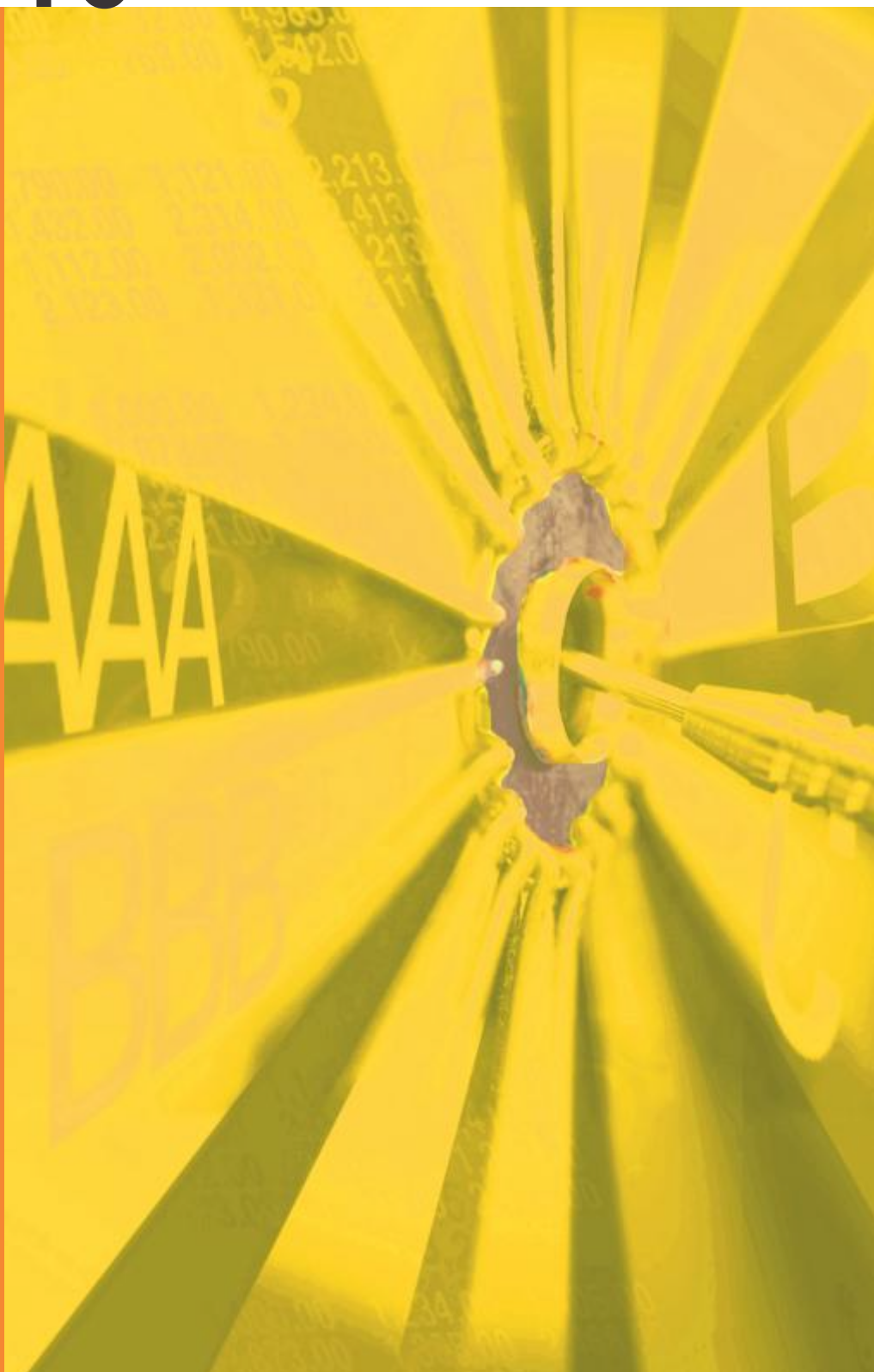


CRISIL Default Study 2010

Arun Panicker
Chief Analytical Officer
Tel.: 91-22- 3342 3300
Email: apanicker@crisil.com

Somasekhar Vemuri
Head – Criteria and Product Development
Tel.: 91-22- 3342 3106
Email: svemuri@crisil.com

Sujeet Kumar
Manager – Criteria and Product Development
Tel.: 91-22- 3342 3409
Email: skumar@crisil.com



Box 1: Meaning and Significance of Default Rates, Default Definition, and Method of Computation

Default rates

What are default rates?

The default rate for a specified period is the number of defaults among rated entities during the period, expressed as a percentage of the total number of rated entities whose ratings were outstanding throughout the period. Default rates can be calculated at each rating level, and can be calculated over multiple periods.

What are transition rates?

A transition rate measures the probability of a change in credit rating over a specified period. Transition rates can be calculated for the entire rated population, or can refer to a specified rating level.

How are default and transition rates used?

For all debt market participants, accurate and reliable default and transition rates are critical inputs in formulating the following decisions:

a) Pricing of debt

Default and transition rates are critical inputs for the pricing of a debt instrument or loan exposure. Default probabilities associated with ratings help investors and lenders quantify credit risk in their debt exposures, and provide inputs on whether and how much to lend, and at what price.

b) Structuring and pricing of credit-enhanced instruments

The structuring, rating, and pricing of credit-enhanced instruments depend heavily on the default and transition rates of underlying borrowers and securities.

c) Credit risk measurement

Default and transition rates are key inputs for many quantitative risk assessment models. Investors in rated instruments can manage their risk exposures effectively if they have access to reliable default and transition rates. Transition rates are also important for debt funds that need to maintain a certain threshold level of credit quality in their portfolios, and for investors who are, because of regulations or otherwise, mandated to invest only in securities that are rated at a certain level or above.

d) Indicating the efficacy of the rating scale

CRISIL's credit ratings are an indicator of probability of default. If ratings are reliable, the default rates should decrease as one moves up the rating scale. Default and transition rates can therefore be used to validate rating scales and quantify rating stability.

Key Variables for Default Rate Computation

(i) Definition of default

For the purpose of computing default rates, there needs to be a clear definition of default. CRISIL defines default as any missed payment on a rated instrument. This means that if a rated obligation is not serviced in full by the due date, the rating moves to 'D' or an equivalent. Furthermore, since CRISIL's credit ratings are an opinion on the timely repayment of debt, any post-default recovery is not factored into CRISIL's credit ratings. CRISIL believes that such an objective definition of default, coupled with its consistent application over time provides a firm foundation for the meaningful third-party use of its default rates. Thus, CRISIL's default rates are free from default recognition bias.

(ii) Period of computation

Default rates can be computed over varying timeframes, potentially exposing such computation to period selection bias. For example, if default rates were published over a period of economic strength, they would appear to be artificially low, and hence, would be of limited use to market participants. CRISIL publishes its default rates from inception to date, ensuring that they are free from period selection bias.

(iii) Computation methodology

Default rates can be computed using different computation methodologies. Each methodology has implications for the numeric outcome as explained in Table A13. CRISIL's default rates are computed using the Annual Average Cumulative Default Rate approach, using the weighted annual marginal default rate methodology, with full year-withdrawal adjustments as explained in Annexure 5.

A 'normalisation' of the above variables must, therefore, precede any comparison of default statistics across rating agencies.

CRISIL Annual Default and Ratings Transitions Study-2010

CRISIL default rates have decreased across all rating categories. This is coupled with a general increase in stability rates across rating categories. These trends have been witnessed on a significantly expanded portfolio of around 3000 ratings as on January 01, 2010, from around 900 ratings as on January 01, 2009; of these, the ratings 'BB' and below increased significantly to around 1250 from 150 during the same period. The improvement in default rates and stability of ratings on such a vastly expanded portfolio is a reflection of an improvement in the credit risk environment in the Indian economy.

While 2008 and 2009 witnessed pressures on credit quality because of the economic slowdown, 2010 witnessed a noticeable reversal, as seen in a decline in overall default rate for 2010 and the average default rate for the period between 1988 and 2010. A surge in ratings was also witnessed in 2010 in the 'BBB', 'BB,' and 'B' categories with smaller companies availing ratings for their bank loan facilities. The overall default rate declined to 2.3 per cent in 2010 from 3 per cent in 2009, even though there was a sharp increase in the number of ratings in the lower rating categories, which have traditionally been more susceptible to defaults. The average default rates for the period between 1988 and 2010 also saw a decline across all rating categories, most strikingly in the lower rating categories 'BB' and 'B'. There was also an increase in stability rates, which was more significant in the lower rating categories. The short-term instrument ratings also saw similar improvements in default rates and stability rates. The overall improvement in credit markets indicates a steady recovery in the economy after the slowdown witnessed in 2008 and 2009.

CRISIL incorporates all known global best practices in default rate computation in its default study. These best practices include defining default in a digital manner, eliminating period selection bias, using the globally accepted marginal default rate method, and employing the monthly frequency static pools as base data. Starting Default Study 2009, CRISIL has been using static pools of a monthly frequency in computing default and transition rates; its previous studies factored in only the year-end status of ratings. This method significantly enhances the study's ability to capture defaults and rating changes that have occurred during the year. CRISIL is India's only rating agency to adopt this rigorous method to compute its default rates.

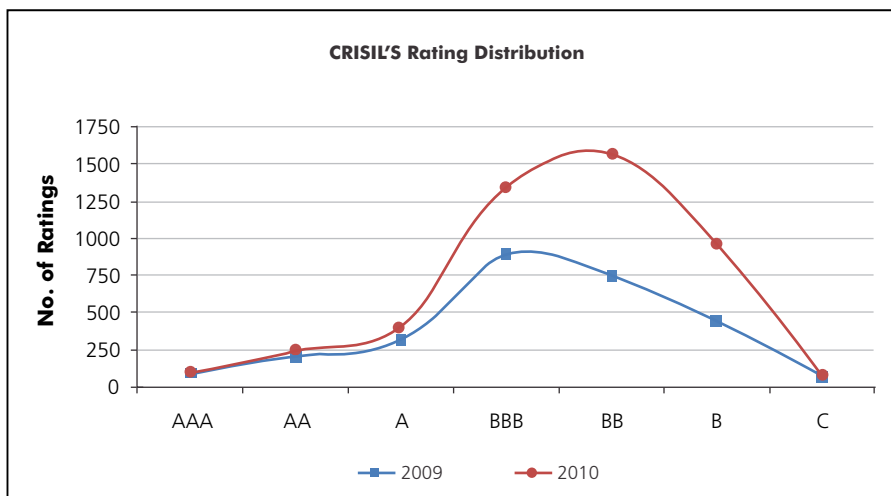
CRISIL's default study for 2010 presents its one-, two-, and three-year cumulative default rates (CDRs) for all ratings assigned by CRISIL till the end of 2010. CRISIL's CDRs across rating categories reduced in 2010. Though the number of defaults by entities rated by CRISIL on long term scale increased to 68 in absolute terms (up from 44 in 2009), the overall default rate reduced to 2.3 per cent; this is in spite of a sharp increase in the number of ratings in the inherently more vulnerable rating categories, 'BB' and lower . Of the 68 defaults, 65 have been by entities rated 'BB' or lower.

I. A Significant Shift in CRISIL's Rating Distribution

Asurge in ratings in the lower rating categories with smaller companies availing ratings for their bank loan facilities

A fundamental shift in the category-wise distribution of CRISIL's long-term ratings was also seen in 2010. There was a surge in ratings in the 'BBB', 'BB', and 'B' categories with smaller companies entering the bank loan market. Consequently, CRISIL's median rating moved towards 'BB' on December 31, 2010, from 'BBB' on December 31, 2009 as shown in Chart 1. It indicates an increasing penetration and acceptance of credit ratings in the bank loan market.

Chart 1: CRISIL'S Rating Distribution



Source: CRISIL Ratings

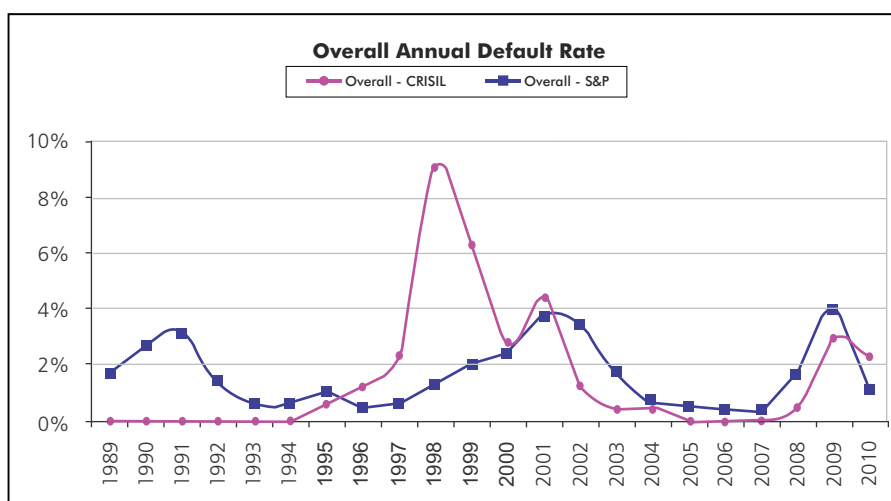
This is a significant development in the credit rating landscape of India, which was earlier dominated by AAA and AA ratings. This will also lead to a more robust and informative default and transition statistics.

II. Movement in Overall Annual Default Rates Since Inception

Annual default rates for corporate issuers¹ decline as a sign of recovery

Default rates have to be both low and stable, over a given time horizon, to be usefully factored for the pricing of debt. The trend for CRISIL's annual default rate (the proportion of total defaults in a particular year to total ratings outstanding throughout that year) is shown in Chart 2. The statistics indicate a steady decline in default rates from 1998 to 2007, increase in 2008 and 2009 due to the economic slowdown, and a decrease in 2010.

Chart 2: Overall Annual Default Rates



Source: CRISIL Ratings

The decrease in 2010, despite a vast expansion in the lower rating categories--inherently more susceptible to defaults--reflects a general improvement in the credit quality in the economy.

¹'Corporate issuers' is a generic term used here to refer to various types of entities which have availed credit ratings from CRISIL and form a part of the Default Study. The term includes companies- both public limited and private limited, societies, partnerships, proprietorship, trusts etc across manufacturing, financial as well infrastructure sectors.

III. For Corporate Issuers

One-year, two-year and three-year cumulative default rates

As credit ratings are opinions on default risk, the higher the rating, the lower should be the probability of default. Such an inverse correlation between credit ratings and default probabilities is desirable for any rating agency and is called the test of ordinality. Table 1 shows CRISIL's one-, two-, and three-year withdrawal-adjusted cumulative default rates across different rating categories from 1988 until December 2010 (Please refer to Annexure 5 for the methodology used in the calculation of default rates). CRISIL's default rates continue to be ordinal. Notably, not a single long-term instrument rated 'AAA' by CRISIL has ever defaulted.

Table 1: CRISIL's average cumulative default rates for long-term ratings (withdrawal-adjusted)

| One-, Two-, and Three-Year CDRs, between 1988 and 2010 | | | | |
|--|---------------|----------|----------|------------|
| Rating | Issuer-months | One-Year | Two-Year | Three-Year |
| AAA | 10794 | 0.00% | 0.00% | 0.00% |
| AA | 21900 | 0.04% | 0.44% | 1.19% |
| A | 21304 | 0.93% | 3.98% | 8.39% |
| BBB | 16113 | 2.82% | 8.57% | 16.24% |
| BB | 9045 | 8.90% | 18.75% | 29.93% |
| B | 3191 | 9.18% | 33.05% | 61.19% |
| C | 1453 | 24.98% | 46.25% | 59.99% |
| Total | 83800 | | | |

CRISIL also publishes default rates for more recent periods (between 2000 and 2010, and between 2002 and 2010), to provide a picture of rating behaviour over the more recent periods. These are presented in Table A3 and Table A4 in Annexure 3. These default rates are also ordinal.

As there has been a change in the methodology for calculating default rates since last year—CRISIL uses monthly static pools as against annual static pools in the past—for the purpose of comparison, the default study also presents the default rates for the periods between 1988 and 2010, and between 2000 and 2010, calculated using annual static pools in Annexure 3 (in Tables A5 and A6, respectively).

One-year transition rates for ratings on both long-term scale and short-term scale

Transition rates indicate the probability of a given rating moving to other rating categories. Since credit ratings drive bonds' yields and, therefore, their prices, transition rates are relevant for investors who do not intend to hold debt instruments to maturity, or need to mark their investments to market regularly. Additionally, they are of crucial importance for investors who are mandated to only hold investments that are of a certain minimum credit quality. Table 2 presents CRISIL's transition rates for various rating categories.

Table 2: CRISIL's average one-year transition rates for long-term ratings

| One-year average transition rates: between 1988 and 2010 | | | | | | | | | |
|--|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Rating | Issuer-months | AAA | AA | A | BBB | BB | B | C | D |
| AAA | 10794 | 96.36% | 3.64% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| AA | 21900 | 1.98% | 91.29% | 5.58% | 0.73% | 0.29% | 0.05% | 0.04% | 0.04% |
| A | 21304 | 0.00% | 3.61% | 84.63% | 6.76% | 3.32% | 0.24% | 0.49% | 0.93% |
| BBB | 16113 | 0.00% | 0.27% | 3.98% | 81.59% | 8.75% | 1.50% | 1.09% | 2.82% |
| BB | 9045 | 0.00% | 0.27% | 0.00% | 2.97% | 81.23% | 3.58% | 3.05% | 8.90% |
| B | 3191 | 0.00% | 0.00% | 0.03% | 0.47% | 7.74% | 80.73% | 1.85% | 9.18% |
| C | 1453 | 0.00% | 0.00% | 0.00% | 0.83% | 0.96% | 11.56% | 61.67% | 24.98% |
| Total | 83800 | | | | | | | | |

Source: CRISIL Ratings.

As can be seen, between 1988 and 2010, more than 91 per cent of the instruments rated in the 'AA' category remained in that category at the end of one year; around 2 per cent were upgraded to a higher rating ('AAA'), and 7 per cent were downgraded to a lower rating. The highlighted diagonal of Table 2 contains the stability rates of different rating categories.

As with CRISIL's default rates, CRISIL's one-year transition rates are also comprehensive and reliable because they have been compiled using monthly static pools that cover data since the first rating was assigned by CRISIL and include multiple business cycles. For transition rates based on the annual static pools methodology, refer to Tables A7 and A8 in Annexure 3.

Stability of ratings assigned on short-term ratings scale are critical for investors with short-term investment horizon as the sensitivity of the credit risk of their investments to rating transitions is more than that for an investor with a long-term investment horizon. Table 3 provides the one-year transition rates for CRISIL's short-term ratings. The diagonal displays the stability rates for each rating. The number to the left of the diagonal represents the probability of an upgrade, while that to the right represents the probability of a downgrade. A 'P1+' rating has a stability rate of more than 97 per cent over a one-year period, and a 'P1' rating has more than 15 per cent probability of transition to a higher rating 'P1+' over a one-year period.

Table 3: CRISIL's average one-year transition rates for short-term ratings

| One-year average transition rates: between 1988-2010 | | | | | | | |
|--|---------------|--------|--------|--------|--------|--------|-------|
| Rating* | Issuer-months | P1+ | P1 | P2 | P3 | P4 | P5 |
| P1+ | 41939 | 97.14% | 2.21% | 0.35% | 0.28% | 0.03% | 0.00% |
| P1 | 6902 | 15.37% | 80.80% | 2.68% | 0.84% | 0.01% | 0.29% |
| P2 | 4239 | 1.18% | 4.48% | 87.00% | 4.53% | 1.68% | 1.13% |
| P3 | 5410 | 0.00% | 0.00% | 3.60% | 85.73% | 8.60% | 2.07% |
| P4 | 7045 | 0.00% | 0.00% | 0.07% | 1.85% | 92.72% | 5.37% |
| Total | 65535 | | | | | | |

Source: CRISIL Ratings

*P2, P3 and P4 include ratings of the respective modifiers levels.

'P1' and 'P2' ratings show stability of 80.8 per cent and 87 per cent, respectively. The stability rates for 'P1' are higher during the more recent period between 2000 and 2010 in relation to the stability rate in the entire 23-year rating history of CRISIL (refer to Table A9 in Annexure 3). For transition rates based on the annual static pools methodology, refer to Tables A10 and A11 in Annexure 3.

Movement in stability rates over the last four years

Stability rates indicate the probability of ratings remaining unchanged over a given time horizon. The stability of CRISIL's ratings increases with movement up the rating scale; in other words, CRISIL's stability rates are also ordinal. Table 4 shows CRISIL's one-year stability rates over the past 23 years. The stability rate for 'BBB' has increased significantly to 81.6 per cent for the period 1988-2010 from 74.5 per cent for the period 1988 - 2009.

Table 4 and 5: Stability rates of CRISIL's long-term ratings

| Period | AAA | AA | A | BBB |
|-----------|-------|-------|-------|-------|
| 1988-2010 | 96.4% | 91.3% | 84.6% | 81.6% |
| 1988-2009 | 96.1% | 91.0% | 83.9% | 74.5% |
| 1988-2008 | 97.1% | 91.2% | 83.4% | 72.5% |
| 1988-2007 | 97.1% | 90.8% | 83.2% | 72.5% |

Source: CRISIL Ratings

| Period | AAA | AA | A | BBB |
|-----------|-------|-------|-------|-------|
| 2000-2010 | 96.9% | 93.9% | 88.8% | 87.2% |
| 2000-2009 | 96.5% | 93.8% | 88.4% | 80.2% |
| 2000-2008 | 97.9% | 94.7% | 87.7% | 75.8% |
| 2000-2007 | 98.1% | 94.2% | 87.3% | 75.9% |

Source: CRISIL Ratings

Considering a shorter period, Table 5 shows the one-year stability rates at individual rating levels since 2000. 'AAA' and 'AA' stability rates have been consistently above 96 and 93 per cent, respectively. Likewise, 'A' and 'BBB' ratings have also displayed high stability rates.

IV. For Structured Finance Instruments

CRISIL was the pioneer in rating several complex structured finance securities in the Indian market and its database comprises 3234 issue-years (including 1821 issue-years for retail asset-backed securities (ABS) and retail mortgage-backed securities (MBS) spanning 18 years). CRISIL has ratings outstanding on a variety of structured finance securities; besides ABS and MBS instruments, these include single-loan sell-downs and instruments backed by full or partial guarantees.

One-year, two-year, and three-year cumulative default rates

Table 6 provides the one-, two-, and three-year cumulative default rates at each rating category level for the period between 1993² and 2010 (Please refer to Table A12 in Annexure 3 for default rates in the period between 2000 and 2010).

Table 6: CRISIL's average CDRs for ratings on structured finance securities (between 1993 and 2010)

| Ratings | Issue-years | One-Year | Two-Year | Three-Year |
|------------------|-------------|----------|----------|------------|
| AAA(so) | 2360 | 0.04% | 0.18% | 0.32% |
| AA(so) | 313 | 0.00% | 0.00% | 0.00% |
| A(so) | 367 | 0.55% | 2.94% | 5.85% |
| BBB(so) | 156 | 0.00% | 0.00% | 0.00% |
| BB(so) and below | 38 | 21.05% | 21.05% | 21.05% |
| Total | 3234 | | | |

Source: CRISIL Ratings

The one-year cumulative default rate for securities rated 'AAA(so)' is 0.04 per cent. This is on account of a central-government-guaranteed 'AAA(so)'-rated instrument that defaulted in 2005, because the trustee delayed the invocation of the guarantee, resulting in a delay in payouts to investors; under its rigorous default recognition norms, CRISIL treated this as a default. There were eight defaults among instruments rated 'BB(so)' and below, seven of which were guaranteed by state governments. All nine defaults were subsequently cured; the investors were paid in full and the rated instruments redeemed.

² CRISIL assigned its first structured finance rating in Jan 1992, which forms a part of 1993 annual static pool. For calculating default and transition rates for structured finance ratings, CRISIL has used annual static pool methodology as defaults in structured finance securities have been rare.

One-year transition rates

Nearly three-fourths of all structured finance ratings—2360 issue-years of the total 3234 issue-years—are rated 'AAA (so)' and show a high stability rate of 97.8 per cent. Table 7 shows the one-year average transition rates for structured finance securities for the period between 1993 and 2010.

Table 7: CRISIL's average one-year transition rates for structured finance securities

| One-year Average Transition Rates-1993-2010 | | | | | | | | | |
|---|-------------|---------|--------|--------|---------|--------|---------|-------|---------|
| Rating | Issue-years | AAA(so) | AA(so) | A(so) | BBB(so) | BB(so) | B(so) | C(so) | D |
| AAA(so) | 2360 | 97.75% | 1.95% | 0.21% | 0.00% | 0.00% | 0.00% | 0.04% | 0.04% |
| AA(so) | 313 | 9.27% | 83.07% | 7.35% | 0.32% | 0.00% | 0.00% | 0.00% | 0.00% |
| A(so) | 367 | 0.27% | 6.00% | 87.74% | 0.82% | 4.36% | 0.27% | 0.00% | 0.55% |
| BBB(so) | 156 | 6.41% | 1.28% | 6.41% | 83.97% | 0.64% | 0.64% | 0.64% | 0.00% |
| BB(so) | 35 | 0.00% | 0.00% | 5.71% | 20.00% | 54.29% | 0.00% | 0.00% | 20.00% |
| B(so) | 2 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% |
| C(so) | 1 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% |
| Total | 3234 | | | | | | | | |

Source: CRISIL Ratings

The shaded diagonal in Table 7 shows the stability rates for various rating categories.

Movement in stability rates over the last four years

Tables 8 and 9 present the one-year stability rates of structured finance ratings for different periods.

Table 8: One-Year Stability Rates Since 1993

| Period | AAA(so) | AA(so) | A(so) | BBB(so) |
|-----------|---------|--------|-------|---------|
| 1993-2010 | 97.8% | 83.1% | 87.8% | 84.0% |
| 1993-2009 | 97.5% | 83.8% | 88.0% | 92.2% |
| 1993-2008 | 97.0% | 87.6% | 88.1% | 97.2% |
| 1993-2007 | 98.6% | 86.7% | 87.1% | 93.9% |

Source: CRISIL Ratings

Table 9: One-Year Stability Rates Since 2000

| Period | AAA(so) | AA(so) | A(so) | BBB(so) |
|-----------|---------|--------|-------|---------|
| 2000-2010 | 97.7% | 85.1% | 86.7% | 84.5% |
| 2000-2009 | 97.4% | 86.4% | 86.8% | 93.0% |
| 2000-2008 | 96.9% | 91.8% | 86.8% | 98.6% |
| 2000-2007 | 98.6% | 91.8% | 85.5% | 96.9% |

Source: CRISIL Ratings

These stability rates are high; however, the Indian securitisation market has been 'AAA(so)'-centric, reflected in the large number of issue-years for this rating. There has been a recent improvement in data density in the other higher rating categories upto 'BBB(so)' largely explaining a move towards ordinality in stability rates in 2010.

V. Retail ABS and MBS Issuance-One Year Transition Rates

CRISIL's database of retail ABS and MBS transactions consists of 1821 issue-years across 18 years (between 1993 and 2010). *There have been no defaults among CRISIL-rated ABS and MBS instruments during the period; the cumulative default rates for these instruments, therefore, stays at zero per cent for all rating categories across all years.*

Table 10 shows the transition rates for ABS and MBS ratings for the period between 1993 and 2010. 'AAA(so)'-rated ABS or MBS instruments, which account for 90 per cent of the ratings in the database, have stability rates of 97.8 per cent.

Table 10 : CRISIL's average one-year transition rates for ABS and MBS ratings

| One-year average transition rates between 1993 and 2010 | | | | | | | | | |
|---|-------------|---------|--------|--------|---------|--------|-------|-------|-------|
| Rating | Issue-years | AAA(so) | AA(so) | A(so) | BBB(so) | BB(so) | B(so) | C(so) | D(so) |
| AAA(so) | 1636 | 97.80% | 1.90% | 0.31% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| AA(so) | 47 | 40.43% | 48.94% | 8.51% | 2.13% | 0.00% | 0.00% | 0.00% | 0.00% |
| A(so) | 12 | 8.33% | 33.33% | 41.67% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% |
| BBB(so) | 126 | 7.94% | 1.59% | 7.94% | 80.95% | 0.00% | 0.79% | 0.79% | 0.00% |
| BB(so) and below | 0 | - | - | - | - | - | - | - | - |
| Total | 1821 | | | | | | | | |

The stability rates of these ratings are comparable to those of other ratings assigned by CRISIL. Data density is sparse below the 'AAA(so)' level, largely explaining the non-ordinal stability rates below 'AAA(so)'. Furthermore, a significant number of 'AA(so)' and 'A(so)' rated instruments have performed well, resulting in upgrades.

Conclusion:

The declining default rates and increasing stability rates indicate a reversal in the downward trend in credit quality witnessed during the global credit meltdown in 2008 and 2009. The ordinal nature of default rates, high stability, and strong predictive ability of CRISIL's ratings demonstrate the strength of CRISIL's rating processes. These processes have been set up, stabilised, and refined in the light of two decades of CRISIL's rating experience, and their robustness is today recognised by issuers and investors. This study is based on CRISIL's ratings assigned over the last 23 years, covering multiple credit cycles. Because of the quality, vintage, and diversity of the instruments, the size of the database, and use of monthly static pool methodology, this remains the most comprehensive study on corporate defaults and rating transitions in India.

VI. Annexures

Annexure 1: Industry-wise Classification of Defaults

CRISIL is the first rating agency in India to have published an industry-wise classification and a chronological account of all the defaults in its portfolio that form part of the static pools used for computing default rates. Over the last 23 years, four industries (textiles; metals, mining, and steel; non-banking financial companies and construction and construction material) accounted for more than 40 per cent defaults on CRISIL-rated debt instruments, as shown in Table A1.

Table A1: Industry-wise and chronological break-up of defaults over the last 23 years.

Table A1: Industry-wise and chronological break-up of defaults over the last 22 years.

| Industry | 1988 to 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Sum | |
|---|--------------|----------|----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|------------|----|
| Textile | | | | 3 | 1 | 3 | 1 | 2 | | 1 | | | | | 3 | 8 | 12 | 34 | |
| Metals, mining, and steel | | | 2 | 1 | 6 | 2 | 2 | 2 | | | | | | | 1 | 4 | 6 | 26 | |
| Non Banking Finance Company | | | | 4 | 14 | 2 | | | | | | | | | | | | 20 | |
| Construction and construction material | | | 1 | | 3 | 3 | 1 | 1 | | | | | | | | | 5 | 5 | 19 |
| Engineering | | | | | 2 | 3 | 1 | 1 | | | | | | | | 1 | 4 | 12 | |
| Pharmaceuticals | | | 1 | | 1 | 3 | | 1 | | | | | | | | 3 | 2 | 11 | |
| Consumer products | | 2 | 1 | 1 | 5 | | | | 1 | | | | | | | | | 10 | |
| Chemicals | | | | 1 | 1 | 1 | 3 | 2 | 1 | | | | | | | | | 10 | |
| Paper & Paper Products | | | | 1 | 1 | 1 | | | 1 | | | | | | 1 | 1 | 4 | 10 | |
| Power and power equipment | | | | | | | 1 | 2 | | | | | | | 1 | 1 | 5 | 10 | |
| Automotive | | | 1 | 1 | 2 | 1 | | 1 | | | 1 | | | | | 1 | 1 | 9 | |
| Sugar | | | | | | 3 | | | | | | | | | | | 3 | 2 | 8 |
| Hotels | | | | | | 1 | | | | | | | | | | 2 | 5 | 8 | |
| Diversified | | | | | 3 | | | | | | | | | | | 4 | | 7 | |
| Packaging | | | | | 2 | 1 | | | | | | | | | | | 3 | 6 | |
| Real Estate Developers Project | | | | | | | | | | | | | | | | 1 | 2 | 3 | |
| Roads | | | | | | | | | | | | | | | | 1 | 2 | 3 | |
| Computers-Hardware | | | | | 2 | | | | | | | | | | | | | 2 | |
| Gems & Jewellery | | | | | | | | | | | | | | | | 2 | | 2 | |
| Telecommunication-Services-Equipments/Cable | | | | | 1 | 1 | | | | | | | | | | | | 2 | |
| ITES | | | | | | | | | | | | | | | | 1 | 1 | 2 | |
| Printing | | | | | | 1 | | | | | | | | | | | 1 | 2 | |
| Courier & Express Services | | | | 1 | | | | | | | | | | | | | | 1 | |
| Fire Protection | | | | | | | 1 | | | | | | | | | | | 1 | |
| Glass | | | | | | | | | | | | | | | | 1 | | 1 | |
| Oil & Refining | | | | | | 1 | | | | | | | | | | | | 1 | |
| Shipping | | | | | | | 1 | | | | | | | | | | | 1 | |
| Miscellaneous | | | 1 | | 1 | | | | | | | | | | | 4 | 12 | 18 | |
| Total Defaults | 0 | 2 | 7 | 13 | 45 | 27 | 11 | 12 | 3 | 1 | 1 | 0 | 0 | 0 | 6 | 43 | 68 | 239 | |

Source: CRISIL Rating Rationales

The highest number of defaults, in absolute terms, since inception, was seen in 2010. However, it should be noted that the defaults of 2010 were on a much higher base of around 3000 ratings (as on January 2010). It should be pointed out that the overall default rate has declined in 2010 as noted earlier.

Annexure 2: Analysis of Defaults: Time to Default

Higher ratings farther away from default

Since CRISIL's inception in 1988, there have been 239 defaults by issuers carrying a long-term rating. An analysis of these defaulted issuers indicates that amongst the entities that defaulted, the higher-rated entities were farther away from default in terms of number of months prior to default than the lower-rated entities. While issuers rated in the 'B' or 'C' categories that defaulted did so in about 11.5 months on an average, the few entities that defaulted from higher categories did so after a much longer period. For instance, the 2 per cent (approximately) of entities that defaulted from the 'AA' category did so after 58 months on an average (see Table A2).

Table A2: Average Time to Default (of Defaulted Entities)
(In number of months)

| Rating Category | Months to Default |
|-----------------|-------------------|
| AAA | No defaults |
| AA | 58 |
| A | 44 |
| BBB | 32 |
| BB | 16 |
| B | 10 |
| C | 13 |

Source: CRISIL Ratings

Annexure 3: Comparative Default and Transition Rates for different periods and based on Annual Data

Three-year CDRs for long-term ratings-monthly static pools

Table A3: One-, Two-, and Three-Year CDRs,
between 2000 and 2010

| Rating | Issuer-months | One-Year | Two-Year | Three-Year |
|--------------|---------------|----------|----------|------------|
| AAA | 8170 | 0.00% | 0.00% | 0.00% |
| AA | 12123 | 0.02% | 0.15% | 0.22% |
| A | 8141 | 0.30% | 0.79% | 1.42% |
| BBB | 10249 | 2.04% | 5.07% | 6.84% |
| BB | 6502 | 4.60% | 9.58% | 13.13% |
| B | 2873 | 8.63% | 18.71% | 18.71% |
| C | 924 | 21.65% | 37.50% | 42.60% |
| Total | 48982 | | | |

Source: CRISIL Ratings

Table A4: One-, Two-, and Three-Year CDRs,
between 2002 and 2010

| Rating | Issuer-months | One-Year | Two-Year | Three-Year |
|--------------|---------------|----------|----------|------------|
| AAA | 6876 | 0.00% | 0.00% | 0.00% |
| AA | 10001 | 0.00% | 0.00% | 0.00% |
| A | 6535 | 0.23% | 0.62% | 1.51% |
| BBB | 9660 | 2.04% | 4.38% | 4.38% |
| BB | 6046 | 3.69% | 6.80% | 14.15% |
| B | 2758 | 7.43% | 16.60% | 16.60% |
| C | 678 | 14.75% | 21.85% | 21.85% |
| Total | 42554 | | | |

Source: CRISIL Ratings

Three year CDR's for long term rating-annual static pools

Table A5: One-, Two-, and Three-Year CDRs,
between 1988 and 2010

| Rating | Issuer-years | One-Year | Two-Year | Three-Year |
|--------------|--------------|----------|----------|------------|
| AAA | 941 | 0.00% | 0.00% | 0.00% |
| AA | 1892 | 0.00% | 0.32% | 1.07% |
| A | 1925 | 0.68% | 3.58% | 7.92% |
| BBB | 1760 | 2.27% | 6.55% | 14.99% |
| BB | 1123 | 6.95% | 15.86% | 26.62% |
| B | 493 | 8.93% | 28.10% | 52.07% |
| C | 147 | 24.49% | 43.37% | 62.25% |
| Total | 8281 | | | |

Source: CRISIL Ratings

Table A6: One-, Two-, and Three-Year CDRs,
between 2000 and 2010

| Rating | Issuer-years | One-Year | Two-Year | Three-Year |
|--------------|--------------|----------|----------|------------|
| AAA | 739 | 0.00% | 0.00% | 0.00% |
| AA | 1132 | 0.00% | 0.12% | 0.27% |
| A | 873 | 0.34% | 1.20% | 2.09% |
| BBB | 1292 | 1.86% | 2.69% | 4.37% |
| BB | 916 | 3.38% | 7.95% | 11.13% |
| B | 470 | 8.30% | 20.95% | 20.95% |
| C | 111 | 22.52% | 41.89% | 53.51% |
| Total | 5533 | | | |

Source: CRISIL Ratings

One-year transition rates for long-term instrument-annual static pools

Table A7: One-year average transition rates: between 1988 and 2010

| Rating | Issuer-years | AAA | AA | A | BBB | BB | B | C | D |
|--------------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| AAA | 941 | 96.60% | 3.40% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| AA | 1892 | 1.90% | 91.33% | 5.55% | 0.90% | 0.21% | 0.11% | 0.00% | 0.00% |
| A | 1925 | 0.00% | 3.79% | 85.30% | 6.18% | 3.27% | 0.21% | 0.57% | 0.68% |
| BBB | 1760 | 0.00% | 0.17% | 4.26% | 83.81% | 7.44% | 1.14% | 0.91% | 2.27% |
| BB | 1123 | 0.00% | 0.18% | 0.00% | 4.19% | 83.08% | 3.56% | 2.05% | 6.95% |
| B | 493 | 0.00% | 0.00% | 0.20% | 0.61% | 11.56% | 77.49% | 1.22% | 8.93% |
| C | 147 | 0.00% | 0.00% | 0.00% | 0.68% | 1.36% | 17.01% | 56.46% | 24.49% |
| Total | 8281 | | | | | | | | |

Source: CRISIL Ratings

Table A8: One-year average transition rates: between 2000 and 2010

| Rating | Issuer-years | AAA | AA | A | BBB | BB | B | C | D |
|--------------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| AAA | 739 | 97.16% | 2.84% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| AA | 1132 | 2.21% | 93.38% | 3.45% | 0.97% | 0.00% | 0.00% | 0.00% | 0.00% |
| A | 873 | 0.00% | 5.38% | 88.66% | 4.47% | 0.69% | 0.12% | 0.34% | 0.34% |
| BBB | 1292 | 0.00% | 0.08% | 3.64% | 88.39% | 4.88% | 0.77% | 0.39% | 1.86% |
| BB | 916 | 0.00% | 0.22% | 0.00% | 5.13% | 86.90% | 3.38% | 0.98% | 3.38% |
| B | 470 | 0.00% | 0.00% | 0.21% | 0.64% | 12.13% | 77.87% | 0.85% | 8.30% |
| C | 111 | 0.00% | 0.00% | 0.00% | 0.90% | 1.80% | 22.52% | 52.25% | 22.52% |
| Total | 5533 | | | | | | | | |

Source: CRISIL Ratings

One-year transition rates for long-term instrument-monthly static pools

Table A9: One-year average transition rates between 2000 and 2010-Monthly Static Pools

| Rating* | Issuer-months | P1+ | P1 | P2 | P3 | P4 | P5 |
|--------------|---------------|--------|--------|--------|--------|--------|-------|
| P1+ | 27482 | 98.01% | 1.39% | 0.21% | 0.40% | 0.00% | 0.00% |
| P1 | 4073 | 10.61% | 85.61% | 2.26% | 1.25% | 0.03% | 0.25% |
| P2 | 3868 | 0.52% | 3.93% | 87.85% | 4.65% | 1.81% | 1.24% |
| P3 | 5402 | 0.00% | 0.00% | 3.61% | 85.75% | 8.61% | 2.04% |
| P4 | 7038 | 0.00% | 0.00% | 0.07% | 1.85% | 92.71% | 5.37% |
| Total | 47863 | | | | | | |

Source: CRISIL Ratings

*P2, P3 and P4 include ratings of the respective modifiers levels.

One-year transition rates for short-term instruments-annual static pool

Table A10: One-year average transition rates between 1988 and 2010-Annual Static Pools

| Rating* | Issuer-years | P1+ | P1 | P2 | P3 | P4 | P5 |
|--------------|--------------|--------|--------|--------|--------|--------|-------|
| P1+ | 3676 | 97.39% | 1.96% | 0.30% | 0.33% | 0.03% | 0.00% |
| P1 | 672 | 14.29% | 82.29% | 2.23% | 1.04% | 0.00% | 0.15% |
| P2 | 507 | 0.99% | 4.93% | 87.97% | 3.95% | 0.99% | 1.18% |
| P3 | 719 | 0.00% | 0.00% | 5.29% | 86.37% | 6.82% | 1.53% |
| P4 | 1046 | 0.00% | 0.00% | 0.10% | 2.96% | 92.07% | 4.88% |
| Total | 6620 | | | | | | |

Source: CRISIL Ratings

*P2, P3 and P4 include ratings of the respective modifiers levels.

Table A11: One-year average transition rates between 2000 and 2010-Annual Static Pools

| Rating* | Issuer-years | P1 + | P1 | P2 | P3 | P4 | P5 |
|--------------|--------------|--------|--------|--------|--------|--------|-------|
| P1+ | 2547 | 98.00% | 1.34% | 0.20% | 0.47% | 0.00% | 0.00% |
| P1 | 424 | 12.03% | 84.67% | 1.89% | 1.18% | 0.00% | 0.24% |
| P2 | 473 | 0.42% | 4.65% | 88.58% | 4.02% | 1.06% | 1.27% |
| P3 | 718 | 0.00% | 0.00% | 5.29% | 86.49% | 6.83% | 1.39% |
| P4 | 1045 | 0.00% | 0.00% | 0.10% | 2.97% | 92.06% | 4.88% |
| Total | 5207 | | | | | | |

Source: CRISIL Ratings

*P2, P3 and P4 include ratings of the respective modifiers levels.

Three-year CDRs for ratings of structured finance securities

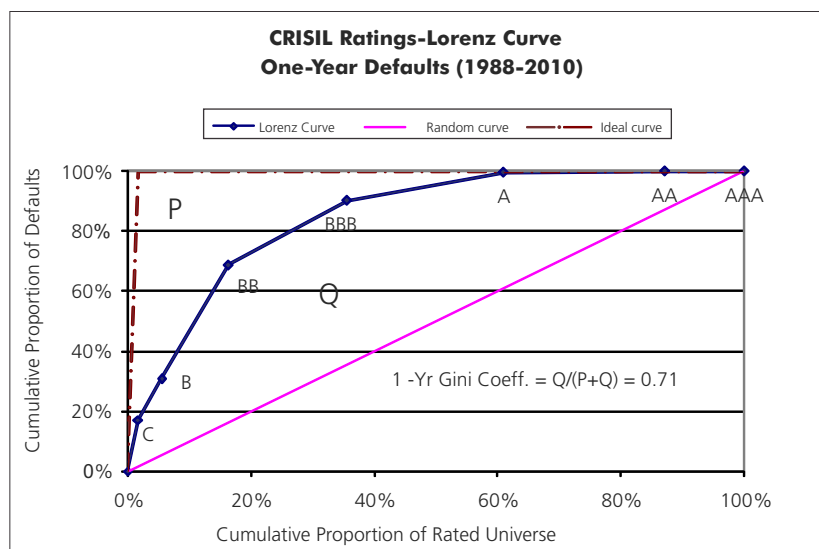
Table A12: One-, Two-, and Three-Year CDRs, between 2000 and 2010

| Rating | Issue years | One-Year | Two-Year | Three-Year |
|------------------|-------------|----------|----------|------------|
| AAA(so) | 2242 | 0.05% | 0.19% | 0.33% |
| AA(so) | 289 | 0.00% | 0.00% | 0.00% |
| A(so) | 330 | 0.61% | 3.27% | 6.54% |
| BBB(so) | 155 | 0.00% | 0.00% | 0.00% |
| BB(so) and below | 38 | 21.05% | 21.05% | 21.05% |
| Total | 3054 | | | |

Source: CRISIL Ratings

Annexure 4: Lorenz Curve and Gini Coefficient for CRISIL Ratings-Inception to 2010

Chart 3: Graphical Representation of Gini Coefficient-Lorenz Curve



Source: CRISIL Ratings

The Gini coefficient for one-year defaults for the period 1988-2010 stands at 0.71, which indicates a strong ability of the rating process to predict defaults.

How to read the chart on Gini Coefficient, a measure of rating accuracy

If ratings had no ability to predict default, then default rates and ratings would not be correlated. For example, consider that 30 defaults occur in one year out of 1000 ratings (that is, a default rate of 3 per cent). For a randomly selected set of 100 companies (10 per cent of the rated population), one would expect to have three defaulted companies (10 per cent of the defaulted population), since the number of defaults one would expect in a sample is proportional to the selected number of companies. This is represented by the random curve, which will be a diagonal straight line. On the other hand, if ratings are perfect predictors of default, in the aforementioned example, the lowest 30 ratings should capture all the defaults. This is represented by the ideal curve.

Since no rating system is perfect, the actual predictive power of ratings lies between these two extremes. The cumulative curve (Lorenz curve) represents the actual case. The closer the cumulative curve is to the ideal curve, the better the predictive power of the ratings. This is quantified by measuring the area between the cumulative curve and random curve (area 'Q' in Chart 3) in relation to the area between the ideal curve and random curve (the sum of the areas 'P' and 'Q' in Chart 3). This ratio of $Q/(P+Q)$, called the Gini coefficient or the accuracy ratio, will be 1 if ratings have perfect predictive ability, as the cumulative curve will coincide with the ideal curve. On the other hand, it will be close to zero if ratings have poor predictive power, as in this case, the cumulative curve will almost coincide with the random curve. Thus, a higher Gini coefficient indicates the superior predictive ability of any rating system.

Definitions

Cumulative default curve (also called Lorenz curve)

The Lorenz curve is a plot of the cumulative proportion of defaults category-wise (of issuers with ratings outstanding at the beginning of the year and being in default at the end of the year), against the total proportion of issuers up to that category. For instance, in Chart 3, 87 per cent of the defaults recorded were in the 'BBB' and lower categories; these categories included only 35 per cent of the total ratings outstanding. In other words, the bottom 35 per cent of the ratings accounted for 87 per cent of all the defaults that occurred.

Random curve

The random curve is a plot of the cumulative proportion of issuers against the cumulative proportion of defaulters, assuming that defaults are distributed equally across rating categories. In such a plot, the bottom 35 per cent of the issuers would account for exactly 35 per cent of the defaults; the plot would, therefore, be a diagonal straight line, and the ratings would have no predictive value.

Ideal curve

The ideal curve is a plot of the cumulative proportion of issuers against the cumulative proportion of defaulters, if ratings were perfectly rank-ordered, so that all defaults occurred only among the lowest-rated entities. As CRISIL's overall default rate is 2.3 per cent, the bottom 2.3 per cent of issuers would have accounted for all the defaults if the ratings were perfect default predictors and any rating categories above this level would have no defaults at all.

Accuracy ratio/Gini coefficient

Accuracy ratio = $(\text{Area between the Lorenz curve and the random curve}) / (\text{Area between the ideal curve and the random curve})$

Annexure 5: Methodology used by CRISIL in this study

Concept of static pools

CRISIL, for calculating default and transition rates, has moved to a monthly static pool methodology from the annual static pool methodology, since the 2009 edition of the default and transition study. The monthly static pool methodology captures more granular monthly data such as intra-year transition and defaults, rendering default and transition rate estimates more accurate and useful.

A static pool of a particular date is composed of a set of entities with a given rating outstanding as on that date. CRISIL forms static pools on the first day of every month for its default and transition study. As CRISIL calculates one-, two-, and three-year cumulative default rates, the static pools formed are of one-, two-, and three-year lengths. Once formed, the pool does not admit any new entities. For an entity to be included in an n-year static pool, its rating has to be outstanding through the entire period of n years. Entities whose ratings are withdrawn or are placed in default in the interim will continue to be withdrawn or in default for the remaining years. Therefore, an entity that ceases to be rated and is subsequently rated again, or an entity in the pool that defaults and recovers later, is not considered for re-inclusion in the pool.

An entity that remains rated for more than one month is counted as many times as the number of months over which it was rated. The methodology assumes that all ratings are current through an ongoing surveillance process, which, in CRISIL's case, is the cornerstone of the ratings' value proposition.

For instance, an entity that had ratings alive (not withdrawn) from January 1, 2000, to January 1, 2002, would appear in twelve consecutive static pools of one-year lengths, such as January 2000 to January 2001; February 2000 to February 2001; March 2000 to March 2001. On the other hand, a company first appearing on January 1, 2002, and having an outstanding rating until February 1, 2003, will appear only in the January 2002 to January 2003 and February 2002 to February 2003 static pools of one-year lengths. The static pools of two-year and three-year lengths are formed in a similar manner.

Weighted average marginal default rate

Notations:

For CRISIL's data,

M: Month of formation of the static pool (between 1988 and 2010)

R: A given rating category on the rating scale ('AAA' to 'C')

t: Length of the static pool in years on a rolling basis (1, 2, 3)

$P_t^M(R)$ = Defaults from rating category 'R' in the t^{th} year of the M-month static pool

$Q_t^M(R)$ = Non-defaulted ratings outstanding at the beginning of the t^{th} year in the rating category R from the M-month static pool

Illustration³: Consider a hypothetical static pool formed in January 2000, and having 100 companies outstanding at a rating of 'BB' at the beginning of the month. Suppose that, in this pool, there is one default in the first year (ending December 2000), three in the second year (ending December 2001), and none in the third year (ending December 2002). Also, assume there are no withdrawals in any year. Then, using the above notation,

$$P_1^{\text{Jan-2000}}(\text{BB}) = 1; P_2^{\text{Jan-2000}}(\text{BB}) = 3; \text{ and } P_3^{\text{Jan-2000}}(\text{BB}) = 0$$

$$Q_1^{\text{Jan-2000}}(\text{BB}) = 100; Q_2^{\text{Jan-2000}}(\text{BB}) = 99; \text{ and } Q_3^{\text{Jan-2000}}(\text{BB}) = 96$$

For rating category R, the t^{th} year marginal default rate for the M-month static pool is the probability of an entity, in the static pool formed in the month M, not defaulting until the end of period (t-1), and defaulting only in year t.

Mathematically, the marginal default rate for category 'R' in year t from the M-month static pool, $\text{MDR}_t^M(R)$, is defined as

$$\text{MDR}_t^M(R) = P_t^M(R)/Q_t^M(R)$$

$$\text{Therefore, } \text{MDR}_1^{\text{Jan-2000}}(\text{BB}) = P_1^{\text{Jan-2000}}(\text{BB})/Q_1^{\text{Jan-2000}}(\text{BB}) = 1/100 = 0.01$$

The average marginal default rate is calculated as the weighted average of the MDRs of all the static pools of similar lengths in the period, with the number of ratings outstanding at the beginning of the period (with appropriate withdrawal adjustments discussed later) as weights.

³ This illustration is for explanation only, and does not indicate the actual or observed default rates in any rating category.

Cumulative average default rate

The concept of survival analysis is used to compute the cumulative default probabilities. Using the average marginal default rate, we calculate the cumulative probability of an entity defaulting as follows:

$$\text{The cumulative probability of an entity defaulting by the end of } (t+1) \text{ years} = \left[\begin{array}{c} \text{[Cumulative probability of the entity defaulting by the end} \\ \text{of } t \text{ years} \\ + \\ \text{Probability of the entity defaulting in the } (t+1)^{\text{th}} \text{ year} \end{array} \right]$$

Furthermore, for an entity to default in the $(t+1)^{\text{th}}$ year, it should survive until the end of t years. So,

$$\text{Probability of the entity defaulting in the } (t+1)^{\text{th}} \text{ year} = \left[\begin{array}{c} \text{Probability of the entity not defaulting until the end} \\ \text{of the } t^{\text{th}} \text{ year} \\ * \\ \text{Marginal probability of the entity defaulting in the} \\ \text{ } (t+1)^{\text{th}} \text{ year} \end{array} \right]$$

Now,

$$\text{Probability of the entity not defaulting until the end of the } t^{\text{th}} \text{ year} = 1 - \text{Cumulative probability of the entity defaulting by the end of } t \text{ years}$$

Hence,

$$\text{Probability of the entity defaulting in } (t+1)^{\text{th}} \text{ year} = \left[\begin{array}{c} \text{(1- Cumulative probability of the entity defaulting by} \\ \text{the end of } t \text{ years)} \\ * \\ \text{Marginal probability of the entity defaulting in the} \\ \text{ } (t+1)^{\text{th}} \text{ year} \end{array} \right]$$

Therefore, returning to the first expression,

$$\text{The cumulative probability that an entity defaults by the end of } (t+1) \text{ years} = \text{Cumulative probability of the entity defaulting by the end of } t \text{ years} + \left[\begin{array}{c} \text{(1- Cumulative probability of the entity defaulting} \\ \text{by the end of } t \text{ years)} \\ * \\ \text{(Marginal probability of the entity defaulting in} \\ \text{ } (t+1)^{\text{th}} \text{ year)} \end{array} \right]$$

Restating the above in notation, if $CPD_{t+1}(R)$ = cumulative default probability of an entity rated R defaulting in $t+1$ years, then,

$$\begin{array}{ll} CPD_1(R) = MDR_1(R); & \text{for } t = 1 \\ CPD_{t+1}(R) = CPD_t(R) + (1 - CPD_t(R)) * MDR_{t+1}(R) & \text{for } t = 2, 3 \end{array}$$

Withdrawal adjustment

In a one-year period, from the month of having obtained the rating, the entity can move to three different states—it can be timely on payments (and have a non-default rating outstanding), can default on its debt repayments, or can repay the debt fully and withdraw the rating. As entities are not monitored post-withdrawal, the 'true state' (whether default or no default) of an entity whose rating has been withdrawn remains unknown in subsequent months. Therefore, a modified MDR_t^M(R) that ignores withdrawn entities is an appropriate measure of marginal default probability. As mentioned earlier, Q_t^M(R) is also adjusted for the entities that belong to the static pool and have defaulted by the beginning of year t. The modified Q_t^M(R) is as follows:

$$Q_t^M(R) = \begin{array}{l} \text{Number of entities in the static pool formed at the beginning of month M with rating category R} \\ \text{less} \quad \text{Number of defaults till the end of period (t-1)} \\ \text{less} \quad \text{Number of withdrawn entities until the end of period t} \end{array}$$

CRISIL uses full-year withdrawal adjustment, as against no-withdrawal adjustment or mid-year withdrawal adjustment since the issuers whose ratings were withdrawn are not immune to the risk of default. Moreover, reliable information meeting CRISIL's stringent requirements is not available post-withdrawal.

Post-default return of an entity

Post-default, entities sometimes recover, and consequently, receive a non-default rating in subsequent years. As CRISIL's credit rating is an indicator of the probability of default, default is considered an 'absorbing state', that is, an entity cannot come back to its original static pool post-default. In static pool methodology, the recovered entity is considered a new entity, which, if continues to be rated, appears in the static pool of the month in which it recovered.

Methodology for transition rates

The t-year transition rate (from rating R1 to rating R2) for a static pool, is the proportion of entities rated R1 at the beginning of the static pool, that are found to be in R2 at the end of t years. This proportion is called the t-year transition probability from R1 to R2. The t-year transition matrix is formed by computing transition probabilities from various rating categories (except D) to other rating categories.

Withdrawal-adjusted transition rates are computed as mentioned above, but excluding entities that are withdrawn at the end of the t years. In the computation of t-year transition rates, ratings at a point of time, and at the end of the tth year thereafter, are considered.

Table A13 lists various elements of default rate computation and the competing approaches.

Table A13: Various Approaches to Computing Default Rates

| | | |
|---|---|--|
| <p>Withdrawal Adjustments</p> | <p><u>Approach 1: Full-year withdrawal adjustments</u> Exclude all the ratings withdrawn during a year from the base for calculating default rates.</p> <p><u>Approach 2: Mid-year withdrawal adjustments</u> Exclude half of the ratings withdrawn during a year from the base for calculating default rates.</p> <p><u>Approach 3: No withdrawal adjustments</u> Take all the ratings outstanding at the beginning of a year as the base, notwithstanding some of them were withdrawn during the course of the year.</p> | <p>CRISIL follows Approach 1 since it believes that the issuers whose ratings were withdrawn are not immune to the risk of default subsequent to the withdrawal. More importantly, reliable information about the timeliness of debt repayments, which meets CRISIL's stringent requirements, is not available post withdrawal of the rating. Approach 1 results in the most conservative estimate of the default rates among the three approaches.</p> |
| <p>Calculating Cumulative Default Rate (CDR)</p> | <p><u>Approach 1: Calculate CDR directly, without using Marginal Default Rate (MDR)</u> Calculate CDR over a period as the number of entities defaulting as a ratio of the number of entities at the beginning of the period, ignoring intra-period withdrawals.</p> <p><u>Approach 2: Average MDR Methodology</u> Calculate MDR, weigh it by sample size and accumulate it over a period to arrive at average CDR.</p> | <p>CRISIL follows Approach 2, which takes into account only the ratings that were not withdrawn at the end of each year as the base. So it results in a more accurate and conservative estimate of default rate. Approach 1 is not comprehensive since it ignores a large portion of the credit history of entities who may have been rated just a little while after the formation of the static pool.</p> |
| <p>Post Default Return of an Entity</p> | <p><u>Approach 1: Treat default as an 'Absorbing State'</u> Retain the status of a defaulted entity as default even after recovery. Treat the recovered entity as a new entity from the point of recovery.</p> <p><u>Approach 2:</u>Treat a defaulted and subsequently recovered entity as a non-defaulted entity from the point of recovery. So, if a non-defaulted entity defaults in the 2nd year and recovers in the 3rd year, it will not be treated as a defaulted entity in the 3rd year MDR calculation.</p> | <p>CRISIL follows Approach 1. Since credit ratings are an opinion of the likelihood of default, the default state is treated as an absorbing state or an end point, and the entity's rating continues to be in 'default.'</p> <p>If an entity emerges from default and has a non-default rating on its debt instruments, this entity is treated as a new company forming a part of a different static pool from the time its rating is revised from 'D'.</p> |
| <p>Data Pooling</p> | <p><u>Approach 1: Static Pool</u> Charge defaults against all the ratings of the issuer during the period.</p> <p><u>Approach 2:</u> Charge defaults against the initial rating of the issuer.</p> <p><u>Approach 3:</u> Charge defaults against the most recent year's rating of the issuer.</p> | <p>CRISIL follows Approach 1. Debt instruments are tradable in nature and can be held by different investors at different points of time. Since credit ratings, which convey an opinion on the likelihood of default are intended to benefit the investors through the life of the instrument, CRISIL believes that charging defaults against all the ratings of the issuer during the period is the most appropriate approach in computing default rates. Other approaches may have limited utility. For instance, Approach 2 may be of relevance only to the investor who invests in the first-rated debt issuance of an entity and holds it to maturity. Approach 3 may be relevant only to those investors who happen to be holding the instrument just a year prior to its default.</p> |

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Our defining trait is our ability to convert data and information into expert judgements and forecasts across a wide range of domains, with deep expertise and complete objectivity.

At the core of our credibility, built up assiduously over the years, are our values: Integrity, Independence, Analytical Rigour, Commitment and Innovation.

About CRISIL Ratings

CRISIL Ratings is the world's fourth-largest rating agency, and India's largest and most influential. CRISIL has shaped the development of India's debt markets, having rated more than 32,400 debt instruments and facilities, valuing more than Rs. 36 trillion, pertaining to nearly 10,000 issuers and borrowers.

CRISIL Offices

Head Office

CRISIL House
Central Avenue Road
Hiranandani Business Park, Powai
Mumbai 400 076
TEL +91 (22) 3342 3000
FAX +91 (22) 3342 3001

Regional Offices in India

Ahmedabad

Unit No.706, 7th Floor,
Venus Atlantis,
Near Reliance Petrol Pump,
Prahlanadnagar Satellite,
Ahmedabad – 380 015
TEL +91 (79) 4024 4500
FAX +91 (79) 4024 4520

Bangalore

W-101, Sunrise Chambers
22, Ulsoor Road
Bangalore 560 042
TEL +91 (80) 2558 0899,
2559 4802
FAX +91 (80) 2559 4801

Chennai

Thapar House
43 / 44, Montieth Road
Egmore
Chennai 600 008
TEL +91 (44) 2854 6205 / 06,
2854 6093
FAX +91 (44) 2854 7531

Hyderabad

3rd Floor, Uma Chambers
Plot no. 9 & 10, Nagarjuna Hills
(Near Punjagutta X Road)
Hyderabad 500 082
TEL +91 (40) 2335 8103 / 8105
FAX +91 (40) 2335 7507

Kolkata

HORIZON
Block 'B', 4th Floor
57, Chowringhee Road
Kolkata 700071
TEL +91 (33) 2289 1949 / 50
FAX +91 (33) 2283 0597

New Delhi

The Mira,
G-1, 1st Floor, Plot No. 1 & 2
Ishwar Nagar, Mathura Road
New Delhi 110 065
TEL +91 (11) 4250 5100 /
+91 (11) 2693 0117 /121
FAX +91 (11) 2684 2212

Pune

1187 / 17 Ghole Road
Shivajinagar
Pune 411 005
TEL +91 (20) 2553 9064 / 67
FAX +91 (20) 4018 1930