



BANK OF ENGLAND  
PRUDENTIAL REGULATION  
AUTHORITY

Consultation Paper | CP21/19

# Credit risk: Probability of Default and Loss Given Default estimation

September 2019



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Responses are requested by Wednesday 18 December 2019.

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## 1 Overview

1.1 In this Consultation Paper (CP), the Prudential Regulation Authority (PRA) sets out its proposed approach to implementing the European Banking Authority's (EBA's) recent regulatory products relating to Probability of Default (PD) estimation, Loss Given Default (LGD) estimation and the treatment of defaulted exposures in the Internal Ratings Based (IRB) approach to credit risk.

1.2 The PRA proposes to update its expectations in Supervisory Statement (SS) 11/13 'Internal Ratings Based (IRB) approaches' to implement the EBA's regulatory products that relate to PD and LGD estimation and the treatment of defaulted exposures (see Appendix).<sup>1</sup>

1.3 The proposals are relevant to UK banks, building societies and PRA-designated UK investment firms.

### Background

1.4 The EBA has developed a roadmap of regulatory products ('EBA roadmap') with the aim of reducing unwarranted variability in the risk-weighted assets (RWAs) calculated using banks' IRB models.<sup>2</sup>

1.5 The PRA has decided to consult on its implementation of the EBA roadmap in two phases:

- First phase: definition of default.<sup>3</sup> The PRA consulted on its approach to implementing these products in CP17/18 and published its final approach in Policy Statement (PS) 7/19 'Credit risk: the definition of default'.<sup>4</sup>
- Second phase: PD and LGD estimation.

1.6 Three of the products from the EBA roadmap relate to PD and LGD estimation: the Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures ('the GL on PD & LGD');<sup>5</sup> the Final Draft<sup>6</sup> Regulatory Technical Standards on the specification of the nature, severity and duration of an economic downturn in accordance with Articles 181(3)(a) and 182(4)(a) of Regulation (EU) No 575/2013 ('the RTS on economic downturn');<sup>7</sup> and the Guidelines for the estimation of LGD appropriate for an economic downturn ('the GL on downturn LGD').<sup>8</sup>

1.7 This CP sets out the PRA's proposed approach to implementing these three products. The PRA notes that the RTS on economic downturn is, at the time of publication, in draft. This CP (including the proposed changes to SS11/13) assume that the RTS will be made in the same form as the draft.

<sup>1</sup> As stated in paragraph 1.4 of SS11/13, where approval to use the IRB approach is subject to a joint decision under CRR Article 20, expectations set out by the PRA are subject to discussions between the PRA and other European Economic Area (EEA) regulators regarding the joint decision.

<sup>2</sup> [www.eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models](http://www.eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models).

<sup>3</sup> To implement the Regulatory Technical Standards for the materiality threshold for credit obligations past due; the Guidelines on the application of the definition of default; and the EBA Opinion on the use of the 180 days past due criterion in the days past due component of the definition of default.

<sup>4</sup> Both CP17/18 and PS7/19 are available at: <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/credit-risk-the-definition-of-default>.

<sup>5</sup> <https://eba.europa.eu/regulation-and-policy/model-validation/guidelines-on-pd-lgd-estimation-and-treatment-of-defaulted-assets>.

<sup>6</sup> The EBA has published the final draft version of the RTS on economic downturn. But the RTS has not yet been adopted by the European Commission and published in the Official Journal of the European Union.

<sup>7</sup> <https://eba.europa.eu/-/eba-publishes-final-draft-technical-standards-on-the-specification-of-an-economic-downturn>.

<sup>8</sup> <https://eba.europa.eu/-/eba-publishes-final-guidelines-on-the-estimation-of-lgd-under-an-economic-downturn>.

The PRA will consider further changes that may be required to SS11/13 if the final RTS differ from the current draft.

## Implementation

1.8 In light of the EBA's Progress Report on the IRB Roadmap,<sup>9</sup> the PRA is proposing to update the implementation deadlines published in PS7/19. The rationale for this is set out in paragraphs 1.13 to 1.18. The proposed updated deadlines are:

(i) 31 December 2020:

- Deadline for IRB firms to implement all changes from the EBA roadmap for residential mortgage portfolios, including all of the definition of default changes.
- Deadline for firms that use the standardised approach (SA) for calculating capital requirements for credit risk to apply all changes to the definition of default, with the exception of changes from the Guidelines on the application of the definition of default for non-mortgage portfolios.

(ii) 1 January 2022:

- Deadline for IRB firms to implement all changes from the EBA roadmap for all other exposure classes. For the avoidance of doubt, this includes the changes to the definition of default for the identification of defaults (except for residential mortgage portfolios, where all changes are subject to the 31 December 2020 deadline above).
- Deadline for firms that use the SA for calculating capital requirements for credit risk to apply changes from the Guidelines on the application of the definition of default for non-mortgage portfolios.

1.9 In the event that an RTS has not entered into force for an exposure class by the relevant deadline, the implementation deadline for that RTS in respect of that exposure class would instead be the date of entry into force.

1.10 Firms should engage with their supervisor to discuss their implementation approach for those exposures for which Basel III removes the use of the Advanced IRB approach. The PRA does not expect firms to prioritise model changes for LGD and Exposure at Default (EAD) models that will be required to move to Foundation IRB; or equity exposures moving to the SA under Basel III, except in exceptional circumstances (eg if a material deficiency arises in the existing model that results in imprudent outcomes).

1.11 Firms with permission to use the IRB approach can rely on the Capital Requirements Regulation (CRR) Article 146<sup>10</sup> in order to meet these deadlines and manage any temporary non-compliance, in line with paragraph 22 of the EBA's Progress Report. The PRA expects firms to make every effort to comply with these revised implementation timelines.

<sup>9</sup> <https://eba.europa.eu/-/eba-publishes-report-on-progress-made-on-its-roadmap-to-repair-irb-models>.

<sup>10</sup> CRR Article 146 requires that where an institution ceases to comply with the CRR requirements for IRB, it shall notify the competent authority and do one of the following: (a) present to the satisfaction of the competent authority a plan for a timely return to compliance and realise this plan within a period agreed with the competent authority; or (b) demonstrate to the satisfaction of the competent authorities that the effect of non-compliance is immaterial.

1.12 The PRA would assess applications from firms for permission to start using the IRB approach against: requirements set out in the CRR; any relevant RTS that apply at the date that the PRA would take the decision on the application; and relevant PRA SS expectations. In cases where the PRA would take the decision on the application after the relevant implementation deadline outlined in paragraph 1.8, the PRA would also assess the application against the relevant Guidelines in the EBA roadmap. In extending the implementation deadlines, the PRA has sought to maintain a level playing field between firms as far as possible. Firms should discuss their application timelines with their Supervisor.

1.13 The background to these timelines, and the proposed updates, is that, in February 2016, the EBA published an Opinion on the implementation of the regulatory review of the IRB approach that stated that the entire EBA roadmap should be implemented by 31 December 2020.<sup>11</sup>

1.14 In PS7/19, in response to consultation feedback, the PRA extended the implementation deadline for UK firms and set an expectation that firms implement model changes to residential mortgage portfolios and any other identified material exposure class by end-2020; and implement model changes to less material exposure classes by end-2021.

1.15 In July 2019, the EBA published a Progress Report on the IRB Roadmap.<sup>12</sup> Recognising that there had been a delay to the development of the regulatory products, and the resourcing implications for both firms and competent authorities, the EBA updated its implementation deadlines<sup>13</sup> as follows:

- End-2020 (application date from 1 January 2021): deadline to implement the changes to the definition of default for the identification of defaults only, for all exposure classes.
- End-2021 (application date from 1 January 2022): deadline to implement all changes to all rating systems for all exposure classes (except those exposure classes for which the end-2023 deadline applies).
- End-2023: deadline to implement all changes to all rating systems for those exposure classes for which Basel III removes the use of the Advanced IRB approach.
- Explicit reference to the use of CRR Article 146 to manage temporary non-compliance when the deadlines cannot be met.

1.16 The PRA is now proposing to clarify in this CP the final deadlines by which it expects firms to implement the EBA roadmap, in the light of the EBA Progress report. These are as outlined in paragraphs 1.8 to 1.12.

1.17 The rationale for maintaining the implementation deadline of 31 December 2020 for residential mortgage portfolios is to align the deadline for implementing the EBA roadmap with the deadline for the hybrid approach for modelling PD for residential mortgages. This means that all changes to residential mortgage models can be made at the same time. This should relieve the implementation burden for both firms and the PRA.

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<sup>11</sup> <https://eba.europa.eu/documents/10180/1359456/EBA-Op-2016-01+Opinion+on+IRB+implementation.pdf>.

<sup>12</sup> <https://eba.europa.eu/documents/10180/2551996/Progress+report+on+IRB+roadmap.pdf>.

<sup>13</sup> Paragraphs 12 to 22 of the Progress Report.

1.18 In extending the implementation deadlines, as outlined in paragraph 1.8 to 1.12, the PRA has sought to maintain a level playing field between firms as far as possible. Firms with permission to use the IRB approach can rely on CRR Article 146 to comply with the extended deadlines for non-mortgage portfolios. Applications from firms for permission to start using the IRB approach can comply with the relevant Guidelines in the EBA roadmap by the extended deadlines for non-mortgage portfolios. But, applications from firms for permission to start using the IRB approach will need to comply with any relevant RTS that apply at the date that the PRA will take the decision on the application. Similarly, firms using the SA can apply the extended implementation deadlines for non-mortgage portfolios for the Guidelines on the application of the definition of default, but will need to comply with the RTS for the materiality threshold for credit obligations past due by 31 December 2020. This is because CRR Article 146 only applies to firms with an IRB permission that cease to be compliant.

## Responses and next steps

1.19 This consultation closes on Wednesday 18 December 2019. The PRA invites feedback on the proposals set out in this consultation. The PRA also invites feedback from firms on the expected impact of the proposals on capital requirements, particularly for the proposals set out in paragraphs 2.6 to 2.8. Please address any comments or enquiries to CP21\_19@bankofengland.co.uk.

1.20 The policy proposals set out in this CP have been designed in the context of the current UK and EU regulatory framework. In the event that the UK leaves the EU with no implementation period in place, the PRA has assessed that the proposals would not need to be amended under the EU (Withdrawal) Act 2019 (EUWA). Please see PS5/19 'The Bank of England's amendments to financial services legislation under the European Union (Withdrawal) Act 2018'<sup>14</sup> for further details.

- The draft SS attached to this CP should be read in conjunction with SS1/19 'Non-binding PRA materials: The PRA's approach after the UK's withdrawal from the EU'.<sup>15</sup>
- As these changes relate to EU Guidelines, they should be read in conjunction with the joint Bank and PRA Statement of Policy (SoP) 'Interpretation of EU Guidelines and Recommendations: Bank of England and PRA approach after the UK's withdrawal from the EU'.<sup>16</sup>

## 2 Proposals

2.1 This chapter sets out the PRA's proposals for the following areas, as well as the rationale for the proposals:

- (i) Compliance with the EBA roadmap for IRB.
- (ii) Cyclicity of downturn LGD estimates.
- (iii) Discount rate.

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<sup>14</sup> April 2019: <https://www.bankofengland.co.uk/paper/2019/the-boes-amendments-to-financial-services-legislation-under-the-eu-withdrawal-act-2018>.

<sup>15</sup> April 2019: <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/non-binding-pra-materials-the-pras-approach-after-the-uks-withdrawal-from-the-eu-ss>.

<sup>16</sup> April 2019: <https://www.bankofengland.co.uk/paper/2019/interpretation-of-eu-guidelines-and-recommendations-boe-and-pra-approach-sop>.

- (iv) Use of a component-based modelling approach for downturn LGD.
- (v) Identification of an economic downturn.
- (vi) LGD exposure level floor for residential mortgages.
- (vii) Treatment of defaulted exposures.
- (viii) Rating and calibration philosophy for non-mortgage exposure classes.

### **Compliance with the EBA roadmap for IRB**

2.2 The PRA proposes to amend SS11/13 to reflect that the PRA expects firms to comply with guidelines in the EBA roadmap and to align SS11/13 with the directly applicable RTS. The full EBA roadmap is comprised of:

- final draft RTS on the specification of the assessment methodology for competent authorities regarding compliance of an institution with the requirements to use the IRB approach in accordance with Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013 ('RTS on assessment methodology');
- RTS for the materiality threshold for credit obligations past due ('RTS for the materiality threshold');
- guidelines on the application of the definition of default ('the GL on DoD');
- the RTS on economic downturn;
- the GL on downturn LGD; and
- the GL on PD & LGD.

2.3 The PRA's existing expectations in SS11/13 would continue to apply unless they have been deleted or amended. The PRA is proposing to update its existing expectations in SS11/13 where necessary to ensure alignment with the EBA roadmap and to ensure consistent application of the EBA roadmap across firms.

### **Rationale**

2.4 The EBA roadmap sets out regulatory requirements and guidance for the application of the CRR's definition of default, estimating PD, estimating LGD and the treatment of defaulted exposures.

2.5 The PRA considers that firms' compliance with the EBA roadmap will reduce unwarranted variability and improve the comparability of IRB risk parameters and capital requirements.

### **Cyclicality of downturn LGD estimates**

2.6 In order to comply with the EBA roadmap, the PRA proposes to amend SS11/13 to clarify that for UK residential mortgages:



- Probability of possession given default (PPGD) models must appropriately reflect downturn conditions. To this end, firms should estimate PPGD consistent with property values at least 25% below their peak and at least 5% below their current value.
- Firms should reflect these downturn conditions in their PPGD models by ensuring that the:
  - (a) allocation of exposures to rating grades is consistent with the reductions in property values set out above; and
  - (b) calibration of possession rates for any given rating grade is based on data reflecting the reductions in property values set out above. If the data reflect reductions in property values that are lower than either reduction above, firms should appropriately adjust their calibration within grades to be consistent with these downturn property values.
- If a firm's PPGD model is not sensitive, or less sensitive, to falls in property values, for example if the model uses values at origination and not current values to assign exposures to rating grades, the firm should ensure that its calibration of possession rates reflects economic conditions where property values are at least 25% below their peak values. The firm should also demonstrate to the PRA that the model achieves similar outcomes as it would if it was using current property values to assign exposures to rating grades, including in stressed scenarios.

2.7 The PRA proposes to introduce an expectation that firms with limited data from a downturn should apply an additional margin of conservatism. The PRA proposes to retain its current expectations that firms with limited data overall should add a significant margin of conservatism to their repossession rates that should be assessed against the reference points in SS11/13.

2.8 The PRA also proposes to clarify that the guideline in the GL on downturn LGD stating that, 'for models with risk drivers sensitive to the economic cycle, institutions should ensure that the resulting downturn estimates are not unduly sensitive to changes in the economic cycle',<sup>17</sup> applies to all asset classes. Firms should adjust their downturn LGD estimates where necessary. Firms should consider whether any adjustments they already make to address cyclicity in wholesale LGD estimates satisfy this requirement, for example through conservative approaches to haircutting collateral values.

### *Rationale*

2.9 The CRR requires firms to model an LGD that is appropriate for an economic downturn. As set out in paragraph 2.8, the GL on downturn LGD state: 'for models with risk drivers sensitive to the economic cycle, institutions should ensure that the resulting downturn estimates are not unduly sensitive to changes in the economic cycle'.

2.10 For UK residential mortgages, SS11/13 already sets out that, when modelling the loss rate component of LGD, the PRA expects the assumption for the fall in the value of the property not to be lower than 25% from the previous peak and not lower than 5% from current values.<sup>18</sup>

2.11 Another important component of LGD modelling for UK residential mortgages is the PPGD. In economic downturn conditions, property values may fall, leading to higher loan to values (LTVs) and allocation of exposures to inferior PPGD rating grades. And for a given rating grade, possession rates

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<sup>17</sup> Paragraph 17 of the EBA GL on downturn LGD.

<sup>18</sup> Paragraphs 13.8 and 13.9 of SS11/13.

might increase. Both of these elements need to be taken into account for PPGD estimates to fully reflect economic downturn conditions. Firms need to use historical data correctly reflecting lower house prices and higher possession rates.

2.12 The PRA has reviewed a number of firms' PPGD models and has found a divergence of approaches. Several models reflect property value falls, by allocating loans to rating grades that reflect downturn LTVs. And many models take account of higher possession rates for a given LTV, by calibrating the possession rate using data from downturn conditions. But the PRA has found that the majority of models do not reflect both of these aspects of a downturn. PPGD models frequently remain excessively sensitive to house price rises and do not adequately reflect downturn conditions.

2.13 The PRA considers that this represents a material deficiency in risk capture in downturn LGD estimation. The PRA does not consider that widely varying assumptions can be sufficiently justified on the basis of historical experience.

2.14 The PRA's proposal would mean that, when modelling PPGD, firms would typically assign exposures to rating grades on the basis of LTVs calculated after applying a fall in the value of the property. Firms would then estimate the repossession rate associated with mortgages for a given rating grade in a downturn period. For example, consider a mortgage loan with a 75% current LTV, in a situation where property values are at a historic peak. The firm would apply a 25% fall to the value of the property, which would change the LTV to 100%. If, in a downturn with a 25% fall in property value, 60% of defaulted loans with 100% LTV were repossessed, then the exposure's modelled repossession rate would be 60%.

2.15 The PRA's proposal that PPGD models should include LTVs that reflect property values at least 25% below their peak is to ensure that firms use similar assumptions for the level of property value falls for both the PPGD and Loss Given Possession components of LGD, and that the resultant LGD estimates are appropriate for economic downturn conditions. This is consistent with the EBA GL on downturn LGD. Where the dataset used to calibrate PPGD does not reflect these falls in property values, firms should adjust their calibration accordingly. If property values are already more than 20% below their peak, then firms should assume a minimum 5% reduction from current valuations in order to appropriately reflect the risk of further house price falls.

2.16 These changes should reduce the sensitivity to house price changes of LGD estimates and, therefore, of RWAs. This is because a 25% fall in property values will be built into the calculation of RWAs for all firms, so only large falls will increase PPGD. The PRA considers that this would ensure that both consistency and prudence are maintained when modelling downturn LGD for UK residential mortgages.

2.17 Some models use LTV at origination that is not updated as property values change. With these models, as property values change, PPGD will not change. However, some origination LTV models may also exhibit cyclical behaviour depending on how the origination LTV is updated for different mortgage products (e.g. for re-mortgaging). We propose to continue to accept approaches based on origination LTV in principle, but to expect firms to demonstrate that the outcomes are sufficiently prudent compared to approaches based on current LTV. In addition, approaches based on origination LTV could also underestimate risk under stressed conditions, where property values may be more than 25% below the peak. In that case, the models based on origination LTV may not reflect the full risk of the loan, so firms should consider how their models will take this into account.

2.18 The guideline in the GL on downturn LGD that 'downturn estimates are not unduly sensitive to change in the economic cycle' applies to all asset classes, not just residential mortgages. The PRA has

therefore proposed to clarify that firms should adjust their downturn LGD estimates where necessary in order to comply with this guideline.

### Discount rate

2.19 The PRA proposes to update its expectations in SS11/13 regarding three separate topics that relate to the discount rate:

- (i) The PRA proposes to update its expectations in SS11/13 for the discount rate used when estimating LGD. For the purpose of estimating long run average LGD, the PRA proposes an expectation that firms use a discount rate of Sterling Overnight Index Average (SONIA) at the moment of default plus 5%. The PRA continues to expect firms to ensure that no discount rate used to estimate downturn LGD is less than 9%.
- (ii) The PRA proposes to update its expectations in SS11/13 for the discounting of defaulted exposures that return to non-defaulted status (ie cures). This is referred to as the 'artificial cash flow' in the GL on PD & LGD.<sup>19</sup> Firms should only include accrued interest up to the moment of cure when calculating the artificial cash flow. In addition, the artificial cash flow should only be discounted over the actual period the exposure was in default and, therefore, not including the probation period<sup>20</sup> or the independence period.<sup>21</sup>
- (iii) The PRA also proposes to update its expectations in SS11/13 for the discounting of cash flows from realising security. The amount of recoveries that can be recognised as a cash flow and discounted should not be higher than the amount of recoveries the firm is contractually entitled to retain for the exposure.

### Rationale

2.20 The PRA considers that compliance with the EBA roadmap will reduce unwarranted variability and improve the comparability of IRB risk parameters and capital requirements.

2.21 The PRA considers that the use of SONIA (at the moment of default) plus 5% as the discount rate when estimating a long-run average LGD is consistent with the GL on PD & LGD which requires the use of primary interbank offered rate – defined as the 3-month EURIBOR or a comparable liquid interest rate – increased by an add-on of 5%.

2.22 However, the PRA considers the continued use of the current 9% discount rate floor to be appropriate when estimating a downturn LGD. The background and rationale of the GL on PD & LGD state: "The discounting rate specified in the GL is expected to reflect the average economic conditions that are adequate for the purpose of the long-run average LGD. It is not considered to be associated with downturn conditions. The downturn adjustment should be specified in accordance with the requirements of the RTS on the nature, severity and duration of economic downturn, which will be specified on the basis of Article 181(3)(a) of the CRR."<sup>22</sup> Consistent with this, the PRA does not consider it appropriate to use SONIA plus 5% as the discount rate for downturn LGD. The PRA considers a minimum discount rate of 9% to be an appropriate discount rate for downturn LGD, as a discount rate that is directly linked to an interest rate would be potentially volatile and cyclical, depending on how interest rates move with the economic cycle. This could introduce undesirable

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<sup>19</sup> Paragraph 135 of the GL on PD & LGD.

<sup>20</sup> Paragraph 71(a) of the GL on DoD.

<sup>21</sup> Paragraph 101 of the GL on PD & LGD.

<sup>22</sup> Page 33 of the GL on PD & LGD.

volatility into LGD estimates and risk weights. The PRA considers a minimum 9% discount rate to ensure an appropriate level of conservatism for a range of interest rate environments and across exposure classes.

2.23 The PRA considers SONIA to be the comparable UK liquid interest rate<sup>23</sup> to 3-month EURIBOR for the purposes of calculating long-run average LGD. The PRA notes that SONIA is an overnight rate, whereas EURIBOR is a term rate. The PRA does not consider it appropriate for firms to use 3-month LIBOR instead of SONIA as the future of LIBOR is not guaranteed beyond 2021 and the PRA and the FCA have indicated that firms should plan based on the likely cessation of LIBOR at end-2021<sup>24</sup>. The PRA also considered the use of SONIA plus an add-on to reflect the credit risk of a 3-month term. But the PRA considers that calculating such an add-on would add undesirable complexity.

2.24 The PRA considers it necessary to clarify the approach required by the GL on PD & LGD<sup>25</sup> to discounting cured exposures in order to avoid inconsistent interpretations of the guidelines. The PRA considers that the proposed approach most accurately reflects the economic reality of the exposures and timing of the cash flows. The PRA also considers the common UK industry practice of assuming zero loss for cures to be insufficiently prudent and therefore considers this expectation will result in a proportionate but more conservative treatment of cured exposures.

2.25 The PRA considers it appropriate to introduce an expectation that firms only recognise the recoveries they are contractually entitled to retain as this reflects the economic reality of the expected cash flows. To recognise more than the amount that the firm is contractually entitled to retain, such as the entire value of the collateral, would be inaccurate and bias the LGD estimates.

### **Use of a component-based modelling approach for downturn LGD**

2.26 The GL on downturn LGD includes three approaches for downturn LGD estimation<sup>26</sup>:

- Downturn LGD estimation based on observed impact: Where sufficient loss data are available to assess the impact for the downturn period under consideration, the institution should conduct a standardised impact assessment. Downturn LGD should then be calibrated for the downturn period under consideration in a way that is coherent with the results obtained from that impact assessment. This approach is set out in section 5 of the GL on downturn LGD.
- Downturn LGD estimation based on estimated impact: Where sufficient loss data are not available to base the downturn LGD calibration on an observed impact for a considered downturn period, the downturn LGD should be calibrated using a haircut approach or an extrapolation approach, or a combination of both approaches. This approach is set out in section 6 of the GL on downturn LGD.
- Downturn LGD estimation where observed or estimated impact is not available: Where sufficient data are not available to quantify downturn LGDs for the downturn period under consideration based on observed or estimated impact using the two approaches outlined above, firms still have to estimate downturn LGD. Firms are permitted to estimate downturn LGD using any other approach, but the downturn LGD estimates plus an appropriate margin of conservatism (covering the lack of data and methodological deficiencies) must be higher than

<sup>23</sup> Paragraph 143 of the GL on PD & LGD.

<sup>24</sup> <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2019/july-2019.pdf>.

<sup>25</sup> Paragraph 135 of the GL on PD & LGD.

<sup>26</sup> As outlined in paragraphs 22 to 26 and Sections 5 to 7 of the GL on downturn LGD.

the corresponding long-run-average LGDs plus 15 percentage points (capped at a final downturn LGD estimate level of 105%). To use this approach, the institution must justify to the satisfaction of the competent authority that it can apply neither of the two approaches outlined above. This approach is set out in section 7 of the GL on downturn LGD.

2.27 The PRA proposes to clarify in SS11/13, for the avoidance of doubt, that both a component-based modelling approach and a direct estimate modelling approach are permitted for use under Section 5 of the GL on downturn LGD, and that a component-based approach is permitted for use in Section 6 of the GL on downturn LGD. However, the PRA considers that it is unlikely that firms will be able to produce robust direct estimate downturn LGD models for residential mortgages. Therefore, the PRA expects firms to use a component-based approach for these exposures.

2.28 The PRA proposes to update SS11/13 to set an expectation that firms should be able to adopt a modelling approach in line with Section 5 or 6 of the GL on downturn LGD, and that it is unlikely that a firm can justify using an approach in line with Section 7 of the GL on downturn LGD.

2.29 The PRA proposes to clarify that in order to comply with the GL on downturn LGD, firms using a component-based approach to model downturn LGD should ensure that all components should reflect a downturn and that all components should reflect the same downturn. When doing this, firms should take into account any time lags between the downturn period and potential impact on the firm's loss data, as required by the RTS on economic downturn<sup>27</sup> and the GL on downturn LGD.<sup>28</sup> Therefore, while model components should reflect the same downturn, a time lag may be necessary so that the peak value within the same downturn is used for each model component. Firms should also ensure the time lags are not so long that they result in LGD estimates that are reflective of an upturn or improved economic conditions.

### *Rationale*

2.30 Section 5 of the GL on downturn LGD requires firms with sufficient loss data to perform an impact analysis to understand the impact of the downturn period on their loss data. Firms are then permitted to use any estimation methodology to calibrate downturn LGD, provided that it is coherent with evidence obtained from the impact analysis.<sup>29</sup> Consequently, the PRA considers that both a component-based modelling approach and a direct estimate modelling approach are permitted for use in Section 5.

2.31 In addition, the ability to use any downturn LGD estimation methodology is reflected in the background and rationale of the GL on downturn LGD:<sup>30</sup> "the policy leaves flexibility to institutions with respect to the detailed methodology applied for the purpose of calibration of downturn LGD based on results of the impact assessment... The flexibility to select an appropriate methodology to calibrate downturn LGD includes the ability to use the 'haircut approach',<sup>31</sup> outlined in section 6 of the GL [on downturn LGD], as a methodology under section 5 of the GL [on downturn LGD]."

2.32 Section 6 of the GL on downturn LGD explicitly permits the use of a component-based modelling approach for downturn LGD.

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<sup>27</sup> Article 4(2) of the RTS on economic downturn.

<sup>28</sup> Paragraph 26(b), 27(c) and 31 of the GL on downturn LGD.

<sup>29</sup> Paragraph 28 of the GL on PD & LGD.

<sup>30</sup> Page 25 of the GL on downturn LGD.

<sup>31</sup> The PRA considers the component based approach typically used by UK firms for modelling downturn LGD for residential mortgages as equivalent to the haircut approach in the GL on downturn LGD.

2.33 The PRA considers that firms are unlikely to be able to produce robust direct estimate models for residential mortgages, as these models typically assume that the impact of the previous downturn on loss data and the relationship between the model components will be reflected in future downturns. We are doubtful whether firms have sufficient data to robustly model this relationship and impact.

2.34 The PRA considers it appropriate to clarify that all model components should reflect a downturn and should reflect the same downturn in order to ensure alignment with the GL on downturn LGD and produce consistent and prudent practices across all firms.

### Identification of an economic downturn

2.35 The RTS on economic downturn sets out requirements relating to the identification of an economic downturn for the purpose of estimating downturn LGD. For the purpose of specifying the severity of the economic downturn as a set of the most severe values associated with each relevant economic factor, the RTS establishes a minimum length of 20 years of observations for each economic factor to be considered by firms. Where this period of data does not contain sufficiently severe values for a considered economic factor, the RTS requires institutions to look further back into the data history. Consistent with the RTS, when identifying an economic downturn for downturn LGD estimation, the PRA proposes to expect firms to consider a period longer than twenty years where the values of the economic indicators are considered insufficiently severe during this twenty year period<sup>32</sup>.

2.36 For the avoidance of doubt, the PRA expects that firms should continue to use economic conditions equivalent to those observed in the UK during the early 1990s in order to calibrate long-run average PD for UK residential mortgages.<sup>33</sup>

### Rationale

2.37 The PRA outlined its expectations for calibrating long-run average PD for residential mortgage portfolios in PS13/17 'Residential mortgage risk weights'.<sup>34</sup> This led to amendments to SS11/13. These new expectations are known as the 'hybrid approach'. For the hybrid approach to calibrating long-run average PD for UK residential mortgages, the PRA expects that in defining a representative mix of good and bad economic periods, firms would need to incorporate economic conditions equivalent to those observed in the UK during the early 1990s.

2.38 The RTS on economic downturn outlines how firms should identify an economic downturn for the purpose of downturn LGD estimation.

2.39 Therefore, there is no direct overlap between the PRA's expectations for calibrating long-run average PD, and the RTS on economic downturn's requirements for identifying an economic downturn to use in downturn LGD estimation.

### LGD exposure level floor for residential mortgages

2.40 The PRA proposes to set an expectation that the exposure-level LGD floor should not be less than 5% for residential mortgages.

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<sup>32</sup> Article 3(1) of the RTS on economic downturn.

<sup>33</sup> Paragraph 10.14 of SS11/13.

<sup>34</sup> June 2017: <https://www.bankofengland.co.uk/prudential-regulation/publication/2016/residential-mortgage-risk-weights>.

*Rationale*

2.41 The PRA considers that an LGD floor of 5% for residential mortgages achieves an appropriate margin of conservatism to take the impact of collateral volatility into account. This floor is also currently widely applied by UK firms. For the benefit of clarity and comparability, the PRA proposes to add this LGD floor to its expectations in SS11/13.

**Treatment of defaulted exposures**

2.42 The PRA proposes to delete its existing expectations for the treatment of defaulted exposures in paragraphs 13.18 to 13.20 of SS11/13. Firms should follow the approach in the EBA roadmap.

*Rationale*

2.43 The PRA considers its current expectations for the treatment of defaulted exposures to be not fully aligned with the EBA roadmap, particularly the GL on PD & LGD. To ensure alignment with the EBA roadmap, the PRA has proposed to delete its existing expectations for the treatment of defaulted exposures.

**Rating and calibration philosophy**

2.44 In accordance with Section 5.2.4 of the GL on PD & LGD, firms should choose an appropriate philosophy underlying the assignment of obligors or exposures to grades or pools. The PRA has previously clarified its expectation that, for residential mortgage exposures, firms' PD models should move away from cyclical point in time (PiT) models or non-cyclical through the cycle (TtC) approaches and fall within a spectrum between these two approaches.<sup>35</sup> For retail exposure sub-classes other than residential mortgages, the PRA has not set expectations on rating philosophy. Firms should choose an appropriate approach, which could include models that use dynamic recalibration to achieve a PiT approach.

**3 The PRA's consultation process**

3.1 The PRA has a statutory duty to consult when introducing new rules and, when not making rules, has a public law duty to consult widely when it would be fair to do so. In doing so, it is required to comply with several statutory and public law obligations. The PRA meets these obligations by providing the following in its consultations:

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<sup>35</sup> See footnote 31.

- a cost benefit analysis;
- an explanation of the PRA's reasons for believing that making the proposed rules is compatible with the PRA's duty to act in a way that advances its general objective, insurance objective (if applicable), and secondary competition objective;
- an explanation of the PRA's reasons for believing that making the proposed rules is compatible with its duty to have regard to the regulatory principles; and
- a statement as to whether the impact of the proposed rules will be significantly different to mutuals than to other persons.

3.2 The Prudential Regulation Committee (PRC) should have regard to aspects of the Government's economic policy as recommended by HM Treasury.<sup>36</sup>

3.3 The PRA is also required by the Equality Act 2010<sup>37</sup> to have due regard to the need to eliminate discrimination and to promote equality of opportunity in carrying out its policies, services and functions.

### Cost benefit analysis

3.4 This CP proposes to update the PRA's expectations for certain elements of the IRB framework that relate to PD and LGD estimation in order to implement the EBA roadmap. The PRA is required to perform a cost benefit analysis of the impact of its policy proposals. The PRA has performed an overall cost benefit analysis as well as a cost benefit analysis of each of the key policy proposals.

### Overall cost benefit analysis

3.5 The benefits of the proposals in this CP arise from the clarification of the application of the CRR requirements for the estimation of PD and LGD within the IRB framework. This should reduce the unwarranted variability and increase the comparability of IRB risk parameters, risk weighted assets, and capital metrics both among UK firms, and between UK firms and other EEA firms. It should ensure that differences in estimates across firms are based on risk and not on different practices or interpretations.

3.6 The PRA considers that some firms will incur an operational cost to implement the proposals for any parts of the EBA roadmap that represent a change of practice for a particular firm.

3.7 The proposals on the cyclical nature of downturn LGD estimates and discounting cured exposures may require firms to maintain additional capital against these exposures. The PRA considers that any such increase is justified on the basis of promoting safety and soundness, reducing unwarranted variability in IRB risk parameters and improving market participants' confidence in capital metrics.

3.8 Overall, the PRA considers that the proposals in this CP achieve the right balance between the benefits and the costs.

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<sup>36</sup> Section 30B of the Bank of England Act 1998.

<sup>37</sup> Section 149.



### Cost benefit analysis of the PRA's proposals on the cyclical of downturn LGD estimates

3.9 The proposals address the risk that some firms' approaches may not adequately reflect what might be expected to happen in an economic downturn. This would mean that RWAs might be insufficient in those scenarios.

3.10 The proposals to change PPGD models will have some operational impact, but we do not expect this to be high.

3.11 The PRA considers that firms will not need to fully rebuild their models. Some firms may need to recalibrate their models based on data from a downturn, and firms may need to make changes to reflect a downturn fall in property values that is higher than in the 2008-09 crisis. Other firms may not need to recalibrate but may need to operationalise their models differently by assigning loans to rating grades commensurate with a 25% peak to trough fall in property values.

3.12 In addition to the above, firms that use origination LTV may have to reconsider their stress test approach and perform a high-level assessment of outcomes compared with indexed LTV. But the alternative is to hold firms using origination LTV to a lower standard than other firms.

3.13 Firms will already be required to make model changes to implement the other elements of the EBA roadmap, so combining the model changes for PPGD with the wider changes should reduce the implementation burden. The PRA proposes to expect firms to implement the PPGD model changes by end 2020, aligning with the PRA's proposed deadline for implementing the rest of the EBA roadmap for residential mortgage models.

3.14 These proposals will increase modelled repossession rates for a number of firms. This is because some firms do not currently apply any fall in property values, and loans with a higher LTV have higher historical repossession rates. This increase in repossession rates would in turn increase modelled LGDs and, therefore, Pillar 1 RWAs.

3.15 RWAs would also become less cyclical. This is because a 25% property value fall would be built into the calculation of risk weights, so only falls greater than 25% can increase PPGD and, therefore, RWAs under the stress test. This means that total capital requirements, including the PRA Buffer, might increase to some extent as a result of the PPGD proposals, but by a smaller proportion than Pillar 1 capital requirements.

3.16 The PRA considers that the potential costs of this proposal are justified by the benefits. The proposals should reduce the cyclical of firm's LGD estimates.

### Cost benefit analysis of the PRA's proposals on the discount rate

3.17 This CP contains three proposals related to the discount rate: the discount rate to be used when estimating LGD; discounting cured exposures; and the discounting of cash flows from realising security.

3.18 The benefit of the proposal to use SONIA plus 5% as the discount rate when estimating a long-run average LGD is to align with the requirements of the EBA roadmap, which should reduce unwarranted variability and increase comparability of IRB risk parameters and capital requirements across firms. The benefit of retaining the PRA's expectation of a minimum 9% floor for the discount rate to be used for downturn LGD estimates is to ensure an appropriate level of conservatism and to limit the volatility and cyclical of the discount rate. The 9% floor should be appropriate for a range of interest rate environments and for all exposure classes.

3.19 The PRA considers that the proposal to use SONIA plus 5% when estimating a long-run average LGD, and maintaining the PRA's current expectation of a 9% floor for downturn LGD estimates, will not lead to a change of practice for UK firms. There should be no impact on capital requirements.

3.20 The benefit of the proposal for discounting cured exposures is to avoid inconsistent application of the GL on PD & LGD, which would undermine the aim of reducing unwarranted variability of IRB risk parameters. As the PRA does not consider the common UK industry practice of assuming zero loss for cures to be sufficiently prudent, the proposal also introduces a degree of justified conservatism.

3.21 The PRA considers that the proposal for discounting cured exposures may have a moderate implementation cost and impact on capital requirements for some firms, but that this is justified as the PRA considers the current UK industry practice to be insufficiently prudent.

3.22 The benefit of the proposal that firms should only recognise the recoveries that they are contractually entitled to retain is to ensure that no firm benefits in its LGD estimates from the recognition of recoveries that it would not be able to obtain in practice.

3.23 The PRA considers that the proposal for the recognition of recoveries could have an implementation cost and impact on capital requirements for some firms, but this is justified, as the proposals should reflect the economic substance of the recovery process.

### **Compatibility with the PRA's objectives**

3.24 The PRA has assessed whether the proposals in this CP promote the safety and soundness of firms. As set out in the cost benefit analysis section, the proposals in this CP should contribute to promoting the safety and soundness of firms by ensuring appropriate PD and LGD estimates and prudent calculations of capital requirements for both defaulted and non-defaulted exposure classes. It will also help to ensure that any differences in IRB risk parameters or capital requirements are based on risk and not on different practices or interpretations.

3.25 The PRA has assessed whether the proposals in this CP facilitate effective competition. The policy proposals in the CP should not hinder competition as they apply equally to existing IRB firms and prospective IRB applicants. In addition, the policy proposals should promote effective competition by improving the clarity of the regulatory requirements. The proposals should result in a more level playing field across firms whose current approaches differ in their level of prudence. While the introduction of new regulatory requirements could increase the burden of obtaining an IRB permission for an IRB applicant, the increased clarity of the requirements should offset any burden. If the changes were to increase IRB-modelled risk weights, such as the changes to PPGD for residential mortgages, this may narrow the gap in risk weights between the IRB approach and the SA.

3.26 However, the PRA has assessed that the proposed implementation deadlines may not fully facilitate effective competition. In extending the implementation deadlines, as outlined in paragraph 1.8 to 1.12, the PRA has sought to maintain a level playing field between firms as far as possible. Firms with permission to use the IRB approach can rely on CRR Article 146 to comply with the extended deadlines for non-mortgage portfolios. For applications from firms for permission to start using the IRB approach, the PRA is permitting firms to comply with the relevant Guidelines in the EBA roadmap by the extended deadlines for non-mortgage portfolios. But, applications from firms for permission to start using the IRB approach will need to comply with any relevant RTS that apply at the date that the PRA will take the decision on the application. Similarly, the PRA is permitting firms using the SA to apply the extended implementation deadlines for non-mortgage portfolios for

the GL on DoD, but will need to comply with the RTS for the materiality threshold by 31 December 2020. This is because CRR Article 146 only applies to firms with an IRB permission that cease to be compliant.

### Regulatory principles

3.27 In developing the proposals in this CP, the PRA has had regard to the regulatory principles. Five of the principles are of particular relevance.

- (i) The principle that a burden or restriction which is imposed on a person, or on the carrying on of an activity, should be proportionate to the benefits, considered in general terms, which are expected to result from the imposition of that burden or restriction: the PRA considers that the proposals achieve an appropriate balance between the burden of the proposals and the prudential benefits, as set out in the cost benefit analysis.
- (ii) The desirability of sustainable growth in the economy of the UK in the medium or long term: the PRA expects the proposals to contribute to sustainable economic growth by promoting the resilience of the firms that provide core financial services. Reducing unwarranted variability in firms' capital requirements should help to renew confidence amongst investors and other market participants in firms' capital strength.
- (iii) The principle that the regulators should exercise their functions as transparently as possible: in this CP, the PRA clarifies its proposed expectations in a number of areas relating to the estimation of PD and LGD. This should improve transparency.
- (iv) The need to use the resources of each regulator in the most efficient and economic way: in this CP, the PRA proposes to extend the deadline for implementing the EBA roadmap for all exposure classes except for residential mortgages. This should relieve the resource burden for both firms and the PRA. The PRA is requiring the changes to be made to residential mortgage models by end-2020, to align with implementation of the hybrid approach. This should minimise the number of model changes and regulatory reviews required which should relieve burden for both firms and the PRA.
- (v) The desirability, where appropriate, of each regulator exercising its functions in a way that recognises differences in the nature of, and objectives of, businesses carried on by different persons subject to requirements imposed by or under FSMA: the PRA considers that the EBA roadmap will reduce unwarranted variability in IRB risk parameters whilst retaining the risk sensitivity of firms' IRB models. This should ensure that firms' IRB models remain reflective of their business models and risk profiles.

### Impact on mutuals

3.28 The PRA considers that the impact of the proposed rule changes on mutuals is expected to be no different from the impact on other firms.

## HM Treasury recommendation letter

3.29 HM Treasury has made recommendations to the PRC about aspects of the Government's economic policy to which the PRC should have regard when considering how to advance the PRA's objectives and apply the regulatory principles.<sup>38</sup>

3.30 The aspects of the Government's economic policy most relevant to the proposals in this CP are: (i) competition; (ii) growth; (iii) diversity of business; and (iv) competitiveness.

3.31 Aspects (i) to (iii) have been considered in the 'compatibility with the PRA's objectives' and 'regulatory principles' sections above. Consideration of aspect (iv) on competitiveness is set out below.

### Competitiveness

3.32 An intention of the proposals in this CP is to reduce the unwarranted variability of definitions, interpretations and practices within the IRB model framework. Given that the EBA's regulatory products will apply to all EEA firms, they should increase consistency of modelling approaches and capital requirements across EEA firms. Therefore, the PRA does not consider that the proposals will inhibit or disadvantage the competitiveness of the UK banking industry.

### Equality and diversity

3.33 The PRA considers that the proposals do not give rise to equality and diversity implications.

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38 Information about the PRC and the recommendations from HM Treasury are available on the Bank's website at <https://www.bankofengland.co.uk/about/people/prudential-regulation-committee>.

## Appendix: Draft amendments to Supervisory Statement 11/13 'Internal Ratings Based (IRB) Approaches

In this appendix, underlining indicates new text and striking through indicates deleted text.

### 12 Probability of default in IRB approaches

12.A1 When applying the CRR requirements relating to the estimation of the probability of default, the PRA expects firms to comply with the EBA's Guidelines on PD estimation, LGD estimation and the treatment of defaulted assets (EBA/GL/2017/16).

...

### 13 Loss Given Default in IRB approaches

13.A1 When applying the CRR requirements relating to the estimation of loss given default, the PRA expects firms to comply with the EBA's Guidelines on PD estimation, LGD estimation and the treatment of defaulted assets (EBA/GL/2017/16) and the EBA's Guidelines for the estimation of LGD appropriate for an economic downturn ('Downturn LGD estimation') (EBA/GL/2019/03).

...

#### Low LGDs

13.2 The PRA does not expect firms to be using zero LGD estimates in cases other than where they had cash collateral supporting the exposures.

13.3 The PRA expects firms to justify any low LGD estimates using analysis on volatility of sources of recovery, notably on collateral, and cures (as outlined below). This includes:

- (a) recognising that the impact of collateral volatility on low LGDs is asymmetric as surpluses over amounts owed need to be returned to borrowers and that this effect may be more pronounced when estimating downturn rather than normal period LGDs; and
- (b) recognising the costs and discount rate associated with realisations and the requirements of CRR Article 181(1)(e).

13.4 In order to ensure that the impact of collateral volatility is taken into account, the PRA expects firms' LGD framework to include non-zero LGD floors which are not solely related to administration costs. For residential mortgages, the PRA expects firms to ensure that the LGD estimate for each exposure is no less than 5%.

(CRR Article 179(1)(f))

...

#### Treatment of cures

13.5 Where firms wish to include cures in their LGD estimates, the PRA expects them to do so on a cautious basis with reference to both their current experience and how this is expected to change in downturn conditions. In particular, this involves being able to articulate clearly both the precise course of events that will allow such cures to take place and any consequences of such actions for other elements of their risk quantification. For example:

- (a) where cures are driven by the firm's own policies, we would expect firms to consider whether this is likely to result in longer realisation periods and larger forced sale discounts for those exposures that do not cure, and higher default rates on the book as a whole, relative to those that might be expected to result from a less accommodating attitude. To the extent feasible, the PRA expects cure assumptions in a downturn to be supported by relevant historical data.
- (b) the PRA expects firms to be aware of and properly account for the link between cures and subsequent defaults. In particular, an earlier cure definition is, other things being equal, likely to result in a higher level of subsequent defaults.

(CRR Article 5(2))

13.5A For the purpose of applying paragraph 135 of the EBA Guidelines on PD estimation, LGD estimation and defaulted assets (EBA/GL/2017/16), the PRA expects firms to discount the 'artificial cash flow' as follows:

(a) the artificial cash flow should include accrued interest up to the moment of cure only and should exclude any accrued interest that is due after the moment of cure.

(b) the artificial cash flow should be discounted over the actual period of default only and should not be discounted over any additional time period between the moment of cure and the end of the minimum cure period.<sup>n</sup>

...

### Downturn LGD

13.7A When identifying an economic downturn, the EBA Final Draft Regulatory Technical Standard on the specification of the nature, severity and duration of an economic downturn (EBA/RTS/2018/04)<sup>n</sup> requires that firms examine economic indicators over the previous twenty years. In accordance with the RTS, the PRA expects firms to consider a period longer than twenty years where the values of the economic indicators are considered insufficiently severe during this period.

13.7B Section 4.3 of the EBA Guidelines for the estimation of LGD appropriate for an economic downturn (EBA/GL/2019/03) sets out a hierarchy of three types of approaches for calibrating downturn LGD for each considered downturn period. The PRA has the following expectations for the application of these approaches:

- (a) The PRA considers that both a component-based modelling approach and a direct estimate modelling approach are permitted for use under Section 5 'downturn LGD estimation based on observed impact', and that a component based approach is permitted for use in Section 6

<sup>n</sup> The "minimum cure period" is 12 months. The EBA Guidelines on the definition of default require that a cured exposure show no triggers of default for a minimum of three months in order to be considered a cure ("probation period"). The EBA Guidelines on PD estimation, LGD estimation and defaulted assets require that, for the purposes of LGD estimation, a cured exposure is subject to a further minimum nine months to ensure that it is a genuine cure and that any subsequent default is a truly independent default event ("independence period"). Therefore, the minimum cure period is the probation period (minimum 3 months) plus the independence period (minimum 9 months) = 12 months.

<sup>n</sup> This paragraph will only apply once the final RTS has entered into force in the UK. References to the draft RTS should then be read as references to the final RTS published in the Official Journal of the European Union.

'downturn LGD estimation based on estimated impact'. However, the PRA considers that it is unlikely that firms will be able to produce robust direct estimate downturn LGD models for residential mortgages. Therefore, the PRA expects firms to use a component-based approach for these exposures.

- (b) The PRA expects that it is unlikely that firms will be able to demonstrate that they cannot use one of the approaches in (a). The PRA therefore does not expect firms to use the approach to estimating downturn LGD set out in Section 7: 'downturn LGD estimation where observed or estimated impact is not available'.

13.7C The PRA expects firms using a component based approach to modelling downturn LGD to ensure that all components reflect a downturn and that each component reflects the same downturn. Firms should take into account any time lags between the downturn period and the potential impact on the firm's loss data. Therefore, while model components should reflect the same downturn, a time lag may be necessary so that the peak value within the same downturn is used for each model component. Firms should ensure the time lags are not so long that they result in LGD estimates that are reflective of an upturn or improved economic conditions.

13.7D Firms should adjust their downturn LGD estimates, where necessary, in order to ensure that 'downturn estimates are not unduly sensitive to change in the economic cycle'.<sup>n</sup> Firms should consider whether any adjustments they already make to address cyclicity in wholesale LGD estimates, for example through conservative approaches to haircutting collateral values, satisfy this requirement.

(CRR Article 181(1)(b))

...

### **Downturn LGDs [Deleted September 2019]**

~~13.10 In order to ensure that their LGD estimates are oriented towards downturn conditions, the PRA expects firms to have a process through which they:~~

~~(c) identify appropriate downturn conditions for each IRB exposure class within each jurisdiction;~~

~~identify adverse dependencies, if any, between default rates and recovery rates; and~~

~~incorporate adverse dependencies, if identified, between default rates and recovery rates in the firm's estimates of LGD in a manner that meets the requirements relating to an economic downturn.~~

~~(CRR Article 181(1)(b))~~

...

### **Discounting cash flows**

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<sup>n</sup> Paragraph 17 of the EBA's Guidelines for the estimation of LGD appropriate for an economic downturn ('Downturn LGD estimation') (EBA/GL/2019/03)

13.11 In order to ensure that their LGD estimates incorporate material discount effects, the PRA expects firms' methods for discounting cash flows to take account of the uncertainties associated with the receipt of recoveries with respect to a defaulted exposure, for example 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.

13.12 If a firm intends to use a discount rate that does not take full account of the uncertainty in recoveries, we would expect it to be able to explain how it has otherwise taken into account that uncertainty for the purposes of calculating LGDs. This can be addressed by adjusting cash flows to certainty equivalents or by using a discount rate that embodies an appropriate risk premium for defaulted assets; or by a combination of the two.

13.13 In addition to the above expectations measures, firms should ~~the PRA expects firms to~~ ensure that no discount rate used to estimate downturn LGD is less than 9%. For the purpose of estimating long run average LGD, the PRA expects firms to use a discount rate of Sterling Overnight Index Average (SONIA) at the moment of default plus 5%.

(CRR Article 5(2))

13.13A The PRA expects that the amount of recoveries that can be recognised as a cash flow and discounted should not be higher than the amount of recoveries the firm is contractually entitled to retain for the exposure.

...

### **Unexpected loss (UL) on defaulted assets<sup>a</sup>[Deleted September 2019]**

~~13.18 [Deleted] The CRR is unclear in how UL should be calculated for defaulted assets. This was also the case for the BCD. The answer to transposition group question 655 on the calculation of UL for defaulted assets under the BCD referred to two approaches:~~

~~(a) the independent calculation approach; and~~

~~(b) subtraction of the best estimate of expected loss from post default LGD.~~

~~13.19 The PRA considers that both of the approaches set out in the CRD transposition group answer are acceptable in principle.~~

~~13.20 Where an independent calculation approach is adopted for the calculation of unexpected loss on defaulted assets the PRA expects firms to ensure that estimates are at least equal, at a portfolio level, to a 100% risk weight, ie 8% capital requirement on the amount outstanding net of provisions.<sup>b</sup>~~

~~(CRR Article 181(1)(h))~~

...

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<sup>a</sup> [https://ec.europa.eu/info/law/law-topic/eu-banking-and-financial-services-law\\_en](https://ec.europa.eu/info/law/law-topic/eu-banking-and-financial-services-law_en).

<sup>b</sup> Independent calculation approaches are an alternative to measuring the UL on defaulted assets as being the difference between downturn LGD and best estimate LGD. See link in previous footnote for further information.



## **Probability of Possession Given Default (PPGD) for UK residential mortgage exposures**

13.22A The PRA expects firms to ensure that PPGD estimates appropriately reflect economic downturn conditions. The PRA expects (as in paragraphs 13.8 and 13.9 above) downturn PPGD estimates to be consistent with a fall in the value of property due to house prices deflation not lower than 25% from the previous peak price, and not lower than 5% from the current price.

13.22B Firms should reflect these economic downturn conditions in their PPGD models by ensuring that the:

- (a) allocation of exposures to rating grades is consistent with the reductions in property values set out above.
- (b) calibration of possession rates for a given rating grade is based on data reflecting the reductions in property values set out above. If the data reflect reductions in property values that are lower than either reduction above, firms should appropriately adjust their calibration within grades to be consistent with these property values.

13.22C If a firm's PPGD model is not sensitive, or less sensitive, to falls in property values, for example if the model uses values at origination and not current values to assign exposures to rating grades, the firm should ensure that its calibration of possession rates reflects economic conditions where property values are at least 25% below their peak values. The firm should also demonstrate to the PRA that the model achieves similar outcomes as it would if it was using current property values to assign exposures to rating grades, including in stressed scenarios.

13.22D Firms with limited data from a downturn should apply an additional margin of conservatism.