JOINT COMMITTEE OF THE EUROPEAN SUPERVISORY AUTHORITIES

30 October 2014

Mapping of AM Best Europe-Rating Services 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 AM Best Europe-Rating Services Ltd. (AMBERS).

2. The methodology applied to produce the mapping is a combination of the provisions laid down in Article 136(2) Regulation (EU) No 575/2013 (Capital Requirements Regulation – CRR) and those proposed in the Consultation paper on draft Implementing Technical Standards on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013 published on 5 February 2014 (draft ITS).

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 nor should be understood as a comparison of the rating methodologies of AMBERS with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of AMBERS 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 addendum to the draft ITS published today. Figure 1 below shows the result for the main ratings scale of AMBERS, the Long-term issuer ratings scale, together with a summary of the main reasons behind the mapping proposal for each rating category. The results for the remaining ratings scales can be found in Appendix 4 of this document.

[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).

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

Credit assessment	Credit quality step	Main reason
aaa	**1**	Quantitative evidence is not clear. The meaning, relative position and time horizon of the rating category are representative of the final CQS.
aa	**1**	
a	**2**	The quantitative factors are representative of the final CQS.
bbb	**3**	The quantitative factors are representative of the final CQS.
bb	**4**	The quantitative factors are representative of the final CQS.
b	**5**	The quantitative factors suggest CQS 4. However, the meaning and the relative position of the rating category are representative of the final CQS.
ccc	**6**	The quantitative factors suggest CQS 5. However, the meaning and the relative position of the rating category are representative of the final CQS.
cc	**6**	
c	**6**	
rs	**6**	The meaning and relative position of the rating category is representative of the final CQS.

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 AM Best Europe-Rating Services Ltd. (AMBERS).

6. AMBERS is a credit rating agency that has been registered with ESMA in 8 September 2011 and therefore meets the conditions to be an eligible credit assessment institution (ECAI)[2]. AMBERS provides insurance-related credit rating services in the European, Middle Eastern and African regions.

7. The methodology applied to produce the mapping is a combination of the provisions laid down in Article 136(2) CRR and those proposed in the Consultation paper on draft Implementing Technical Standards on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013 published on 5 February 2014 (draft ITS). Two sources of information have been used. On the one hand, the quantitative and qualitative information available in CEREP 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 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 a ratings database to complete the default rate calculation over the last economic cycle.

8. 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 nor should be understood as a comparison of the rating methodologies of AMBERS with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of AMBERS 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.

9. Section 3 describes the relevant ratings scales of AMBERS for the purpose of the mapping. Section 4 contains the methodology applied to derive the mapping of AMBERS' 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 addendum to the draft ITS published today.

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

3. AMBERS credit ratings and rating scales

10. AMBERS 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)[3]:

- **Long-term issuer credit ratings (ICR) for insurances**, defined as an independent opinion of an insurer's financial strength and ability to meet its ongoing senior financial obligations. These credit ratings do not address any other risk, including but not limited to liquidity risk, market value risk or price volatility of rated securities.

- **Long-term issuer credit ratings (ICR) for non-insurances**, defined as an independent opinion of an issuer's ability to meet its ongoing senior financial obligations. The rating is an opinion regarding the relative future credit risk of an entity, a credit commitment or a debt or debt-like security. It does not address any other risk, including but not limited to liquidity risk, market value risk or price volatility of rated securities.

- **Financial strength ratings (FSR)**, defined as an independent opinion of an insurer's financial strength and ability to meet its ongoing insurance policy and contract obligations. They are not assigned to specific insurance policies or contracts and do not address any other risk, including, but not limited to, an insurer's claims-payment policies or procedures; the ability of the insurer to dispute or deny claims payment on grounds of misrepresentation or fraud; or any specific liability contractually borne by the policy or contract holder.

- **Long-term debt ratings**, assigned to specific issues such as debt and preferred stock, is an independent opinion of an issuer's ability to meet its ongoing financial obligations to security holders when due. These credit ratings do not address any other risk, including but not limited to liquidity risk, market value risk or price volatility of rated securities.

- **Short-term debt ratings**, defined as an opinion as to the issuer's ability to meet its obligations having maturities generally less than one year. These ratings are assigned to securities such as commercial paper.

- **Short-term issuer credit ratings**, defined as an opinion as to the ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year. The list below outlines the specific ratings in this area along with the associated descriptions.

[3] As explained in recital 2 draft 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.

11. AMBERS 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 credit ratings scale.** The specification of this rating scale is described in Figure 3 (Insurance) and Figure 4 (Non-insurance) of Appendix 1.
- **Financial strength ratings scale.** The specification of this rating scale is described in Figure 5 of Appendix 1.
- **Long-term debt ratings scale.** The specification of this rating scale is described in Figure 6 of Appendix 1.
- **Short-term ratings scale.** The specification of this rating scale is described in Figure 7 of Appendix 1.

12. The mapping of the Long-term issuer credit 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 draft ITS.

13. The mapping of the Short-term ratings scale is explained in Section 5 and it has been indirectly derived from the mapping of the Long-term issuer credit ratings scale and the internal relationship established by AMBERS between these two scales, as specified in Article 14 of the draft ITS. This internal relationship is shown in Figure 9 of Appendix 1.

14. The indirect mapping approach described in the previous paragraph has also been applied In the case of the other long-term rating scales, as explained in Section 6. In these cases, however, the relationship with the Long-term issuer credit 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 AMBERS Long-term issuer credit ratings (ICR) scale

15. The mapping of the Long-term issuer credit ratings (ICR) 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. Figure 23 in Appendix 4 illustrates the outcome of each stage.

16. In the first stage, the quantitative factors referred to in Article 1 draft 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 Article 15(2) draft ITS.

- The *short run default rates* of a rating category have been compared with the benchmarks specified in Article 15(3) draft ITS, which represent the maximum expected deviation of a default rate from its long-term value within a CQS.

17. In a second stage, the qualitative factors proposed in Article 8 draft 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

18. The long run default rates of each rating category could not be calculated based on the information contained in CEREP[4] as a sufficient number of ratings and default data are not available to meet the requirements for the calculation of the short and long run default rates specified in the Articles 2 – 4 of the draft ITS.

19. However, AMBERS has provided extensive historical rating data of ‘Financial strength ratings’ for insurance companies (FSR), covering the time period 2000 - 2012. This dataset can be used to derive a mapping for the ‘Long-term issuer credit rating (ICR) scale’ due to the following two reasons:

   - A relationship between the FSR and the ICR can be established at the level of the rating letters (i.e. without modifiers). This relationship has been provided by AMBERS and is specified in Figure 8 of Appendix 1.

   - The percentage of non-insurance companies to which AMBERS has assigned an ICR is very small. Therefore the default experience of the insurance companies that have a financial strength rating should be highly representative for the default behavior of all customers rated by AMBERS with an ICR. This is confirmed by the comparison of default rates in CEREP for insurance companies and non-insurance companies, which are similar.

20. The short run and long run default rates of each ICR rating category have been calculated with the pools of items rated with the corresponding FSR from 1 January 2000 to 1 July 2010, based on the information according to the provisions laid down in the draft ITS. The following aspects should be highlighted:

   - For ‘aaa’ and ‘aa’ rating categories, the number of credit ratings (i.e. A++ and A+ FSRs) cannot be considered to be sufficient and therefore the calculation of the long run default rate has been made in accordance with Article 7 draft ITS, as shown in Figure 18 of Appendix 3. In these cases, the long run default rate benchmark associated with the

[4] CEREP is the central repository owned by ESMA to which all registered/certified CRAs have to report their credit assessments. Its specification can be found in http://cerep.esma.europa.eu/cerep-static-pub/Regulatory_Technical_Standards_CEREP.pdf

equivalent category in the international rating scale is a key qualitative factor that has been used for the mapping proposal.

- For ‘rs’ rating category, no calculation of default rates has been made since it already reflects a ‘default’ situation.

- For the remaining rating categories, the number of corresponding FSRs can be considered to be sufficient and therefore the calculation has followed the rules established in Articles 2 to 4 draft ITS. The result of the calculation of the short run and long run default rates for each ICR rating category is shown in Figure 10 to Figure 12 of Appendix 3[5]

21.The withdrawal adjustment proposed in Article 3(5) draft ITS has not been necessary, since AMBERS has been tracking defaults even after a withdrawal of a rating.

22.The default definition applied by AMBERS, described in Appendix 2, has been used for the calculation of default rates. More concretely, since it has been based on FSRs, a ‘financial impairment’ definition has been used.

4.1.2. Mapping proposal based on the long run default rate

23.As illustrated in the second column of Figure 23 in Appendix 4, the rating categories of the Long-term issuer credit ratings scale of AMBERS have been initially allocated to each CQS based on the comparison of the long run default rates (see Figure 12 in Appendix 3) and the long run default rate benchmark intervals established in Article 15(2) draft ITS.

24.In the case of rating categories ‘aaa’ and ‘aa’, where the number of credit ratings cannot be considered to be sufficient, this comparison has been made according to Article 7 draft ITS. The result, as shown in Figure 18 of Appendix 3, is not clear. When the analysis is done for the 2005h2 – 2010h1 period, the 15 defaults observed in these categories suggest a mapping to CQS 2. However, the analysis of the 2000h2 – 2005h1 period reveals that no defaults were observed during those years and that CQS 1 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

25.As shown in Figure 13 to Figure 16 in Appendix 3, the short run default rates of rating categories ‘a’ to ‘ccc-c’ have been compared with the short run default rate benchmark values established in Article 15(3) draft ITS[6].

[5] In the case of ‘aaa’ and ‘aa’ rating categories, the default rates have not been calculated because they not meet the sufficiency requirement in point b of Article 3(4) draft ITS. However, the number of rated items and defaulted items are shown for illustration purposes.

[6] For ‘aaa’ and ‘aa’ 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.

26.The objective is to assess, for each rating category, 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, the methodology specified in the explanatory box of Article 15 draft ITS has been implemented, what requires the calculation of confidence intervals for the short run default rates presented in the figures. The result of this comparison can be found in the third column of Figure 23 in Appendix 4.

- **'a':** no short run default rate has breached the monitoring level during the observation period. Therefore no material and systematic 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.

- **'bbb', 'bb', 'b' and 'ccc-c'**: the short run default rates have breached the monitoring level of default rates for several periods in the early 2000s, especially in the case of 'b'. except for 'bb', in all other cases the lower limit of the 95% confidence intervals also reached the monitoring level during these years, leading therefore to material breaches. However, they cannot be considered as systematic because they were not observed for at least 4 consecutive dates, and therefore the initial mapping based on the long run default rate is confirmed at this stage for all these rating categories.

4.2. Final mapping after review of the qualitative factors

27.The qualitative factors specified in Article 8 draft 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, as it is the case of 'aaa' and 'aa' rating categories.

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

- Since FSRs have been used in the calculation of the default rates, the concept of 'financial impairment' has been applied. As shown in Annex 2, this can be considered to be consistent with point (d) in Article 3(6) draft ITS since it relates to the first action taken by an insurance department or regulatory body on an insurance company.

- Additionally, the impairment rates of AMBERS have been compared to the default rates of a pool of insurance companies rated by S&P's under the assumption that S&P's default definition meets the requirements in Article 3(6) draft ITS. Using the quantitative evidence provided in Figure 19 to Figure 21, it can be concluded that the 'default' distribution of S&P's defaults among rating classes and over time is similar to the one of AMBERS.

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

29.Regarding **the meaning and relative position of the credit assessments**:

- In the case of rating categories 'aaa' and 'aa', where the quantitative evidence has been less conclusive, this factor suggests that both rating categories should be assigned CQS 1 according to the reference definitions established in Annex II draft ITS. Since the adjacent rating category ('a') has been mapped on the basis of quantitative information to CQS 2, it can be concluded that the proposed mapping for 'aaa' and 'aa' rating categories is CQS 1.

- In the case of rating category 'a', where the quantitative evidence was very close to CQS 1, its meaning and relative position confirm the proposed mapping to CQS 2.

- The meaning and relative position in the rating scale of 'b' and 'ccc-c' is consistent with the mapping of these rating categories to CQS 5 and 6 respectively. Although it contradicts the mapping proposal derived from the calculation of the default rates, this mapping is considered more appropriate to for prudential purposes.

- In the case of 'rs', its meaning is consistent with the one of CQS 6 stated in Annex II draft ITS.

30. Regarding the **time horizon** reflected by the rating category, AMBERS 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 1-year and 3-year time horizons shown in Figure 22 of Appendix 3, with values close to 95% and 85% respectively over the 2000 – 2013 period. Therefore, the mapping proposal of 'aaa' and 'aa' to CQS 1 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 'aaa' and 'aa' rating categories under Article 7 draft ITS.

5. Mapping of AMBERS Short-Term ratings scale

32. AMBERS also produces short-term credit ratings and assigns them to the Short-term issuer credit ratings scale (see Figure 7 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 draft ITS, the internal relationship established by AMBERS between these two rating scales (described in Figure 9 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 AMBERS.

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 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.

34.The result is shown in Figure 24 of Appendix 4:

- **AMB-1+.** This rating category indicates the strongest ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year. It is internally mapped to long-term categories ‘aaa’ to ‘a+’, which are predominantly mapped to CQS 1. Therefore, CQS 1 is the proposed mapping.

- **AMB-1.** This rating category indicates an outstanding ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year. It is internally mapped to long-term categories ‘a+’ to ‘a-‘, which are mapped to CQS 2. Therefore, CQS 2 is the proposed mapping.

- **AMB-2.** This rating category indicates a satisfactory ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year. It is internally mapped to long-term categories ‘a’ to ‘bbb’, which are mapped to CQS 2 and CQS3, respectively. As the mapping is done via a different rating scale and taking into account the meaning and relative position of the rating category the more conservative credit quality step has been chosen for AMB-2. Therefore, CQS 3 is the proposed mapping.

- **AMB-3.** This rating category indicates an adequate ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year. It is internally mapped to long-term categories ‘bbb’ and ‘bbb-‘, which are mapped to CQS 3. Therefore, CQS 3 is the proposed mapping.

- **AMB-4.** This rating category is designated as non-investment grade. It is internally mapped to long-term categories ‘bb+’ and below. 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.

6. Mapping of other AMBERS credit rating scales

35.As mentioned in Section 3, AMBERS 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 issuer credit ratings scale. More specifically, as each rating can be associated with one or a range of long-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.The results are shown in Figure 25 and Figure 26 of Appendix 4:

- **Financial strength ratings scale** (see Figure 5 in Appendix 1). The ratings of this rating scale and the close relationship with the long-term issuer credit ratings scale have been used to develop the mapping for the long-term issuer credit rating scale. Therefore the mapping for the financial strength rating can be derived by using the same relationship. The result of the mapping of this scale is shown in Figure 25 of Appendix 4.

- **Long-term debt ratings scale** (see Figure 6 in Appendix 1). The rating categories can be considered comparable to those of the Long-term issuer credit rating 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 26 of Appendix 4.

Appendix 1: Credit ratings and rating scales

Figure 2: AMBERS' relevant credit ratings and rating scales

SA exposure classes	Name of credit rating	Credit rating scale
Long-term ratings		
Corporates	Long-term issuer credit rating for insurances	Long-term issuer credit ratings scale
	Long-term issuer credit rating for non-insurances	Long-term issuer credit ratings scale
	Financial strength rating	Financial strength ratings scale
	Long-term debt rating	Long-term debt ratings scale
Short-term ratings		
Corporates	Short-term debt rating	Short-term ratings scale
	Short-term issuer credit ratings	Short-term ratings scale

Source: AMBERS

Figure 3: Long-term issuer credit ratings scale - Insurances

Credit assessment	Meaning of the credit assessment
aaa	Assigned to insurance companies that have, in AMBERS's opinion, an exceptional ability to meet their ongoing senior financial obligations.
aa	Assigned to insurance companies that have, in AMBERS's opinion, a superior ability to meet their ongoing senior financial obligations.
a	Assigned to insurance companies that have, in AMBERS's opinion, an excellent ability to meet their ongoing senior financial obligations.
bbb	Assigned to insurance companies that have, in AMBERS's opinion, a good ability to meet their ongoing senior financial obligations.
bb	Assigned to insurance companies that have, in AMBERS's opinion, a fair ability to meet their ongoing senior financial obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
b	Assigned to insurance companies that have, in AMBERS's opinion, a marginal ability to meet their ongoing senior financial obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
ccc/cc	Assigned to insurance companies that have, in AMBERS's opinion, a weak ability to meet their ongoing senior financial obligations. Financial strength is very vulnerable to adverse changes in underwriting and economic conditions.
c	Assigned to insurance companies that have, in AMBERS's opinion, a poor ability to meet their ongoing senior financial obligations. Financial strength is extremely vulnerable to adverse changes in underwriting and economic conditions.
rs	Assigned to insurers placed under a significant form of regulatory supervision, control or restraint – including cease and desist orders, conservatorship or rehabilitation that prevents conduct of normal, ongoing insurance operations, or in liquidation by a court of law or by a forced liquidation.

Source: AMBERS

Figure 4: Long-term issuer credit ratings scale – Non- insurances

Credit assessment	Meaning of the credit assessment
aaa	Assigned to an issuer where, in AMBERS's opinion, the issuer has an exceptional ability to meet the terms of its obligations.
aa	Assigned to an issuer where, in AMBERS's opinion, the issuer has a very strong ability to meet the terms of its obligations.
a	Assigned to an issuer where, in AMBERS's opinion, the issuer has a strong ability to meet the terms of its obligations.
bbb	Assigned to an issuer where, in AMBERS's opinion, the issuer has an adequate ability to meet the terms of its obligations; however, the issuer is more susceptible to changes in economic or other conditions.
bb	Assigned to an issuer where, in AMBERS's opinion, the issuer has speculative credit characteristics, generally due to a moderate margin of principal and interest payment protection and vulnerability to economic changes.
b	Assigned to an issuer where, in AMBERS's opinion, the issuer has very speculative credit characteristics, generally due to a modest margin of principal and interest payment protection and extreme vulnerability to economic changes.
ccc/cc/c	Assigned to an issuer where, in AMBERS's opinion, the issuer has extremely speculative credit characteristics, generally due to a minimal margin of principal and interest payment protection and/or limited ability to withstand adverse changes in economic or other conditions.

Source: AMBERS

Figure 5: Financial strength ratings scale

Credit assessment	Meaning of the credit assessment
A++, A+	Assigned to companies that have, in our opinion, a superior ability to meet their ongoing insurance obligations.
A, A-	Assigned to companies that have, in our opinion, an excellent ability to meet their ongoing insurance obligations.
B++, B+	Assigned to companies that have, in our opinion, a good ability to meet their ongoing insurance obligations.
B, B-	Assigned to companies that have, in our opinion, a fair ability to meet their ongoing insurance obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
C++, C+	Assigned to companies that have, in our opinion, a marginal ability to meet their ongoing insurance obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
C, C-	Assigned to companies that have, in our opinion, a weak ability to meet their ongoing insurance obligations. Financial strength is very vulnerable to adverse changes in underwriting and economic conditions.
D	Assigned to companies that have, in our opinion, a poor ability to meet their ongoing insurance obligations. Financial strength is extremely vulnerable to adverse changes in underwriting and economic conditions.
E	Assigned to companies (and possibly their subsidiaries/affiliates) placed under a significant form of regulatory supervision, control or restraint - including cease and desist orders, conservatorship or rehabilitation, but not liquidation - that prevents conduct of normal, ongoing insurance operations.
F	Assigned to companies placed in liquidation by a court of law or by a forced liquidation.
S	Assigned to rated companies when sudden and significant events affect their balance sheet strength or operating performance and rating implications cannot be evaluated due to a lack of timely or adequate information.

Source: AMBERS

Figure 6: Long-term debt ratings scale

Credit assessment	Meaning of the credit assessment
aaa	Assigned to issues where, in our opinion, the issuer has an exceptional ability to meet the terms of the obligation.
aa	Assigned to issues where, in our opinion, the issuer has a very strong ability to meet the terms of the obligation.
a	Assigned to issues where, in our opinion, the issuer has a strong ability to meet the terms of the obligation.
bbb	Assigned to issues where, in our opinion, the issuer has an adequate ability to meet the terms of the obligation; however, the issue is more susceptible to changes in economic or other conditions.
bb	Assigned to issues where, in our opinion, the issuer has speculative credit characteristics, generally due to a moderate margin of principal and interest payment protection and vulnerability to economic changes.
b	Assigned to issues where, in our opinion, the issuer has very speculative credit characteristics, generally due to a modest margin of principal and interest payment protection and extreme vulnerability to economic changes.
ccc	Assigned to issues where, in our opinion, the issuer has extremely speculative credit characteristics, generally due to a minimal margin of principal and interest payment protection and/or limited ability to withstand adverse changes in economic or other conditions.
cc	An obligation rated 'CC' is currently highly vulnerable to non-payment. The 'CC' rating is used when a default has not yet occurred, but AMBERS expects default to be a virtual certainty, regardless of the anticipated time to default.
c	An obligation rated 'C' is currently highly vulnerable to non-payment, and the obligation is expected to have lower relative seniority or lower ultimate recovery compared to obligations that are rated higher.
d	Assigned to issues in default on payment of principal, interest or other terms and conditions, or when a bankruptcy petition or similar action has been filed.

Source: AMBERS

Figure 7: Short-term credit ratings scale

Credit assessment	Meaning of the credit assessment
AMB-1+	Issuers accorded an AMB-1+ rating have, in AMBERS's opinion, the strongest ability to repay short-term debt obligations. Characteristics of this rating category include exceptional capital management, as well as significant liquidity and financial flexibility. Management's strategy ensures strong earnings and sustainable operating trends. Financial management is conservative, with low debt-to-capital and excellent fixed-charge coverage ratios. Significant liquidity is available internally from a diverse earnings base, as well as from excess cash available on the company's balance sheet. External sources of liquidity include committed bank lines of credit and access to cash through the capital markets.
AMB-1	Issuers rated AMB-1 have, in AMBERS's opinion, an outstanding ability to repay short-term debt obligations. Most credit characteristics discussed in AMB-1+ will be similar for AMB-1, with slightly lesser strengths. Issuers in this rating category will have a strong capability to service short-term debt. Fixed-charge coverage, liquidity and capital structure also are favourable. The issuer displays ready access to the capital markets and has significant alternative liquidity available to repay short-term debt obligations.
AMB-2	Issuers rated AMB-2 have, in AMBERS's opinion, a satisfactory ability to repay short-term debt obligations. While alternative liquidity remains adequate, companies in this category have more variability in earnings, cash flow and fixed-charge coverage. Companies at this rating level may not be able to rely consistently on the capital markets to fulfil liquidity needs. However, they maintain adequate alternative liquidity protection.
AMB-3	Issuers rated AMB-2 have, in AMBERS's opinion, an adequate ability to repay short-term debt obligations. However, adverse economic conditions likely will reduce the issuer's capacity to meet its financial commitments
AMB-4	Correlates to non-investment-grade long-term rating category. The commercial paper market will not accept issuers with this rating.

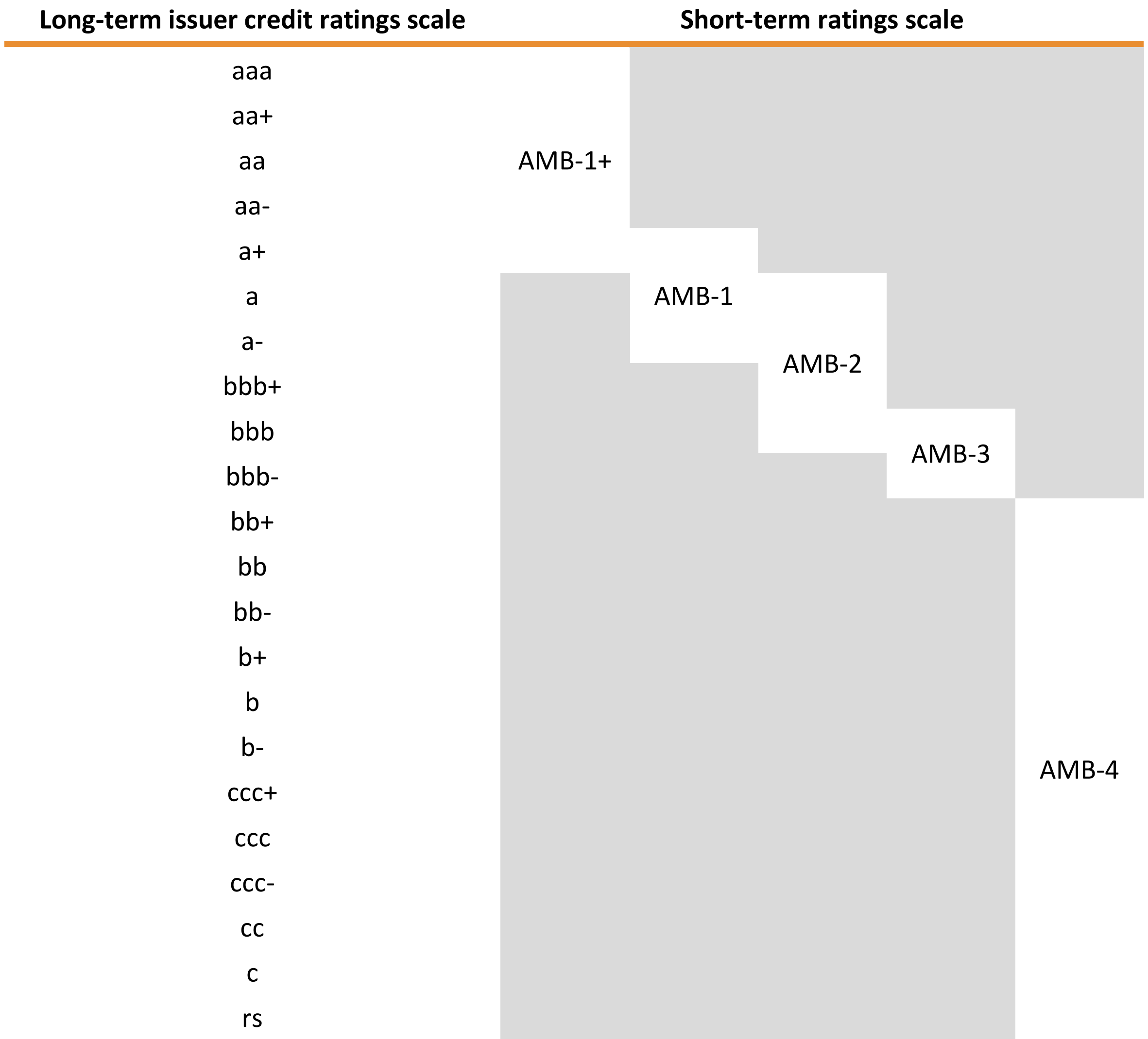
Source: AMBERS

Figure 8: Relationship between AMBERS Long-term issuer and Financial strength ratings

Financial strength rating scale (FSR)	Long-term issuer credit ratings scale (ICR)
A++	aaa, aa+
A+	aa, aa-
A	a+, a
A-	a-
B++	bbb+, bbb
B+	bbb-
B	bb+, bb
B-	bb-
C++	b+, b
C+	b-
C	ccc+, ccc
C-	ccc-, cc
D	C
E	rs
F	rs
S	rs

Source: AMBERS

Figure 9: Internal relationship between AMBERS long-term and short-term ratings scales



Source: AMBERS

Appendix 2: Definition of default

AMBERS applies two different definitions of default, one for the corporate sector, labelled 'default' definition, and one for the insurance sector, labelled 'financial impairment' definition. The reason to have a separate definition for the insurance sector stems from the fact that the insurance sector is highly regulated and therefore a normal default (i.e. insolvency) almost never occurs.

AMBERS states the following **definition of default**. The credit markets broadly deem an issuer default as having occurred when an issuer misses interest or principal payments on its obligations; restructures its debt in a way that is deleterious to investors; or files for bankruptcy. Additionally AMBERS will include holding companies in default on payment of principal, interest or other terms and conditions, or when a bankruptcy petition or similar action has been filed in the default category.

Regarding the financial strength of insurances, defaults are based on the **impairment** of the customers. AMBERS designates an insurer as a Financially Impaired Company (FIC) as of the first action taken by an insurance department or regulatory body, whereby the insurer's a) ability to conduct normal insurance operations is adversely affected, b) capital and surplus have been deemed inadequate to meet regulatory requirements, or c) general financial condition has triggered regulatory concern. The actions include supervision, rehabilitation, liquidation, receivership, conservatorship, cease-and-desist orders, suspension, license revocation and certain administrative orders. Companies that enter voluntary dissolution and are not under financial duress at that time are not counted as financially impaired.

Source: AMBERS

Appendix 3: Default rates of each rating category

Figure 10: Number of rated items

Date	aaa/aa	a	bbb	bb	b	ccc-c	rs
01/07/2000	1085	1752	647	132	40	12	n.a.
01/01/2001	1100	1791	592	136	41	30	n.a.
01/07/2001	1105	1844	594	168	40	18	n.a.
01/01/2002	1091	1885	605	155	36	37	n.a.
01/07/2002	999	1995	606	166	38	19	n.a.
01/01/2003	928	2001	677	186	47	20	n.a.
01/07/2003	843	2048	641	195	47	36	n.a.
01/01/2004	823	2025	667	218	52	28	n.a.
01/07/2004	829	2007	691	206	45	27	n.a.
01/01/2005	834	2018	685	207	38	24	n.a.
01/07/2005	828	2028	699	165	40	16	n.a.
01/01/2006	860	2036	701	161	38	16	n.a.
01/07/2006	846	2080	672	150	47	13	n.a.
01/01/2007	850	2118	663	149	37	12	n.a.
01/07/2007	852	2128	664	146	28	14	n.a.
01/01/2008	889	2126	652	150	27	11	n.a.
01/07/2008	881	2160	638	148	32	10	n.a.
01/01/2009	825	2225	632	144	26	18	n.a.
01/07/2009	735	2287	655	156	28	13	n.a.
01/01/2010	736	2293	638	156	28	12	n.a.

Source: Joint Committee calculations based on CEREP data

Figure 11: Number of defaulted rated items

Date	aaa/aa	a	bbb	bb	b	ccc-c	rs
01/07/2000	0	12	57	7	6	3	n.a.
01/01/2001	0	12	29	10	6	17	n.a.
01/07/2001	0	11	14	24	4	8	n.a.
01/01/2002	0	12	15	13	2	14	n.a.
01/07/2002	0	2	12	15	8	4	n.a.
01/01/2003	0	1	6	13	8	5	n.a.
01/07/2003	0	0	5	5	8	8	n.a.
01/01/2004	0	0	3	8	10	2	n.a.
01/07/2004	0	0	3	8	3	2	n.a.
01/01/2005	0	0	5	8	2	2	n.a.
01/07/2005	1	0	2	6	0	2	n.a.
01/01/2006	2	0	4	6	0	1	n.a.
01/07/2006	3	3	6	2	6	0	n.a.
01/01/2007	3	2	5	4	1	0	n.a.
01/07/2007	3	2	5	4	1	0	n.a.
01/01/2008	2	1	5	4	1	0	n.a.
01/07/2008	1	4	4	6	3	1	n.a.
01/01/2009	0	4	3	5	2	4	n.a.
01/07/2009	0	3	2	4	3	1	n.a.
01/01/2010	0	2	3	4	3	1	n.a.

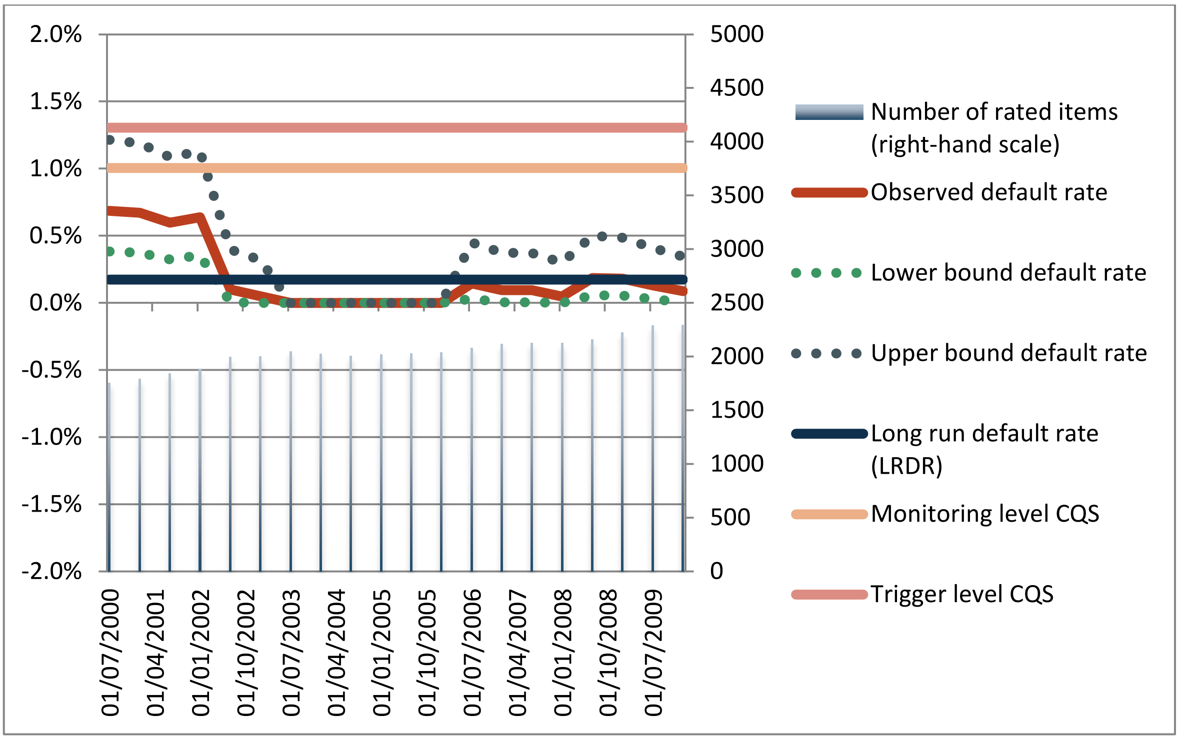
Source: Joint Committee calculations based on CEREP data

Figure 12: Short-run and long-run observed default rates

Date	aaa/aa	a	bbb	bb	b	ccc-c	rs
01/07/2000	n.a.	0.68	8.81	5.30	15.00	25.00	n.a.
01/01/2001	n.a.	0.67	4.90	7.35	14.63	56.67	n.a.
01/07/2001	n.a.	0.60	2.36	14.29	10.00	44.44	n.a.
01/01/2002	n.a.	0.64	2.48	8.39	5.56	37.84	n.a.
01/07/2002	n.a.	0.10	1.98	9.04	21.05	21.05	n.a.
01/01/2003	n.a.	0.05	0.89	6.99	17.02	25.00	n.a.
01/07/2003	n.a.	0.00	0.78	2.56	17.02	22.22	n.a.
01/01/2004	n.a.	0.00	0.45	3.67	19.23	7.14	n.a.
01/07/2004	n.a.	0.00	0.43	3.88	6.67	7.41	n.a.
01/01/2005	n.a.	0.00	0.73	3.86	5.26	8.33	n.a.
01/07/2005	n.a.	0.00	0.29	3.64	0.00	12.50	n.a.
01/01/2006	n.a.	0.00	0.57	3.73	0.00	6.25	n.a.
01/07/2006	n.a.	0.14	0.89	1.33	12.77	0.00	n.a.
01/01/2007	n.a.	0.09	0.75	2.68	2.70	0.00	n.a.
01/07/2007	n.a.	0.09	0.75	2.74	3.57	0.00	n.a.
01/01/2008	n.a.	0.05	0.77	2.67	3.70	0.00	n.a.
01/07/2008	n.a.	0.19	0.63	4.05	9.38	10.00	n.a.
01/01/2009	n.a.	0.18	0.47	3.47	7.69	22.22	n.a.
01/07/2009	n.a.	0.13	0.31	2.56	10.71	7.69	n.a.
01/01/2010	n.a.	0.09	0.47	2.56	10.71	8.33	n.a.
Weighted Average	**n.a.**	**0.17**	**1.44**	**4.74**	**10.20**	**19.43**	

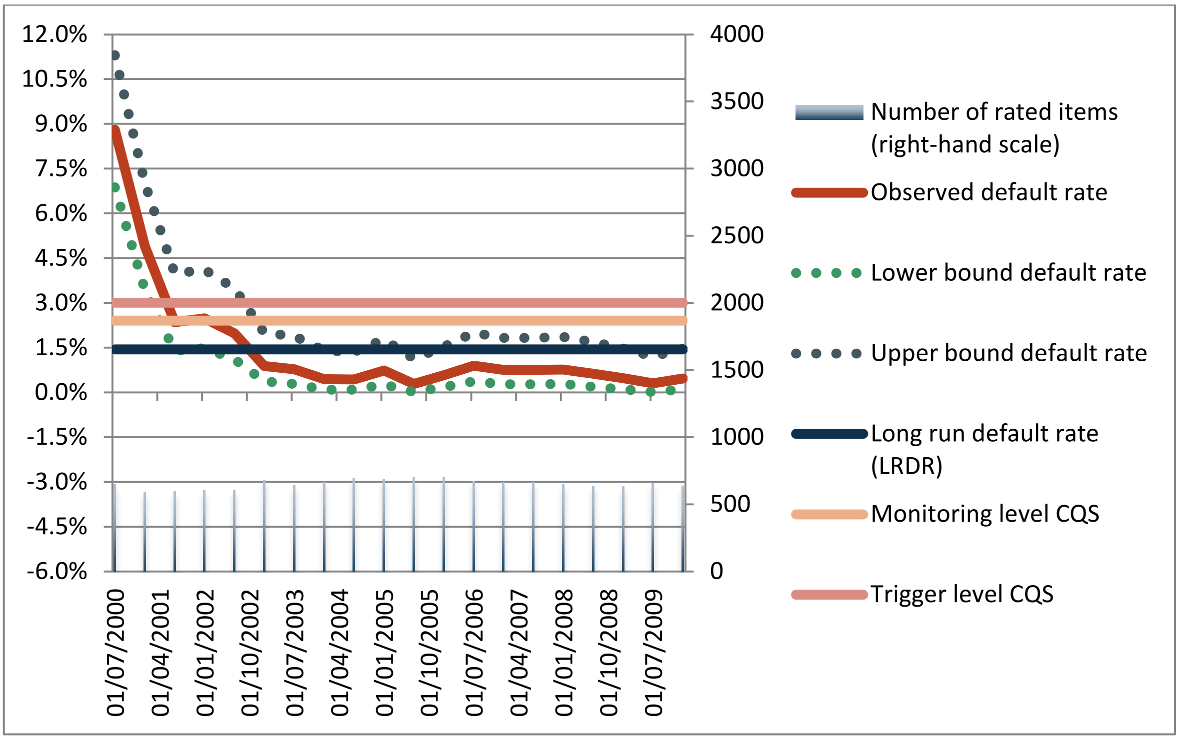
Source: Joint Committee calculations based on CEREP data

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



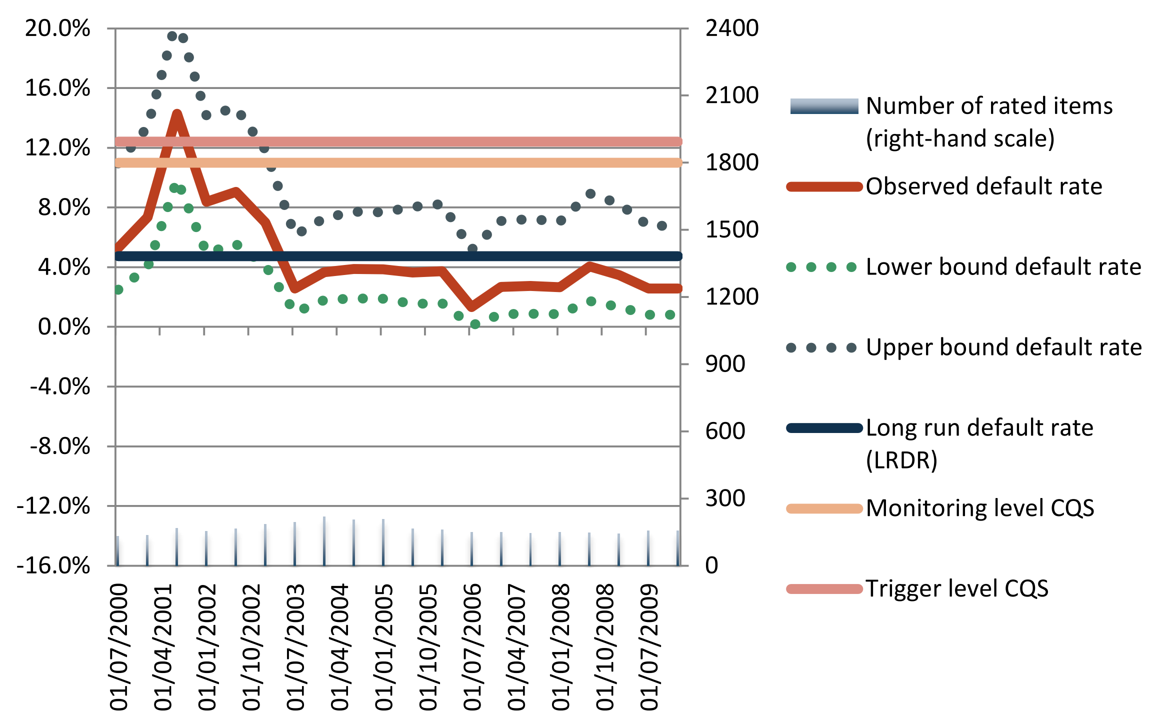
Source: Joint Committee calculations based on CEREP data

Figure 14: Short-run and long-run observed default rates of 'bbb' rating category



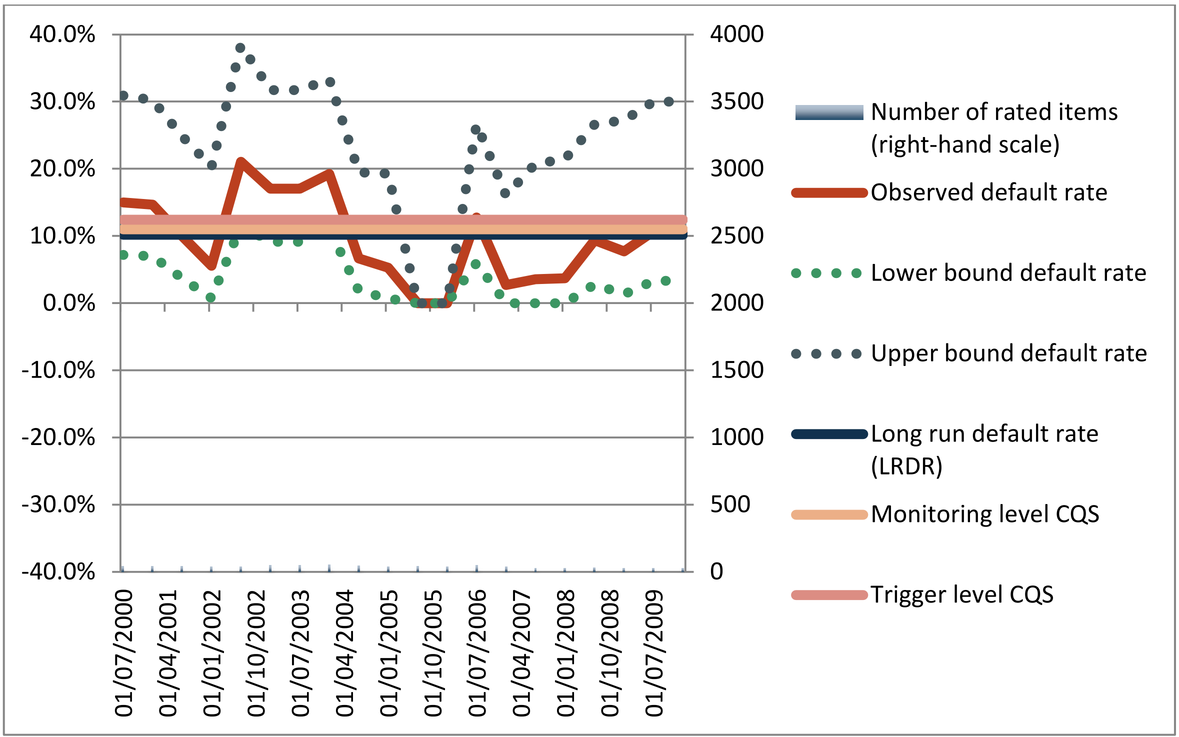
Source: Joint Committee calculations based on CEREP data

Figure 15: Short-run and long-run observed default rates of 'bb' rating category



Source: Joint Committee calculations based on CEREP data

Figure 16: Short-run and long-run observed default rates of 'b' rating category



Source: Joint Committee calculations based on CEREP data

Figure 17: Short-run and long-run observed default rates of 'ccc-c' rating category

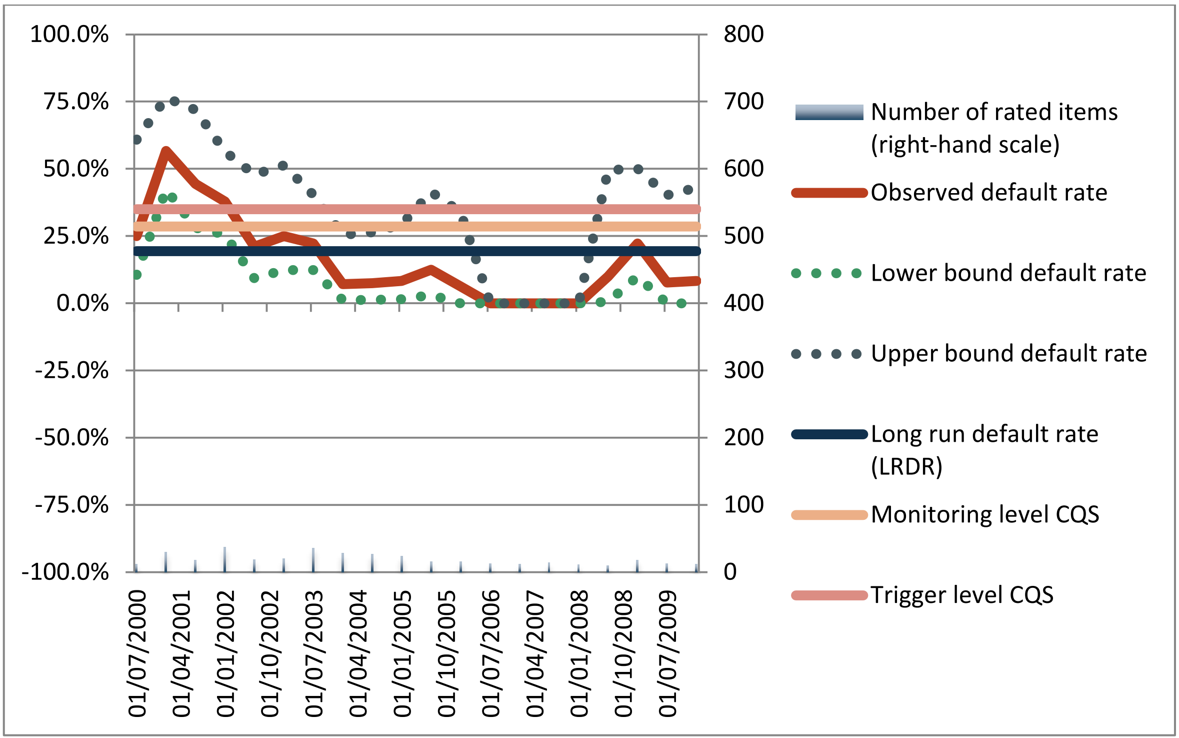


Figure 18: Mapping proposal for rating categories with a non-sufficient number of credit ratings

2000h2 – 2005h1	aaa/aa
CQS of equivalent international rating category	CQS 1
N. observed defaulted items	0
Minimum N. rated items	496
Observed N. rated items	9,637
Mapping proposal	**CQS1**

2005h2 – 2010h1	aaa/aa
CQS of equivalent international rating category	CQS 1
N. observed defaulted items	15
Minimum N. rated items	9,292
Observed N. rated items	8,302
Mapping proposal	**CQS2**

Source: Joint Committee calculations based on CEREP data

Figure 19: Number of rated items from the S&P benchmark sample used for evaluating AMBERS's default definition

Date	AAA/AA	A	BBB	BB	B	CCC-C
01/07/2000	552	605	609	253	97	22
01/01/2001	566	588	610	250	106	37
01/07/2001	565	603	662	255	99	35
01/01/2002	526	637	652	255	98	43
01/07/2002	474	656	636	261	98	38
01/01/2003	408	652	622	260	114	35
01/07/2003	355	592	462	172	71	12
01/01/2004	326	606	451	158	55	13
01/07/2004	313	597	437	163	47	10
01/01/2005	316	615	390	165	41	12
01/07/2005	329	628	361	148	47	12
01/01/2006	331	642	373	138	45	11
01/07/2006	339	642	355	127	41	12
01/01/2007	370	615	328	121	41	10
01/07/2007	378	603	332	114	43	12
01/01/2008	416	602	322	113	45	10
01/07/2008	411	611	322	100	46	10
01/01/2009	373	631	298	94	40	14
01/07/2009	296	666	306	95	33	12
01/01/2010	284	666	270	89	35	21

Source: Joint Committee calculations based on CEREP data

Figure 20: Number of defaulted items from the S&P benchmark sample used for evaluating AMBERS's default definition

Date	AAA/AA	A	BBB	BB	B	CCC-C
01/07/2000	0	5	19	16	16	5
01/01/2001	0	4	10	18	13	9
01/07/2001	0	4	9	20	11	8
01/01/2002	0	3	10	10	10	17
01/07/2002	0	1	7	12	8	14
01/01/2003	0	1	0	6	8	9
01/07/2003	0	1	0	5	2	2
01/01/2004	0	0	0	6	2	2
01/07/2004	0	0	0	1	1	1
01/01/2005	0	0	0	1	1	1
01/07/2005	0	0	0	0	2	2
01/01/2006	1	0	1	0	2	1
01/07/2006	2	6	1	0	1	1
01/01/2007	4	0	1	4	1	0
01/07/2007	5	0	1	5	1	0
01/01/2008	4	2	1	5	1	0
01/07/2008	1	2	2	3	6	0
01/01/2009	0	2	2	1	2	8
01/07/2009	0	1	1	3	2	0
01/01/2010	0	0	1	1	2	3

Source: Joint Committee calculations based on CEREP data

Figure 21: Short-run and long-run observed default rates by the S&P benchmark sample used for evaluating AMBERS's default definition

Date	AAA/AA	A	BBB	BB	B	CCC-C
01/07/2000	0.00	0.83	3.12	6.31	16.49	22.73
01/01/2001	0.00	0.68	1.64	7.20	12.26	24.32
01/07/2001	0.00	0.66	1.36	7.83	11.06	22.86
01/01/2002	0.00	0.47	1.53	3.91	10.20	39.53
01/07/2002	0.00	0.15	1.10	4.60	8.12	36.84
01/01/2003	0.00	0.15	0.00	2.31	7.02	25.35
01/07/2003	0.00	0.17	0.00	2.90	2.80	16.00
01/01/2004	0.00	0.00	0.00	3.80	3.64	15.38
01/07/2004	0.00	0.00	0.00	0.61	2.11	10.00
01/01/2005	0.00	0.00	0.00	0.61	2.44	8.33
01/07/2005	0.00	0.00	0.00	0.00	4.26	16.00
01/01/2006	0.30	0.00	0.27	0.00	4.44	8.70
01/07/2006	0.59	0.93	0.28	0.00	2.44	8.33
01/01/2007	1.08	0.00	0.30	3.29	2.41	0.00
01/07/2007	1.32	0.00	0.30	4.37	2.33	0.00
01/01/2008	0.96	0.33	0.31	4.41	2.22	0.00
01/07/2008	0.24	0.33	0.62	2.99	13.04	0.00
01/01/2009	0.00	0.32	0.67	1.06	5.00	55.17
01/07/2009	0.00	0.15	0.33	3.16	5.97	0.00
01/01/2010	0.00	0.00	0.37	1.12	5.63	14.29
Weighted Average	**0.21**	**0.26**	**0.75**	**3.51**	**7.39**	**21.59**

Source: Joint Committee calculations based on CEREP data

Figure 22: Transition matrix

3-year transition matrices, 10-year average (2000 - 2013)

Rating end period	aaa	aa	a	bbb	bb	b	ccc-c	rs
Rating start period								
aaa	89.25	10.75	0	0	0	0	0	0
aa	0.17	81.45	18.3	0.07	0	0	0	0
a	0	3.64	92.36	3.56	0.3	0.05	0.03	0.08
bbb	0	0.69	17.76	74.69	5.72	0.45	0.26	0.43
bb	0	0	3.5	24.41	58.42	6.67	4.18	2.82
b	0	0	9.03	16.67	18.75	34.72	11.81	9.03
ccc-c	0	0	0	8.57	0	8.57	62.86	20

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, 12-year average (2000 - 2013)

Rating end period	aaa	aa	a	bbb	bb	b	ccc-c	rs
Rating start period								
aaa	96.09	3.91	0	0	0	0	0	0
aa	0.06	94.07	5.86	0.01	0	0	0	0
a	0	1.44	97.01	1.48	0.05	0	0	0.01
bbb	0	0.21	6.42	90.2	2.76	0.15	0.1	0.16
bb	0	0	0.77	9.43	83.45	4.57	1.3	0.47
b	0	0	0.76	5.06	9.37	70.63	9.62	4.56
ccc-c	0	0	0	1.89	0	7.55	83.02	7.55

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 23: Mapping of AMBERS's Long-term issuer credit 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	1	**1**	Quantitative evidence is not clear. The meaning, relative position and time horizon of the rating category are representative of the final CQS.
aa	1	1	**1**	
a	2	2	**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	4	**4**	The quantitative factors are representative of the final CQS.
b	4	4	**5**	The quantitative factors suggest CQS 4. However, the meaning and the relative position of the rating category are representative of the final CQS.
ccc	5	5	**6**	The quantitative factors suggest CQS 5. However, the meaning and the relative position of the rating category are representative of the final CQS.
cc	5	5	**6**	
c	5	5	**6**	

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

Figure 24: Mapping of AMBERS's Short-term ratings scale

Credit assessment	Corresponding Long-term issuer credit ratings scale assessment (established by AMBERS)	Range of CQS of corresponding Long-term issuer credit ratings scale	Final review *based on qualitative factors* (CQS)	Main reason for the mapping
AMB-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.
AMB-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.
AMB-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.
AMB-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.
AMB-4	**bb+ - rs**	**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.

Figure 25: Mapping of AMBERS's Financial strength ratings scale

Credit assessment	Corresponding Long-term issuer credit ratings scale assessment (established by AMBERS)	Range of CQS of corresponding Long-term issuer credit ratings scale	Final review *based on qualitative factors* (CQS)	Main reason for the mapping
A++ / A+	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 / A-	a	2	2	
B++ / B+	bbb	3	3	
B / B-	bb	4	4	
C++ / C+	b	5	5	
C / C-	ccc / cc	6	6	
D	c	6	6	
E	rs	6	6	
F	rs	6	6	
S	rs	6	6	

Figure 26: Mapping of AMBERS's Long-term debt ratings scale

Credit assessment	Corresponding Long-term issuer credit ratings scale assessment (assessed by JC)	Range of CQS of corresponding Long-term issuer credit ratings scale	Final review *based on qualitative factors* (CQS)	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 credit 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	rs	6	6	