# Mapping of Japan Credit Rating Agency Ltd credit assessments under the Standardised Approach

## 1. Executive summary

1. This report describes the mapping exercise carried out by the Joint Committee to determine the 'mapping'[1] of the credit assessments of Japan Credit Rating Agency Ltd (JCRA).

2. The methodology applied to produce the mapping is the one specified in the Commission's Implementing Regulation (EU) 2016/1799 ('the Implementing Regulation') laying down Implementing Technical Standards (ITS) with regard to the mapping of credit assessments of External Credit Assessment Institutions (ECAIs) for credit risk in accordance with Articles 136(1) and (3) of the Regulation (EU) No 575/2013 of the European Parliament and the Council ('the CRR'). This Implementing Regulation employs a combination of the provisions laid down in Article 136(2) CRR.

3. The mapping neither constitutes the one which ESMA shall report on in accordance with Article 21(4b) of Regulation (EC) No 1060/2009 (Credit Rating Agencies Regulation - CRA) with the objective of allowing investors to easily compare all credit ratings that exist with regard to a specific rated entity[2] nor should be understood as a comparison of the rating methodologies of JCRA with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of JCRA with a regulatory scale which has been defined for prudential purposes. This implies that an appropriate degree of prudence may have been applied wherever not sufficient evidence has been found with regard to the degree of risk underlying the credit assessments.

4. The resulting mapping tables have been specified in Annex III of the Implementing Technical Standards on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013. Figure 1 below shows the result for the main ratings scale of JCRA, the Long-term issuer ratings scale.

[1] According to Article 136(1), the 'mapping' is the correspondence between the credit assessments of and ECAI and the credit quality steps set out in Regulation (EU) No 575/2013 (Capital Requirements Regulation – CRR).

[2] In this regard please consider http://www.esma.europa.eu/system/files/esma__2015-1473_report_on_the_possibility_of_establishing_one_or_more_mapping....pdf.

Figure 1: Mapping of JCRA's Long-term issuer credit ratings scale

| Credit assessment | Credit quality step |
|---|---|
| AAA | 1 |
| AA | 1 |
| A | 2 |
| BBB | 3 |
| BB | 4 |
| B | 5 |
| CCC | 6 |
| CC | 6 |
| C | 6 |
| LD | 6 |
| D | 6 |

# 2. Introduction

5. This report describes the mapping exercise carried out by the Joint Committee (JC) to determine the 'mapping' of the credit assessments of Japan Credit Rating Agency Ltd (JCRA).

6. JCRA is a credit rating agency that has been certified with ESMA in 6 January 2011 and therefore meets the conditions to be an eligible credit assessment institution (ECAI)[3]. JCRA provides credit ratings to corporations, financial institutions, insurance companies, governments, public sector, medical and educational institutions. It also provides credit rating related information services and research services for the financial market.

7. The methodology applied to produce the mapping is the one specified in the Commission's Implementing Regulation (EU) 2016/1799 ('the Implementing Regulation') laying down Implementing Technical Standards (ITS) with regard to the mapping of credit assessments of External Credit Assessment Institutions (ECAIs) for credit risk in accordance with Articles 136(1) and (3) of the Regulation (EU) No 575/2013 of the European Parliament and the Council ('the CRR'). This Implementing Regulation employs a combination of the provisions laid down in Article 136(2) CRR. Two sources of information have been used. On the one hand, the quantitative and qualitative information available in ESMA Central Repository (CEREP[4]) has been used to obtain an overview of the main characteristics of this ECAI and to calculate the default rates of its credit assessments. On the other hand, specific information has also been directly requested to the ECAI for the purpose of the mapping, especially the list of relevant credit assessments and detailed information regarding the default definition.

8. The following sections describe the rationale underlying the mapping exercise carried out by the Joint Committee (JC) to determine the applicable mapping. Section 3 describes the relevant ratings scales of JCRA for the purpose of the mapping. Section 4 contains the methodology applied to derive the mapping of JCRA main ratings scale whereas Sections 5 and 6 refer to the mapping of its remaining relevant ratings scales. The mapping tables are shown in Appendix 4 of this document and have been specified in Annex III of the Implementing Technical Standards on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013.

[3] It is important to note that the mapping does not contain any assessment of the registration process of JCRA carried out by ESMA.

[4] CEREP is the central repository owned by ESMA to which all registered/certified CRAs have to report their credit assessments. http://cerep.esma.europa.eu/cerep-web/.

## 3. JCRA credit ratings and rating scales

9. JCRA produces a variety of credit ratings. Column 2 of Figure 2 in Appendix 1 shows the relevant credit ratings that may be used by institutions for the calculation of risk weights under the Standardised Approach (SA)[5]:

- **Long-term issuer ratings** – enables comparison of the overall capacity of an obligor (issuer) to honour its entire financial obligations with such overall capacity of others
- **Long-term issue ratings** – enables comparison of certainty that the obligations of more than a year will be honoured.
- **Short-term issuer ratings** – enables comparison of the overall capacity of an obligor (issuer) to honour its entire financial obligations with such overall capacity of others. A short-term Issuer Rating reflects an issuer's overall capacity to honour its entire financial obligations within a year.
- **Short-term issue ratings** – enables comparison of degrees of certainty that the obligations of within a year will be honoured.
- **Ability to pay insurance claims ratings -** enables comparison of the overall capacity of an insurer to pay its insurance claims.

10. JCRA assigns these credit ratings to different rating scales as illustrated in column 3 of Figure 2 in Appendix 1. Therefore, a specific mapping has been prepared for the following rating scales:

- **Long-term issuer ratings scale.** The specification of this rating scale is described in Figure 3 of Appendix 1.
- **Long-term issue ratings scale.** The specification of this rating scale is described in Figure 4 of Appendix 1.
- **Short-term issuer ratings scale.** The specification of this rating scale is described in Figure 5 of Appendix 1.
- **Short-term issue ratings scale.** The specification of this rating scale is described in Figure 6 of Appendix 1.

11. The mapping of the Long-term issuer ratings scale is explained in Section 4 and it has been derived in accordance with the quantitative factors, qualitative factors and benchmarks specified in the ITS.

[5] As explained in recital 4 of the ITS, Article 4(1) CRA allows the use of the credit assessments for the determination of the risk-weighted exposure amounts as specified in Article 113(1) CRR as long as they meet the definition of credit rating in Article 3(1)(a) CRA.

12. The mapping of the Short-term issuer credit ratings scale is explained in Section 5 and it has been indirectly derived from the mapping of the Long-term issuer ratings scale and the internal relationship established by JCRA between these two scales, as specified in Article 13 of the ITS. This internal relationship is shown in Figure 7 of Appendix 1.

13. The indirect mapping approach described in the previous paragraph has also been applied In the case of Long-term and Short-term issue rating scales, as explained in Section 6. In these cases, however, the relationship with the Long-term issuer ratings scale (or Short-term issuer ratings scale) has been assessed, for the purpose of the mapping, by the JC based on the comparison of the meaning and relative position of the rating categories.

# 4. Mapping of JCRA's Long-term issuer ratings scale

14. The mapping of the Long-term issuer ratings scale has consisted of two differentiated stages where the quantitative and qualitative factors as well as the benchmarks specified in Article 136(2) CRR have been taken into account.

15. In the first stage, the quantitative factors referred to in Article 1 of the ITS have been taken into account to differentiate between the levels of risk of each rating category:

- The *long run default rate* of a rating category has been used to arrive at an initial mapping proposal by comparing its value with the benchmark specified in point (a) of Article 14 of the ITS.

- The *short run default rates* of a rating category have been compared with the benchmarks specified in point (b) of Article 14 of the ITS, which represent the maximum expected deviation of a default rate from its long-term value within a CQS.

16. In a second stage, the qualitative factors proposed in Article 7 of the ITS have been considered to challenge the result of the previous stage, especially in those ratings categories where less default data has been available.

## 4.1. Initial mapping based on the quantitative factors

### 4.1.1. Calculation of the short-run and long-run default rates

17. The short run and long run default rates of each rating category have been calculated with the pools of items rated from 1 January 2001 to 1 July 2010, based on the information contained in CEREP and according to the provisions laid down in the ITS. The following aspects should be highlighted:

- For AAA, AA, A as well as BB, B and CCC-C rating categories, the number of credit ratings cannot be considered to be sufficient for the calculation of the short and long run default rates specified in Articles 3 – 5 of the ITS. Therefore the allocation to the CQS has been made in accordance with Article 6 of the ITS, as shown in Figure 12 of Appendix 3. In these

cases, the long run default rate benchmark associated with the equivalent category in the international rating scale is a key qualitative factor that has been used for the mapping proposal.

- For LD and D rating categories, no calculation of default rates has been made since they already reflect a 'default' situation.

- For BBB rating category, the number of credit ratings can be considered to be sufficient and therefore the calculation has followed the rules established in Articles 3 to 5 of the ITS. The result of the calculation of the short run and long run default rates for each rating category is shown in Figure 8 to Figure 10 of Appendix 3.

18. Withdrawn ratings have been weighted by 50% as indicated in Article 4(3) of the ITS.

19. The default definition applied by JCRA, described in Appendix 2, has been used for the calculation of default rates.

### 4.1.2. Mapping proposal based on the long run default rate

20. As illustrated in the second column of Figure 14 in Appendix 4, the rating category BBB of the Long-term issuer rating scale of JCRA has been initially allocated to CQS 3 based on the comparison of the long run default rates (see Figure 10 in Appendix 3) and the long run default rate benchmark intervals established in point (a) of Article 14 of the ITS.

21. In the case of rating categories AAA, AA, A, BB and CCC-C, where the number of credit ratings cannot be considered to be sufficient, this comparison has been made according to Article 6 of the ITS. The result, as shown in Figure 12 of Appendix 3, confirms that the CQS assigned is the one of the equivalent international rating category.

22. In the case of rating category B, the result of this comparison based on Article 6 of the ITS is less clear. When the analysis is done for the 2006h1 – 2010h2 period, the 9 defaults observed in these categories suggest a mapping to CQS6. However, the analysis of the 2001h1 – 2005h2 period reveals that only 2 defaults were observed during those years and that CQS 5 should be proposed instead. Therefore, the conclusion is not clear and should be based on the qualitative factors.

### 4.1.3. Reviewed mapping based on the short run default rates

23. As shown in Figure 11 in Appendix 3, the short run default rates of rating categories BBB have been compared with the short run default rate benchmark values established in point (b) of Article 14 of the ITS[6].

[6] For AAA, AA, A, as well as BB, B and CCC-C rating categories, the number of credit ratings cannot be considered to be sufficient and therefore no calculation of the short run default rate has been made.

24. The objective is to assess whether the short-run default rates have deviated from their corresponding benchmark values and whether any observed deviation has been caused by a weakening of the assessment standards. Therefore short run default rates experienced within a rating category have been confronted with the short run benchmarks "monitoring" and "trigger" levels specified in Annex I of the ITS: to perform this analysis confidence intervals for the short run default rates have been calculated. The result of this comparison can be found in the third column of Figure 14 in Appendix 4:

- In case of BBB rating category, the short run default rates have breached both the monitoring and trigger levels of default rates for 4 consecutive periods (2007-2008). The lower limit of the 95% confidence intervals reaches the monitoring level only once and does not reach the trigger level. Therefore, this material breach cannot be considered as systematic and therefore the initial mapping based on the long run default rate is confirmed at this stage.

## 4.2. Final mapping after review of the qualitative factors

25. The qualitative factors specified in Article 7 of the ITS have been used to challenge the mapping proposed by the default rate calculation. Qualitative factors acquire more importance in the rating categories where quantitative evidence is not sufficient to test the default behavior[7], as it is especially the case for the B rating category.

26. The **definition of default** applied by JCRA and used for the calculation of the quantitative factors has been analysed:

- The types of default events considered are shown in Appendix 2 and are the ones specified in Article 4(4) of the ITS. The default as defined by JCRA is consistent with letters (a), (b), (c) and (d) of the benchmark definition.

- The information provided by JCRA reveals that the share of bankruptcy-related events is below 50%.

Therefore, no specific adjustment has been proposed based on this factor.

27. Regarding **the meaning and relative position of the credit assessments**, they are aligned with the initial mapping proposal resulting from the quantitative factors, if available. As for the other rating categories:

- In the case of the B rating category, where the quantitative evidence has been less conclusive, this factor suggests that this rating category should be assigned CQS 5 according to the reference definitions established in Annex II ITS. Since the adjacent rating categories (BB and CCC) have been mapped on the basis of quantitative information to

[7] The default behavior of a rating category is considered to be properly tested if the quantitative factors for that rating category are calculated under Articles 3 – 5 ITS.

CQS 4 and CQS 6 respectively, it can be concluded that the proposed mapping for B rating category is CQS 5.

- In the case of LD and D rating categories, their meaning is consistent with the one of CQS 6 stated in Annex II ITS.

28. Regarding the **time horizon** reflected by the rating category, JCRA rating methodology focuses on the long-term. This is confirmed by the high/medium stability of its highly-/low-quality categories by the end of the 1-year and 3-year time horizons, as shown in Figure 13 of Appendix 3. Therefore, the mapping proposals for all rating categories are reinforced.

29. Finally, it should be highlighted the use of the long run default rate benchmark associated with the equivalent category in the international rating scale as the **estimate of the long run default rate** for the calculation of the quantitative factor of most rating categories under Article 6 of the ITS.

## 5. Mapping of JCRA Short-Term issuer rating scale

30. JCRA also produces Short-term issuer ratings and assigns them to the Short-term issuer ratings scale (see Figure 5 in Appendix 1). Given that the default information referred to these rating categories cannot be comparable with the 3-year time horizon that characterizes the benchmarks established in the ITS, the internal relationship established by JCRA between these two rating scales (described in Figure 7 of Appendix 1) has been used to derive the mapping of the Short-term issuer rating scale. This should ensure the consistency of the mappings proposed for JCRAs.

31. More specifically, as each short-term issuer rating can be associated with a range of long-term issuer ratings, the CQS assigned to the short-term credit rating category has been determined based on the most frequent CQS assigned to the related long-term credit rating categories. In case of draw, the most conservative CQS has been considered. If the most frequent step is identified as CQS 5 or 6, CQS 4 is allocated, as the risk weights assigned to CQS 4 to 6 are all equal to 150% according to Article 131 CRR.

32. The result is shown in Figure 15 of Appendix 4:

- **J-1+.** This rating category indicates particularly high capacity to honour financial commitment on the obligation. The rating category is internally mapped to long-term categories AAA to A+, which are mapped to CQS 1 and 2, but mostly CQS 1. Therefore, CQS 1 is the proposed mapping for J-1+.

- **J-1.** This rating category indicates the highest level of capacity of the obligor to honour its short-term financial commitment on the obligation. The rating category is internally mapped to long-term categories A+ to A-, which are mapped to CQS 2. Therefore, CQS 2 is the proposed mapping for J-1.

- **J-2.** This rating category indicates a high level of capacity to honour the short-term financial commitment on the obligation, but slightly less than for J-1.It is internally mapped to long-term categories A- to BBB-, which are mostly mapped to CQS 3. Therefore, CQS 3 is the proposed mapping.

- **J-3.** This rating category indicates an adequate level of capacity of the obligor to honour the short-term financial commitment on the obligation, but susceptible to adverse changes in circumstances. It is internally mapped to long-term categories BBB- to BB, which are mostly mapped to CQS 4. Therefore, CQS 4 is the proposed mapping.

- **LD.** This rating category applies only to Short-term issuer ratings scale and means that an obligor honours only part of its financial obligations, which is consistent with the definition of default provided in the ITS, and is therefore mapped to CQS 6. Since the risk weights assigned to CQS 4 to 6 are all equal to 150% according to Article 131 CRR, the mapping proposed for the LD rating category is CQS 4.

- **NJ.** This rating category indicates that the capacity of the obligor to honour the short-term financial commitment on the obligation is less than for the upper-ranking. The rating category is internally mapped to long-term categories BB to C, which are mapped to CQS 4 to 6. Since the risk weights assigned to CQS 4 to 6 are all equal to 150% according to Article 131 CRR, the mapping proposed for the NJ rating category is CQS 4.

# 6. Mapping of other JCRA credit rating scales

33. As mentioned in Section 3, JCRA produces a number of additional credit ratings that are assigned to different credit rating scales.

34. Based on the methodology described in the previous section, the mapping of each rating scale has been derived from the relationship established by the JC with the relevant Long-term or Short-term issuer ratings scale. More specifically, as each rating can be associated with one or a range of long-term (or short-term) rating categories, its CQS has been determined based on the most frequent CQS assigned to the related rating categories. In case of draw, the most conservative CQS has been considered.

35. The results are shown in Figure 16 and Figure 17 of Appendix 4:

- **Long term issue ratings scale** (see Figure 4 in Appendix 1). The rating categories can be considered comparable to those of the Long-term issuer ratings scale. Therefore the mapping of each rating category has been derived from its meaning and relative position and the mapping of the corresponding categories of the Long-term issuer rating scale. The result of the mapping of this scale is shown in Figure 16 of Appendix 4.

- **Short-term issue credit rating scale** (see Figure 6 in Appendix 1). The rating categories can be considered comparable to those of the Short-term issuer ratings scale. Therefore the mapping of each rating category has been derived by the JC from its meaning and relative

position and the mapping of the corresponding categories of the Short-term issuer rating scale. The result of the mapping of this scale is shown in Figure 17 of Appendix 4.

# Appendix 1: Credit ratings and rating scales

Figure 2: JCRA's relevant credit ratings and rating scales

| SA exposure classes | Name of credit rating | Credit rating scale |
|---|---|---|
| **Long-term ratings** | | |
| Central governments/ Central banks | Long-term issue rating | Long-term issue rating scale |
| | Long-term issuer rating | Long-term issuer rating scale |
| Regional and local governments and PSEs | Long-term issue rating | Long-term issue rating scale |
| | Long-term issuer rating | Long-term issuer rating scale |
| Institutions | Long-term issue rating | Long-term issue rating scale |
| | Long-term issuer rating | Long-term issuer rating scale |
| Corporates | Long-term issue rating | Long-term issue rating scale |
| | Long-term issuer rating | Long-term issuer rating scale |
| | Ability to pay insurance claims rating | Long-term issuer rating scale |
| CIUs | Long-term issue rating | Long-term issue rating scale |
| **Short-term ratings** | | |
| Institutions | Short-term issue rating | Short-term issue rating scale |

| SA exposure classes | Name of credit rating | Credit rating scale |
|---|---|---|
| | Short-term issuer rating | Short-term issuer rating scale |
| Corporates | Short-term issue rating | Short-term issue rating scale |
| | Short-term issuer rating | Short-term issuer rating scale |

Source: JCRA

Figure 3: Long-term issuer ratings scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| AAA | The highest level of certainty of an obligor to honour its financial obligations. |
| AA | A very high level of certainty to honour the financial obligations. |
| A | A high level of certainty to honour the financial obligations. |
| BBB | As adequate level of certainty to honour the financial obligations. However, this certainty is more likely to diminish in the future than with the higher rating categories. |
| BB | Although the level of certainty to honour the financial obligations is not currently considered problematic, this certainty may not persist in the future. |
| B | A low level of certainty to honour the obligations, giving cause for concern. |
| CCC | There are factors of uncertainty that the financial obligations will be honoured, and there is a possibility of default. |
| CC | A high default risk. |
| C | A very high default risk. |
| LD | JCR judges that while an obligor does not honour part of the agreed to financial obligations, but it honours all its other agreed to financial obligations. |
| D | JCR judges that all the financial obligations are, in effect, in default. |

Source: JCRA

Figure 4: Long-term issue ratings scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| AAA | The highest level of certainty of an obligor to honour its financial obligations. |
| AA | A very high level of certainty to honour the financial obligations. |
| A | A high level of certainty to honour the financial obligations. |
| BBB | As adequate level of certainty to honour the financial obligations. However, this certainty is more likely to diminish in the future than with the higher rating categories. |
| BB | Although the level of certainty to honour the financial obligations is not currently considered problematic, this certainty may not persist in the future. |
| B | A low level of certainty to honour the obligations, giving cause for concern. |
| CCC | There are factors of uncertainty that the financial obligations will be honoured, and there is a possibility of default. |
| CC | A high default risk. |
| C | A very high default risk. |
| D | JCR judges that the obligation is in default. |

Source: JCRA

Figure 5: Short-term issuer ratings scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| J–1 | The highest level of certainty of an obligor to honour its short-term financial obligations. Within this rating category, obligations for which the certainty is particularly high are indicated by the symbol 'J-1+'. |
| J–2 | A high level of certainty to honour the short-term financial obligations, but slightly less than J-1 |
| J–3 | An adequate level of certainty of an obligor to honour its short-term financial obligations, but susceptible to adverse changes in circumstances. |
| NJ | The certainty of an obligor to honour the short-term financial commitment on the obligation is less than the upper-ranking categories. |
| LD | JCR judges that while an obligor does not honour part of the agreed to financial obligations, but it honours all its other agreed to financial obligations. |
| D | JCR judges that all the financial obligations are, in effect, in default. |

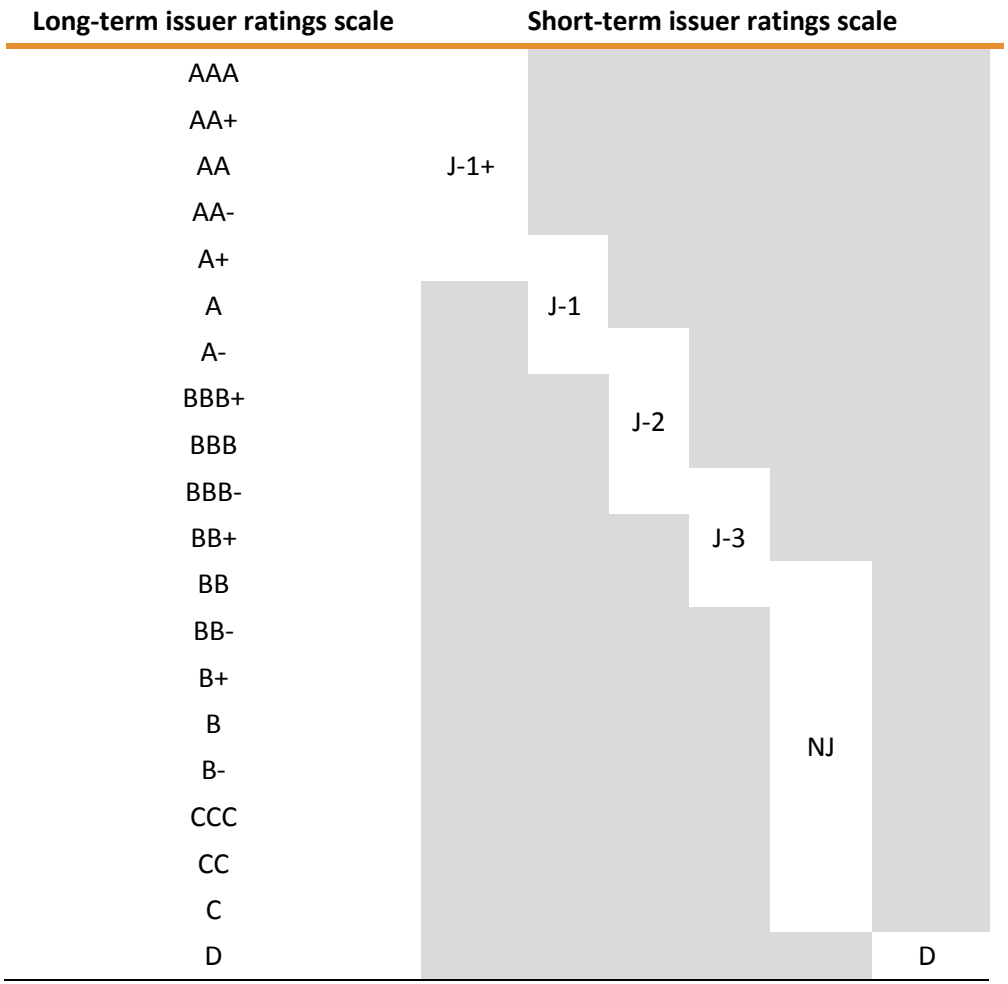
Source: JCRA

Figure 6: Short-term issue credit ratings scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| J–1 | The highest level of certainty of the obligor to honour its short-term financial commitment on the obligation. Within this rating category, obligations for which the certainty is particularly high are indicated by the symbol 'J-1+'. |
| J–2 | The high level of certainty to honour the short-term financial commitment on the obligation, but slightly less than for J-1 |
| J–3 | An adequate level of certainty of the obligor to honour the short-term financial commitment on the obligation, but susceptible to adverse changes in circumstances. |
| NJ | The certainty of the obligor to honour the short-term financial commitment on the obligation is less than for the upper-ranking categories. |
| D | JCR judges that the obligation is in default. |

Source: JCRA

Figure 7: Internal relationship between JCRA long-term and short-term issuer ratings scales




Source: JCRA

# Appendix 2: Definition of default

"Default" means a state in which principal and/or interest payments of financial obligations cannot be made as initially agreed. This includes the state where JCR judges it is impossible that principal and interest payments of the financial obligations can be made as agreed due to filing of a petition for legal proceedings such as Bankruptcy, Corporate Reorganization, Civil Rehabilitation, or Special Liquidation proceedings.

Source: JCRA

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# Appendix 3: Default rates of each rating category

Figure 8: Number of rated items

| Date | AAA | AA | A | BBB | BB | B | CCC-C | LD,D |
|---|---|---|---|---|---|---|---|---|
| 01/01/2001 | 17 | 80 | 198 | 189 | 19 | 4 | 4 | n.a. |
| 01/07/2001 | 18 | 80 | 199 | 194 | 16 | 3 | 1 | n.a. |
| 01/01/2002 | 19 | 80 | 198 | 198 | 18 | 3 | 1 | n.a. |
| 01/07/2002 | 24 | 80 | 206 | 184 | 25 | 4 | 1 | n.a. |
| 01/01/2003 | 23 | 82 | 214 | 184 | 26 | 4 | 1 | n.a. |
| 01/07/2003 | 23 | 81 | 219 | 179 | 28 | 3 | 1 | n.a. |
| 01/01/2004 | 23 | 78 | 224 | 180 | 23 | 3 | 1 | n.a. |
| 01/07/2004 | 24 | 77 | 230 | 187 | 19 | 3 | 2 | n.a. |
| 01/01/2005 | 23 | 81 | 238 | 187 | 16 | 2 | 1 | n.a. |
| 01/07/2005 | 24 | 78 | 251 | 197 | 15 | 3 | 0 | n.a. |
| 01/01/2006 | 23 | 83 | 252 | 201 | 13 | 3 | 0 | n.a. |
| 01/07/2006 | 22 | 91 | 247 | 204 | 9 | 2 | 0 | n.a. |
| 01/01/2007 | 22 | 98 | 250 | 217 | 9 | 1 | 0 | n.a. |
| 01/07/2007 | 22 | 101 | 264 | 212 | 7 | 2 | 0 | n.a. |
| 01/01/2008 | 23 | 108 | 273 | 201 | 7 | 2 | 0 | n.a. |
| 01/07/2008 | 22 | 111 | 284 | 191 | 7 | 2 | 0 | n.a. |
| 01/01/2009 | 23 | 107 | 289 | 184 | 9 | 1 | 1 | n.a. |
| 01/07/2009 | 22 | 102 | 282 | 185 | 4 | 1 | 0 | n.a. |
| 01/01/2010 | 22 | 101 | 277 | 186 | 3 | 2 | 2 | n.a. |
| 01/07/2010 | 22 | 101 | 282 | 182 | 2 | 1 | 0 | n.a. |

Source: Joint Committee calculations based on CEREP data

Figure 9: Number of defaulted rated items

| Date | AAA | AA | A | BBB | BB | B | CCC-C | LD,D |
|---|---|---|---|---|---|---|---|---|
| 01/01/2001 | 0 | 0 | 1 | 1 | 0 | 1 | 4 | n.a. |
| 01/07/2001 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | n.a. |
| 01/01/2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n.a. |
| 01/07/2002 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | n.a. |
| 01/01/2003 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | n.a. |
| 01/07/2003 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | n.a. |
| 01/01/2004 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | n.a. |
| 01/07/2004 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | n.a. |
| 01/01/2005 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | n.a. |
| 01/07/2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n.a. |
| 01/01/2006 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | n.a. |
| 01/07/2006 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | n.a. |
| 01/01/2007 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | n.a. |
| 01/07/2007 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | n.a. |
| 01/01/2008 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | n.a. |
| 01/07/2008 | 0 | 0 | 0 | 7 | 2 | 1 | 0 | n.a. |
| 01/01/2009 | 0 | 0 | 0 | 4 | 2 | 1 | 0 | n.a. |
| 01/07/2009 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | n.a. |
| 01/01/2010 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | n.a. |
| 01/07/2010 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | n.a. |

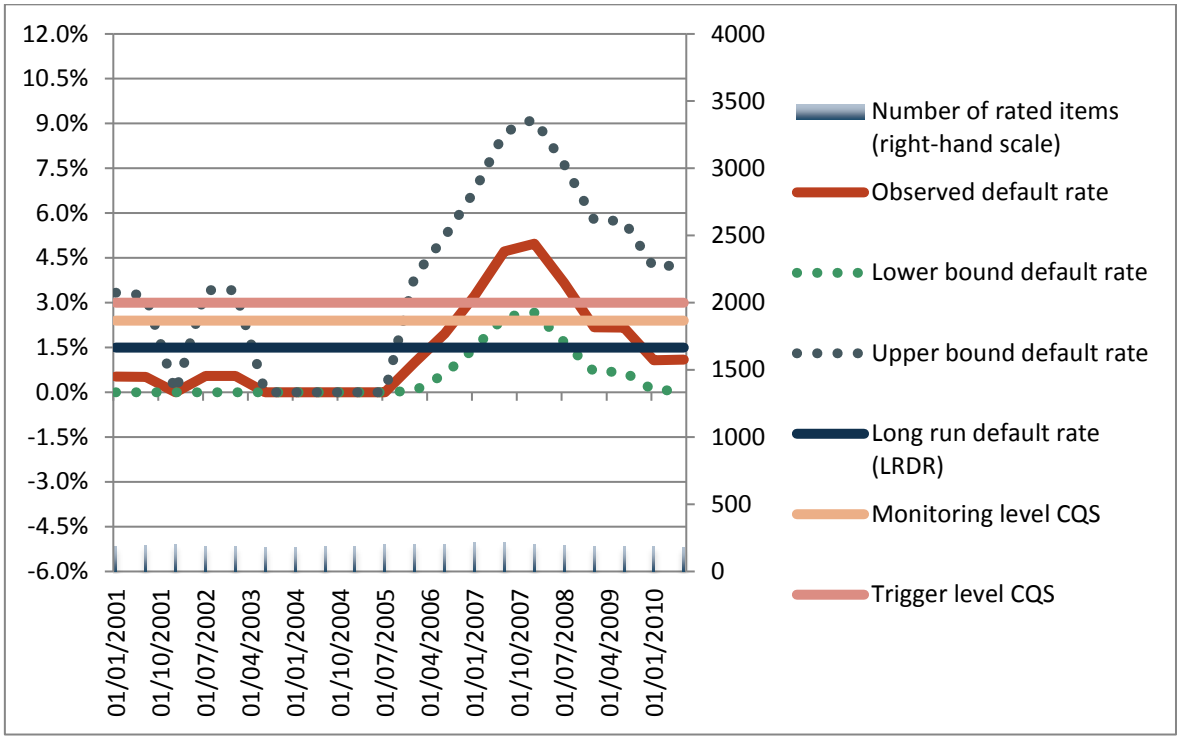
Source: Joint Committee calculations based on CEREP data

Figure 10: Short-run and long-run observed default rates

| Date | AAA | AA | A | BBB | BB | B | CCC-C | LD,D |
|---|---|---|---|---|---|---|---|---|
| 01/01/2001 | n.a. | n.a. | n.a. | 0.53 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2001 | n.a. | n.a. | n.a. | 0.52 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2002 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2002 | n.a. | n.a. | n.a. | 0.54 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2003 | n.a. | n.a. | n.a. | 0.54 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2003 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2004 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2004 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2005 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2005 | n.a. | n.a. | n.a. | 0.00 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2006 | n.a. | n.a. | n.a. | 1.00 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2006 | n.a. | n.a. | n.a. | 1.96 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2007 | n.a. | n.a. | n.a. | 3.23 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2007 | n.a. | n.a. | n.a. | 4.72 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2008 | n.a. | n.a. | n.a. | 4.98 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2008 | n.a. | n.a. | n.a. | 3.66 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2009 | n.a. | n.a. | n.a. | 2.17 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2009 | n.a. | n.a. | n.a. | 2.16 | n.a. | n.a. | n.a. | n.a. |
| 01/01/2010 | n.a. | n.a. | n.a. | 1.08 | n.a. | n.a. | n.a. | n.a. |
| 01/07/2010 | n.a. | n.a. | n.a. | 1.10 | n.a. | n.a. | n.a. | n.a. |
| **Weighted Average** | **n.a.** | **n.a.** | **n.a.** | **1.50** | **n.a.** | **n.a.** | **n.a.** | **n.a.** |

Source: Joint Committee calculations based on CEREP data

Figure 11: Short-run and long-run observed default rates of BBB rating category




Source: Joint Committee calculations based on CEREP data

Figure 12: Mapping proposal for rating categories with a non-sufficient number of credit ratings

| 2001 - 2005 | AAA/ AA | A | BBB | BB | B | CCC-C |
|---|---|---|---|---|---|---|
| CQS of equivalent international rating category | CQS 1 | CQS 2 | n.a. | CQS 4 | CQS 5 | CQS 6 |
| N. observed defaulted items | 0 | 1 | n.a. | 1 | 2 | 6 |
| Minimum N. rated items | 496 | 61 | n.a. | 19 | 13 | n.a. |
| Observed N. rated items | 1,015 | 2,177 | n.a. | 205 | 32 | 13 |
| **Mapping proposal** | **CQS1** | **CQS2** | **n.a.** | **CQS4** | **CQS5** | **CQS6** |

| 2006 - 2010 | AAA/ AA | A | BBB | BB | B | CCC-C |
|---|---|---|---|---|---|---|
| CQS of equivalent international rating category | CQS 1 | CQS 2 | n.a. | CQS 4 | CQS 5 | CQS6 |
| N. observed defaulted items | 0 | 0 | n.a. | 6 | 9 | 1 |
| Minimum N. rated items | 496 | 0 | n.a. | 59 | 36 | n.a. |
| Observed N. rated items | 1,226 | 2,700 | n.a. | 70 | 17 | 3 |
| **Mapping proposal** | **CQS1** | **CQS2** | **n.a.** | **CQS4** | **CQS6** | **CQS6** |

Source: Joint Committee calculations based on CEREP data

Figure 13: Transition matrix

3-year transition matrices, 9-year average (2001 - 2013)

| Rating end period | AAA | AA | A | BBB | BB | B | CCC-C | LD,D |
|---|---|---|---|---|---|---|---|---|
| **Rating start period** | | | | | | | | |
| **AAA** | 83.10 | 15.73 | 1.17 | 0 | 0 | 0 | 0 | 0 |
| **AA** | 0.77 | 89.80 | 8.42 | 1.01 | 0 | 0 | 0 | 0 |
| **A** | 0 | 4.80 | 89.39 | 5.60 | 0.15 | 0.04 | 0.02 | 0 |
| **BBB** | 0 | 0.33 | 13.24 | 83.09 | 2.32 | 0.27 | 0.27 | 0.48 |
| **BB** | 0 | 0 | 0.66 | 40.79 | 53.95 | 3.95 | 0 | 0.66 |
| **B** | 0 | 0 | 4.55 | 22.73 | 54.55 | 13.64 | 4.55 | 0 |
| **Below B** | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 |

Source: Joint Committee analysis based on CEREP data. Only items rated both at the beginning and at the end of the time horizon have been considered in the calculation.

1-year transition matrices, 11-year average (2001 - 2013)

| Rating end period | AAA | AA | A | BBB | BB | B | CCC-C | LD,D |
|---|---|---|---|---|---|---|---|---|
| **Rating start period** | | | | | | | | |
| **AAA** | 92.84 | 6.76 | 0.40 | 0 | 0 | 0 | 0 | 0 |
| **AA** | 0.36 | 95.97 | 3.49 | 0.18 | 0 | 0 | 0 | 0 |
| **A** | 0 | 1.70 | 95.89 | 2.33 | 0.05 | 0 | 0 | 0.03 |
| **BBB** | 0 | 0.04 | 4.62 | 92.75 | 1.97 | 0.19 | 0.09 | 0.34 |
| **BB** | 0 | 0 | 0 | 12.81 | 81.14 | 4.63 | 0.71 | 0.71 |
| **B** | 0 | 0 | 2.56 | 5.13 | 23.08 | 58.97 | 7.69 | 2.56 |
| **Below B** | 0 | 0 | 0 | 0 | 0 | 0 | 91.70 | 8.33 |

Source: Joint Committee analysis based on CEREP data. Only items rated both at the beginning and at the end of the time horizon have been considered in the calculation.

# Appendix 4: Mappings of each rating scale

Figure 14: Mapping of JCRA's Long-term issuer ratings scale

| Credit assessment | Initial mapping *based on LR DR* (CQS) | Review *based on SR DR* (CQS) | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| **AAA** | 1 | n.a. | **1** | The quantitative factors are representative of the final CQS. |
| **AA** | 1 | n.a. | **1** | |
| **A** | 2 | n.a. | **2** | The quantitative factors are representative of the final CQS. |
| **BBB** | 3 | 3 | **3** | The quantitative factors are representative of the final CQS. |
| **BB** | 4 | n.a. | **4** | The quantitative factors are representative of the final CQS. |
| **B** | n.a. | n.a. | **5** | Quantitative evidence is not clear. The meaning and relative position are representative of the final CQS. |
| **CCC** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |
| **CC** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |
| **C** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |
| **LD** | n.a. | n.a. | **6** | The meaning and relative position of the rating category is representative of the final CQS. |

| | | | | |
|---|---|---|---|---|
| **D** | n.a. | n.a. | **6** | The meaning and relative position of the rating category is representative of the final CQS. |

Figure 15: Mapping of JCRA Short-term issuer ratings scale

| Credit assessment | Corresponding Long-term issuer ratings scale assessment (established by JCRA) | Range of CQS of corresponding Long-term credit ratings scale | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| **J-1+** | **AAA/A+** | **1 - 2** | **1** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **J-1** | **A+/A-** | **2** | **2** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **J-2** | **A-/BBB-** | **2 – 3** | **3** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. As there is a draw between CQS 2 and 3, the most conservative CQS has been considered. |
| **J-3** | **BBB-/BB** | **3 - 4** | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **NJ** | **BB/C** | **4 – 6** | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4. |
| **LD** | **LD** | **6** | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4. |
| **D** | **D** | **6** | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4. |

Figure 16: Mapping of JCRA Long-term issue ratings scale

| Credit assessment | Corresponding Long-term issuer ratings scale assessment (assessed by JC) | Range of CQS of corresponding Long-term issuer ratings scale | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| **AAA** | **AAA** | **1** | **1** | |
| **AA** | **AA** | **1** | **1** | |
| **A** | **A** | **2** | **2** | |
| **BBB** | **BBB** | **3** | **3** | |
| **BB** | **BB** | **4** | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **B** | **B** | **5** | **5** | |
| **CCC** | **CCC** | **6** | **6** | |
| **CC** | **CC** | **6** | **6** | |
| **C** | C | 6 | **6** | |
| **D** | D | 6 | **6** | |

Figure 17: Mapping of JCRA Short-term issue credit ratings scale

| Credit assessment | Corresponding Short-term issuer credit ratings scale assessment (assessed by JC) | Range of CQS of corresponding Short-term issuer credit ratings scale | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| J-1+ | J-1+ | 1 | 1 | The final CQS has been determined based on the most frequent step associated with the corresponding short-term credit rating category. |
| J-1 | J-1 | 2 | 2 | |
| J-2 | J-2 | 3 | 3 | |
| J-3 | J-3 | 4 | 4 | |
| NJ | NJ | 4 | 4 | |
| D | D | 4 | 4 | |