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Basel Framework – An Analysis of Default  
Experience of Credit Rating Agencies in India

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# **Risk-weighting under Standardised Approach of Computation of Capital for Credit Risk in Basel Framework – An Analysis of Default Experience of Credit Rating Agencies in India**

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## **Abstract**

*All scheduled commercial banks in India currently follow the Standardised Approach of computation of capital for credit risk under Basel framework for calculation of regulatory capital requirement. Under this approach, credit rating agencies play a crucial role as the regulatory capital requirement for credit risk of banks is determined based on the credit rating assigned by these agencies and corresponding risk weight prescribed in Basel framework. The paper attempts to find out whether the credit risk regulatory capital of Indian banks is commensurate with the default experience associated with ratings assigned by the Indian rating agencies. The paper also compares the relative assessment standards of the rating agencies, accredited by the Reserve Bank, in terms of ratings assigned to common borrowers and the time taken for the rated borrowers to default.*

**Keywords:** Credit Risk, Rating Agencies, Risk Weight, Capital Requirement

**JEL Classification:** G24, G28

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# **Risk-weighting under Standardised Approach of Computation of Capital for Credit Risk in Basel Framework – An Analysis of Default Experience of Credit Rating Agencies in India**

## **Introduction**

The history of modern day Credit Rating Agencies (CRA) can be traced back to Mercantile Rating Agencies in the early 19<sup>th</sup> century, which used to rate merchants' ability to pay off their debts in the United States. In the US market formal rating agencies viz., John Moody (later on known as Moody's), Poor's Publishing Company, Standard Statistics Company (subsequently merged as S&P) and Fitch Publishing Company, started rating bonds (railroads, industrials, utilities) since early 20<sup>th</sup> century. However, the history of CRAs in India is relatively short and it started with formation of Credit Rating Information Services of India Limited (CRISIL) in 1987. Subsequently, Investment Information and Credit Rating Agency of India Limited (ICRA), Credit Analysis and Research Limited (CARE Ratings), India Ratings and Research Pvt. Ltd. (previously Fitch India), SME Rating Agency Limited (SMERA), Brickwork Ratings India Private Limited, Onicra Credit Rating Agency of India Ltd, Micro Credit Ratings International Limited (MCRIL) etc. started their operations in India.

Till 2007, domain of these rating agencies was restricted to rating corporate bonds and niche areas like assessment of small scale industries, small and medium enterprises, individual credit, etc. However, with the introduction of Basel II framework of the Basel Committee on Banking Supervision (BCBS) in India in 2007, the scenario changed. Banks in India were required to comply with Standardised Approach (SA) of computation of capital for credit risk as specified in Basel framework either by March 2008 or March 2009 depending on the international presence. Banks' computation of capital requirement for credit risk under the SA of Basel framework depends on the rating provided by Reserve Bank of India (RBI) accredited CRAs and the corresponding risk weight (RW) thereof. As all the banks in India are presently under the SA, majority of bank loans came under the ambit of credit rating.

Against this background, Sections II and III of the paper deal with the role played by the external credit rating agencies under the Basel framework and expectation of the Basel framework with regard to realised cumulative default rates (CDRs) of the rating agencies. Section IV compares the realised CRDs of four Indian rating agencies with that of 'long run reference CDR' and 'benchmark CDR' prescribed by Basel framework. It also provides a comparison of implied RWs based on realised CDRs of Indian CRAs *vis-à-vis* actual RWs prescribed by RBI for Indian

banks as well as RWs prescribed in the Basel capital framework. Sections V and VI discussed the aspect of inter-se variations in ratings provided by different CRAs *i.e.*, whether the same rating grades across various accredited agencies in India imply similar default experience so that attaching the same RW to a rating grade irrespective of the agency involved is justified. Section VII concludes with policy implications.

## **II. Rating Agencies under Basel Framework**

Under the Basel framework, two broad methodologies are available for banks to measure their credit risk capital charge for regulatory purposes, *viz.*, Standardised Approach (SA) and Internal Rating Based (IRB) Approach, based on preparedness of the banks in areas of credit risk measurement and management. Even with the advent of Basel III after the financial crisis, this framework of external rating and corresponding RW based capital calculation under the SA framework has not changed. Of the two approaches SA is simpler as compared to the IRB. Under SA of Basel framework different RWs have been prescribed for banks' exposures to various entities based on the external credit rating assigned to those entities/exposures by CRAs accredited by the national supervisors. Based on these RWs, credit risk regulatory capital calculation is done by the banks. For example, a particular exposure of Bank X amounts to INR 100 and it gets assigned an external rating of 'A' which attracts a RW of 50 per cent under SA. So, the risk weighted asset for this exposure will be INR 50. Depending on the minimum capital requirement prescription in a jurisdiction, regulatory minimum capital for this exposure will be determined. With regulatory requirement of 9 per cent, regulatory minimum capital for credit risk for this exposure will be INR 4.5. Hence, the role of external CRAs assumes significant importance in the context of determination of credit risk regulatory capital charge under SA of Basel framework.

Considering the crucial role of the rating agencies in the context of implementation SA under Basel framework, an Internal Working Group (IWG) was set up in RBI in 2006 to identify/accredit rating agencies whose ratings could be used to determine RW of exposures. Based on the recommendations of the IWG, four domestic CRAs *viz.* CARE, FITCH India (now changed to India Ratings), CRISIL and ICRA were found to be eligible to be accredited under Basel framework. Subsequently, two more domestic CRAs *viz.*, Brickwork and SMERA were granted accreditation in April and September of 2012, respectively. In effect, RBI has so far accredited six domestic CRAs and banks are required to use the ratings assigned by any of these CRAs to RW their exposures under the SA for credit risk capital computation. The RBI guidelines permit banks to use ratings of the international

credit rating agencies, viz., Standard and Poor's, Moody's and Fitch for risk weighting their claims for capital adequacy purpose.

As per the Basel framework, national supervisors are responsible for assigning eligible External Credit Rating Agencies' (ECAIs') or CRAs' ratings to the RWs prescribed under the SA, i.e., deciding which assessment categories (or rating grades) correspond to which RWs. Under SA, Basel framework has prescribed RWs applicable to various rating grades. For this purpose, Basel used reference rating grades from Moody's and S&P with the expectation that the credit risk associated with rating grades assigned by domestic CRAs to domestic exposures are comparable to that of equivalent grades of Moody's and S&P.

From the above, it is evident that the role of supervisor is very crucial in ensuring mapping of appropriate RWs to rating grades of the domestic rating agencies so that undercapitalisation is avoided.

### **III. Compliance with Cumulative Default Rate (CDR) of Basel framework**

To help the supervisors in ensuring that RW prescribed is appropriate for a particular credit risk assessment from a credit rating agency, Basel framework recommended that supervisors may compare CDRs associated with different rating grades of rating agencies with 'reference' and 'benchmark' CDRs provided in the framework.

For the purpose of evaluation by national supervisors, 10 year long run average of three years' CDR of different rating grades of individual domestic agencies are recommended to be compared with BCBS prescribed 'reference' CDRs. Also, most recent three years' CDR of different rating grades of rating agencies need to be compared with BCBS prescribed 'benchmark' CDRs. Under this 'benchmark' CDRs, BCBS has prescribed 'monitoring' level CDRs and 'trigger' level CDRs. The 'reference' and 'benchmark' rates have been calibrated for Basel framework based on historical default rates from major international rating agencies. What these essentially imply is that if the most recent three years' CDR of a particular rating agency for a particular rating grade is higher than 'monitoring/trigger' level prescribed by BCBS, the current default experience for that rating grade for that agency is above international historical default experience for that rating grade.

Two issues emerge from the above prescription:

- Supervisors should be vigilant in cases where there is significant difference between the default experience/ CDRs of the accredited rating agencies in

a jurisdiction from that of the international agencies (based on which the RW calibration was done in Basel framework);

- Supervisors should also examine the similarity (or the lack of it) in the implied credit risk conveyed by the equivalent rating grades of various accredited domestic rating agencies in their jurisdictions.

On the first issue above, the Basel framework's long run 'reference' rates, are only indicative and are meant to be used as guidance for supervisors and not as 'targets' that accredited rating agencies would have to meet. However, most recent three year CDRs of accredited domestic CRAs should normally be in line with the benchmarks, *i.e.*, 'trigger' and 'monitoring' levels as prescribed in the Basel framework.

A study by National Institute of Securities Market, India found that the actual ratings did not always reflect the falling creditworthiness in a timely manner (NISM, 2009). Against this background, an analysis was carried out to compare the 'reference' CDRs as well as 'benchmark' CDRs prescribed in the Basel framework based on default experience of major international rating agencies with CDRs of the Indian rating agencies. This would help to understand whether the RWs prescribed under SA should be applied to the Indian rating agencies for corresponding rating grades.

#### **IV. Comparison of RBI prescribed RW with that of Basel framework**

From the data obtained on annual default studies published by the domestic CRAs, it is observed that the CDRs of RBI accredited rating agencies are above the long run 'reference' level CDRs (which is more for guidance). The CDRs for Indian agencies are also above the 'trigger' and 'monitoring' level of 'benchmark' CDRs, especially for rating grades below AA, where the major concentration of borrowers exist<sup>2</sup>. The differences between various CDRs mentioned in Basel framework and Indian agencies' observed CDRs suggest that the mapping of external ratings with RWs, as prescribed by Basel framework, may not be reflective of the default experience of Indian rating agencies and this may lead to undercapitalisation for credit risk in Indian banks *vis-à-vis* Basel framework. This potentially also affects the international level playing field under SA for credit risk.<sup>3</sup>

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<sup>2</sup> Instead of comparing most recent 3 year CDR of various rating grades of domestic rating agencies with 'benchmark' CDR prescribed in Basel framework, authors take long run average of three years' CDR (depending on publicly available data on the website of rating agencies) of domestic agencies to compare with benchmark CDRs, so as to use more stabilised CDR numbers for Indian rating agencies.

<sup>3</sup> However, one of the reasons for such difference might also be due to lack of long historical default data in case of Indian rating agencies as compared to their international counterparts and consequently, higher

Different levels of Basel framework prescribed CDRs (based on default experience of major international rating agencies) along with CDRs published by four Indian CRAs (accredited in 2006) for their rated borrowers (including bank loan ratings) in various rating grades are given in Table 1. In comparison to BCBS indicated long run 'reference' CDRs, long run CDRs for agencies 1, 2 and 3 are higher for all the rating grades barring AAA & B (and also AA for Agency 2 and AA & BB for Agency 4) rating grade.

**Table 1: Comparative position of CDR in Basel framework and CDR observed by Indian agencies**

(per cent)

CDRs	AAA	AA	A	BBB	BB	B
Long run reference CDR <sup>#</sup>	0.1	0.10	0.25	1.00	7.5	20.0
Benchmark CDRs (monitoring level)	0.8	0.8	1.0	2.4	11.0	28.6
Benchmark CDRs (trigger level) CDR	1.2	1.2	1.3	3.0	12.4	35.0
Agency 1 long run CDRs	0.0	0.73	4.91	6.15	13.91	21.98
Agency 2 long run CDRs	0.0	0.0	2.7	8.9	Data not available	Data not available
Agency 3 long run CDRs	0.0	0.85	2.53	5.27	11.46	14.47
Agency 4 long run CDRs	0.0	0.0	2.5	4.4	5.2	5.8

<sup>#</sup> 20 year average of 3 year CDR mentioned in Basel framework based on default experience of major international agencies.

Source: long run 3 years' CDRs data taken from annual default study of 2014/2015 of the rating agencies.

As far as 'monitoring' and 'trigger' level CDRs are concerned, Basel prescribed CDRs are comparable in case of AAA and AA rating grades for all the four rating agencies. However, in case of A, BBB and BB rating grades, for agencies 1, 2 and 3, CDRs are higher than the ones indicated in Basel framework. For the agency 4, CDRs are higher than that indicated in Basel Framework in rating Grade A and BBB. It is important to note that the concentration of exposures/issuers is generally the highest in rating grades A, BBB and BB across the agencies.

Notwithstanding the fact that some of the reasons for higher CDR outcomes might not be attributable to the weaker assessment standards, an attempt was made to quantify the possible extent of undercapitalisation for credit risk on account of corporate borrowers for Indian banks based on the above position. For this purpose,

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observed CDRs might not be totally attributable to weaker assessment standards in India. The number of rated exposures by the Indian rating agencies started becoming sizeable post 2008-09 after the adoption of SA under Basel framework. The reasons behind higher CDRs in case of Indian credit rating agencies as compared to international counterparts thus need further examination and there could be a possibility that with time, CDRs experienced in various grades will comply with 'trigger' and 'monitoring' level CDRs as prescribed in the Basel framework.



methodology adopted in Basel framework to calibrate RWs corresponding to various rating grades under SA based on the CDRs need to be emulated. Same calibration could then be used to see, what RWs are warranted for Indian corporate borrowers in various rating grades based on CDRs observed by Indian rating agencies. However, no public document is made available by BCBS containing the calibration methodology of mapping CDRs to standardised RWs for various rating grades. Thus, as an alternative, the authors have calibrated based on the IRB RW function as given below:

- IRB risk weight function<sup>4</sup> for corporate exposures was used.
- Used long term 'reference' CDRs of Basel framework as proxy for probability of default (PD) for various rating grades for the purpose of arriving at notional Basel RWs.
- Indian rating agencies' CDRs (sourced: rating agencies' websites) were used as PD for various rating grades to arrive at the notional RW based on default experience in India; in case CDR for a rating grade of an agency is shown as 0 per cent, the PD for that grade has been taken as 0.03 per cent as this is the minimum PD prescribed in Basel framework for corporate exposures.
- Applied a flat LGD of 45 per cent in the IRB RW function (prescribed in Basel framework to calculate capital requirement for unsecured senior exposures under Foundation IRB approach) across the rating grades to arrive at the RWs for various rating grades.
- Apply a maturity of 2.5 years in the IRB RW function as prescribed under Foundation IRB.
- Compare RWs thus arrived with the RWs prescribed under SA of Basel framework

The results of this analysis are provided in Table 2 below. It may be seen from the first four columns that the notional RW using Basel prescribed 'reference' CDR and a flat 45 per cent LGD (with 2.5 years of maturity) applied to IRB formula results into RWs which are near about the Basel prescribed RWs for corporate borrowers (except for BB and B, where the difference may possibly be attributed to use of a flat 45 per cent LGD meant for unsecured exposures).

Interestingly, it may be seen that higher RWs (as compared to Basel framework) prescribed by RBI for rating grades AA (30 per cent) and BB (150 per

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<sup>4</sup> Refer to paragraph 272 of International Convergence of Capital Measurement and Capital Standards, June 2006.

cent) is broadly in line with the notional RW arrived at using reference CDR of Basel framework (31 per cent and 183 per cent, respectively). Further, Indian agencies' observed CDRs and the resultant notional RWs as shown in the column 6 to 13 of Table 2 show that notional RWs arrived at are actually higher as compared to extant RW prescribed by RBI (mentioned in last column) except for AAA grade.

**Table 2: Notional RW (in percent) using Domestic Agencies CDR, 45 per cent LGD and 2.5 years of maturity**

(all figures are in percentage)

Rating grades	Long run 'reference' CDR (Basel)	Notional RW using Basel 'reference' CDR	Basel SA RWs, as prescribed	Actual RW prescribed by RBI	Agency 1		Agency 2		Agency 3		Agency 4	
					3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
AAA	0.10	31	20	20	0.03	15	0.03	15	0.03	15	0.03	15
AA	0.10	31	20	30	0.73	87	0.03	15	0.85	92	0.8	90
A	0.25	52	50	50	4.91	158	2.7	132	2.53	130	2.5	129
BBB	1.00	98	100	100	6.15	171	8.9	196	5.27	162	4.4	152
BB	7.50	183	100	150	13.91	229	NA	-	11.46	215	5.2	161
B	20.0	253	150	150	21.98	257	NA	-	14.47	232	5.8	167

This brings into question whether the Basel prescribed RWs that are applied to different rating grades for exposures rated by domestic agencies are actually commensurate with the risk profile of the borrowers rated by domestic agencies. Of course, it is required to take into consideration the fact that number of years of data available with Indian rating agencies as well as the rated borrower base may be considerably less as compared to established major international rating agencies and hence the CDRs might not have got stabilised for Indian rating agencies. However, the possibility of undercapitalisation on this count cannot be completely ignored. Therefore, against this very backdrop, higher minimum 9 per cent regulatory capital requirement, as was prescribed by RBI (as against 8 per cent prescription made in the Basel framework) provides comfort.

## V. Pair-wise comparison of average rating assigned to common borrowers

A pair-wise comparison is attempted amongst five domestic agencies<sup>5</sup> (including one of the newly accredited rating agencies) by taking the ratings assigned to only those borrowers which were common to both the agencies of the

<sup>5</sup> Codes used for the rating agencies in various tables in different sections of this paper may be different to hide the identity of the agencies

pair. This analysis would highlight whether the same borrowers (or exposures to same borrowers) are treated considerably differently by two different agencies notwithstanding the fact that different exposures to same borrowers may also have different conditionality attached. If it is seen that same borrowers (or exposures to same borrowers) are indeed being rated very differently by the rating agencies, it will most likely indicate that same ratings by different agencies do not manifest same implicit credit risk.

Earlier studies found that there have been differences in ratings assigned by different international agencies to the same borrower. Morgan (2000) analysed the differences in ratings assigned by Moody's and S & P and concluded that Moody's was more conservative in rating borrowers than S & P. Similar conclusions were arrived by Ghosh (2013) too. Becker and Milbourn (2011) concluded that assessment standards of rating agencies have weakened due to increased competition and deterioration of quality in ratings.

In this study, all outstanding ratings (all long term ratings excluding structured products) assigned by these five domestic CRAs as on March 31, 2014 were taken into account *viz.*, bank loan and bond ratings. This helped us to capture a larger database in comparison to only bank loan ratings.

Rating agencies assign ordinal/letter ratings to borrowers/issuers. As these ratings cannot be used directly for statistical tests, each of ordinal ratings including the modifiers were assigned numbers from 1 to 20 with 1 assigned to rating grade 'AAA+' and 20 assigned to rating grade 'D'. This was to assign cardinal ratings to each borrower/ issuer and also to maintain the ordinal nature of the ratings (Table 3).

**Table 3: Assignment of number as per rating grade**

<b>Rating grade</b>	<b>Number assigned</b>
AAA+	1
AAA	2
AAA-	3
AA+	4
AA	5
AA-	6
A+	7
A	8
A-	9
BBB+	10
BBB	11
BBB-	12
BB+	13
BB	14
BB-	15
B+	16
B	17
B-	18
C	19
D (default grade)	20

Initially, the common borrowers (or exposure to those borrowers) for a particular pair of agencies were identified along with the ratings assigned to those borrowers. Outstanding ratings (as on March 31, 2014) to these common borrowers were taken for this study. A paired difference test ('t' test) was then carried out to test the null hypothesis that the ratings assigned to the common borrowers by each of the paired agencies do not differ significantly at 95 per cent level and the results are shown in table 4.

**Table 4: Result of two paired difference 't' test with significance level of 0.05**

Pair	Mean of rating difference (without sign) for each of the pairs in respect of common borrower	No. of common borrowers	'p' value of paired t test (two tailed) for mean with hypothesised mean difference '0' (at 95%)
Agency 1 & 2	1.54	496	0.0044 (significant)
Agency 1 & 3	1.41	253	0.0007 (significant)
Agency 1 & 4	1.45	89	0.4379 (insignificant)
Agency 2 & 3	1.14	189	0.9299 (insignificant)
Agency 2 & 4	1.02	68	0.1190 (insignificant)
Agency 3 & 4	1.01	72	0.5313 (insignificant)
Agency 1 & 5	0.79	42	0.0014 (significant)
Agency 2 & 5	1.49	41	0.0008 (significant)
Agency 3 & 5	0.78	41	0.0059 (significant)
Agency 4 & 5	0.68	15	0.6702 (insignificant)

*Note: Null hypothesis:* Mean of differences of rating assigned to common borrowers (or exposure to those borrowers) by paired agencies is zero

*Alternative hypothesis:* Mean of differences of rating assigned to common borrowers (or exposure to those borrowers) by paired agencies is not zero.

Source: Calculated from data disclosed by rating agencies in their respective websites as per SEBI's circular CIR/MIRSD/CRA/6/2010 dated May 3, 2010

From the above table, the following observations can be made in respect of the pair wise comparison between the five rating agencies:

- Out of the 10 pairs, for five pairs null hypothesis is rejected, *i.e.*, the difference of rating assigned to the common set of borrowers (or exposure to those borrowers) is statistically significant.
- For three out of the five pairs where the difference in ratings is found to be significant, the average absolute difference is around one and half notches.

To explore further whether these notch differences are considerably higher for material number of cases, authors determined the distribution of various levels of notch differences (absolute difference *i.e.*, without referring which agency in the pair is more conservative/aggressive) in respect of common borrowers (Table 5).

**Table 5: Notch differences in pair-wise rating assigned to common borrowers**

Pairs and No. of common obligors	Percentage of differences			
	within 0-2 notches	within 3-5 notches	within 6-8 notches	beyond 8 notches
Agency 1 & 2 (496)	81.00	15.30	3.20	0.40
Agency 1 & 3 (253)	80.20	16.60	2.77	0.40
Agency 1 & 4 (89)	78.65	20.22	1.12	0
Agency 2 & 3 (189)	85.71	13.23	1.06	0
Agency 2 & 4 (68)	86.76	13.24	0	0
Agency 3 & 4 (72)	86.11	13.89	0	0
Agency 1 & 5 (42)	95.24	4.76	0	0
Agency 2 & 5 (41)	87.80	12.20	0	0
Agency 3 & 5 (41)	97.56	2.44	0	0
Agency 4 & 5 (15)	93.33	6.67	0	0

As seen from Table 5, in most of the cases, differences are within 0-2 notches. For seven out of the 10 pairs, difference of 3 - 5 notches exist for more than 12 per cent of the common borrowers; while for three of these seven pairs, the difference of 3 - 5 notches is observed for more than 15 per cent. This observation indicates that there are significant number of common borrowers (or exposure to those borrowers) where the differences, at the minimum, are not limited to modifiers (e.g, AA+, AA and AA-) in the same grade but could spread into two rating grades. This creates a possibility of undermining RWs of a borrower by 30 percentage points (in case AAA and A which require 20 per cent and 50 per cent RWs respectively) to 100 percentage points (in case of A and BB which require 50 per cent and 150 per cent RWs, respectively).

## **VI. Time taken to default by the investment grade borrowers/ issuers**

In this section, analysis was done to compare the time taken to default by all of those entities which were initially rated as investment grades (BBB- and above) by the initially accredited agencies (*i.e.*, Agencies 1, 2, 3 and 4 not necessarily in chronological order or accreditation). Newly accredited agencies were excluded due to less number of default data points as compared to the initially accredited agencies. For a rating agency, *ceteris paribus*, shorter the time taken by investment grade entities to default, lesser will be the confidence in the stability in ratings assigned by that agency.

A similar analysis was done to compare the time taken to default for only those investment grade entities which were initially rated as BBB+ or BBB or BBB-.

This was done separately to see the tendency to assign lowest investment rating to entities which probably should otherwise have been rated below investment grade, and thus help exposure to those entities to attract less RW. NISM (2009) also alluded that if the hurdle rate for investors is fixed at a particular rating, say AA and above, there is a possibility that many securities meriting only an A or A- could obtain an AA due to lax appraisal standards by the credit rating agencies.

Table 6 shows the results of this analysis for the four rating agencies. For this, all the defaults in long term ratings (including bank loan rating assigned since inception) by entities rated by four of the initially accredited agencies have been considered. Withdrawal/ suspension of investment grade rating, if any, and subsequent defaults of such entities have, however, not been taken into consideration. Also default definitions across the agencies may also vary although the Reserve Bank has of late prescribed the definition for defaults for the purpose of bank loan ratings for different types of products for the rating agencies<sup>6</sup>.

**Table 6: Time taken to default for investment grade entities**

Rating agency	Entities: rated from AAA to BBB		Entities: rated as BBB+, BBB or BBB-	
	No. of defaulted entities	time taken to default (in months)	No. of defaulted entities	time taken to default (in months)
Agency 1	89	47.00	75	39.40
Agency 2	111	37.31	95	34.21
Agency 3	51	41.03	39	38.91
Agency 4	27	44.47	20	41.96

Source: Calculated from data disclosed by rating agencies as per SEBI's circular CIR/ MIRSD/ CRA/6/ 2010 dated May 3, 2010

As may be observed, the average time taken for all the investment graded entities taken together is longest for Agency 1 (47 months) followed by Agency 4 (45 months), Agency 3 (41 months) and Agency 2 (37 months). Time taken for these entities to default is thus substantially shorter for Agency 2 than other agencies. If one considers the average time taken to reach default for only BBB+, BBB and BBB- rated entities for all the above four agencies, it is seen that average time taken for these entities to default is less than the average time taken by all investment graded entities to default. Further, BBB+, BBB and BBB- entities rated by Agency 4 took longest time to reach default stage (42 months) followed by Agency 1 (39 months), Agency 3 (39 months) and Agency 2 (34 months) rated entities. One common factor in both the case is that Agency 2 rated entities (both overall investment grade and in

<sup>6</sup> Previously rating agencies were expected to use 'one day one rupee' default definition prescribed by the Securities and Exchange Board of India for bonds rating, for bank loan ratings also.

BBB category) took less time to go to default as compared to entities rated by other three agencies.

However, it may be mentioned here that defaults and hence data points from investment grade entities is less in number (especially in case of Agency 3 and Agency 4) and it is especially more true in case of investment rated entities above BBB+. Further, behaviour of certain factors like treatment in case of withdrawal/suspension of rating by different agencies if those exposures eventually defaulted, surveillance practices of rating agencies and their effectiveness in categorising default in a timely manner, definition of default actually practiced by different rating agencies etc. may differ and may thus influence the outcomes. Notwithstanding the above, the distinct behaviour of Agency 2 from rating stability perspective is observed.

## **VII. Conclusions**

It is evident from the analysis that Indian rating agencies need to improve upon the default experience of rated exposures/entities in various grades, especially below rating grade AA, so that the observed default rates are within the 'trigger' and 'monitoring' level prescribed in Basel framework. Till then, the possibility of undercapitalisation of the banks cannot be completely ruled out due to application of same RW as prescribed in Basel framework despite much higher CDRs in case of Indian rating agencies. However, RBI prescription of higher overall minimum capital requirement and more conservative treatment in terms of increased RWs for certain types of exposures may provide effective counter balance to this.

The pair-wise comparison of rating agencies, by taking the ratings assigned to those borrowers (or exposure to those borrowers) which were common to both the agencies of the pair, revealed that for five out of ten pairs of agencies, the differences in ratings assigned to the common borrowers were statistically significant. Though the average notch difference in respect of common borrowers is not very significant, for seven out of ten pairs, 12-20 per cent of the common borrowers were assigned ratings which differed by 3 to 5 notches. This could very well create a difference in capital requirement from 30-100 percentage points for those borrowers depending upon the ratings.

The analysis of time taken by investment grade rated (assigned by various agencies) entities to migrate to default for the four initially accredited agencies revealed that for one of the agencies time taken for investment grade entities to go to default is relatively less than that of other agencies and that raises questions on the



quality of the ratings of that agency. Such distinct behaviour of a rating agency may need further analysis from rating stability perspective.

Overall, there is a possibility of undercapitalisation of banks due to higher realised CDRs of domestic CRAs. However, such impact is counterbalanced to a larger extent by higher overall regulatory capital prescription, and in specific cases higher RW prescription by the Reserve Bank. The issue of undercapitalisation due to higher CDR observed by domestic credit rating agencies as also differential RW prescription for various rating agencies needs to be explored further by the RBI once rating agencies possess longer time series data of default rates with larger base of rated entities.

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**Annex**

**Notional RW (in percent) using Domestic Agencies CDR,  
45 per cent LGD and 2.5 years of maturity**

(all figures are in percentage)

Rating grades	Long run reference CDR (Basel)	Notional RW using Basel 'reference' CDR	Basel SA RWs, as prescribed	Actual RW prescribed by RBI	Agency 1		Agency 2		Agency 3		Agency 4	
					3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs	3 year CDRs	Notional RW using 3 year CDRs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
AAA	0.10	31	20	20	0.03	15	0.03	15	0.03	15	0.03	15
AA	0.10	31	20	30	0.73	87	0.03	15	0.85	92	0.8	90
A	0.25	52	50	50	4.91	158	2.7	132	2.53	130	2.5	129
BBB	1.00	98	100	100	6.15	171	8.9	196	5.27	162	4.4	152
BB	7.50	183	100	150	13.91	229	NA	-	11.46	215	5.2	161
B	20.0	253	150	150	21.98	257	NA	-	14.47	232	5.8	167