
11 November 2015

Mapping of Capital Intelligence 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 Capital Intelligence (CI).
2. The methodology applied to produce the mapping is the one specified in the Implementing Technical Standards on the mapping of ECAIs’ credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013 (Capital Requirements Regulation – CRR). These ITS employ a combination of the provisions laid down in Article 136(2) of Regulation (EU) No 575/2013.
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 entity² nor should be understood as a comparison of the rating methodologies of CI with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of CI 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. As described in Recital 12 of the Implementing Technical Standards on the mapping of ECAIs’ credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013, in order to avoid causing undue material disadvantage on those ECAIs which, due to their more recent entrance in the market, present limited quantitative information, with the view to balancing prudential with market concerns, two mappings apply for these ECAIs, with the first mapping for a limited period of three years. Both mappings should take into account quantitative and qualitative factors. Compared to the second mapping, the quantitative factors for deriving the first mapping should be relaxed. This solution would allow ECAIs which present limited

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.

quantitative information to enter the market and would positively stimulate them to collect a sufficient number of quantitative information.

5. In accordance with the previous paragraph for a subset of ECAs two mappings are applicable, one applicable until 31.12.2018 and one applicable from 01.01.2019. CI belongs to the subset of ECAs that are provided two mappings. Updates to the mapping should be made whenever this becomes necessary, including in relation to the mapping to be applied after the three years, to reflect quantitative information collected during the three year-period. Nevertheless, in the absence of such a review, for the ECAs that are provided two mappings the one applicable from 01.01.2019 shall operate after the three years phase-in period.
6. The resulting mapping tables have been specified in Annex III of the Implementing Technical Standards on the mapping of ECAs' 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 CI, the International long-term issuer rating scale, displaying the mapping applicable until 31.12.2018 and the one applicable starting from 01.01.2019.

Figure 1: Mapping of CI's International long-term issuer credit rating scale

Credit assessment	Credit quality step	
	Applicable until 31.12.2018	Applicable from 01.01.2019
AAA	1	2
AA	1	2
A	2	2
BBB	3	3
BB	4	4
B	5	5
C	6	6
RS	6	6
SD	6	6
D	6	6

2. Introduction

7. This report describes the mapping exercise carried out by the Joint Committee (JC) to determine the 'mapping' of the credit assessments of Capital Intelligence (CI).
8. CI is a credit rating agency that has been registered with ESMA in 8 May 2012 and therefore meets the conditions to be an eligible credit assessment institution (ECAI)³. CI is a credit rating agency, headquartered in Cyprus, that provides credit analysis and independent rating opinions on financial institutions, corporates and governments located in Europe, the Middle East, Africa and Asia.
9. The methodology applied to produce the mapping is the one specified in the Implementing Technical Standards on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013 (Capital Requirements Regulation – CRR). These ITS employ a combination of the provisions laid down in Article 136(2) of Regulation (EU) No 575/2013. The information base used to produce the mapping is the same that has been employed when performing the first mapping proposal which was disclosed during the consultation period to these ITS. Two sources of information have been used. On the one hand, the quantitative and qualitative information available in ESMA Central Repository (CEREP⁴) 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, detailed information regarding the default definition and comparable data sets from benchmark ECAIs to evaluate the comparability of CI's definition of default.
10. The following sections describe the rationale underlying the mapping exercise carried out by the Joint Committee (JC) to determine the mappings for both the applicable time periods. With respect to the quantitative requirements used to perform the mappings, in case of ECAIs for which limited quantitative information is available the same methodology has been applied across the two applicable time periods, although with two different levels of prudence. Section 3 describes the relevant ratings scales of CI's for the purpose of the mapping. Section 4 contains the methodology applied to derive the mapping of CI's main rating 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 CI 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://cerrep.esma.europa.eu/cerep-web/>.

3. CI credit ratings and rating scales

11.CI 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**, defined as a summary of an entity's overall creditworthiness and its ability and willingness to meet its financial obligations as they come due. Ratings assigned to an entity are comparable across international borders. Long-term issuer ratings assess the time period of more than year.
- **Long-term issue ratings**, defined as an opinion of an entity's ability and willingness to honour its financial obligations with respect to a specific bond or other debt instrument. A long-term issue rating is assigned to debt instruments with an original maturity of more than one year.
- **Short-term issuer ratings**, defined as long-term issuer ratings, with the only difference that short-term issuer ratings assess the time periods of up to one year.
- **Short-term issue ratings**, defined as long-term issue ratings, with the only difference that a short-term issue rating is assigned to debt instruments with an original maturity of up to one year.

12.CI 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:

- **International long-term issuer rating scale**. The specification of this rating scale is described in Figure 3 of Appendix 1.
- **International long-term issue rating scale**. The specification of this rating scale is described in Figure 4 of Appendix 1.
- **International short-term issuer rating scale**. The specification of this rating scale is described in Figure 5 of Appendix 1.
- **International short-term issue rating scale**. The specification of this rating scale is described in Figure 6 of Appendix 1.

13.The mapping of the International long-term issuer rating 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 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.

14. The mapping of the International short-term issuer rating scale is explained in Section 5 and it has been indirectly derived from the mapping of the International long-term issuer ratings scale and the internal relationship established by CI between these two scales, as specified in Article 13 of the ITS. This internal relationship is shown in Figure 7 of Appendix 1.

15. The indirect mapping approach described in the previous paragraph has also been applied in the case of the other long-term and short-term issue rating scales, as explained in Section 6. In these cases, however, the relationship with the Long-term issuer rating scale (or Short-term issuer rating 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 CI's International long-term issuer rating scale

16. The mapping of the International long-term issuer rating 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.

17. 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.

18. 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

19. 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 and C as 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 the Articles 3 – 5 of the ITS since the number of rated items is below the required minimum. As a result, the allocation of the CQS for these rating categories has

been made in accordance with Article 6 of the ITS, as shown in Figure 14 and Figure 15 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 RS, SD and D rating categories, no calculation of default rates has been made since they already reflect a 'default' situation.
- For BBB, BB and B rating categories, 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 ITS⁶. 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.

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

21. The default definition applied by CI, 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

22. As illustrated in the second column of Figure 18 and Figure 19 in Appendix 4, the rating categories BBB, BB and B of the Long-term issuer rating scale of CI have been initially allocated to CQS 3, CQS 2 and CQS 1 respectively based on the comparison of its long run default rate (see Figure 10 in Appendix 3) and the long run default rate benchmark intervals established in point (a) of Article 14 of the ITS.

23. In the case of rating categories AAA, AA, A, and 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. Therefore, the numbers of defaulted and non-defaulted rated items have been used together with the prior expectation of the equivalent rating category of the international rating scale. The results are shown in Figure 14 and Figure 15 of Appendix 3.

Mapping Tables applicable until 31.12.2018:

- **AAA/AA/A/C:** the number of rated items in each of these categories is equal or larger than the respective minimum required number of observed items given the number of defaulted items in the rating category. Thus the credit quality steps associated with the AAA/AA, A and C rating categories in the international rating scale (CQS 1, CQS 2, and CQS 6 respectively) can be assigned.

Mapping Tables applicable starting from 01.01.2019:

⁶ In the case of categories BB and B, the perceived risk profile considered to assess the sufficiency of ratings is given by the long run benchmark underlying their homonymous categories in the international rating scale, i.e. 7.50% and 20.00% respectively.

- **AAA/AA:** the number of rated items in these categories is below the minimum required number of observed items so that the credit quality step associated with the AAA/AA rating categories in the international rating scale (CQS 1) cannot be assigned. Therefore, the proposed credit quality step for these rating categories is CQS 2.
- **A/C:** the number of rated items in each of these categories is equal or larger than the respective minimum required number of observed items given the number of defaulted items in the rating category. Thus the credit quality steps associated with the A and C rating categories in the international rating scale (CQS 2 and CQS 6 respectively) can be assigned.

4.1.3. Reviewed mapping based on the short run default rates

24.As shown in Figure 11 to Figure 13 in Appendix 3, the short run default rates of rating categories BBB, BB and B have been compared with the short run default rate benchmark values established in point (b) of Article 14 of the ITS⁷.

25.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.

26.The result of this comparison can be found in the third column of Figure 18 and Figure 19 in Appendix 4:

- In the case of BBB rating category, the short run default rates have breached the monitoring level of default rates in 2008 and 2010. However the lower limit of the 95% confidence intervals did not reach the monitoring level. Therefore, no material and systemic breach of the monitoring/trigger levels has been observed and the initial mapping based on the long run default rate is confirmed at this stage.
- In the case of BB and B rating categories, the short run default rates have only occasionally breached the monitoring levels. 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

27.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

⁷ For all other rating categories except BBB, BB and B, the number of credit ratings cannot be considered to be sufficient and therefore no calculation of the short run default rate has been made. In the case of rating categories CCC to C, the review of the short run default rates is not necessary since they have been mapped to CQS6.

default behavior⁸, or where quantitative evidence is sufficient but does not reflect the expected risk profile underlying a rating category.

28. The **definition of default** applied by CI 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 consistent with the benchmark definition specified in Article 4(4) of the ITS. Regulatory supervision category (RS) is consistent with letter (d) of the benchmark definition, the Selective default category (SD) is consistent with letters (a), (b), and (c), while Default category (D) is consistent with letter (c) of the benchmark definition.
- There is no sufficient information to assess CI's definition of default by estimating the share of bankruptcy-related events. However, a comparison of CI default rates with the default rates of benchmark ECAs shown in Figure 16 of Appendix 3 indicates that the default definition of CI might be, at least, equally strict.

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

29. Regarding the **meaning and relative position of the credit assessments**, they are aligned with the initial mapping proposal resulting from the quantitative factors in case of the Mapping Tables applicable until 31.12.2018, except for the following rating categories: in the case of BB and B, this factor suggests that they should be assigned to CQS 4 and CQS 5 respectively, significantly different from the mapping proposed under the quantitative framework. Since Article 120(1) in Regulation No 575/2013 already assigns a preferential (lower) risk weight to the primary type of firms rated by CI (i.e. credit institutions), it is considered more appropriate to propose the mapping based on this qualitative factor instead of the one stemming from the calculation of the quantitative factor.

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

For the mapping Tables applicable starting from 01.01.2019, this factor would also suggest that the AAA and AA rating categories should be assigned CQS 1 according to the reference definitions established in Annex II ITS. However, since the quantitative evidence points to CQS 2 due to lack of sufficient rated items, no specific adjustment has been proposed based on this factor for these categories.

30. Regarding the **time horizon** reflected by the rating category, CI's rating methodology focuses on the long-term, especially in the high-quality categories. This is confirmed by the stability of the rated items in these categories by the end of the 3-year time horizons shown in Figure 17

⁸ 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.

of Appendix 3, with values close to 95% for AA and 80% for A and BBB rating categories over the 2000 – 2013 period. Therefore, the mapping proposal is reinforced.

31. 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 all rating categories under Article 6 of the ITS.

5. Mapping of CI's Short-Term issuer rating scale

32. CI also produces short-term issuer ratings and assigns them to the Short-term issuer rating 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 CI 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 CI.

33. 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 rating category has been determined based on the most frequent CQS assigned to the related long-term 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. Given that CI belongs to the set of ECAs that are provided two mappings for the Long-term scale, the Short-term scale has been also derived for the two applicable time periods on the basis of former scale mappings.

34. The results are shown in Figure 20 and Figure 21 of Appendix 4.

Mapping Tables applicable until 31.12.2018:

- **A-1+.** This rating category implies a particularly strong credit profile within those institutions with the highest capacity for timely repayment of short-term financial obligations that is extremely unlikely to be affected by unexpected adversities. It is internally mapped to long-term categories AAA to AA-, which are mapped to CQS 1. Therefore, CQS 1 is the proposed mapping.
- **A-1.** This rating category implies highest capacity for timely repayment of short-term financial obligations that is extremely unlikely to be affected by unexpected adversities. It is internally mapped to the long-term category AA- and A-, which are mapped to CQS 2. Therefore, CQS 2 is the proposed mapping.
- **A-2.** This rating category indicates very strong capacity for timely repayment but may be affected slightly by unexpected adversities. It is internally mapped to long-term categories

A- to BBB, which are mapped to CQS 2 and 3. Since the long-term categories are mapped mostly to CQS 3, CQS 3 is the proposed mapping.

- **A-3.** This rating category indicates a strong capacity for timely repayment that may be affected by unexpected adversities. It is internally mapped to long-term categories BBB to BBB-, which are mapped to CQS 3. Therefore, CQS 3 is the proposed mapping.
- **B.** This rating category implies an adequate capacity for timely repayment that could be seriously affected by unexpected adversities. It is internally mapped to long-term categories BB+ to B-, which are mapped to CQS 4 to 5. 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 B rating category is CQS 4.
- **C.** This rating category indicates an inadequate capacity for timely repayment if unexpected adversities are encountered in the short term. It is internally mapped to long-term category C, which is 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 B rating category is CQS 4.
- **RS.** This category indicates that the obligor is under the regulatory supervision of the authorities due to its weak financial condition with a high likelihood of default. It corresponds to the RS category of the long-term issuer rating, which is 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 C rating category is CQS 4.
- **SD.** This category indicates that the obligor has failed to service one or more financial obligations but will continue honouring other financial commitments in a timely manner. It corresponds to the SD category of the long-term issuer rating, which is 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 C rating category is CQS 4.
- **D.** This category indicates that the obligor has defaulted on all, or nearly all, of its financial obligations. It corresponds to the D category of the long-term issuer rating, which is 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 C rating category is CQS 4.

Mapping Tables applicable starting from 01.01.2019:

- **A-1+.** This rating category implies a particularly strong credit profile within those institutions with the highest capacity for timely repayment of short-term financial obligations that is extremely unlikely to be affected by unexpected adversities. It is internally mapped to long-term categories AAA to AA-, which are mapped to CQS 2. Therefore, CQS 2 is the proposed mapping.

- **A-1 to D.** The conclusions and mapping proposals for these rating categories are equivalent to the ones described for the Mapping Tables applicable until 31.12.2018.

6. Mapping of other CI credit rating scales

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

36. 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.

37. Given that CI belongs to the set of ECAs that are provided two mappings for the Long-term and Short-term scales, in turn the mappings for the other CI scales have been also derived for the two applicable time periods on the basis of former scale mappings. The results are shown in Figure 22, Figure 23, Figure 24 and Figure 25 of Appendix 4:

- **International long-term issue rating 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 22 and Figure 23 of Appendix 4.
- **International short-term issue 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 24 and Figure 25 of Appendix 4.

Appendix 1: Credit ratings and rating scales

Figure 2: CI'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 issuer rating	International long-term issuer rating scale
Institutions	Long-term issuer rating	International long-term issuer rating scale
	Long-term issue rating	International long-term issue rating scale
Corporates	Long-term issuer rating	International long-term issuer rating scale
	Long-term issue rating	International long-term issue rating scale
Short-term ratings		
Central governments/ Central banks	Short-term issuer rating	International short-term issuer rating scale
Institutions	Short-term issuer rating	International short-term issuer rating scale
	Short-term issue rating	International short-term issue rating scale
Corporates	Short-term issuer rating	International short-term issuer rating scale
	Short-term issue rating	International short-term issue rating scale

Source: CI

Figure 3: International long-term issuer rating scale

Credit assessment	Meaning of the credit assessment
AAA	The highest credit quality. Exceptional capacity for timely fulfilment of financial obligations and most unlikely to be affected by any foreseeable adversity. Extremely strong financial condition and very positive non-financial factors.
AA	Very high credit quality. Very strong capacity for timely fulfilment of financial obligations. Unlikely to have repayment problems over the long term and unquestioned over the short and medium terms. Adverse changes in business, economic and financial conditions are unlikely to affect the institution significantly.
A	High credit quality. Strong capacity for timely fulfilment of financial obligations. Possesses many favourable credit characteristics but may be slightly vulnerable to adverse changes in business, economic and financial conditions.
BBB	Good credit quality. Satisfactory capacity for timely fulfilment of financial obligations. Acceptable credit characteristics but some vulnerability to adverse changes in business, economic and financial conditions. Medium grade credit characteristics and the lowest investment grade category.
BB	Speculative credit quality. Capacity for timely fulfilment of financial obligations is vulnerable to adverse changes in internal or external circumstances. Financial and/or non-financial factors do not provide significant safeguard and the possibility of investment risk may develop.
B	Significant credit risk. Capacity for timely fulfilment of financial obligations is very vulnerable to adverse changes in internal or external circumstances. Financial and/or non-financial factors provide weak protection; high probability for investment risk exists.
C	Substantial credit risk is apparent and the likelihood of default is high. Considerable uncertainty as to the timely repayment of financial obligations. Credit is of poor standing with financial and/or non-financial factors providing little protection.
RS	Regulatory supervision (this rating is assigned to financial institutions only). The obligor is under the regulatory supervision of the

Credit assessment

Meaning of the credit assessment

authorities due to its weak financial condition. The likelihood of default is extremely high without continued external support.

SD

Selective default. The obligor has failed to service one or more financial obligations but CI believes that the default will be restricted in scope and that the obligor will continue honouring other financial commitments in a timely manner.

D

The obligor has defaulted on all, or nearly all, of its financial obligations.

Source: CI

Figure 4: International long-term issue rating scale

Credit assessment	Meaning of the credit assessment
AAA	Bonds and financial obligations that are rated AAA are considered to be of the highest quality. They carry the smallest degree of investment risk. Interest payments are protected by a significant and exceptionally stable margin, and principal is extremely secure. There are unlikely to be significant changes in the various protective elements. In any case, such possible changes are very unlikely to weaken the fundamentally strong position of such issues.
AA	Bonds and financial obligations that are rated AA are considered to be of very high quality by all criteria. These are high-grade instruments, but are rated lower than AAA instruments as the elements of protection may not be as large and there may be slightly greater fluctuation within the margin of protection. The overall risk is slightly greater than for AAA obligations.
A	Bonds and financial obligations that are rated A exhibit many positive investment characteristics and are classed as upper- to medium-grade investment quality. Various factors giving protection to principal and interest are considered very sound, but certain components may be evident which indicate future potential impairment.
BBB	Bonds and financial obligations that are rated BBB are regarded as medium-grade. These securities are neither highly nor lowly protected. Both interest payments and principal security are currently adequate but certain protective elements may be missing or may be slightly more unreliable over the longer-term. Obligations rated BBB do not display very strong investment characteristics. The obligations form the lowest investment grade level and some may possibly possess speculative characteristics.
BB	Bonds and financial obligations that are rated BB are below investment grade and possess speculative characteristics. There is some uncertainty in the longer-term future of these instruments. The protection of interest and principal is likely to be very moderate and thereby not well cushioned during both favourable and unfavourable conditions in the future.
B	Bonds and financial obligations that are rated B generally do not possess attractive investment characteristics. The certainty of interest and principal payments, or of maintenance of other terms of the contract, over the long term, is limited.

CCC	Bonds and financial obligations that are rated CCC are of poor standing. Such issues are vulnerable to default, with significant uncertainty with respect to the payment of principal or interest.
CC	Bonds and financial obligations that are rated CC are highly speculative. Such issues are highly vulnerable to default or have other substantial weaknesses.
C	Bonds and financial obligations that are rated C are of low class. Such issues are regarded as possessing extremely poor prospects and are extremely vulnerable to non-payment.
D	The issue is in payment default. Interest or principal payments are not made on the due date.

Source: CI

Figure 5: International short-term issuer rating scale

Credit assessment	Meaning of the credit assessment
A-1	Superior credit quality. Highest capacity for timely repayment of short-term financial obligations that is extremely unlikely to be affected by unexpected adversities. Institutions with a particularly strong credit profile have a “+” affixed to the rating.
A-2	Very strong capacity for timely repayment but may be affected slightly by unexpected adversities.
A-3	Strong capacity for timely repayment that may be affected by unexpected adversities.
B	Adequate capacity for timely repayment that could be seriously affected by unexpected adversities.
C	Inadequate capacity for timely repayment if unexpected adversities are encountered in the short term.
RS	Regulatory supervision (this rating is assigned to financial institutions only). The obligor is under the regulatory supervision of the authorities due to its weak financial condition. The likelihood of default is extremely high without continued external support.
SD	Selective default. The obligor has failed to service one or more financial obligations but CI believes that the default will be restricted in scope and that the obligor will continue honouring other financial commitments in a timely manner.
D	The obligor has defaulted on all, or nearly all, of its financial obligations

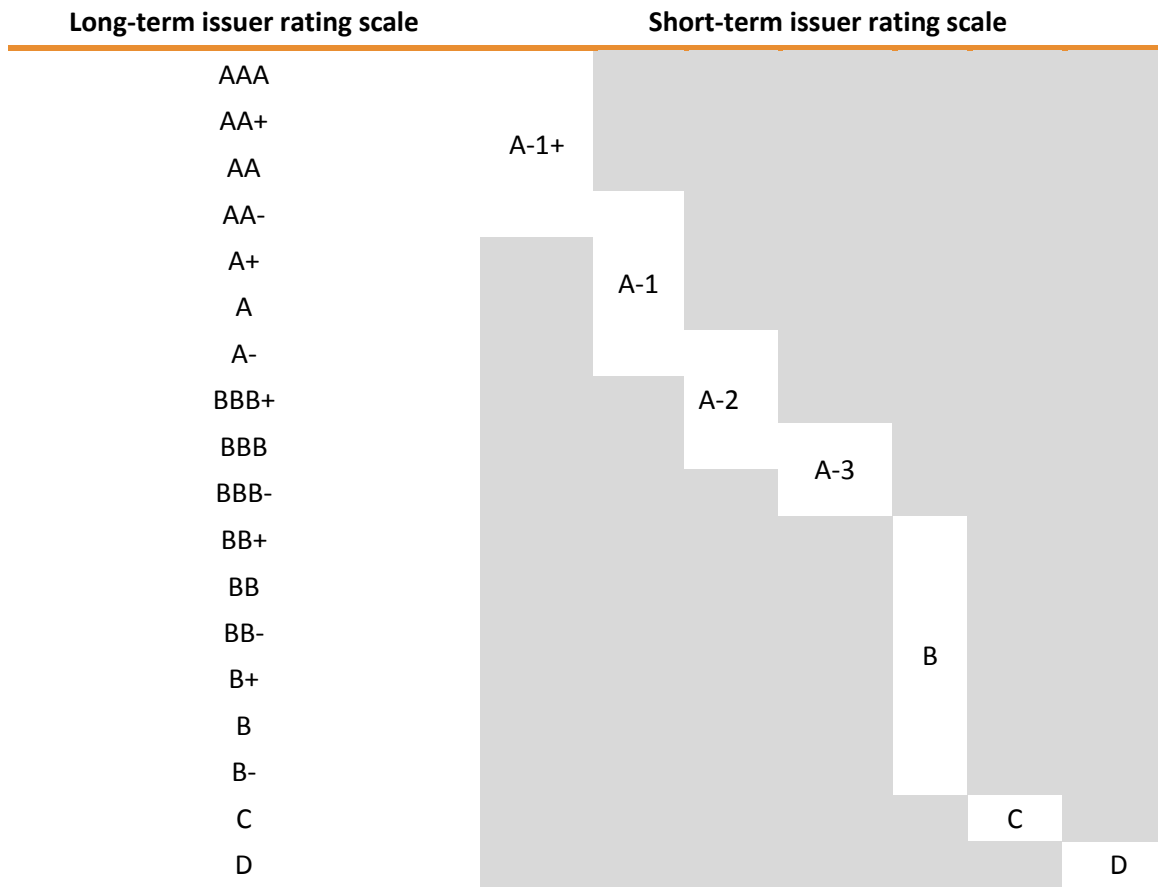
Source: CI

Figure 6: International short-term issue rating scale

Credit assessment	Meaning of the credit assessment
A-1	The highest short-term rating assigned. Issues are considered to have the highest capacity for timely repayment of short-term financial obligations. The issues in this category exhibit extremely strong protection factors. Interest payments and principal are safeguarded by a wide margin. Issues with a particularly strong profile have a "+" affixed to the rating.
A-2	The capacity for timely repayment of interest and principal is high. The issue and/or the issuer possess highly favourable characteristics and protection factors are good.
A-3	Satisfactory capacity for repayment of interest and principal. However, issues in this category are more vulnerable to adverse changes in business, economic and financial conditions. Protection factors are adequate but not as strong or certain as obligations in the higher short-term rating classifications.
B	Speculative capacity for timely repayment of interest and principal. The timely repayment of obligations is vulnerable to adverse changes, and protection factors are not high.
C	Doubtful capacity for timely repayment of interest and principal. Default risk is high.
D	The issue is in payment default. Interest or principal payments are not made on the due date.

Source: CI

Figure 7: Internal relationship between CI's long-term and short-term issuer rating scales



Source: CI

Appendix 2: Definition of default

Capital Intelligence considers a default to have occurred when:

- a) An issuer or obligor fails to pay a material sum of principal and/or interest on a financial obligation in accordance with its terms;
- b) An issuer files for bankruptcy or similar protection from creditors – unless there is reason to believe that debt service payments will continue to be made in a timely manner;
- c) An issuer restructures, reschedules, exchanges or in some other way renegotiates a debt instrument and the following apply
 - i. There is an adverse change to the terms of the original debt agreement; AND
 - ii. The renegotiation or exchange is considered by Capital Intelligence to be distressed or coercive.

Adverse changes to the terms of the original debt agreement may include the following:

- A reduction in the principal amount or coupon/ interest rate.
- An extension of the maturity date or loan tenor.
- A reduction in seniority or a substantial weakening of covenants.
- A cash tender for less than par.
- A decrease in the frequency of payments (e.g. to bullet from amortising).
- Swapping debt for equity or hybrid instruments.

A debt renegotiation or exchange is deemed to be distressed or coercive when one or more of the following apply:

- The issuer would, in CI's opinion, be unable to honour its obligations under the original debt agreement due to its weak financial position.
- The issuer is unwilling to honour its obligations to those investors who choose not to participate in the renegotiations or exchange offer.
- The issuer threatens, explicitly or implicitly, to miss payments, weaken the governing indenture or to seek bankruptcy should the terms of its proposal or exchange offer not be accepted.

Source: CI

Appendix 3: Default rates of each rating category

Figure 8: Number of rated items

Date	AAA	AA	A	BBB	BB	B	C	RS,SD,D
01/01/2001	0.0	1	37	112	141	31	16	0
01/07/2001	0.0	2	36	115	130	38	21	0
01/01/2002	0.0	2	36	115	112	50	19	0
01/07/2002	0.0	2	36	118	97	55	19	0
01/01/2003	0.0	2	39	112	86	61	14	0
01/07/2003	0.0	2	40	118	81	59	14	0
01/01/2004	0.0	2	40	113	81	59	13	0
01/07/2004	0.0	2	44	115	82	62	2	0
01/01/2005	0.0	2	46	115	75	59	2	0
01/07/2005	0.0	3	47	116	76	57	1	0
01/01/2006	0.0	3	51	107	92	40	1	0
01/07/2006	0.0	3	54	105	92	37	2	0
01/01/2007	0.0	3	65	98	87	38	1	0
01/07/2007	0.0	4	67	113	68	37	1	0
01/01/2008	0.0	9	66	111	63	38	0	0
01/07/2008	0.0	10	70	111	71	29	0	0
01/01/2009	0.0	13	68	110	69	29	0	0
01/07/2009	0.0	13	68	107	66	27	0	0
01/01/2010	0.0	12	65	108	64	28	0	0
01/07/2010	0.0	12	55	118	64	27	0	0

Source: Joint Committee calculations based on CERP data

Figure 9: Number of defaulted rated items

Date	AAA	AA	A	BBB	BB	B	C	RS,SD,D
01/01/2001	0	0	0	2	0	0	0	0
01/07/2001	0	0	0	1	1	0	0	0
01/01/2002	0	0	0	1	1	0	0	0
01/07/2002	0	0	0	0	1	1	0	0
01/01/2003	0	0	0	0	0	0	1	0
01/07/2003	0	0	0	0	0	0	0	0
01/01/2004	0	0	0	0	0	0	0	0
01/07/2004	0	0	0	1	0	0	0	0
01/01/2005	0	0	0	1	0	0	0	0
01/07/2005	0	0	0	1	0	0	0	0
01/01/2006	0	0	0	0	1	0	0	0
01/07/2006	0	0	0	2	0	0	1	0
01/01/2007	0	0	0	2	0	0	0	0
01/07/2007	0	0	0	2	0	0	0	0
01/01/2008	0	0	0	3	0	0	0	0
01/07/2008	0	0	0	3	0	0	0	0
01/01/2009	0	0	0	2	1	0	0	0
01/07/2009	0	0	0	0	0	0	0	0
01/01/2010	0	0	0	1	0	0	0	0
01/07/2010	0	0	1	3	0	0	0	0

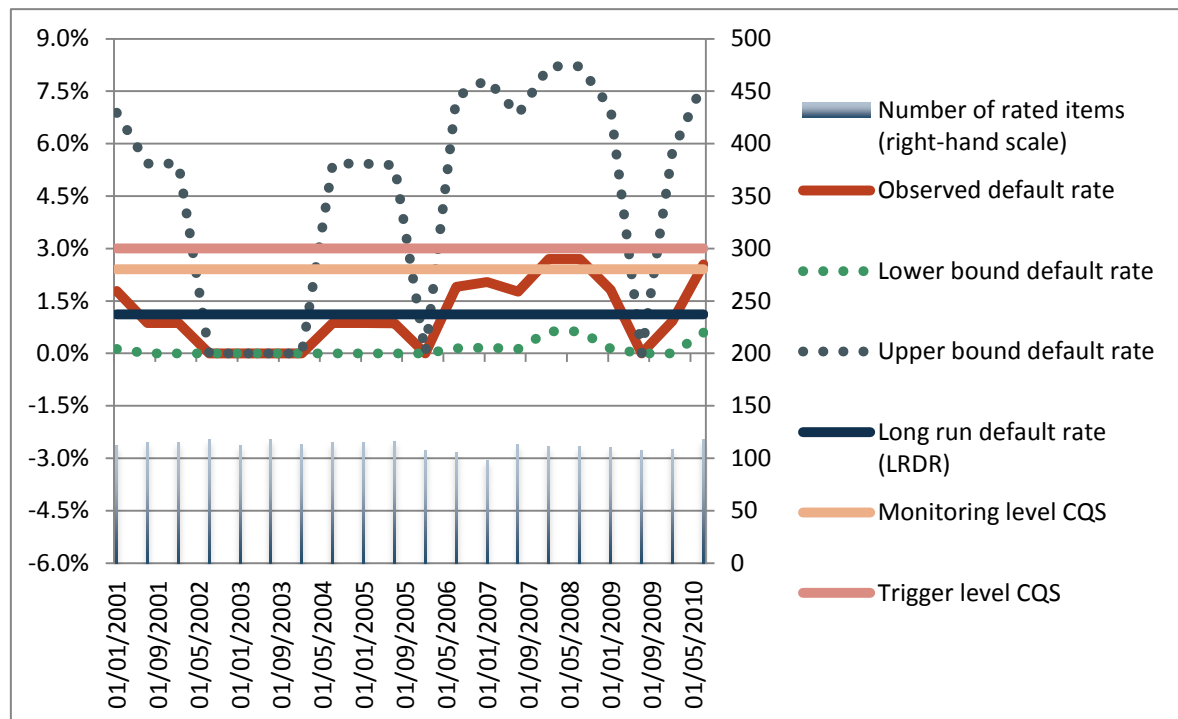
Source: Joint Committee calculations based on CERP data

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

Date	AAA	AA	A	BBB	BB	B	C	RS,SD,D
01/01/2001	n.a.	n.a.	n.a.	1.79	0.00	0.00	n.a.	n.a.
01/07/2001	n.a.	n.a.	n.a.	0.87	0.77	0.00	n.a.	n.a.
01/01/2002	n.a.	n.a.	n.a.	0.87	0.89	0.00	n.a.	n.a.
01/07/2002	n.a.	n.a.	n.a.	0.00	1.03	1.82	n.a.	n.a.
01/01/2003	n.a.	n.a.	n.a.	0.00	0.00	0.00	n.a.	n.a.
01/07/2003	n.a.	n.a.	n.a.	0.00	0.00	0.00	n.a.	n.a.
01/01/2004	n.a.	n.a.	n.a.	0.00	0.00	0.00	n.a.	n.a.
01/07/2004	n.a.	n.a.	n.a.	0.87	0.00	0.00	n.a.	n.a.
01/01/2005	n.a.	n.a.	n.a.	0.87	0.00	0.00	n.a.	n.a.
01/07/2005	n.a.	n.a.	n.a.	0.86	0.00	0.00	n.a.	n.a.
01/01/2006	n.a.	n.a.	n.a.	0.00	1.09	0.00	n.a.	n.a.
01/07/2006	n.a.	n.a.	n.a.	1.90	0.00	0.00	n.a.	n.a.
01/01/2007	n.a.	n.a.	n.a.	2.04	0.00	0.00	n.a.	n.a.
01/07/2007	n.a.	n.a.	n.a.	1.77	0.00	0.00	n.a.	n.a.
01/01/2008	n.a.	n.a.	n.a.	2.70	0.00	0.00	n.a.	n.a.
01/07/2008	n.a.	n.a.	n.a.	2.70	0.00	0.00	n.a.	n.a.
01/01/2009	n.a.	n.a.	n.a.	1.82	1.45	0.00	n.a.	n.a.
01/07/2009	n.a.	n.a.	n.a.	0.00	0.00	0.00	n.a.	n.a.
01/01/2010	n.a.	n.a.	n.a.	0.93	0.00	0.00	n.a.	n.a.
01/07/2010	n.a.	n.a.	n.a.	2.54	0.00	0.00	n.a.	n.a.
Weighted Average	n.a.	n.a.	n.a.	1.12	0.29	0.12	n.a.	n.a.

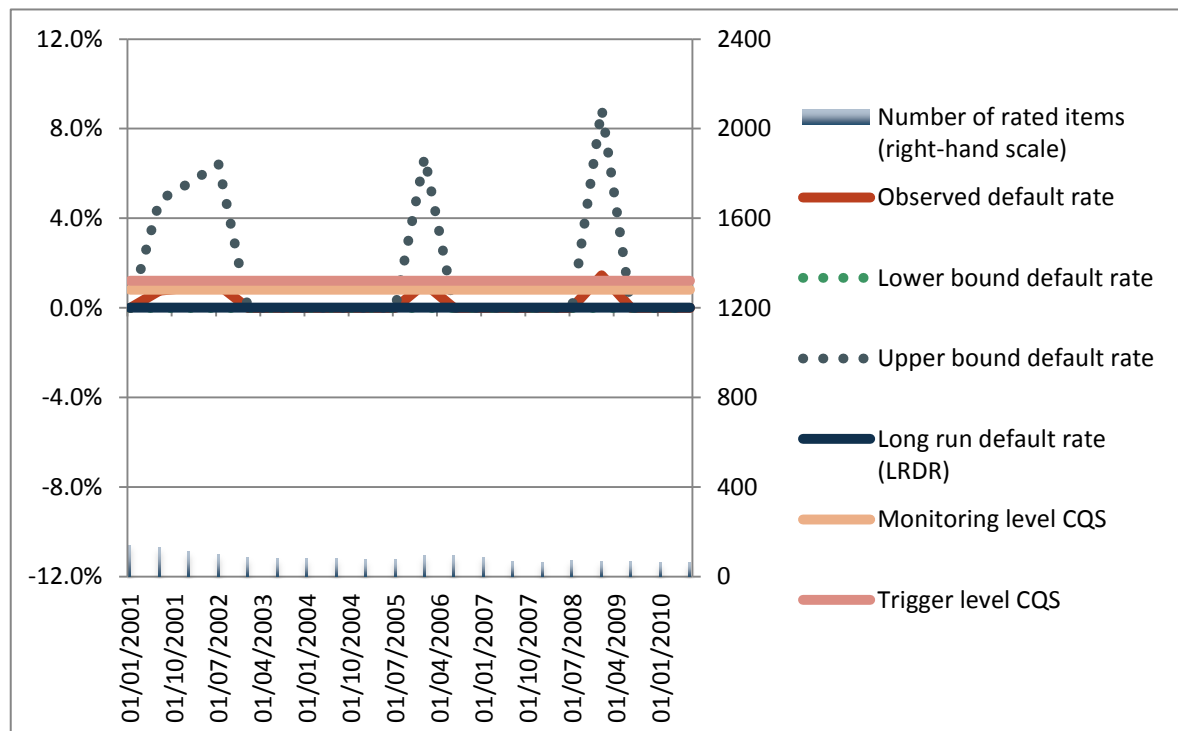
Source: Joint Committee calculations based on CEREP data

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



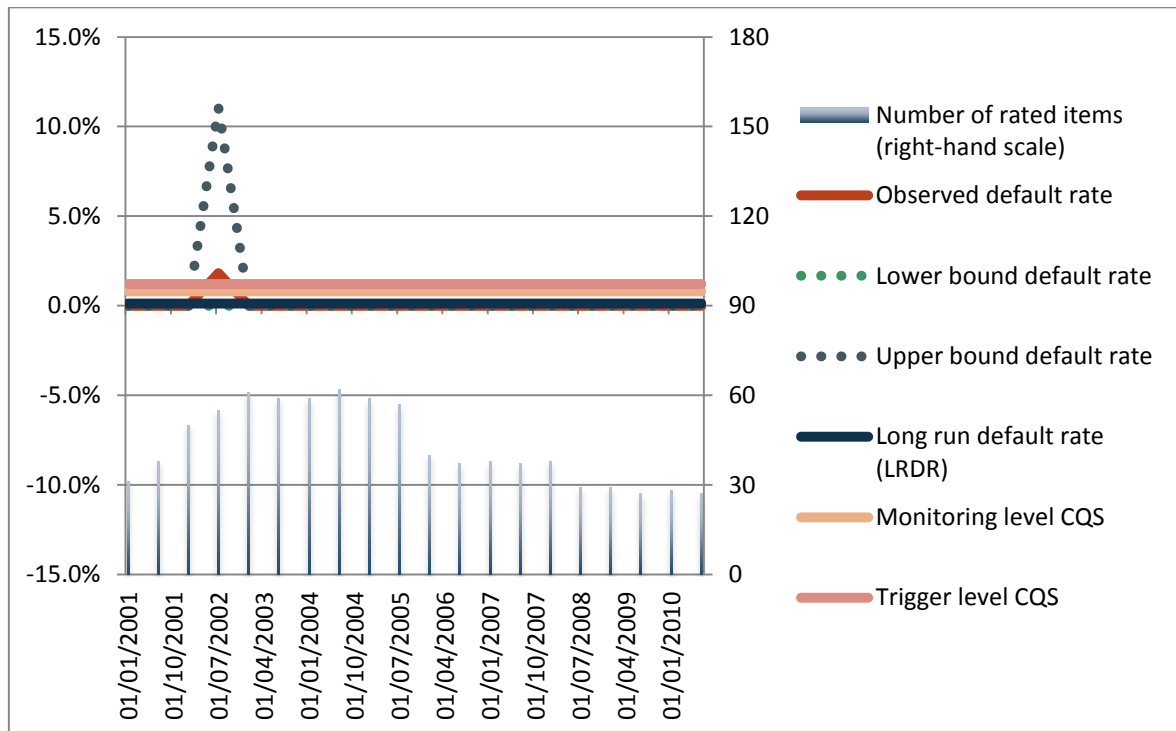
Source: Joint Committee calculations based on CERP data

Figure 12: Short-run and long-run observed default rates of BB rating category



Source: Joint Committee calculations based on CERP data

Figure 13: Short-run and long-run observed default rates of B rating category



Source: Joint Committee calculations based on CEREP data

Figure 14: Mapping proposal for rating categories with a non-sufficient number of credit ratings, applicable until 31.12.2018

2001 - 2010	AAA/AA	A	C
CQS of equivalent international rating category	CQS 1	CQS 2	CQS 6
N. observed defaulted items	0	0	2
Minimum N. rated items	0	0	n.a.
Observed N. rated items	102	1030	126
Mapping proposal	CQS 1	CQS 2	CQS 6

Figure 15: Mapping proposal for rating categories with a non-sufficient number of credit ratings, applicable starting from 01.01.2019

2001 - 2010	AAA/AA	A	C
CQS of equivalent international rating category	CQS 1	CQS 2	CQS 6
N. observed defaulted items	0	0	2
Minimum N. rated items	496	0	n.a.
Observed N. rated items	102	1030	126
Mapping proposal	CQS 2	CQS 2	CQS 6

Figure 16: Long-run default rates of Capital Intelligence and Benchmark ECAIs

Date	Capital Intelligence			Benchmark ECAIs		
	N. rated items	N. defaulted rated items	Default rate	N. rated items	N. defaulted rated items	Default rate
01/01/2001	337	2	0.59%	233	0	0.00%
01/07/2001	341	2	0.59%	330	0	0.00%
01/01/2002	332	2	0.60%	340	0	0.00%
01/07/2002	326	2	0.61%	351	0	0.00%
01/01/2003	313	1	0.32%	360	0	0.00%
01/07/2003	313	0	0.00%	368	0	0.00%
01/01/2004	307	0	0.00%	381	0	0.00%
01/07/2004	306	1	0.33%	400	0	0.00%
01/01/2005	297	1	0.34%	422	0	0.00%
01/07/2005	300	1	0.33%	436	0	0.00%
01/01/2006	292	1	0.34%	461	1	0.22%
01/07/2006	292	3	1.03%	473	1	0.21%
01/01/2007	291	2	0.69%	477	0	0.00%
01/07/2007	289	2	0.69%	500	3	0.60%
01/01/2008	286	3	1.05%	503	3	0.60%
01/07/2008	290	3	1.03%	515	3	0.58%
01/01/2009	288	3	1.04%	515	5	0.97%
01/07/2009	280	0	0.00%	504	4	0.79%
01/01/2010	276	1	0.36%	511	4	0.78%
01/07/2010	275	4	1.45%	516	7	1.36%
Overall	6031	34	0.56%	8596	31	0.36%

Note: S&P's, Moody's, Fitch, DBRS, and JCRA

Source: Joint Committee calculations based on CEREPA data

Figure 17: Transition matrix

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

Rating end period	AAA	AA	A	BBB	BB	B	CCC-C
Rating start period							
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	0.0	95.9	4.1	0.0	0.0	0.0	0.0
A	0.0	7.4	79.8	10.2	1.9	0.5	0.0
BBB	0.0	0.0	14.9	78.0	6.1	0.9	0.0
BB	0.0	0.0	0.2	27.2	67.2	5.2	0.1
B	0.0	0.0	0.0	1.1	32.2	65.9	0.5
CCC-C	0.0	0.0	0.0	0.0	6.9	84.5	8.6

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 matrix, 11-year average (2001 - 2013)

Rating end period	AAA	AA	A	BBB	BB	B	CCC-C
Rating start period							
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	0.0	96.2	3.9	0	0	0	0
A	0.0	2.2	93.5	3.8	0.3	0	0.2
BBB	0.0	0	4.5	92.0	3.2	0.2	0.2
BB	0.0	0	0	9.3	86.5	4.1	0.2
B	0.0	0	0	0	10.6	88.7	0.7
CCC-C	0.0	0	1.5	0.8	1.5	36.92	59.2

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 18: Mapping of CI's Long-term issuer rating scale, applicable until 31.12.2018

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	2	2	4	The meaning and relative position of the rating category is representative of the final CQS.
B	1	1	5	The meaning and relative position of the rating category is representative of the final CQS.
C	6	n.a.	6	The quantitative factors are representative of the final CQS.
RS	n.a.	n.a.	6	The meaning and relative position of the rating category is representative of the final CQS.
SD	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 19: Mapping of CI's Long-term issuer rating scale, applicable starting from 01.01.2019

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	2	n.a.	2	The quantitative factors are representative of the final CQS.
AA	2	n.a.	2	
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	2	2	4	The meaning and relative position of the rating category is representative of the final CQS.
B	1	1	5	The meaning and relative position of the rating category is representative of the final CQS.
C	6	n.a.	6	The quantitative factors are representative of the final CQS.
RS	n.a.	n.a.	6	The meaning and relative position of the rating category is representative of the final CQS.
SD	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 20: Mapping of CI's Short-term issuer rating scale, applicable until 31.12.2018

Credit assessment	Corresponding Long-term issuer rating scale (established by CI)	Range of CQS of corresponding Long-term issuer rating scale	Final review based on qualitative factors (CQS)	Main reason for the mapping
A-1+	AAA/AA-	1	1	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
A-1	AA-/A-	2	2	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
A-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.
A-3	BBB/BBB-	3	3	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
B	BB+/B-	4 - 5	4	The final CQS has been determined based on the range of steps associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4.
C	C	6	4	The final CQS has been determined based on the range of steps 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 range of steps 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 21: Mapping of CI's Short-term issuer rating scale, applicable starting from 01.01.2019

Credit assessment	Corresponding Long-term issuer rating scale (established by CI)	Range of CQS of corresponding Long-term issuer rating scale	Final review based on qualitative factors (CQS)	Main reason for the mapping
A-1+	AAA/AA-	2	2	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
A-1	AA-/A-	2	2	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
A-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.
A-3	BBB/BBB-	3	3	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
B	BB+/B-	4 - 5	4	The final CQS has been determined based on the range of steps associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4.
C	C	6	4	The final CQS has been determined based on the range of steps 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 range of steps 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 22: Mapping of CI's Long-term issue rating scale, applicable until 31.12.2018

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

D

D

6

6

Figure 23: Mapping of CI's Long-term issue rating scale, applicable starting from 01.01.2019

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

CC	CC	6	6
C	C	6	6
D	D	6	6

Figure 24: Mapping of CI's Short-term issue rating scale, applicable until 31.12.2018

Credit assessment	Corresponding Short-term issuer rating scale (assessed by JC)	Range of CQS of corresponding Short-term issuer rating scale	Final review <i>based on qualitative factors (CQS)</i>	Main reason for the mapping
A-1+	A-1+	1	1	The final CQS has been determined based on the most frequent step associated with the corresponding short-term issuer rating category.
A-1	A-1	2	2	
A-2	A-2	3	3	
A-3	A-3	3	3	
B	B	4	4	
C	C	4	4	
D	D	4	4	

Figure 25: Mapping of CI's Short-term issue rating scale, applicable starting from 01.01.2019

Credit assessment	Corresponding Short-term issuer rating scale (assessed by JC)	Range of CQS of corresponding Short-term issuer rating scale	Final review <i>based on qualitative factors (CQS)</i>	Main reason for the mapping
A-1+	A-1+	2	2	The final CQS has been determined based on the most frequent step associated with the corresponding short-term issuer rating category.
A-1	A-1	2	2	
A-2	A-2	3	3	
A-3	A-3	3	3	
B	B	4	4	
C	C	4	4	
D	D	4	4	