Mapping of Banque de France's 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 Banque de France (BdF).

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

3. The mapping should not be understood as a comparison of the rating methodologies of BdF with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating categories of BdF 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 Regulation, it is necessary 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. Therefore, the relevance of quantitative factors for deriving the mapping should be relaxed. This allows ECAIs which present limited quantitative information to enter the market and increases competition. Updates to the mapping should be made wherever this becomes necessary to reflect additional quantitative information collected after the entry into force of the revised draft ITS.

5. The resulting mapping tables have been specified in Annex III of the Implementing Regulation . Figure 1 below shows the result for the only ratings scale of BdF, the Global long-term issuer rating scale (Cotation Banque de France).

[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 BdF Global long-term issuer credit ratings scale

Credit assessment	Credit quality step
3++	1
3+	2
3	2
4+	3
4	4
5+	4
5	5
6	5
7	6
8	6
9 (Default)	6
P (Failure)	6

2. Introduction

6. This report describes the mapping exercise carried out by the Joint Committee (JC) to determine the 'mapping' of the credit assessments of Banque de France (BdF).

7. BdF is a credit rating agency that is not registered with ESMA due to its National Central Bank status. However, it meets the conditions to be an eligible credit assessment institution (ECAI) since 2007. BdF assesses credit claims since 1970. The credit rating activities of BdF are conducted in France only, through various BdF branches that operate in accordance with policies and procedures and criteria that are defined at centralised level.

8. The methodology applied to produce the mapping is the one specified in the Commission's Implementing Regulation (EU) 2016/1799 ('the Implementing Regulation') laying down Implementing Technical Standards (ITS) with regard to the mapping of credit assessments of External Credit Assessment Institutions (ECAIs) for credit risk in accordance with Articles 136(1) and (3) of the Regulation (EU) No 575/2013 of the European Parliament and the Council ('the CRR'). This Implementing Regulation employs a combination of the provisions laid down in Article 136(2) CRR. Since BdF does not report its rating information to ESMA Central Repository (CEREP[2]), all necessary information has been directly requested to BdF. In particular, quantitative and qualitative information has been used to obtain an overview of the main characteristics of this ECAI and to calculate the default rates of its credit assessments. Also, detailed information regarding the default definition has been provided by the *Autorité de contrôle prudentiel et de résolution* (ACPR).

9. The following sections describe the rationale underlying the mapping exercise carried out by the Joint Committee (JC). Section 3 describes the relevant ratings scales of BdF for the purpose of the mapping. Section 4 contains the methodology applied to derive the mapping of BdF's ratings scale. The mapping tables are shown in Appendix 4 of this document and have been specified in Annex III of the ITS on the mapping of ECAIs' credit assessments under Article 136(1) and (3) of the CRR.

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

3. BdF credit ratings and rating scales

10.BdF produces one type of credit ratings, the **Long-term issuer rating**, which may be used by institutions for the calculation of risk weights under the Standardised Approach (SA)[3] , as shown in column 2 of Figure 2 in Appendix 1.

11.BdF assigns these credit ratings to the **Global long-term issuer credit ratings scale** as illustrated in column 3 of Figure 2 in Appendix 1. Therefore, a specific mapping has been prepared for this rating scale. The specification of the Global rating scale is described in Figure 3 of Appendix 1. This rating scale has been introduced on 5 April 2004 and it includes 11 rating categories, versus the 4 rating categories under the previous rating scale.

12.The mapping of the Global 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 ITS.

4. Mapping of BdF's Global long-term issuer credit ratings scale

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

14.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.

15.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.

[3] 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.

4.1. Initial mapping based on the quantitative factors

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

16.The short run and long run default rates of each rating category have been calculated with the pools of items rated from 1 January 2005 to 1 January 2011[4], based on the information provided by BdF and according to the provisions laid down in the ITS. The following aspects should be highlighted:

- For 3++ to 4+ rating categories, the rating criteria have been tightened since 2007 in order to meet the ECAF recognition requirements. Therefore only the default rates from 2010 onwards are representative of the current pool of rated items. The number of ratings in these rating categories cannot be considered sufficient for the calculation of the short and long run default rates specified in Articles 3 – 5 of the ITS. Therefore the allocation of the CQS has been made in accordance with Article 6 of the ITS. 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 the 7 rating category, no calculation of default rates has been made because it has been introduced in 2011 and it already reflects a ‘default’ situation.

- For the P rating category, no calculation of default rates has been made since they already reflect a ‘default’ situation.

- For the remaining 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 ITS[5]. The result of the calculation of the short run and long run default rates for each rating category is shown in Figure 4 to Figure 6 of Appendix 3.

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

18.The default definition applied by BdF, 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

19.As illustrated in the second column of Figure 15 and Figure 16 in Appendix 4, rating categories 4 to 9 (except 7) of the Long-term issuer credit rating scale of BdF have been initially allocated to each CQS based on the comparison of the long run default rates (see Figure 6 in Appendix 3)

[4] Ratings belonging to 1 January 2005 refer to the financial statements from 2003. According to BdF information, 70% of ratings based on the 2003 financial accounts were directly assigned according to the new rating scale. Therefore, the observation period for ratings assigned under the Global long-term issuer credit ratings scale starts in 2005.

[5] Based on the results of a simulation provided by BdF of the ratings for the 2000 – 2004 period under the new rating scale, the available observation period (2005 – 2011) can be considered as representative of the 2000 - 2011 period and therefore it is not necessary to estimate the short run default rates of years 2000 to 2004.

and the long run default rate benchmark intervals established in point (a) of Article 14 of the ITS.

20. In the case of rating categories 3++ to 4+, since the default rates do not comply with Articles 3 – 5 of the ITS the allocation of the CQS has been made in accordance with Article 6 of the ITS, by considering the number of defaulted and non-defaulted items. However, the size of the pools is too large[6] 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[7] (see Figure 6 in Appendix 3). Thus the computed short run default rates and the proxy of the long run default rate are considered as a first indicator to perform the allocation to each CQS, together with the prior expectation of the equivalent rating category of the international rating scale. 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. In accordance with these factors 3++, 3+ and 4+ rating categories can be assigned respectively with CQS 1, CQS 2 and CQS 3. In case of rating category 3 the short and long run default rates are very close to the lower bound of CQS 3, so that the quantitative factors would suggest the assignment to either CQS 2 or CQS 3. Further analysis of qualitative factors would be required to confirm the CQS in this case.

4.1.3. Reviewed mapping based on the short run default rates

21. As shown in Figure 7 to Figure 12 in Appendix 3, the short run default rates of rating categories 4 to 9 (except 7) have been compared with the short run default rate benchmark values established in point (b) of Article 14 of the ITS[8].

22. 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 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.

23. The result of this comparison can be found in the third column of Figure 15 and Figure 16 in Appendix 4. In general, all short run default rates show a very stable pattern over time and do not breach the monitoring or trigger levels. Therefore, all mapping proposals based on the long run default rates are confirmed at this stage.

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[6] 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.

[7] It has to be noted that in this situation the proxy LRDR is formally not a LRDR, the latter needs indeed to be computed over at least 10 short run default rates. We are here abusing of the LRDR naming.

[8] 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. 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 CQS 6.

4.2. Final mapping after review of the qualitative factors

24.The qualitative factors specified in Article 7 of the ITS have been used to challenge any 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 especially the case of 3++ to 4+ rating categories.

25.The **short run default rates** available for years 2010 and 2011 provide an initial (not robust) estimate of the level of risk underlying the rating categories 3++ to 4+. However, given the stability shown by the short run default rates of the BdF's rating categories, it can be argued that they may not deviate substantially from their long term levels. As a result, 3++, 3+, 3 and 4+ would be mapped to CQS1, CQS2, CQS2 and CQS3 respectively. However, in the case of rating category 3, the proximity of its value to the lower bound of CQS 3 requires that additional evidence is presented to reinforce this mapping.

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

- The types of default events considered are shown in Appendix 2. Regarding those specified in Article 4(4) of the ITS, 'failure' can be considered as consistent with point (a) whereas 'default' can be considered as representative of point (b). Point (d) is not relevant for BdF's pool of rated items.

- The information provided by BdF reveals that the share of bankruptcy-related events is close to 85%.

27.The share of bankruptcy-related defaults shown in the previous paragraph suggests that the definition of default may not capture all relevant events. Figure 13 of Appendix 3 shows the evolution of the recent 1-year default rates of 3++, 3+, 3 and 4+ rating categories, and in the grey-shaded columns, the default rate under a stricter (Basel 2-type) default definition[10]:

- In the case of categories 3++, 3+ and 4 there is no significant increase in the number of defaults. Therefore, the mapping implied by the short and long run default rates would be appropriate.

- In the case of rating category 3, the stricter default definition reveals a significant number of additional defaults, compared to other rating categories. Given that the short and long run default rates of rating category 3 are very close to the lower bound of the next CQS, a more conservative CQS is suggested.

[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 ITS.

[10] This default definition, which shares common characteristics that ensure a certain harmonisation in the interpretation of the Basel II default definition, is used by BDF in the context of the Eurosystem ECAF framework.

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28. Regarding **the meaning and relative position of the credit assessments**, it suggests the following mapping for the different rating categories:

- Rating categories below 4 can be considered to belong to the speculative area and therefore should be mapped between CQS 4 and CQS 6. This is consistent with the long run default rate observed for these categories, ranging between 4.23% and 58.39%.

- In the case of category 4+, it can be safely argued that it should be mapped to CQS 3 given that 4 is mapped to CQS4 and the meaning suggests a substantially better credit quality.

- In the case of categories 7 and P, where default rates are not available, their meaning is consistent with the one of CQS 6 stated in Annex II of the ITS.

- Regarding the remaining rating categories (3++, 3+ and 3), their meaning and relative position suggest a mapping to CQS 1 or CQS 2.

29. Regarding the **time horizon** reflected by the rating category, BdF rating methodology focuses on the long-term. However, this does not result in a high stability of the firms assigned to some of the best rating categories. As shown in Figure 14 of Appendix 3, the probability of keeping a high rating (i.e. 3++ to 3) after 3 years is close to 85% and 70% for 3++ and 3+ categories respectively. However, in the case of category 3, this probability is close to 55%, significantly lower than the values expected to CQS 1 and CQS 2. Among the reasons for this behavior, the size of the firms (75% have an annual turnover below 7.5 Million euros) may suggest a high vulnerability of these firms to unforeseen circumstances. For the rest of the categories, this factor is less relevant given the availability of observed long run default rates.

30. For all the reasons provided in the previous paragraphs, the final mapping for 3++, 3+, and 4+ are CQS 1, CQS2 and CQS 3 respectively, and the mapping proposals based on the quantitative factors are confirmed. In case of rating category 3, where the quantitative factors are not conclusive, the considerations from the qualitative factors would suggest a final mapping to CQS 3. However, in line with the content of Recital 12 of the ITS, due to the limited quantitative information available on the 3 rating category that does not quantitatively allow to conclusively assign CQS 2 or CQS 3, the JC of the ESAs considers that CQS 2 can be assigned, also on the basis of the meaning and relative position of this rating category.

Appendix 1: Credit ratings and rating scales

Figure 2: BdF relevant credit ratings and rating scales

SA exposure classes	Name of credit rating	Credit rating scale
Long-term ratings		
Corporates	Long-term issuer rating	Global long-term issuer credit ratings scale

Source: BdF

Figure 3: Global long-term issuer credit ratings scale

Credit assessment	Meaning of the credit assessment
3++	The company displays excellent earning power and excellent solvency. The ability of the company to meet its financial commitments is considered excellent. The financial situation is particularly satisfactory. Furthermore, the company has an excellent ability to withstand unfavourable changes in its environment or the occurrence of particular events.
3+	A credit rating of 3+ is assigned when one or more of the financial conditions required for awarding a credit rating of 3++ are not met, although without warranting the assignment of credit rating 3. The ability of the company to meet its financial commitments is, however, considered very good. The financial situation is very satisfactory, although the company’s ability to withstand unfavourable changes in its environment or the occurrence of particular events, whilst being very high, may not reach that required for assignment of credit rating 3++.
3	The company has in principle satisfactory earning power and solvency. The ability of the company to meet its financial commitments is considered good. The financial situation may also be particularly satisfactory or very satisfactory but the company’s ability to withstand unfavourable changes in its environment or the occurrence of particular events, whilst being high, may not reach that required for assignment of credit rating 3++ or 3+. On an exceptional basis, in situations where earning power is only just satisfactory and is compensated for by excellent solvency, a credit rating of 3+ rather than 3 may be assigned.
4+	The financial situation, assessed on the basis of recent accounting records, does not display the robust characteristics that would allow the assignment of a more favourable rating. The company’s ability to meet its financial commitments is deemed to be quite good but the company's financial situation displays moderate elements of uncertainty or fragility. No potential risks are anticipated in the company's liquidity.
4	Factors of uncertainty or fragility are more pronounced than for a rating of 4+, without there apparently being any financial imbalances, and notably when weaknesses relating to earning power, financial autonomy, liquidity or solvency are observed. The company’s ability to meet its financial commitments is still deemed to be acceptable, taking account in particular of these more pronounced elements of uncertainty or fragility.

5+	Financial imbalances remain limited, notably in situations where: self-financing capacity is positive ; and when the company does not display very insufficient earning power at the same time as a very high level of debt. The ability of the company to meet its financial commitments is deemed to be fairly poor.
5	Financial imbalances observed are more pronounced, nonetheless without being considered "serious". The financial situation displays pronounced imbalances relating, for example, to earning power or the financial structure, in particular when: self-financing capacity is negative; or, together with this, earning power is insufficient or negative and the financial debt rate is very high. The ability of the company to meet its financial commitments is considered poor.
6	Very poor ability to meet its financial commitments. The company’s financial position displays serious financial imbalances (e.g. earning power has been strongly negative over three consecutive financial years; self-financing capacity has been strongly negative, given the level of business, for three consecutive financial years; financial charges have accounted for a very high percentage of EBITDA for three financial years; equity is negative or drastically reduced by losses (especially if it has dropped to less than half of the equity capital); liquidity risk is very high). In the case of limited companies, if equity is less than half of the equity capital throughout the 36 months after the date of the annual general meeting or the date of the balance sheet on which losses were first observed, or if equity is negative, in principle this results in a rating of 6. However, the network unit may prefer to assign a credit rating of 5+ when shareholders or partners have decided to continue the business, taking the following into consideration: (i) if the financial structure remains adequate, even though half of the equity capital has been lost (for example, the overall risk coverage rate and financial debt rate are at satisfactory levels); (ii) the partners’ equity contribution, in the form of partners’ current accounts, is sufficient to raise shareholders’ capital to more than half of the equity capital (the financial situation also not displaying other factors of imbalance likely to warrant a credit rating of 5 or 6). Furthermore, after a period of 36 months following the date of the annual general meeting or the date of the balance sheet on which the loss of more than half the capital was first observed, in the event that the company did not have a credit rating of 5+ in one of the above situations, a credit rating of 5 replaces the rating of 6, on condition nevertheless that the financial situation does not display any imbalances that are considered serious (credit rating 5+ is maintained if the company satisfies all conditions associated with this credit rating of 5+).

7	Credit rating 7 is automatically assigned to non-significant companies for which at least one payment incident arising from a unit amount equal to or more than €1,524 on the grounds of "inability to pay" (apart from reason 31) is stated during the previous 6 months. BdF does not investigate a company's accounting records on the sole grounds that declarations of payment incidents have been recorded in its name, if this company’s turnover before tax is below the threshold used for collecting the aforementioned records. In the case of companies rated without an analysis of accounting records, credit rating 7 necessarily replaces credit ratings 0, 4, 5+, 5, 6. Credit rating 7 is assigned to a company on condition that the number of payment incidents stated does not result in a credit rating of 8 or 9 and that it is not the subject of a judicial procedure that warrants a credit rating of P. Credit rating 7 may also be assigned to significant companies for which at least one payment incident arising from a unit amount equal to or more than €1,524 on the grounds of "inability to pay" (apart from reason 31) is stated during the previous 6 months and when the total outstanding for this same reason is less than the thresholds for assigning ratings 8 and 9. Credit rating 7 "with balance sheet" is not automatic: its assignment is subject to an analyst’s decision. However, an in-depth analysis of a company’s situation should only be conducted selectively. It will in particular need to be carried out when the active credit rating is favourable (from 3++ to 4+) or when the outstanding amount appears to be low in comparison with the size of the company (turnover rating A to D). The existence of a Basel default is an aggravating factor in the assignment of rating 7 to a major company.
8	In the absence of a court ruling resulting in a P rating, credit rating 8 is assigned to companies whose payments are irregular. The company's ability to meet its financial commitments is considered to be at risk taking account of stated payment incidents.
9	(Default) In the absence of a court ruling resulting in a P rating, credit rating 9 is assigned to companies whose payments are very irregular. The company's ability to meet its financial commitments is compromised and stated payment incidents indicate a cash burden.
P	Failure

Source: BdF

Appendix 2: Definition of default

BdF adopts two concepts corresponding to a more or less comprehensive definition of default:

– a company is said to be in "**failure**" if legal proceedings (reorganisation procedure or judicial winding up) have been initiated against it, whereby the company receives a P rating. Even when this rating is replaced by a more favourable rating, for example following a business continuation plan, the company nonetheless remains in the "failure" category for statistical calculations;

– a company is said to be in "**default**" if legal proceedings have been initiated against it or if the company receives a rating of 9 during the period of observation following trade bill payment incidents declared by one or several credit institutions. The period considered for the assigning of this rating is the past six months. Thus, after the allocation of a rating of 9, if a company's payments become regular again, it can be upgraded from the "default" category and assigned a more favourable rating, following a comprehensive study by the analyst. The company's rating nonetheless remains within the "default" category for statistical calculations.

By definition, the default rate calculated for a given population is thus always greater than or equal to the probability of failure and the default rate for companies initially rated 9 is 100%.

The concept of business failure is used as a reference to measure the BdF's performance within the framework of the system of reporting to the European Central Bank (ECB) by national central banks that rate private credit. This objective opinion of risk is widely made available, almost immediately, as soon as the declaration is made.

The concept of default, which is more extensive, is based on information from the database of trade bill payment incidents (CIPE) managed by the BdF by virtue of regulation n° 86-08 of the Banking regulations committee, dated 27 February 1986. The CIPE receives and centralises declarations by credit institutions of trade bill payment incidents. Their gravity influences the rating level, from 7 (trade bill payment incidents arising from the company's inability to pay for the past 6 months) to 8 (on the basis of payment incidents reported over the past 6 months, the company's solvency is under threat), or 9 (on the basis of payment incidents reported over the past 6 months, the company's solvency is seriously compromised).

In comparison with business failure, default identified through payment incidents allows defaults to be detected earlier and more comprehensively. Indeed, the high delinquency rate of companies rated 9 that record major payment incidents and rarely experience a revival of fortune warrants the inclusion of this last credit rating in a default category consistent with the definition given by the Basel Committee.

The default considered here is limited to bills of exchange and is not measured with aggregate debt, although the significance of trade credit in the financing of companies makes it particularly appropriate to consider these payment incidents in the analysis of credit risk.

This concept of default also provides a good compromise between the requirements of predictive power and stability:

- a sufficiently predictable indicator because the default on trade bills often precedes the default on banking loans, which in turn precedes the default on bonds and the "legal" default established by the initiation of insolvency proceedings (because the latter two bring to light the company's difficulties)

- a sufficiently "stable" indicator to be operational, as it is not associated with an excessively rapid or high rate of return to "healthy" categories .

Source: BdF

Appendix 3: Default rates of each rating category

Figure 4: Number of rated items

Date	3++	3+	3	4+	4	5+	5	6	7	8	9	P
01/01/2005					32,244	30,042	27,307	9,749	n.a.	930	626	n.a.
01/01/2006					33,926	30,901	26,076	9,094	n.a.	887	552	n.a.
01/01/2007					35,426	32,174	25,523	8,827	n.a.	840	568	n.a.
01/01/2008					38,393	34,878	26,131	9,248	n.a.	825	520	n.a.
01/01/2009					40,723	39,109	25,535	9,868	n.a.	1,044	582	n.a.
01/01/2010	11,271	20,769	29,704	52,847	50,834	43,169	26,339	10,037	n.a.	1,124	384	n.a.
01/01/2011	8,768	22,250	30,220	44,971	52,994	43,800	26,215	10,751	n.a.	1,122	343	n.a.

Source: Joint Committee calculations based on BdF data

Figure 5: Number of defaulted rated items

Date	3++	3+	3	4+	4	5+	5	6	7	8	9	P
01/01/2005					1,214	1,598	2,670	1,061	n.a.	520	626	n.a.
01/01/2006					1,271	1,649	2,586	970	n.a.	532	552	n.a.
01/01/2007					1,496	1,742	2,776	1,003	n.a.	482	568	n.a.
01/01/2008					1,708	2,213	3,106	1,169	n.a.	522	520	n.a.
01/01/2009					2,037	2,638	3,281	1,248	n.a.	611	582	n.a.
01/01/2010	12	63	159	936	2,160	2,666	3,315	1,102	n.a.	635	384	n.a.
01/01/2011	6	62	153	664	2,146	2,677	3,179	1,226	n.a.	652	343	n.a.

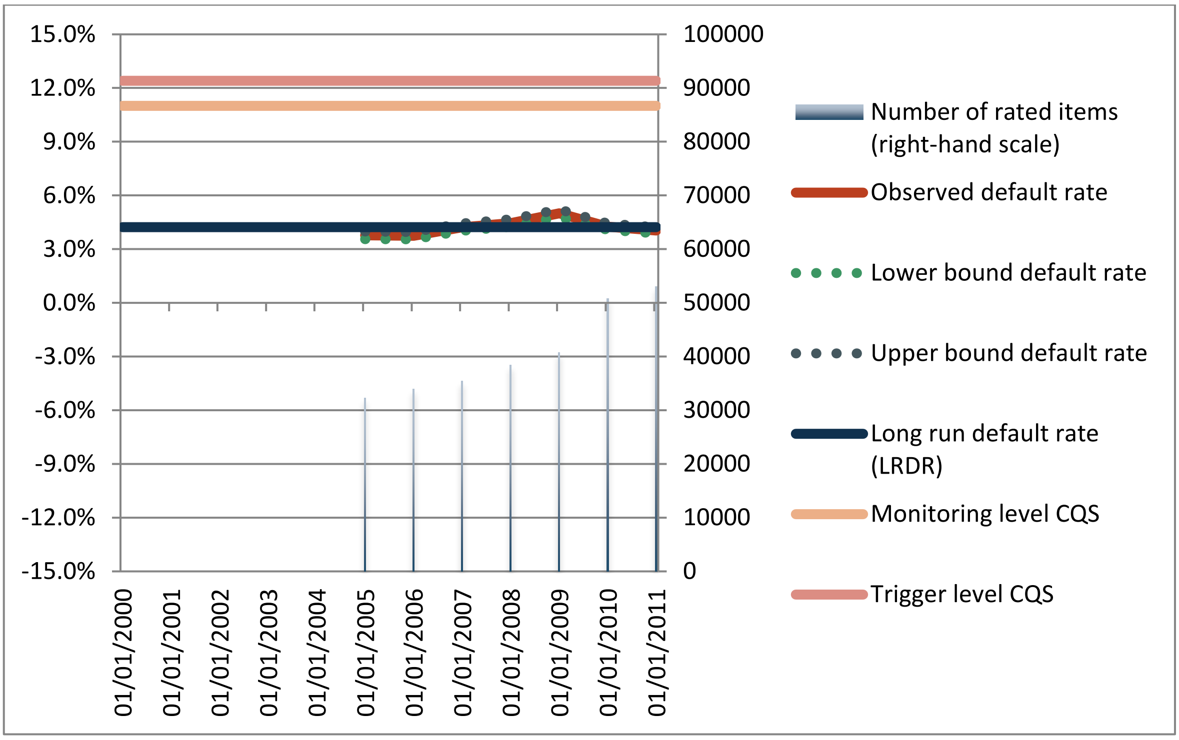
Source: Joint Committee calculations based on BdF data

Figure 6: Short-run and long-run observed default rates

Date	3++	3+	3	4+	4	5+	5	6	7	8	9	P
01/01/2005					3.77	5.32	9.78	10.88	n.a.	55.91	100.00	n.a.
01/01/2006					3.75	5.34	9.92	10.67	n.a.	59.98	100.00	n.a.
01/01/2007					4.22	5.41	10.88	11.36	n.a.	57.38	100.00	n.a.
01/01/2008					4.45	6.34	11.89	12.64	n.a.	63.27	100.00	n.a.
01/01/2009					5.00	6.75	12.85	12.65	n.a.	58.52	100.00	n.a.
01/01/2010	0.11	0.30	0.54	1.77	4.25	6.18	12.59	10.98	n.a.	56.49	100.00	n.a.
01/01/2011	0.07	0.28	0.51	1.48	4.05	6.11	12.13	11.40	n.a.	58.11	100.00	n.a.
Weighted Average	**0.09**	**0.29**	**0.52**	**1.64**	**4.23**	**5.98**	**11.42**	**11.51**	**n.a.**	**58.39**	**100.00**	**n.a.**

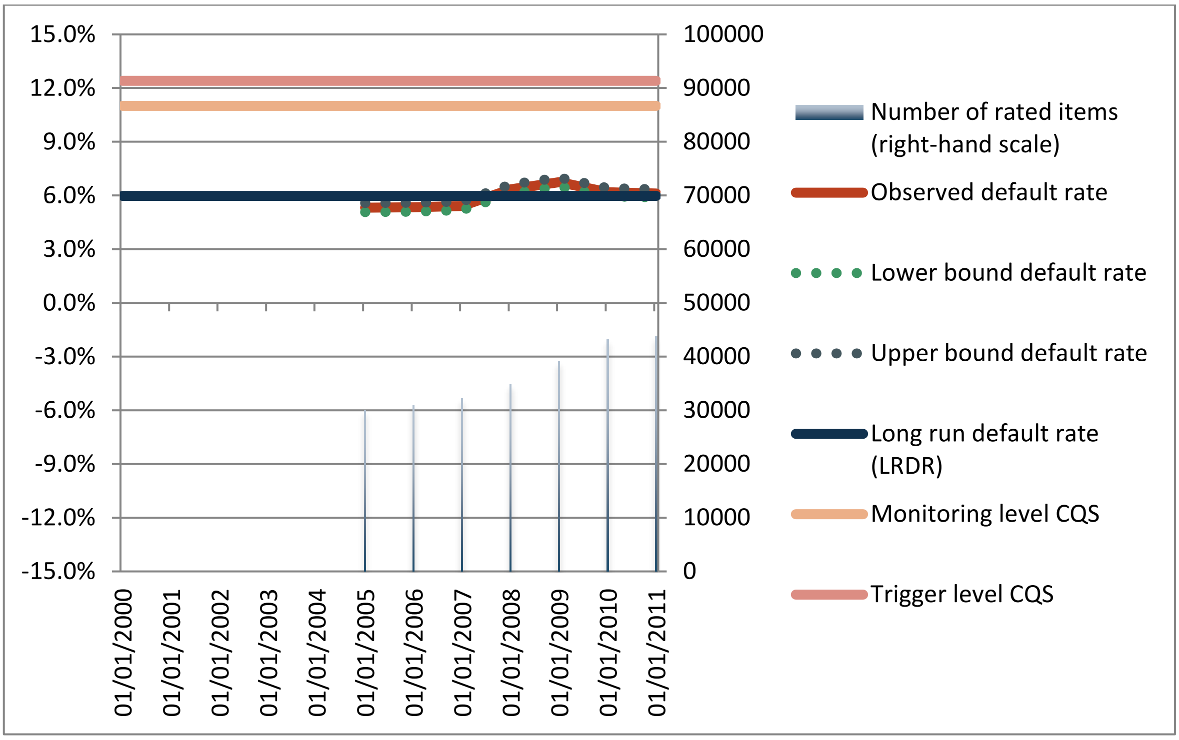
Source: Joint Committee calculations based on BdF data

Figure 7: Short-run and long-run observed default rates of 4 rating category



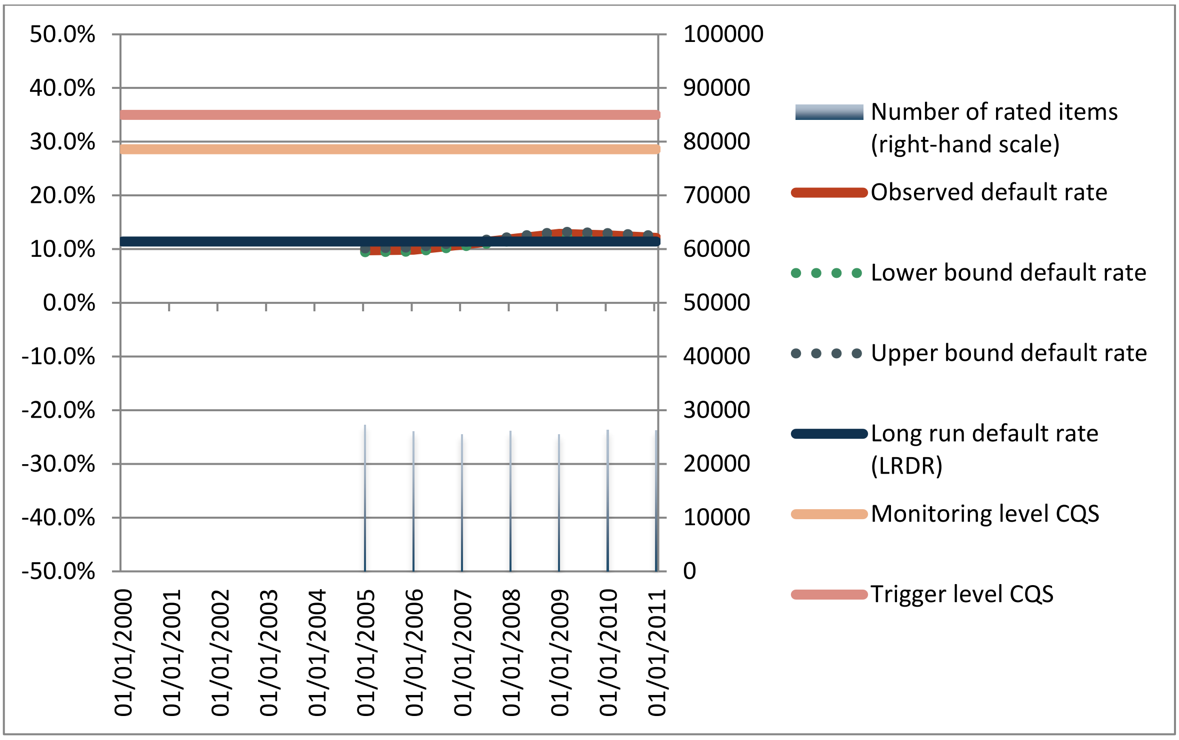
Source: Joint Committee calculations based on BdF data

Figure 8: Short-run and long-run observed default rates of 5+ rating category



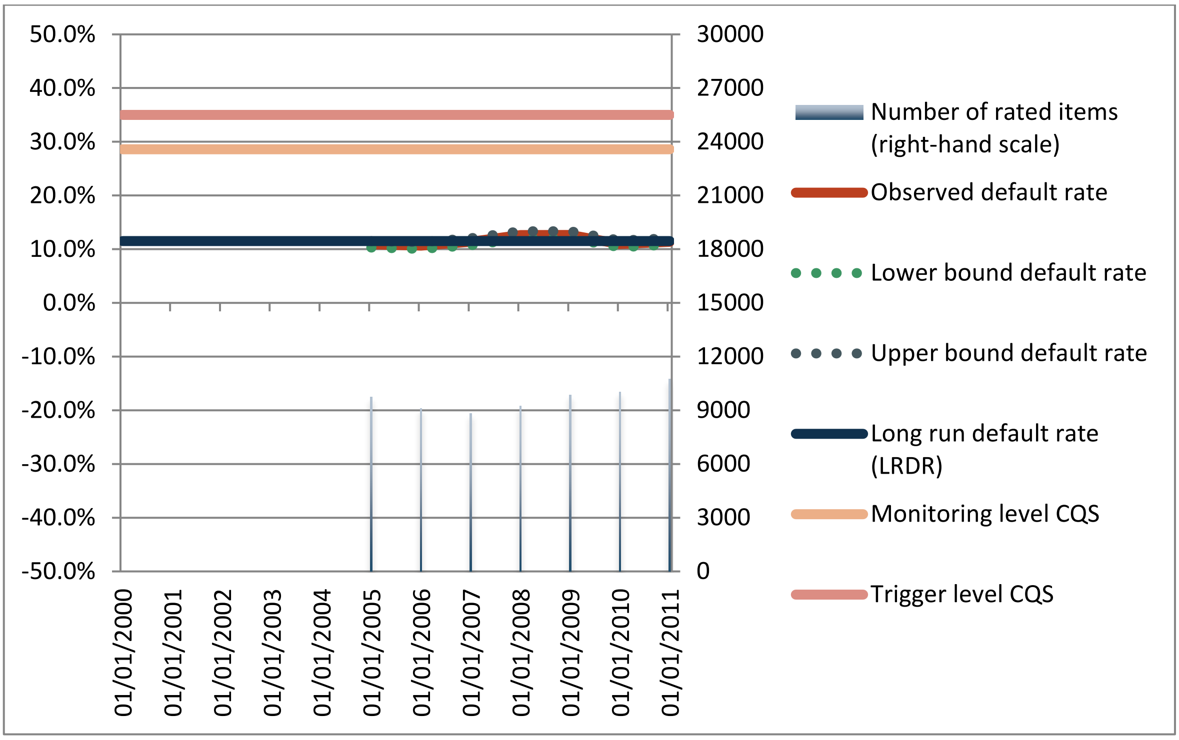
Source: Joint Committee calculations based on BdF data

Figure 9: Short-run and long-run observed default rates of 5 rating category



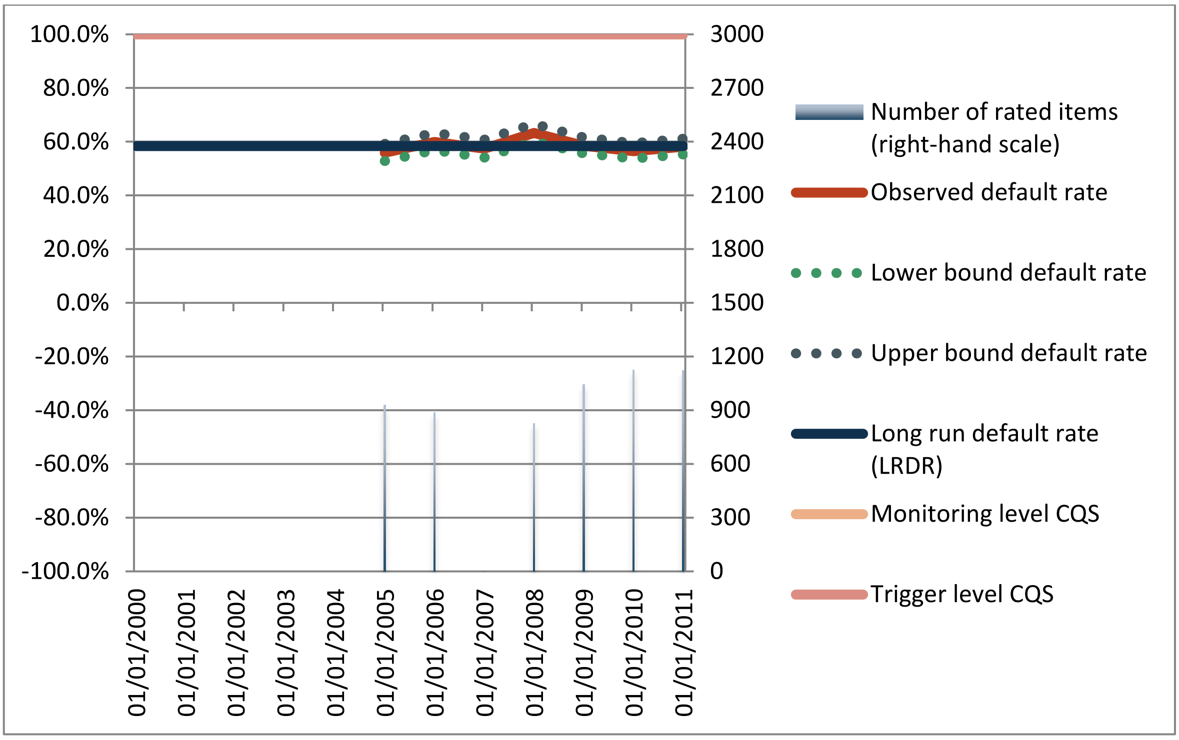
Source: Joint Committee calculations based on BdF data

Figure 10: Short-run and long-run observed default rates of 6 rating category



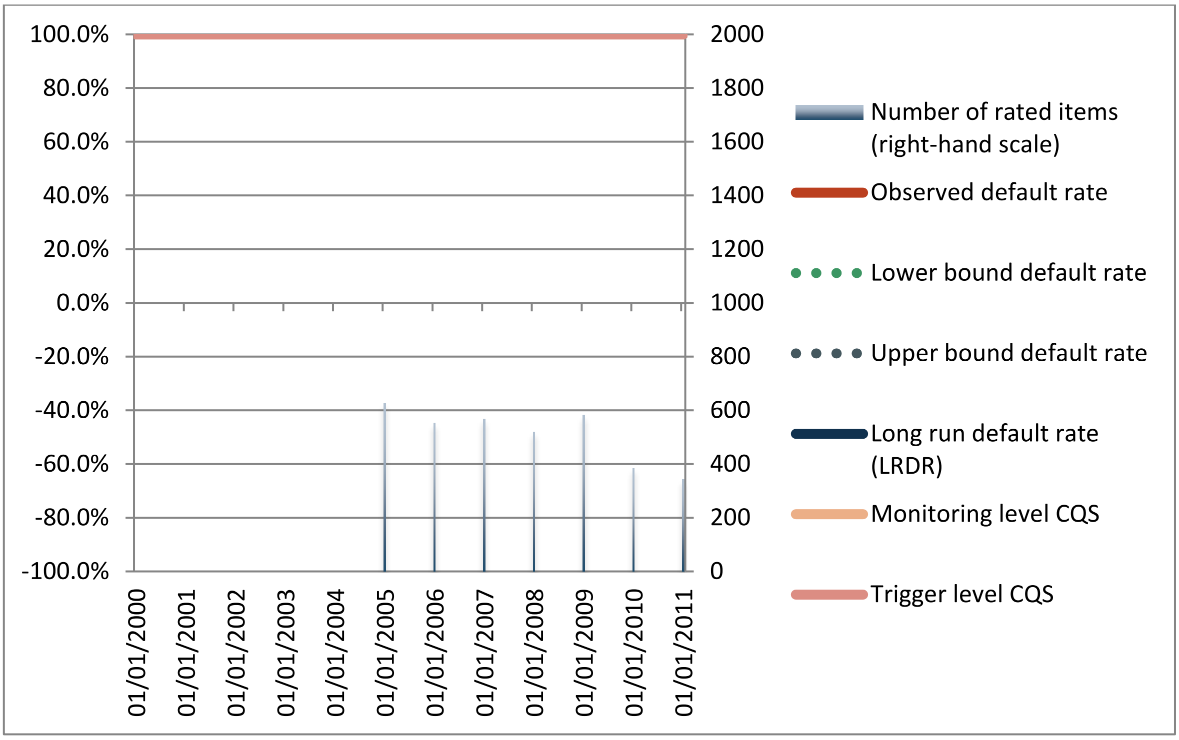
Source: Joint Committee calculations based on BdF data

Figure 11: Short-run and long-run observed default rates of 8 rating category



Source: Joint Committee calculations based on BdF data

Figure 12: Short-run and long-run observed default rates of 9 rating category



Source: Joint Committee calculations based on BdF data

Figure 13: Recent evolution of 1-year default rates in the low risk categories (3++, 3+, 3 and 4+)

	01/01/2010			01/01/2011			01/01/2012				01/01/2013			
	N. rated items	N. defaulted items	Default rate (%)	N. rated items	N. defaulted items	Default rate (%)	N. rated items	N. defaulted items	Default rate (%)	Basel 2 default rate (%)	N. rated items	N. defaulted items	Default rate (%)	Basel 2 default rate (%)
Rating category														
3++	11,271	1	0.01	8,776	1	0.01	8,866	0	0.00	0.01	9,600	2	0.02	0.02
3+	20,769	9	0.04	22,261	7	0.03	21,670	8	0.04	0.05	22,077	6	0.03	0.03
3	29,704	12	0.04	30,231	9	0.03	30,108	15	0.05	0.15	30,436	12	0.04	0.10
4+	52,847	160	0.30	44,988	87	0.19	40,025	84	0.21	0.37	39,835	65	0.16	0.35

Source: BdF

Figure 14: Transition matrix

3-year transition matrices, 6-year average (2005 - 2013)

Rating end period	3++	3+	3	4+	4	5+	5	6	8	9
Rating start period										
3++	45.7	26.3	12.1	7.8	5.6	1.5	0.7	0.1	0.0	0.0
3+	12.6	36.3	21.7	14.0	11.0	2.8	1.4	0.2	0.1	0.0
3	3.9	18.6	33.2	20.6	16.4	4.5	2.2	0.5	0.1	0.0
4+	1.8	7.6	17.0	32.5	25.2	9.7	5.0	1.0	0.2	0.0
4	0.5	2.8	8.3	33.3	26.6	16.6	9.2	2.2	0.4	0.1
5+	0.2	1.2	3.7	21.2	16.4	36.7	15.7	4.2	0.6	0.2
5	0.2	0.8	2.4	14.1	12.4	28.4	31.1	9.5	0.9	0.3
6	0.1	0.6	1.9	7.7	6.8	20.8	28.2	33.0	0.7	0.2
8	0.1	0.3	0.6	9.8	9.5	23.9	28.4	9.6	11.8	6.1

Source: Joint Committee analysis based on BdF data.

1-year transition matrices, 8-year average (2005 - 2013)

Rating end period	3++	3+	3	4+	4	5+	5	6	8	9
Rating start period										
3++	70.3	18.8	5.7	3.2	1.6	0.3	0.1	0.0	0.0	0.0
3+	10.3	60.3	16.5	7.4	4.6	0.6	0.3	0.0	0.0	0.0
3	1.7	16.2	56.3	14.2	9.8	1.1	0.5	0.1	0.0	0.0
4+	0.5	3.0	12.6	51.6	22.5	6.5	2.8	0.3	0.2	0.0
4	0.1	1.0	5.8	30.3	45.2	11.2	5.5	0.7	0.2	0.1
5+	0.0	0.1	0.5	12.8	11.9	57.7	13.9	2.4	0.5	0.2
5	0.0	0.1	0.3	5.8	7.3	24.0	53.4	7.8	1.0	0.3
6	0.0	0.1	0.2	1.9	2.3	12.0	19.4	63.1	0.8	0.3
8	0.0	0.0	0.1	2.7	5.0	14.8	31.7	12.1	22.6	11.2

Source: Joint Committee analysis based on BdF data.

Appendix 4: Mappings of each rating scale

Figure 15: Mapping of BdF Global 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
3++	1	n.a.	**1**	The qualitative factors confirm the quantitative factors mapping assignment of the CQS.
3+	2	n.a.	**2**	The qualitative factors confirm the quantitative factors mapping assignment of the CQS.
3	2/3	n.a.	**2**	Due to limited data availability to perform the mapping assignment and that quantitative factors are not representative of the final CQS, for the limited period of three years CQS 2 can be assigned also considering the meaning and relative position of this rating category.
4+	3	n.a.	**3**	The qualitative factors confirm the quantitative factors mapping assignment of the CQS.
4	4	4	**4**	The quantitative factors are representative of the final CQS.
5+	4	4	**4**	The quantitative factors are representative of the final CQS.
5	5	5	**5**	The quantitative factors are representative of the final CQS.
6	5	5	**5**	The quantitative factors are representative of the final CQS.
7	n.a.	n.a.	**6**	The meaning and relative position of the rating category is representative of the final CQS.

8	6	6	**6**	The quantitative factors are representative of the final CQS.
9 (Default)	6	6	**6**	The quantitative factors are representative of the final CQS.
P (Failure)	n.a.	n.a.	**6**	The meaning and relative position of the rating category is representative of the final CQS.