CARE's DEFAULT AND TRANSITION STUDY 2018

(For the period March 31, 2008 – March 31, 2018)

Summary

CARE commenced its rating activity in 1993 and has over the years acquired considerable experience in rating various types of debt instruments issued by corporates belonging to wide range of sectors including Manufacturing, Services, Banking, Non-Banking Finance, Infrastructure, Public Finance, Securitisation etc.

The publication of this default and transition study is an endeavour of CARE towards increasing transparency of its ratings. Default rates are influenced by a number of factors and the general state of the economy is one of the key determinants. Default rates in India reached high levels in the late nineties upto 2002. Continued robust GDP growth rates since then until the financial crisis of 2008-09 resulted in low default rates in the intermittent period. Beginning in the second half of FY09, the impact of the global financial crisis was felt. It resulted in some increase in default rates in the subsequent period. This study covers the period 2008-2018 and updates earlier default studies of CARE that begin coverage from 2003.

CARE's ratings have shown good discriminatory power across rating categories with higher rated categories generally having lower default rates. However, till 2010, each rating category used to have relatively few issuers, which used to pose limitations to the interpretation of the study results. Since then as number of issuers in each rating category has increased substantially and overall the default study has become statistically much more meaningful. It is important to observe that during the same period CARE's ratings have shown good discriminatory power.

The Average One-year Transition Rates for CARE rated issuers have shown a high degree of stability and higher rated categories have consistently exhibited higher stability rates. This report presents the default and transition study of CARE rated issuers.

CARE's Default Study

This section examines default experience of CARE's long-term and medium-term ratings from March 31, 2008 to March 31, 2018. CARE has used Cohorts method to calculate the performance of CARE rated entities across various rating categories. Category-wise Cumulative Default Rate (CDR) is calculated for each cohort within the period of study. The CDR is calculated over one, two and three year time horizons to evaluate the performance of ratings over varying periods. Then the issuer weighted average for one-year, two-year and three-year CDR is computed to arrive at the long term CDR for each category. As ratings are a measure of Probability of Default, a higher rating given to an entity implies lower credit risk and should therefore have lower CDR and CARE's CDR numbers generally display this property. CARE's definition of default for this CDR study and detailed methodology for computing CDR is presented in the **Annexure**.

The CDR study includes ratings of issuers across all sectors – including Manufacturing, Services, Banking, Non-Banking Finance, Infrastructure and Public Finance. Ratings of Structured Obligations (SO) are not part of this study which would comprise securitisation transactions, ratings backed by third-party guarantees or instruments with a structured payment mechanism. We have also made a short study in correlation between CDR rates and economy growth rates towards the end of our study.

Static Pool / Cohort

- The study tracks the long/medium-term ratings assigned and accepted by the issuer and is based on issuer-specific data and not instrument-specific data (thus counting an issuer only once).
- The rating of senior-most long-term debt of an issuer is considered as the rating of that issuer. If CARE has not rated the long-term instrument of that issuer, then the medium-term rating is considered as the issuer's rating.
- **Static pools / Cohorts** for the study are the number of issuers outstanding in each rating category as on the beginning of each cohort falling within the study period. Default experience of each rating category for each cohort is examined over one, two and three-year periods.

Rating category-wise number of issuers is presented below in Table 1:

Table 1: Issuers Outstanding at the beginning of each Cohort period

	Number of Issuers at the beginning of the cohort period as on 31st									
Rating Category	**Mar-08**	**Mar-09**	**Mar-10**	**Mar-11**	**Mar-12**	**Mar-13**	**Mar-14**	**Mar-15**	**Mar-16**	**Mar-17**
AAA	31	44	49	53	59	57	66	77	80	78
AA	63	93	116	147	162	167	177	200	219	247
A	64	167	220	289	345	303	344	444	553	618
BBB	33	272	561	866	1064	1139	1309	1409	1474	1575
BB	1	60	183	375	806	1262	1678	1837	2007	2367
B	0	8	24	41	264	589	993	960	994	1385
C	0	1	3	10	31	59	54	34	30	22
Total	**192**	**645**	**1156**	**1781**	**2731**	**3576**	**4621**	**4961**	**5357**	**6292**
Median Rating	**A**	**BBB**	**BBB**	**BBB**	**BBB**	**BB**	**BB**	**BB**	**BB**	**BB**

Key Observations

- With implementation of Basel II standardized approach for credit risk measurement by Reserve Bank of India, a new era was ushered in the credit rating industry in India. A structural shift was witnessed since March 2008 witnessed in the rating universe as rated universe expanded exponentially. Two key changes that can be observed are the multiple times increase in the overall number of issuers and the increase in incremental issuers rated below AA category subsequent to March 2008.
- In India, the banking sector still remains the primary source of debt funding for corporates and prior to Basel II implementation, bank borrowings of companies used to be unrated. Post Basel II implementation, many of the corporates with bank borrowings are getting rated leading to the manifold increase in number of issuers, especially in the lower grades.
- The corporate bond market in India is skewed towards higher rated entities, with extremely low investor demand for lower rated paper. Therefore, the rating universe primarily comprised higher rated borrowers before Basel II implementation. In fact today also, most of the rated securities placed in the market tend to be having high ratings.

- The median rating based on the above rating universe progressively moved down from A in March 2008 to BBB for 2009-2012 and has been BB since March 31, 2013.

CARE's Cumulative Default Rate

CARE's one-year, two-year and three-year cumulative issuer weighted average default rates consistently follow the principle of ordinality and are lower in the higher rating categories and increase as we move down the rating categories (presented in Table 2 below)

Table 2: CARE's Issuer Weighted Cumulative Default Rates for the period March 2008 - March 2018

	One year		Two Year		Three Year	
Rating Category	**Avg. No. of Issuers**	**CDR**	**Avg. No. of Issuers**	**CDR**	**Avg. No. of Issuers**	**CDR**
AAA	59.2	0.00%	57.1	0.00%	54.4	0.00%
AA	159.2	0.06%	149.4	0.45%	140.8	0.98%
A	334.6	0.36%	303.1	1.32%	272.6	2.66%
BBB	968.2	1.63%	900.8	3.70%	832.0	5.75%
BB	1052.7	4.47%	906.7	7.54%	775.8	9.80%
B	521.4	7.65%	425.4	11.31%	359.4	13.18%
C	24.1	23.24%	24.3	30.14%	24.0	30.73%
Total	**3119.4**	**3.52%**	**2766.9**	**5.85%**	**2458.9**	**7.62%**

The categories of AA, A, BBB, BB, B and C include ratings with the suffix '+' or '–' within the respective categories. Thus, for instance, the AA category includes three ratings: AA+, AA and AA-.

Key Observations

- There were no instances of default (in any Cohort) in AAA rating category during the period of this study.
- Small sample size limitations have gradually reduced with average sample size of three year CDR computation being above 50 for all investment grade categories and most of the non-investment grade categories as well.
- One-year and two-year CDR sample size has further improved due to inclusion of recent cohorts. As the sample size continues to increase more meaningful conclusions can be reached.

- It can be observed that CARE's CDRs display good discriminatory power with higher rating categories having lower CDRs.

  CARE's structured obligation ratings include Asset Backed Securitization (ABS), Mortgage Backed Securitization (MBS), Obligations of state level entity backed by state/central government guarantee and instruments backed by credit enhancing guarantees / letter of comfort etc. Structured obligation ratings are not part of this study.

Transition Study

Rating transition study looks at how ratings have changed over a period of time, an important aspect analyzed by CARE to evaluate the stability/migration of its ratings.

Methodology for transition rates

Methodology used by CARE for studying rating transition is discussed below:

- The static pools, also known as cohorts, are created by grouping issuer ratings according to the year in which the ratings are active and outstanding at the beginning of the year.
- The study tracks the long/medium-term ratings assigned and accepted by the issuer on a year-to-year basis.
- The study is based on issuer-specific data and is not instrument-specific. Thus, it counts an issuer only once and avoids distortion.
- The transition study includes ratings of issuers across all sectors – including Manufacturing, Services, Banking, Non-Banking Finance, Infrastructure and Public Finance. Structured Obligations (SO) are not a part of this study.
- Individual cohorts have been formed for each year under study; in all ten cohorts have been prepared for the period of study. Each individual cohort for a given financial year consists of the ratings outstanding in various rating categories at the beginning of the financial year and tracks the changes in rating, if any, during the one-year period therefrom. For example, the 2008 cohort represents the ratings outstanding as on March 31, 2008 and their transitions or changes (upgrades, downgrades and re-affirmation) in the subsequent year till March 31, 2009.
- Since the rating of an issuer both at the beginning and the end of a study period is required for the computation of transition rate, any issuer whose rating has been withdrawn / suspended / placed under 'Issuer Not Cooperating' category during the year have been removed from the relevant opening cohort for the purposes of this study. This is also in line with the SEBI circular dated 13th November 2018.
- Data from all individual cohorts have been pooled together to obtain the weighted average transition rates across rating categories.

The table shows issuer weighted average transition rates on the CARE rating scale over the period 2008-2018.

Table 3: Average 1-year Rating Transition Rates for the period Mar 2008 - Mar 2018

	AAA	AA	A	BBB	BB	B	C	D
AAA	97.75%	2.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.96%	93.41%	4.11%	0.26%	0.13%	0.07%	0.00%	0.07%
A	0.00%	4.20%	88.20%	6.40%	0.70%	0.10%	0.03%	0.38%
BBB	0.00%	0.06%	4.67%	88.10%	5.18%	0.28%	0.01%	1.71%
BB	0.00%	0.01%	0.01%	5.61%	85.71%	3.01%	0.25%	5.40%
B	0.00%	0.00%	0.00%	0.13%	15.07%	74.82%	0.38%	9.60%
C	0.00%	0.00%	0.00%	1.89%	9.43%	24.53%	32.70%	31.45%

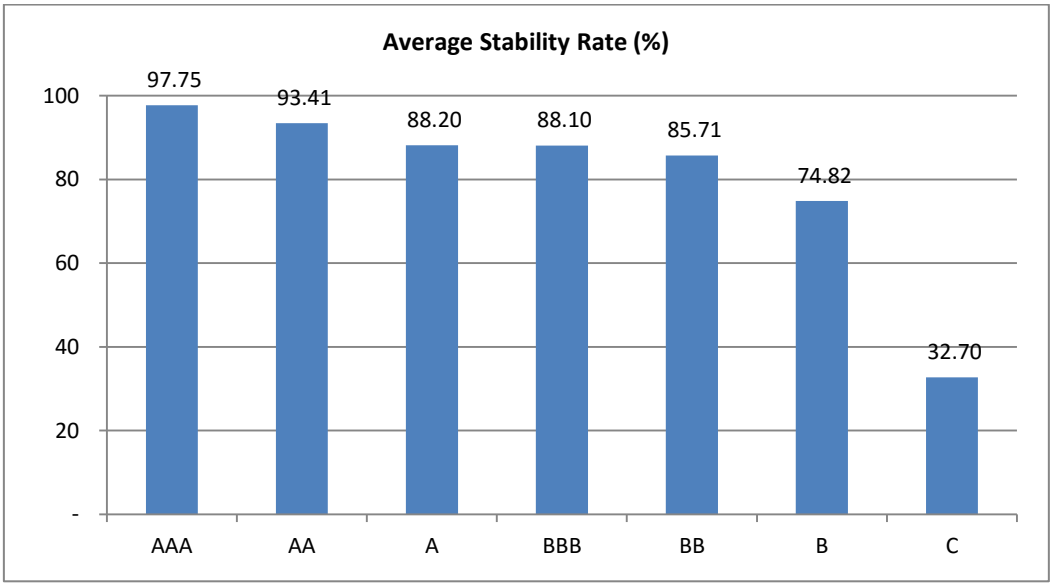
The categories of AA, A, BBB, BB, B and C include ratings with the suffix '+' or '–' within the respective categories. Thus, for instance, the AA category includes three ratings: AA+, AA and AA-.

The diagonals of the above table represent the stability of a particular rating category in one year for the period Mar 2008 – Mar 2018.

Based on CARE's average one-year transition matrix, it can be inferred that out of all the AA rated companies at the beginning of the year, 93.36% have remained in the same category, 1.95% have been upgraded to AAA and 4.69% have been downgraded. Similar interpretation can be done for other rating categories as well.

Stability of Ratings

Stability rate for each rating category indicates percentage of ratings remaining in the same category at the end of one year. One-year average stability of CARE's ratings during the period 2008-2018 is presented below:

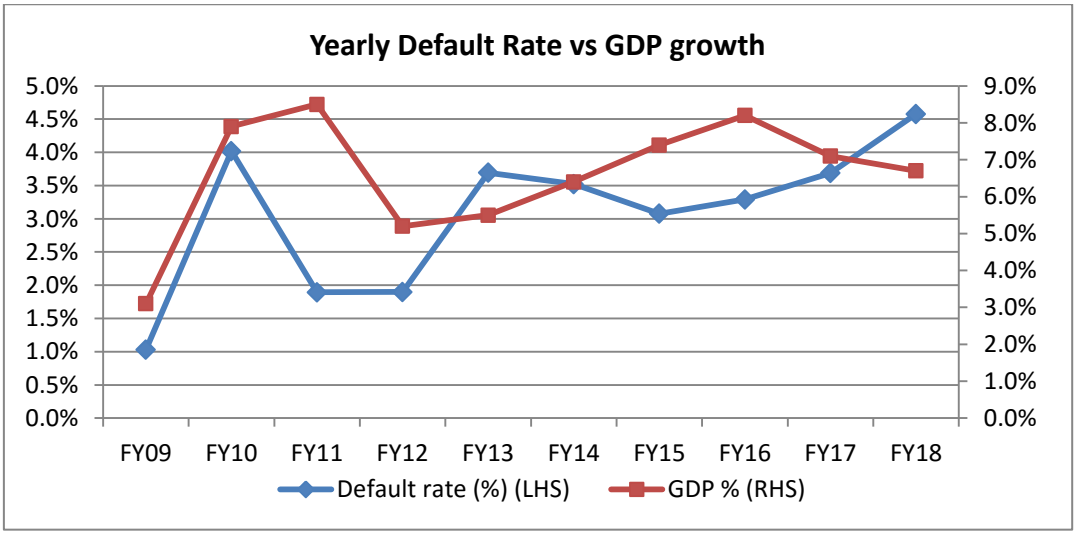


- It can be observed from the above chart that CARE's higher rating categories AAA and AA exhibit high level of stability within one-year period.
- Stability rates of CARE's higher rating categories have generally been higher than those for the lower rating categories.

Correlation of Default rates with GDP Growth

The following graph represents the relationship between GDP growth and annual default rates for CARE Rated entities:

Table 4: Year-wise analysis of GDP Growth and Default rates (2009-18)



Note:
1. Yearly defaults have been taken on the basis of one year default rates of respective cohorts. For e.g. one year default for Y.E. March-17 refers to default rate in respect of one year cohort of a static pool outstanding as on March 31, 2016.
2. GDP Growth for 2012-13 onwards has been calculated based on 2011-12 prices.

Though the present CARE default study is for the period March 2008 to March 2018, the year-wise analysis of GDP and default rates is being presented only for the period March 2009 to March 2018. The dynamics of the world economy changed after the financial crisis of 2008. The impact of the crisis was felt in FY09 with GDP growth rate declining to 3.1% from 7.7% in FY08. Also with the implementation of the Basel II Standardized Approach in March 2008, the number of CARE rated issuers increased manifold. Though the increase was mainly in the lower rating grades, it presents us with meaningful numbers to study correlation of defaults.

Annexure

Definition of Default for the Study

For the purpose of this study, default has been defined as any missed payment on the rated instrument i.e. a single rupee delay even for a single day has been treated as default. A default recognition criterion for bank facilities is specifically detailed in our website.

Concept of Static Pool / Cohort

Static Pool / Cohort for the study is the number of issuers outstanding in each rating category as on a given date. Default experience of each rating category is examined over the study period. New issuers during the study period are not considered and in that sense the data pool remains static. If the rating of the company included in the cohort gets withdrawn, it is treated as withdrawal for the rest of the period of the cohort. If the company whose rating is included in the cohort defaults, it is treated as default for the rest of the period of the cohort.

However those entities, which are rated again after withdrawal or which recover from default (and are rated again), are taken as new entities for relevant subsequent cohorts.

Structured obligation (SO) ratings are not part of this study. CARE's structured obligation ratings include Asset Backed Securitization (ABS), Mortgage Backed Securitization (MBS), Obligations of state level entity backed by state/central government guarantee and instruments backed by credit enhancing guarantees / letter of comfort etc.

Cumulative Default Rate (CDR)

Cumulative Default Rate (CDR) shows the number of defaults from a given static pool as a proportion of total issuers in that static pool and provides an estimate of default frequency. For a given static pool, three-year CDR is computed as follows:

Three-Year CDR = No. of issuers which defaulted over the three-year period / No. of issuers outstanding at the beginning of the three-year period.

A hypothetical example is presented here:

	Cohort 1			Cohort 2		
	Opening Issuers (A)	Defaults during next 3 years (B)	**3 Yr CDR = (B/A) (%)**	Opening Issuers (A)	Defaults during next 3 years (B)	**3-Yr CDR = (B/A) (%)**
AAA	50	0	**0.00**	60	0	**0.00**
AA	40	1	**2.50**	50	1	**2.00**
A	30	2	**6.67**	20	2	**10.00**
BBB	20	3	**15.00**	15	3	**20.00**

Issuer weighted average three-year CDR is computed to arrive at the average CDR over a specified period of time. The above example is continued here to arrive at the average CDR:

	Cohort 1		Cohort 2		
	3 Yr CDR (C1) (%)	Opening Issuers (W1)	3 Yr CDR (C2) (%)	Opening Issuers (W2)	**Weighted Average 3 Yr CDR** =(C1*W1+C2*W2)/(W1+W2) (%)
AAA	0.00	50	0.00	60	**0.00**
AA	2.50	40	2.00	50	**2.22**
A	6.67	30	10.00	20	**8.00**
BBB	15.00	20	20.00	15	**17.14**

Analyst Contact:

T. N. Arun Kumar
Executive Director
91-22-6754 3412
arun.kumar@careratings.com

Milind Gadkari
Senior Director
91-22-6754 3466
milind.gadkari@careratings.com