership remains constant over time. Each static pool can be interpreted as a buy and hold portfolio. Because errors, if any, are corrected by every new update, and because the criteria for inclusion or exclusion of companies in the default study are subject to minor revisions as time goes by, it is not possible to compare static pools across different studies. Therefore, every new update revises results back to the same starting date of Dec. 31, 1998, to avoid continuity problems.

Entities that have had ratings withdrawn--that is, revised to NR (not rated)--are surveyed with the aim of capturing a potential default. These companies, as well as those that have defaulted, are excluded from subsequent static pools.

For instance, the 1999 static pool consists of all companies rated as of 12:01 a.m. Jan. 1, 1999. Adding those companies first rated in 1999 to the surviving members of the 1999 static pool forms the 2000 static pool. All rating changes that took place are reflected in the newly formed 2000 static pool. This same method was used to form static pools for 2001 through 2014.

Consider the following example: An issuer is originally rated 'twBB' in mid-1998 and is downgraded to 'twB' in 2000. This is followed by a rating withdrawal (NR) in 2002 and a default ('D') in 2005. This hypothetical company would be included in the 1999 and 2000 pools with the 'twBB' rating assigned to it at the beginning of those years; likewise, it would be included in the 2001 and 2002 pools with

the 'twB' rating. It would not be part of the 1998 pool because it was not rated as of the first day of that year, and it would not be included in any pool after the last day of 2002 because the rating had been withdrawn by then. Yet each of the four pools in which this company was included (1999-2002) would record its 2005 default at the appropriate time horizon.

Ratings are withdrawn when an entity's entire debt is paid off or when the program or programs rated are terminated and the relevant debt extinguished. This may also occur as a result of mergers and acquisitions. Other ratings are withdrawn because of a lack of cooperation, particularly when a company is experiencing financial difficulties and refuses to provide all the information needed to continue surveillance on the ratings.

Default rate calculation

Annual default rates are calculated for each static pool: first in units, and later as percentages with respect to the number of issuers in each rating category. Finally, these percentages are combined to obtain cumulative default rates for the 16 years the study covers.

Issuer-weighted default rates

Averages that appear in this study are calculated based on the number of issuers rather than the dollar amounts affected by defaults or rating changes. Although dollar amounts provide information about the portion of the market that is affected by defaults or rating changes, issuer-weighted averages are a more useful measure of the performance of ratings.

Many people in the investment field use statistics from this default study to estimate the probability of default and the probability of rating transition. It is important to note that we do not imply a specific probability of default; however, our historical default rates are frequently used to estimate these characteristics.

Average cumulative default rate calculation

Cumulative default rates that average the experience of all static pools are derived by calculating marginal default rates, conditional on survival (survivors being non-defaulters) for each possible time horizon and for each static pool, weight averaging the conditional marginal default rates, and accumulating the average conditional marginal default rates. Conditional default rates are calculated by dividing the number of issuers in a static pool that default at a specific time horizon by the number of issuers that survived (did not default) to that point in time. Weights are based on the number of issuers in each static pool. Cumulative default rates are one minus the product of the proportion of survivors (non-defaulters).

Time sample

This update limits the reporting of default rates to the selected time horizon; however, the data have been gathered for 16 years, and all calculations are based on the rating experience of that period. The maturities of most obligations are much shorter than the selected time horizon. In addition,

average default statistics become less reliable at longer time horizons as the sample size becomes smaller and the cyclical nature of default rates increases its effect on averages.

Default patterns share broad similarities across all static pools, suggesting that TRC's rating standards have been consistent over time. Adverse business conditions tend to coincide with default upswings for all pools. These upswings have hit speculative-grade issuers the hardest, but investment-grade default rates also increase in stressful periods.

Transition analysis

Transition rates compare issuer ratings at the beginning of a time period with ratings at the end of the period. To compute one-year rating transition rates by rating category, the rating on each entity at the end of a particular year is compared with the rating at the beginning of the same year. An issuer that remained rated for more than one year is counted as many times as the number of years it was rated. For instance, an issuer continually rated from the middle of 1998 to the middle of 2003 would appear in the four consecutive one-year transition matrices from 1999 to 2002. All 1999 static pool members still rated on Dec. 31, 2014, had 15 one-year transitions, while companies first rated between Jan. 1, 2013, and Dec. 31, 2013, had only one.

Each one-year transition matrix displays all rating movements between letter categories from the beginning of the year through year-end. For each rating listed in the matrix's left-most column, there are nine ratios listed in the rows, corresponding to the ratings from 'twAAA' to 'D,' plus an entry for NR.

Practical application of transition rates

Rating transition rates are useful to investors and credit professionals for whom rating stability is important. For instance, investors restricted by law or inclination to invest in top-grade bonds would want to assess the likelihood that TRC's analysts will continue to assign top ratings to their investments. Conversely, investors buying high-yield bonds in hopes of profiting from an upgrade would be able to gauge that expectation realistically.

The credit community might also use rating transition information, in part, to determine maturity exposure limits or to measure credit risk in the context of the value-at-risk models. Rating transition matrices could also be constructed to produce stressed default rates. Such matrices are often used in the area of credit risk measurement. In addition, multiyear transition matrices are valuable tools that can be used to forecast future rating distributions and may be better suited for certain applications than are one-year transition matrices.

Comparing transition rates with default rates

Rating transition rates may be compared with the marginal and cumulative default rates described in the previous section. For example, the one-year default rate column of table 3 is equivalent to column 'D' of the average one-year transition matrix in table 4. Average cumulative default rates are

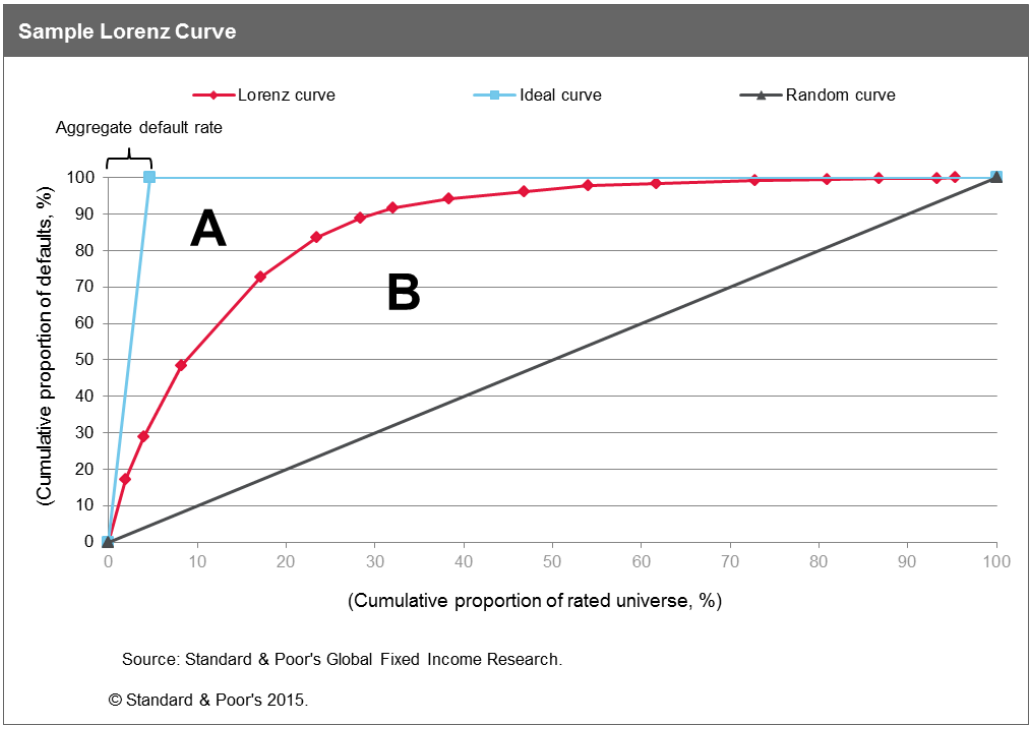
the summary of all static pools from 1998 through 2014, while the number of pools used in the average transition rate is limited by the transition's time horizon.

Appendix II: Gini Methodology

To measure relative ratings performance, we utilize the Lorenz curve as a graphical representation of the proportionality of a distribution, and summarize this via the Gini coefficient. For this study, the Lorenz curve is a plotted with the x axis showing the cumulative share of issuers, arranged by rating, while the y axis represents the cumulative share of defaulters, also arranged by rating. Within both axes of the Lorenz curve, the observations are ordered from the low end of the ratings scale ('CCC'/'C') to the high end ('AAA'). As an example, if 'CCC'/'C' rated entities made up 10% of the total population of issuers at the start of the time frame examined (x axis) and 50% of the defaulters (y axis), then the coordinate (10, 50) would be the first point on the curve. If corporate ratings only randomly approximated default risk, the Lorenz curve would fall along the diagonal. Its Gini coefficient--which is a summary statistic of the Lorenz curve--would thus be zero. If corporate ratings were perfectly rank ordered so that all defaults occurred only among the lowest-rated entities, the curve would capture all of the area above the diagonal on the graph (the ideal curve) and its Gini coefficient would be one (see chart 5). The procedure for calculating the Gini coefficients is illustrated in chart 5--area B is bounded by the random curve and the Lorenz curve, while area A is bounded by the Lorenz curve and the ideal curve. The Gini coefficient is defined as area B divided by the total of areas A plus B. In other words, the Gini coefficient captures the extent to which actual ratings accuracy diverges from the random scenario and aspires to the ideal scenario.

Download Chart

Chart 5



Related Criteria And Research

Related Criteria

- **General Criteria: National And Regional Scale Credit Ratings,** www.standardandpoors.com, Sept. 22, 2014

Related Research

- **2014 Annual U.S. Corporate Default Study And Rating Transitions**, www.standardandpoors.com, May 11, 2015
- **2014 Annual Global Corporate Default Study And Rating Transitions**, www.standardandpoors.com, April 30, 2015