

## Chapter 4

# The IRB approach

## 4.1 The IRB approach: Application, purpose and overview

### Application

- 4.1.1 **R** ■ BIPRU 4 applies to a *BIPRU firm* with an *IRB permission*.

### Purpose

- 4.1.2 **G** Pursuant to the third paragraph of article 95(2) of the *EU CRR*, ■ BIPRU 4 implements the following provisions of the *Banking Consolidation Directive*:

- (1) Articles 84 - 89; and
- (2) Annex VII.

- 4.1.3 **G** Pursuant to the third paragraph of article 95(2) of the *EU CRR*, ■ BIPRU 4 also implements Annex VIII of the *Banking Consolidation Directive* so far as it applies to the *IRB approach*. In particular, it implements (in part):

- (1) from Part 1 of that Annex, points 12-16, 19-22, 26(g)(ii) and 27;
- (2) from Part 2 of that Annex, points 8-11; and
- (3) from Part 3 of that Annex, points 1, 11, 20, 23-24, 58(h), 61, 64-79 and 90-93.

- 4.1.4 **G** Similarly, ■ BIPRU 4 also implements article 40 of the *Capital Adequacy Directive* as it applies to the *IRB approach*.

- 4.1.5 **G** Other material on the *IRB approach* can be found in ■ BIPRU 8 (Group risk), ■ BIPRU 9 (Securitisation), ■ BIPRU 13 (The calculation of exposure values for financial derivatives, securities financing transactions and long settlement transactions) and ■ BIPRU 14 (Capital requirements for settlement and counterparty risk). ■ BIPRU 5 (Credit risk mitigation) also contains material applicable to the *IRB approach*.

### Overview

- 4.1.6 **G** The *IRB approach* is an alternative to the *standardised approach* for calculating a *firm's* credit risk capital requirements. It may be applied to all a *firm's exposures* or to some of them, subject to various limitations on partial use as set out in ■ BIPRU 4.2. Under the *IRB approach* capital requirements are

based on a *firm's* own estimates of certain parameters together with other parameters set out in the *Banking Consolidation Directive*.

- 4.1.7 **G** *Exposures* are divided into a number of distinct *exposure* classes. These are listed in ■ BIPRU 4.3.2 R. There is a special treatment for purchased receivables, although they do not form an *exposure* class on their own.
- 4.1.8 **G** For *exposures* in the *sovereign, institution and corporate IRB exposure class*, there is a *foundation IRB approach* under which a *firm* provides its own estimates of *PD* and an *advanced IRB approach* under which a *firm* additionally provides its own estimates of *LGD* and *conversion factors*. The distinction between the *foundation IRB approach* and the *advanced IRB approach* only applies to this *IRB exposure class*.
- 4.1.9 **G** For *retail exposures*, a *firm* provides its own estimates of *PD*, *LGD* and *conversion factors*.
- 4.1.10 **G** For the *corporate exposure class* there is a separate sub-class of *specialised lending exposure*. A *firm* may calculate *risk weights* for these *exposures*, where it is able to do so, in the same way as it does for the rest of its *corporate exposure class*, i.e. using the *foundation IRB approach* or the *advanced IRB approach*. Where a *firm* is not able to use this approach it may calculate *risk weights* for *specialised lending exposures* by slotting them into predetermined *risk weights*.
- 4.1.11 **G** For *equity exposures* there are two approaches based on market based measures and a third under which a *firm* uses its own estimates of *PD* only.
- IRB permissions: general**
- 4.1.12 **G** The rules in *GENPRU* and *BIPRU* do not allow a *firm* to use the *IRB approach*. A *firm* that wishes to use the *IRB approach* should therefore apply for permission to use the *IRB approach* using the application procedure explained in ■ BIPRU 1.3. If a *firm's* application is granted, its terms will be set out in an *IRB permission*.
- 4.1.13 **G** The *appropriate regulator* recognises that the nature of *IRB approaches* will vary between *firms*. The scope of and the requirements and conditions set out in an *IRB permission* may therefore differ in substance or detail from ■ BIPRU 4 in order to address individual circumstances adequately. However any differences will only be allowed if they are compliant with the *Banking Consolidation Directive*. An *IRB permission* will implement any such variation by modifying the relevant provisions of *GENPRU* and *BIPRU*. An *IRB permission* may also include additional conditions to meet the particular circumstances of the *firm*.
- 4.1.14 **G** (1) The *appropriate regulator* will only grant an *IRB permission* if it is satisfied that the *firm's* systems for the management and rating of credit risk *exposures* are sound and implemented with integrity and,

in particular, that they meet the standards in ■ BIPRU 4.2.2 R in accordance with the *minimum IRB standards*.

- (2) Under ■ BIPRU 4.2.11 R, a *firm* applying for an *IRB permission* is required to demonstrate that it has been using for the *IRB exposure classes* in question *rating systems* that were broadly in line with the *minimum IRB standards* for internal risk measurement and management purposes for at least three years prior to the date of its *IRB permission*.
- (3) Under ■ BIPRU 4.2.13 R, a *firm* applying for the use of own estimates of *LGDs* and/or *conversion factors* should demonstrate that it has been estimating and employing own estimates of *LGDs* and/or *conversion factors* in a manner that was broadly consistent with the *minimum IRB standards* for use of own estimates for at least three years prior to the date of its *IRB permission* or of a variation of its *IRB permission* that, in either case, entitles the *firm* to use own estimates of *LGDs* and/or *conversion factors*.

#### Link to standard rules: Incorporation of the IRB output into the capital calculation

- 4.1.15 **G** An *IRB permission* will modify ■ GENPRU 2.1.51 R (Calculation of the credit risk capital requirement) by amending, to the extent set out in the *IRB permission*, the calculation of the *credit risk capital requirement* in accordance with ■ BIPRU 4 and the other provisions of the *Handbook* relating to the *IRB approach*.
- 4.1.16 **R** A *firm* must calculate its *credit risk capital component* as the sum of:
- (1) (for *exposures* to which the *standardised approach* is applied) the *credit risk capital component* as calculated under ■ BIPRU 3.1.5 R; and
  - (2) (for *exposures* to which the *IRB approach* is applied to which the *standardised approach* would otherwise apply in accordance with ■ BIPRU 3.1.5 R (Credit risk capital component)), 8% of the total of the *firm's risk weighted exposure amounts* calculated in accordance with the *IRB approach*.
- 4.1.17 **G** For *exposures* covered by an *IRB permission*, ■ BIPRU 5 (Credit risk mitigation) is modified by ■ BIPRU 4.10.
- 4.1.18 **G** Under ■ BIPRU 4.9, a *firm* is required to deal with *securitisation positions* under those provisions of ■ BIPRU 9 applicable to a *firm* using the *IRB approach*.
- 4.1.19 **G** *Exposures* treated under ■ BIPRU 13 are required to be dealt with in accordance with the *IRB approach* to the extent set out in ■ BIPRU 13.
- 4.1.20 **G** By modifying ■ GENPRU 2.1.51 R to allow the *firm* to use the *IRB approach* to calculate all or part of its *risk weighted exposure amounts*, the *appropriate regulator* is treating it like an *application rule*. The modification means that

the provisions of *BIPRU* relating to the *IRB approach* supersede the *rules* relating to the *standardised approach* for *exposures* coming within the scope of the *IRB permission*.

**4.1.21** **R** A reference in the *Handbook* to a provision of the *IRB approach*, in the case of a *firm*:

- (1) excludes any provision of the *IRB approach* set out in the *Handbook* that is not applied to that *firm* by its *IRB permission*;
- (2) includes any additional provision contained in the *firm's IRB permission*; and
- (3) takes into account any other amendments made to the provisions in the *Handbook* relating to the *IRB approach* made by the *firm's IRB permission*.

**4.1.22** **R** To the extent that a *firm's IRB permission* does not allow it to use a particular approach in the *Handbook* relating to the *IRB approach* the *Handbook* provision in question does not apply to the *firm*.

**4.1.23** **R** If a provision of the *Handbook* relating to the *IRB approach* says that a *firm* may do something if its *IRB permission* allows it, a *firm* may do that thing unless its *IRB permission* expressly says that it may not do so except that:

- (1) ■ BIPRU 4.2.18 R - ■ BIPRU 4.2.19 R (Sequential implementation of IRB approach) and ■ BIPRU 4.2.26 R (1)-■ BIPRU 4.2.26R (5) (Combined use of standardised approach with IRB approach) only apply if expressly permitted by a *firm's IRB permission*;
- (2) a *firm* may not use the *advanced IRB approach* for the *sovereign, institution and corporate IRB exposure class* except to the extent expressly permitted by the *firm's IRB permission*;
- (3) if a *firm* uses its own estimates of *LGD* and *conversion factors* it may only take into account *unfunded credit protection* to reduce *LGD* in the manner set out in its *IRB permission*;
- (4) if a *firm* uses its own estimates of *LGD* and *conversion factors* it may only recognise the effects of financial collateral in the manner set out in its *IRB permission*;
- (5) a *firm* must deal with *equity exposures* in the manner set out in its *IRB permission*; and
- (6) (in the case of *collateral* that is only eligible for recognition under paragraph 21 of Part 1 of Annex VIII of the *Banking Consolidation Directive* (Other physical collateral)) a *firm* may not recognise as eligible collateral an item of a type referred to in ■ BIPRU 4.10.16 R (Other physical collateral) unless that item is of a type specified as permitted in its *IRB permission*.

**4.1.24** **G** An *IRB permission* will set out *firm-specific* material. This will generally include:

- (1) details about the *firm's* methodology for carrying out the *IRB approach*, including the models and *rating systems* that a *firm* should use;
- (2) reporting requirements; and
- (3) requirements about internal control structure.

### Compliance

- 4.1.25 **R** If a *firm* ceases to comply with the requirements of the *IRB approach*, it must either present to the *appropriate regulator* a plan for a timely return to compliance or demonstrate that the effect of non-compliance is immaterial.  
[Note: BCD Article 84(5)]
- 4.1.26 **G** If a *firm* ceases to comply with the requirements of the *IRB approach*, the *appropriate regulator* may revoke the *IRB permission* or take other appropriate supervisory action.
- 4.1.27 **G** For the purposes of **■ BIPRU 4.1.25 R**, the *appropriate regulator* will expect a *firm* to demonstrate that, taking into account all instances where the *firm* has not complied with the requirements of the *IRB approach*, the effect of non-compliance is immaterial.

## 4.2 The IRB approach: High level material

### Application

4.2.1 **R** This section applies to all *exposures* treated under the *IRB approach*.

### General approach to granting an IRB permission

4.2.2 **R** A *firm's* systems for the management and rating of credit risk *exposures* must be sound and implemented with integrity and, in particular, they must meet the following standards in accordance with the *minimum IRB standards*:

- (1) the *firm's rating systems* provide for a meaningful assessment of obligor and transaction characteristics, a meaningful differentiation of risk and accurate and consistent quantitative estimates of risk;
- (2) internal ratings and *default* and *loss* estimates used in the calculation of capital requirements and associated systems and processes play an essential role in the risk management and decision-making process, and in the credit approval, internal capital allocation and corporate governance functions of the *firm*;
- (3) the *firm* has a credit risk control unit responsible for its *rating systems* that is appropriately independent and free from undue influence;
- (4) the *firm* collects and stores all relevant data to provide effective support to its credit risk measurement and management process; and
- (5) the *firm* documents its *rating systems*, the rationale for their design and validates its rating systems.

[Note: BCD Article 84(2) (part)]

4.2.3 **R** Where an *EEA parent institution* and its *subsidiary undertakings* or an *EEA parent financial holding company* and its *subsidiary undertakings* or an *EEA parent mixed financial holding company* and its *subsidiary undertakings* use the *IRB approach* on a unified basis, the question whether the *minimum IRB standards* are met is answered by considering the *parent undertaking* and its *subsidiary undertakings* together, unless the *firm's IRB permission* specifies otherwise.

[Note: BCD Article 84(2) (part)]

## 4.2.4

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**Outsourcing**

- (1) This *guidance* sets out the basis on which a *firm* may rely upon a *rating system* or data provided by another member of its *group*.
- (2) A *firm* may rely upon a *rating system* or data provided by another member of its *group* if the following conditions are satisfied:
  - (a) the *firm* only does so to the extent that it is appropriate, given the nature and scale of the *firm's* business and portfolios and the *firm's* position within the *group*;
  - (b) the *group* is an *EEA banking and investment group*;
  - (c) the integrity of the *firm's* systems and controls is not adversely affected;
  - (d) the outsourcing of these functions meets the requirements of *SYSC*; and
  - (e) (if the provision of the *rating system* or data is not carried out in the *United Kingdom* or in the jurisdiction of the *competent authority* that is the lead regulator of the *group*) the *firm* can demonstrate to the *appropriate regulator* that the ability of the *appropriate regulator* and that lead regulator to carry out their responsibilities under the *Handbook*, the *Banking Consolidation Directive* and the *Capital Adequacy Directive* are not adversely affected.
- (3) If a *firm* does use a *rating system* or data provided by another member of its *group*, the requirements in ■ BIPRU 4 continue to apply to that *firm* in respect of that *rating system* and data. A *firm* cannot absolve itself of the responsibility for complying with those requirements by claiming that any breach is caused by the actions of a third party to which the *firm* has delegated tasks. The *rating system* and data provision are still those of the *firm*, even though personnel elsewhere in the *firm's* group are carrying out these functions on its behalf. So any references in *BIPRU* to what a *firm*, its personnel and its management should and should not do still apply.
- (4) If a *firm* does use a *rating system* or data provided by another *group* member, the *firm's governing body* should formally delegate those functions to the *persons* or bodies that are to carry them out.
- (5) Before delegating the provision of a *rating system* or data to another *group* member, the *firm's governing body* should have explicitly considered the arrangement and decided that it is appropriate and that it enables the *firm* to meet the conditions in (2).

**Assessment and estimation**

## 4.2.5

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- (1) This paragraph provides *guidance* on ■ BIPRU 4.2.2 R and in particular ■ BIPRU 4.2.2 R (1).
- (2) The information that a *firm* produces or uses for the purpose of the *IRB approach* should be reliable and take proper account of the different users of the information produced (customers, shareholders, regulators and other market participants).



- (3) A *firm* should establish quantified and documented targets and standards, against which it should test the accuracy of data used in its *rating systems*.
- (4) Tests under (3) might include:
  - (a) report and accounts reconciliation, including completeness in relation to (b);
  - (b) whether every *exposure* has a *PD*, *LGD* and, if applicable, *conversion factor* for reporting purposes;
  - (c) whether the *firm's* risk control environment has key risk indicators for the purpose of monitoring and ensuring data accuracy;
  - (d) whether the *firm* has an adequate business and information technology infrastructure with fully documented processes;
  - (e) whether the *firm* has clear and documented standards on ownership of data (including inputs and manipulation) and timeliness of current data (daily, monthly, real time); and
  - (f) whether the *firm* has a comprehensive quantitative audit programme.
- (5) The reconciliation referred to in 4(a) should be reasonably fit for purpose. In particular it should meet the standards in (6) and (7).
- (6) For data inputs, testing for accuracy of data, including the reconciliation referred to in 4(a), should be sufficiently detailed so that, together with other available evidence, it gives reasonable assurance that data input into the *rating system* is accurate, complete and appropriate. Input data fails the required standard if it gives rise to a serious risk of material misstatement in the capital requirement either immediately or subsequently.
- (7) For data outputs, the *firm*, as part of the reconciliation referred to in 4(a), should be able to identify and explain material differences between the outputs produced under accounting standards and those produced under the requirements of the *IRB approach*, including in relation to areas that address similar concepts in different ways (for example *expected loss* on the one hand and accounting provisions on the other).
- (8) A *firm* should have clear and documented standards and policies about the use of data in practice (including information technology standards) which should in particular cover the *firm's* approach to the following:
  - (a) data access and security;
  - (b) data integrity, including the accuracy, completeness, appropriateness and testing of data; and
  - (c) data availability.

#### Further requirements concerning the use test

#### 4.2.6

**R**

If a *firm* uses separate models for the purpose of the *IRB approach* and for its internal purposes as referred to in ■ BIPRU 4.2.2 R (2) it must be able to demonstrate the reasonableness of any differences between those models.

## 4.2.7

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- (1) This paragraph provides *guidance* on ■ BIPRU 4.2.2 R and in particular ■ BIPRU 4.2.2 R (2).
- (2) The *IRB approach* as applicable to a *firm* should be an integral part of its business and risk management processes and procedures to the extent that credit risk is relevant to them. It should also have a substantial influence on its decision-making and actions.
- (a) particular regard should be had to the use of the *IRB approach* in:
- (i) credit approval;
  - (ii) individual and portfolio limit setting;
  - (iii) reporting of credit risk information; and
  - (iv) provisioning;
- (b) other relevant aspects include:
- (i) assessment of economic capital;
  - (ii) internal capital allocation so far as related to credit risk;
  - (iii) risk appetite;
  - (iv) strategy and acquisitions;
  - (v) profitability and performance; and
  - (vi) performance-related remuneration;
- (c) the carrying out of the *firm's* obligations under the *overall Pillar 2 rule*; and
- (d) matters relating to the *firm's* infrastructure, including information technology, skills and resources and organisational culture.

## 4.2.8

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This paragraph provides further *guidance* on ■ BIPRU 4.2.2 R and in particular ■ BIPRU 4.2.2 R (2). In the *appropriate regulator's* view risk management has an essential role in informing risk decisions. However, an essential role does not necessarily mean an exclusive role or even always a primary role. There may be justifiable differences between the *IRB approach* and the *firm's* use of *rating systems* for its internal purposes as referred to in ■ BIPRU 4.2.2 R (2). For example, internal standards and policies may refer to estimates of *PD* and *LGD* for the length of the asset rather than to estimates based on a one-year period (in the case of *PD* estimates) or on an economic downturn (in the case of *LGD* estimates) required by the *IRB approach*.

## 4.2.9

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If a *firm* uses scorecards for its internal credit approval process and the models it uses for the purpose of the *IRB approach* are fundamentally different from those scorecards, a *firm's* demonstration of how this is compatible with ■ BIPRU 4.2.2 R (2) might include demonstrating that estimates calculated under the *IRB approach* are used to change sanctioning decisions at an individual or portfolio level. Examples of this might include amending cut-offs, the application of policy rules, the revision of an existing scorecard or the introduction of a new one or taking strategic decisions on which segments of the market to target.

**4.2.10** **G** To the extent that a *firm* uses *LGD* estimates in its internal risk management processes that differ from the downturn *LGDs* used in the calculation of *risk weighted assets* (see ■ BIPRU 4.3.103 R), the reasons for the difference should be documented in accordance with ■ BIPRU 4.3.109 R.

### Requirements concerning the experience requirement

**4.2.11** **R** A *firm* must be able to demonstrate that it has been using for the *IRB exposure classes* in question *rating systems* that were broadly in line with the *minimum IRB standards* for internal risk measurement and management purposes for at least three years prior to the date of its *IRB permission*.

[Note: BCD Article 84(3)]

**4.2.12** **G** In meeting the experience requirement under ■ BIPRU 4.2.11 R, the *appropriate regulator* would expect a *firm* to be able to demonstrate that it has been:

- (1) operating an internal *rating system* with estimates of *PD*;
- (2) meeting the standards in ■ BIPRU 4 for senior management knowledge and reporting; and
- (3) meeting the standards in ■ BIPRU 4 relating to the use of *rating systems* in its business;

for the required minimum 3 year period.

**4.2.13** **R** A *firm* that has applied for the use of own estimates of *LGDs* and/or *conversion factors* must be able to demonstrate to the *appropriate regulator* that it has been estimating and employing own estimates of *LGDs* and/or *conversion factors* in a manner that was broadly consistent with the *minimum IRB standards* for use of own estimates of those parameters for at least three years prior to the date of its *IRB permission* or of a variation of its *IRB permission* that, in either case, entitled the *firm* to use own estimates of *LGDs* and/or *conversion factors*.

[Note: BCD Article 84(4)]

**4.2.14** **G** In meeting the experience requirement under ■ BIPRU 4.2.13 R, the *appropriate regulator* would expect a *firm* to be able to demonstrate that it has been:

- (1) operating an internal *rating system* with estimates of *LGD* and with *conversion factors*; and
- (2) compliant with ■ BIPRU 4.2.11 R as applied to the *advanced IRB approach*.

for the required minimum 3 year period.

**4.2.15** **G** In the *appropriate regulator's* view the standard required by ■ BIPRU 4.2.11 R and ■ BIPRU 4.2.13 R is for a *rating system* to be improved in the light of experience during the three year period so that it meets the minimum

requirements more fully for the last year than for the two prior years, provided that the *rating system* has not changed so profoundly that experience from the first or second years becomes of marginal relevance in assessing the reliability of the changed *rating system*.

### Implementation of the internal ratings based approach

- 4.2.16 **R** A *firm* must comply with any requirements in its *IRB permission* relating to the matters described in ■ BIPRU 4.2.17 R - ■ BIPRU 4.2.35 G.
- 4.2.17 **R** Without prejudice to ■ BIPRU 4.2.26 R, a *firm* and any *parent undertaking* and its *subsidiary undertakings* must implement the *IRB approach* for all *exposures*.  
[Note: BCD Article 85(1) (part)]
- 4.2.18 **R** To the extent that a *firm's IRB permission* permits this, implementation may be carried out sequentially across the different *IRB exposure classes* within the same business unit, across different business units in the same group or for the use of own estimates of *LGDs* or *conversion factors* for the calculation of *risk weights* for the *sovereign, institution and corporate IRB exposure class*.  
[Note: BCD Article 85(1) (part)]
- 4.2.19 **R** In the case of the *retail exposures*, implementation may (but only to the extent provided for in the *firm's IRB permission*) be carried out sequentially across the categories of *exposures* to which the different correlations in ■ BIPRU 4.6.41 R-■ BIPRU 4.6.44 R correspond.  
[Note: BCD Article 85(1) (part)]
- 4.2.20 **R**
- (1) Implementation of the *IRB approach* as referred to in ■ BIPRU 4.2.18 R must be carried out within a reasonable period of time as set out in the *IRB permission*.
  - (2) The implementation must be carried out subject to strict conditions determined by the *appropriate regulator* and set out in the *IRB permission*.
  - (3) A *firm* must not use the flexibility under ■ BIPRU 4.2.18 R selectively with the purpose of achieving reduced minimum capital requirements in respect of those *IRB exposure classes* or business units that are yet to be included in the *IRB approach* or in the use of own estimates of *LGDs* and *conversion factors*.
- [Note: BCD Article 85(2)]
- 4.2.21 **G**
- (1) A *firm* should achieve full roll-out of the *IRB approach* to all its *exposures*, subject to the exemptions outlined in ■ BIPRU 4.2.26 R, within the period specified in its *IRB permission*. A *firm* should not retain a permanent mix of portfolios on the *standardised approach* and the *IRB approach*, on the *foundation IRB approach* and the

*advanced IRB approach* or on a mixture of all approaches with the exception of portfolios covered by those exemptions.

- (2) This applies to a move:
- (a) from the *standardised approach* to the *IRB approach*;
  - (b) from the *foundation IRB approach* to the *advanced IRB approach*; and
  - (c) from the *transitional rules and guidance for BIPRU* to the *IRB approach*.
- (3) The period referred to in ■ BIPRU 4.2.20 R (1) will generally be not more than three years of starting use of the *IRB approach* or the *advanced IRB approach* as applicable.

**4.2.22** **R** A firm using the *IRB approach* for any *IRB exposure class* must at the same time use the *IRB approach* for the *equity exposure class*.

[Note: BCD Article 85(3)]

**4.2.23** **R** Subject to ■ BIPRU 4.2.17 R - ■ BIPRU 4.2.20 R, ■ BIPRU 4.2.22 R and ■ BIPRU 4.2.26 R, a firm that has an *IRB permission* must not use the *standardised approach* for the calculation of *risk weighted exposure amounts* for the *exposures* to which the *IRB approach* applies under the *IRB permission*.

[Note: BCD Article 85(4)]

**4.2.24** **R** Subject to ■ BIPRU 4.2.17 R - ■ BIPRU 4.2.22 R and ■ BIPRU 4.2.26 R, a firm whose *IRB permission* provides for the use of the *advanced IRB approach* for the calculation of *LGDs* and *conversion factors* for the *sovereign, institution and corporate IRB exposure class* must not use the *LGD values* and *conversion factors* applicable to the *foundation IRB approach* for the *exposures* to which the *advanced IRB approach* applies under the *IRB permission*.

[Note: BCD Article 85(5)]

**4.2.25** **G** The *appropriate regulator* will not agree to a firm's request to revoke or vary its *IRB permission* so as to permit the firm to revert to the *standardised approach* except for demonstrated good cause. Likewise, the *appropriate regulator* will not agree to a firm's request to revoke or vary its *IRB permission* so as to permit the firm to revert to the *foundation IRB approach* if the *IRB permission* provides for it to use the *advanced IRB approach*, except for demonstrated good cause.

#### Combined use of methodologies: Basic provisions

**4.2.26** **R** (1) To the extent that its *IRB permission* permits this, a firm permitted to use the *IRB approach* in the calculation of *risk weighted exposure amounts* and *expected loss amounts* for one or more *IRB exposure classes* may apply the *standardised approach* in accordance with this rule.

- (2) A firm may apply the *standardised approach* to the *IRB exposure class* referred to in ■ BIPRU 4.3.2 R (1) (Sovereigns) where the number of material counterparties is limited and it would be unduly burdensome for the firm to implement a *rating system* for these counterparties. A firm may include in this treatment an *exposure* of the type described in ■ BIPRU 3.4.18 R (Exposures to churches or religious communities) that would fall within ■ BIPRU 3.4.15 R or ■ BIPRU 3.4.17 R (Exposure to a regional government or local authority) if those provisions had not been excluded by ■ BIPRU 3.4.18 R.
- (3) A firm may apply the *standardised approach* to the *IRB exposure class* referred to in ■ BIPRU 4.3.2 R (2) (Institutions), where the number of material counterparties is limited and it would be unduly burdensome for the firm to implement a *rating system* for these counterparties.
- (4) A firm may apply the *standardised approach* to *exposures* in non-significant business units as well as *IRB exposure classes* that are immaterial in terms of size and perceived risk profile.
- (5) A firm may apply the *standardised approach* to *exposures* to the central governments of *EEA States* and their regional governments, local authorities and administrative bodies, provided that:
  - (a) there is no difference in risk between the *exposures* to the central government and those other *exposures* because of specific public arrangements; and
  - (b) *exposures* to the central government are assigned a 0% *risk weight* under the *standardised approach*.
- (6) A firm may apply the *standardised approach* to *exposures* of a firm to a counterparty which is its *parent undertaking*, its *subsidiary undertaking* or a *subsidiary undertaking* of its *parent undertaking* provided that the counterparty is an *institution*, a *financial holding company*, a *mixed financial holding company*, a *financial institution*, an *asset management company* or an *ancillary services undertaking* subject to appropriate prudential requirements.
- (7) A firm may apply the *standardised approach* to *equity exposures* to entities whose credit obligations qualify for a 0% *risk weight* under the *standardised approach* (including those publicly sponsored entities where a zero *risk weight* can be applied).
- (8) A firm may apply the *standardised approach* to *equity exposures* incurred under legislative programmes to promote specified sectors of the economy that provide significant subsidies for the investment to the firm and involve some form of government oversight and restrictions on the *equity* investments. This exclusion is limited to an aggregate of 10% of *capital resources*.
- (9) A firm may apply the *standardised approach* to the *exposures* identified in ■ BIPRU 3.4.48 R (Exposures in the form of minimum reserves required by the European Central Bank or by the central bank of an *EEA State*) meeting the conditions specified therein.



- (10) A firm may apply the *standardised approach* to state and state-reinsured guarantees pursuant to ■ BIPRU 5.7.12 R (Conditions for state and state-reinsured guarantees).

[Note: BCD Article 89(1)]

#### Combined use of methodologies: Documentation

- 4.2.27 **G** As part of the application for an *IRB permission*, a firm should have a well documented policy explaining the basis on which *exposures* are to be selected for permanent exemption from the *IRB approach* and for treatment under the *standardised approach*. The firm's roll out plan should also contain provisions for the continuing application of that policy on a consistent basis over time.

#### Combined use of methodologies: Sovereign and institutional, exposures

- 4.2.28 **G** A firm intending to make use of ■ BIPRU 4.2.26 R (2) or ■ BIPRU 4.2.26 R (3) should demonstrate to the *appropriate regulator* when applying for an *IRB permission* that it meets the requirements of those provisions with respect to its sovereign or, as the case may be, institutional, *exposures*.

#### Combined use of methodologies: Meaning of non-significance and immateriality

- 4.2.29 **R** For the purposes of ■ BIPRU 4.2.26 R (4), the *equity exposure IRB exposure class* of a firm must be considered material if its aggregate value, excluding *equity exposures* incurred under legislative programmes as referred to in ■ BIPRU 4.2.26 R (8) but including *exposures* in a *CIU* treated as *equity exposures* in accordance with ■ BIPRU 4.9.11 R to ■ BIPRU 4.9.15 R, exceeds, on average over the preceding year, 10% of the firm's *capital resources*. If the number of those *equity exposures* is less than 10 individual holdings, that threshold is 5% of the firm's *capital resources*.

[Note: BCD Article 89(2)]

- 4.2.30 **R**
- (1) This rule sets out what must be treated as being non-significant business or immaterial for the purposes of ■ BIPRU 4.2.26 R (4), for *exposures* that do not fall within the *equity exposure IRB exposure class*.
  - (2) A firm may elect permanently to exclude *exposures* from the *IRB approach* and apply the *standardised approach*. However a firm may only make use of this exemption to the extent that:
    - (a) the *consolidated credit risk requirement* (adjusted under (6)) so far as it is attributable to the excluded *exposures*; would be no more than 15% of:
    - (b) the *consolidated credit risk requirement* (adjusted under (6)) with respect to all *exposures* (including the ones dealt with under (a)).
  - (3) *Exposures* excluded under ■ BIPRU 4.2.29 R or ■ BIPRU 4.2.26 R (2), ■ BIPRU 4.2.26 R (3) and ■ BIPRU 4.2.26 R (5)–■ BIPRU 4.2.26 R (7) must not be included in (a) or (b).

- (4) The calculation in (2)(a) is based on the *standardised approach*.
- (5) The calculation in (2)(b) is based on whichever of the *standardised approach* and the *IRB approach* would apply to the *exposures* referred to in (2)(b) at the time when the calculation is being made.
- (6) The *consolidated credit risk requirement* is adjusted for the purposes of this *rule* as follows:
  - (a) only the elements based on the *credit risk capital component* and the *counterparty risk capital component* are being taken into account; and
  - (b) the calculation is carried out with respect to the group of *undertakings* referred to in ■ BIPRU 4.2.17 R.
- (7) If a group with respect to which the calculation in this *rule* is being carried out is not required to calculate the *consolidated credit risk requirement*, the calculations in this *rule* must be carried out as if it were.

## 4.2.31

R

If a *firm* applies to use the *advanced IRB approach* for the *sovereign, institution and corporate IRB exposure class*, ■ BIPRU 4.2.26 R (4) also applies with respect to *exposures* in that class. For these purposes, to the extent permitted in the *firm's IRB permission*, a *firm* may:

- (1) exclude some *exposures* from the *IRB approach* and apply the *standardised approach* to those *exposures*; and
- (2) exclude other *exposures* from the *advanced IRB approach* and apply the *foundation IRB approach* to those *exposures*.

## 4.2.32

G

Where ■ BIPRU 4.2.31 R applies:

- (1) the 15% limit in ■ BIPRU 4.2.30 R (2) is a combined limit for excluded *exposures* remaining on the *standardised approach* and excluded *exposures* remaining on the *foundation IRB approach*; and
- (2) the calculation in ■ BIPRU 4.2.30 R (2)(a) is carried out under whichever method of calculation would be applicable to the *exposure* in question.

### Combined use of methodologies: Territorial aspects

## 4.2.33

G

- (1) [deleted]
- (2) [deleted]
- (3) [deleted]
- (4) [deleted]
- (5) [deleted]
- (6) [deleted]



**Combined use of methodologies: Intra-group exposures**

4.2.34

G

- (1) Generally, the *appropriate regulator* will consider excluding, through a *firm's IRB permission*, exposures falling into ■ BIPRU 4.2.26 R (6) from the *IRB approach*. The degree to which this exclusion applies will be set out in the *firm's IRB permission*.
- (2) Exposures excluded under (1) will be eligible for a 0% *risk weight* under the *standardised approach* if they satisfy the conditions in ■ BIPRU 3.2.25 R to ■ BIPRU 3.2.27A R (Zero risk weight for certain intra-group exposures).
- (3) Exposures to or holdings in any non-financial *undertakings* in a *firm's group* are not eligible for permanent exemption from the *IRB approach* under ■ BIPRU 4.2.26 R (6), as they are not subject to consolidated supervision. It is also the *appropriate regulator's* policy that exposures to or holdings in any *insurance undertaking* are ineligible. Such exposures should remain on the *IRB approach* unless excluded under another part of ■ BIPRU 4.2.26 R.
- (4) If a *firm* uses the exemption in (1) it should have a policy that:
  - (a) provides for the identification of connected counterparties excluded under (1);
  - (b) identifies exposures that would be permanently exempted from the *IRB approach* under (1); and
  - (c) identifies the connected counterparty exposures that are not permitted to be permanently exempted from the *IRB approach* under (1).
- (5) The policy in (4) should be applied consistently to all exposures excluded under (1).

**Combined use of methodologies: Purchase of a new businesses**

4.2.35

G

- (1) This *guidance* deals with some possible effects of acquiring a major new business after the grant of an *IRB permission*.
- (2) A *firm* should if possible ensure that the exposures arising through the acquisition are dealt with in accordance with the *firm's IRB permission*.
- (3) If the acquisition is made during the currency of a roll out plan under ■ BIPRU 4.2.18 R, a *firm* should ensure that the exposures arising through the acquisition are dealt with in accordance with that plan. For these purposes the existing and the acquired business should be considered together. The whole of the *firm's* business, including the newly acquired business, should be included in both the denominator and numerator of the fraction in ■ BIPRU 4.2.30 R.
- (4) If a *firm* cannot comply with (2) the *appropriate regulator* will consider an application to vary the *firm's IRB permission* in order to deal with the acquisition. For example the *appropriate regulator* may agree to extend the time by which the roll out should be completed (see ■ BIPRU 4.2.20 R). However any such variation should be consistent with the provisions of ■ BIPRU 4.2 that would have applied if the

acquisition had been included in the *firm's* original application for an *IRB permission*.

- (5) If the acquisition is made after a *firm* has completed its roll out under ■ BIPRU 4.2.18 R the *appropriate regulator* will not in general agree to an application to treat an *exposure*:
  - (a) under the *standardised approach* if it would otherwise be treated under the *IRB approach* under the *firm's IRB permission*; or
  - (b) under the *foundation IRB approach* if it would otherwise be treated under the *advanced IRB approach* under the *firm's IRB permission*.
- (6) Any application to disapply the policy in (5) will be treated in accordance with the approach set out in ■ BIPRU 4.2.25 G.
- (7) The *appropriate regulator* will also adopt the approach in (5) while a roll out plan is in progress if, in relation to an *exposure* of a particular type, the period for completion of the roll out for those *exposures* under that plan has ended.

## 4.3 The IRB approach: Provisions common to different exposure classes

### Application

4.3.1 **R** This section applies to all *exposures* treated under the *IRB approach*.

### Exposure classes

4.3.2 **R** Each *exposure* must be assigned to one of the following *exposure classes*:

- (1) claims or contingent claims on central governments and *central banks*;
- (2) claims or contingent claims on *institutions*;
- (3) claims or contingent claims on corporates;
- (4) retail claims or contingent retail claims;
- (5) equity claims;
- (6) *securitisation* positions; and
- (7) *non credit-obligation assets*.

[Note: BCD Article 86(1)]

4.3.3 **R** The methodology used by a *firm* for assigning *exposures* to different *IRB exposure classes* must be appropriate and consistent over time.

[Note: BCD Article 86(9)]

### Calculation of risk weighted exposure amounts

4.3.4 **R** The *risk weighted exposure amounts* for credit risk for *exposures* belonging to one of the *exposure classes* referred to in (1) to (4) must, unless deducted from *capital resources*, be calculated in accordance with the following provisions:

- (1) for *exposures* in the *sovereign, institution and corporate IRB exposure class*, ■ BIPRU 4.4.57 R to ■ BIPRU 4.4.60 R, ■ BIPRU 4.4.79 R, ■ BIPRU 4.5.8 R to ■ BIPRU 4.5.10 R (for *specialised lending exposures*), ■ BIPRU 4.9.3 R

and ■ BIPRU 4.8.16 R to ■ BIPRU 4.8.17 R (for purchased *corporate exposure* receivables);

- (2) for *exposures* in the *retail exposure class*, ■ BIPRU 4.6.41 R to ■ BIPRU 4.6.44 R, ■ BIPRU 4.6.57 R and ■ BIPRU 4.8.18 R to ■ BIPRU 4.8.20 R (for purchased *retail exposure* receivables);
- (3) for *exposures* in the *equity exposure class*, ■ BIPRU 4.7.5 R to ■ BIPRU 4.7.6 R, ■ BIPRU 4.7.9 R to ■ BIPRU 4.7.11 R, ■ BIPRU 4.7.14 R to ■ BIPRU 4.7.16 R and ■ BIPRU 4.7.24 R to ■ BIPRU 4.7.25 R; and
- (4) for *exposures* in the *non credit-obligation assets exposure class*, ■ BIPRU 4.9.6 R.

[Note: BCD Article 87(1)]

#### 4.3.5

**R**

The calculation of *risk weighted exposure amounts* for credit risk and *dilution risk* must be based on the relevant parameters associated with the *exposure* in question. These include *probability of default (PD)*, *loss given default (LGD)*, maturity (M) and the *exposure* value of the *exposure*. *PD* and *LGD* may be considered separately or jointly, in accordance with the provisions relating to *PD* and *LGD* in ■ BIPRU 4.4, ■ BIPRU 4.6, ■ BIPRU 4.7 and ■ BIPRU 4.8 at:

- (1) for *exposures* in the *sovereign, institution and corporate IRB exposure class*, ■ BIPRU 4.4.34 R - ■ BIPRU 4.4.35 R, ■ BIPRU 4.4.42 R to ■ BIPRU 4.4.43 R, ■ BIPRU 4.4.63 R - ■ BIPRU 4.4.66 R, ■ BIPRU 4.4.80 R and, for *PD* and *LGD* for *dilution risk* of purchased *corporate exposure* receivables, ■ BIPRU 4.8.23 R and ■ BIPRU 4.8.26 R;
- (2) for *exposures* in the *retail exposure class*, ■ BIPRU 4.6.50 R - ■ BIPRU 4.6.54 R, ■ BIPRU 4.6.58 R, and, for *PD* and *LGD* for *dilution risk* of purchased *retail exposure* receivables, ■ BIPRU 4.8.24 R and ■ BIPRU 4.8.27 R; and
- (3) for *exposures* in the *equity exposure class*, ■ BIPRU 4.7.18 R and ■ BIPRU 4.7.20 R - ■ BIPRU 4.7.21 R.

[Note: BCD Article 87(3)]

#### Calculation of expected loss amounts

#### 4.3.6

**R**

The *expected loss* amounts for *exposures* belonging to one of the *IRB exposure classes* referred to in (1) to (3) must be calculated in accordance with the methods set out in the following provisions:

- (1) for *exposures* in the *sovereign, institution and corporate IRB exposure class*, ■ BIPRU 4.4.61 R to ■ BIPRU 4.4.62 R and (for *specialised lending exposures*) ■ BIPRU 4.5.13 R to BIPRU 4.5.15R;
- (2) for *exposures* in the *retail exposure class*, ■ BIPRU 4.6.47 R to ■ BIPRU 4.6.48 R;
- (3) for *exposures* in the *equity exposure class*, ■ BIPRU 4.7.12 R, ■ BIPRU 4.7.17 R and ■ BIPRU 4.7.26 R; and

- (4) (for purchased receivables falling into one of the *IRB exposure classes* in (1) to (3)) ■ BIPRU 4.8.30 R.

[Note: BCD Article 88(1)]

- 4.3.7 **R** The calculation of *expected loss* amounts in accordance with ■ BIPRU 4.3.6 R must be based on the same input figures of *PD*, *LGD* and the *exposure* value for each *exposure* as being used for the calculation of *risk weighted exposure amounts* in accordance with ■ BIPRU 4. For *defaulted exposures*, where a *firm* uses its own estimate of *LGDs*, *EL* must be the *firm's* best estimate of expected loss ( $EL_{BE}$ ), for the *defaulted exposure* in accordance with ■ BIPRU 4.3.122 R.

[Note: BCD Article 88(2)]

### Treatment of expected loss amounts

- 4.3.8 **R** The *expected loss* amounts calculated in accordance with ■ BIPRU 4.3.6 R (1), ■ BIPRU 4.3.6 R (2) and ■ BIPRU 4.3.6 R (4) must be subtracted from the sum of value adjustments and provisions related to these *exposures*. Discounts on balance sheet *exposures* purchased when in *default* according to ■ BIPRU 4.4.71 R must be treated in the same manner as value adjustments. *Expected loss* amounts for *securitised exposures* and value adjustments and provisions related to these *exposures* must not be included in this calculation.

[Note: BCD Annex VII Part 1 point 36]

### Corporate governance

- 4.3.9 **R** All material aspects of the rating and estimation processes must be approved by the *firm's governing body* or a designated committee thereof and senior management. These parties must possess a general understanding of the *firm's rating systems* and detailed comprehension of its associated management reports.

[Note: BCD Annex VII Part 4 point 124]

- 4.3.10 **G**
- (1) A *firm's governing body* or *designated committee* may choose to approve only material aspects of the *firm's rating systems* and material changes to the *firm's rating systems*.
  - (2) Where a *firm's governing body* or *designated committee* chooses to approve only material aspects of the *firm's rating systems* and material changes to the *firm's rating systems*:
    - (a) the *firm's governing body* or *designated committee* should define the *firm's* overall approach to material aspects of rating and estimation processes for all *rating systems*, including non-material *rating systems* and approve a policy statement defining that approach; and
    - (b) the *firm* should define and document the process for approval of non-material aspects of the *firm's rating systems*.

- 4.3.11** **R** Senior management must provide notice to the *governing body* or a designated committee thereof of material changes or exceptions from established policies that will materially impact the operations of the *firm's rating systems*.  
[Note: BCD Annex VII Part 4 point 125]
- 4.3.12** **G** Where the *firm's rating systems* are used on a unified basis for the *parent undertaking* and its *subsidiary undertakings* under **■ BIPRU 4.2.3 R**, and approval and reporting of the *ratings systems* are carried out at the group level, the governance requirements in **■ BIPRU 4.3.9 R** and **■ BIPRU 4.3.11 R** may be met if:
- (1) the *subsidiary undertakings* have delegated to the *governing body* or *designated committee* of the *EEA parent institution* or *EEA parent financial holding company* responsibility for approval of the *firm's rating systems*;
  - (2) the *governing body* or *designated committee* of the *EEA parent institution* or *EEA parent financial holding company* approves either:
    - (a) all aspects of the *firm's rating systems*, and material changes; or
    - (b) all aspects of the *firm's rating systems* that are material in the context of the group, and material changes to those, and a policy statement defining the overall approach to material aspects of rating and estimation processes for all *rating systems*, including non-material *rating systems*.
- 4.3.13** **R** Senior management must have a good understanding of the *rating system's* designs and operations. Senior management must ensure on an ongoing basis that the *rating systems* are operating properly. Senior management must be regularly informed by the credit risk control units about the performance of the rating process, areas needing improvement, and the status of efforts to improve previously identified deficiencies.  
[Note: BCD Annex VII Part 4 point 126]
- 4.3.14** **R** Internal ratings-based analysis of the *firm's* credit risk profile must be an essential part of the management reporting required under **■ BIPRU 4.3.9 R**, **■ BIPRU 4.3.11 R** and **■ BIPRU 4.3.13 R**. Reporting must include at least risk profile by grade, migration across grades, estimation of the relevant parameters per grade, and comparison of realised *default* rates and, to the extent that own estimates are used, of realised *LGDs* and realised *conversion factors* against expectations and stress-test results. Reporting frequencies must depend on the significance and type of information and the level of the recipient.  
[Note: BCD Annex VII Part 4 point 127]
- Credit risk control** .....
- 4.3.15** **R** The credit risk control unit must be independent from the personnel and management functions responsible for originating or renewing *exposures* and report directly to senior management. The unit must be responsible for the design or selection, implementation, oversight and performance of the

*rating systems*. It must regularly produce and analyse reports on the output of the *rating systems*.

[Note: BCD Annex VII Part 4 point 128]

**4.3.16** **R** The areas of responsibility for the credit risk control unit(s) must include the following:

- (1) testing and monitoring grades and pools;
- (2) production and analysis of summary reports from the *firm's rating systems*;
- (3) implementing procedures to verify that grade and pool definitions are consistently applied across departments and geographic areas;
- (4) reviewing and documenting any changes to the rating process, including the reasons for the changes;
- (5) reviewing the rating criteria to evaluate if they remain predictive of risk (and changes to the rating process, criteria or individual rating parameters must be documented and retained);
- (6) active participation in the design or selection, implementation and validation of models used in the rating process;
- (7) oversight and supervision of models used in the rating process; and
- (8) ongoing review and alterations to models used in the rating process.

[Note: BCD Annex VII Part 4 point 129]

**4.3.17** **R** Notwithstanding **■ BIPRU 4.3.16 R**, a *firm* using pooled data according to **■ BIPRU 4.3.92 R** - **■ BIPRU 4.3.94 R** (Overall requirements for estimation) may outsource the following tasks:

- (1) production of information relevant to testing and monitoring grades and pools;
- (2) production of summary reports from the *firm's rating systems*;
- (3) production of information relevant to review of the rating criteria to evaluate if they remain predictive of risk;
- (4) documentation of changes to the rating process, criteria or individual rating parameters; and
- (5) production of information relevant to ongoing review and alterations to models used in the rating process.

[Note: BCD Annex VII Part 4 point 130 (part)]

**4.3.18** **R** A *firm* making use of **■ BIPRU 4.3.17 R** must ensure that the *appropriate regulator* has access to all relevant information from the third party that is necessary for examining compliance with the *minimum IRB standards* and



the *firm's IRB permission* and that the *appropriate regulator* may perform on-site examinations to the same extent as within the *firm*.

[Note: BCD Annex VII Part 4 point 130 (part)]

### Documentation of rating systems

- 4.3.19 **R** A *firm* must document the design and operational details of its *rating systems*. The documentation must evidence compliance with the *minimum IRB standards* and the *firm's IRB permission*, and address topics including portfolio differentiation, rating criteria, responsibilities of parties that rate obligors and *exposures*, frequency of assignment reviews, and management oversight of the rating process.
- [Note: BCD Annex VII Part 4 point 31]
- 4.3.20 **R** A *firm* must ensure that all documentation relating to its *rating systems* or otherwise required by the *rules* governing the *IRB approach* are stored, arranged and indexed in such a way that the *firm* would be able to make them all available to the *appropriate regulator*, or to make any class or description of them specified by the *appropriate regulator* available to the *appropriate regulator*, immediately on demand or within a short time thereafter.
- 4.3.21 **R** A *firm* must document the rationale for and analysis supporting its choice of rating criteria. A *firm* must document all major changes in the risk rating process, and such documentation must support identification of changes made to the risk rating process subsequent to the last review by the *appropriate regulator*. The organisation of rating assignment including the rating assignment process and the internal control structure must also be documented.
- [Note: BCD Annex VII Part 4 point 32]
- 4.3.22 **R** A *firm* must document the specific definitions of default and loss used internally and demonstrate consistency with the definitions of *default* and *loss* set out in the *glossary* and ■ BIPRU 4.
- [Note: BCD Annex VII Part 4 point 33]
- 4.3.23 **G** A *firm's* documentation relating to data should include clear identification of responsibility for data quality. A *firm* should set standards for data quality and aim to improve them over time. A *firm* should measure its performance against those standards. A *firm* should ensure that its data is of high enough quality to support its risk management processes and the calculation of its capital requirements.
- 4.3.24 **R** Where a *firm* employs statistical models in the rating process, the *firm* must document its methodologies. This material must:
- (1) provide a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the assignment of estimates to grades, individual obligors, *exposures*, or pools, and the data source(s) used to estimate the model;



- (2) establish a rigorous statistical process (including out-of-time and out-of-sample performance tests) for validating the model; and
- (3) indicate any circumstances under which the model does not work effectively.

[Note: BCD Annex VII Part 4 point 34]

### Rating systems

4.3.25

R

A *rating system* comprises all of the methods, processes, controls, data collection and IT systems that support the assessment of credit risk, the assignment of *exposures* to grades or pools (rating), and the quantification of *default* and *loss* estimates for a certain type of *exposure*.

[Note: BCD Annex VII Part 4 point 1]

4.3.26

R

If a *firm* uses multiple *rating systems*, the rationale for assigning an obligor or a transaction to a *rating system* must be documented and applied in a manner that appropriately reflects the level of risk.

[Note: BCD Annex VII Part 4 point 2]

4.3.27

R

Assignment criteria and processes must be periodically reviewed to determine whether they remain appropriate for the current portfolio and external conditions.

[Note: BCD Annex VII Part 4 point 3]

4.3.28

R

Where a *firm* uses direct estimates of risk parameters these may be seen as the outputs of grades on a continuous rating scale.

[Note: BCD Annex VII Part 4 point 4]

### Validation of internal estimates

4.3.29

R

A *firm* must have robust systems in place to validate the accuracy and consistency of *rating systems*, processes, and the estimation of all relevant risk parameters (*PD*, *LGD*, *conversion factors* and *EL*). A *firm* must be able to demonstrate to the *appropriate regulator* that the internal validation process enables it to assess the performance of internal rating and risk estimation systems consistently and meaningfully.

[Note: BCD Annex VII Part 4 point 110]

4.3.30

R

- (1) A *firm* must validate its *rating systems*. Its validation process must include, as a minimum, the elements set out in (2) - (8).
- (2) A *firm* must establish and define standards of objectivity, accuracy, stability and conservatism that it designs its *ratings systems* to meet. It must have processes that establish whether its *rating systems* meet those standards.
- (3) A *firm* must establish and define standards of accuracy of calibration (i.e. whether outcomes are consistent with estimate) and

discriminative power (i.e. the ability to rank-order risk) that it designs its *rating systems* to meet. It must have processes that establish whether its *rating systems* meet those standards.

- (4) A *firm* must have policies and standards that specify the actions to be taken when a *rating system* fails to meet the standards of accuracy and discriminative power referred to in (2) and (3).
- (5) A *firm's* validation process must include a mix of developmental evidence, benchmarking and process verification. A *firm's* validation process must include policies on how this mixture varies between different *rating systems*.
- (6) A *firm's* validation process must include the use of both quantitative and qualitative techniques.
- (7) A *firm's* validation process must include policies on how validation procedures are expected to vary over time.
- (8) A *firm's* validation process must include independent input into and review of its *rating systems*.
- (9) The standards set under (2) and (3) must meet the *minimum IRB standards*.
- (10) For the purpose of (5):
  - (a) developmental evidence means evidence that substantiates whether the logic and quality of a *rating system* (including the quantification process) adequately discriminates between different levels of, and delivers accurate estimates of *PD, EL, LGD* and *conversion factors* (as applicable); and
  - (b) process verification means the process of establishing whether the methods used in a *rating system* to discriminate between different levels of risk and to quantify *PD, EL, LGD* and *conversion factors* are being used, monitored and updated in the way intended in the design of the *rating system*.

**4.3.31** **G** A *firm* should have regard to the involvement of management at an appropriately senior level in the validation process.

**4.3.32** **G** The approach to validation may vary with the significance of the *exposures* covered by a *rating system*.

**4.3.33** **R** A *firm* must regularly compare realised *default* rates with estimated *PDs* for each grade and where realised *default* rates are outside the expected range for that grade a *firm* must specifically analyse the reasons for the deviation. A *firm* using its own estimates of *LGDs* and/or *conversion factors* must also perform analogous analysis for own estimates of *LGDs* and *conversion factors*. Such comparisons must make use of historical data that cover as long a period as possible. A *firm* must document the methods and data used in such comparisons. This analysis and documentation must be updated at least annually.

[Note: BCD Annex VII Part 4 point 111]

- 4.3.34** **G** (1) This paragraph sets out *guidance* on assessing the adequacy of a *rating system's* discriminative power (see ■ BIPRU 4.3.30 R (3) on the meaning of discriminative power).
- (2) A *firm* should be able to explain the performance of its *rating systems* against its chosen measure (or measures) of discriminative power. In making this comparison a *firm* should rely primarily on actual historic *default* experience where this is available. In particular, a *firm* should be able to explain:
- (a) the extent of any potential inaccuracy in these measures, caused in particular by small sample size; and
- (b) the potential for divergence in the future, whether caused by changing economic conditions or other factors.
- (3) The assessment of discriminative power should include appropriate use of external benchmarks where available.
- (4) The *appropriate regulator* will, in assessing the *firm's* performance, take into consideration the sophistication of the measure of discrimination chosen.
- (5) In the case of a portfolio for which there is insufficient *default* experience to provide any confidence in statistical measures of discriminative power a *firm* need not carry out the procedure in (2) and may instead use other methods. For example, it may make use of comparison with an external measurement approach by analysing whether the *firm's rating systems* and the external approach rank common obligors in broadly similar ways. A *firm* should be able to explain the methodology it uses and the rationale for its use.
- 4.3.35** **R** A *firm* must also use other appropriate quantitative validation tools and comparisons with relevant external data sources. The analysis must be based on data that is appropriate to the portfolio, is updated regularly, and covers a relevant observation period. A *firm's* internal assessments of the performance of its *rating systems* must be based on as long a period as possible.
- [Note: BCD Annex VII Part 4 point 112]
- 4.3.36** **R** The methods and data used for quantitative validation must be consistent through time. Changes in estimation and validation methods and data (both data sources and periods covered) must be documented.
- [Note: BCD Annex VII Part 4 point 113]
- 4.3.37** **R** A *firm* must have sound internal standards for situations where deviations in realised *PDs*, *LGDs*, *conversion factors* and, where *EL* is used, total *losses*, from expectations become significant enough to call the validity of the estimates into question. These standards must take account of business cycles and similar systematic variability in *default* and *loss* experience. Where realised values continue to be higher than expected values, a *firm* must revise estimates upward to reflect its *default* and *loss* experience.
- [Note: BCD Annex VII Part 4 point 114]

### Internal audit

- 4.3.38 **R** Internal audit or another comparable independent auditing unit must review at least annually the *firm's rating systems* and its operations, including the operations of the *firm* and the estimation of *PDs, LGDs, ELs* and *conversion factors*. Areas of review must include adherence to all applicable minimum requirements.

[Note: BCD Annex VII Part 4 point 131]

### Stress tests used in assessment of capital adequacy

- 4.3.39 **R** A *firm* must have in place sound stress testing processes for use in the assessment of its capital adequacy. Stress testing must involve identifying possible events or future changes in economic conditions that could have unfavourable effects on the *firm's credit exposures* and assessment of the *firm's* ability to withstand such changes.

[Note: BCD Annex VII Part 4 point 40]

- 4.3.39A **G** The *appropriate regulator* expects that *firms* will routinely make use of stress testing and scenario analysis as a tool in the calibration and/or validation of their *IRB approach* parameters in order to increase the accuracy or, at least, the conservatism of the estimates. Stress testing should include a thorough exploration of various outturns different to the *firm's* normal expectations in order to give the *firm* a clear view of the potential for the forward-looking estimate to be different from that indicated by the primary data source(s). *Firms* should consider this as an integral part of their quantification process, and should have clear standards for how the results of the stress tests affect the final estimates used for the *IRB approach* parameters.

- 4.3.40 **R**
- (1) A *firm* must regularly perform a credit risk stress test to assess the effect of certain specific conditions on its total capital requirements for credit risk. The test to be employed must be one chosen by the *firm*. The test to be employed must be meaningful and reasonably conservative. Stressed portfolios must contain the vast majority of a *firm's* total *exposures* covered by the *IRB approach*.
  - (2) The stress test must be designed to assess the *firm's* ability to meet its capital requirements for credit risk under **GENPRU 2.1** during all stages of the economic cycle and during an economic downturn scenario based on forward looking hypothetical events calibrated against the most adverse movements in individual risk drivers experienced over a long historical period.
  - (3) In particular the stress test must address the impact (including by ratings migration) of changes in the credit quality of its credit risk counterparties including its protection providers. A *firm* using the treatment set out in **BIPRU 4.4.79 R** must in particular consider the impact of protection providers falling outside the eligibility criteria.
  - (4) The stress test must be conducted on the basis of the *firm's exposures* (on- and off-balance sheet) as they stand at the time of the stress test.
  - (5) The stress test must be carried out at least annually and also in the event of a significant change in the state of the economy.

(6) A *firm* need not assume that the recession referred to in (2) will occur in the 12 months immediately following the stress test. Instead, the stress test must incorporate a plausible time horizon for the occurrence of the cyclical deterioration of the severity tested for. A *firm* need not assume that the downturn will occur for all portfolios in all jurisdictions simultaneously.

[Note: BCD Annex VII Part 4 points 41 and 42]

4.3.41 **G** To the extent that the economic conditions assumed in the stress tests required under ■ BIPRU 4.3.39 R or ■ BIPRU 4.3.40 R coincide with the conditions assumed in the production of economic downturn *LGDs* (see ■ BIPRU 4.3.103 R), the *LGDs* to be used might be expected to be similar.

4.3.42 **G** The requirement in ■ BIPRU 4.3.40 R (2) is to identify, in a forward-looking manner, severe but plausible downturn conditions relevant to business lines and jurisdictions and to determine the likely impact of those conditions on a *firm's* credit risk regulatory capital requirements. The description of the economic recession contained in ■ BIPRU 4.3.40 R (2) should not be taken as stipulating one approach (e.g. statistical) over other approaches (e.g. scenario analysis) in the identification of the relevant recessionary circumstances.

#### Rating systems: Assignment to grades or pools

4.3.43 **R** A *firm* must have specific definitions, processes and criteria for assigning *exposures* to grades or pools within a *rating system*.

[Note: BCD Annex VII Part 4 point 17 (part)]

4.3.44 **R** The grade or pool definitions and criteria must be sufficiently detailed to allow those charged with assigning ratings consistently to assign obligors or facilities posing similar risk to the same grade or pool. This consistency must exist across lines of business, departments and geographic locations within each *rating system*.

[Note: BCD Annex VII Part 4 point 17 (part)]

4.3.45 **G** In meeting ■ BIPRU 4.3.44 R a *firm* should have regard to its application to each *rating system*.

4.3.46 **R** The documentation of the rating process must allow third parties to understand the assignments of *exposures* to grades or pools, to replicate grade and pool assignments and to evaluate the appropriateness of the assignments to a grade or a pool.

[Note: BCD Annex VII Part 4 point 17 (part)]

4.3.47 **R** The criteria referred to in ■ BIPRU 4.3.43 R must also be consistent with the *firm's* internal lending standards and its policies for handling troubled obligors and facilities.

[Note: BCD Annex VII Part 4 point 17 (part)]

- 4.3.48** **R** A *firm* must take all relevant information into account in assigning obligors and facilities to grades or pools. Information must be current and must enable the *firm* to forecast the future performance of the *exposure*. The less information a *firm* has, the more conservative must be its assignments of *exposures* to obligor and *facility grades* or pools. If a *firm* uses an external rating as a primary factor determining an internal rating assignment, the *firm* must ensure that it considers other relevant information.

[Note: BCD Annex VII Part 4 point 18]

### Rating systems: General governance

- 4.3.49** **G**
- (1) This paragraph contains *guidance* on **■ BIPRU 4.3.43 R** and more general *guidance* about the governance of *rating systems*.
  - (2) In determining the assignment referred to in **■ BIPRU 4.3.43 R**, a *firm* should have regard to the sensitivity of the rating to movements in fundamental risk drivers.
  - (3) A *firm* should, for any *rating system*, be able to demonstrate that it acts appropriately or has an appropriate policy, as applicable, with respect to:
    - (a) any deficiencies caused by its not being sensitive to movements in fundamental risk drivers or for any other reason;
    - (b) periodic review and action in the light of such review;
    - (c) provision of appropriate internal guidance to staff to ensure consistency in the use of the *rating system*, including the assignment of *exposures* or facilities to pools or grades;
    - (d) dealing with potential weaknesses of the *rating system*;
    - (e) identifying appropriate and inappropriate uses of the *rating system* and acting on that identification;
    - (f) novel or narrow rating approaches; and
    - (g) ensuring the appropriate level of stability over time of the *rating system*.

### Rating systems: Overrides

- 4.3.50** **R** For grade and pool assignments a *firm* must document the situations in which human judgement may override the inputs or outputs of the assignment process and the personnel responsible for approving these overrides. A *firm* must document these overrides and the personnel responsible. A *firm* must analyse the performance of the *exposures* whose assignments have been overridden. This analysis must include assessment of the performance of *exposures* whose rating has been overridden by a particular *person*, accounting for all the responsible personnel.

[Note: BCD Annex VII Part 4 point 25]

### Rating systems: Use of models

- 4.3.51** **R**
- (1) This paragraph applies to the use of statistical models and/or other mechanical methods to assign *exposures* to *obligor grades*, obligor pools, *facility grades* or facility pools.



- (2) A *firm* must be able to demonstrate to the *appropriate regulator* that the model has good predictive power and that capital requirements are not distorted as a result of its use.
- (3) The input variables to the model must form a reasonable and effective basis for the resulting predictions. The model must not have material biases.
- (4) A *firm* must have in place a process for vetting data inputs into the model, which includes an assessment of the accuracy, completeness and appropriateness of the data.
- (5) A *firm* must be able to demonstrate to the *appropriate regulator* that the data used to build the model is representative of the population of the *firm's* actual obligors or *exposures*.
- (6) A *firm* must have a regular cycle of model validation that includes monitoring of model performance and stability, review of model specification and testing of model outputs against outcomes.
- (7) A *firm* must complement the statistical model by human judgement and human oversight to review model-based assignments and to ensure that the models are used appropriately. Review procedures must aim at finding and limiting errors associated with model weaknesses. Human judgements must take into account all relevant information not considered by the model. A *firm* must document how human judgement and model results are to be combined.
- (8) Use of a model obtained from a third-party vendor that claims proprietary technology is not a justification for exemption from documentation or any other of the requirements in ■ BIPRU 4 or a *firm's IRB permission for rating systems*. A *firm* must be able to satisfy the *appropriate regulator* that all those requirements are satisfied if it uses such a model.

[Note: BCD Annex VII Part 4 points 30 and 35 (part)]

## 4.3.52

G

- (1) This paragraph contains guidance on ■ BIPRU 4.3.51 R (7).
- (2) ■ BIPRU 4.3.51 R (7) does not require that each individual assignment of an *exposure* to a pool or grade should be the subject of an open-ended review by reference to factors not covered by the model if:
  - (a) that is not necessary in order to meet the requirements of ■ BIPRU 4 about the ability of the *rating system* to predict and to discriminate (as referred to in ■ BIPRU 4.3.29 R to ■ BIPRU 4.3.30 R (Validation of internal estimates)); and
  - (b) the outputs of the model are not designed to be supplemented by such a review.

## 4.3.53

G

- (1) This paragraph contains *guidance* on ■ BIPRU 4.3.51 R for the use of external models.
- (2) ■ BIPRU 4.3.51 R (2) - ■ BIPRU 4.3.51 R (8) also apply to mechanical methods to assign *exposures* or obligors to facility grades or pools and to a combination of models and mechanical methods.

- (3) The standards which a *firm* applies to an external model should not be lower than those for internal models.
- (4) The *appropriate regulator* will not accredit any individual model or vendor. The burden is on a *firm* to satisfy itself that external models are fit for purpose and meet the relevant requirements of the *IRB approach*.
- (5) Notwithstanding that commercial confidentiality may limit the willingness of vendors of external models to disclose all details, a *firm* should ensure that it is able to obtain sufficiently detailed information to be able to satisfy the requirements of the *IRB approach*.
- (6) A *firm* should have a clear understanding of responsibilities for support and maintenance of external models. This should include how new developments will be brought in and what entitlement the *firm* has to receive and/or request specific enhancements. A *firm* should ensure that the requirements of ■ BIPRU 4.3.51 R and other provisions of the *IRB approach* are complied with on an ongoing basis.
- (7) If a *firm* uses an external model it should have regard to the following:
  - (a) the adequacy of the information it has about the population on which the model is built;
  - (b) the comparability of the population referred to in (a) to the *exposures* with respect to which it is using that model;
  - (c) what the drivers of the model are and their relevance to the *exposures* with respect to which it is using the model; and
  - (d) how the *firm* satisfies itself that the standards required by the *IRB approach* for an internal model are met by the external model.

#### Rating systems: Data maintenance

- 4.3.54 **R** A *firm* must collect and store data on aspects of its internal ratings as required under ■ BIPRU 11 (Disclosure).

[Note: BCD Annex VII Part 4 point 36]

#### Rating systems: IT systems

- 4.3.55 **G** A *firm* should ensure that IT systems relevant to the operation of its *rating systems* are sound and robust. A *firm's* IT systems should provide rapid availability of databases and appropriate archiving. Adequate controls should be in place to prevent unauthorised changes to data being made. Contingency processes and plans should be in place to deal with events of system failure. A *firm* should document work-flows and procedures related to data collection and storage.

#### Definition of default: Main provisions

- 4.3.56 **R** A *default* must be considered to have occurred with regard to a particular obligor when either or both of the two following events has taken place:



- (1) the *firm* considers that the obligor is unlikely to pay its credit obligations to the *firm*, the *parent undertaking* or any of its *subsidiary undertakings* in full, without recourse by the *firm* to actions such as realising security (if held); and
- (2) the obligor is past due more than 90 days on any material credit obligation to the *firm*, the *parent undertaking* or any of its *subsidiary undertakings*.

[Note: BCD Annex VII Part 4 point 44 (part)]

4.3.57 **R** The following provisions also apply with respect to the definition of *default*:

- (1) for overdrafts, days past due commence once an obligor has breached an advised limit, has been advised a limit smaller than current outstandings, or has drawn credit without authorisation and the underlying amount is material;
- (2) an advised limit means a limit which has been brought to the knowledge of the obligor;
- (3) days past due for credit cards commence on the minimum payment due date;
- (4) in the case of *retail exposures* and *exposures to public sector entities* the number of days past due is as set out in ■ BIPRU 4.4.22 R and ■ BIPRU 4.6.20 R; and
- (5) in all cases for the purposes of the definition of *default*, a credit obligation or, for overdrafts, the underlying amount, is material if, when added to the other *exposures* of the obligor, the total exceeds the amount which the *firm* treats as a material default for its internal risk measurement and management purposes.

[Note: BCD Annex VII Part 4 point 44 (part)]

#### Definition of default: Materiality

4.3.58 **R** Where a *firm* applies the definition of *default* at facility level in accordance with ■ BIPRU 4.6.21 R, it should define materiality for the purposes of ■ BIPRU 4.3.57 R (5) by reference to the facility amount only, disregarding other *exposures* of the obligor.

4.3.59 **R** A *firm* must have a policy which sets out how it will determine whether a credit obligation or, for overdrafts, the underlying amount, is material for the purposes of the definition of *default* in ■ BIPRU 4.3.56 R (2) and ■ BIPRU 4.3.57 R (5).

#### Definition of default: Identification of obligor

4.3.60 **G**

- (1) This paragraph contains *guidance* on the definition of *default*.
- (2) If:

- (a) a *firm* ordinarily assigns *exposures* in the *sovereign, institution and corporate IRB exposure class* to a member of a group substantially on the basis of membership of that group and a common group rating; and
- (b) the *firm* does so in the case of a particular group;
- (3) the *firm* should consider whether members of that group should be treated as a single obligor for the purpose of the definition of *default*.
- (4) The *appropriate regulator* would not expect a *firm* to treat an obligor as part of a single obligor under (2) if the *firm* rates its *exposures* on a stand alone basis or if its rating is notched. A rating is notched if it takes into account individual risk factors or otherwise reflects risk factors that are not applied on a common group basis.
- (5) Accordingly if a group has two members who are separately rated the *default* of one does not necessarily imply the *default* of the other.

#### Definition of default: Days past due

4.3.61

G

- (1) This paragraph contains *guidance* on the meaning of days past due for the purposes of the definition of *default*.
- (2) If an amount is overdue by the relevant number of days past due because of administrative oversight on the part of the obligor or the *firm*, a *firm* with sufficient information may, retrospectively if necessary, treat that as not involving a *default* if:
  - (a) that failure is not associated with any increase in the risk referred to in ■ BIPRU 4.3.56 R (1); and
  - (b) treating it as not being in *default* is consistent with the way that the *firm* treated the failure in its relationship with the obligor.
- (3) If a *firm* takes advantage of this provision it should have a policy about the circumstances in which it can apply the treatment in (2). That policy should be documented and consistently applied.

4.3.62

G

Days past due is only one part of the definition of *default* and should be treated as a back-stop. A *firm* should not rely solely on the number of days past due set by ■ BIPRU 4 but should also consider all other indicators of unlikelihood to pay when assessing whether a *default* has occurred.

#### Definition of default: Unlikelihood to pay

4.3.63

R

- (1) Elements to be taken as indications of unlikelihood to pay must include the items set out in this *rule*.
- (2) The *firm* putting the credit obligation on non-accrued status must be taken as an indication of unlikelihood to pay.
- (3) The *firm* making a value adjustment resulting from a significant perceived decline in credit quality subsequent to the *firm* taking on the *exposure* must be taken as an indication of unlikelihood to pay.

- (4) The *firm* selling the credit obligation at a material credit-related economic loss must be taken as an indication of unlikelihood to pay.
- (5) The *firm* consenting to a distressed restructuring of the credit obligation must be taken as an indication of unlikelihood to pay where this is likely to result in a diminished financial obligation caused by the material forgiveness, or postponement, of principal, interest or (where relevant) fees. This includes in the case of *equity exposures* assessed under a *PD/LGD approach*, distressed restructuring of the equity itself.
- (6) The *firm* having filed for the obligor's bankruptcy or a similar order in respect of an obligor's credit obligation to the *firm*, the *parent undertaking* or any of its *subsidiary undertakings* must be taken as an indication of unlikelihood to pay.
- (7) The obligor seeking or having been placed in bankruptcy or similar protection where this would avoid or delay repayment of a credit obligation to the *firm*, the *parent undertaking* or any of its *subsidiary undertakings* must be taken as an indication of unlikelihood to pay.

[Note: BCD Annex VII Part 4 point 45]

## 4.3.64

G

A *firm* may use the amount overdue as an additional indication of unlikelihood to pay. If a *firm* uses this approach, the days past due element of the definition of *default* continues to apply, including the provisions relating to the fixed number of days past due referred to in ■ BIPRU 4.3.57 R (4). A *firm* might make the use of a definition of *default* that takes into account the amount overdue consistent with the days past due element of the definition by setting the amount overdue at such a level that, taking into account:

- (1) the order in which payments are applied against overdue payments; and
- (2) the number of payment dates, the time between them, the amount of the overdue payments that results in a *default* under the definition used by the *firm* and other relevant factors;

it is not possible for any payment to be past due by a number of days exceeding the maximum amount specified in *BIPRU* for the purposes of the definition of *default* without there being a *default* under the part of the definition of *default* based on the amount overdue.

## 4.3.65

G

In the case of a *retail exposure*, a value adjustment resulting from significant perceived decline in credit quality falling within ■ BIPRU 4.3.63 R (3) need not necessarily be taken as an indication of unlikelihood to pay if a *firm* employs formulaic portfolio provisioning based on a number of days overdue for its *retail exposures*. However, if such an *exposure* reaches the compulsory days past due indicator for the purposes of the definition of *default* it should automatically be deemed to be in *default*, regardless of the provisioning situation.

## 4.3.66

G

An obligation should be considered a distressed restructuring under ■ BIPRU 4.3.63 R (5) if an independent third party, with expertise in the

relevant area, would not be prepared to provide financing on substantially the same terms and conditions.

4.3.67

G

- (1) The realisation or forfeiture of collateral may be taken as an indication of unlikelihood to pay for the purposes of the definition of *default*.
- (2) However, the realisation or forfeiture of collateral may not indicate unlikelihood to pay:
  - (a) in the case of an *exposure* in a market (such as one that involves *retail exposures* involving margin lending) in which it is established practice for collateral to be sold if its value falls below a certain percentage of the *exposure* and the obligor does not restore the margin (but this exception does not apply if the value of the collateral has fallen below the amount outstanding); or
  - (b) if the *firm* is able to demonstrate that for some other reason the realisation or forfeiture of collateral is not a meaningful indication of unlikelihood to pay.

4.3.68

G

- (1) If an obligor approach is being taken with respect to *retail exposures* (that is, the application of the definition of *default* at an obligor level rather than at a facility level as set out in ■ BIPRU 4.6.21 R,) a *firm* should ensure that the *PD* associated with unsecured *exposures* is not understated as a result of the presence of any collateralised *exposures*. A *firm* should be able to explain to the *appropriate regulator*, if asked, how it has ensured that its estimate of *PD* is appropriate for both secured and unsecured *exposures* covered by an obligor rating approach.
- (2) In the view of the *appropriate regulator*, *firms* typically find that the *PD* of a residential mortgage is lower than the *PD* of an unsecured loan to the same borrower.

4.3.69

G

A *firm* may, but without prejudice to ■ BIPRU 4.4.22 R and ■ BIPRU 4.6.20 R (Fixed numbers of days past due), use additional, or stricter, indicators of unlikelihood to pay if it uses these indicators for internal purposes in accordance with ■ BIPRU 4.2.2 R (2) (Use tests) and if the disclosures under ■ BIPRU 11 (Disclosure) are on this basis.

#### Risk quantification: Definition of default: Other provisions

4.3.70

R

A *firm* must (if it uses external data that is not itself consistent with the definition of *default*) be able to demonstrate to the *appropriate regulator* that appropriate adjustments have been made that achieve broad equivalence with the definition of *default*.

[Note: BCD Annex VII Part 4 point 46]

4.3.71

R

If a *firm* considers that a previously *defaulted exposure* is such that no trigger of *default* continues to apply, the *firm* must rate the obligor or facility as it would for a non-*defaulted exposure*. Should the definition of

*default* subsequently be triggered, another *default* must be deemed to have occurred.

[Note: BCD Annex VII Part 4 point 47]

- 4.3.72 **G** A *firm* should have a clear and documented policy for determining whether an *exposure* that has been in *default* should subsequently be returned to performing status.

### Risk quantification: Overall requirements for estimation: General

- 4.3.73 **R** ■ BIPRU 4.3.74 R to ■ BIPRU 4.3.131 R apply to a *firm's* own estimates of risk parameters used in the *IRB approach*.

[Note: BCD Annex VII Part 4 point 43]

- 4.3.74 **R** A *firm's* own estimates of the risk parameters *PD*, *LGD*, *conversion factor* and *EL* must incorporate all relevant data, information and methods. The estimates must be derived using both historical experience and empirical evidence, and must not be based purely on judgemental considerations. The estimates must be plausible and intuitive and must be based on the material drivers of the respective risk parameters. The less data a *firm* has, the more conservative it must be in its estimation.

[Note: BCD Annex VII Part 4 point 49]

- 4.3.75 **G**
- (1) This paragraph provides guidance on ■ BIPRU 4.3.73 R.
  - (2) Relevant data and information under ■ BIPRU 4.3.73 R includes external data.
  - (3) Where internal *default* and *loss* experience is scarce, a *firm* should consider using material relevant external information. When using external information such as industry averages when determining *LGD* or *conversion factors*, a *firm* should consider whether this data is appropriate to its own experience and whether adjustments are necessary.

- 4.3.76 **R**
- (1) In calculating estimates of *PD*, *LGD* and *conversion factors* a *firm* must adjust the averages of historical experience referred to in the historical averages rules in order to ensure that those estimates are accurate estimates of the *default* rate, *loss* rate or *conversion factor* over the long-run.
  - (2) The historical average rules means the requirements in ■ BIPRU 4 relating to the calculation of *PD*, *LGD* and *conversion factors* using historical averages (and in particular ■ BIPRU 4.4.24 R, ■ BIPRU 4.4.30 R, ■ BIPRU 4.8.7 R, ■ BIPRU 4.8.8 R, ■ BIPRU 4.6.24 R, ■ BIPRU 4.6.27 R, ■ BIPRU 4.3.99 R and ■ BIPRU 4.3.125 R).

- 4.3.77 **G** Where a *firm* is able to demonstrate that the effect is immaterial in accordance with ■ BIPRU 4.1.25 R (Compliance), it may estimate average *LGDs* and *conversion factors* under the historical average rules in a way that does

not strictly comply with ■ BIPRU 4.3.94 R (Default weighted average), provided the final estimates of *LGD* and *conversion factors* following the adjustments to averages of historical experience are made on the basis of *default weighted averages* for the *facility grade* or pool in question.

**4.3.78** **G** A *firm* may carry out the adjustments under ■ BIPRU 4.3.76 R (Adjustments to averages of historical experience) by adjusting the data from which estimates are made rather than by adjusting the estimates themselves if it can demonstrate that capital requirements are not underestimated as a result.

**4.3.79** **G** While the qualitative requirements in ■ BIPRU 4 are important for all portfolios, they are of even greater importance in those cases where a *firm* lacks sufficient historical data to calibrate or validate its estimates of *PD*, *LGD* or *conversion factors* on the basis of proven statistical significance, sometimes referred to as low default portfolios.

**4.3.80** **R** (1) A *firm* must collect data on what it considers to be the main drivers of the risk parameters *PD*, *LGD*, *conversion factor* and *EL* for each group of obligors or facilities.

(2) A *firm* must document its identification of the main drivers of risk parameters.

(3) A *firm* must be able to demonstrate that its process of identification is reasonable and appropriate.

**4.3.81** **R** In its processes for identifying the main drivers of risk parameters, a *firm* must set out its reasons for concluding that the data sources chosen provide in themselves sufficient discriminative power and accuracy and why additional potential data sources do not provide relevant and reliable information that would be expected materially to improve the discriminative power and accuracy of its estimates of the risk parameter in question. This does not require an intensive analysis of all factors.

**4.3.82** **G** If a *firm* uses a rating model to assign exposures to the borrower or facility grades, it may reflect the data on main drivers of risk parameters by its inclusion in the model as a risk driver or as part of a subsequent process that adjusts the output of that model to calculate the risk parameters *PD*, *LGD*, *conversion factor* and *EL*.

**4.3.83** **R** A *firm* must be able to provide a breakdown of its loss experience in terms of *default frequency*, *LGD*, *conversion factor*, or *loss* where *EL* estimates are used, by the factors it sees as the drivers of the respective risk parameters. A *firm* must be able to demonstrate to the *appropriate regulator* that its estimates are representative of long-run experience.

[Note: BCD Annex VII Part 4 point 50]

**4.3.84** **R** Any changes in lending practice or the process for pursuing recoveries over the observation periods referred to in ■ BIPRU 4.4.31 R (Observation period for sovereigns, institutions and corporates for PDs), ■ BIPRU 4.6.28 R (Observation



period for retail exposures for PDs), ■ BIPRU 4.4.54 R (Observation period for sovereigns, institutions and corporates for LGDs), ■ BIPRU 4.6.33 R (Observation period for retail exposures for LGDs), ■ BIPRU 4.4.55 R (Observation period for sovereigns, institutions and corporates for conversion factors) and ■ BIPRU 4.6.38 R (Observation period for retail exposures for conversion factors) must be taken into account. A *firm's* estimates must reflect the implications of technical advances and new data and other information, as it becomes available. A *firm* must review its estimates when new information comes to light but at least on an annual basis.

[Note: BCD Annex VII Part 4 point 51]

- 4.3.85** **R** The population of *exposures* represented in the data used for estimation, the lending standards used when the data was generated and other relevant characteristics must be comparable with those of a *firm's* *exposures* and standards. A *firm* must also be able to demonstrate to the *appropriate regulator* that the economic or market conditions that underlie the data are relevant to current and foreseeable conditions. The number of *exposures* in the sample and the data period used for quantification must be sufficient to provide a *firm* with confidence in the accuracy and robustness of its estimates.

[Note: BCD Annex VII Part 4 point 52]

- 4.3.86** **G** It may be reasonable for a *firm* to treat foreseeable in ■ BIPRU 4.3.85 R as referring to the most distant date to which it carries out detailed capital planning.

- 4.3.87** **G** A *firm* should be able to demonstrate to the *appropriate regulator*:
- (1) how, with respect to each *rating system*, both assignment of ratings and estimates of *PD*, *LGD* and *conversion factors* are affected by:
    - (a) movements in the economic cycle; and
    - (b) other cyclical effects which are material to levels of *default*, *loss* or the amount of *exposures* at *default* for the *exposures* covered by the *rating system*; and
  - (2) the level of conservatism inherent in its ratings, as provided for by *BIPRU*.

- 4.3.88** **R** A *firm* must add to its estimates a margin of conservatism that is related to the expected range of estimation errors. Where methods and data are less satisfactory and the expected range of errors is larger, the margin of conservatism must be larger.

[Note: BCD Annex VII Part 4 point 54]

- 4.3.89** **G** Estimation of *PD* through the use of a technique set out in *BIPRU* does not remove the need to make conservative adjustments, where necessary, related to the expected range of estimation errors so that capital requirements produced by the relevant model or other *rating system* are not understated.

**4.3.90** **R** If a *firm* uses different estimates for the calculation of *risk weights* and internal purposes it must be documented. The *firm* must be able to demonstrate to the *appropriate regulator* the reasonableness of such estimates.

[Note: BCD Annex VII Part 4 point 55]

**4.3.91** **G** If a *firm* can demonstrate to the *appropriate regulator* that for data that has been collected prior to 31 December 2006, appropriate adjustments have been made to achieve broad equivalence with the definitions of *default* or *loss*, the *appropriate regulator* may in the *IRB permission* allow the *firm* some flexibility in the application of the required standards for data.

[Note: BCD Annex VII Part 4 point 56]

### Risk quantification: Overall requirements for estimation: Pooled data

**4.3.92** **R** If a *firm* uses data that is pooled across *institutions* it must be able to demonstrate to the *appropriate regulator* that:

- (1) the *rating systems* and criteria of other firms in the pool are similar to its own;
- (2) the pool is representative of the portfolio for which the pooled data is used; and
- (3) the pooled data is used consistently over time by the *firm* for its permanent estimates.

[Note: BCD Annex VII Part 4 point 57]

**4.3.93** **G** ■ BIPRU 4.3.92 R (1) is intended to ensure that data entering a pool is consistent and does not contain distortions as a result of different contributors' practices. It is not intended to constrain the use of pooled data by one *firm* that is contributed by a second *firm* where the differences do not affect the data being contributed.

**4.3.94** **R** If a *firm* uses data that is pooled across *institutions* it remains responsible for the integrity of its *rating systems*. If a *firm* uses such data it must be able to demonstrate to the *appropriate regulator* that it has sufficient in-house understanding of its *rating systems*, including effective ability to monitor and audit the rating process.

[Note: BCD Annex VII Part 4 point 58]

### Risk quantification: Overall requirements for estimation: Requirements specific to PD estimates

**4.3.95** **R**

- (1) If:
  - (a) a *firm's* internal experience of *exposures* of a type covered by a model or other *rating system* is 20 *defaults* or fewer; and
  - (b) in the *firm's* view, reliable estimates of *PD* cannot be derived from external sources of *default* data, including the use of



market price related data, for all the *exposures* covered by the *rating system*;

the *firm* must estimate *PD* for *exposures* covered by that *rating system* in accordance with this *rule*.

- (2) A *firm* must use a statistical technique to derive the distribution of *defaults* implied by the *firm's* experience, estimating *PDs* (the "statistical *PD*") from the upper bound of a confidence interval set by the *firm* in order to produce conservative estimates of *PDs* in accordance with ■ BIPRU 4.3.88 R.
- (3) The techniques chosen for the purposes of (2) must take account, as a minimum, of the following modelling issues:
  - (a) the number of *defaults* and number of obligor years in the sample;
  - (b) the number of years from which the sample was drawn;
  - (c) the interdependence between *default* events for individual obligors;
  - (d) the interdependence between *default* rates for different years; and
  - (e) the choice of the statistical estimators and the associated distributions and confidence intervals.
- (4) The *firm* must further adjust the statistical *PD* to the extent necessary to take account of the following:
  - (a) any likely differences between the observed *default* rates over the period covered by the *firm's* *default* experience and the long-run *PD* for each grade in accordance with ■ BIPRU 4.4.24 R and ■ BIPRU 4.6.24 R; and
  - (b) any other information that indicates (taking into account the robustness and cogency of that information) that the statistical *PD* is likely to be an inaccurate estimate of *PD*.
- (5) This *rule* is in addition to the other requirements in *BIPRU* about the calculation of *PD*.
- (6) When a *firm* calculates whether it has 20 *defaults* or fewer under the calculation in (1)(a), it must only take into account *defaults* that occurred during periods that are relevant to the validation under ■ BIPRU 4 of the model or other *rating system* in question.

4.3.96 **G** A *firm* may if appropriate also choose to use the approach in ■ BIPRU 4.3.91 G if the internal experience on *exposures* covered by a *rating system* is greater than 20 *defaults*.

4.3.97 **G** If a *firm* excludes *defaulted exposures* that have been cured (as referred to in ■ BIPRU 4.3.71 R) or restructured (as referred to in ■ BIPRU 4.3.63 R (5)) from estimates of *LGD* in accordance with ■ BIPRU 4.3.110 G, it may also exclude cures from estimates of *PD* for these *exposures*.

### Risk quantification: Overall requirements for estimation: Requirements specific to own-LGD estimates

- 4.3.98** **R** ■ BIPRU 4.3.98 R to ■ BIPRU 4.3.123 R set out requirements specific to own-LGD estimates.
- 4.3.99** **R** A *firm* must estimate *LGDs* by *facility grade* or pool on the basis of the average realised *LGDs* by *facility grade* or pool using all observed *defaults* within the data sources (*default weighted average*).
- [Note: BCD Annex VII Part 4 point 73]
- 4.3.100** **R** A *firm* must calculate the *default weighted average* on the basis of the number of *defaults* included in the calculations made under the historical average rules so far as they relate to the calculation of *PDs* and must not be weighted by the size of *exposures*.
- 4.3.101** **R**
- (1) A *firm's* estimates of *LGDs* must take into account:
    - (a) data in respect of relevant incomplete workouts; and
    - (b) the possibility that the proportion of *defaulted exposures* which are cured (as referred to in ■ BIPRU 4.3.71 R) or restructured (as referred to in ■ BIPRU 4.3.63 R (5)) or the length of the period over which a *firm* makes recoveries under a *defaulted exposure* may be different from the *firm's* observed historic experience.
  - (2) An incomplete workout as referred to in (1)(a) means a *defaulted exposure* included in the data set on which the *firm's* *LGD* estimates are based, but for which the recovery process is still in progress, with the result that the final realised *losses* in respect of that *exposure* are not yet certain.
- 4.3.102** **G** The changes referred to in ■ BIPRU 4.3.101 R (1)(b) may be caused by external factors, such as the economic environment, as well as factors specific to the obligor, the transaction or the policies of the *firm*.
- 4.3.103** **R** A *firm* must use *LGD* estimates that are appropriate for an economic downturn if those are more conservative than the long-run average. To the extent a *rating system* is expected to deliver constant realised *LGDs* by grade or pool over time, a *firm* must make adjustments to its estimates of risk parameters by grade or pool to limit the capital impact of an economic downturn.
- [Note: BCD Annex VII Part 4 point 74]
- 4.3.104** **R**
- (1) A *firm* must have a rigorous and well documented process for:
    - (a) assessing the effects, if any, of economic downturn conditions on recovery rates; and
    - (b) producing *LGD* estimates consistent with downturn conditions as referred to in ■ BIPRU 4.3.103 R.

(2) That process must include the following, which may be included in an integrated manner:

- (a) identification of appropriate downturn conditions for each *IRB exposure class* within each jurisdiction;
- (b) identification of adverse dependencies, if any, between *default* rates and recovery rates; and
- (c) incorporation of adverse dependencies, if identified, between *default* rates and recovery rates in the *firm's* estimates of *LGD* in a manner that meets the requirements in ■ BIPRU 4.3.103 R relating to an economic downturn.

- 4.3.105** **G** A *firm* may derive the *LGD* in accordance with ■ BIPRU 4.3.104 R (2)(c) either by directly assigning to the *facility grade* or pool an estimate of *LGD* appropriate for downturn conditions, or alternatively by estimating a *default* weighted average *LGD* in accordance with ■ BIPRU 4.3.99 R and ■ BIPRU 4.3.76 R and converting it into an *LGD* appropriate for downturn conditions by the use of a formula. It should be able to demonstrate that that formula produces well-founded estimates of *LGDs* consistent with downturn conditions for the *exposures* in question.
- 4.3.106** **G** A *firm* may combine *IRB exposure classes*, jurisdictions or both for the purpose of ■ BIPRU 4.3.104 R (2)(a) if it can demonstrate that the downturn conditions to which the portfolios are subject will be similar.
- 4.3.107** **G** The adverse dependencies referred to in ■ BIPRU 4.3.104 R (2)(b) will not always exist. However, if a *firm* uses *LGDs* that do not allow for such adverse dependencies, it should be able to justify its decision.
- 4.3.108** **G** Data relating to economic downturn conditions is likely to be scarce. Accordingly, a *firm* should use internal data, external data or a combination of data sources in order to produce appropriate downturn *LGD* estimates in accordance with ■ BIPRU 4.3.103 R.
- 4.3.109** **R** A *firm* must retain sufficient data on both *LGDs* calculated on a economic downturn basis and calculated on a long-run average basis (as referred to in ■ BIPRU 4.3.103 R) to be able to demonstrate to the *appropriate regulator* (if asked) that its estimates based on an economic downturn are no less conservative than the long-run average as referred to in that *rule*.
- 4.3.110** **G** Where a *firm* is able to demonstrate that the effect is immaterial in accordance with ■ BIPRU 4.1.25 R (Compliance), it may exclude *defaulted exposures* that have been cured (as referred to in ■ BIPRU 4.3.67 G (1)) or restructured (as referred to in ■ BIPRU 4.3.63 R (5)) from the data about *default* and *loss* experience on which *LGDs* are calculated provided it can demonstrate that its calculation of capital requirements (including capital requirements resulting from the application of capital floors under the transitional *rules* and *guidance* in *BIPRU*) are not reduced as a result of this approximation.

- 4.3.111 **R** Irrespective of whether calculated on an economic downturn or long-run average basis, each *LGD* estimate must be at least zero.
- 4.3.112 **G** In order to support an *LGD* estimate which is very low or zero, a *firm* should be able to demonstrate that the estimate adequately reflects the expected experience on a *default* weighted average basis or in a downturn as appropriate, taking into account the costs and discount rate associated with realisations and the operation of **BIPRU 4.3.118 R**.
- 4.3.113 **R** The methods that a *firm* uses for discounting cash flows for the purposes of estimating *LGDs* must take account of the uncertainties associated with the receipt of recoveries with respect to a *defaulted exposure*. If a *firm* intends to use a discount rate that does not take full account of the uncertainty in recoveries, it must be able to explain by what other process it has taken into account that uncertainty for the purposes of calculating *LGDs*.
- 4.3.114 **G** The uncertainty referred to in **BIPRU 4.3.113 R** can be addressed by adjusting cash flows to certainty-equivalents or by using a discount rate that embodies an appropriate risk premium; or by a combination of the two.
- 4.3.115 **G** A *firm* may exclude from its calculation of *loss* indirect costs that it incurs for the purpose of making recoveries with respect to a *defaulted exposure* if it would also have incurred those costs if there had not been a *default*.
- 4.3.116 **R** A *firm* must consider the extent of any dependence between the risk of the obligor with that of the collateral or collateral provider. Cases where there is a significant degree of dependence must be addressed in a conservative manner.  
[Note: BCD Annex VII Part 4 point 75]
- 4.3.117 **R** Currency mismatches between the underlying obligation and the collateral must be treated conservatively in the *firm's* assessment of *LGD*.  
[Note: BCD Annex VII Part 4 point 76]
- 4.3.118 **R** To the extent that *LGD* estimates take into account the existence of collateral, these estimates must not solely be based on the collateral's estimated market value. *LGD* estimates must take into account the effect of the potential inability of the *firm* expeditiously to gain control of its collateral and liquidate it.  
[Note: BCD Annex VII Part 4 point 77]
- 4.3.119 **G** (1) A *firm* may comply with **BIPRU 4.3.118 R** by reducing the amount of the collateral taken into account for the purposes of calculating *LGD* (applying a haircut to the collateral), basing that reduction on validated realisation experience and using conservatism to reflect the uncertainties.

(2) If collateral is used to reduce the *LGD*, a *firm* should be able to demonstrate how the risk in ■ BIPRU 4.3.118 R has been accounted for. To the extent that it is adequately accounted for in that way it need not be reflected again as part of the residual risk in relation to collateral under the *overall Pillar 2 rule*.

**4.3.120** **R** To the extent that *LGD* estimates take into account the existence of collateral, a *firm* must establish internal requirements for collateral management, legal certainty and risk management that are generally consistent with those set out in ■ BIPRU 5 (Credit risk mitigation) as modified by ■ BIPRU 4.10.

[Note: BCD Annex VII Part 4 point 78]

**4.3.121** **R** To the extent that a *firm* recognises collateral for determining the exposure value for *counterparty credit risk* according to the *CCR standardised method* or the *CCR internal model method*, any amount expected to be recovered from the collateral must not be taken into account in the *LGD* estimates.

[Note: BCD Annex VII Part 4 point 79]

**4.3.122** **R** For the specific case of *exposures* already in *default*, a *firm* must use the sum of its best estimate of *expected loss* for each *exposure* given current economic circumstances and *exposure* status and the possibility of additional unexpected *losses* during the recovery period.

[Note: BCD Annex VII Part 4 point 80]

**4.3.123** **R** To the extent that unpaid late fees have been capitalised in a *firm's* income statement, they must be added to the *firm's* measure of *exposure* and *loss*.

[Note: BCD Annex VII Part 4 point 81]

#### **Risk quantification: Overall requirements for estimation: Requirements specific to own-conversion factor estimates**

**4.3.124** **R** ■ BIPRU 4.3.125 R - ■ BIPRU 4.3.131 R set out requirements specific to *own-conversion factor* estimates.

**4.3.125** **R** A *firm* must estimate *conversion factors* by *facility grade* or pool on the basis of the average expected *conversion factors* by *facility grade* or pool using all observed *defaults* within the data sources (*default weighted average*).

[Note: BCD Annex VII Part 4 point 87]

**4.3.126** **G**

- (1) A *firm* using own estimates of *conversion factors* should take into account all facility types that may result in an *exposure* when an obligor *defaults*, including uncommitted facilities.
- (2) A *firm* should treat a facility as an *exposure* from the earliest date at which a customer is able to make drawings under it.
- (3) To the extent that a *firm* makes available multiple facilities, it should be able to demonstrate:

- (a) how it deals with the fact that *exposures* on one may become *exposures* under another on which the *losses* are ultimately incurred; and
- (b) the impact of its approach on its capital requirements.

**4.3.127** R A *firm* must use *conversion factor* estimates that are appropriate for an economic downturn if those are more conservative than the long-run average. To the extent a *rating system* is expected to deliver realised *conversion factors* at a constant level by grade or pool over time, a *firm* must make adjustments to its estimates of risk parameters by grade or pool to limit the capital impact of an economic downturn.

[Note: BCD Annex VII Part 4 point 88]

**4.3.128** R A *firm's* estimates of *conversion factors* must reflect the possibility of additional drawings by the obligor up to and after the time a *default* event is triggered. The *conversion factor* estimate must incorporate a larger margin of conservatism where a stronger positive correlation can reasonably be expected between the *default* frequency and the magnitude of *conversion factor*.

[Note: BCD Annex VII Part 4 point 89]

**4.3.129** R In arriving at estimates of *conversion factors* a *firm* must consider its specific policies and strategies adopted in respect of account monitoring and payment processing. A *firm* must also consider its ability and willingness to prevent further drawings in circumstances short of payment *default*, such as covenant violations or other technical *default* events.

[Note: BCD Annex VII Part 4 point 90]

**4.3.130** R A *firm* must have adequate systems and procedures in place to monitor facility amounts, current outstandings against committed lines and changes in outstandings per obligor and per grade. A *firm* must be able to monitor outstanding balances on a daily basis.

[Note: BCD Annex VII Part 4 point 91]

**4.3.131** R If a *firm* uses different estimates of *conversion factors* for the calculation of *risk weighted exposure amounts* and internal purposes it must be documented. The *firm* must be able to demonstrate their reasonableness to the *appropriate regulator*.

[Note: BCD Annex VII Part 4 point 92]

**Risk quantification: Overall requirements for estimation: Comparability**

**4.3.132** G (1) This paragraph contains *guidance* about the interpretation of the requirements relating to comparability in ■ BIPRU 4.3.85 R. It is also relevant to the requirement for representative data in ■ BIPRU 4.3.51 R (5), to the references to comparability in the additional *guidance* in ■ BIPRU 4.3.53 G (7)(b) and to the requirements for similarity in ■ BIPRU 4.3.92 R.

- 
- (2) In general, comparability should be based on analyses of the population of *exposures* represented in the data, the lending standards used when the data was generated (where relevant) and other relevant characteristics in relation to the corresponding properties of the *firm's* own portfolio. Other relevant characteristics could include the distribution of the obligors across industries, the size distribution of the *exposures* and similarity with respect to the geographic or demographic distribution of the *exposures*.



## 4.4 The IRB approach: Exposures to corporates, institutions and sovereigns

### Application

4.4.1

R

- (1) This section applies with respect to the *sovereign, institution and corporate IRB exposure class*.
- (2) The *sovereign, institution and corporate IRB exposure class* includes *specialised lending exposures*.
- (3) Both ■ BIPRU 4.4 and ■ BIPRU 4.5 (Specialised lending exposures) apply to *specialised lending exposures*. A firm may calculate *risk weighted exposure amounts* for a *specialised lending exposure* either:
  - (a) (if it is able to do so) in accordance with ■ BIPRU 4.4; or
  - (b) in accordance with ■ BIPRU 4.4 as modified by ■ BIPRU 4.5.

### Definition

4.4.2

R

The following *exposures* must be treated as *exposures* to central governments and *central banks*:

- (1) *exposures* to regional governments, local authorities or *public sector entities* which are treated as *exposures* to central governments under the *standardised approach*; and
- (2) *exposures* to *multilateral development banks* and international organisations which attract a *risk weight* of 0% under the *standardised approach*.

[Note: BCD Article 86(2)]

4.4.3

R

The following *exposures* must be treated as *exposures* to *institutions*:

- (1) *exposures* to regional governments and local authorities which are not treated as *exposures* to central governments under the *standardised approach*;
- (2) *exposures* to *public sector entities* which are treated as *exposures* to *institutions* under the *standardised approach*;

(3) exposures to *multilateral development banks* which do not attract a 0% risk weight under the *standardised approach*; and

(4) without prejudice to ■ BIPRU 13.3.13 R and ■ BIPRU 13.8.7 R (Exposures to a central counterparty) *exposures to recognised third country investment firms* and *exposures to recognised clearing houses* and *designated investment exchanges*.

[Note: BCD Article 86(3) and CAD Article 40]

4.4.4 **R** Any credit obligation not assigned to the *IRB exposure classes* referred to in ■ BIPRU 4.3.2 R (1) (Sovereigns), ■ BIPRU 4.3.2 R (2) (Institutions) and ■ BIPRU 4.3.2 R (4) - ■ BIPRU 4.3.2 R (6) (Retail, equity and securitisations) must be assigned to the *corporate exposure class*.

[Note: BCD Article 86(7)]

#### Rating system: Structure of rating system

4.4.5 **R** ■ BIPRU 4.4.6 R - ■ BIPRU 4.4.21 R apply in addition to ■ BIPRU 4.3.25 R - ■ BIPRU 4.3.28 R (Rating systems).

4.4.6 **R** A *rating system* must take into account obligor and transaction risk characteristics.

[Note: BCD Annex VII Part 4 point 5]

4.4.7 **R** A *rating system* must have an obligor rating scale which reflects exclusively quantification of the risk of obligor *default*. The obligor rating scale must have a minimum of seven grades for non-*defaulted* obligors and one for *defaulted* obligors.

[Note: BCD Annex VII Part 4 point 6]

4.4.8 **R** An *obligor grade* means for the purpose of ■ BIPRU 4 as it applies to the *sovereign, institution and corporate IRB exposure class* a risk category within a *rating system's* obligor rating scale, to which obligors are assigned on the basis of a specified and distinct set of rating criteria, from which estimates of *PD* are derived. A *firm* must document both the relationship between *obligor grades* in terms of the level of *default* risk each grade implies and the criteria used to distinguish that level of *default* risk.

[Note: BCD Annex VII Part 4 point 7]

4.4.9 **R** A *firm* with portfolios concentrated in a particular market segment and range of *default* risk must have enough *obligor grades* within that range to avoid undue concentrations of obligors in a particular grade. Significant concentrations within a single grade must be supported by convincing empirical evidence that the *obligor grade* covers a reasonably narrow *PD* band and that the *default* risk posed by all obligors in the grade falls within that band.

[Note: BCD Annex VII Part 4 point 8]

### Rating system: Assignment to grades or pools

- 4.4.10 **G** Material on assignment to grades or pools can be found in ■ BIPRU 4.3.43 R - ■ BIPRU 4.3.48 R.

### Rating system: Assignment of exposures

- 4.4.11 **R** Each obligor must be assigned to an *obligor grade* as part of the credit approval process.

[Note: BCD Annex VII Part 4 point 19]

- 4.4.12 **R** Each separate legal entity to which a *firm* is exposed must be separately rated. A *firm* must be able to demonstrate to the *appropriate regulator* that it has acceptable policies regarding the treatment of individual obligor clients and *groups of connected clients*.

[Note: BCD Annex VII Part 4 point 22]

- 4.4.13 **R** Separate *exposures* to the same obligor must be assigned to the same *obligor grade*, irrespective of any differences in the nature of each specific transaction. Exceptions, where separate *exposures* are allowed to result in multiple grades for the same obligor are:

- (1) country transfer risk, this being dependent on whether the *exposures* are denominated in local or foreign currency;
- (2) where the treatment of associated guarantees to an *exposure* may be reflected in an adjusted assignment to an *obligor grade*; and
- (3) where consumer protection, bank secrecy or other legislation prohibit the exchange of client data.

[Note: BCD Annex VII Part 4 point 23]

### Rating system: Overrides

- 4.4.14 **G** Material on overrides can be found in ■ BIPRU 4.3.50 R.

### Rating system: Integrity of assignment process

- 4.4.15 **R** Assignments and periodic reviews of assignments must be completed or approved by an independent party that does not directly benefit from decisions to extend the credit.

[Note: BCD Annex VII Part 4 point 26]

- 4.4.16 **R** A *firm* must update assignments at least annually. High risk obligors and problem *exposures* must be subject to more frequent review. A *firm* must undertake a new assignment if material information on the obligor or *exposure* becomes available.

[Note: BCD Annex VII Part 4 point 27]

**4.4.17** **G** Although it will not usually be the case that facility ratings and *conversion factors* will have to be updated more frequently than annually, *LGDs* and *exposure* values are subject to more frequent recalculation due to their connection to drawn balances, which can vary on a daily basis.

**4.4.18** **R** A *firm* must have an effective process to obtain and update relevant information on obligor characteristics that affect *PDs*, and on transaction characteristics that affect *LGDs* and *conversion factors*.

[Note: BCD Annex VII Part 4 point 28]

#### Rating system: Use of models

**4.4.19** **G** Material on the use of models can be found in ■ BIPRU 4.3.51 R - ■ BIPRU 4.3.53 G.

#### Rating system: Documentation of rating systems

**4.4.20** **G** Material on the documentation of rating systems can be found in ■ BIPRU 4.3.19 R - ■ BIPRU 4.3.24 R.

#### Rating system: Data maintenance

**4.4.21** **R** In addition to complying with the material in ■ BIPRU 4.3.54 R (Data maintenance) a *firm* must collect and store:

- (1) complete rating histories on obligors and recognised guarantors;
- (2) the dates the ratings were assigned;
- (3) the key data and methodology used to derive the rating;
- (4) the person responsible for the rating assignment;
- (5) the identity of obligors and *exposures* that *defaulted*;
- (6) the date and circumstances of such *defaults*;
- (7) data on the *PDs* and realised *default* rates associated with rating grades and ratings migration; and
- (8) (in the case of a *firm* not using the *advanced IRB approach* in the calculation of *LGDs* and/or *conversion factors*) data on comparisons of realised *LGDs* to the values as set out in ■ BIPRU 4.4.34 R and ■ BIPRU 4.8.25 R and realised *conversion factors* to the values as set out in ■ BIPRU 4.4.37 R, ■ BIPRU 4.4.45 R and ■ BIPRU 4.6.44 R.

[Note: BCD Annex VII Part 4 point 37]

#### Risk quantification: Definition of default

**4.4.22** **R** (1) This *rule*, in accordance with ■ BIPRU 4.3.57 R (4) (Definition of default), sets the exact number of days past due that a *firm* should abide by in the case of *exposures* to *PSEs*.

- (2) For counterparts that are *PSEs* situated within the *United Kingdom* the number of days past due is 180.
- (3) For counterparts that are *PSEs* situated in another *EEA State* the number of days past due is the lower of:
  - (a) 180; and
  - (b) the number of days past due fixed under the *CRD implementation measure* with respect to point 48 of Part 4 of Annex VII of the *Banking Consolidation Directive* for that *EEA State* for such *exposures*.
- (4) For counterparts that are *PSEs* in a state outside the *EEA* the number of days past due is the lower of:
  - (a) 180; and
  - (b) (if a number of days past due for such *exposures* has been fixed under any law of that state applicable to *undertakings* in the *banking sector* or the *investment services sector* that implements the *IRB approach*) that number.

[Note: BCD Annex VII Part 4 point 44 (part) and point 48 (part)]

#### Risk quantification: Overall requirements for estimation: Requirements specific to PD estimation

- 4.4.23 **R** ■ BIPRU 4.4.24 R - ■ BIPRU 4.4.31 R apply to both the *foundation IRB approach* and the *advanced IRB approach*.
- 4.4.24 **R** A *firm* must estimate *PDs* by *obligor grade* from long run averages of one-year *default rates*.  
[Note: BCD Annex VII Part 4 point 59]
- 4.4.25 **R** A *firm* must use *PD estimation techniques* only with supporting analysis. A *firm* must recognise the importance of judgmental considerations in combining results of techniques and in making adjustments for limitations of techniques and information.  
[Note: BCD Annex VII Part 4 point 62]
- 4.4.26 **G** Where rating agency experience or the output of a statistical default model are the primary component of *PD estimation*, a *firm* should consider whether it needs to make adjustments for other relevant information, such as internal experience, conservatism and cyclical effects. In making these adjustments, a *firm* should consider the extent to which it needs to take account of the potential for both under-recording of actual *defaults* experienced and divergence of actual experience from the true underlying average *PD*.
- 4.4.27 **R** To the extent that a *firm* uses data on internal *default* experience for the estimation of *PDs* it must be able to demonstrate in its analysis that the estimates are reflective of underwriting standards and of any differences in the *rating system* that generated the data and the current *rating system*.

Where underwriting standards or *rating systems* have changed, a *firm* must add a greater margin of conservatism in its estimate of *PD*.

[Note: BCD Annex VII Part 4 point 63]

- 4.4.28** **R** To the extent that a *firm* associates or maps its internal grades to the scale used by an *ECAI* or similar organisations and then attributes the *default* rate observed for the external organisation's grades to the *firm's* grades, mappings must be based on a comparison of internal rating criteria to the criteria used by the external organisation and on a comparison of the internal and external ratings of any common obligors. Biases or inconsistencies in the mapping approach or underlying data must be avoided. The external organisation's criteria underlying the data used for quantification must be oriented to *default* risk only and not reflect transaction characteristics. The *firm's* analysis must include a comparison of the *default* definitions used, subject to the requirements in ■ BIPRU 4.3.56 R to ■ BIPRU 4.3.71 R and ■ BIPRU 4.4.22 R (Definition of default). The *firm* must document the basis for the mapping.

[Note: BCD Annex VII Part 4 point 64]

- 4.4.29** **G** It is unlikely that a *firm* will be able to convince the *appropriate regulator* that it had considered all relevant and available information, as required by ■ BIPRU 4.3.74 R, if it used only data from one *ECAI* or similar organisation, where other relevant information is available.

- 4.4.30** **R** To the extent that a *firm* uses statistical *default* prediction models it may estimate *PDs* as the simple average of *default-probability* estimates for individual obligors in a given grade. The *firm's* use of *default* probability models for this purpose must meet the standards specified in ■ BIPRU 4.3.51 R.

[Note: BCD Annex VII Part 4 point 65]

- 4.4.31** **R** Irrespective of whether a *firm* is using external, internal, or pooled data sources, or a combination of the three, for its *PD* estimation, the length of the underlying historical observation period used must be at least five years for at least one source. If the available observation period spans a longer period for any source, and this data is relevant, this longer period must be used. A *firm* not permitted to use own estimates of *LGDs* or *conversion factors* may have, when it implements the *IRB approach*, relevant data covering a period of two years. The period to be covered must increase by one year each year until relevant data cover a period of five years.

[Note: BCD Annex VII Part 4 point 66 (part)]

#### IRB foundation approach: General

- 4.4.32** **R** ■ BIPRU 4.4.33 R - ■ BIPRU 4.4.39 R set out requirements specific to the *foundation IRB approach*.

- 4.4.33** **R** Under the *foundation IRB approach* a *firm* must apply the *LGD* values set out in ■ BIPRU 4.4.34 R and ■ BIPRU 4.8.25 R and the *conversion factors* set out in ■ BIPRU 4.4.37 R.

[Note: BCD Article 87(8)]

### IRB foundation approach: LGDs

4.4.34

R

A *firm* must use the following *LGD* values:

- (1) *senior exposures* without eligible collateral, 45%;
- (2) *subordinated exposures* without eligible collateral, 75%;
- (3) a *firm* may recognise funded and *unfunded credit protection* in the *LGD* in accordance with ■ BIPRU 5 (Credit risk mitigation), as modified by ■ BIPRU 4.10;
- (4) *covered bonds* may be assigned an *LGD* value of 11.25%; and
- (5) for certain *senior corporate exposure* purchased receivables, for certain *subordinated corporate exposure* purchased receivables and for *dilution risk* of *corporate* purchased receivables the provisions of ■ BIPRU 4.8.25 R (LGDs for corporate receivables) apply.

[Note: BCD Annex VII Part 2 point 8 (part)]

4.4.35

R

[deleted]

- (1) [deleted]
- (2) [deleted]
- (3) [deleted]
- (4) [deleted]

### Foundation IRB approach: Exposure value and conversion factors

4.4.36

R

■ BIPRU 4.4.37 R - ■ BIPRU 4.4.39 R apply in addition to ■ BIPRU 4.4.71 R - ■ BIPRU 4.4.78 R.

4.4.37

R

- (1) The *exposure* value for the items set out in this *rule* must be calculated as the committed but undrawn amount multiplied by the applicable *conversion factor* set out in this *rule*.
- (2) For credit lines which are uncommitted, that are unconditionally cancellable at any time by the *firm* without prior notice, or that effectively provide for automatic cancellation due to deterioration in a borrower's credit worthiness, a *conversion factor* of 0 % applies. To apply a *conversion factor* of 0% a *firm* must actively monitor the financial condition of the obligor, and its internal control systems must enable it immediately to detect a deterioration in the credit quality of the obligor.
- (3) For short-term letters of credit arising from the movement of goods, a *conversion factor* of 20% applies for both the issuing and confirming *firms*.
- (4) For other credit lines, note issuance facilities (NIFs), and revolving underwriting facilities (RUFs), a *conversion factor* of 75% applies.



- (5) For undrawn purchase commitments for revolving purchased receivables falling under ■ BIPRU 4.8.29 R, the *conversion factor* set out in that *rule* applies.

[Note: BCD Annex VII Part 3 point 9 (part)]

- 4.4.38** **R** Where a commitment refers to the extension of another commitment, the lower of the two *conversion factors* associated with the individual commitment must be used.

[Note: BCD Annex VII Part 3 point 10]

- 4.4.39** **R** For all off-balance sheet items other than mentioned in ■ BIPRU 4.4.37 R, ■ BIPRU 4.4.45 R, ■ BIPRU 4.4.71 R - ■ BIPRU 4.4.78 R, ■ BIPRU 4.6.44 R, ■ BIPRU 4.8.28 R and ■ BIPRU 4.8.29 R, the *exposure* value must be the following percentage of its value:

- (1) 100% if it is a full risk item;
- (2) 50% if it is a medium risk item;
- (3) 20% if it is a medium/low risk item; and
- (4) 0% if it is a low risk item.

For the purposes of this *rule* the off-balance sheet items must be assigned to risk categories as indicated in ■ BIPRU 3.7 (Classification of off-balance sheet items).

[Note: BCD Annex VII Part 3 point 11]

#### Advanced IRB approach: General

- 4.4.40** **R** ■ BIPRU 4.4.41 R - ■ BIPRU 4.4.55 R set out requirements specific to the *advanced IRB approach*.

- 4.4.41** **R** Under the *advanced IRB approach* a *firm* must use its own estimates of *LGDs* and *conversion factors* in accordance with ■ BIPRU 4.

[Note: BCD Article 87(9)]

#### Advanced IRB approach: LGDs and PDs

- 4.4.42** **R** A *firm* using own *LGD* estimates under the *advanced IRB approach* may recognise *unfunded credit protection* by adjusting *PDs* subject to ■ BIPRU 4.4.43 R.

[Note: BCD Annex VII Part 2 point 6]

- 4.4.43** **R** Notwithstanding ■ BIPRU 4.4.34 R and ■ BIPRU 4.8.25 R, if a *firm's IRB permission* permits it to use own *LGD* estimates under the *advanced IRB approach* for *exposures* to which ■ BIPRU 4 applies and permits it to use the approach in this *rule*, *unfunded credit protection* may be recognised by adjusting *PD* and/ or *LGD* estimates subject to the *minimum IRB standards*. A *firm* must not assign guaranteed exposures an adjusted *PD* or *LGD* such that the adjusted

*risk weight* would be lower than that of a comparable, direct *exposure* to the guarantor.

[Note: BCD Annex VII Part 2 point 10]

- 4.4.44 **G** A firm using the *advanced IRB approach* may only recognise *unfunded credit protection* in accordance with ■ BIPRU 4.4.43 R. The other methods for recognising *unfunded credit risk mitigation* under the *standardised approach* and *foundation IRB approach* are not available to a firm on the *advanced IRB approach*.

#### Advanced IRB approach: Conversion factors

- 4.4.45 **R** If a firm uses its own estimates of *conversion factors* under the *advanced IRB approach* it must calculate the *exposure* value of off-balance sheet *exposures* calculated with the use of *conversion factors* by using its own estimates of *conversion factors* across different product types as mentioned in ■ BIPRU 4.4.37 R and ■ BIPRU 4.4.39 R (2) to ■ BIPRU 4.4.39 R (4).

[Note: BCD Annex VII Part 3 point 9 (part)]

- 4.4.46 **G** Under ■ BIPRU 4.4.45 R, a firm may calculate *exposure* values by calculating the amount expected to be claimed, instead of the maximum possible amount of the potential claim. The figure for the amount expected to be claimed should not be less than the current outstandings from time to time.

#### Advanced IRB approach: Structure of the rating system

- 4.4.47 **R** ■ BIPRU 4.4.48 R - ■ BIPRU 4.4.50 R are in addition to ■ BIPRU 4.3.25 R - ■ BIPRU 4.3.28 R and ■ BIPRU 4.4.6 R - ■ BIPRU 4.4.9 R.

- 4.4.48 **R** If a firm's *IRB permission* provides for it to use the *advanced IRB approach* for the calculation of *LGDs*, its *rating system* must incorporate a distinct facility rating scale which exclusively reflects *LGD* related transaction characteristics.

[Note: BCD Annex VII Part 4 point 9]

- 4.4.49 **R** A *facility grade* means for the purpose of the *advanced IRB approach* a risk category within a *rating system's* facility scale to which *exposures* are assigned on the basis of a specified and distinct set of rating criteria from which own estimates of *LGDs* are derived. The grade definition must include both a description of how *exposures* are assigned to the grade and of the criteria used to distinguish the level of risk across grades.

[Note: BCD Annex VII Part 4 point 10]

- 4.4.50 **R** Significant concentrations within a single *facility grade* must be supported by convincing empirical evidence that the *facility grade* covers a reasonably narrow *LGD* band, respectively, and that the risk posed by all *exposures* in the grade falls within that band.

[Note: BCD Annex VII Part 4 point 11]

**Advanced IRB approach: Assignment of exposures**

- 4.4.51** **R** For a *firm* permitted to use own estimates of *LGDs* or *conversion factors* under the *advanced IRB approach*, each *exposure* must be assigned to a *facility grade* as part of the credit approval process. This is in addition to the requirements in ■ BIPRU 4.4.11 R - ■ BIPRU 4.4.13 R.

[Note: BCD Annex VII Part 4 point 20]

- 4.4.52** **G** ■ BIPRU 4.4.50 R and ■ BIPRU 4.4.51 R should be read in the light of ■ BIPRU 4.3.28 R.

**Advanced IRB approach: Data maintenance**

- 4.4.53** **R** As well as complying with ■ BIPRU 4.3.54 R and ■ BIPRU 4.4.21 R (Data maintenance), a *firm* using own estimates of *LGDs* and/or *conversion factors* under the *advanced IRB approach* must collect and store:

- (1) complete histories of data on the facility ratings and *LGD* and *conversion factor* estimates associated with each rating scale;
- (2) the dates the ratings were assigned and the estimates were done;
- (3) the key data and methodology used to derive the facility ratings and *LGD* and *conversion factor* estimates;
- (4) the person who assigned the facility rating and the person who provided *LGD* and *conversion factor* estimates;
- (5) data on the estimated and realised *LGDs* and *conversion factors* associated with each *defaulted exposure*;
- (6) data on the *LGD* of the *exposure* before and after evaluation of the effects of a guarantee or credit derivative, for a *firm* that reflects the credit risk mitigating effects of guarantees or credit derivatives through *LGD*; and
- (7) data on the components of *loss* for each *defaulted exposure*.

[Note: BCD Annex VII Part 4 Point 38]

**Advanced IRB approach: Requirements specific to own-LGD estimates**

- 4.4.54** **R** In addition to the requirements in ■ BIPRU 4.3.74 R - ■ BIPRU 4.3.94 R (General requirements about risk quantification) and ■ BIPRU 4.3.98 R - ■ BIPRU 4.3.123 R (Requirements for risk quantification specific to own-LGD estimates), estimates of *LGD* must be based on data over a minimum of five years, increasing by one year each year after implementation until a minimum of seven years is reached, for at least one data source. If the available observation period spans a longer period for any source, and the data is relevant, this longer period must be used.

[Note: BCD Annex VII Part 4 point 82]

**Advanced IRB approach: Requirements specific to own-conversion factor estimates**

**4.4.55** **R** In addition to the requirements in ■ BIPRU 4.3.124 R - ■ BIPRU 4.3.131 R (Requirements specific to own-conversion factor estimates), estimates of *conversion factors* must be based on data over a minimum of five years, increasing by one year each year after implementation until a minimum of seven years is reached, for at least one data source. If the available observation period spans a longer period for any source, and the data is relevant, this longer period must be used.

[Note: BCD Annex VII Part 4 point 93]

**Calculations: General**

**4.4.56** **R** The remainder of this section applies to both the *foundation IRB approach* and the *advanced IRB approach*.

**Calculations: Risk-weighted exposure amounts**

**4.4.57** **R** Subject to ■ BIPRU 4.4.59 R to ■ BIPRU 4.4.60 R, ■ BIPRU 4.5.6 R, ■ BIPRU 4.5.8 R - ■ BIPRU 4.5.10 R (Risk weights for specialised lending), ■ BIPRU 4.8.16 R, ■ BIPRU 4.8.17 R (Risk weights for corporate exposure purchased receivables) and ■ BIPRU 4.9.3 R (Securitisation: provision of credit protection), *risk weighted exposure amounts* must be calculated according to the formulae in the table in ■ BIPRU 4.4.58 R and the adjustment formula in ■ BIPRU 4.4.79 R (Double default).

[Note: BCD Annex VII Part 1 point 3]

**4.4.58** **R** Table: Formulae for the calculation of *risk weighted exposure amounts*

This table belongs to ■ BIPRU 4.4.57 R

Correlation (R)	$0.12 \times (1 - \text{EXP}(-50 \cdot \text{PD})) / (1 - \text{EXP}(-50)) + 0.24 \cdot [1 - (1 - \text{EXP}(-50 \cdot \text{PD})) / (1 - \text{EXP}(-50))]$
Maturity factor (b)	$(0.11852 - 0.05478 \cdot \ln(\text{PD}))^2$  $(\text{LGD} \cdot \text{N}[(1 - \text{R})^{-0.5} \cdot \text{G}(\text{PD}) + (\text{R} / (1 - \text{R}))^{0.5} \cdot \text{G}(0.999)] - \text{PD} \cdot \text{LGD}) \cdot (1 - 1.5 \cdot \text{b})^{-1} \cdot (1 + (\text{M} - 2.5) \cdot \text{b}) \cdot 12.5 \cdot 1.06$
N(x)	denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x). G(z) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value x such that N(x) = z).
PD = 0	For PD = 0, RW shall be: 0
PD = 1	For PD = 1:  (i) for <i>defaulted exposures</i> where a <i>firm</i> applies the LGD values set out in BIPRU 4.4.32R and BIPRU 4.8.25R RW shall be: 0;  (ii) for <i>defaulted exposures</i> where a <i>firm</i> uses its own estimates of LGDs, RW shall be: Max {0, 12.5 * (LGD - EL <sub>BE</sub> )};  where EL <sub>BE</sub> must be the <i>firm's</i> best estimate of <i>expected</i>

*loss for the defaulted exposure according to BIPRU 4.3.122 R.*

[Note: BCD Annex VII Part 1 point 3]

**4.4.59 R** For *exposures* to companies where the total annual sales for the consolidated group of which the firm is a part is less than EUR 50 million a *firm* may use the following correlation formula for the calculation of *risk weights* for *corporate exposures*. In this formula *S* is expressed as total annual sales in millions of Euros with EUR 5 million ≤ *S* ≤ EUR 50 million. Reported sales of less than EUR 5 million must be treated as if they were equivalent to EUR 5 million. In accordance with ■ BIPRU 4.8.21 R, for purchased receivables the total annual sales are the weighted average by individual *exposures* of the pool. The formula for the calculation of correlation (*R*) is:

$$0.12 \times (1 - \text{EXP}(-50 \times \text{PD})) / (1 - \text{EXP}(-50)) + 0.24 \times [1 - (1 - \text{EXP}(-50 \times \text{PD})) / (1 - \text{EXP}(-50))] - 0.04 \times (1 - (S - 5) / 45)$$

[Note: BCD Annex VII Part 1 point 5 (part)]

**4.4.60 R** A *firm* must for the purpose of ■ BIPRU 4.4.59 R substitute total assets of the consolidated group for total annual sales when total annual sales are not a meaningful indicator of firm size and total assets are a more meaningful indicator than total annual sales.

[Note: BCD Annex VII Part 1 point 5 (part)]

**Calculations: Expected loss amounts**

**4.4.61 R** *Expected loss* amounts must be calculated according to the formulae in the table in ■ BIPRU 4.4.62 R.

[Note: BCD Annex VII Part 1 point 30 (part)]

**4.4.62 R** Table: Formulae for the calculation of *expected loss* amounts

This table belongs to ■ BIPRU 4.4.61 R

<i>Expected loss (EL)</i>	equals <i>PD</i> × <i>LGD</i>
<i>Expected loss amount</i>	equals <i>EL</i> × <i>exposure value</i>
For <i>defaulted exposures</i> ( <i>PD</i> = 1) where a <i>firm</i> uses its own estimates of <i>LGDs</i> , <i>EL</i> must be <i>EL<sub>BE</sub></i> , the <i>firm's</i> best estimate of <i>expected loss</i> for the <i>defaulted exposure</i> according to BIPRU 4.3.122 R.	
For <i>exposures</i> subject to the treatment set out in BIPRU 4.4.79 R (Double default) <i>EL</i> must be 0.	

[Note: BCD Annex VII Part 1 point 30 (part)]

**Calculations: PD**

**4.4.63 R** A *firm* must provide its own estimates of *PDs* in accordance with its *IRB permission* and the *minimum IRB standards*.

[Note: BCD Article 87(6) (part)]

**4.4.64** **R** The *PD* of a *corporate exposure* or an *exposure* in the *IRB exposure class* referred to in **■ BIPRU 4.3.2 R (2)** (Institutions) must be at least 0.03%.  
 [Note: BCD Annex VII Part 2 point 2]

**4.4.65** **R** The *PD* of obligors in *default* must be 100%.  
 [Note: BCD Annex VII Part 2 point 4]

**4.4.66** **R** Subject to **■ BIPRU 4.4.42 R** (*Advanced IRB approach: LGDs and PDs*) a *firm* may recognise *unfunded credit protection* in the *PD* in accordance with the provisions of **■ BIPRU 5** (Credit risk mitigation), as modified by **■ BIPRU 4.10**. For *dilution risk*, however, a *firm* may also recognise *unfunded credit protection* providers which are specified in its *IRB permission* in addition to those indicated in the *CRM eligibility conditions*.  
 [Note: BCD Annex VII Part 2 point 5]

**Calculations: Maturity**

**4.4.67** **R** (1) A *firm* must calculate maturity (M) for each of the *exposures* referred to in this *rule* in accordance with this *rule* and subject to **■ BIPRU 4.4.68 R** to **■ BIPRU 4.4.70 R**. In all cases, M must be no greater than 5 years.

(2) For an instrument subject to a cash flow schedule M must be calculated according to the following formula:  

$$M = \text{MAX}\{1; \text{MIN}\{\sum_t t * CF_t / \sum_t CF_t; 5\}\}$$

where  $CF_t$  denotes the cash flows (principal, interest payments and fees) contractually payable by the obligor in period t.

(3) For derivatives subject to a master netting agreement M must be the weighted average remaining maturity of the *exposure*, where M must be at least 1 year. The notional amount of each *exposure* must be used for weighting the maturity.

(4) For *exposures* arising from fully or nearly-fully collateralised *financial derivative instruments* transactions and fully or nearly-fully collateralised *margin lending transactions* which are subject to a master netting agreement M must be the weighted average remaining maturity of the transactions where M must be at least 10 days. For *repurchase transactions* or securities or commodities lending or borrowing transactions which are subject to a master netting agreement, M must be the weighted average remaining maturity of transactions, where M must be at least 5 days. The notional amount of each transaction must be used for weighting the maturity.

(5) Where a *firm* uses the *CCR internal model method* to calculate the *exposure* values, M must be calculated for *exposures* to which a *firm* applies this method and for which the maturity of the longest-dated contract contained in the *netting set* is greater than one year according to the following formula:

$$M = \text{MIN} \left( \frac{\sum_{k=1}^{tk \leq 1 \text{ year}} \text{Effective EE}_k * \Delta tk * df_k + \sum_{k=1}^{maturity} \text{EE}_k * \Delta tk * df_k}{\sum_{k=1}^{tk \leq 1 \text{ year}} \text{Effective EE}_k * \Delta tk * df_k}; 5 \right)$$

where:

$df_k$  = the risk-free discount factor for future time period  $t_k$  and the remaining symbols are defined in ■ BIPRU 13.6.

- (6) Notwithstanding (7), a *firm* that uses a *CCR internal model method* model to calculate a *one-sided credit valuation adjustment (CVA)* may use the effective credit duration estimated by the model as  $M$  if permitted to do so by its *CCR internal model method permission*.
- (7) Subject to ■ BIPRU 4.4.68 R, for *netting sets* in which all contracts have an original maturity of less than one year the formula in (2) must be applied.
- (8) If a *firm* is permitted under its *IRB permission* to use own *PD* estimates for *corporate exposure* purchased receivables, for drawn amounts  $M$  must equal the purchased receivables *exposure* weighted average maturity, where  $M$  must be at least 90 days. This same value of  $M$  must also be used for undrawn amounts under a committed purchase facility provided the facility contains effective covenants, early amortisation triggers, or other features that protect the purchasing *firm* against a significant deterioration in the quality of the future receivables it is required to purchase over the facility's term. Absent such effective protections,  $M$  for undrawn amounts must be calculated as the sum of the longest-dated potential receivable under the purchase agreement and the remaining maturity of the purchase facility, where  $M$  must be at least 90 days.
- (9) For any other instrument than mentioned in this *rule* or when a *firm* is not in a position to calculate  $M$  as set out in (2),  $M$  must be the maximum remaining time (in years) that the obligor is permitted to take fully to discharge its contractual obligations, where  $M$  must be at least 1 year.
- (10) Notwithstanding (2) and (9),  $M$  must be at least one-day for:
- import letters of credit (including standby letters of credit issued for similar purposes) and acceptances under them;
  - export letters of credit confirmation and negotiation;
  - pre-shipment and post-shipment acceptances and financing;
  - export and import loans collateralised by underlying goods, up to a maximum maturity of 180 days; and
  - performance guarantees, bid bonds and other guarantees (including standby letters of credit issued for similar purposes) relating to the export and import of goods and services;

provided these *exposures* are not part of the *firm's* ongoing financing of the obligor.

[Note: BCD Annex VII Part 2 point 13 (part)]

#### 4.4.68

**R**

Notwithstanding ■ BIPRU 4.4.67 R (2) - ■ (4) and (8)-(9),  $M$  must be at least one-day for:

- (1) fully or nearly-fully collateralised *financial derivative instruments*;



- (2) fully or nearly-fully collateralised *margin lending transactions*; and
- (3) *repurchase transactions, securities or commodities lending or borrowing transactions*,

provided the documentation requires daily remargining and daily revaluation and includes provisions that allow for the prompt liquidation or setoff of collateral in the event of *default* or failure to re-margin.

[Note: BCD Annex VII Part 2 point 14 (part)]

- 4.4.69 **G** The last paragraph of paragraph 14 of Part 2 of Annex VII of the *Banking Consolidation Directive* says: "In addition, for other short-term exposures specified by the competent authorities which are not part of the credit institution's ongoing financing of the obligor, M shall be at least one-day. A careful review of the particular circumstances shall be made in each case." ■ BIPRU 4.4.67R (10) is currently the only instance where the *appropriate regulator* has specified any such short-term exposures.

[Note: BCD Annex VII Part 2 point 14 (part)]

- 4.4.70 **R** Maturity mismatches must be treated as specified in ■ BIPRU 4.10 and ■ BIPRU 5 (Credit risk mitigation).

[Note: BCD Annex VII Part 2 point 16]

#### Calculations: Exposure value

- 4.4.71 **R** Unless provided otherwise in ■ BIPRU 4 the *exposure* value of on-balance sheet *exposures* must be measured gross of value adjustments. This also applies to assets purchased at a price different than the amount owed. For purchased assets, the difference between the amount owed and the net value recorded on the balance-sheet of the firm is denoted discount if the amount owed is larger, and premium if it is smaller.

[Note: BCD Annex VII Part 3 point 1]

- 4.4.72 **R** A *firm* must not treat the *exposure* value of a facility as being less than current drawings under it. Interest accrued to date on an *exposure* under a facility must be included in current drawings or an allowance for it must be built into the *conversion factor*.

- 4.4.73 **R** Where a *firm* uses master netting agreements in relation to *repurchase transactions or securities or commodities lending or borrowing transactions* the *exposure* value must be calculated in accordance with ■ BIPRU 5 (Credit risk mitigation), as modified by ■ BIPRU 4.10, and ■ BIPRU 13.8.

[Note: BCD Annex VII Part 3 point 2]

- 4.4.74** **R** For on-balance sheet netting of loans and deposits a *firm* must apply for the calculation of the *exposure* value the methods set out in ■ BIPRU 5 (Credit risk mitigation), as modified by ■ BIPRU 4.10.  
[Note: BCD Annex VII Part 3 point 3]
- 4.4.75** **R** The *exposure* value for leases must be the discounted minimum lease payments. Minimum lease payments are the payments over the lease term that the lessee is or can be required to make and any bargain option (i.e. option the exercise of which is reasonably certain). Any guaranteed residual value fulfilling the set of conditions in ■ BIPRU 5.7.1 R (Eligibility), as modified by ■ BIPRU 4.10.38 R and ■ BIPRU 4.10.39 R (Unfunded credit protection: Eligibility of providers) regarding the eligibility of protection providers as well as the minimum requirements for recognising other types of guarantees provided in ■ BIPRU 5.7.6 R (Minimum requirements: General) to ■ BIPRU 5.7.12 R (Additional requirements for guarantees) should also be included in the minimum lease payments.  
[Note: BCD Annex VII Part 3 point 4]
- 4.4.76** **R** Where an *exposure* takes the form of *securities* or *commodities* sold, posted or lent under *repurchase transactions* or *securities* or *commodities lending or borrowing transactions*, *long settlement transactions* and *margin lending transactions*, the *exposure* value must be the value of the *securities* or *commodities* determined in accordance with ■ GENPRU 1.3 (Valuation). Where the *financial collateral comprehensive method* is used, the *exposure* value must be increased by the volatility adjustment appropriate to such *securities* or *commodities* as set out in ■ BIPRU 4.10 and ■ BIPRU 5 (Credit risk mitigation). The *exposure* value of *repurchase transactions*, *securities* or *commodities lending or borrowing transactions*, *long settlements transactions* and *margin lending transactions* must be determined in accordance with ■ BIPRU 13.  
[Note: BCD Annex VII Part 3 point 7]
- 4.4.77** **R** Notwithstanding ■ BIPRU 4.4.76 R, the *exposure* value of credit risk *exposures* outstanding, as determined by the *firm*, with a *central counterparty* must be determined in accordance with ■ BIPRU 13.3.3 R and ■ BIPRU 13.8.8 R (Exposure to central counterparty), provided that the *central counterparty's CCR exposures* with all participants in its arrangements are fully collateralised on a daily basis.  
[Note: BCD Annex VII Part 3 point 8]
- 4.4.78** **R** In the case of any *financial derivative instrument*, the *exposure* value must be determined by the methods set out in ■ BIPRU 13.  
[Note: BCD Annex VII Part 3 point 5]
- 4.4.79** **R** **Double default**  
.....  
The *risk weighted exposure amount* for each *exposure* which meets the requirements set out in ■ BIPRU 5.7.2 R and ■ BIPRU 4.4.83 R (Double default) may be adjusted according to the following formula:

- (1) *Risk weighted exposure amount* =  $RW * exposure\ value * (0.15 + 160 * PD_{pp})$
- (2)  $PD_{pp}$  = *PD* of the protection provider
- (3) *RW* must be calculated using the relevant *risk weight* formula set out in ■ BIPRU 4.4.57 R for the *exposure*, the *PD* of the obligor and the *LGD* of a comparable direct *exposure* to the protection provider. The maturity factor (b) must be calculated using the lower of the *PD* of the protection provider and the *PD* of the obligor.

[Note: BCD Annex VII Part 1 point 4]

- 4.4.80 **R** Notwithstanding ■ BIPRU 4.4.34 R and ■ BIPRU 4.4.43 R, for the purposes of ■ BIPRU 4.4.79 R, the *LGD* of a comparable direct *exposure* to the protection provider shall either be the *LGD* associated with an unhedged facility to the guarantor or the unhedged facility of the obligor, depending upon whether in the event both the guarantor and the obligor *default* during the life of the hedged transaction available evidence and the structure of the guarantee indicate that the amount recovered would depend on the financial condition of the guarantor or obligor, respectively

[Note: BCD Annex VII Part 2 point 11]

- 4.4.81 **R** For the purposes of ■ BIPRU 4.4.79 R, *M* must be the effective maturity of the credit protection but at least 1 year.

[Note: BCD Annex VII Part 2 point 13 (part)]

- 4.4.82 **R** ■ BIPRU 4.4.83 R applies to the eligibility of protection providers under the *IRB approach* which qualify for the treatment set out in ■ BIPRU 4.4.79 R.

- 4.4.83 **R** An *institution*, an *insurance undertaking* (including an *insurance undertaking* that carries out *reinsurance*) or an export credit agency which fulfils the following conditions may be recognised as an eligible provider of *unfunded credit protection* which qualifies for the treatment set out in ■ BIPRU 4.4.79 R:

- (1) the protection provider has sufficient expertise in providing *unfunded credit protection*;
- (2) the protection provider is regulated in a manner equivalent to the rules laid down in the *Banking Consolidation Directive* or had, at the time the credit protection was provided, a credit assessment by an *eligible ECAI* which is associated with *credit quality step 3* or above under the *rules* for the *risk weighting* of *exposures to corporates* under the *standardised approach*;
- (3) the protection provider had, at the time the credit protection was provided, or for any period of time thereafter, an internal rating with a *PD* equivalent to or lower than that associated with *credit quality step 2* or above under the *rules* for the *risk weighting* of *exposures to corporates* under the *standardised approach*;
- (4) the protection provider has an internal rating with a *PD* equivalent to or lower than that associated with *credit quality step 3* or above

under the *rules* for the *risk weighting* of exposures to corporates under the *standardised approach*;

For the purpose of this *rule*, credit protection provided by an export credit agency must not benefit from any explicit central government counter-guarantee.

[Note: BCD Annex VIII Part 1 point 29]

**4.4.84** **R** ■ BIPRU 4.4.85 R applies to the requirements to qualify for the treatment set out in ■ BIPRU 4.4.79 R.

**4.4.85** **R** To be eligible for the treatment set out in ■ BIPRU 4.4.79 R, credit protection deriving from a guarantee or credit derivative must meet the following conditions:

- (1) the underlying obligation must be to:
  - (a) a *corporate exposure*, excluding an *exposure* to an *insurance undertaking* (including an *insurance undertaking* that carries out *reinsurance*); or
  - (b) an *exposure* to a regional government, local authority or *public sector entity* which is not treated as an *exposure* to a central government or a *central bank* according to ■ BIPRU 4.4.2 R; or
  - (c) an *exposure* to *retail SME*, classified as a *retail exposure* according to ■ BIPRU 4.6.2 R;
- (2) the underlying obligors must not be members of the same *group* as the protection provider;
- (3) the *exposure* must be hedged by one of the following instruments:
  - (a) single name unfunded credit derivatives or single name guarantees;
  - (b) first to *default* basket products, with these the treatment must be applied to the asset within the basket with the lowest *risk weighted exposure amount*;
  - (c)  $n^{\text{th}}$  to *default* basket products, with these the protection obtained is only eligible for consideration under this framework if eligible  $(n-1)^{\text{th}}$  *default* protection has also been obtained or where  $(n-1)$  of the assets within the basket has/have already *defaulted* and where this is the case the treatment must be applied to the asset within the basket with the lowest *risk weighted exposure amount*;
- (4) the credit protection must meet the requirements set out in ■ BIPRU 5.7.6 R - ■ BIPRU 5.7.8 R (Minimum requirements: Operational requirements), ■ BIPRU 5.7.11 R (Additional requirements for guarantees) and ■ BIPRU 5.7.13 R - ■ BIPRU 5.7.14 R (Additional requirements for credit derivatives);
- (5) the *risk weight* that is associated with the *exposure* prior to the application of the treatment in ■ BIPRU 4.4.79 R does not already factor in any aspect of the credit protection;

- (6) a *firm* must have the right and expectation to receive payment from the protection provider without having to take legal action in order to pursue the counterparty for payment;
- (7) the purchased credit protection must absorb all credit losses incurred on the hedged portion of an *exposure* that arise due to the occurrence of credit events outlined in the contract;
- (8) if the payout structure provides for physical settlement, then there must be legal certainty with respect to the deliverability of a loan, bond or contingent liability and if a *firm* intends to deliver an obligation other than the underlying *exposure*, it must ensure that the deliverable obligation is sufficiently liquid so that the *firm* would have the ability to purchase it for delivery in accordance with the contract;
- (9) the terms and conditions of credit protection arrangements must be legally confirmed in writing by both the protection provider and the *firm*;
- (10) a *firm* must have a process in place to detect excessive correlation between the creditworthiness of a protection provider and the obligor of the underlying *exposure* due to their performance being dependent on common factors beyond the systematic risk factor;
- (11) in the case of protection against *dilution risk*, the seller of purchased receivables must not be a member of the same *group* as the protection provider; and
- (12) with reference to (6), to the extent possible, a *firm* must take steps to satisfy itself that the protection provider is willing to pay promptly should a credit event occur.

[Note: BCD Annex VIII Part 2 point 22]

## 4.5 The IRB approach: Specialised lending exposures

### Application

4.5.1 **R** ■ BIPRU 4.5 applies with respect to the *exposures* referred to in ■ BIPRU 4.5.3 R.

4.5.2 **R** Except for ■ BIPRU 4.5.1 R and ■ BIPRU 4.5.3 R, ■ BIPRU 4.5 only applies to the extent that a *firm* applies the method in ■ BIPRU 4.5 (slotting).

### Definition of specialised lending

4.5.3 **R** Within the *corporate exposure IRB exposure class*, a *firm* must separately identify as *specialised lending exposures*, *exposures* which possess the following characteristics:

- (1) the *exposure* is to an entity which was created specifically to finance and/or operate physical assets;
- (2) the contractual arrangements give the lender a substantial degree of control over the assets and the income that they generate; and
- (3) the primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of a broader commercial enterprise.

[Note: BCD Article 86(6)]

### Treatment of specialised lending

4.5.4 **R** If a *firm* is using or is applying to use the *advanced IRB approach* for some or all of its *exposures* in the *sovereign, institution and corporate IRB exposure class*, then *specialised lending exposures* treated under ■ BIPRU 4.5.8 R (Slotting) must be treated as being dealt with under the *advanced IRB approach* for the purposes of the calculations in ■ BIPRU 4.2.30 R and ■ BIPRU 4.2.31 R. If a *firm* is not using or applying to use the *advanced IRB approach* for any of its *exposures* in the *sovereign, institution and corporate IRB exposure class*, in the cases in which it is necessary to distinguish between the *advanced IRB approach* and the *foundation IRB approach*, then *specialised lending exposures* treated under ■ BIPRU 4.5.8 R must be treated as being dealt with under the *foundation IRB approach* for the purposes of the calculations in ■ BIPRU 4.2.30 R and ■ BIPRU 4.2.31 R.

**Structure of rating system**

- 4.5.5 **R** A *firm* using the methods set out in ■ BIPRU 4.5.8 R (Slotting) for assigning *risk weights* for *specialised lending exposures* is exempt from the requirement to have an obligor rating scale which reflects exclusively quantification of the risk of obligor *default* for these *exposures*. Notwithstanding ■ BIPRU 4.4.7 R (Seven grades for exposures to sovereigns, institutions and corporates), a *firm* must have for these *exposures* four grades for non-*defaulted* obligors and one grade for *defaulted* obligors.

[Note: BCD Annex VII Part 4 point 12 and point 21]

**Assignment of exposures**

- 4.5.6 **R**
- (1) A *firm* using the methods set out in ■ BIPRU 4.5.8 R (Slotting) for assigning *risk weights* for *specialised lending exposures* must assign each of these *exposures* to a grade in accordance with ■ BIPRU 4 Annex 1 R, taking into account the following factors:
    - (a) financial strength;
    - (b) political and legal environment;
    - (c) transaction and/or asset characteristics;
    - (d) strength of the sponsor and developer including any public private partnership income stream; and
    - (e) security package.
  - (2) A *firm* must slot *exposures* into the five columns in the tables in ■ BIPRU 4.5.9 R and ■ BIPRU 4.5.13 R as follows:
    - (a) a *firm* must slot an *exposure* categorised as strong under Annex X into column 1;
    - (b) a *firm* must slot an *exposure* categorised as good under the Annex X into column 2;
    - (c) a *firm* must slot an *exposure* categorised as satisfactory under Annex X into column 3;
    - (d) a *firm* must slot an *exposure* categorised as weak under Annex X into column 4;
    - (e) in accordance with ■ BIPRU 4.5.5 R a *firm* must slot an *exposure* in *default* into column 5.

[Note: BCD Annex VII Part 1 point 6 (part)]

**Calculation of risk-weighted exposure amounts**

- 4.5.7 **R** Notwithstanding ■ BIPRU 4.3.5 R (Use of relevant parameters for calculating risk weighted exposure amounts), the calculation of *risk weighted exposure amounts* for credit risk for *specialised lending exposures* may be calculated in accordance with ■ BIPRU 4.5.8 R.

[Note: BCD Article 87(5)]

- 4.5.8 **R** For *specialised lending exposures* in respect of which a *firm* cannot demonstrate that its *PD* estimates meet the *minimum IRB standards* it must



assign *risk weights* to these *exposures* according to the table in ■ BIPRU 4.5.9 R.

[Note: BCD Annex VII Part 1 point 6 (part)]

#### 4.5.9 **R** Table: Risk weights for specialised lending

This table belongs to ■ BIPRU 4.5.8 R

Remaining maturity	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)	Category 5
Less than 2.5 years	50%	70%	115%	250%	0%
Equal or more than 2.5 years	70%	90%	115%	250%	0%

The coverage of each of the categories is set out in BIPRU 4.5.6 R

[Note: BCD Annex VII Part 1 point 6 (part)]

#### 4.5.10 **R** A *firm* may generally assign preferential *risk weights* of 50% to *exposures* in category 1, and a 70% *risk weight* to *exposures* in category 2 if:

- (1) its *IRB permission* allows this; and
- (2) the *firm's* underwriting characteristics and other risk characteristics are substantially strong for the relevant category.

[Note: BCD Annex VII Part 1 point 6 (part)]

- #### 4.5.11 **G**
- (1) If a *firm* applies for an *IRB permission* or for a variation of an *IRB permission* that permits the treatment in ■ BIPRU 4.5.10 R it should demonstrate that its standards exceed those of the slotting criteria provided for in ■ BIPRU 4.5 and result in ratings that are stronger than the benchmarks referred to in (3).
  - (2) If a *firm* has an *IRB permission* that permits the treatment in ■ BIPRU 4.5.10 R it should continue to be able to demonstrate the matters in (1) to the *appropriate regulator* if asked.
  - (3) Although a *firm* should map its internal ratings to the supervisory categories set out in the table in ■ BIPRU 4.5.9 R using the slotting criteria provided in ■ BIPRU 4.5.6 R, each supervisory category broadly corresponds to a range of external credit assessments of BBB- or better, BB+ or BB, BB- or B+ and B to C- (or their equivalents). The fifth category covers *default*.

#### Calculation of expected loss amounts

- #### 4.5.12 **R** The *EL* values for *specialised lending exposures* where a *firm* uses the methods set out in ■ BIPRU 4.5.8 R for assigning *risk weights* must be assigned according to the table in ■ BIPRU 4.5.13 R.

[Note: BCD Annex VII Part 1 point 31 (part)]

4.5.13 **R** Table: Expected loss values for specialised lending

This table belongs to ■ BIPRU 4.5.12 R

Remaining maturity	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)	Category 5
Less than 2.5 years	0%	0.4%	2.8%	8%	50%
Equal or more than 2.5 years	0.4%	0.8%	2.8%	8%	50%

The coverage of each of the categories is set out in BIPRU 4.5.6 R

[Note: BCD Annex VII Part 1 point 31 (part)]

4.5.14 **R** Where a *firm's IRB permission* authorises it generally to assign preferential *risk weights* as outlined in ■ BIPRU 4.5.10 R of 50% to *exposures* in category 1, and 70% to *exposures* in category 2, the *EL* value for *exposures* in category 1 must be 0%, and for *exposures* in category 2 must be 0.4%.

[Note: BCD Annex VII Part 1 point 31 (part)]

## 4.6 The IRB approach: Retail exposures

### Application

4.6.1 **R** ■ BIPRU 4.6 applies with respect to the *exposures* referred to in ■ BIPRU 4.6.2 R.

### Definition of retail exposures

4.6.2 **R** To be eligible to be treated as a *retail exposure*, *exposures* must meet the following criteria:

- (1) they must be either to an individual person or persons, or to a small or medium sized entity, provided in the latter case that the total amount owed to the *firm* and *parent undertaking* and its *subsidiary undertakings*, including any past due *exposure*, by the obligor client or *group of connected clients*, but excluding claims or contingent claims secured on residential real estate collateral, must not, to the knowledge of the *firm*, which must have taken reasonable steps to confirm the situation, exceed EUR 1 million;
- (2) they are treated by the *firm* in its risk management consistently over time and in a similar manner;
- (3) they are not managed just as individually as *exposures* in the *corporate exposure IRB exposure class*; and
- (4) they each represent one of a significant number of similarly managed *exposures*.

[Note: BCD Article 86(4) (part)]

4.6.3 **R** The present value of retail minimum lease payments is eligible to be treated as a *retail exposure*.

[Note: BCD Article 86(4) (part)]

4.6.4 **G**

- (1) This paragraph sets out *guidance* on ■ BIPRU 4.6.2 R so far as it relates to the boundary between *retail exposures* and *corporate exposures*.
- (2) In deciding what steps are reasonable for the purposes of ■ BIPRU 4.6.2 R (1), a *firm* may take into account complexity and cost, as well as the materiality of the impact upon its capital calculation. A *firm* should be able to demonstrate to the *appropriate regulator* that it has complied with the obligation to take reasonable steps under ■ BIPRU 4.6.2 R (1) in the way it takes these factors into account.

- (3) If a *firm* has exposures to an owner of a *retail SME* in his personal capacity and exposures to the *retail SME* the *firm* should aggregate the two types of exposure for the purpose of ■ BIPRU 4.6.2 R (1), although it should not include claims secured on residential real estate collateral. In deciding what steps are reasonable for the purposes of ■ BIPRU 4.6.2 R (1) in aggregating these two types of exposure, a *firm* may take into account the materiality of those personal exposures. A *firm* should be able to demonstrate to the *appropriate regulator* that it has complied with the obligation to take reasonable steps under ■ BIPRU 4.6.2 R (1) when taking into account materiality in this way.
- (4) The definition of *group of connected clients* is set out in the *glossary*. Paragraph (2) of that definition is "two or more persons ... who are to be regarded as constituting a single risk because they are so interconnected that, if one of them were to experience financial problems, the other or all of the others would be likely to encounter repayment difficulties". Say that a *firm* has exposures to A and B. When deciding whether A and B come within paragraph (2) of the definition two conditions should be satisfied. Firstly the connections between A and B should mean that if A experiences financial problems, B should be likely to encounter repayment difficulties. Secondly, the connections between A and B should mean that if B experiences financial problems, A should be likely to encounter repayment difficulties
- (5) A *firm* should have its own documented policy on the types of exposures that, in accordance with ■ BIPRU 4.6, qualify as *retail SME exposures*. The *appropriate regulator* would not expect that a definition based on the EUR 1m exposure limit would be adequate on its own.
- (6) The purpose of the definition of *retail exposure* is to separate a non-granular retail and small and medium sized business portfolio from other business so that a separate capital calculation may be applied to that portfolio that takes into account its non-granularity. Where *retail exposures* are assigned to pools it is the statistical characteristics of these pools which are used to derive the *IRB approach* estimates. Therefore pools should be reasonably homogenous and subject to consistent risk management practices.
- (7) A *firm* should have sufficient controls to ensure that any inadvertent assignment of non-eligible exposures to the *retail exposure IRB exposure class* is sufficiently immaterial that it does not result in any significant distortion of the overall statistical characteristics of the sub-sets of that *IRB exposure class* which arise when the exposures are assigned to grades or pools. Cost considerations do not justify inclusion of non-eligible exposures if the effect would be material. Sample testing could be one method of demonstrating that the impact would be immaterial. ■ BIPRU 4.1.25 R applies to exposures treated in accordance with this sub-paragraph (7).
- (8) If an exposure to a small or medium sized business crosses the *retail exposure size boundary* it should be treated as a *corporate*, unless, in accordance with ■ BIPRU 4.1.25 R, the excess is immaterial because of its size or because it is temporary.

- (9) ■ BIPRU 4.6.2 R does not require that *exposures to retail SMEs* should never be individually managed. In deciding whether the frequency and extent of individual management does or does not make *exposures* ineligible for the *retail exposure IRB exposure class*, a *firm* should consider whether that individual management is:
- (a) sufficiently insignificant not to disrupt the homogeneity of the pool;
  - (b) consistent with the management of other *exposures* in the same *retail exposure* pool; and
  - (c) significantly different in extent from the individual management that occurs for *corporate exposures*, looked at as a whole.
- (10) Where an *exposure* is denominated in other currencies, a *firm* may calculate the Euro equivalent for the purposes of ■ BIPRU 4.6.2 R (1) using any appropriate set of exchange rates provided its choice has no obvious bias and that the *firm* is consistent in its approach to choosing rates.
- (11) A *firm* may monitor compliance with the €1m threshold in ■ BIPRU 4.6.2 R (1) on the basis of approved limits provided that it has internal control procedures that are sufficient to ensure that amounts owed cannot diverge from those approved limits to such an extent as to give rise to a breach of the €1m threshold or, if the *firm* is relying on provisions relating to reasonable steps in ■ BIPRU 4.6.2 R (1), any material breach of that threshold.

#### Rating system: Structure of rating system

- 4.6.5 **G** Further material on the structure of rating systems can be found in ■ BIPRU 4.3.25 R - ■ BIPRU 4.3.28 R.

#### Rating system: Assignment to grades or pools

- 4.6.6 **R** *Rating systems* must reflect both obligor and transaction risk, and must capture all relevant obligor and transaction characteristics.

[Note: BCD Annex VII Part 4 point 13]

- 4.6.7 **R** The level of risk differentiation must ensure that the number of *exposures* in a given grade or pool is sufficient to allow for meaningful quantification and validation of the *loss* characteristics at the grade or pool level. The distribution of *exposures* and obligors across grades or pools must be such as to avoid excessive concentrations.

[Note: BCD Annex VII Part 4 point 14]

- 4.6.8 **G**
- (1) This paragraph contains *guidance* on the level of differentiation referred to in ■ BIPRU 4.6.7 R.
  - (2) It is important that a *firm* achieves adequate segmentation to deliver robust estimates of *LGD* and *conversion factors*, as well as *PD*. Whether the focus should be more on *exposure* size or collateral type is a question of fact for the particular circumstances in which the

assignment of *exposures* to grades or pools occurs. Typically the *appropriate regulator* would expect both to be important.

- (3) A *firm* may allocate *retail exposures* to pools based on direct estimates of *PD*, *LGD* and *conversion factors* as well as using an approach under which the *firm* segments first and attributes *PD*, *LGD* and *conversion factors* afterwards. However the result should in either case be that the pools are sufficiently homogenous.
- (4) The number and size of pools should be determined in relation to the objective of establishing homogeneous risk. Pools should be of sufficient size to permit the production of robust risk estimates but should not be so large as to obscure variations in quality.

**4.6.9** **R** A *firm* must be able to demonstrate to the *appropriate regulator* that the process of assigning *exposures* to grades or pools provides for a meaningful differentiation of risk, provides for a grouping of sufficiently homogenous exposures, and allows for accurate and consistent estimation of *loss* characteristics at grade or pool level.

[Note: BCD Annex VII Part 4 point 15 (part)]

**4.6.10** **G** For purchased receivables, **■** BIPRU 4.8 contains material about assignment to grades or pools.

**4.6.11** **R**

- (1) A *firm* must consider the following risk drivers when assigning *exposures* to grades or pools:
  - (a) obligor risk characteristics;
  - (b) transaction risk characteristics, including product or collateral types or both; and
  - (c) delinquency.
- (2) In the case of (1)(b) a *firm* must explicitly address cases where several *exposures* benefit from the same collateral.
- (3) However:
  - (a) a *firm* need not consider delinquency if this is compatible with its *IRB permission*; and
  - (b) (in the case of a *firm* with an *IRB permission* that permits the *firm* not to consider delinquency) it should be able to demonstrate to the *appropriate regulator* that delinquency is not a material risk driver for the *exposures* treated in this way.

[Note: BCD Annex VII Part 4 Point 16]

### Rating system: Assignment of exposures

**4.6.12** **R** Each *exposure* must be assigned to a grade or a pool as part of the credit approval process.

[Note: BCD Annex VII Part 4 point 24]

**Rating system: Overrides**

4.6.13 **G** Material on overrides can be found in ■ BIPRU 4.3.50 R.

**Rating system: Integrity of assignment process**

4.6.14 **R** A *firm* must at least annually update obligor and facility assignments or review the *loss* characteristics and delinquency status of each identified risk pool whichever is applicable. A *firm* must also at least annually review in a representative sample the status of individual *exposures* within each pool as a means of ensuring that *exposures* continue to be assigned to the correct pool.

[Note: BCD Annex VII Part 4 point 29]

4.6.15 **G** Annual rescoring is one method of meeting the requirement in ■ BIPRU 4.6.14 R. However a *firm* need not carry out this update by means of a full re-run of a credit scoring model if it is able to demonstrate that its method is appropriate to the portfolio given its materiality and its impact on its capital requirements and that the *firm* still meets the *minimum IRB standards*.

**Rating system: Use of models**

4.6.16 **G** Material on the use of models can be found in ■ BIPRU 4.3.51 R - ■ BIPRU 4.3.53 G.

**Rating system: Documentation**

4.6.17 **G** Material on documentation can be found in ■ BIPRU 4.3.19 R - ■ BIPRU 4.3.24 R.

**Rating system: Data maintenance**

4.6.18 **R** In addition to complying with ■ BIPRU 4.3.54 R (Data maintenance) a *firm* must collect and store:

- (1) data used in the process of allocating *exposures* to grades or pools;
- (2) data on the estimated *PDs*, *LGDs* and *conversion factors* associated with grades or pools of *exposures*;
- (3) the identity of obligors and *exposures* that *defaulted*;
- (4) for *defaulted exposures*, data on the grades or pools to which the *exposure* was assigned over the year prior to *default* and the realised outcomes on *LGD* and *conversion factor*; and
- (5) data on *loss rates* for *qualifying revolving retail exposures*.

[Note: BCD Annex VII Part 4 point 39]

**Risk quantification: Definition of default**

4.6.19 **G** Material on the definition of *default* can be found in ■ BIPRU 4.3.56 R - ■ BIPRU 4.3.72 G.



- 4.6.20** **R** (1) This *rule*, in accordance with **■ BIPRU 4.3.57 R (4)** (Definition of default), sets the exact number of days past due that a *firm* must abide by in the case of *retail exposures*.
- (2) For *retail exposures* to counterparts situated within the *United Kingdom* the number of days past due is 180 days with the exception of *retail SME exposures*. For these *exposures* the number is 90 days.
- (3) For *retail exposures* to counterparts situated in another *EEA State* the number of days past due is the lower of:
- (a) 180; and
  - (b) the number of days past due fixed under the *CRD implementation measure* in that *EEA State* with respect to paragraph 48 of Part 4 of Annex VII of the *Banking Consolidation Directive* for such *exposures*.
- (4) For *retail exposures* to counterparts in a state outside the *EEA* the number of days past due is the lower of:
- (a) 180; and
  - (b) (if a number of days past due for such *exposures* has been fixed under any national law of that state applicable to *undertakings* in the *banking sector* or the *investment services sector* that implements the *IRB approach*) that number.

[**Note:** *BCD* Annex VII Part 4 point 44 (part) and point 48 (part)]

**4.6.21** **R** A *firm* may apply the definition of *default* at a facility level.

[**Note:** *BCD* Annex VII Part 4 point 44 (part)]

**4.6.22** **G** Where a *firm* chooses to apply the definition of *default* at facility level and a customer has *defaulted* on a facility, then *default* on that facility is likely to influence the *PD* assigned to that customer on other facilities and so should be taken into account.

**Risk quantification: Overall requirements for estimation**.....

**4.6.23** **G** Material on the overall requirements for estimation can be found in **■ BIPRU 4.3.73 R - ■ BIPRU 4.3.94 R**.

**Risk quantification: Requirements specific to PD estimation**.....

**4.6.24** **R** A *firm* must estimate *PDs* by obligor grade or pool from long run averages of one-year *default* rates.

[**Note:** *BCD* Annex VII Part 4 point 67]

**4.6.25** **R** Notwithstanding **■ BIPRU 4.6.24 R**, *PD* estimates may also be derived from realised *losses* and appropriate estimates of *LGDs*.

[**Note:** *BCD* Annex VII Part 4 point 68]

- 4.6.26** **R** A *firm* must regard internal data for assigning exposures to grades or pools as the primary source of information for estimating *loss* characteristics. A *firm* may use external data (including pooled data) or statistical models for quantification provided a strong link can be demonstrated between:
- (1) the *firm's* process of assigning *exposures* to grades or pools and the process used by the external data source; and
  - (2) the *firm's* internal risk profile and the composition of the external data.
- [Note: BCD Annex VII Part 4 point 69]
- 4.6.27** **R** If a *firm* derives long run average estimates of *PD* and *LGD* for *retail exposures* from an estimate of total *losses*, and an appropriate estimate of *PD* or *LGD*, the process for estimating total *losses* must meet the *minimum IRB standards* for estimation of *PD* and *LGD*, and the outcome must be consistent with the concept of *LGD* as set out in ■ BIPRU 4.3.99 R (Default weighted average).
- [Note: BCD Annex VII Part 4 point 70]
- 4.6.28** **R** Irrespective of whether a *firm* is using external, internal, pooled data sources or a combination of the three, for its estimation of *loss* characteristics, the length of the underlying historical observation period used must be at least five years for at least one source. If the available observation spans a longer period for any source, and these data are relevant, this longer period must be used. However:
- (1) a *firm* need not give equal importance to historic data if this is compatible with its *IRB permission*; and
  - (2) (in the case of a *firm* with an *IRB permission* that permits this treatment of historic data) the *firm* must be able to convince the *appropriate regulator* that more recent data is a better predictor of *loss* rates.
- [Note: BCD Annex VII Part 4 point 71 (part)]
- 4.6.29** **R** A *firm* may have, when implementing the *IRB approach*, relevant data covering a period of two years. The period to be covered must increase by one year each year until relevant data covers a period of five years.
- [Note: BCD Annex VII Part 4 point 71 (part)]
- 4.6.30** **R** A *firm* must identify and analyse expected changes of risk parameters over the life of credit *exposures* (seasoning effects).
- [Note: BCD Annex VII Part 4 point 72]

### Risk quantification: Requirements specific to own-LGD estimation

- 4.6.31 **R** Notwithstanding ■ BIPRU 4.3.99 R (Default weighted average), *LGD* estimates may be derived from realised *losses* and appropriate estimates of *PDs*.  
[Note: BCD Annex VII Part 4 point 83]
- 4.6.32 **R** Notwithstanding ■ BIPRU 4.3.128 R (Additional drawings), a *firm* may reflect future drawings either in its *conversion factor* or in its *LGD* estimates.  
[Note: BCD Annex VII Part 4 point 84]
- 4.6.33 **R** Estimates of *LGD* must be based on data over a minimum of five years. Notwithstanding ■ BIPRU 4.3.99 R (Default weighted average):
- (1) a *firm* need not give equal importance to historic data if this is permitted by its *IRB permission*; and
  - (2) (in the case of a *firm* with an *IRB permission* that permits this treatment of historic data) the *firm* must be able to convince the *appropriate regulator* that more recent data is a better predictor of loss rates.
- [Note: BCD Annex VII Part 4 point 86 (part)]
- 4.6.34 **R** A *firm* may have, when it implements the *IRB approach*, relevant data covering a period of two years. The period to be covered must increase by one year each year until relevant data covers a period of five years.  
[Note: BCD Annex VII Part 4 point 86 (part)]
- 4.6.35 **G** The *appropriate regulator* does not assume that all portfolios are sensitive to downturns. The *appropriate regulator* also accepts that for some portfolios, particularly in unsecured lending, the impact of the material drivers on *LGD* may be weak. However the burden is on the *firm* to demonstrate that its models are appropriate for the circumstances in which they are applied.
- 4.6.36 **G** Additional material on requirements specific to own-*LGD* estimation can be found in ■ BIPRU 4.3.98 R - ■ BIPRU 4.3.123 R.

### Risk quantification: Requirements specific to own-conversion factor estimates

- 4.6.37 **R** Notwithstanding ■ BIPRU 4.3.128 R (Additional drawings), a *firm* may reflect future drawings either in its *conversion factors* or in its *LGD* estimates.  
[Note: BCD Annex VII Part 4 point 94]
- 4.6.38 **R** Estimates of *conversion factors* must be based on data over a minimum of five years. Notwithstanding ■ BIPRU 4.3.125 R:
- (1) a *firm* need not give equal importance to historic data if this is permitted by its *IRB permission*; and

(2) (in the case of a *firm* with an *IRB permission* that permits this treatment of historic data) the *firm* must be able to convince the *appropriate regulator* if asked that more recent data is a better predictor of loss rates.

[Note: BCD Annex VII Part 4 point 95 (part)]

4.6.39 **R** A *firm* may have, when it implements the *IRB approach*, relevant data covering a period of two years. The period to be covered must increase by one year each year until relevant data cover a period of five years.

[Note: BCD Annex VII Part 4 point 95 (part)]

4.6.40 **G** Additional material on requirements specific to *own-conversion factor* estimation can be found in ■ BIPRU 4.3.124 R - ■ BIPRU 4.3.131 R.

### Calculation of risk weighted exposure amounts for retail exposures: General

4.6.41 **R** Subject to ■ BIPRU 4.6.43 R and ■ BIPRU 4.6.44 R, the *risk weighted exposure amounts* for *retail exposures* must be calculated according to the formulae in the table in ■ BIPRU 4.6.42 R.

[Note: BCD Annex VII Part 1 point 10 1<sup>st</sup> sentence]

4.6.42 **R** Table: Risk weighted exposure amounts for retail exposures

This table belongs to ■ BIPRU 4.6.41 R

Correlation (R)	$0.03 \times (1 - \text{EXP}(-35 \cdot PD)) / (1 - \text{EXP}(-35)) + 0.16 \cdot [1 - (1 - \text{EXP}(-35 \cdot PD)) / (1 - \text{EXP}(-35))]$
Risk weight (RW)	$(LGD \cdot N[(1-R)^{-0.5} \cdot G(PD) + (R/(1-R))^{0.5} \cdot G(0.999)] - PD \cdot LGD) \cdot 12.5 \cdot 1.06$
N(x)	denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x).
G(z)	denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value x such that N(x) = z).
PD = 1	For PD = 1 ( <i>defaulted exposure</i> ), RW must be: $\text{Max}\{0, 12.5 \cdot (LGD - EL_{BE})\}$ where $EL_{BE}$ must be the firm's best estimate of <i>expected loss</i> for the <i>defaulted exposure</i> according to BIPRU 4.3.122 R.
Risk weighted exposure amount	equals RW * exposure value

[Note: BCD Annex VII Part 1 point 10 (part)]

### Calculation of risk weighted exposure amounts for retail exposures: Retail mortgages

4.6.43 **R** For *retail exposures* secured by real estate collateral a correlation (R) of 0.15 must replace the correlation formula in the table in ■ BIPRU 4.6.42 R.

[Note: BCD Annex VII Part 1 point 12]

### Calculation of risk weighted exposure amounts for retail exposures: Qualifying revolving retail exposures

4.6.44 **R** (1) For *qualifying revolving retail exposures* a correlation (R) of 0.04 must replace the correlation formula in the table in ■ BIPRU 4.6.42 R.

(2) *Retail exposures* qualify as *qualifying revolving retail exposures* if they meet the following conditions:

- (a) the *IRB permission* of the *firm* in question does not disapply this paragraph;
- (b) the *exposures* are to individuals;
- (c) the *exposures* are revolving, unsecured, and, to the extent they are not drawn, immediately and unconditionally cancellable by the *firm*;
- (d) the maximum *exposure* to a single individual in the sub-portfolio is EUR 100,000 or less;
- (e) the *firm* is able to demonstrate to the *appropriate regulator* that the use of the correlation formula in this paragraph is limited to portfolios that have exhibited low volatility of *loss rates*, relative to their average level of *loss rates*, especially within the low *PD* bands; and
- (f) the *firm* is able to demonstrate to the *appropriate regulator* that treatment as a *qualifying revolving retail exposure* is consistent with the underlying risk characteristics of the sub-portfolio.

(3) In the context of this *rule* revolving *exposures* are defined as those where customers' outstanding balances are permitted to fluctuate based on their decisions to borrow and repay, up to a limit established by the *firm* in question. Undrawn commitments may be considered as unconditionally cancellable if the terms permit the *firm* to cancel them to the full extent allowable under consumer protection and related legislation.

[Note: BCD Annex VII Part 1 point 13 (part) and Part 3 point 9(a) (part)]

4.6.45 **G** A *firm* should be able to demonstrate the low volatility of *loss rates* mentioned in ■ BIPRU 4.6.44 R (2)(e) at the time of the initial application for an *IRB permission* and thereafter at any time on request. The benchmark level should be the volatility of *loss rates* for the *qualifying revolving retail exposure* portfolio relative to the volatilities of *loss rates* of other relevant types of *retail exposures*. A *firm* should demonstrate low volatility by reference to data on the mean and standard deviation of *loss rates* over a time period that can be regarded as representative of the long-run performance of the portfolios concerned.

- 4.6.46 **G** In the *appropriate regulator's* view a sub-portfolio consisting of credit card or overdraft obligations will usually meet the condition in **■ BIPRU 4.6.44 R (2)(f)**. In the *appropriate regulator's* view it is unlikely that any other type of *retail exposure* will do so. If a *firm* wishes to apply the treatment in **■ BIPRU 4.6.44 R (1)** to product types other than credit card or overdraft obligations it should first discuss this with the *appropriate regulator*.

### Calculation of expected loss amounts

- 4.6.47 **R** *Expected loss* amounts must be calculated according to the formulae in the table in **■ BIPRU 4.6.48 R**.

[Note: BCD Annex VII Part 1 point 30 (part)]

- 4.6.48 **R** Table: Formulae for the calculation of expected loss amounts

This table belongs to **■ BIPRU 4.6.47 R**

<i>Expected loss (EL)</i>	equals $PD \times LGD$
<i>Expected loss amount</i>	equals $EL \times \text{exposure value}$
For <i>defaulted exposures</i> ( $PD = 1$ ) where a <i>firm</i> uses its own estimates of <i>LGDs</i> , <i>EL</i> must be $EL_{BE}$ , the <i>firm's</i> best estimate of <i>expected loss</i> for the <i>defaulted exposure</i> according to BIPRU 4.3.122 R.	
For <i>exposures</i> subject to the treatment set out in BIPRU 4.4.79 R (Double default) <i>EL</i> must be 0.	

[Note: BCD Annex VII Part 1 point 30 (part)]

### Calculation of PDs

- 4.6.49 **R** A *firm* must provide its own estimates of *PDs* in accordance with its *IRB permission* and the *minimum IRB standards*.

[Note: BCD Article 87(6) (part)]

- 4.6.50 **R** The *PD* of an *exposure* must be at least 0.03%.

[Note: BCD Annex VII Part 2 point 17]

- 4.6.51 **R** The *PD* of obligors in *default* must be 100%. If a *firm* is using the facility level approach described in **■ BIPRU 4.6.21 R**, the *PD* of an *exposure* in *default* must be 100%.

[Note: BCD Annex VII Part 2 point 18]

- 4.6.52 **R** *Unfunded credit protection* may be recognised by adjusting *PDs* subject to **■ BIPRU 4.6.54 R**. For *dilution risk*, where a *firm* does not use its own estimates of *LGDs*, this must be subject to compliance with **■ BIPRU 5** (Credit risk mitigation) modified by **■ BIPRU 4.10** and, for this purpose, a *firm* may recognise *unfunded credit protection* providers other than those indicated in the *CRM eligibility conditions* provided the *firm* is able to demonstrate that the unfunded protection provider giving the undertaking is sufficiently

reliable and that the protection agreement is legally effective in accordance with ■ BIPRU 5.2.7 R (Unfunded credit protection).

[Note: BCD Annex VII Part 2 point 20]

### Calculation of LGDs

4.6.53 **R** A firm must provide its own estimates of *LGDs* in accordance with its *IRB permission* and the *minimum IRB standards*.

[Note: BCD Article 87(7) (part)]

4.6.54 **R** *Unfunded credit protection* may be recognised as eligible by adjusting *PD* or *LGD* estimates subject to the *minimum IRB standards* as specified in ■ BIPRU 4.10.43 R - ■ BIPRU 4.10.48 R and in accordance with the *IRB permission* either in support of an individual *exposure* or a pool of *exposures*. A firm must not assign guaranteed *exposures* an adjusted *PD* or *LGD* such that the adjusted *risk weight* would be lower than that of a comparable, direct *exposure* to the guarantor.

[Note: BCD Annex VII Part 2 point 22]

### Calculation of exposure values and own conversion factors

4.6.55 **R** Except where otherwise specified, ■ BIPRU 4.4.37 R - ■ BIPRU 4.4.39 R (Exposure value and conversion factors), ■ BIPRU 4.4.45 R (AIRB conversion factors) and ■ BIPRU 4.4.71 R - ■ BIPRU 4.4.78 R (Calculation of exposure values for sovereigns, institutions and corporates) also apply to *retail exposures*.

4.6.56 **R** A firm must provide its own estimates of *conversion factors* in accordance with its *IRB permission* and the *minimum IRB standards*.

[Note: BCD Article 87(7) (part)]

### Double default

4.6.57 **R** The *risk weighted exposure amount* for each *exposure* to *retail SME* as defined in ■ BIPRU 4.6.2 R which meets the requirements set out in ■ BIPRU 4.4.83 R and ■ BIPRU 4.4.85 R may be calculated according to ■ BIPRU 4.4.79 R (Double default).

[Note: BCD Annex VII Part 1 point 11]

4.6.58 **R** Notwithstanding ■ BIPRU 4.6.54 R for the purposes of ■ BIPRU 4.4.80 R the *LGD* of a comparable direct *exposure* to the protection provider must either be the *LGD* associated with an unhedged facility to the guarantor or the unhedged facility of the obligor, depending upon whether in the event both the guarantor and obligor *default* during the life of the hedged transaction available evidence and the structure of the guarantee indicate that the amount recovered would depend on the financial condition of the guarantor or obligor, respectively.

[Note: BCD Annex VII Part 2 point 23]



## 4.7 The IRB approach: Equity exposures

### Application

4.7.1 **R** ■ BIPRU 4.7 applies with respect to the *exposures* referred to in ■ BIPRU 4.7.2 R.

### Definition of equity exposures

4.7.2 **R** The following *exposures* must be classed as *equity exposures*:

- (1) non-debt *exposures* conveying a subordinated, residual claim on the assets or income of the issuer; and
- (2) debt *exposures* the economic substance of which is similar to the *exposures* specified in (1).

[Note: BCD Article 86(2)]

### Calculation of risk-weighted exposure amounts

4.7.3 **R** Notwithstanding ■ BIPRU 4.3.5 R (Relevant parameters), the calculation of *risk weighted exposure amounts* for credit risk for all *exposures* belonging to the *equity exposure IRB exposure class* must be calculated in accordance with one of the following ways:

- (1) the simple risk weight approach (see ■ BIPRU 4.7.8 R;
- (2) the *PD/LGD approach* (see ■ BIPRU 4.7.13 R); and
- (3) the internal models approach (see ■ BIPRU 4.7.23 R);

in accordance with ■ BIPRU 4.7 and subject to the *firm's IRB permission*.

[Note: BCD Article 87(4) (part)]

4.7.4 **R** Even if a *firm's IRB permission* would otherwise permit the use of the internal models approach as referred to in ■ BIPRU 4.7.3 R (3), it may only use that approach if it meets the minimum requirements in ■ BIPRU 4.7.27 R - ■ BIPRU 4.7.35 R.

[Note: BCD Article 87(4) (part)]

4.7.5 **R** A *firm* may employ different approaches to different portfolios where the *firm* itself uses different approaches internally. A *firm* must, if it uses different approaches in accordance with the previous sentence, be able to

demonstrate to the *appropriate regulator* that the choice is made consistently and is not determined by regulatory arbitrage considerations.

[Note: BCD Annex VII Part 1 point 17]

4.7.6

R

Notwithstanding ■ BIPRU 4.7.5 R a firm may, if its *IRB permission* permits it to do so, attribute the *risk weighted exposure amounts* for equity exposures to *ancillary services undertakings* according to the treatment of *non credit-obligation assets*.

[Note: BCD Annex VII Part 1 point 18]

### Exposure value

4.7.7

R

The *exposure value* must be the value presented in the financial statements. Admissible *equity exposure* measures are the following:

- (1) for investments held at fair value with changes in value flowing directly through income and into *capital resources*, the *exposure value* is the fair value presented in the balance sheet;
- (2) for investments held at fair value with changes in value not flowing through income but into a tax-adjusted separate component of equity, the *exposure value* is the fair value presented in the balance sheet; and
- (3) for investments held at cost or at the lower of cost or market value, the *exposure value* is the cost or market value presented in the balance sheet.

[Note: BCD Annex VII Part 3 point 12]

### The calculation of risk-weighted exposure amounts for equity exposures: The simple risk weight approach: Introduction

4.7.8

R

■ BIPRU 4.7.9 R to ■ BIPRU 4.7.12 R set out the simple risk weight approach for calculating the *risk weighted exposure amounts* for equity exposures as referred to in ■ BIPRU 4.7.3 R (1).

### The calculation of risk-weighted exposure amounts for equity exposures: The simple risk weight approach: Risk weighted exposure amounts

4.7.9

R

The *risk weighted exposure amounts* must be calculated according to the following formula:

*risk-weighted exposure amounts* = RW \* *exposure value*;

where:

- (1) *risk weight* (RW) = 190% for private equity exposures in sufficiently diversified portfolios;
- (2) *risk weight* (RW) = 290% for exchange traded equity exposures; and

(3) *risk weight (RW) = 370% for all other equity exposures.*

[Note: BCD Annex VII Part 1 point 19]

- 4.7.10 **R** Short cash positions and derivative instruments held in the *non-trading book* are permitted to offset long positions in the same individual stocks provided that these instruments have been explicitly designated as hedges of specific *equity exposures* and that they provide a hedge for at least another year. Other short positions must be treated as if they are long positions with the relevant *risk weight* assigned to the absolute value of each position. In the context of maturity mismatched positions, the method is that for *corporate exposures* as set out in ■ BIPRU 4.4.70 R.

[Note: BCD Annex VII Part 1 point 20]

- 4.7.11 **R** A firm may recognise *unfunded credit protection* obtained on an *equity exposure* in accordance with the methods set out in ■ BIPRU 5 (Credit risk mitigation), as modified by ■ BIPRU 4.10.

[Note: BCD Annex VII Part 1 point 21]

#### The calculation of risk-weighted exposure amounts for equity exposures: The simple risk weight approach: Expected loss

- 4.7.12 **R** The *expected loss* amounts for *equity exposures* must be calculated according to the following formula:

(1) *expected loss* amount =  $EL \times \text{exposure value}$ ; and

(2) the *EL* values must be the following:

(a) *expected loss (EL) = 0.8%* for private *equity exposures* in sufficiently diversified portfolios;

(b) *expected loss (EL) = 0.8%* for exchange traded *equity exposures*; and

(c) *expected loss (EL) = 2.4%* for all other *equity exposures*.

[Note: BCD Annex VII Part 1 point 32]

#### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: Introduction

- 4.7.13 **R** ■ BIPRU 4.7.14 R to ■ BIPRU 4.7.22 R set out the *PD/LGD approach* for calculating the *risk weighted exposure amounts* for *equity exposures*.

#### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: Risk weighted exposure amounts

- 4.7.14 **R** The *risk weighted exposure amounts* must be calculated according to the formulas in ■ BIPRU 4.4.58 R (Risk weighted exposure amounts for sovereigns, institutions and corporates). If a firm does not have sufficient information to use the definition of *default* a scaling factor of 1.5 must be assigned to the *risk weights*.

[Note: BCD Annex VII Part 1 point 22]

**4.7.15** **R** At the individual *exposure* level the sum of the *expected loss* amount multiplied by 12.5 and the *risk weighted exposure amount* must not exceed the *exposure* value multiplied by 12.5.

[Note: BCD Annex VII Part 1 point 23]

**4.7.16** **R** A firm may recognise *unfunded credit protection* obtained on an *equity exposure* in accordance with the methods set out in ■ BIPRU 5 (Credit risk mitigation) as modified by ■ BIPRU 4.10. This must be subject to an *LGD* of 90% on the *exposure* to the provider of the hedge. For private *equity exposures* in sufficiently diversified portfolios an *LGD* of 65% may be used.

[Note: BCD Annex VII Part 1 point 24]

#### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: Calculation of expected loss amounts

**4.7.17** **R** The *expected loss* amounts for *equity exposures* must be calculated according to the following formulae:

- (1) *expected loss* (EL) = PD × LGD; and
- (2) *expected loss* amount = EL × *exposure* value.

[Note: BCD Annex VII Part 1 point 33]

#### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: PDs

**4.7.18** **R** PDs must be determined according to the methods for *corporate exposures*. The following minimum PDs must be applied:

- (1) 0.09% for exchange traded *equity exposures* where the investment is part of a long-term customer relationship;
- (2) 0.09% for non-exchange traded *equity exposures* where the returns on the investment are based on regular and periodic cash flows not derived from capital gains;
- (3) 0.40% for exchange traded *equity exposures* including other short positions as set out in ■ BIPRU 4.7.10 R; and
- (4) 1.25% for all other *equity exposures* including other short positions as set out in ■ BIPRU 4.7.10 R.

[Note: BCD Annex VII Part 2 point 24]

**4.7.19** **R** ■ BIPRU 4.4.29 G (five year observation period) applies to the *PD/LGD* approach.

[Note: BCD Annex VII Part 4 point 66 (part)]

### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: LGDs

4.7.20 **R** Private *equity exposures* in sufficiently diversified portfolios may be assigned an *LGD* of 65%.

[Note: BCD Annex VII Part 2 point 25]

4.7.21 **R** All other *exposures* must be assigned an *LGD* of 90%.

[Note: BCD Annex VII Part 2 point 26]

### The calculation of risk-weighted exposure amounts for equity exposures: The PD/LGD approach: Maturity

4.7.22 **R** M (maturity) assigned to all *exposures* must be 5 years.

[Note: BCD Annex VII Part 2 point 27]

### The calculation of risk-weighted exposure amounts for equity exposures: The internal models approach: Introduction

4.7.23 **R** ■ BIPRU 4.7.24 R to ■ BIPRU 4.7.35 R set out the internal models approach for calculating the *risk weighted exposure amounts* for *equity exposures* as referred to in ■ BIPRU 4.7.3 R (3).

### The calculation of risk-weighted exposure amounts for equity exposures: The internal models approach: Risk weighted exposure amounts

4.7.24 **R** The *risk weighted exposure amount* is the potential *loss* on the *firm's equity exposures* as derived using internal value-at-risk models subject to the 99<sup>th</sup> percentile, one-tailed confidence interval of the difference between quarterly returns and an appropriate risk-free rate computed over a long-term sample period, multiplied by 12.5. The *risk weighted exposure amounts* at the *equity exposure portfolio level* must not be less than the total of the sums of the minimum *risk weighted exposure amounts* required under the *PD/LGD approach* and the corresponding *expected loss* amounts multiplied by 12.5 and calculated on the basis of the *PD* values set out in ■ BIPRU 4.7.18 R (1) and the corresponding *LGD* values set out in ■ BIPRU 4.7.20 R and ■ BIPRU 4.7.21 R.

[Note: BCD Annex VII Part 1 point 25]

4.7.25 **R** A *firm* may recognise *unfunded credit protection* obtained on an *equity position*.

[Note: BCD Annex VII Part 1 point 26]

### The calculation of risk weighted exposure amounts for equity exposures: The internal models approach: Expected loss amounts

4.7.26 **R** The *expected loss* amounts for *equity exposures* under the internal models approach must be 0%.

[Note: BCD Annex VII Part 1 point 34]

### The calculation of risk weighted exposure amounts for equity exposures: The internal models approach: Capital requirements and risk quantification

4.7.27

R

- (1) A firm must meet the standards set out in (2) to (9) for the purpose of calculating capital requirements.
- (2) The estimate of potential *loss* must be robust to adverse market movements relevant to the long-term risk profile of the *firm's* specific holdings. The data used to represent return distributions must reflect the longest sample period for which data is available and be meaningful in representing the risk profile of the *firm's* specific *equity exposures*. The data used must be sufficient to provide conservative, statistically reliable and robust loss estimates that are not based purely on subjective or judgmental considerations. A *firm* must be able to demonstrate to the *appropriate regulator* that the shock employed provides a conservative estimate of potential *losses* over a relevant long-term market or business cycle.
- (3) A *firm* must combine empirical analysis of available data with adjustments based on a variety of factors in order to attain model outputs that achieve appropriate realism and conservatism. In constructing Value at Risk (VaR) models estimating potential quarterly losses, a *firm* may use quarterly data or convert shorter horizon period data to a quarterly equivalent using an analytically appropriate method supported by empirical evidence and through a well-developed and documented thought process and analysis. Such an approach must be applied conservatively and consistently over time. Where only limited relevant data is available a *firm* must add appropriate margins of conservatism.
- (4) The models used must be able to capture adequately all of the material risks embodied in equity returns including both the *general market risk* and *specific risk* exposure of the *firm's equity exposure* portfolio. The internal models must adequately explain historical price variation, capture both the magnitude and changes in the composition of potential concentrations, and be robust to adverse market environments. The population of risk *exposures* represented in the data used for estimation must be closely matched to or at least comparable with those of the *firm's equity exposures*.
- (5) The internal model must be appropriate for the risk profile and complexity of a *firm's equity exposure* portfolio. Where a *firm* has material holdings with values that are highly non-linear in nature the internal models must be designed to capture appropriately the risks associated with such instruments.
- (6) Mapping of individual positions to proxies, market indices, and risk factors must be plausible, intuitive, and conceptually sound.
- (7) A *firm* must be able to demonstrate to the *appropriate regulator* through empirical analyses the appropriateness of risk factors, including their ability to cover both *general market risk* and *specific risk*.
- (8) The estimates of the return volatility of *equity exposures* must incorporate relevant and available data, information, and methods.

Independently reviewed internal data or data from external sources (including pooled data) must be used.

- (9) A rigorous and comprehensive stress-testing programme must be in place.

[Note: BCD Annex VII Part 4 point 115]

### The calculation of risk-weighted exposure amounts for equity exposures: The internal models approach: Risk management and controls

4.7.28

**R**

- (1) With regard to the development and use of internal models for capital requirement purposes, a *firm* must establish policies, procedures, and controls to ensure the integrity of the model and modelling process. These policies, procedures, and controls must include the ones set out in the rest of this paragraph.
- (2) There must be full integration of the internal model into the overall management information systems of the *firm* and in the management of the *non-trading book equity exposure* portfolio. In particular they must be used in:
  - (a) measuring and assessing *equity exposure* portfolio performance (including the risk adjusted performance);
  - (b) allocating economic capital to *equity exposures*; and
  - (c) evaluating overall capital adequacy and the investment management process.
- (3) A *firm* must have established management systems, procedures, and control functions for ensuring the periodic and independent review of all elements of the internal modelling process, including approval of model revisions, vetting of model inputs, and review of model results, such as direct verification of risk computations. These reviews must assess the accuracy, completeness, and appropriateness of model inputs and results and focus on both finding and limiting potential errors associated with known weaknesses and identifying unknown model weaknesses. Such reviews may be conducted by an internal independent unit, or by an independent external third party.
- (4) There must be adequate systems and procedures for monitoring investment limits and the risk exposures of *equity exposures*.
- (5) The units responsible for the design and application of the model must be functionally independent from the units responsible for managing individual investments.
- (6) Parties responsible for any aspect of the modelling process must be adequately qualified. Management must allocate sufficient skilled and competent resources to the modelling function.

[Note: BCD Annex VII Part 4 point 116]



### The calculation of risk-weighted exposure amounts for equity exposures: The internal models approach: Validation and documentation

- 4.7.29 **R** A *firm* must have a robust system in place to validate the accuracy and consistency of its internal models and modelling processes. All material elements of the internal models and the modelling process and validation must be documented.  
[Note: BCD Annex VII Part 4 point 117]
- 4.7.30 **R** A *firm* must use the internal validation process to assess the performance of its internal models and processes in a consistent and meaningful way.  
[Note: BCD Annex VII Part 4 point 118]
- 4.7.31 **R** The methods and data used for quantitative validation must be consistent through time. Changes in estimation and validation methods and data (both data sources and periods covered) must be documented.  
[Note: BCD Annex VII Part 4 point 119]
- 4.7.32 **R** A *firm* must regularly compare actual *equity exposure* returns (computed using realised and unrealised gains and losses) with modelled estimates. Such comparisons must make use of historical data that cover as long a period as possible. A *firm* must document the methods and data used in such comparisons. This analysis and documentation must be updated at least annually.  
[Note: BCD Annex VII Part 4 point 120]
- 4.7.33 **R** A *firm* must make use of other quantitative validation tools and comparisons with external data sources. The analysis must be based on data that are appropriate to the portfolio, are updated regularly, and cover a relevant observation period. A *firm's* internal assessments of the performance of its models must be based on as long a period as possible.  
[Note: BCD Annex VII Part 4 point 121]
- 4.7.34 **R** A *firm* must have sound internal standards for situations where comparison of actual *equity exposure* returns with the models' estimates calls the validity of the estimates or of the models as such into question. These standards must take account of business cycles and similar systematic variability in *equity exposure* returns. All adjustments made to internal models in response to model reviews must be documented and consistent with the *firm's* model review standards.  
[Note: BCD Annex VII Part 4 point 122]
- 4.7.35 **R** The internal model and the modelling process must be documented, including the responsibilities of parties involved in the modelling, and the model approval and model review processes.  
[Note: BCD Annex VII Part 4 point 123]

## 4.8 The IRB approach: Purchased receivables

### Application

- 4.8.1 **R** ■ BIPRU 4.8 applies with respect to purchased receivables.
- 4.8.2 **G** Purchased receivables do not form an *IRB exposure class* on their own. For any purchased receivable, the provisions of the sections of ■ BIPRU 4 that deal with the *IRB exposure class* to which it belongs also apply, as modified by this section.

[Note: BCD Annex VII Part 4 point 15 (part)]

### Structure of rating systems

- 4.8.3 **R** For *retail exposure* that are purchased receivables, the grouping referred to in ■ BIPRU 4.6.9 R must reflect the seller's underwriting practices and the heterogeneity of its customers.

### Risk quantification: Overall requirements for estimation: General

- 4.8.4 **G** Further general material about the requirements for estimation can be found in ■ BIPRU 4.3.73 R - ■ BIPRU 4.3.94 R.
- 4.8.5 **R** The estimates for determining the risk parameters *PD*, *LGD*, *conversion factor* and *EL* must reflect all relevant information available to the purchasing *firm* regarding the quality of the underlying receivables, including data for similar pools provided by the seller, by the purchasing *firm*, or by external sources. The purchasing *firm* must evaluate any data relied upon which is provided by the seller.

[Note: BCD Annex VII Part 4 point 53]

### Risk quantification: Overall requirements for estimation: Requirements specific to PD estimation

- 4.8.6 **R** With respect to ■ BIPRU 4.6.26 R (Internal and external data for PD estimation: retail exposures) a *firm* may use external and internal reference data for *PD* estimation. A *firm* must use all relevant data sources as points of comparison.

[Note: BCD Annex VII Part 4 point 69 (part)]

**4.8.7** **R** For *corporate exposure* purchased receivables a *firm* may estimate *ELs* by obligor grade from long run averages of one-year realised *default* rates.  
[Note: BCD Annex VII Part 4 point 60]

**4.8.8** **R** If a *firm* derives long run average estimates of *PDs* and *LGDs* for *corporate exposure* purchased receivables from an estimate of *EL*, and an appropriate estimate of *PD* or *LGD*, the process for estimating total *losses* must meet the overall standards for estimation of *PD* and *LGD* set out in the *minimum IRB standards*, and the outcome must be consistent with the concept of *LGD* as set out in ■ BIPRU 4.3.99 R.  
[Note: BCD Annex VII Part 4 point 61]

**Risk quantification: Overall requirements for estimation:  
Requirements specific to own-LGD estimates**

**4.8.9** **R** A *firm* may use external and internal reference data for its *LGD* estimates in the case of *retail exposures* that are purchased receivables.  
[Note: BCD Annex VII Part 4 point 85]

**Risk quantification: Overall requirements for estimation:  
Minimum requirements for purchased receivables: General**

**4.8.10** **R** ■ BIPRU 4.8.11 R - ■ BIPRU 4.8.15 R set out minimum requirements specific to the treatment of purchased receivables under the *IRB approach*.

**Risk quantification: Overall requirements for estimation:  
Minimum requirements for purchased receivables: Legal  
certainty**

**4.8.11** **R** The structure of the facility must ensure that under all foreseeable circumstances a *firm* has effective ownership and control of all cash remittances from the receivables. When the obligor makes payments directly to a seller or servicer a *firm* must verify regularly that payments are forwarded completely and within the contractually agreed terms. Servicer means an entity that manages a pool of purchased receivables or the underlying credit *exposures* on a day-to-day basis. A *firm* must have procedures to ensure that ownership over the receivables and cash receipts is protected against bankruptcy stays or legal challenges that could materially delay the lender's ability to liquidate or assign the receivables or retain control over cash receipts.  
[Note: BCD Annex VII Part 4 point 105]

**Risk quantification: Overall requirements for estimation:  
Minimum requirements for purchased receivables:  
Effectiveness of monitoring systems**

**4.8.12** **R**

- (1) A *firm* must monitor both the quality of the purchased receivables and the financial condition of the seller and servicer. In particular a *firm* must comply with the remaining provisions of this *rule*.
- (2) A *firm* must assess the correlation among the quality of the purchased receivables and the financial condition of both the seller and servicer, and have in place internal policies and procedures that

provide adequate safeguards to protect against such contingencies, including the assignment of an internal risk rating for each seller and servicer.

- (3) A *firm* must have clear and effective policies and procedures for determining seller and servicer eligibility. A *firm* or its agent must conduct periodic reviews of sellers and servicers in order to verify the accuracy of reports from the seller or servicer, detect fraud or operational weaknesses, and verify the quality of the seller's credit policies and servicer's collection policies and procedures. The findings of these reviews must be documented.
- (4) A *firm* must assess the characteristics of the purchased receivables pools including:
  - (a) over-advances;
  - (b) history of the seller's arrears, bad debts, and bad debt allowances;
  - (c) payment terms; and
  - (d) potential contra accounts.
- (4) A *firm* must have effective policies and procedures for monitoring on an aggregate basis single-obligor concentrations both within and across purchased receivables pools.
- (5) A *firm* must ensure that it receives from the servicer timely and sufficiently detailed reports of receivables ageings and dilutions to ensure compliance with the *firm's* eligibility criteria and advancing policies governing purchased receivables, and provide an effective means with which to monitor and confirm the seller's terms of sale and dilution.

[Note: BCD Annex VII Part 4 point 106]

**Risk quantification: Overall requirements for estimation:  
Minimum requirements for purchased receivables:  
Effectiveness of work-out systems**

4.8.13

**R**

A *firm* must have systems and procedures for detecting deteriorations in the seller's financial condition and purchased receivables quality at an early stage, and for addressing emerging problems proactively. In particular a *firm* must have clear and effective policies, procedures, and information systems to monitor covenant violations, and clear and effective policies and procedures for initiating legal actions and dealing with problem purchased receivables.

[Note: BCD Annex VII Part 4 point 107]

**Risk quantification: Overall requirements for estimation:  
Minimum requirements for purchased receivables:  
Effectiveness of systems for controlling collateral, credit  
availability and cash**

4.8.14

**R**

A *firm* must have clear and effective policies and procedures governing the control of purchased receivables, credit, and cash. In particular, written internal policies must specify all material elements of the receivables

purchase programme, including the advancing rates, eligible collateral, necessary documentation, concentration limits, and the way cash receipts are to be handled. These elements must take appropriate account of all relevant and material factors, including the seller's and servicer's financial condition, risk concentrations, and trends in the quality of the purchased receivables and the seller's customer base, and internal systems must ensure that funds are advanced only against specified supporting collateral and documentation.

[Note: BCD Annex VII Part 4 point 108]

#### **Risk quantification: Overall requirements for estimation: Minimum requirements for purchased receivables: Compliance with the firm's internal policies and procedures**

- 4.8.15** **R** A *firm* must have an effective internal process for assessing compliance with all internal policies and procedures. The process must include regular audits of all critical phases of the *firm's* receivables purchase programme, verification of the separation of duties between, firstly, the assessment of the seller and servicer and the assessment of the obligor and, secondly, between the assessment of the seller and servicer and the field audit of the seller and servicer and evaluations of back office operations, with particular focus on qualifications, experience, staffing levels, and supporting automation systems.

[Note: BCD Annex VII Part 4 point 109]

#### **Calculation of risk-weighted asset amounts: Eligibility for different treatments: Corporate exposures**

- 4.8.16** **R** For its *corporate exposure* purchased receivables a *firm* must comply with the minimum requirements set out in ■ BIPRU 4.8.11 R - ■ BIPRU 4.8.15 R. For *corporate exposure* purchased receivables that comply in addition with the conditions set out in ■ BIPRU 4.8.18 R, and where it would be unduly burdensome for a *firm* to use the risk quantification standards for *corporate exposures* as set out in the *minimum IRB standards* for these receivables, the risk quantification standards for *retail exposures* as set out in the *minimum IRB standards* may be used.

[Note: BCD Annex VII Part 1 point 7]

- 4.8.17** **R** For *corporate exposure* purchased receivables, refundable purchase discounts, collateral or partial guarantees that provide first-loss protection for *default losses*, *dilution losses*, or both, may be treated as first-loss positions under the provisions in ■ BIPRU 9 (Securitisation) about the *IRB approach*.

[Note: BCD Annex VII Part 1 point 8]

#### **Calculation of risk weighted asset amounts: Eligibility for different treatments: Retail exposures**

- 4.8.18** **R** To be eligible for the *retail exposure* treatment purchased receivables must comply with the minimum requirements set out in ■ BIPRU 4.8.11 R - ■ BIPRU 4.8.15 R and the following conditions:

- (1) the *firm* has purchased the receivables from unrelated, third party sellers, and its *exposure* to the obligor of the receivable does not include any *exposures* that are directly or indirectly originated by the *firm* itself;
- (2) the purchased receivables must be generated on an arm's-length basis between the seller and the obligor (and as such, intercompany accounts receivables and receivables subject to contra-accounts between firms that buy and sell to each other are ineligible);
- (3) the purchasing *firm* has a claim on all proceeds from the purchased receivables or a pro-rata interest in the proceeds; and
- (4) the portfolio of purchased receivables is sufficiently diversified.

[Note: BCD Annex VII Part 1 point 14]

**4.8.19** **R** With respect to *retail exposures*, for purchased receivables, refundable purchase discounts, collateral or partial guarantees that provide first-loss protection for *default losses*, *dilution losses*, or both, may be treated as first-loss positions under the provisions in ■ BIPRU 9 (Securitisation) about the *IRB approach*.

[Note: BCD Annex VII Part 1 point 15]

**4.8.20** **R** For hybrid pools of purchased *retail exposure* receivables where the purchasing *firm* cannot separate *exposures* secured by real estate collateral and *qualifying revolving retail exposures* from other *retail exposures*, the retail *risk weight* function producing the highest capital requirements for those *exposures* must apply.

[Note: BCD Annex VII Part 1 point 16]

#### Calculation of risk weighted asset amounts for dilution risk .....

**4.8.21** **R** The *risk weights* for *dilution risk* for purchased receivables (both *corporate exposures* and *retail exposures*) must be calculated according to this *rule*. The *risk weights* must be calculated according to the formula in ■ BIPRU 4.4.58 R. However, for the purposes of that formula, the total annual sales referred to in ■ BIPRU 4.4.59 R are the weighted average by individual *exposures* of the pool. The input parameters *PD* and *LGD* and the *exposure* value must be determined under the applicable provisions of ■ BIPRU 4 as modified by this section. *M* (maturity) must be 1 year. However:

- (1) a *firm* need not recognise *dilution risk* if its *IRB permission* permits this; and
- (2) (in the case of a *firm* with an *IRB permission* that permits the treatment of *dilution risk* in (1)) the *firm* must be able to convince the *appropriate regulator* that *dilution risk* is immaterial.

[Note: BCD Article 87(2) (part) and Annex VII Part 1 point 28]



**Calculation of risk weighted exposure amounts: PDs**

**4.8.22** **R** For purchased *corporate exposure* receivables in respect of which a *firm* cannot demonstrate that its *PD* estimates meet the *minimum IRB standards*, the *PDs* for these *exposures* must be determined according to the following methods:

- (1) for senior claims on purchased *corporate exposure* receivables *PD* must be the *firm's* estimate of *EL* divided by *LGD* for these receivables;
- (2) for subordinated claims on purchased *corporate exposure* receivables *PD* must be the *firm's* estimate of *EL*; and
- (3) if a *firm* is under its *IRB permission* using the *advanced IRB approach* for *LGD* estimates for *corporate exposures* and it can decompose its *EL* estimates for purchased *corporate exposure* receivables into *PDs* and *LGDs* in a reliable manner, the *LGD* estimate may be used.

[Note: BCD Annex VII Part 2 point 3]

**4.8.23** **R** In the case of *corporate exposures*, for *dilution risk* of purchased receivables *PD* must be set equal to *EL* estimate for *dilution risk*. If a *firm* is under its *IRB permission* using the *advanced IRB approach* for *LGD* estimates for *corporate exposures* and it can decompose its *EL* estimates for *dilution risk* of purchased *corporate exposure* receivables into *PDs* and *LGDs* in a reliable manner, the *PD* estimate may be used. A *firm* may recognise *unfunded credit protection* in the *PD* in accordance with the provisions of **■ BIPRU 9** and **■ BIPRU 5** as modified by **■ BIPRU 4.10**. A *firm* may recognise those *unfunded credit protection* providers set out in its *IRB permission* in addition to those indicated in the *CRM eligibility conditions*. Where a *firm's IRB permission* allows it to use its own *LGD* estimates for *dilution risk* of purchased corporate receivables, the *firm* may recognise *unfunded credit protection* by adjusting *PDs* subject to the provisions of **■ BIPRU 4.4.43 R**.

[Note: BCD Annex VII Part 2 point 7]

**4.8.24** **R** In the case of *retail exposures*, for *dilution risk* of purchased receivables *PD* must be set equal to *EL* estimates for *dilution risk*. If a *firm* can decompose its *EL* estimates for *dilution risk* of purchased receivables into *PDs* and *LGDs* in a reliable manner, the *PD* estimate may be used.

[Note: BCD Annex VII Part 2 point 19]

**Calculation of risk weighted asset amounts: LGDs: Corporate exposures**

**4.8.25** **R** The following *LGD* values apply for purchased *corporate exposure* receivables:

- (1) for senior purchased *corporate exposure* receivables exposures where a *firm* cannot demonstrate that its *PD* estimates meet the *minimum IRB standards*, the value is 45%;
- (2) for subordinated purchased *corporate exposure* receivables exposures where a *firm* cannot demonstrate that its *PD* estimates meet the *minimum IRB standards*, the value is 100%; and



(3) for *dilution risk* of purchased *corporate exposure* receivables, the value is 75%.

[Note: BCD Annex VII Part 2 point 8(e) to (g)]

**4.8.26** **R** Notwithstanding ■ BIPRU 4.4.34 R and ■ BIPRU 4.8.25 R, for *dilution risk* and *default risk* if a *firm* is under its *IRB permission* using the *advanced IRB approach* for *LGD* estimates for *corporate exposures* and it can decompose its *EL* estimates for purchased *corporate exposure* receivables into *PDs* and *LGDs* in a reliable manner, the *LGD* estimate for purchased *corporate exposure* receivables may be used.

[Note: BCD Annex VII Part 2 point 9]

#### Calculation of risk weighted asset amounts: LGDs: Retail exposures

**4.8.27** **R** For *dilution risk* of purchased *retail exposure* receivables an *LGD* value of 75% must be used. If a *firm* can decompose its *EL* estimates for *dilution risk* of purchased receivables into *PDs* and *LGDs* in a reliable manner, the *LGD* estimate may be used.

[Note: BCD Annex VII Part 2 point 21]

#### Calculation of risk weighted asset amounts: Exposure value

**4.8.28** **R** The *exposure* value for the calculation of *risk weighted exposure amounts* of purchased receivables must be the outstanding amount minus the capital requirements for *dilution risk* prior to *credit risk mitigation*.

[Note: BCD Annex VII Part 3 point 6]

**4.8.29** **R**

- (1) The *exposure* value for the items in (2) must be calculated as the committed but undrawn amount multiplied by a *conversion factor*.
- (2) For undrawn purchase commitments for revolving purchased receivables that are unconditionally cancellable or that effectively provide for automatic cancellation at any time by the *firm* without prior notice, a *conversion factor* of 0% applies. To apply a *conversion factor* of 0%, a *firm* must actively monitor the financial condition of the obligor, and its internal control systems must enable it immediately to detect a deterioration in the credit quality of the obligor.

[Note: BCD Annex VII Part 3 point 9 (c)]

#### Calculation of expected loss amounts

**4.8.30** **R** The *expected loss* amounts for *dilution risk* of purchased receivables must be calculated according to the following formula:

*expected loss (EL)* = *PD* × *LGD*; and  
*expected loss amount* = *EL* × *exposure value*.

[Note: BCD Article 88(5) and Annex VII Part 1 point 35]

## 4.9 The IRB approach: Securitisation, non-credit obligations assets and CIUs

### Application

- 4.9.1 **R** BIPRU 4.9 applies with respect to *securitisation exposures, non credit-obligation assets and exposures to CIUs*.

### Securitisation exposures

- 4.9.2 **R** The following must be calculated in accordance with **■ BIPRU 9** (Securitisation):
- (1) *risk-weighted exposure amounts for securitised exposures and for exposures belonging to the IRB exposure class referred to in **■ BIPRU 4.3.2 R** (6) (securitisation positions); and*
  - (2) *the expected loss amounts for securitised exposures.*

[Note: BCD Article 87(10) and Article 88(3)]

### Provision of credit protection

- 4.9.3 **R** Where a *firm* provides credit protection for a number of *exposures* under terms that the *n*th default among the *exposures* shall trigger payment and that this credit event shall terminate the contract, if the product has an external credit assessment from an *eligible ECAI* the *risk weights* set out in **■ BIPRU 9** must be applied. If the product is not rated by an *eligible ECAI*, the *risk weights* of the *exposures* included in the basket must be aggregated, excluding *n-1 exposures* where the sum of the *expected loss* amount multiplied by 12.5 and the *risk weighted exposure amount* must not exceed the nominal amount of the protection provided by the credit derivative multiplied by 12.5. The *n-1 exposures* to be excluded from the aggregation must be determined on the basis that they must include those *exposures* each of which produces a lower *risk weighted exposure amount* than the *risk weighted exposure amount* of any of the *exposures* included in the aggregation.

[Note: BCD Annex VII Part 1 point 9]

### Non credit obligation assets: Introduction

- 4.9.4 **R** **■ BIPRU 4.9.5 R-■ BIPRU 4.9.10 R** apply to *non credit-obligation assets*.

**Non credit obligation assets: Inclusion of residual value of leases**

- 4.9.5 **R** The *non credit obligation asset IRB exposure class* includes the residual value of leased properties, if not included in the *lease exposure* as defined in ■ BIPRU 4.4.75 R.

[Note: BCD Article 86(8)]

**Non credit obligation assets: Risk weighted exposure amount**

- 4.9.6 **R** The *risk weighted exposure amounts* must be calculated according to the formula:

*Risk-weighted exposure amount* = 100% \* *exposure* value except for when the *exposure* is a residual value of leased properties in which case it must be calculated as follows:

$1/t * 100\% * \textit{exposure}$  value; where *t* is the greater of 1 and the nearest number of whole years of the lease remaining.

[Note: BCD Annex VII Part 1 point 27]

- 4.9.7 **G** *t* should be an integer number reflecting the nearest number of whole years of the lease remaining and should decrease as the lease matures so that the discounted value steps up gradually from a small value to 100% as the end of the lease approaches.

- 4.9.8 **R** Where a *firm* has full recourse in respect of purchased receivables for *default* risk and for *dilution* risk, to the seller of the purchased receivables, ■ BIPRU 4.8.21 R and ■ BIPRU 4.8.30 R need not be applied. The *exposure* may instead be treated as a collateralised *exposure*.

[Note: BCD Article 87(2) (part)]

**Non credit obligation assets: Exposure value**

- 4.9.9 **R** The *exposure* value of *non credit-obligation assets* must be the value presented in the financial statements.

[Note: BCD Annex VII Part 3 point 13]

**Non credit obligation assets: Expected loss amounts**

- 4.9.10 **R** For *non credit-obligation assets* the *expected loss* amount must be zero.

[Note: BCD Article 88(4)]

**Collective investment undertakings**

- 4.9.11 **R** (1) Where *exposures* in the form of a *CIU* meet the criteria set out in ■ BIPRU 3.4.121 R to ■ BIPRU 3.4.122 R (Conditions for look through treatment under the standardised approach) and the *firm* is aware of all of the underlying *exposures* of the *CIU*, the *firm* must look through to those underlying *exposures* in order to calculate *risk weighted exposure amounts* and *expected loss* amounts in accordance with the methods set out in ■ BIPRU 4. ■ BIPRU 4.9.12 R applies to the part of the underlying *exposures* of the *CIU* of which the *firm* is not

aware or could not reasonably be aware. In particular, ■ BIPRU 4.9.12 R must apply where it would be unduly burdensome for the *firm* to look through the underlying *exposures* in order to calculate *risk weighted exposure amounts* and *expected loss* amounts in accordance with methods set out in this *rule*.

- (2) Where (1) applies but a *firm* does not meet the conditions for using the methods set out in ■ BIPRU 4 for all or part of the underlying *exposures* of the *CIU*, *risk weighted exposure amounts* and *expected loss* amounts must be calculated in accordance with the following approaches.
- (3) For *equity exposures* the approach set out in ■ BIPRU 4.7.9 R - ■ BIPRU 4.7.12 R (Simple risk weights) must be used. If, for those purposes, the *firm* is unable to differentiate between private equity, exchange-traded and other *equity exposures*, it must treat the *exposures* concerned as other *equity exposures*.
- (4) For all other underlying *exposures*, the *standardised approach* must be used, subject to the following modifications:
  - (a) [deleted]
  - (b) [deleted]
  - (c) for *exposures* subject to a specific *risk weight* for unrated *exposures* or subject to the *credit quality step* yielding the highest *risk weight* for a given exposure class, the *risk weight* must be multiplied by a factor of two, but cannot be higher than 1250%; and
  - (d) for all other *exposures*, the *risk weight* must be multiplied by a factor of 1.1 and subject to a minimum of 5%.

[Note: BCD Article 87(11)]

#### 4.9.12

**R**

- (1) Where *exposures* in the form of a *CIU* do not meet the criteria set out in ■ BIPRU 3.4.121 R to ■ BIPRU 3.4.122 R (Conditions for look through treatment under the standardised approach) or the *firm* is not aware of all of the underlying *exposures* of the *CIU*, a *firm* must look through to the underlying *exposures* and calculate *risk weighted exposure amounts* and *expected loss* amounts in accordance with the approach set out in ■ BIPRU 4.7.9 R - ■ BIPRU 4.7.12 R (Simple risk weights). If, for those purposes, the *firm* is unable to differentiate between private equity, exchange-traded and other *equity exposures*, it must treat the *exposures* concerned as other *equity exposures*. For these purposes, non-equity *exposures* must be assigned to one of the classes (private equity, exchange traded equity or other equity) set out in ■ BIPRU 4.7.9 R (Simple risk weight approach) and unknown *exposures* must be assigned to the other equity class.
- (2) Alternatively to the method described in (1), a *firm* may calculate itself or rely on a third party to calculate and report the average *risk weighted exposure amounts* based on the *CIU's* underlying *exposures* and calculated in accordance with the approaches in ■ BIPRU 4.9.11R (3) to ■ BIPRU 4.9.11R (4), provided that the correctness of the calculation and the report is adequately ensured.
- (3) [deleted]

(4) [deleted]

(a) [deleted]

(b) [deleted]

[Note: BCD Article 87(12)]

- 4.9.13** **G** For the purposes of ■ BIPRU 4.9.12 R (1), in the case of non-equity *exposures* a *firm* should look at the risk profile of the underlying *exposures* and map these to an equivalent equity *risk weight*. For example, if the underlying *exposures* are exchange-traded, the *risk weight* of exchange-traded equity *exposures* will apply. If the underlying *exposures* are unknown, the *risk weight* of the other equity class will apply. Only under exceptional circumstances would supervisors expect to see non-equity *exposures* mapped to the diversified private equity *risk weight*.
- 4.9.14** **G** For the purposes of ■ BIPRU 4.9.12 R (2), a *firm* should ensure that any third party relied on for the calculations and report possesses the necessary competence and experience to ensure that the calculations and report are correct.
- 4.9.15** **R** The *expected loss* amounts for *exposures* referred to in ■ BIPRU 4.9.11 R - ■ BIPRU 4.9.12 R must be calculated in accordance with the methods set out in ■ BIPRU 4.4.61 R (Calculation of expected loss for sovereigns, institutions and corporates), ■ BIPRU 4.5.12 R - ■ BIPRU 4.5.14 R (Calculation of expected loss for specialised lending), ■ BIPRU 4.6.47 R - ■ BIPRU 4.6.48 R (Calculation of expected loss for retail exposures), ■ BIPRU 4.7.12 R, ■ BIPRU 4.7.17 R and ■ BIPRU 4.7.26 R (Calculation of expected loss for equity exposures) and ■ BIPRU 4.8.30 R (Dilution risk of purchased receivables).
- [Note: BCD Article 88(6)]

## 4.10 The IRB approach: Credit risk mitigation

### Application

- 4.10.1 **G** ■ BIPRU 4.10 applies to all *exposures* treated under the *IRB approach*.

### Purpose

- 4.10.2 **G** ■ BIPRU 4.10 sets out modifications to ■ BIPRU 5 (Credit risk mitigation) for those *exposures* for which the *IRB approach* is being used.

### General

- 4.10.3 **R** A firm using the *IRB approach*, but not using its own estimates of *LGD* and *conversion factors*, may recognise *credit risk mitigation* in accordance with ■ BIPRU 5 as modified by ■ BIPRU 4.10 in the calculation of *risk weighted exposure amounts* for the purposes of the calculation of the *credit risk capital component* or as relevant *expected loss* amounts for the purposes of the calculation in ■ GENPRU 2.2.191 R to ■ GENPRU 2.2.193 R or ■ GENPRU 2.2.236 R.

[Note: BCD Article 91 (as it applies to the *IRB approach*)]

- 4.10.4 **R**
- (1) Where the requirements of ■ BIPRU 5.2.2 R - ■ BIPRU 5.2.8 R are met the calculation of *risk weighted exposure amounts*, and, as relevant, *expected loss* amounts, may be modified in accordance with ■ BIPRU 5 as modified by ■ BIPRU 4.10.
  - (2) No *exposure* in respect of which *credit risk mitigation* is obtained must produce a higher *risk weighted exposure amount* or *expected loss* amount than an otherwise identical *exposure* in respect of which there is no *credit risk mitigation*.
  - (3) Where the *risk weighted exposure amount* already takes account of credit protection under the *IRB approach* the calculation of the credit protection must not be further recognised under ■ BIPRU 5 or ■ BIPRU 4.10.
  - (4) Subject to ■ BIPRU 5.2.8 R (Maturity mismatches), ■ BIPRU 5.2.9 R (Combinations of credit risk mitigation in the standardised approach) and ■ BIPRU 5.7.27 R to ■ BIPRU 5.7.28 R (Basket credit risk mitigation techniques), where the *CRM eligibility conditions* and the *CRM minimum requirements* are satisfied, the calculation of *risk weighted exposure amounts* and *expected loss* amounts under the *IRB approach* may be modified in accordance with the provisions of ■ BIPRU 5 and

■ BIPRU 4.10 that deal with calculating the effects of credit risk mitigation.

[Note: BCD Article 93 and Annex VIII Part 3 point 1(as they apply to the *IRB approach*)]

#### Eligibility of funded credit protection: General

- 4.10.5 **R** In addition to the collateral set out in ■ BIPRU 5.3.1 R to ■ BIPRU 5.3.2 R, ■ BIPRU 5.4.1 R to ■ BIPRU 5.4.8 R and ■ BIPRU 5.6.1 R (Eligibility of funded credit protection) the provisions of ■ BIPRU 4.10.6 R - ■ BIPRU 4.10.12 R (Eligibility of real estate collateral), ■ BIPRU 4.10.14 R (Eligibility: receivables), ■ BIPRU 4.10.16 R (Eligibility: other physical collateral), and ■ BIPRU 4.10.19 R (Eligibility: leasing), apply where a *firm* calculates *risk weighted exposure amounts* and *expected loss* amounts under the *IRB approach*.

[Note: BCD Annex VIII Part 1 point 12]

#### Real estate collateral: Types of eligible collateral: General

- 4.10.6 **R**
- (1) Residential real estate property which is or will be occupied or let by the owner or the beneficial owner in the case of personal investment companies and commercial real estate property, that is offices and other commercial premises, may be recognised as eligible collateral where the conditions set out in the remaining provisions of this paragraph are met.
  - (2) The value of the property must not materially depend upon the credit quality of the obligor. This requirement does not preclude situations where purely macro-economic factors affect both the value of the property and the performance of the borrower.
  - (3) The risk of the borrower must not materially depend upon the performance of the underlying property or project, but rather on the underlying capacity of the borrower to repay the debt from other sources. As such, repayment of the facility must not materially depend on any cash flow generated by the underlying property serving as collateral.

[Note: BCD Annex VIII Part 1 point 13]

- 4.10.7 **R** The condition in ■ BIPRU 4.10.6 R (3) does not apply to *exposures* secured by residential real estate property situated within the *United Kingdom*.

[Note: BCD Annex VIII Part 1 point 16 (part)]

- 4.10.8 **G**
- (1) Under paragraph 16 of Part 1 of Annex VIII of the *Banking Consolidation Directive*, a *competent authority* may only disapply the condition in ■ BIPRU 4.10.6 R (3) if the *competent authority* has evidence that the relevant market is well-developed and long-established with loss-rates which are sufficiently low to justify such action.
  - (2) If the evidence were to change so that the action was no longer justified the *appropriate regulator* would expect to revoke ■ BIPRU 4.10.7 R.



- 4.10.9** **R** (1) The condition in **■ BIPRU 4.10.6 R (3)** does not apply for *exposures* secured by residential real estate property situated within the territory of another *EEA State*.
- (2) However (1) only applies if and to the extent that the *CRD implementation measures* for that *EEA State* in relation to the *IRB approach* implement the option set out in paragraph 16 of Part 1 of Annex VIII of the *Banking Consolidation Directive* (waiver for residential real estate property) with respect to residential real estate property situated within that *EEA State*. Therefore (1) does not apply if the eligibility to use this treatment under those measures ceases as contemplated under paragraph 18 of Part 1 of Annex VIII of the *Banking Consolidation Directive* (suspension of alternative treatment).

[Note: *BCD* Annex VIII Part 1 point 16 (part)]

- 4.10.10** **R** (1) The condition in **■ BIPRU 4.10.6 R (3)** does not apply for commercial real estate property situated within the territory of another *EEA State*.
- (2) However (1) only applies if and to the extent that the *CRD implementation measures* for that *EEA State* in relation to the *IRB approach* implement the option set out in paragraph 17 of Part 1 of Annex VIII of the *Banking Consolidation Directive* (waiver for commercial real estate property) with respect to commercial real estate property situated within that *EEA State*. Therefore (1) does not apply if the eligibility to use this treatment under those measures ceases as contemplated under paragraph 18 of Part 1 of Annex VIII of the *Banking Consolidation Directive* (suspension of alternative treatment).

[Note: *BCD* Annex VIII Part 1 point 19]

#### Real estate collateral: Types of eligible collateral: Finnish housing legislation

- 4.10.11** **R** A *firm* may also recognise as eligible collateral shares in Finnish residential housing companies operating in accordance with the Finnish Housing Company Act of 1991 or subsequent equivalent legislation in respect of residential property which is or will be occupied or let by the owner, as residential real estate collateral, provided that the conditions in **■ BIPRU 4.10.6 R** are met.

[Note: *BCD* Annex VIII Part 1 point 14]

- 4.10.12** **R** A *firm* may also recognise as eligible collateral shares in Finnish housing companies operating in accordance with the Finnish Housing Company Act of 1991 or subsequent equivalent legislation as commercial real estate collateral, provided that the conditions in **■ BIPRU 4.10.6 R** are met.

[Note: *BCD* Annex VIII Part 1 point 15]

#### Real estate collateral: Minimum requirements for recognition

- 4.10.13** **R** For the recognition of real estate collateral: the minimum requirements in **■ BIPRU 3.4.64 R** - **■ BIPRU 3.4.73 R** must be met with the following adjustments:

- (1) those provisions apply to all real estate collateral eligible under ■ BIPRU 4.10; and
- (2) the minimum frequency of valuation as referred to in ■ BIPRU 3.4.66 R is once every year for commercial real estate.

[Note: BCD Annex VIII Part 2 point 8 (as it applies to the *IRB approach*)]

#### Receivables: Types of eligible collateral

4.10.14

R

Amounts receivable linked to a commercial transaction or transactions with an original maturity of less than or equal to one year may be recognised as eligible collateral. Eligible receivables do not include those associated with *securitisations*, sub-participations or credit derivatives or amounts owed by affiliated parties.

[Note: BCD Annex VIII Part 1 point 20]

#### Receivables: Minimum requirements for recognition

4.10.15

R

- (1) For the recognition of receivables as collateral the requirements in this paragraph must be met.
- (2) The legal mechanism by which the collateral is provided must be robust and effective and ensure that the lender has clear rights over the proceeds.
- (3) A *firm* must take all steps necessary to fulfil local requirements in respect of the enforceability of security interests. There must be a framework which allows the lender to have a first priority claim over the collateral subject to any claims of preferential creditors provided for in applicable insolvency law.
- (4) A *firm* must have conducted sufficient legal review confirming the enforceability of the collateral arrangements in all relevant jurisdictions.
- (5) The collateral arrangements must be properly documented, with a clear and robust procedure for the timely collection of collateral. A *firm's* procedures must ensure that any legal conditions required for declaring the default of the borrower and timely collection of collateral are observed. In the event of the obligor's financial distress or default, a *firm* must have legal authority to sell or assign the receivables to other parties without consent of the receivables obligors.
- (6) A *firm* must have a sound process for determining the credit risk associated with the receivables. Such a process must include, among other things, analyses of the obligor's business and industry and the types of customers with whom the obligor does business. Where a *firm* relies on the obligor to ascertain the credit risk of the customers, the *firm* must review the obligor's credit practices to ascertain their soundness and credibility.
- (7) The margin between the amount of the *exposure* and the value of the receivables must reflect all appropriate factors, including the cost of collection, concentration within the receivables pool pledged by an

individual obligor, and potential concentration risk within the *firm's* total *exposures* beyond that controlled by the *firm's* general methodology. A *firm* must maintain a continuous monitoring process appropriate to the receivables. Additionally, compliance with loan covenants, Environmental restrictions, and other legal requirements must be reviewed on a regular basis.

- (8) The receivables pledged by an obligor must be diversified and not be unduly correlated with the obligor. Where there is material positive correlation, the attendant risks must be taken into account in the setting of margins for the collateral pool as a whole.
- (9) Receivables from affiliates of the obligor (including *subsidiary undertakings* and employees) must not be recognised as risk mitigants.
- (10) A *firm* must have a documented process for collecting receivable payments in distressed situations. The requisite facilities for collection must be in place, even when the *firm* normally looks to the obligor for collections.

[Note: BCD Annex VIII Part 2 point 9]

#### Other physical collateral: Types of eligible collateral

4.10.16

**R**

A *firm* may recognise as eligible collateral a physical item of a type other than those types indicated in ■ BIPRU 4.10.6 R - ■ BIPRU 4.10.12 R (Eligibility of real estate collateral) if its *IRB permission* provides that the *firm* may treat collateral of that type as eligible and if the *firm* is able to demonstrate the following:

- (1) the existence of liquid markets for disposal of the collateral in an expeditious and economically efficient manner;
- (2) the existence of well-established, publicly available market prices for the collateral; and
- (3) there is no evidence that the net prices it receives when collateral is realised deviates significantly from the market prices referred to in (b).

[Note: BCD Annex VIII Part 1 point 21]

4.10.17

**G**

If a *firm* wishes to recognise other types of collateral in accordance with ■ BIPRU 4.10.16 R (whether as part of its application for an *IRB permission* or under a variation of its *IRB permission*) it should demonstrate to the *appropriate regulator* how the criteria in ■ BIPRU 4.10.16 R (1) - ■ BIPRU 4.10.16 R (3) have been met with respect to that type of collateral.

#### Other physical collateral: Minimum requirements for recognition

4.10.18

**R**

- (1) If a type of other physical collateral referred to in ■ BIPRU 4.10.16 R is potentially eligible under a *firm's IRB permission* a *firm* must only recognise it as eligible if the minimum requirements in (2) to (10) are met.

- (2) The collateral arrangement must be legally effective and enforceable in all relevant jurisdictions and must enable the *firm* to realise the value of the property within a reasonable timeframe.
- (3) With the sole exception of permissible prior claims referred to in ■ BIPRU 4.10.15 R (3), only first liens on, or charges over, collateral must be permissible. As such, the *firm* must have priority over all other lenders to the realised proceeds of the collateral.
- (4) The value of the property must be monitored on a frequent basis and at a minimum once every year. More frequent monitoring must be carried out where the market is subject to significant changes in conditions.
- (5) The loan agreement (or other agreement documenting the *exposure*) must include detailed descriptions of the collateral plus detailed specifications of the manner and frequency of revaluation.
- (6) The types of physical collateral accepted by the *firm* and policies and practices in respect of the appropriate amount of each type of collateral relative to the *exposure* amount must be clearly documented in internal credit policies and procedures available for examination.
- (7) The *firm's* credit policies with regard to the transaction structure must address appropriate collateral requirements relative to the *exposure* amount, the ability to liquidate the collateral readily, the ability to establish objectively a price or market value, the frequency with which the value can readily be obtained (including a professional appraisal or valuation), and the volatility or a proxy of the volatility of the value of the collateral.
- (8) Both initial valuation and revaluation must take fully into account any deterioration or obsolescence of the collateral. Particular attention must be paid in valuation and revaluation to the effects of the passage of time on fashion- or date-sensitive collateral.
- (9) The *firm* must have the right to inspect the property physically. It must have policies and procedures addressing its exercise of the right to physical inspection.
- (10) The *firm* must have procedures to monitor that the property taken as protection is adequately insured against damage.

[Note: BCD Annex VIII Part 2 point 10]

#### Leasing: Types of eligible transactions and conditions of eligibility

4.10.19

**R**

- (1) Where the requirements set out in this paragraph are met, *exposures* arising from transactions whereby a *firm* leases property to a third party must be treated the same as loans collateralised by the type of property leased.
- (2) For the *exposures* arising from leasing transactions to be treated as collateralised by the type of property leased, the following conditions must be met:

- (a) the conditions set out or referred to in ■ BIPRU 4.10.13 R or ■ BIPRU 4.10.18 R as appropriate for the recognition as collateral of the type of property leased are met;
- (b) there is robust risk management on the part of the lessor with respect to the use to which the leased asset is put, its age, and planned duration of its use, including appropriate monitoring of the value of the security;
- (c) there is in place a robust legal framework establishing the lessor's legal ownership of the asset and its ability to exercise its rights as owner in a timely fashion; and
- (d) where this has not already been ascertained in calculating the *LGD* level, the difference between value of the unamortised amount and the market value of the security must not be so large as to overstate the *credit risk mitigation* attributed to the leased assets.

[Note: BCD Annex VIII Part 1 point 22 and Part 2 point 11]

#### Calculating risk-weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Introduction

- 4.10.20 **R** ■ BIPRU 4.10.21 R - ■ BIPRU 4.10.37 R and ■ BIPRU 4.10.49 R set out how the calculation of *risk weighted exposure amounts* and *expected loss* amounts under ■ BIPRU 4.1 - ■ BIPRU 4.9 may be modified to take into account *credit risk mitigation* that meets the *CRM eligibility conditions* and the *CRM minimum requirements*.

#### Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Valuation: Receivables

- 4.10.21 **R** The value of receivables for the purpose of calculating the effect of *credit risk mitigation* must be the amount receivable.

[Note: BCD Annex VIII Part 3 point 66]

#### Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Valuation: Other physical collateral

- 4.10.22 **R** Physical collateral recognised as eligible as described in ■ BIPRU 4.10.16 R must be valued for the purpose of calculating the effect of *credit risk mitigation* at its market value. Market value is the estimated amount for which the property would exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction.

[Note: BCD Annex VIII Part 3 point 67]

#### Calculating risk weighted exposure amounts and expected loss amounts: General treatment

- 4.10.23 **R** ■ BIPRU 4.10.24 R - ■ BIPRU 4.10.29 R apply to collateral in the form of real estate collateral, receivables, other physical collateral and leasing permitted by ■ BIPRU 4.10 and *exposures* secured by such collateral.

**4.10.24** **R** LGD\* (the effective *loss given default*) calculated as set out in ■ BIPRU 4.10.25 R - ■ BIPRU 4.10.28 R must be taken as the *LGD*.  
 [Note: BCD Annex VIII Part 3 point 68]

**4.10.25** **R** Where the ratio of the value of the collateral (C) to the *exposure* value (E) is below a threshold level of C\* (the required minimum collateralisation level for the *exposure*) as laid down in ■ BIPRU 4.10.28 R, LGD\* must be the *LGD* laid down in the other sections of ■ BIPRU 4 for uncollateralised *exposures* to the counterparty. For this purpose, the *exposure* value of items listed in ■ BIPRU 4.4.37 R to ■ BIPRU 4.4.39 R and ■ BIPRU 4.8.29 R must be calculated using a *conversion factor* or percentage of 100% rather than the *conversion factors* or percentages indicated in those rules.  
 [Note: BCD Annex VIII Part 3 point 69]

**4.10.26** **R** Where the ratio of the value of the collateral to the *exposure* value exceeds a second, higher threshold level of C\*\* (i.e. the required level of collateralisation to receive full *LGD* recognition) as laid down in ■ BIPRU 4.10.28 R, LGD\* must be that prescribed in that table.  
 [Note: BCD Annex VIII Part 3 point 70]

**4.10.27** **R** Where the required level of collateralisation C\*\* is not achieved in respect of the *exposure* as a whole, the *exposure* must be considered to be two *exposures* - that part in respect of which the required level of collateralisation C\*\* is achieved and the remainder.  
 [Note: BCD Annex VIII Part 3 point 71]

**4.10.28** **R** Table: Minimum LGD for secured portion of exposures  
 This table belongs to ■ BIPRU 4.10.24 R - ■ BIPRU 4.10.27 R

	LGD* for senior claims or contingent claims	LGD* for subordinated claims or contingent claims	Required minimum collateralisation level of the exposure (C*)	Required minimum collateralisation level of the exposure (C**)
Receivables	35%	65%	0%	125%
Residential real estate/ commercial real estate	35%	65%	30%	140%
Other collateral	40%	70%	30%	140%

[Note: BCD Annex VIII Part 3 point 72 (part)]

**Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Alternative treatment for real estate collateral**

**4.10.29** **R** (1) A *firm* may apply the treatment in paragraph 74 of Part 3 of Annex VIII of the *Banking Consolidation Directive* (50% risk weight for

exposures secured by real estate) in respect of *exposures* collateralised by:

- (a) residential real estate property; or
- (b) commercial real estate property; located in the territory of another *EEA State*.

(2) However (1)(a) or (1)(b) only applies if the *CRD implementing measures* for that *EEA State* with respect to the *IRB approach* have implemented the option set out in the provision of the *Banking Consolidation Directive* referred to in (1) with respect to the relevant category of real estate property situated within that *EEA State*.

(3) The use of the treatment in (1) with respect to property in another *EEA State* must be subject to the same conditions as apply under the relevant *CRD implementation measures* for that *EEA State*.

[Note: *BCD Annex VIII Part 3 point 75*]

#### Calculating risk weighted exposure amounts and expected loss amounts: Mixed pools of collateral

##### 4.10.30

**R**

(1) Where:

- (a) *risk weighted exposure amounts* and *expected loss* amounts are calculated under the *IRB approach*; and
- (b) an *exposure* is collateralised by both financial collateral and other eligible collateral;

*LGD\** to be taken as the *LGD* for the purposes of the *IRB approach* must be calculated in accordance with this *rule*.

(2) A *firm* must subdivide the volatility-adjusted value of the *exposure* (i.e. the value after the application of the volatility adjustment as set out in ■ BIPRU 5.4.28 R (Volatility adjustments under the financial collateral comprehensive method) into parts each covered by only one type of collateral. That is, the *firm* must divide the *exposure* into the part covered by eligible financial collateral, the part covered by receivables, the parts covered by commercial real estate property collateral and/or residential real estate property collateral, the part covered by other eligible collateral, and the unsecured part, as relevant.

(3) *LGD\** for each part of *exposure* must be calculated separately in accordance with the relevant provisions of ■ BIPRU 5 (Credit risk mitigation) and ■ BIPRU 4.10.

[Note: *BCD Annex VIII Part 3 points 76 to 78*]



### Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Other modifications of the rules on credit risk mitigation: Financial collateral simple method

**4.10.31** **R** The *financial collateral simple method* must not be used under the *IRB approach*.

[Note: BCD Annex VIII Part 3 point 24 (part)]

### Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Other modifications of the rules on credit risk mitigation: Master netting agreements

**4.10.32** **R** (1) This *rule* sets out how the calculations under **■ BIPRU 5.6.11 R** (Using the supervisory volatility adjustments or the own estimates volatility adjustments approaches to master netting agreements covering repurchase transactions and/or securities or commodities lending or borrowing transactions and/or other capital market driven transactions) must be modified under the *IRB approach*.

(2) Where *risk weighted exposure amounts* and *expected loss* amounts are calculated under the *IRB approach*, E is the *exposure* value for each separate *exposure* under the agreement referred to in the provisions listed in (1) that would apply in the absence of the credit protection.

[Note: BCD Annex VIII Part 3 point 11 (as it applies to the *IRB approach*)]

**4.10.33** **R** (1) This *rule* sets out how the calculations under **■ BIPRU 5.6.24 R** (Using the internal models approach to master netting agreements covering repurchase transactions and/or securities or commodities lending or borrowing transactions and/or other capital market driven transactions) must be modified under the *IRB approach*.

(2) Where *risk weighted exposure amounts* and *expected loss* amounts are calculated under the *IRB approach* E is the *exposure* value for each separate *exposure* under the agreement referred to in the provisions listed in (1) that would apply in the absence of the credit protection.

[Note: BCD Annex VIII Part 3 point 20 (as it applies to the *IRB approach*)]

**4.10.34** **R** (1) This *rule* sets out how the calculations under **■ BIPRU 5.6.29 R** (Calculating risk-weighted exposure amounts and expected loss amounts for master netting agreements covering repurchase transactions and/or securities or commodities lending or borrowing transactions and/or other capital market driven transactions) must be modified under the *IRB approach*.

(2) E\* must be taken as the *exposure* value of the *exposure* to the counterparty arising from the transactions subject to the master

netting agreement referred to in the provisions listed in (1) for the purposes of ■ BIPRU 4.

[Note: BCD Annex VIII Part 3 point 23 (as it applies to the *IRB approach*)]

### Calculating risk weighted exposure amounts and expected loss amounts for funded credit risk mitigation: Other modifications of the rules on credit risk mitigation: Financial collateral comprehensive method

4.10.35

R

- (1) This *rule* sets out how the calculations under ■ BIPRU 5.4.28 R (Calculating adjusted values under the financial collateral comprehensive method) must be modified under the *IRB approach*.
- (2) E as referred to in the provisions listed in (1) is the *exposure* value as would be determined under the *IRB approach* if the *exposure* was not collateralised. For this purpose, where a *firm* calculates *risk weighted exposure amounts* under the *IRB approach*, the *exposure* value of the items listed in ■ BIPRU 4.4.37 R to ■ BIPRU 4.4.39 R, ■ BIPRU 4.4.45 R, ■ BIPRU 4.6.44 R (3) and ■ BIPRU 4.8.29 R must be calculated using a *conversion factor* of 100% rather than the *conversion factors* or percentages indicated in those provisions.

4.10.36

R

- (1) This *rule* sets out the calculation of *risk weighted exposure amounts* and *expected loss* amounts under the *financial collateral comprehensive method* for a *firm* using the *IRB approach*.
- (2) LGD\* (the effective *loss given default*) calculated as set out in this paragraph must be taken as the *LGD* for the purposes of ■ BIPRU 4.
- (3)  $LGD^* = LGD \times (E^*/E)$  where:
  - (a) *LGD* is the *loss given default* that would apply to the *exposure* under the *IRB approach* if the *exposure* was not collateralised;
  - (b) E is the *exposure* value as calculated under ■ BIPRU 4; and
  - (c) E\* is as calculated under ■ BIPRU 5.4.28 R (3) (Calculation of adjusted values under the financial collateral comprehensive method).

[Note: BCD Annex VIII Part 3 point 61]

4.10.37

R

- (1) In the case of a *firm* using the *IRB approach* to calculate *risk weighted exposure amounts* and *expected loss* amounts, the *persons* in (2) are added to the list in ■ BIPRU 5.4.64 R (Definition of core market participant).
- (2) The *persons* referred to in (1) are other financial companies (including insurance companies) *exposures* to which do not have a credit assessment by an *eligible ECAI* and are internally rated as having a *probability of default* equivalent to that associated with the credit assessments of *ECAs* that are associated with *credit quality step 2* or above under the *rules* for the *risk weighting* of *exposures* under the *standardised approach* to credit risk.

[Note: BCD Annex VIII Part 3 point 58(h) (as it applies to the *IRB approach*)]

### Unfunded credit protection: Eligibility of providers

- 4.10.38 **R** (1) In the case of a *firm* using the *IRB approach* in calculating *risk weighted exposure amounts* and *expected loss* amounts, the *persons* in (2) are added to the list in ■ BIPRU 5.7.1 R (List of eligible providers of unfunded credit protection).
- (2) The *persons* referred to in (1) are other corporate entities, including *parent undertakings*, *subsidiary undertakings* and affiliate corporate entities of the *firm*, that do not have a credit assessment by an *eligible ECAI* and are internally rated as having a *probability of default* equivalent to that associated with the credit assessments of *ECAs* that are associated with *credit quality step 2* or above under the *rules* for the *risk weighting* of *exposures* under the *standardised approach* to credit risk.

[Note: BCD Annex VIII Part 1 point 26(g)(ii)]

- 4.10.39 **R** Where *risk weighted exposure amounts* and *expected loss* amounts are calculated under the *IRB approach*, to be eligible a guarantor must be internally rated by a *firm* in accordance with the provisions of the *minimum IRB standards*.

[Note: BCD Annex VIII Part 1 point 27]

### Unfunded credit protection: Minimum requirements for assessing the effect of guarantees and credit derivatives: Introduction

- 4.10.40 **R** ■ BIPRU 4.10.41 R to ■ BIPRU 4.10.48 R set out the minimum requirements:

- (1) assessing the effect of guarantees and credit derivatives for:
- (a) *exposures* in the *sovereign, institution and corporate IRB exposure class* where the *advanced IRB approach* is being used to calculate *LGDs*; and
  - (b) *retail exposures*; and
- (2) additionally, in the case of *retail exposure* guarantees, to the assignment of *exposures* to grades or pools, and the estimation of *PD*.

[Note: BCD Annex VII Part 4 point 97]

- 4.10.41 **R** The requirements in ■ BIPRU 4.10.40 R (2) and ■ BIPRU 4.10.42 R - ■ BIPRU 4.10.48 R do not apply to guarantees provided by *institutions*, central governments, *central banks* and other *corporate* entities which meet the requirements in ■ BIPRU 5.7.1 R (7) if the *firm* has received approval under ■ BIPRU 4.2 to apply the *standardised approach* for *exposures* to such entities. In this case the requirements of ■ BIPRU 5 (credit risk mitigation) apply.

[Note: BCD Annex VII Part 4 point 96]

### Unfunded credit protection: Minimum requirements for assessing the effect of guarantees and credit derivatives: Eligible guarantors and guarantees

- 4.10.42 **R** A *firm* must have clearly specified criteria for the types of guarantors it recognises for the calculation of *risk weighted exposure amounts*.  
[Note: Annex VII Part 4 point 98]
- 4.10.43 **R** For recognised guarantors the same requirements as for obligors as set out in ■ BIPRU 4.3.43 R - ■ BIPRU 4.3.48 R (Assignment to grades and pools), ■ BIPRU 4.4.11 R - ■ BIPRU 4.4.18 R and ■ BIPRU 4.4.51 R (Assignment of exposures and rating systems), ■ BIPRU 4.5.6 R (Assignment of exposures) and ■ BIPRU 4.6.11 R and ■ BIPRU 4.6.14 R (Assignment of exposures and rating systems) apply.  
[Note: BCD Annex VII Part 4 point 99]
- 4.10.44 **R** The guarantee must be evidenced in writing, non-cancellable on the part of the guarantor, in force until the obligation is satisfied in full (to the extent of the amount and tenor of the guarantee) and legally enforceable against the guarantor in a jurisdiction where the guarantor has assets to attach and enforce a judgement. Guarantees prescribing conditions under which the guarantor may not be obliged to perform (conditional guarantees) may be recognised if the *IRB permission* permits this. A *firm* must (in the case of a *firm* with an *IRB permission* that permits conditional guarantees) be able to demonstrate to the *appropriate regulator* that the assignment criteria adequately address any potential reduction in the risk mitigation effect.  
[Note: BCD Annex VII Part 4 point 100]

### Unfunded credit protection: Minimum requirements for assessing the effect of guarantees and credit derivatives: Adjustment criteria

- 4.10.45 **R** A *firm* must have clearly specified criteria for adjusting grades, pools or *LGD* estimates, and in the case of *retail exposures* and eligible purchased receivables, the process of allocating *exposures* to grades or pools, to reflect the impact of guarantees for the calculation of *risk weighted exposure amounts*. These criteria must comply with the minimum requirements referred to in ■ BIPRU 4.10.43 R.  
[Note: BCD Annex VII Part 4 point 101]
- 4.10.46 **R** The criteria in ■ BIPRU 4.10.45 R must be plausible and intuitive. They must address the guarantor's ability and willingness to perform under the guarantee, the likely timing of any payments from the guarantor, the degree to which the guarantor's ability to perform under the guarantee is correlated with the obligor's ability to repay, and the extent to which residual risk to the obligor remains.  
[Note: BCD Annex VII Part 4 point 102]

### Unfunded credit protection: Minimum requirements for assessing the effect of guarantees and credit derivatives: Credit derivatives

- 4.10.47 **R** The minimum requirements for guarantees set out in ■ BIPRU 4.10 also apply for single name credit derivatives. In relation to a mismatch between the underlying obligation and the reference obligation of the credit derivative or the obligation used for determining whether a credit event has occurred the requirements set out under ■ BIPRU 5.7.14 R (Mismatches and credit derivatives) apply. For *retail exposures* and eligible purchased receivables, this paragraph applies to the process of allocating *exposures* to grades or pools.

[Note: BCD Annex VII Part 4 point 103]

- 4.10.48 **R** The criteria applied by ■ BIPRU 4.10.47 R must address the payout structure of the credit derivative and conservatively assess the impact this has on the level and timing of recoveries. A *firm* must consider the extent to which other forms of residual risk remain.

[Note: BCD Annex VII Part 4 point 104]

### Unfunded credit protection: Minimum requirements for assessing the effect of guarantees and credit derivatives: Calculating risk weighted exposure amounts and expected loss amounts

- 4.10.49 **R**
- (1) This *rule* relates to the calculation of *risk-weighted exposure amounts* and *expected loss* amounts in the case of *unfunded credit protection*.
  - (2) ■ BIPRU 5.7.21 R (Tranching) applies for the purpose in (1).
  - (3) The provisions in (4) replace those in ■ BIPRU 5.7.22 R to ■ BIPRU 5.7.25 R (Calculating risk weighted exposure amounts under the standardised approach in the case of unfunded credit protection).
  - (4) For the covered portion of the *exposure* value E (based on the adjusted value of the credit protection  $G_A$ ), the *PD* for the purposes of ■ BIPRU 4 may be the *PD* of the protection provider, or a *PD* between that of the borrower and that of the guarantor if a full substitution is deemed not to be warranted. In the case of subordinated *exposures* and non-subordinated unfunded protection, the *LGD* to be applied for the purposes of ■ BIPRU 4 may be that associated with senior claims.
  - (5) For any uncovered portion of the *exposure* value E the *PD* must be that of the borrower and the *LGD* must be that of the underlying *exposure*.
  - (6)  $G_A$  is the value of  $G^*$  as calculated under ■ BIPRU 5.7.17 R (Valuation of unfunded credit protection) further adjusted for any maturity mismatch as laid down in ■ BIPRU 4.10.51 R (Maturity mismatches).
  - (7) E is the *exposure* value as related to the following rules:  
 ■ BIPRU 4.4.38 R, ■ BIPRU 4.4.39 R, ■ BIPRU 4.4.71 R to ■ BIPRU 4.4.78 R, ■ BIPRU 4.7.7 R, ■ BIPRU 4.8.28 R, ■ BIPRU 4.8.29 R and ■ BIPRU 4.9.9 R. For this purpose, the *exposure* value of the items referred to in ■ BIPRU 4.4.37 R to ■ BIPRU 4.4.39 R and ■ BIPRU 4.8.29 R must be

calculated using a *conversion factor* or percentage of 100% rather than the *conversion factors* or percentages indicated in those rules.

[Note: BCD Annex VIII Part 3 points 90 to 92]

### Maturity mismatches

4.10.50

R

In addition to ■ BIPRU 5.8.2 R, where there is a maturity mismatch the credit protection must not be recognised where the *exposure* is a short term *exposure* specified in the *firm's IRB permission* as being subject to a one-day floor rather than a one-year floor in respect of the maturity value (M) under ■ BIPRU 4.4.68 R.

[Note: BCD Annex VIII Part 4 point 2(b)]

4.10.51

R

$G_A$  as calculated under ■ BIPRU 5.8.11 R is then taken as the value of the protection for the purposes of calculating the effects of *unfunded credit protection* under the *IRB approach*.

[Note: BCD Annex VIII Part 4 point 8 (part)]

## Supervisory Slotting Criteria for Specialised Lending

This Annex outlines the criteria that must be used to slot a *specialised lending exposure* into the categories in ■ BIPRU 4.5.6 R.

This table belongs to ■ BIPRU 4.5.6 R and must be used in accordance with that rule only for project finance exposures.

Table 1 - Supervisory Rating Grades for Project Finance Exposures				
	Strong	Good	Satisfactory	Weak
<b>Financial strength</b>				
Market conditions	Few competing suppliers or substantial and durable advantage in location, cost, or technology. Demand is strong and growing	Few competing suppliers or better than average location, cost, or technology but this situation may not last. Demand is strong and stable	Project has no advantage in location, cost, or technology. Demand is adequate and stable	Project has worse than average location, cost, or technology. Demand is weak and declining
Financial ratios (e.g. debt service coverage ratio (DSCR), loan life coverage ratio (LLCR), project life coverage ratio (PLCR), and debt-to-equity ratio)	Strong financial ratios considering the level of project risk; very robust economic assumptions	Strong to acceptable financial ratios considering the level of project risk; robust project economic assumptions	Standard financial ratios considering the level of project risk	Aggressive financial ratios considering the level of project risk
Stress analysis	The project can meet its financial obligations under sustained, severely stressed economic or sectoral conditions	The project can meet its financial obligations under normal stressed economic or sectoral conditions. The project is only likely to default under severe economic conditions	The project is vulnerable to stresses that are not uncommon through an economic cycle, and may default in a normal downturn	The project is likely to default unless conditions improve soon
<b>Financial structure</b>				
Duration of the credit compared to the duration of the project	Useful life of the project significantly exceeds tenor of the loan	Useful life of the project exceeds tenor of the loan	Useful life of the project exceeds tenor of the loan	Useful life of the project may not exceed tenor of the loan
Amortisation schedule	Amortising debt	Amortising debt	Amortising debt repayments with limited bullet payment	Bullet repayment or amortising debt repayments with high bullet repayment
<b>Political and legal environment</b>				
Political risk, in-	Very low exposure;	Low exposure; sat-	Moderate expo-	High exposure; no



Table 1 - Supervisory Rating Grades for Project Finance Exposures

	Strong	Good	Satisfactory	Weak
cluding transfer risk, considering project type and mitigants	strong mitigation instruments, if needed	isfactory mitigation instruments, if needed	sure; fair mitigation instruments	or weak mitigation instruments
Force majeure risk (war, civil unrest, etc)	Low exposure	Acceptable exposure	Standard protection	Significant risks, not fully mitigated
Government support and project's importance for the country over the long term	Project of strategic importance for the country (preferably export-oriented). Strong support from Government	Project considered important for the country. Good level of support from Government	Project may not be strategic but brings unquestionable benefits for the country. Support from Government may not be explicit	Project not key to the country. No or weak support from Government
Stability of legal and regulatory environment (risk of change in law)	Favourable and stable regulatory environment over the long term	Favourable and stable regulatory environment over the medium term	Regulatory changes can be predicted with a fair level of certainty	Current or future regulatory issues may affect the project
Acquisition of all necessary supports and approvals for such relief from local content laws	Strong	Satisfactory	Fair	Weak
Enforceability of contracts, collateral and security	Contracts, collateral and security are enforceable	Contracts, collateral and security are enforceable	Contracts, collateral and security are considered enforceable even if certain non-key issues may exist	There are unresolved key issues in respect if actual enforcement of contracts, collateral and security
<b>Transaction characteristics</b>				
Design and technology risk	Fully proven technology and design	Fully proven technology and design	Proven technology and design - start-up issues are mitigated by a strong completion package	Unproven technology and design; technology issues exist and/or complex design
<b>Construction risk</b>				
Permitting and siting	All permits have been obtained	Some permits are still outstanding but their receipt is considered very likely	Some permits are still outstanding but the permitting process is well defined and they are considered routine	Key permits still need to be obtained and are not considered routine. Significant conditions may be attached
Type of construction contract	Fixed-price date-certain turnkey construction EPC (engineering and procurement contract)	Fixed-price date-certain turnkey construction EPC	Fixed-price date-certain turnkey construction contract with one or several contractors	No or partial fixed-price turnkey contract and/or interfacing issues with multiple contractors

Table 1 - Supervisory Rating Grades for Project Finance Exposures

	Strong	Good	Satisfactory	Weak
Completion guarantees	Substantial liquidated damages supported by financial substance and/or strong completion guarantee from sponsors with excellent financial standing	Significant liquidated damages supported by financial substance and/or completion guarantee from sponsors with good financial standing	Adequate liquidated damages supported by financial substance and/or completion guarantee from sponsors with good financial standing	Inadequate liquidated damages or not supported by financial substance or weak completion guarantees
Track record and financial strength of contractor in constructing similar projects.	Strong	Good	Satisfactory	Weak
<u>Operating risk</u>				
Scope and nature of operations and maintenance (O & M) contracts	Strong long-term O&M contract, preferably with contractual performance incentives, and/or O&M reserve accounts	Long-term O&M contract, and/or O&M reserve accounts	Limited O&M contract or O&M reserve account	No O&M contract: risk of high operational cost overruns beyond mitigants
Operator's expertise, track record, and financial strength	Very strong, or committed technical assistance of the sponsors	Strong	Acceptable	Limited/weak, or local operator dependent on local authorities
<u>Off-take risk</u>				
(a) If there is a take-or-pay or fixed-price off-take contract:	Excellent creditworthiness of off-taker; strong termination clauses; tenor of contract comfortably exceeds the maturity of the debt	Good creditworthiness of off-taker; strong termination clauses; tenor of contract exceeds the maturity of the debt	Acceptable financial standing of off-taker; normal termination clauses; tenor of contract generally matches the maturity of the debt	Weak off-taker; weak termination clauses; tenor of contract does not exceed the maturity of the debt
(b) If there is no take-or-pay or fixed-price off-take contract:	Project produces essential services or a commodity sold widely on a world market; output can readily be absorbed at projected prices even at lower than historic market growth rates	Project produces essential services or a commodity sold widely on a regional market that will absorb it at projected prices at historical growth rates	Commodity is sold on a limited market that may absorb it only at lower than projected prices	Project output is demanded by only one or a few buyers or is not generally sold on an organised market
<u>Supply risk</u>				
Price, volume and transportation risk of feed-stocks; supplier's track record and financial strength	Long-term supply contract with supplier of excellent financial standing	Long-term supply contract with supplier of good financial standing	Long-term supply contract with supplier of good financial standing - a degree of price risk may remain	Short-term supply contract or long-term supply contract with financially weak supplier - a degree of price risk definitely remains

Table 1 - Supervisory Rating Grades for Project Finance Exposures

	Strong	Good	Satisfactory	Weak
Reserve risks (e.g. natural resource development)	Independently audited, proven and developed reserves well in excess of requirements over lifetime of the project	Independently audited, proven and developed reserves in excess of requirements over lifetime of the project	Proven reserves can supply the project adequately through the maturity of the debt	Project relies to some extent on potential and undeveloped reserves
<b>Strength of Sponsor</b>				
Sponsor's track record, financial strength, and country/sector experience	Strong sponsor with excellent track record and high financial standing	Good sponsor with satisfactory track record and good financial standing	Adequate sponsor with adequate track record and good financial standing	Weak sponsor with no or questionable track record and/or financial weaknesses
Sponsor support, as evidenced by equity, ownership clause and incentive to inject additional cash if necessary	Strong. Project is highly strategic for the sponsor (core business - long-term strategy)	Good. Project is strategic for the sponsor (core business - long-term strategy)	Acceptable. Project is considered important for the sponsor (core business)	Limited. Project is not key to sponsor's long-term strategy or core business
<b>Security Package</b>				
Assignment of contracts and accounts	Fully comprehensive	Comprehensive	Acceptable	Weak
Pledge of assets, taking into account quality, value and liquidity of assets	First perfected security interest in all project assets, contracts, permits and accounts necessary to run the project	Perfected security interest in all project assets, contracts, permits and accounts necessary to run the project	Acceptable security interest in all project assets, contracts, permits and accounts necessary to run the project	Little security or collateral for lenders; weak negative pledge clause
Lender's control over cash flow (e.g. cash sweeps, independent escrow accounts)	Strong	Satisfactory	Fair	Weak
Strength of the covenant package (mandatory prepayments, payment deferrals, payment cascade, dividend restrictions...)	Covenant package is strong for this type of project Project may issue no additional debt	Covenant package is satisfactory for this type of project Project may issue extremely limited additional debt	Covenant package is fair for this type of project Project may issue limited additional debt	Covenant package is insufficient for this type of project Project may issue unlimited additional debt
Reserve funds (debt service, O&M, renewal and replacement, unforeseen events, etc)	Longer than average coverage period, all reserve funds fully funded in cash or letters of credit from highly rated bank	Average coverage period, all reserve funds fully funded	Average coverage period, all reserve funds fully funded	Shorter than average coverage period, reserve funds funded from operating cash flows

This table belongs to ■ BIPRU 4.5.6 R and must be used in accordance with that rule only for income-producing real estate exposures

Table 2 - Supervisory Rating Grades for Income-Producing Real Estate Exposures

	Strong	Good	Satisfactory	Weak
<b>Financial strength</b>				
Market conditions	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is equal or lower than forecasted demand	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is roughly equal to forecasted demand	Market conditions are roughly in equilibrium. Competitive properties are coming on the market and others are in the planning stages. The project's design and capabilities may not be state of the art compared to new projects	Market conditions are weak. It is uncertain when conditions will improve and return to equilibrium. The project is losing tenants at lease expiration. New lease terms are less favourable compared to those expiring
Financial ratios and advance rate	The property's debt service coverage ratio (DSCR) is considered strong (DSCR is not relevant for the construction phase) and its loan to value ratio (LTV) is considered low given its property type. Where a secondary market exists, the transaction is underwritten to market standards	The DSCR (not relevant for development real estate) and LTV are satisfactory. Where a secondary market exists, the transaction is underwritten to market standards	The property's DSCR has deteriorated and its value has fallen, increasing its LTV	The property's DSCR has deteriorated significantly and its LTV is well above underwriting standards for new loans
Stress analysis	The property's resources, contingencies and liability structure allow it to meet its financial obligations during a period of severe financial stress (e.g. interest rates, economic growth)	The property can meet its financial obligations under a sustained period of financial stress (e.g. interest rates, economic growth). The property is likely to default only under severe economic conditions	During an economic downturn, the property would suffer a decline in revenue that would limit its ability to fund capital expenditures and significantly increase the risk of default	The property's financial condition is strained and is likely to default unless conditions improve in the near term
Cash-flow predictability				
(a) For complete and stabilised property	The property's leases are long-term with creditworthy tenants and their maturity dates are scattered. The property has a track record of tenant retention upon lease expiration	Most of the property's leases are long-term, with tenants that range in creditworthiness. The property experiences a normal level of tenant turnover upon lease expiration. Its vacancy rate is	Most of the property's leases are medium rather than long-term with tenants that range in creditworthiness. The property experiences a moderate level of tenant turnover upon lease expiration	The property's leases are of various terms with tenants that range in creditworthiness. The property experiences a very high level of tenant turnover upon lease expiration. Its vacancy rate is

Table 2 - Supervisory Rating Grades for Income-Producing Real Estate Exposures

	Strong	Good	Satisfactory	Weak
	tion. Its vacancy rate is low. Expenses (maintenance, insurance, security, and property taxes) are predictable	low. Expenses are predictable	tion. Its vacancy rate is moderate. Expenses are relatively predictable but vary in relation to revenue	high. Significant expenses are incurred preparing space for new tenants
(b) For complete but not stabilised property	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Most leasing activity is within projections; however, stabilisation will not occur for some time	Market rents do not meet expectations. Despite achieving target occupancy rate, cash flow coverage is tight due to disappointing revenue
(c) For construction phase	The property is entirely pre-leased through the tenor of the loan or pre-sold to an investment grade tenant or buyer, or the bank has a binding commitment for take-out financing from an investment grade lender	The property is entirely pre-leased or pre-sold to a creditworthy tenant or buyer, or the bank has a binding commitment for permanent financing from a creditworthy lender	Leasing activity is within projections but the building may not be pre-leased and there may not exist a take-out financing. The bank may be the permanent lender	The property is deteriorating due to cost overruns, market deterioration, tenant cancellations or other factors. There may be a dispute with the party providing the permanent financing
<b>Asset characteristics</b>				
Location	Property is located in highly desirable location that is convenient to services that tenants desire	Property is located in desirable location that is convenient to services that tenants desire	The property location lacks a competitive advantage	The property's location, configuration, design and maintenance have contributed to the property's difficulties
Design and condition	Property is favoured due to its design, configuration, and maintenance, and is highly competitive with new properties	Property is appropriate in terms of its design, configuration and maintenance. The property's design and capabilities are competitive with new properties	Property is adequate in terms of its configuration, design and maintenance	Weaknesses exist in the property's configuration, design or maintenance
Property is under construction	Construction budget is conservative and technical hazards are limited. Contractors are highly qualified	Construction budget is conservative and technical hazards are limited. Contractors are highly qualified	Construction budget is adequate and contractors are ordinarily qualified	Project is over budget or unrealistic given its technical hazards. Contractors may be under qualified
<b>Strength of Sponsor/Developer</b>				

Table 2 - Supervisory Rating Grades for Income-Producing Real Estate Exposures

	Strong	Good	Satisfactory	Weak
Financial capacity and willingness to support the property	The sponsor/developer made a substantial cash contribution to the construction or purchase of the property. The sponsor/developer has substantial resources and limited direct and contingent liabilities. The sponsor/developer's properties are diversified geographically and by property type	The sponsor/developer made a material cash contribution to the construction or purchase of the property. The sponsor/developer's financial condition allows it to support the property in the event of a cash flow shortfall. The sponsor/developer's properties are located in several geographic regions	The sponsor/developer's contribution may be immaterial or non-cash. The sponsor/developer is average to below average in financial resources	The sponsor/developer lacks capacity or willingness to support the property
Reputation and track record with similar properties	Experienced management and high sponsors' quality. Strong reputation and lengthy and successful record with similar properties	Appropriate management and sponsors' quality. The sponsor or management has a successful record with similar properties	Moderate management and sponsors' quality. Management or sponsor track record does not raise serious concerns	Ineffective management and substandard sponsors' quality. Management and sponsor difficulties have contributed to difficulties in managing properties in the past
Relationships with relevant real estate actors	Strong relationships with leading actors such as leasing agents	Proven relationships with leading actors such as leasing agents	Adequate relationships with leasing agents and other parties providing important real estate services	Poor relationships with leasing agents and/or other parties providing important real estate services
<b>Security Package</b>				
Nature of lien	Perfected first lien (Note 1)	Perfected first lien (Note 1)	Perfected first lien (Note 1)	Ability of lender to foreclose is constrained
Assignment of rents (for projects leased to long-term tenants)	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to remit rents directly to the lender, such as a current rent roll and copies of the project's leases	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases	The lender has not obtained an assignment of the leases or has not maintained the information necessary to readily provide notice to the building's tenants

Table 2 - Supervisory Rating Grades for Income-Producing Real Estate Exposures

	Strong	Good	Satisfactory	Weak
Quality of the insurance coverage	Appropriate	Appropriate	Appropriate	Substandard

**Note 1:** Lenders in some markets extensively use loan structures that include junior liens. Junior liens may be indicative of this level of risk if the total LTV inclusive of all senior positions does not exceed a typical first loan LTV.

This table belongs to ■ BIPRU 4.5.6 R and must be used in accordance with that rule only for object finance exposures

Table 3 - Supervisory Rating Grades for Object Finance Exposures

	Strong	Good	Satisfactory	Weak
<b>Financial strength</b>				
Market conditions	Demand is strong and growing, strong entry barriers, low sensitivity to changes in technology and economic outlook	Demand is strong and stable. Some entry barriers, some sensitivity to changes in technology and economic outlook	Demand is adequate and stable, limited entry barriers, significant sensitivity to changes in technology and economic outlook	Demand is weak and declining, vulnerable to changes in technology and economic outlook, highly uncertain environment
Financial ratios (debt service coverage ratio and loan-to-value ratio)	Strong financial ratios considering the type of asset. Very robust economic assumptions	Strong / acceptable financial ratios considering the type of asset. Robust project economic assumptions	Standard financial ratios for the asset type	Aggressive financial ratios considering the type of asset
Stress analysis	Stable long-term revenues, capable of withstanding severely stressed conditions through an economic cycle	Satisfactory short-term revenues. Loan can withstand some financial adversity. Default is only likely under severe economic conditions	Uncertain short-term revenues. Cash flows are vulnerable to stresses that are not uncommon through an economic cycle. The loan may default in a normal downturn	Revenues subject to strong uncertainties; even in normal economic conditions the asset may default, unless conditions improve
Market liquidity	Market is structured on a worldwide basis; assets are highly liquid	Market is worldwide or regional; assets are relatively liquid	Market is regional with limited prospects in the short term, implying lower liquidity	Local market and/or poor visibility. Low or no liquidity, particularly on niche markets
<b>Political and legal environment</b>				
Political risk, including transfer risk	Very low; strong mitigation instruments, if needed	Low; satisfactory mitigation instruments, if needed	Moderate; fair mitigation instruments	High; no or weak mitigation instruments
Legal and regulatory risks	Jurisdiction is favourable to repossession and enforcement of contracts	Jurisdiction is favourable to repossession and enforcement of contracts	Jurisdiction is generally favourable to repossession and enforcement of contracts, even if repossession might be long and/or difficult	Poor or unstable legal and regulatory environment. Jurisdiction may make repossession and enforcement of contracts lengthy or impossible



Table 3 - Supervisory Rating Grades for Object Finance Exposures

	Strong	Good	Satisfactory	Weak
<b>Transaction characteristics</b>				
Financing term compared to the economic life of the asset	Full payout profile/minimum balloon. No grace period	Balloon more significant, but still at satisfactory levels	Important balloon with potentially grace periods	Repayment in fine or high balloon
<b>Operating risk</b>				
Permits / licensing	All permits have been obtained; asset meets current and foreseeable safety regulations	All permits obtained or in the process of being obtained; asset meets current and foreseeable safety regulations	Most permits obtained or in process of being obtained, outstanding ones considered routine, asset meets current safety regulations	Problems in obtaining all required permits, part of the planned configuration and/or planned operations might need to be revised
Scope and nature of O & M contracts	Strong long-term O&M contract, preferably with contractual performance incentives, and/or O&M reserve accounts (if needed)	Long-term O&M contract, and/or O&M reserve accounts (if needed)	Limited O&M contract or O&M reserve account (if needed)	No O&M contract: risk of high operational cost overruns beyond mitigants
Operator's financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Excellent track record and strong re-marketing capability	Satisfactory track record and re-marketing capability	Weak or short track record and uncertain re-marketing capability	No or unknown track record and inability to re-market the asset
<b>Asset characteristics</b>				
Configuration, size, design and maintenance (i.e. age, size for a plane) compared to other assets on the same market	Strong advantage in design and maintenance. Configuration is standard such that the object meets a liquid market	Above average design and maintenance. Standard configuration, maybe with very limited exceptions - such that the object meets a liquid market	Average design and maintenance. Configuration is somewhat specific, and thus might cause a narrower market for the object	Below average design and maintenance. Asset is near the end of its economic life. Configuration is very specific; the market for the object is very narrow
Resale value	Current resale value is well above debt value	Resale value is moderately above debt value	Resale value is slightly above debt value	Resale value is below debt value
Sensitivity of the asset value and liquidity to economic cycles	Asset value and liquidity are relatively insensitive to economic cycles	Asset value and liquidity are sensitive to economic cycles	Asset value and liquidity are quite sensitive to economic cycles	Asset value and liquidity are highly sensitive to economic cycles
<b>Strength of sponsor</b>				
Operator's finan-	Excellent track re-	Satisfactory track	Weak or short	No or unknown

Table 3 - Supervisory Rating Grades for Object Finance Exposures

	Strong	Good	Satisfactory	Weak
financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Good and strong re-marketing capability	record and re-marketing capability	track record and uncertain re-marketing capability	track record and inability to re-market the asset
Sponsors' track record and financial strength	Sponsors with excellent track record and high financial standing	Sponsors with good track record and good financial standing	Sponsors with adequate track record and good financial standing	Sponsors with no or questionable track record and/or financial weaknesses
<b>Security Package</b>				
Asset control	Legal documentation provides the lender effective control (e.g. a first perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	The contract provides little security to the lender and leaves room to some risk of losing control on the asset
Rights and means at the lender's disposal to monitor the location and condition of the asset	The lender is able to monitor the location and condition of the asset, at any time and place (regular reports, possibility to lead inspections)	The lender is able to monitor the location and condition of the asset, almost at any time and place	The lender is able to monitor the location and condition of the asset, almost at any time and place	The lender is able to monitor the location and condition of the asset are limited
Insurance against damages	Strong insurance coverage including collateral damages with top quality insurance companies	Satisfactory insurance coverage (not including collateral damages) with good quality insurance companies	Fair insurance coverage (not including collateral damages) with acceptable quality insurance companies	Weak insurance coverage (not including collateral damages) or with weak quality insurance companies

This table belongs to ■ BIPRU 4.5.6 R and must be used in accordance with that rule only for commodities finance exposures.

Table 4 - Supervisory Rating Grades for Commodities Finance Exposures

	Strong	Good	Satisfactory	Weak
<b>Financial strength</b>				
Degree of over-colateralisation of trade	Strong	Good	Satisfactory	Weak
<b>Political and legal Environment</b>				
Country risk	No country risk	Limited exposure to country risk (in particular, offshore	Exposure to country risk (in particular, offshore loca-	Strong exposure to country risk (in particular, inland

Table 4 - Supervisory Rating Grades for Commodities Finance Exposures

	Strong	Good	Satisfactory	Weak
Mitigation of country risks	Very strong mitigation:	location of reserves in an emerging country) Strong mitigation:	tion of reserves in an emerging country) Acceptable mitigation:	reserves in an emerging country) Only partial mitigation:
	Strong offshore Mechanisms	Offshore mechanisms	Offshore mechanisms	No offshore mechanisms
	Strategic commodity	Strategic commodity	Less strategic commodity	Non-strategic commodity
	1 <sup>st</sup> class buyer	Strong buyer	Acceptable buyer	Weak buyer
<b>Asset characteristics</b>				
Liquidity and susceptibility to damage	Commodity is quoted and can be hedged through futures or OTC instruments. Commodity is not susceptible to damage	Commodity is quoted and can be hedged through OTC instruments. Commodity is not susceptible to damage	Commodity is not quoted but is liquid. There is uncertainty about the possibility of hedging. Commodity is not susceptible to damage	Commodity is not quoted. Liquidity is limited given the size and depth of the market. No appropriate hedging instruments. Commodity is susceptible to damage
<b>Strength of sponsor</b>				
Financial strength of trader	Very strong, relative to trading philosophy and risks	Strong	Adequate	Weak
Track record, including ability to manage the logistic process	Extensive experience with the type of transaction in question. Strong record of operating success and cost efficiency	Sufficient experience with the type of transaction in question. Above average record of operating success and cost efficiency	Limited experience with the type of transaction in question. Average record of operating success and cost efficiency	Limited or uncertain track record in general. Volatile costs and profits
Trading controls and hedging policies	Strong standards for counterparty selection, hedging, and monitoring	Adequate standards for counterparty selection, hedging, and monitoring	Past deals have experienced no or minor problems	Trader has experienced significant losses on past deals
Quality of financial disclosure	Excellent	Good	Satisfactory	Financial disclosure contains some uncertainties or is insufficient
<b>Security package</b>				
Asset control	First perfected security interest provides the lender legal control of	First perfected security interest provides the lender legal control of	At some point in the process, there is a rupture in the control of the as-	Contract leaves room for some risk of losing control over the as-

Table 4 - Supervisory Rating Grades for Commodities Finance Exposures

	Strong	Good	Satisfactory	Weak
	the assets at any time if needed	the assets at any time if needed	sets by the lender. The rupture is mitigated by knowledge of the trade process or a third party undertaking as the case may be	sets. Recovery could be jeopardised
Insurance against damages	Strong insurance coverage including collateral damages with top quality insurance companies	Satisfactory insurance coverage (not including collateral damages) with good quality insurance companies	Fair insurance coverage (not including collateral damages) with acceptable quality insurance companies	Weak insurance coverage (not including collateral damages) or with weak quality insurance companies