# Amended Draft Mapping of Moody's Investors Service 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 Moody's Investors Service (Moody's), with respect to the version published in May 2019.

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 submission of the draft Implementing Technical Standards by the JC to the European Commission. Regarding qualitative developments, the qualitative factors described in the Implementing Regulation remain unchanged while the ECAI has introduced Counterparty Risk Ratings.

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 Moody's with those of other ECAIs. This mapping should however be interpreted as the correspondence of the rating scale of Moody's with a regulatory scale which has been defined for prudential purposes.

[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.

5. Updates to the mapping should be made wherever this becomes necessary to reflect quantitative information collected after the entry into force of the Implementing Regulation.

6. The resulting mapping tables have been specified in Annex III of the Consultation Paper to 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 the main ratings scale of Moody's, the Global long-term rating scale.

Figure 1: Mapping of Moody's Global long-term rating scale

| Credit assessment | Credit quality step |
|---|---|
| Aaa | 1 |
| Aa | 1 |
| A | 2 |
| Baa | 3 |
| Ba | 4 |
| B | 5 |
| Caa | 6 |
| Ca | 6 |
| C | 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 Moody's Investors Service (Moody's), with respect to the version published in May 2019.

8. Moody's is a credit rating agency that has been registered with ESMA since 31 October 2011 and therefore meets the conditions to be an external credit assessment institution (ECAI)[4].

9. 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.

10. The information base used to produce this mapping report reflects additional quantitative information collected after the submission of the last draft Implementing Technical Standards by the JC to the European Commission. The quantitative information is drawn from data available in the ESMA's central repository (CEREP[5]) based on the credit rating information submitted by the ECAIs as part of their reporting obligations.

11. Regarding qualitative developments, the qualitative factors described in the Implementing Regulation remain unchanged while the ECAI has introduced Counterparty Risk Ratings.

12. The following sections describe the rationale underlying the mapping exercise carried out by the JC. Section 3 describes the relevant rating scales of Moody's for the mapping. Section 4 contains the methodology applied to derive the mapping of Moody's main ratings scale whereas Section 5 refers to the mapping of the short-term rating scale. 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.

[4] It is important to note that the mapping does not contain any assessment of the registration process of Moody's carried out by ESMA.
[5] https://cerep.esma.europa.eu/cerep-web/

## 3. Moody's credit ratings and rating scales

5. Moody's 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)[6]:

- **Long-term issuer ratings**, defined as opinions of the ability of entities to honour senior unsecured debt and debt like obligations. As such, issuer ratings incorporate any external support that is expected to apply to all current and future issuance of senior unsecured financial obligations and contracts, such as explicit support stemming from a guarantee of all senior unsecured financial obligations and contracts, and/or implicit support for issuers subject to joint default analysis (e.g. banks and government-related issuers). Issuer ratings do not incorporate support arrangements, such as guarantees, that apply only to specific (but not to all) senior unsecured financial obligations and contracts.

  While issuer ratings reflect the risk that debt and debt-like claims are not serviced on a timely basis, they do not reflect the risk that a contract or other non-debt obligation will be subjected to commercial disputes. Additionally, while an issuer may have senior unsecured obligations held by both supranational institutions and central banks (e.g., IMF, European Central Bank), as well as other investors, issuer ratings reflect only the risks faced by other investors

- **Short-term issuer ratings**, defined as the long-term issuer ratings, with the only difference that they refer to obligations with an original maturity of thirteen months or less.

- **Long-term obligation ratings**, are assigned to obligations with an original maturity of one year or more and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default.

- **Short-term obligation ratings,** defined as long-term obligation ratings described above, with the only difference that they refer to obligations with an original maturity of thirteen months or less.

- **Insurance financial strength ratings,** defined as opinions of the ability of insurance companies to pay punctually senior policyholder claims and obligations and also reflect the expected financial loss suffered in the event of default.

- **Bank Deposit Ratings,** defined as opinions of a bank's ability to repay punctually its foreign and/or domestic currency deposit obligations and also reflect the expected financial loss of the default. Bank Deposit Ratings do not apply to deposits that are subject to a public or private insurance scheme; rather, the ratings apply to the most junior class of uninsured deposits, but they may in some cases incorporate the possibility that official support might

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

in certain cases extend to the most junior class of uninsured as well as preferred and insured deposits. Foreign currency deposit ratings are subject to Moody's foreign currency country ceilings which may result in the assignment of a different (and typically lower) rating for the foreign currency deposits relative to the bank's rating for domestic currency deposits.

- **Clearing Counterparty Ratings,** defined as opinions of a Central Counterparty Clearing House's (CCP) ability to meet the timely clearing and settlement of clearing obligations by the CCP as well as the expected financial loss in the event the obligation is not fulfilled. A CCR can be assigned at a CCP legal entity or clearing service level to the extent a legal entity operates multiple clearing services.

- **Corporate Family Ratings,** defined as long-term ratings that reflect the relative likelihood of a default on a corporate family's debt and debt-like obligations and the expected financial loss suffered in the event of default. A CFR is assigned to a corporate family as if it had a single class of debt and a single consolidated legal entity structure. CFRs are generally employed for speculative grade obligors, but may also be assigned to investment grade obligors. The CFR normally applies to all affiliates under the management control of the entity to which it is assigned. For financial institutions or other complex entities, CFRs may also be assigned to an association or group where the group may not exercise full management control, but where strong intra-group support and cohesion among individual group members may warrant a rating for the group or association. A CFR does not reference an obligation or class of debt and thus does not reflect priority of claim.

- **Credit Default Swap Ratings**, which measure the risk associated with the obligations that a credit protection provider has with respect to credit events under the terms of the transaction. The ratings do not address potential losses resulting from an early termination of the transaction, nor any market risk associated with the transaction.

- **Enhanced Ratings**, which only pertain to US municipal securities. Enhanced ratings are assigned to obligations that benefit from third-party credit or liquidity support, including state aid intercept programs. They primarily reflect the credit quality of the support provider, and, in some cases, also reflect the credit quality of the underlying obligation. Enhanced ratings do not incorporate support based on insurance provided by financial guarantors.

- **Insured Ratings,** defined as assessment of a particular obligation's credit quality given the credit enhancement provided by a financial guarantor. Moody's insured ratings apply a credit substitution methodology, whereby the debt rating matches the higher of (i) the guarantor's financial strength rating and (ii) any published underlying or enhanced rating on the security.

- **Medium-Term Note Program Ratings**. Moody's assigns provisional ratings to medium-term note (MTN) programs and definitive ratings to the individual debt securities issued from them (referred to as drawdowns or notes). MTN program ratings are intended to reflect the ratings likely to be assigned to drawdowns issued from the program with the specified priority of claim (e.g. senior or subordinated). To capture the contingent nature of a program rating, Moody's assigns provisional ratings to MTN programs. A provisional rating is denoted by a (P) in front of the rating. The rating assigned to a drawdown from a rated MTN or bank/ deposit note program is definitive in nature, and may differ from the program rating if the drawdown is exposed to additional credit risks besides the issuer's default, such as links to the defaults of other issuers, or has other structural features that warrant a different rating. In some circumstances, no rating may be assigned to a drawdown.

- **Underlying Ratings** are assessments of a particular obligation's credit quality absent any insurance or wrap from a financial guarantor or other credit enhancement. For US municipal securities, the underlying rating will reflect the underlying issue's standalone credit quality absent any credit support provided by a state credit enhancement program.

- **Counterparty Risk Ratings**, defined as opinions of the ability of entities to honour the uncollateralized portion of non-debt counterparty financial liabilities (CRR liabilities) and also reflect the expected financial losses in the event such liabilities are not honoured. CRR liabilities typically relate to transactions with unrelated parties. Examples of CRR liabilities include the uncollateralized portion of payables arising from derivatives transactions and the uncollateralized portion of liabilities under sale and repurchase agreements. While CRRs reflect the risk that CRR liabilities are not serviced on a timely basis, they do not reflect the risk that a CRR liability will be subjected to a commercial dispute. For clarity, CRRs are not applicable to funding commitments or other obligations associated with covered bonds, letters of credit, guarantees, servicer and trustee obligations, and other similar obligations that arise from a bank performing its essential operating functions.

6. Moody's 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:

   - **Global long-term rating scale.** The specification of this rating scale is described in Figure 3 of Annex 1.

   - **Global short-term rating scale.** The specification of this rating scale is described in Figure 4 of Annex 1.

7. The mapping of the Global long-term 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 Implementing Regulation.

8. The mapping of the Global short-term rating scale is explained in Section 5 and it has been indirectly derived from the mapping of the Global long-term rating scale and the internal relationship established by Moody's between these two scales, as specified in Article 13 of the Implementing Regulation. This internal relationship is shown in Figure 5 of Appendix 1.

# 4. Mapping of Moody's Global long-term rating scale

9. The mapping of the Global long-term 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.

10. In the first stage, the quantitative factors referred to in Article 1 of the Implementing Regulation 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 Implementing Regulation.

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

11. In a second stage, the qualitative factors proposed in Article 7 of the Implementing Regulation 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

12. This mapping report reflects additional quantitative information collected after the submission of the draft ITS by the JC to the Commission.

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

13. The short run and long run default rates of each rating category have been calculated based on the information contained in CEREP and according to the provisions laid down in the Implementing Regulation.

- For Aaa and Aa rating categories, the number of credit ratings 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 allocation of the CQS has been made in accordance with Article 6 of the Implementing Regulation. 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 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 Implementing Regulation. The result of the calculation of the long run default rates for each rating category is shown in Figure 7of Appendix 3.

13. Withdrawn ratings have been weighted by 50% as indicated in Article 4(3) of the Implementing Regulation.

14.The default definition applied by Moody's, 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

15.For rating categories A, Baa, Ba and B the initial CQS allocation has been based on the comparison of the long run default rates (see Figure 9 in Appendix 3) and the long run default rate benchmark intervals established in point (a) of Article 14 of the Implementing Regulation. Considering the additional data collected since the mapping was produced, rating categories A, Baa, Ba and B remain allocated to CQS 2, 3, 4 and 5, based on the comparison of the long run default rate.

16.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 6 of the Implementing Regulation. For rating category Aaa the comparison of the number of defaulted and non-defaulted items is representative of CQS1, regardless of the data cohort chosen. Regarding rating category Aa, when considering the additional data collected since the original mapping was produced, the number of rated items is equal or larger than the respective minimum required number of observed items given the number of defaulted items in the rating category. This reinforces the existing mapping.

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

17.The short run default rates of rating categories A to B have been compared with the short run default rate benchmark values established in point (b) of Article 14 of the Implementing Regulation [7].

18.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 Implementing Regulation: to perform this analysis confidence intervals for the short run default rates have been calculated.

19.The additional short-run default rates available after the mapping was produced do not breach neither the monitoring nor the trigger level.

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

20.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

[7] 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 Caa-C, the review of the short run default rates is not necessary since they have been mapped to CQS6.

more importance in the rating categories where quantitative evidence is not sufficient to test the default behavior[8], as it is the case of the Aa rating category.

21.The JC has not identified any change in the quantitative factors since the draft Implementing Technical Standards submitted by the JC to the Commission. Therefore the qualitative considerations remain unchanged with respect to the original mapping report, which means that the meaning and relative position of the credit assessments is the only qualitative factor that suggests an adjustment of the mapping proposal resulting from the quantitative factors. In particular, the meaning and relative position of rating category Aa is in line with CQS 1.

# 5. Mapping of Moody's Global short-term rating scale

22.Moody's also produces short-term credit ratings and assigns them to the Global short-term rating scale (see Figure 4 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 Moody's between these two rating scales (described in Figure 5 of Appendix 1) has been used to derive the mapping of the Global short-term rating scale. This should ensure the consistency of the mappings proposed for Moody's.

23.More specifically, as each short-term rating can be associated with a range of long-term 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.

24.The result is shown in Figure 11 of Appendix 4:

- **P-1.** This rating category indicates a *superior* ability to repay short-term debt obligations. It is internally mapped to long-term categories Aaa to A3, which are mapped to CQS 1 and 2, but mostly to CQS 1. Therefore, CQS 1 is the proposed mapping.

- **P-2.** This rating category indicates a *strong* ability to repay short-term debt obligations. It is internally mapped to long-term categories A3 to Baa2, which are mapped to CQS 2 and 3, but mostly to CQS 2. Therefore, CQS 2 is the proposed mapping.

- **P-3.** This rating category indicates an *acceptable* ability to repay short-term debt obligations. It is internally mapped to long-term categories Baa2 and Baa3, which are mapped to CQS 3. Therefore, CQS 3 is the proposed mapping.

- **NP.** This rating category is assigned to issuers that do not fall within any of the prime rating categories. It is internally mapped to long-term categories Ba1 to C, which are mapped to

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

CQS 4 to 6. Since the risk weights assigned to CQS 4 to 6 are all equal to 150% according to Article 131 CRR, the mapping proposed for the NP rating category is CQS 4.

# Appendix 1: Credit ratings and rating scales

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

| SA exposure classes | Name of credit rating | Credit rating scale |
|---|---|---|
| **Long-term ratings** | | |
| Central governments / Central banks | Long-term issuer rating | Global long-term rating scale |
| | Long-term obligation rating | Global long-term rating scale |
| | Insured Ratings | Global long-term rating scale |
| Regional and local governments and PSEs | Long-term issuer rating | Global long-term rating scale |
| | Long-term obligation rating | Global long-term rating scale |
| Institutions | Long-term issuer rating | Global long-term rating scale |
| | Long-term obligation rating | Global long-term rating scale |
| | Bank Deposit Ratings | Global long-term rating scale |
| | Medium-term Note Program Ratings | Global long-term rating scale |
| | Counterparty Risk Ratings | Global long-term rating scale |
| Corporates | Long-term issuer rating | Global long-term rating scale |
| | Long-term obligation rating | Global long-term rating scale |
| | Insurance Financial Strength Rating | Global long-term rating scale |
| | Clearing Counterparty Ratings | Global long-term rating scale |

| SA exposure classes | Name of credit rating | Credit rating scale |
|---|---|---|
| | Corporate Family Ratings | Global long-term rating scale |
| | Credit Default Swaps Ratings | Global long-term rating scale |
| | Medium-term Note Program Ratings | Global long-term rating scale |
| Covered bonds | Long-term obligation rating | Global long-term rating scale |
| **Short-term ratings** | | |
| Institutions | Short-term issuer rating | Global short-term rating scale |
| | Short-term obligation rating | Global short-term rating scale |
| | Bank Deposit Ratings | Global short-term rating scale |
| | Counterparty Risk Ratings | Global long-term rating scale |
| Corporates | Short-term issuer rating | Global short-term rating scale |
| | Short-term obligation rating | Global short-term rating scale |
| | Insurance Financial Strength Rating | Global long-term rating scale |

Source: Moody's

Figure 3: Global long-term rating scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| Aaa | Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk. |
| Aa | Obligations rated Aa are judged to be of high quality and are subject to very low credit risk. |
| A | Obligations rated A are judged to be upper-medium grade and are subject to low credit risk. |
| Baa | Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics. |
| Ba | Obligations rated Ba are judged to be speculative and are subject to substantial credit risk. |
| B | Obligations rated B are considered speculative and are subject to high credit risk. |
| Caa | Obligations rated Caa are judged to be speculative of poor standing and are subject to very high credit risk. |
| Ca | Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest. |
| C | Obligations rated C are the lowest rated and are typically in default, with little prospect for recovery of principal or interest. |

Source: Moody’s

Figure 4: Global short-term rating scale

| Credit assessment | Meaning of the credit assessment |
|---|---|
| P – 1 | Issuers (or supporting institutions) rated Prime-1 have a superior ability to repay short-term debt obligations. |
| P – 2 | Issuers (or supporting institutions) rated Prime-2 have a strong ability to repay short-term debt obligations. |
| P – 3 | Issuers (or supporting institutions) rated Prime-3 have an acceptable ability to repay short-term obligations. |
| NP | Issuers (or supporting institutions) rated Not Prime do not fall within any of the Prime rating categories. |

Source: Moody's

Figure 5: Internal relationship between Moody's Global long-term and short-term rating scales

| Long-term issuer credit ratings scale | Short-term issuer credit ratings scale |
|---|---|
| **Aaa** | P-1 |
| **Aa1** | P-1 |
| **Aa2** | P-1 |
| **Aa3** | P-1 |
| **A1** | P-1 |
| **A2** | P-1 |
| **A3** | P-1, P-2 |
| **Baa1** | P-2 |
| **Baa2** | P-2, P-3 |
| **Baa3** | P-3 |
| **Ba1** | NP |
| **Ba2** | NP |
| **Ba3** | NP |
| **B1** | NP |
| **B2** | NP |
| **B3** | NP |
| **Caa1** | NP |
| **Caa2** | NP |
| **Caa3** | NP |
| **Ca** | NP |
| **C** | NP |

Source: Moody's

# Appendix 2: Definition of default

Moody's definition of default is applicable only to debt or debt-like obligations (e.g., swap agreements). Four events constitute a debt default under Moody's definition:

- a missed or delayed disbursement of a contractually obligated interest or principal payment (excluding missed payments cured within a contractually allowed grace period), as defined in credit agreements and indentures;
- a bankruptcy filing or legal receivership by the debt issuer or obligor that will likely cause a miss or delay in future contractually-obligated debt service payments;
- a distressed exchange whereby 1) an obligor offers creditors a new or restructured debt, or a new package of securities, cash or assets that amount to a diminished value relative to the debt origination's original promise and 2) the exchange has the effect of allowing the issuer to avoid a likely eventual default;
- a change in the payment terms of a credit agreement or indenture imposed by the sovereign that results in a diminished financial obligation, such as a forced currency re-denomination (imposed by the debtor, or the debtor's sovereign) or a forced change in some other aspect of the original promise, such as indexation or maturity.

Moody's includes distressed exchanges in its definition of default in order to capture credit events whereby issuers effectively fail to meet their debt service obligations but do not actually file for bankruptcy or miss an interest or principal payment. Moody's employs fundamental analysis in assessing the likelihood of future default and considers various indicators in assessing loss relative to the original promise, which may include the yield to maturity of the debt being exchanged.

Moody's definition of default does not include so-called "technical defaults", such as maximum leverage or minimum debt coverage violations, unless the obligor fails to cure the violation and fails to honour the resulting debt acceleration which may be required. Also excluded are payments owed on long-term debt obligations which are missed due to purely technical or administrative errors which are 1) not related to the ability or willingness to make the payments and 2) are cured in very short order (typically, 1-2 business days after the technical/administrative issue is recognized). Finally, in select instances based on the facts and circumstances, missed payments on financial contracts or claims may be excluded if they are the result of legal disputes regarding the validity of those claims.

Moody's also maintains a definition for "impairment". A security is deemed impaired when investors receive — or expect to receive with near certainty — less value than would be expected if the obligor were not experiencing financial distress or otherwise prevented from making payments by a third party, even if the indenture or contractual agreement does not provide the investor with a natural remedy for such events, such as the right to press for bankruptcy.

Moody's definition of impairment is applicable to debt or debt-like obligations (e.g., swap agreements), as well as preferred stock and other hybrid securities. A security is deemed to be impaired upon the occurrence of:

- any event that meets the definition of default (above);
- contractually-allowable payment omissions of scheduled dividends, interest or principal payments on preferred stock or other hybrid instruments;9
- write-downs or "impairment distressed exchanges"10 of preferred stock or other hybrid instruments due to financial distress whereby (1) the principal promise to an investor is reduced according to the terms of the indenture or other governing agreement,11 or (2) an obligor offers investors a new or restructured security, or a new package of securities, cash or assets and the exchange has the effect of allowing the obligor to avoid a contractually-allowable payment omission as described in b) above; or12
- downgrades to Ca or C, signaling the near certain expectation of a significant level of future losses.

The impairment status of a security may change over time as it migrates from impaired to cured (e.g., if initially deferred cumulative preferred dividends are ultimately paid in full) and possibly back again to impaired.

Source: Moody's

[9] In this context, the exercise of a payment-in-kind option embedded in a fundamental debt security is an impairment event. Similar to default events, excluded from impairment events are 1) missed payments due to purely technical or administrative reasons which are not related to the ability or willingness to make the payments and 2) are cured in very short order (typically, 1-2 business days after the technical/administrative issue is recognized).

[10] Impairment distressed exchanges are similar to default distressed exchanges except that they have the effect of avoiding an impairment event, rather than a default event.

[11] Once written down, complete cures, in which securities are written back up to their original balances are extraordinarily rare; moreover, in most cases, a write-down of principal leads to an immediate and permanent loss of interest for investors, since the balance against which interest is calculated has been reduced.

[12] Examples of such impairments include mandatory conversions of contingent capital securities to common equity and mandatory write-downs of other hybrid securities that are the direct result of obligor distress.

# Appendix 3: Default rates of each rating category

Figure 6: Number of rated items, with relevant weights[13]

| | Aaa | Aa | A | Baa | Ba | B | Caa-C |
|---|---|---|---|---|---|---|---|
| 01JAN2000 | 94.5 | 553.5 | 1026 | 871.5 | 403 | 892 | 292 |
| 01JUL2000 | 92 | 577 | 1059 | 885.5 | 387 | 873.5 | 277.5 |
| 01JAN2001 | 88 | 583.5 | 1077.5 | 896.5 | 367 | 837.5 | 288.5 |
| 01JUL2001 | 93.5 | 570 | 1089 | 944 | 377.5 | 751 | 302.5 |
| 01JAN2002 | 100.5 | 575.5 | 1082 | 990 | 395.5 | 626.5 | 324.5 |
| 01JUL2002 | 104.5 | 551 | 1063 | 1026 | 404 | 616.5 | 306.5 |
| 01JAN2003 | 99 | 524 | 1063.5 | 974 | 372.5 | 510.5 | 271.5 |
| 01JUL2003 | 101.5 | 507.5 | 1047.5 | 999.5 | 353.5 | 542.5 | 256 |
| 01JAN2004 | 115 | 493.5 | 1049.5 | 1006.5 | 357.5 | 552 | 225 |
| 01JUL2004 | 110.5 | 499.5 | 1033.5 | 1023 | 370 | 579.5 | 236 |
| 01JAN2005 | 110 | 502 | 1084.5 | 1038.5 | 360.5 | 537 | 263 |
| 01JUL2005 | 106.5 | 523.5 | 1084 | 1034 | 367 | 533.5 | 268 |
| 01JAN2006 | 108 | 529.5 | 1111.5 | 1047.5 | 338.5 | 360.5 | 127 |
| 01JUL2006 | 109.5 | 562.5 | 1102.5 | 1029 | 375 | 350 | 127.5 |
| 01JAN2007 | 116.5 | 568.5 | 1135.5 | 1031 | 347.5 | 367 | 126.5 |
| 01JUL2007 | 156 | 636 | 1083 | 1029.5 | 356 | 385.5 | 138.5 |
| 01JAN2008 | 135 | 574.5 | 1049 | 1020 | 350.5 | 365.5 | 152.5 |
| 01JUL2008 | 115 | 577 | 1054.5 | 1031 | 343 | 355 | 160 |
| 01JAN2009 | 112 | 529.5 | 1061 | 1021 | 327.5 | 320 | 201 |
| 01JUL2009 | 75 | 474.5 | 1027.5 | 1061.5 | 333.5 | 293 | 217.5 |
| 01JAN2010 | 70 | 448.5 | 1018 | 1122 | 332 | 323.5 | 192.5 |
| 01JUL2010 | 69 | 422 | 1018.5 | 1154 | 353.5 | 357.5 | 176.5 |
| 01JAN2011 | 54 | 357 | 928 | 1160.5 | 361.5 | 409 | 176 |
| 01JUL2011 | 53 | 355.5 | 915.5 | 1205.5 | 395.5 | 445.5 | 174 |
| 01JAN2012 | 52 | 298.5 | 937 | 1229 | 420.5 | 436 | 186 |
| 01JUL2012 | 38 | 240 | 920 | 1332.5 | 402 | 452 | 198.5 |
| 01JAN2013 | 31.5 | 240.5 | 901.5 | 1412.5 | 386 | 467 | 226 |
| 01JUL2013 | 27 | 208 | 816 | 1286 | 342.5 | 403.5 | 222.5 |
| 01JAN2014 | 26.5 | 210 | 802.5 | 1332.5 | 342 | 408 | 231.5 |
| 01JUL2014 | 25.5 | 214.5 | 847 | 1319.5 | 340.5 | 399.5 | 244.5 |
| 01JAN2015 | 26.5 | 214 | 881 | 1346.5 | 345.5 | 400.5 | 247.5 |
| 01JUL2015 | 26.5 | 226 | 899.5 | 1343 | 385.5 | 392.5 | 249.5 |
| 01JAN2016 | 27.5 | 216.5 | 903.5 | 1374 | 344.5 | 305.5 | 256.5 |
| 01JUL2016 | 13 | 116.5 | 470.5 | 743.5 | 226.5 | 200 | 198 |
| 01JAN2017 | 14 | 120.5 | 479 | 771.5 | 228 | 204.5 | 179.5 |
| 01JUL2017 | 15 | 96 | 518 | 813.5 | 250.5 | 231.5 | 165 |
| 01JAN2018 | 16 | 103.5 | 540 | 844.5 | 277.5 | 255 | 153 |
| 01JUL2018 | 17 | 111.5 | 554 | 860 | 280.5 | 258.5 | 128 |

Source: Joint Committee calculations based on CEREP data

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

Figure 7: Number of defaulted rated items

| | Aaa | Aa | A | Baa | Ba | B | Caa-C |
|---|---|---|---|---|---|---|---|
| 01JAN2000 | 0 | 0 | 4 | 17 | 21 | 212 | 123 |
| 01JUL2000 | 0 | 0 | 7 | 20 | 24 | 221 | 109 |
| 01JAN2001 | 0 | 0 | 8 | 19 | 20 | 209 | 118 |
| 01JUL2001 | 0 | 0 | 5 | 20 | 15 | 152 | 122 |
| 01JAN2002 | 0 | 0 | 3 | 16 | 15 | 76 | 130 |
| 01JUL2002 | 0 | 0 | 0 | 9 | 15 | 47 | 101 |
| 01JAN2003 | 0 | 0 | 0 | 2 | 8 | 34 | 87 |
| 01JUL2003 | 0 | 0 | 0 | 2 | 5 | 23 | 62 |
| 01JAN2004 | 0 | 0 | 0 | 2 | 5 | 21 | 41 |
| 01JUL2004 | 0 | 0 | 0 | 2 | 2 | 26 | 32 |
| 01JAN2005 | 0 | 0 | 0 | 3 | 3 | 14 | 29 |
| 01JUL2005 | 0 | 0 | 0 | 3 | 4 | 14 | 30 |
| 01JAN2006 | 0 | 0 | 10 | 4 | 6 | 23 | 22 |
| 01JUL2006 | 0 | 0 | 12 | 6 | 18 | 37 | 38 |
| 01JAN2007 | 0 | 0 | 14 | 14 | 23 | 60 | 45 |
| 01JUL2007 | 0 | 3 | 15 | 16 | 25 | 62 | 51 |
| 01JAN2008 | 0 | 5 | 15 | 15 | 28 | 67 | 61 |
| 01JUL2008 | 0 | 3 | 18 | 16 | 23 | 71 | 66 |
| 01JAN2009 | 0 | 3 | 8 | 15 | 10 | 43 | 87 |
| 01JUL2009 | 0 | 2 | 7 | 5 | 5 | 22 | 57 |
| 01JAN2010 | 0 | 0 | 10 | 2 | 2 | 17 | 32 |
| 01JUL2010 | 0 | 1 | 9 | 2 | 6 | 15 | 33 |
| 01JAN2011 | 0 | 1 | 5 | 6 | 7 | 12 | 28 |
| 01JUL2011 | 0 | 1 | 1 | 6 | 6 | 17 | 27 |
| 01JAN2012 | 0 | 0 | 1 | 4 | 7 | 19 | 30 |
| 01JUL2012 | 0 | 0 | 1 | 3 | 4 | 29 | 30 |
| 01JAN2013 | 0 | 0 | 1 | 3 | 7 | 35 | 35 |
| 01JUL2013 | 0 | 0 | 0 | 3 | 7 | 48 | 53 |
| 01JAN2014 | 0 | 0 | 0 | 3 | 6 | 45 | 61 |
| 01JUL2014 | 0 | 0 | 0 | 3 | 9 | 49 | 65 |
| 01JAN2015 | 0 | 0 | 0 | 0 | 10 | 46 | 71 |
| 01JUL2015 | 0 | 0 | 0 | 1 | 9 | 38 | 76 |
| 01JAN2016 | 0 | 0 | 0 | 1 | 3 | 23 | 94 |
| 01JUL2016 | 0 | 0 | 0 | 1 | 1 | 6 | 71 |
| 01JAN2017 | 0 | 0 | 0 | 0 | 1 | 4 | 51 |
| 01JUL2017 | 0 | 0 | 0 | 0 | 0 | 2 | 32 |
| 01JAN2018 | 0 | 0 | 0 | 0 | 0 | 1 | 18 |
| 01JUL2018 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |

Source: Joint Committee calculations based on CEREP data

Figure 8: Mapping proposal for rating categories with a non-sufficient number of credit ratings

| 2001-2006 | **Aaa** | **Aa** |
|---|---|---|
| CQS of equivalent international rating category | CQS1 | CQS1 |
| N. observed defaulted items | 0 | 0 |
| Minimum N. rated items | 0 | 0 |
| Observed N. rated items | 1049 | 5276 |
| **Mapping proposal** | CQS1 | CQS 1 |

| 2006-2011 | **Aaa** | **Aa** |
|---|---|---|
| CQS of equivalent international rating category | CQS1 | CQS1 |
| N. observed defaulted items | 0 | 18 |
| Minimum N. rated items | 0 | n.a. |
| Observed N. rated items | 1012 | 5150 |
| **Mapping proposal** | CQS1 | CQS2 |

| 2011-2016 | **Aaa** | **Aa** |
|---|---|---|
| CQS of equivalent international rating category | CQS1 | CQS1 |
| N. observed defaulted items | 0 | 1 |
| Minimum N. rated items | 0 | 433 |
| Observed N. rated items | 334 | 2424 |
| **Mapping proposal** | CQS1 | CQS1 |

Source: Joint Committee calculations based on CEREP data

Figure 9: Long-run default rate for rating categories A, Baa, Ba and B

| Rating category | **A** | **Baa** | **Ba** | **B** |
|---|---|---|---|---|
| CQS of equivalent international rating category | 2 | 3 | 4 | 5 |
| Long-run default rate | 0.5% | 0.7% | 3.0% | 11.5% |
| Mapping proposal | 2 | 3 | 4 | 5 |

# Appendix 4: Mappings of each rating scale

Figure 10: Mapping of Moody's Global long-term rating scale

| Credit assessment | Initial mapping *based on LR DR* (CQS) | Review *based on SR DR* (CQS) | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| **Aaa** | 1 | n.a. | **1** | The quantitative factors are representative of the final CQS. |
| **Aa** | 1/2 | n.a. | **1** | Quantitative evidence together with the meaning, relative position and time horizon of the rating category are representative of the final CQS. |
| **A** | 2 | 2 | **2** | The quantitative factors are representative of the final CQS. Some rated items have been removed from the pool because they were not considered representative. |
| **Baa** | 3 | 3 | **3** | The quantitative factors are representative of the final CQS. |
| **Ba** | 4 | 4 | **4** | The quantitative factors are representative of the final CQS. |
| **B** | 5 | 5 | **5** | The quantitative factors are representative of the final CQS. |
| **Caa** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |
| **Ca** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |
| **C** | 6 | 6 | **6** | The quantitative factors are representative of the final CQS. |

Figure 11: Mapping of Moody's Global short-term rating scale

| Credit assessment | Corresponding Global long-term rating scale assessment (established by Moody's) | Range of CQS of corresponding Global rating scale | Final review *based on qualitative factors* (CQS) | Main reason for the mapping |
|---|---|---|---|---|
| **P-1** | Aaa/A3 | 1 – 2 | **1** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **P-2** | A3/Baa2 | 2 – 3 | **2** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. |
| **P-3** | Baa2/Baa3 | 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. |
| **NP** | Ba1/C | 4 – 6 | **4** | The final CQS has been determined based on the most frequent step associated with the corresponding long-term credit rating category. The risk weights assigned to CQS 4 to 6 are all 150%, therefore CQS 4. |