Amended Draft Mapping of Creditreform Rating AG's credit assessments under the Standardised Approach

1. Executive summary

1. This report describes the mapping exercise carried out by the Joint Committee (JC) of the European Supervisory Authorities (ESAs) to propose an amended 'mapping'[1] report of the credit assessments of Creditreform Ratings AG (Creditreform), with respect to the version published in June 2021.

2. The methodology applied to produce the mapping remains as specified in Commission Implementing Regulation (EU) 2016/1799 of 7 October 2016 (the Implementing Regulation)[2] laying down implementing technical standards with regard to the mapping of credit assessments of external credit assessment institutions for credit risk in accordance with Articles 136(1) and 136(3) of Regulation (EU) No 575/2013 of the European Parliament and of the Council (Capital Requirements Regulation – CRR). This Implementing Regulation employs a combination of the provisions laid down in Article 136(2) of the CRR.

3. The information base used to produce this mapping report reflects additional quantitative information collected after the production of the mapping report published in June 2021. Regarding qualitative developments, the qualitative factors as specified in the Implementing Regulation remain unchanged.

4. 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[3] nor should be understood as a comparison of the rating methodologies of Creditreform with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of Creditreform with a regulatory scale which has been defined for prudential purposes.

5. As described in Recital 12 of the Implementing Regulation, it is necessary to avoid causing undue material disadvantage on those ECAIs which, due to their more recent entrance in the market,

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[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] OJ L 275, 12.10.2016, p. 3-18

[3] In this regard please consider https://www.esma.europa.eu/sites/default/files/library/esma_2015-1473_report_on_the_possibility_of_establishing_one_or_more_mapping.pdf.

present limited quantitative information, with the view to balancing prudential with market concerns. Therefore, the relevance of quantitative factors for deriving the mapping is relaxed. This allows ECAIs which present limited quantitative information to enter the market and increases competition.

6. The resulting mapping tables have been specified in Annex III of the Consultation Paper on the revised draft ITS on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013. Figure 1 below shows the result for Creditreform's long-term issuer rating scale.

Figure 1: Mapping of Creditreform's long-term issuer rating scale

Credit assessment	Credit quality step
AAA	1
AA	1
A	2
BBB	3
BB	4
B	5
C	6
SD	6
D	6

2. Introduction

7. This report describes the mapping exercise carried out by the JC to propose an amended 'mapping' report of the credit assessments of Creditreform Ratings AG (Creditreform), with respect to the version published in June 2021.

7. Creditreform is a credit rating agency that registered with ESMA on 18 May 2011 and therefore meets the conditions to be an eligible credit assessment institution (ECAI).[4] Creditreform group (founded in 1879) is a provider of b2b business information in Germany and Europe.

8. The methodology applied to produce the mapping remains as specified in Commission Implementing Regulation (EU) 2016/1799 of 7 October 2016 (the Implementing Regulation) laying down implementing technical standards with regard to the mapping of credit assessments of external credit assessment institutions for credit risk in accordance with Articles 136(1) and 136(3) of Regulation (EU) No 575/2013 of the European Parliament and of the Council (Capital Requirements Regulation – CRR). This Implementing Regulation employs a combination of the provisions laid down in Article 136(2) of the CRR.

9. The information base used to produce this mapping report reflects additional information collected after the production of the mapping report published in June 2021. Regarding qualitative developments, the qualitative factors as specified in the Implementing Regulation remain unchanged with respect to the mapping report published in June 2021. The quantitative information is drawn from data available in the ESMA's central repository (CEREP[5]) and RADAR[6] based on the credit rating information submitted by the ECAIs as part of their reporting obligations.

10. The following sections describe the rationale underlying the mapping exercise carried out by the JC. Section 3 describes the relevant rating scales of Creditreform. Section 4 contains the methodology applied to derive its mapping 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 Consultation Paper on the revised draft ITS on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of Regulation (EU) No 575/2013.

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

[5] https://cerep.esma.europa.eu/cerep-web/

[6] Commission Delegated Regulation (EU) 2015/2 RADAR RTS.

3. Creditreform credit ratings and rating scales

11. Creditrefom produces a variety of types of credit ratings, which may be used by institutions for the calculation of risk weights under the Standardised Approach (SA),[7] as shown in column 2 of Figure 2 in Appendix 1:

- **Long term bank issuer rating,** defined as establishing the extent to which the bank under review will be able to meet the contractual obligations of its various financing instruments fully and on time.

- **Short-term bank issuer rating,** defined as the long-term bank issuer rating, but referring to a horizon of up to 1 year.

- **Bank issue rating,** defined as having a modular structure and being based on the long-term issuer rating of the bank under review. Additional criteria – such as the bail-in cascade pursuant to the BRRD (Bank Recovery and Resolution Directive), the type and class of instrument and the structure of total liabilities – are also being taken into account, potentially leading to an upgrade or a downgrade of certain classes of instruments. Bank ratings may be accompanied by simultaneously conducted bank capital and unsecured debt instrument ratings, optionally also by ratings for specific issues.

- **Corporate issuer ratings,** defined as assessing the financial strength of the company or issuer under review in an integrated rating process. This enables potential investors and business partners to develop a reliable assessment of whether or not the company or issuer in question will be able to meet its financial obligations fully and on time.

- **Corporate issue ratings**, defined as providing assessments of the credit quality of individual issues by non-financial companies, including – for example – promissory notes, loans, corporate bonds or any other form of borrowed funds.

- **SME issuer rating,** defined as assessing the financial strength of the issuer under review in an integrated rating process. This enables potential investors and business partners to develop a reliable assessment of whether or not the company or issuer in question will be able to meet its financial obligations fully and on time.

- **SME issue rating**, defined as providing assessments of the credit quality of individual issues by non-financial companies, including – for example – promissory notes, loans, corporate bonds or any other form of borrowed funds.

- **Bank covered bonds rating,** defined as primarily based on an analysis of the issuer, following which the legal framework and the structure of the issue will be examined.

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[7] As explained in recital 4 of the Implementing Regulation, 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.

- **Sovereign issuer ratings,** defined as providing assessments of the creditworthiness of a sovereign in its capacity as a debtor with universally comparable standards across different levels of economic development.

- **Sovereign issue ratings**, defined as ratings for specific debt instruments or bonds that have been issued by governments either in local or foreign currency.

- **Institutional investor debt rating,** defined as using asset-based finance ratings to analyze directly- or indirectly-financed investments. The product range includes ratings in different asset categories, for private equity and private debt investments as well as for investments in fields such as infrastructure, renewables, real estate, aviation and logistics.

Creditreform 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 rating scale**. The specification of this rating scale is described in Figure 3 of Appendix 1.

- **Long-term issue rating scale**. The specification of this rating scale is described in Figure 4 of Appendix 1.

- **Short-term rating scale**. The specification of this rating scale is described in Figure 5 of Appendix 1.

12. The mapping of the Creditreform 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.

13. The mapping of the short-term credit 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 Creditreform between these two scales, as specified in Article 13 of the ITS.

14. The indirect mapping approach described in the previous paragraph has also been applied in the case of the long-term issue rating scale. In this case, 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 Creditreform's Long-term issuer rating scale

15. The mapping of the 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.

16. 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 calculated in accordance with Article 6 of the ITS, as the number of credit ratings cannot be considered to be sufficient as per Article 3(1)(a) of the Implementing Regulation. This is determined by comparing the number of ratings representing the inverse of the long-run default rate benchmark of the rating category, as referred to in point (a) of Article 14 of the Implementing Regulation.

17. 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 were available.

4.1. Initial mapping based on the quantitative factors

4.1.1. Calculation of the long-run default rates

18. The number of credit ratings is not sufficient for the calculation of the long-run default rate, as per Article 3(1)(a) of the Implementing Regulation on mapping. This is determined by comparing the number of ratings representing the inverse of the long-run default rate benchmark of the rating category, as referred to in point (a) of Article 14 of the Implementing Regulation.

19. For rating category B, the number of ratings cannot be considered sufficient for the calculation of the short and long run default rates specified in Articles 3 − 5 of the ITS. In this case the allocation of the CQS has been made in accordance with Article 6 of the ITS. However, the size of the pools is too large[8] to be evaluated by a small pool methodology. In this situation Article 6 is applied by considering the number of defaulted and not defaulted items through the computation of short run default rates and a proxy for the long run default rate (see Figure 8 in Appendix 3). Thus, the computed proxy of the long run default rate is considered as a first indicator to perform the allocation to a CQS, however, in this case the result needs to be confirmed by the qualitative factors given that only a proxy of the long run default rate has been achieved.

20. For the remaining rating categories, the number of credit ratings of the Creditreform long-term issuer rating scale cannot be considered to be sufficient for the calculation of the short run and long run default rates specified in Articles 3 − 5 of the Implementing Regulation. Therefore, the

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[8] If the total number of rated items over a 5 years period is larger than 10 times the number representing the inverse of the long run default rate benchmark associated with the equivalent rating category in the international rating scale, but at the same time this pool of ratings does not satisfy Article 3 ITS, then this pool of ratings is considered to be too large for the application of a small pool methodology.

allocation to the CQS has been made in accordance with Article 6 of the Implementing Regulation, as shown in Figure of Appendix 3.

21. 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.

22. For 'D' and 'SD' rating categories, no allocation has been made based on this methodology since they already reflect a 'default' situation.

4.1.2. Mapping proposal based on the long run default rate

23. As illustrated in the second column of Figure 12 in Appendix 4, the assignment of the rating categories AAA/AA/A/BBB and BB to credit quality steps has been initially made in accordance with Article 6 of the Implementing Regulation. 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 specified in Figure 9 of Appendix 3.

- **AAA/AA/A:** no defaults are registered in the available time series, so the assignment to CQS 1 and 2 is warranted, regardless of the data cohort chosen. 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.

- **BBB/BB:** in case of rating category BBB and BB, two out of three data cohort suggests assignment to CQS 3 and CQS 4, respectively, while one data cohort suggests CQS 4 and CQS 5, respectively. The results are shown in Figure 9 in Appendix 3. Rating category BBB and BB are therefore assigned to CQS 3 and CQS 4, respectively.

- **B:** the proxy long run default rate is considered as a first indicator to perform the allocation to the CQS, together with the prior expectation of the equivalent rating category of the international rating scale. In accordance with the long-run default rate shown in Figure 10 in Appendix 3, rating category B remains assigned to CQS 5 under the quantitative factors.

- **C:** since the CQS associated with the equivalent rating category of the international rating scale is 6, the proposed mapping for these rating categories is also CQS 6.

4.2. Final mapping after review of the qualitative factors

24. The qualitative factors specified in Article 7 of the Implementing Regulation 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,[9] as it is the case for all rating categories of Creditreform's long-term rating scale.

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[9] 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 of the Implementing Regulation.

25. The quantitative analysis results in two out of the three data cohorts aligning with the international ratings scale, including the most recent cohort, which shows an improved performance. Creditreform has not registered material changes in the qualitative factors as specified in the Implementing Regulation since the mapping report published in June 2021. However, since then Creditreform introduced methodological changes to strengthen the internal policies and procedures, further supporting the assignment of BBB to CQS 3 and BB to CQS 4.

5. Mapping of Creditreform's Short-Term credit rating scale

26. Creditreform also produces short-term credit ratings and assigns them to the short-term credit ratings scale (see Figure 5 in Appendix 1). Given that the default information referred to these rating categories cannot be comparable with the 3-year time horizon that characterizes the benchmarks established in the Implementing Regulation, the internal relationship established by Creditreform between these two rating scales has been used to derive the mapping. This is in line with Article 13 of the Implementing Regulation and ensures consistency across the mappings proposed for Creditreform.

27. More specifically, as each short-term issuer rating can be associated with a range of long-term issuer ratings, the Credit Quality Step (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.

28. The results are shown in Figure 13 of Appendix 4.

- **L1.** It is internally mapped to long-term categories AAA and AA, which are mapped to CQS 1. The proposed mapping is CQS 1.

- **L2.** Mapped to the long-term category A, which is mapped to CQS 2. The proposed mapping is CQS 2.

- **L3.** It is internally mapped to long-term category BBB, which is mapped to CQS 3. The proposed mapping is CQS 3.

- **NEL.** Mapped to long-term categories BB, B and C, which are mapped to CQS 4, 5 and 6, respectively. 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 NEL rating category is CQS 4.

- **D.** 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.

6. Mapping of Creditreform's long-term issue credit rating scale

29. Based on the methodology described in the previous section, the mapping has been derived from the relationship established by the JC with the relevant Long-term issuer credit ratings scale.

30. **Long-term issue credit ratings scale** (see Figure 4 in Appendix 1). The rating categories can be considered comparable to those of the Long-term issuer credit 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 results are shown in Figure 14 of Appendix 4.

Appendix 1: Credit ratings and rating scales

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

SA exposure classes	Name of credit rating	Credit rating scale
Central governments or central banks	Sovereign issuer rating	Long-term issuer rating scale
	Sovereign issue rating	Long-term issue rating scale
Public sector entities	Corporate issuer rating	Long-term issuer rating scale
	Corporate issue rating	Long-term issue rating scale
Institutions	Long-term bank issuer rating	Long-term issuer rating scale
	Short-term bank issuer rating	Short-term rating scale
	Bank issue rating	Long-term issue rating scale
Corporates	Corporate issuer rating	Long-term issuer rating scale
	Corporate issue rating	Long-term issue rating scale
	SME issuer rating	Long-term issuer rating scale
	SME issue rating	Long-term issue rating scale
Covered bonds	Bank covered bonds rating	Long-term issue rating scale
	Institutional investor debt rating	Long-term issue rating scale

Figure 3: Long-term issuer rating scale

Credit assessment	Meaning of the credit assessment
AAA	Highest level of creditworthiness, lowest default risk
AA	Very high level of creditworthiness, very low default risk
A	High level of creditworthiness, low default risk
BBB	Highly satisfactory level of creditworthiness, low to medium default risk
BB	Satisfactory level of creditworthiness, medium default risk s
B	Moderate level of creditworthiness, increased default risk
C	Low level of creditworthiness, high or very high default risk
SD	Insufficient level of creditworthiness, selective default of a considerable proportion of the company's payment obligations
D	Insufficient level of creditworthiness, default, insolvency

Source: Creditreform

Figure 4: Long-term issue rating scale

Credit assessment	Meaning of the credit assessment
AAA	Highest level of credit quality, lowest investment risk
AA	Very high level of credit quality, very low investment risk
A	High level of credit quality, low investment risk
BBB	Highly satisfactory level of credit quality, low to medium investment risk
BB	Satisfactory level of credit quality, medium investment risk
B	Moderate level of credit quality, increased investment risk
C	Low level of credit quality, high or very high investment risk
D	Insufficient level of credit quality, total loss of investment

Source: Creditreform

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Figure 5: Short-term rating scale

Credit assessment	Meaning of the credit assessment
L1	Extraordinarily high level of liquidity
L2	High level of liquidity
L3	Adequate level of liquidity
NEL	Inadequate level of liquidity or liquidity at risk
D	Default

Source: Creditreform

Figure 6: Internal relationship between long-term and short-term ratings scales

Long-term rating scale	Short-term rating scale
AAA	L1
AA+	
AA	
AA-	
A+	L2
A	
A-	
BBB+	L3
BBB	
BBB-	
BB+	NEL
BB	
BB-	
B+	
B	
B-	
CCC+	
CCC	
CCC-	
CC	
C	
D	D
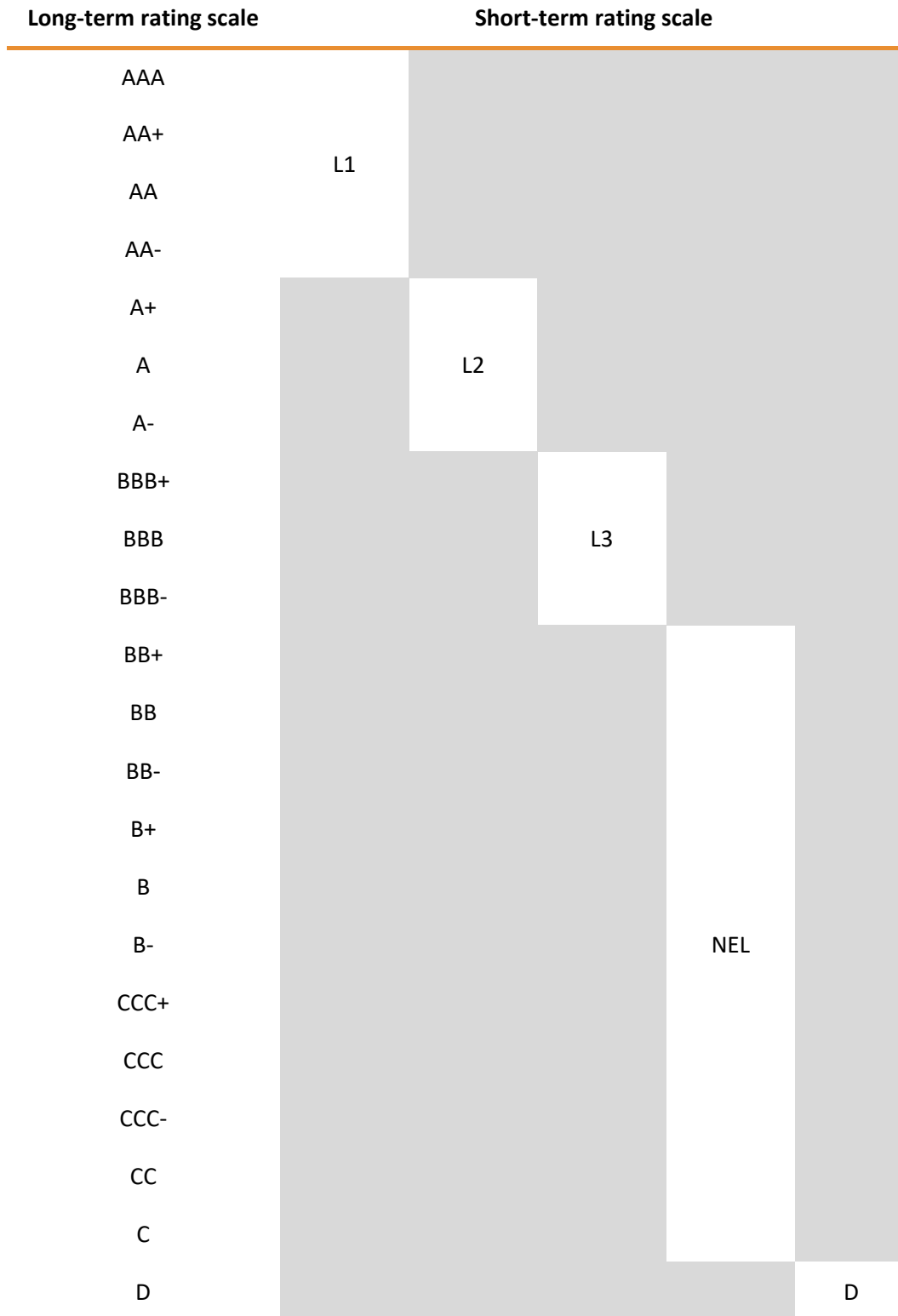
Source: Creditreform

Appendix 2: Definition of default

According to Creditreform, a company or issuer shall be deemed to have gone into Default (D) for the purposes of corporate ratings when at least one of the following criteria has been met:

- Creditors of the company / issuer or the company / issuer itself have filed for an insolvency or a similar measure, or another regulatory / legal payment block has been imposed, or – according to the Creditreform credit information – the company / issuer has been provided with an Index of creditworthiness of 600 (= insolvency).

- Creditreform assumes that the company / issuer will not meet one or several substantial payment obligations to creditors, in violation of the agreement between the company / issuer and the creditor in question (for example through a delay or refusal of payment).

- One or several substantial payment obligations of the company / issuer are being restructured, rescheduled, renegotiated or converted (either eventuality representing a "restructuring"), provided this restructuring of debt – in the view of Creditreform – will adversely affect the creditors (by putting them in a disadvantaged compared to the previous agreement) and the restructuring has its roots – in the view of Creditreform – in financial distress of the company / issuer or in another situation equivalent to an enforcement. Restructurings of substantial payment obligations may include (but are not limited to) the following:

  o Changes of the due date of payment of interest or the interest rate (for example through the deferral, suspension or reduction of interest payments).

  o Changes of the due date of payment or the amount of principal payments / nominal redemption amounts (for example through maturity extensions, reductions of the nominal amount, suspension or deferral of principal redemptions).

  o Conversion of debt to equity (debt-equity swap).

  o Conversion of debt to subordinate debt, mezzanine capital or debt with a different interest and redemption structure to the disadvantage of the creditors (for example through an agreement that does not necessarily involve a lower final interest rate, a conversion of fixed interest rates into optional or suspended interest components, the changes of a gradual – "amortizing" – redemption structure to an interest-only "bullet" repayment scheme).

  o Satisfaction of creditor claims on the basis of repaying less than the nominal redemption amount plus interest.

Financial distress of the company under review or another situation equivalent to an enforcement may include (but are not limited to) the following:

- Creditreform assumes that the company / issuer will not be able to meet its original payment obligations without restructuring its debt.

- The company / issuer has, directly or indirectly, indicated that an insolvency or a similar measure would be inevitable without a restructuring of its debt, that it would be unable to meet its original payment obligations without restructuring its debt or that it would attempt to – directly or indirectly – weaken the position of the creditors in another way if the creditors failed to approve its restructuring plans.

A company or issuer shall be deemed to have gone into a Selective Default (SD) for the purposes of our corporate ratings (corporate rating default criteria) when the following condition has been met:

- Creditreform assumes that a company / issuer has failed to comply with one or more specific substantial payment obligations in accordance with the above definition of a default, but no application for insolvency has yet been filed. This typically applies when other payment obligations or other creditors continue to be paid fully and on time (for example, while restructuring a debt instrument).

- Once the grounds for diagnosing a selective default (SD) no longer apply, for example: after a restructuring of debt has been completed, the rating will be promptly reviewed and raised to a level of creditworthiness above selective default, usually in the lower non-investment grade range.

If Creditreform assumes that the occurrence of one of the aforementioned default criteria is imminent, for example following corporate announcements of measures that have not yet been formally implemented, the company in question will usually be assigned to the lowest category of creditworthiness, i.e. "C (watch)".

Source: Creditreform

Appendix 3: Default rates of each rating category

Figure 7: Number of rated items, with relevant weights[10]

	AAA	AA	A	BBB	BB	B	C
01Jan2001		0.5					
01Jul2001		0.5	0.5				
01Jan2002		0.5	0.5				
01Jan2003			1.5				
01Jul2003			1.5				
01Jan2004			1.5	0.5			
01Jul2004			1.5	0.5			
01Jan2005			1.0	1.0			
01Jul2005			1.5	1.0			
01Jan2006			1.5				
01Jul2006			1.0	0.5	1.0		
01Jan2007			2.0	1.0			
01Jul2007			2.0	0.5			
01Jan2008			2.5	1.5	1.0		
01Jul2008			3.0	1.5	1.0		
01Jan2009			2.0	1.5	0.5		
01Jul2009			1.5	2.0	0.5		
01Jan2010			3.0	2.0			
01Jul2010			3.5	3.0	1.0		
01Jan2011			3.0	7.0	2.5		
01Jul2011			6.0	14.0	12.5		
01Jan2012			6.0	14.5	15.0	1.0	
01Jul2012			3.5	18.5	16.0	0.5	
01Jan2013			6.5	23.0	23.5	0.5	
01Jul2013		1.0	6.0	16.5	21.0	4.0	
01Jan2014		2.0	5.0	13.5	19.0	8.0	0.5
01Jul2014		1.0	8.0	11.0	17.0	8.5	1.0
01Jan2015		1.0	6.5	16.0	11.5	8.5	2.0
01Jul2015		1.0	4.0	20.5	11.0	11.0	1.5
01Jan2016	0.5	0.5	8.5	27.5	13.5	7.5	4.5
01Jul2016	0.5	0.5	5.0	28.0	8.0	8.0	3.5
01Jan2017		3.0	11.0	29.5	8.0	6.0	2.0
01Jul2017		7.0	24.0	53.5	6.5	5.5	2.0
01Jan2018		8.5	29.0	68.5	6.5	4.0	0.5
01Jul2018	2.0	10.0	38.5	93.0	8.0	3.0	0.5
01Jan2019	1.5	10.0	40.5	73.0	6.0	3.5	
01Jul2019	1.5	10.0	44.5	83.5	5.5	4.0	
01Jan2020	1.5	12.0	46.0	88.0	6.0	2.5	
01Jul2020	1.5	12.0	48.5	81.0	7.0	1.5	1.5
01Jan2021	1.5	10.0	46.0	81.0	6.5	2.0	2.5

Source: Joint Committee calculations based on CEREP and RADAR data

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

Figure 8: Number of defaulted rated items

	AAA	AA	A	BBB	BB	B	C
01 Jan 2001		0					
01 Jul 2001		0	0				
01 Jan 2002		0	0				
01 Jan 2003			0				
01 Jul 2003			0				
01 Jan 2004			0	0			
01 Jul 2004			0	0			
01 Jan 2005			0	0			
01 Jul 2005			0	0			
01 Jan 2006			0				
01 Jul 2006			0	0	0		
01 Jan 2007			0	0			
01 Jul 2007			0	0			
01 Jan 2008			0	0	0		
01 Jul 2008			0	0	0		
01 Jan 2009			0	0	0		
01 Jul 2009			0	0	0		
01 Jan 2010			0	0			
01 Jul 2010			0	0	0		
01 Jan 2011			0	0	1		
01 Jul 2011			0	3	3		
01 Jan 2012			0	4	3	1	
01 Jul 2012			0	3	5	0	
01 Jan 2013			0	4	5	0	
01 Jul 2013	0	0	3	4	2		
01 Jan 2014	0	0	0	2	2	0	
01 Jul 2014	0	0	0	1	2	0	
01 Jan 2015	0	0	0	0	0	0	
01 Jul 2015	0		2		3		
01 Jan 2016			1	2	2	1	
01 Jul 2016					2		
01 Jan 2017					1		
01 Jul 2017						1	
01 Jan 2018							
01 Jul 2018							
01 Jan 2019							
01 Jul 2019					1		
01 Jan 2020					1		
01 Jul 2020							
01 Jan 2021							

Source: Joint Committee calculations based on CEREP and RADAR data

Figure 9: Mapping proposal for rating categories with a non-sufficient number of credit ratings

1 Jan 2014 - 31 Jul 2018	AAA/AA	A	BBB	BB
CQS of equivalent international rating category	CQS1	CQS 2	CQS 3	CQS 4
N. observed defaulted items	0	0	3	5
Minimum N. rated items	0	0	11	47
Observed N. rated items	37.5	139.5	361	109.0
Mapping proposal	CQS1	CQS 2	CQS 3	CQS 4

1 Jan 2009 - 31 Dec 2013	AAA/AA	A	BBB	BB
CQS of equivalent international rating category	CQS1	CQS 2	CQS 3	CQS 4
N. observed defaulted items	0	0	17	21
Minimum N. rated items	0	0	552	CQS 5
Observed N. rated items	1	41.0	102.0	92.5
Mapping proposal	CQS1	CQS 2	CQS 4	CQS 5

1 Jan 2004 - 31 Dec 2008	AAA/AA	A	BBB	BB
CQS of equivalent international rating category	CQS1	CQS 2	CQS 3	CQS 4
N. observed defaulted items	0	0	0	0
Minimum N. rated items	0	0	0	0
Observed N. rated items	0	17.5	8.0	3.0
Mapping proposal	CQS1	CQS 2	CQS 3	CQS 4

Source: Joint Committee calculations based on CEREP and RADAR data

Figure 10: Short-run and proxy of the long-run default rates

	B
01 Jan 2009	
01 Jul 2009	
01 Jan 2010	
01 Jul 2010	
01 Jan 2011	
01 Jul 2011	
01 Jan 2012	100.00%
01 Jul 2012	0.00%

01 Jan 2013	0.00%
01 Jul 2013	50.00%
01 Jan 2014	25.00%
01 Jul 2014	23.53%
01 Jan 2015	0.00%
01 Jul 2015	27.27%
01 Jan 2016	26.67%
01 Jul 2016	25.00%
01 Jan 2017	16.67%
01 Jul 2017	
01 Jan 2018	
01 Jul 2018	
01 Jan 2019	
01 Jul 2019	25.00%
01 Jan 2020	40.00%
01 Jul 2020	
01 Jan 2021	
Weighted Average	17.83%

Source: Joint Committee calculations based on CEREP and RADAR data

Figure 11: Short-run and long-run observed default rates of rating category B
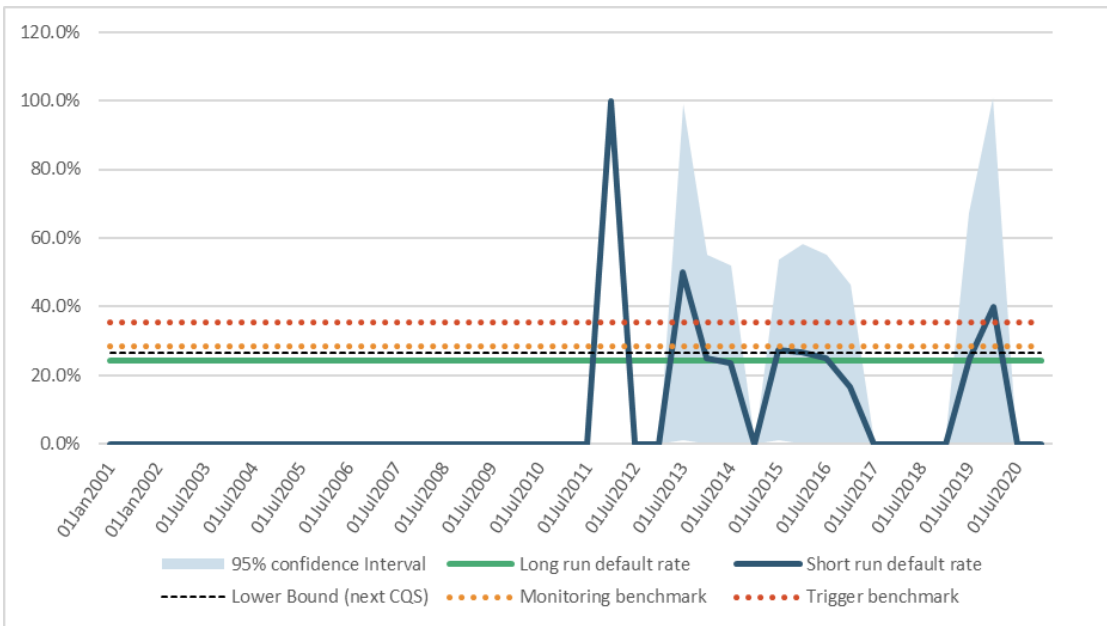
Source: Joint Committee calculations based on CEREP and RADAR data

Appendix 4

Figure 12: Mapping of Creditreform's Long-term issuer rating scale

Credit assessment	Initial mapping based on LRDR (CQS)	Review based on SRDR (CQS)	Final review based on qualitative factors (CQS)	Main reason for the mapping
AAA	1/1/1	n.a.	1	The quantitative factors are representative of the final CQS.
AA	1/1/1	n.a.	1	
A	2/2/2	n.a.	2	The quantitative factors are representative of the final CQS.
BBB	3/4/3	n.a.	3	The quantitative factors are representative of the final CQS.
BB	4/5/4	n.a.	4	The quantitative factors are representative of the final CQS.
B	5	n.a.	5	The quantitative factors are representative of the final CQS.
C	6	n.a.	6	The quantitative factors are representative of the final CQS.
D	na.	n.a.	6	The meaning and relative position of the rating category is representative of the final CQS.
SD	na.	n.a.	6	

Figure 13: Mapping of Creditreform's Short-term credit rating scale

Credit assessment	Corresponding Long-term issuer credit ratings scale assessment	Range of CQS of corresponding Long-term issuer rating scale	Final review *based on qualitative factors* (CQS)	Main reason for the mapping
L1	AAA/AA	1	1	
L2	A	2	2	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category.
L3	BBB	3	3	
NEL	BBB/B/C	5-5-6	4	The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4.
D	D	6	4	

Figure 14: Mapping of Creditreform's Long-term issue credit rating 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	
AA	AA	1	1	
A	A	2	2	
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.
BB	BB	4	4	
B	B	5	5	
C	CC	6	6	
D	SD/D	6	6	