CARE Ratings' Default & Transition Study FY22

November 2022 l Ratings

Summary

Since its inception in 1993, CARE Ratings has gained considerable experience in rating various types of debt instruments issued by corporates from sectors including manufacturing, services, banking, non-banking finance, and infrastructure among others. This study aims to enhance the transparency of our ratings, which are not only influenced by the metrics of the company, but also by the state of the economy.

Due to challenging economic environment in the couple of years pre pandemic, the overall annual default rate of CARE's rated universe had risen to 4.2% till FY20, however it fell to 2.7% in FY21 with the regulatory forbearance provided by the Reserve Bank of India. In FY22, the average annual default rate continued to decline to 1.7%.

CARE Ratings' ratings have shown good discriminatory power across rating categories with higher rated categories generally having lower default rates following the principle of ordinality. The median rating of CARE Rating's rated population has progressively shifted from the A category at the end of March 2008 to the BB category in March 2013 and remained there since then. At the same time, the median default rating category has also been BB till FY18, after which it moved to B in FY19. Almost 70% of the issuers in our rated universe are from non-investment grade rating categories.

This report also presents the transition study of various rating categories of CARE Ratings rated issuers. The average one-year transition rates for the rated issuers have shown a high degree of stability. Higher-rated categories have consistently exhibited higher stability rates. Considering the period of the past five financial years (FY18-22), stability rates across investment grade rating categories have registered an improvement.

The graphical representation of the Lorenz curve and Gini Coefficient is also presented. With defaults mainly from the lower rated category, Gini coefficient for 1-year default rates of CARE Ratings rated universe has improved to 0.68 in FY22 from 0.58 in FY21.

Default Study

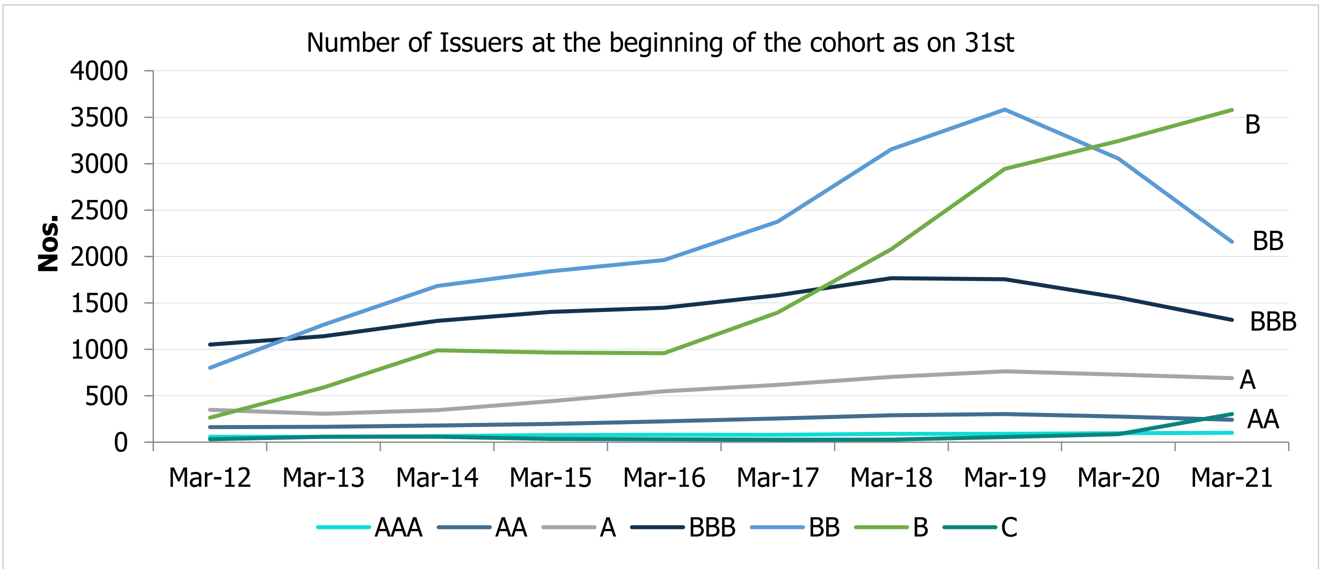
This section examines the default experience of CARE Ratings' long-term ratings for the period March 2012 to March 2022. CARE Ratings has used yearly Cohorts' method to calculate the performance of the rated entities across various rating categories. Also, this study uses the senior most rating of each issuer. The difference between this methodology and SEBI prescribed method is elaborated in the Annexure to this study. Also, corresponding long run and short run default rate numbers as per SEBI's methodology are presented in the Annexure. Category-wise Cumulative Default Rate (CDR) is calculated for each yearly 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. The issuer weighted average for one-year, two-year and three-year CDR is computed for each rating 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 Ratings' CDR numbers generally display this property. CARE Ratings' 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) / Credit Enhanced (CE) ratings are not part of this study which would comprise securitisation transactions, ratings backed by third-party guarantees, instruments with a structured payment mechanism, instruments backed by credit enhancing guarantees/letter of comfort etc.

Static Pool / Cohort

- The study tracks the long-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 Ratings has not rated the long-term instrument of that issuer, then the medium-term rating is considered as the issuer's rating. Issuers who are placed under 'Issuer Not Cooperating' category are included in all cohorts. (CDR numbers excluding non-cooperating issuers are also presented in the Annexure).
- Static pools / Cohorts for the study are the numbers of issuers outstanding in each rating category at the beginning of each cohort falling within the study period. So, the calculation of the 1-Year default rate for the period of 10 financial years i.e. the period of FY2013 to FY2022 will have 10 yearly cohorts starting from March 2012 till March 2021. Similarly, the average 3-Year CDR will be calculated using data of 8 yearly cohorts from March 2012 to March 2019. The default experience of each rating category for each cohort is examined over one, two and three-year periods.

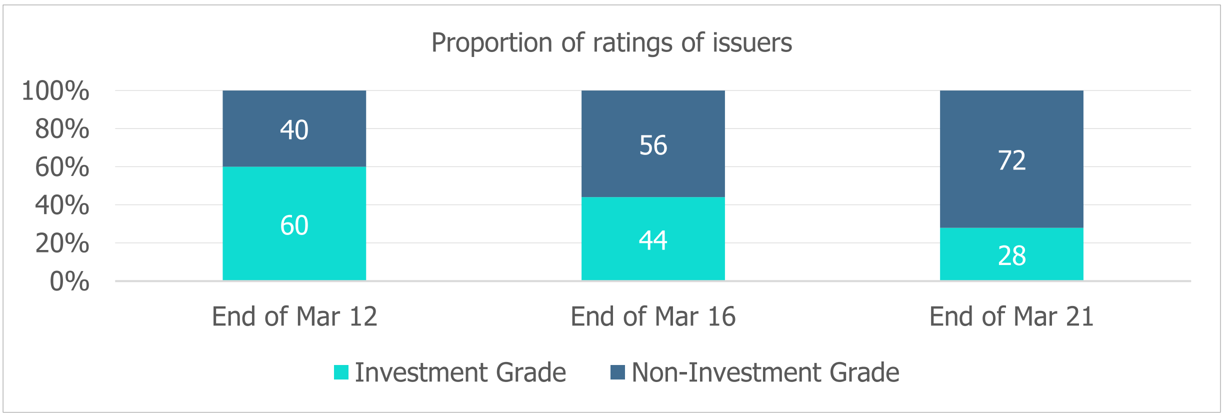
Trend of rating category-wise number of issuers outstanding at the beginning of each cohort is presented in the chart below:



	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21
Median Rating of outstanding issuers	BBB	BB	BB	BB	BB	BB	BB	BB	BB	BB
Median Rating of defaulted entities	BB	BB	BB	BB	BB	BB	B	B	B	B

Key Observations

- In India, the banking sector still remains the primary source of debt funding for majority of corporates and prior to Basel II implementation, bank borrowings of companies used to be unrated. Post Basel II implementation, many of these corporates with bank borrowings got rated which led to the manifold increase in number of issuers, especially in the lower grades.
- A structural shift was witnessed in the rating universe and there was a significant increase in issuers rated below AA category. Now, almost 70% of the issuers in the CARE Ratings' total rated portfolio are from non-investment grade rating category. Also, about 92% of total outstanding ratings as on March 2022 comprise of bank loan ratings.
- The median rating of the rating universe has moved progressively down from A at the end of March 2008 to BBB till March 2012 and has been BB since March 2013. At the same time, the median default rating category has also been BB till FY18, after which it moved to B in FY19. The following chart shows how the distribution of CARE Ratings' rated universe has moved over the past 10 years.



Traditionally the corporate bond market in India is skewed towards higher-rated entities, with extremely low investor demand for lower-rated paper. As a result, lower rated entities rarely used to get rated and acceptance of those ratings was also extremely low in the pre-Basel II era. Therefore, the rating universe primarily comprised higher-rated borrowers in that period. In a way, the trend continues with majority of the rated securities placed in the market having high ratings even today.

CARE Ratings' Cumulative Default Rate

CARE Ratings' average issuer weighted cumulative default rates usually follow the principle of ordinality and are lower in the higher rating categories and increase as one move down the rating categories (as presented in Table 1 below)

Table 1: CARE Ratings' Issuer Weighted Cumulative Default Rates for the period March 2012 - March 2022

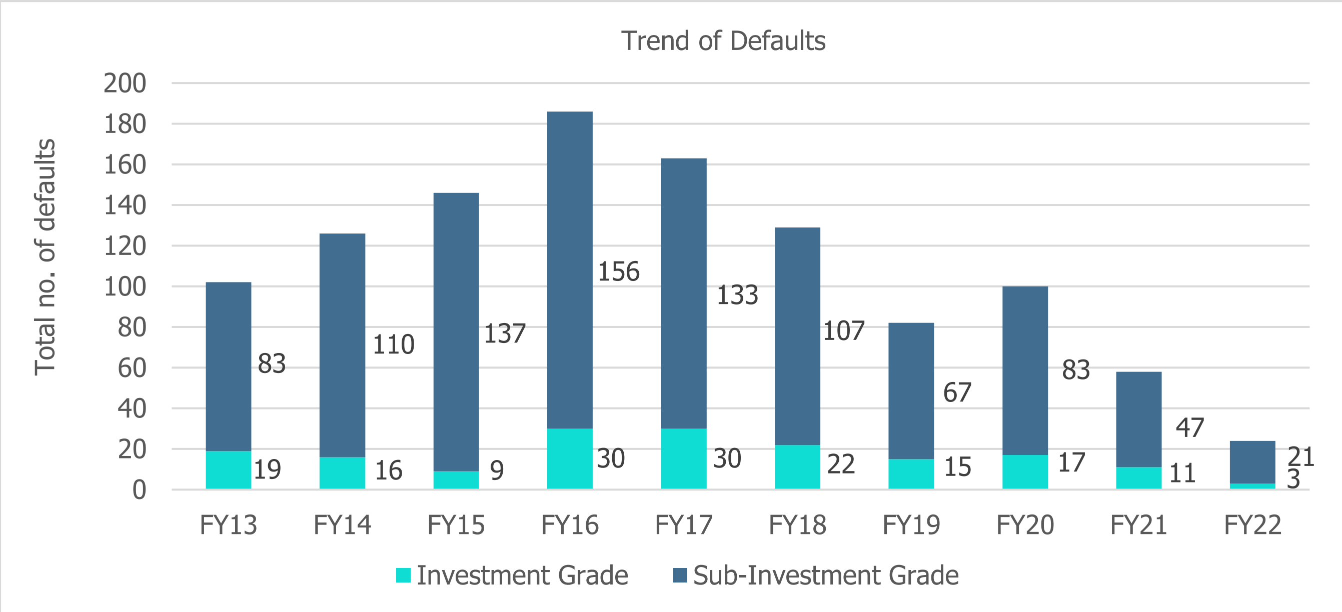
	One year		Two Year		Three Year	
Rating Category	**Avg. No. of Issuers**	**CDR**	**Avg. No. of Issuers**	**CDR**	**Avg. No. of Issuers**	**CDR**
AAA	80	0.25%	77	0.72%	75	1.34%
AA	229	0.31%	228	0.93%	222	1.86%
A	549	0.49%	533	1.50%	509	2.70%
BBB	1,433	1.43%	1,446	3.51%	1,432	5.66%

BB	2,188	3.85%	2,191	6.94%	2,083	9.74%
B	1,701	5.66%	1,492	10.40%	1,273	14.53%
C	71	16.85%	45	33.01%	41	37.65%
Total	**6,250**	**3.47%**	**6012**	**6.38%**	**5,634**	**8.93%**

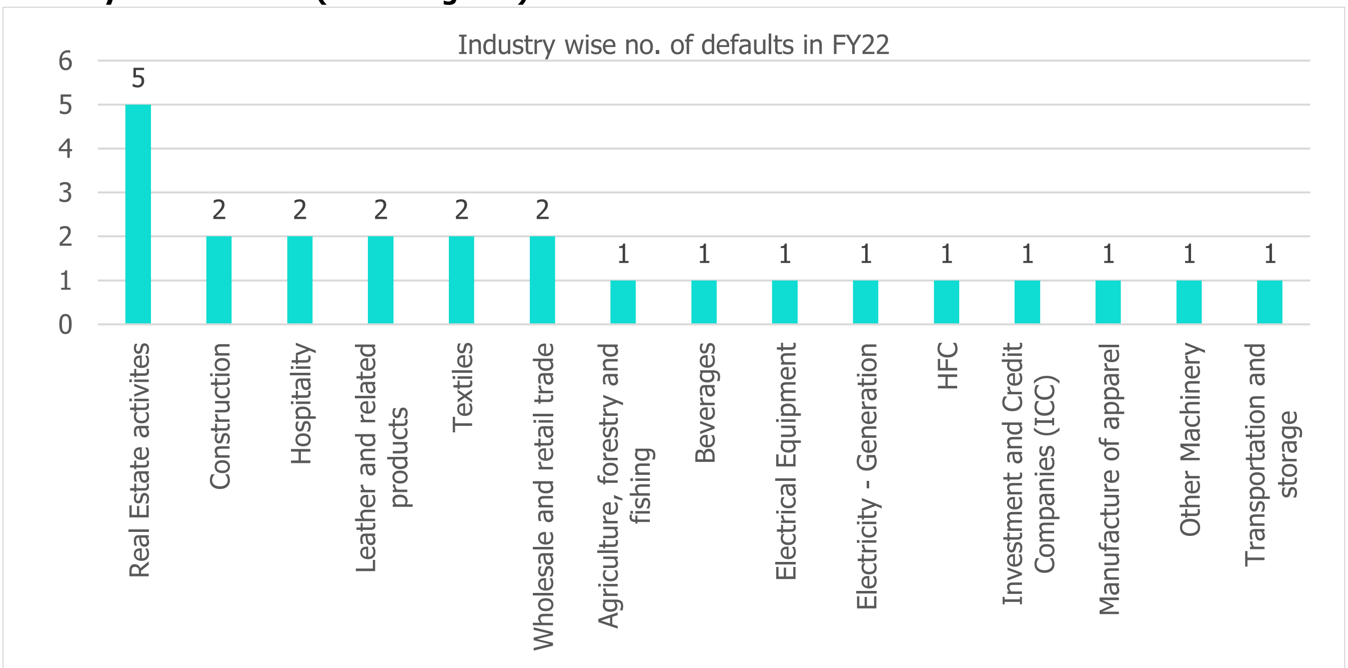
The categories of AA, A, BBB, BB, B and C include ratings with the suffix '+' or '–' within the respective categories. Thus, for instance, the AA category includes three ratings: AA+, AA and AA-.

Trend of defaults

Following chart shows the trend of total defaults (Excluding INC) from all rating categories in last 10 financial years.



Industry-wise defaults (Excluding INC) in FY22



Top five industries accounted for about 48% of total defaults in FY22 (including INC). As the number of issuers in each industry is limited, it would not be meaningful to find out overall industry-wise default rates.

Transition Study

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

Methodology for transition rates

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

- The static pools/cohorts are created by grouping issuer-wise ratings according to the year in which the ratings are active and outstanding at the beginning of the year. The study tracks the long-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) / Credit Enhancements (CE) ratings are not a part of this study.
- Individual cohorts have been formed for each year; total of 10 cohorts have been prepared for the period of study. Each 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 March 2012 cohort represents the ratings outstanding as on March 31, 2012, and their transitions or changes (upgrades, downgrades and re-affirmation) in the subsequent year till March 31, 2013.
- 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 November 13, 2018.
- Data from all individual cohorts have been pooled together to obtain the weighted average transition rates across rating categories.

The following table shows issuer weighted average transition rates for different rating categories over the period March 2012 to March 2022.

Table 3: Average 1-year Rating Transition Rates for the period March 2012 - March 2022

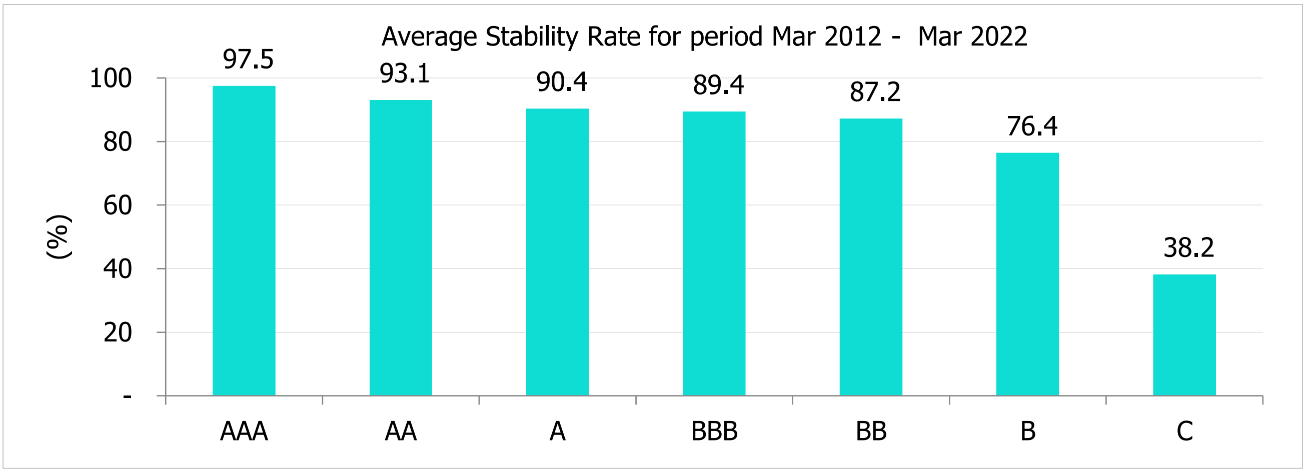
(%)	AAA	AA	A	BBB	BB	B	C	D
AAA	97.53	2.08	0.13	0.00	0.00	0.00	0.00	0.26
AA	1.38	93.08	4.94	0.14	0.14	0.05	0.00	0.28
A	0.02	3.47	90.38	5.17	0.46	0.08	0.00	0.42
BBB	0.00	0.04	4.43	89.41	4.63	0.22	0.03	1.24
BB	0.00	0.00	0.03	4.99	87.22	3.23	0.14	4.39
B	0.00	0.00	0.02	0.06	14.31	76.44	0.45	8.72
C	0.00	0.00	0.00	0.98	7.35	21.57	38.24	31.86

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-.

From the above average one-year transition matrix, it can be inferred that out of the AA rated companies at the beginning of the year, 93.1% have remained in the same category, 1.4% have been upgraded to AAA and 5.5% have been downgraded. Similar interpretation can be done for other rating categories as well. The highlighted diagonal in the above table represents the average stability rate of a particular rating category in one year.

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 Ratings' rated universe during the period Mar 2012 - Mar 2022 is presented in the chart below:



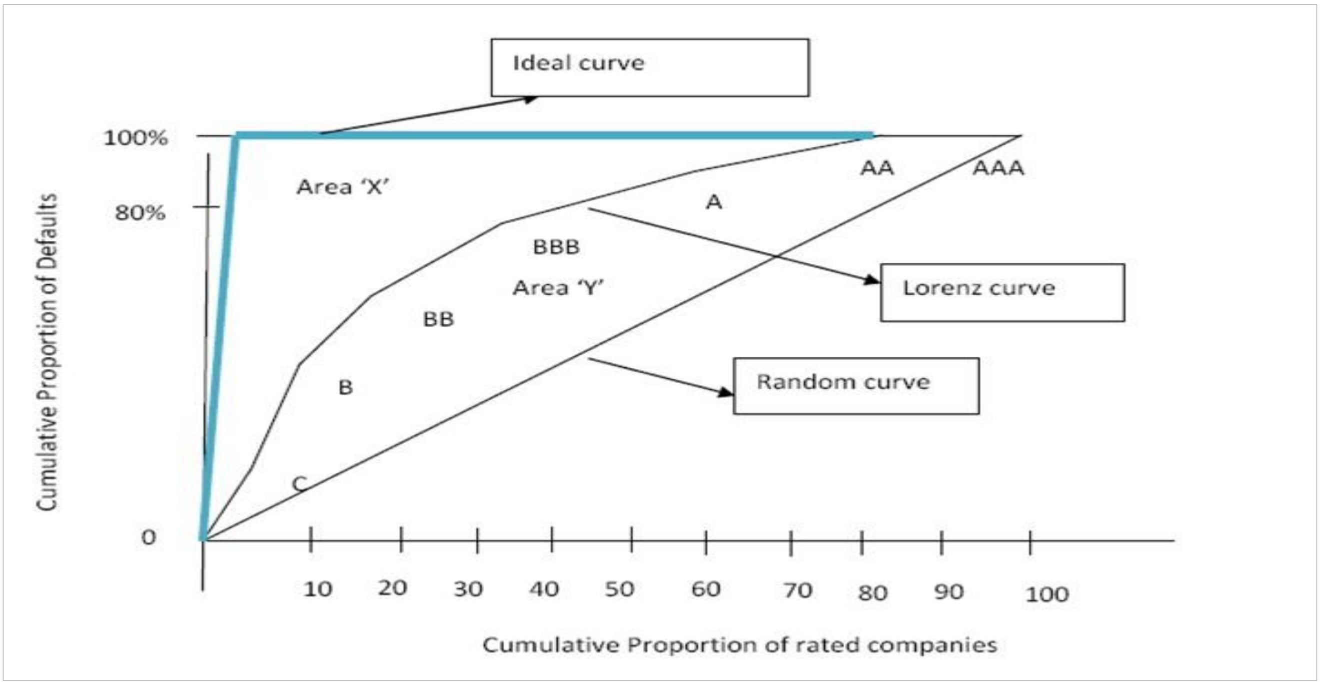
Stability rates of higher rating categories have generally been higher than those for the lower rating categories. CARE Ratings' investment grade rating categories like AAA, AA and A exhibit high level of stability rate above 90% within one-year period.

Following table shows a comparison of stability rates across rating categories for the period of five financial years.

Average 1-Year Stability Rates (%)	for the period FY2017-2021	for the period FY2018-2022
AAA	96.64	97.29
AA	92.24	92.43
A	90.99	91.30
BBB	90.25	90.93
BB	88.80	88.67
B	78.87	78.11
C	48.48	47.27

Gini Coefficient

The long-term ratings data considered to compute Gini Co-efficient is issuer-specific and not instrument-specific (i.e. counting an issuer only once). The rating of senior most long-term debt has been considered for all issuers. Issuers having long term ratings for securities as well as bank facilities are considered in the data set. Ratings of structured obligations / securitization ratings / credit enhancements are excluded. Moreover, any issuer whose rating has been withdrawn or placed under 'Issuer Not Cooperating' category during the year is omitted from cohorts of outstanding ratings. Defaults in the period of 1 year are considered for all cohorts.



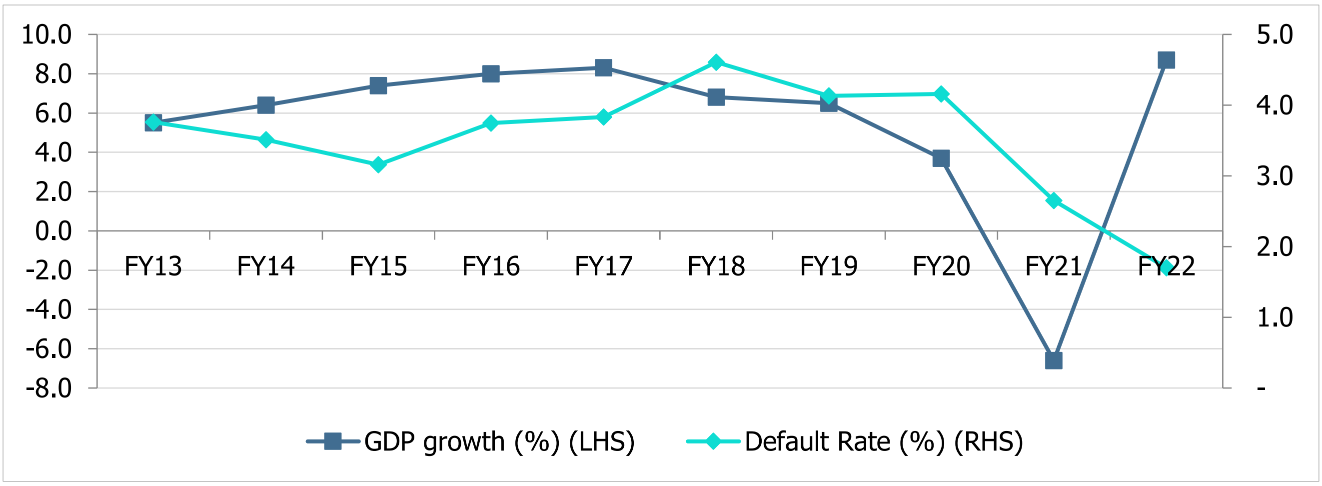
Area X – Area between Ideal curve and Lorenz curve
Area Y – Area between random curve and Lorenz curve
Gini Coefficient = Y / (X+Y)

Above chart is a pictorial representation (not to scale) of Lorenz curve and Ideal curve. Ideal curve represents a situation where all defaults happen from the lowest rating category and other higher rating categories have no defaults. To plot the Lorenz curve, coordinates for each rating category are - cumulative proportion of defaults till that rating category (on Y axis) and cumulative proportion of issuers till that rating category (on X axis). For example, 31% of total outstanding issuers rated by CARE Ratings upto rating category BB and below (in the cohort March 2021) accounted for about 88% of total defaults. So, coordinates for BB in above plot will be 31% on X axis and 88% on Y axis. Closer the Lorenz curve to the Ideal curve, higher is the Gini Coefficient or Accuracy ratio.
CARE Ratings' average Gini Coefficient for One Year defaults during the period FY13 to FY22 was 0.51.

Trend of Default rate and GDP Growth

The following chart presents the relationship between GDP growth rate and overall annual default rate for the CARE Ratings rated entities:

Table 4: Year-wise trend of GDP Growth rate and overall annual default rate (FY13 to FY22)



Note:
1. Overall annual default rate is a ratio of total defaults in a particular year to the total non-defaulted issuers at beginning of that year. For example, overall annual default rate for FY22 refers to default rate of a static pool of total non-defaulted issuers outstanding as on March 31, 2021.
2. GDP Growth is calculated based on 2011-12 prices.

The general state of the economy gets depicted in the overall annual default rate to some extent. As the economic growth rate decreased to 5.5% in FY13, the overall annual default rate of CARE Ratings' rated universe had registered increase to about 3.7% in FY13. Thereafter, as the economic growth improved to about 8.3% till FY17, overall annual default rate showed a decline for next couple of years and remained more or less at the same level of 3.8% till FY17. Due to the challenging economic environment in the couple of years pre pandemic, the overall annual default rate had risen to 4.2% till FY20. Thereafter, GDP registered a negative growth of 7% in FY21% due to the pandemic. However, the average annual default rate of CARE Ratings' rated universe fell to 2.7% in FY21, mainly due to regulatory forbearance provided by the Reserve Bank of India. While the economic growth registered a growth of 8.7% in FY22 on the low base of the previous year, CARE Ratings' average annual default rate continued to decline to 1.7% in FY22.

Following table shows the trend of one year default rate for investment and non-investment grade rating categories.

1 Year Default rate (%)	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Investment Grade	1.17	0.96	0.47	1.42	1.39	1.22	1.62	1.44	0.45	0.17
Below Investment Grade	7.57	5.75	5.02	5.49	5.73	6.87	5.49	5.36	3.57	2.30

Annexure I

CDRs as per SEBI Methodology

Long-run average default rates (for the period FY2012-2022)

Rating Category	1-Year Cumulative Default Rate	2-Year Cumulative Default Rate	3-Year Cumulative Default Rate
AAA	0.6%	1.5%	2.4%
AA	0.4%	1.2%	2.1%
A	0.6%	1.7%	3.2%
BBB	1.4%	3.9%	6.9%
BB	4.4%	8.7%	12.8%
B	6.6%	12.1%	16.7%
C	23.6%	37.8%	47.5%

Short-run average default rates (for the period FY2018-2022)

Rating Category	1-Year Cumulative Default Rate	2-Year Cumulative Default Rate	3-Year Cumulative Default Rate
AAA	0.1%	1.7%	3.5%
AA	0.3%	2.2%	3.8%
A	0.3%	1.1%	2.4%
BBB	1.1%	3.8%	7.1%
BB	3.6%	7.4%	11.1%
B	4.3%	9.3%	14.1%
C	15.9%	29.1%	38.7%

Long-run represents period of up to 120 monthly static pools
Short-run represents most recent period of up to 48 monthly static pools

Average 1-Year transition rates for the last 5 Financial Years Period (FY2018-2022)

(%)	AAA	AA	A	BBB	BB	B	C	D
AAA	97.29	2.04	0.23	0.00	0.00	0.00	0.00	0.45
AA	1.34	92.43	5.59	0.08	0.16	0.00	0.00	0.39
A	0.03	3.57	91.30	4.40	0.25	0.03	0.00	0.41
BBB	0.00	0.05	4.29	90.93	3.76	0.12	0.05	0.80
BB	0.00	0.00	0.06	4.82	88.67	3.32	0.11	3.02
B	0.00	0.00	0.04	0.04	14.58	78.11	0.49	6.73
C	0.00	0.00	0.00	0.00	3.64	21.82	47.27	27.27

CARE Rating's Issuer Weighted average Cumulative Default Rates for the period March 2017 - March 2022

Rating Category	1-Year Cumulative Default Rate	2-Year Cumulative Default Rate	3-Year Cumulative Default Rate
AAA	0.44%	1.40%	2.30%
AA	0.44%	1.42%	3.07%
A	0.54%	1.46%	2.45%
BBB	1.35%	3.26%	5.33%
BB	3.61%	6.58%	9.41%
B	5.16%	10.00%	14.74%
C	14.06%	33.85%	43.64%

CARE Rating's Issuer Weighted Average Cumulative Default Rates excluding Non-Cooperating Issuers for the period March 2012 - March 2022

Rating Category	1-Year Cumulative Default Rate	2-Year Cumulative Default Rate	3-Year Cumulative Default Rate
AAA	0.25%	0.72%	1.34%
AA	0.26%	0.78%	1.52%
A	0.38%	1.09%	1.90%
BBB	1.03%	2.47%	3.88%
BB	2.69%	4.28%	5.58%
B	4.55%	6.69%	7.93%
C	20.06%	25.82%	28.26%

Annexure II

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 further period for other cohorts. 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) / Credit Enhancements (CE) ratings are not part of this study. CARE Ratings' 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 rate over a period of one year, two years and three years. 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**

Annexure III

Difference between SEBI Methodology & CARE Ratings Methodology

Description	SEBI Methodology	CARE Ratings Methodology
Static Pool	Monthly Static Pool	Annual Static Pool
Issuer/Instrument inclusion	Corporate issuers are included multiple times, with a cap of 3 in case different seniority instruments are rated. Structured finance trusts issuing instruments of different seniority are also taken multiple times and capped at 3.	This study considers only senior most rating of the issuer and doesn't consider structured finance ratings or Credit Enhanced ratings.
Time Frame	For long run CDR, 120, 108 and 96 cohorts are used, whereas for short run CDR, 48, 36 and 24 cohorts are used	10 yearly cohorts are used for the same.
CDR calculation	Average marginal default rate methodology is used	Simple methodology is used as described earlier
Withdrawal adjustment	Ratings withdrawn during the year are excluded	Withdrawal adjustment is not done

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About:

CareEdge is a knowledge-based analytical group that aims to provide superior insights based on technology, data analytics and detailed research. CARE Ratings Ltd, the parent company in the group, is one of the leading credit rating agencies in India. Established in 1993, it has a credible track record of rating companies across multiple sectors and has played a pivotal role in developing the corporate debt market in India. The wholly-owned subsidiaries of CARE Ratings are (I) CARE Advisory, Research & Training Ltd, which offers customised advisory services, credible business research and analytical services (II) CARE Risk Solutions Private Ltd, which provides risk management solutions