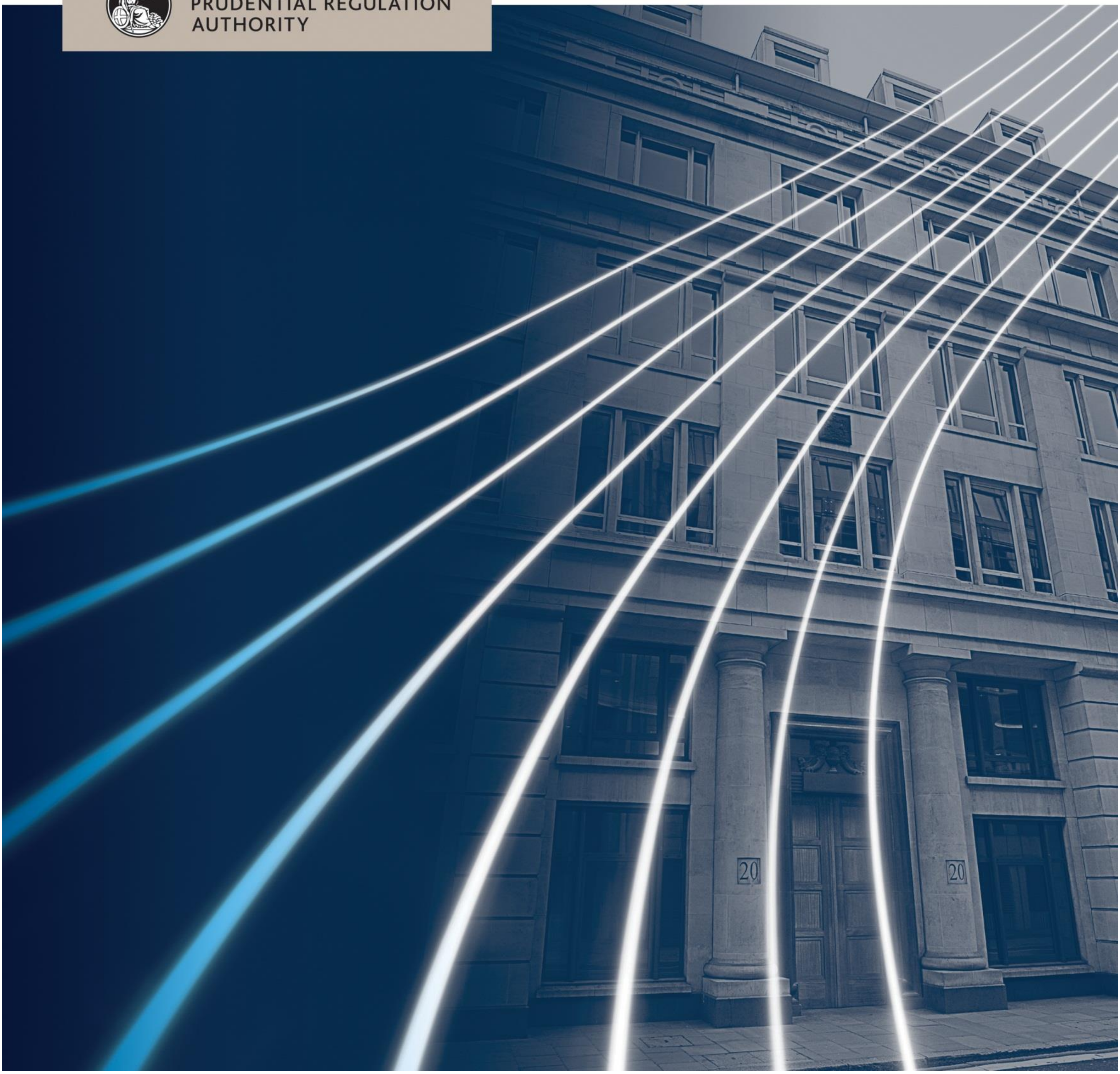
Policy Statement | PS11/20

Credit risk: Probability of Default and Loss Given Default estimation

May 2020

BANK OF ENGLAND
PRUDENTIAL REGULATION AUTHORITY



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1 Overview

1.1 This Prudential Regulation Authority (PRA) Policy Statement (PS) provides feedback to responses to Consultation Paper (CP) 21/19 'Credit risk: Probability of Default and Loss Given Default estimation'.[1] CP21/19 consulted on proposals to implement the European Banking Authority's (EBA's) regulatory products that relate to Probability of Default (PD) estimation and Loss Given Default (LGD) estimation. It also contains the PRA's final policy in an updated Supervisory Statement (SS) 11/13 'Internal Ratings Based (IRB) approaches' (see Appendix).

1.2 This PS is relevant to UK banks, building societies and PRA-designated UK investment firms.

Background

1.3 The EBA has developed a set of regulatory products (EBA roadmap) with the aim of reducing unwarranted variability across banks in internal ratings based (IRB) risk-weighted assets (RWAs) for credit risk.[2]

1.4 The PRA consulted on its implementation of the EBA roadmap in two phases:

- first phase: definition of default (DoD). This was consulted on in CP17/18 'Credit risk: the definition of default'[3] and the final policy was published in PS7/19 'Credit risk: the definition of default'.[4]

- second phase: PD and LGD estimation. This was consulted on in CP21/19 and the final policy is published in this PS.

1.5 The full EBA roadmap is comprised of:

- final draft Regulatory Technical Standards (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);

- the Guidelines on the application of the definition of default (the GL on DoD);

- the Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (the GL on PD & LGD);

- the Final draft RTS 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); and

- the Guidelines for the estimation of LGD appropriate for an economic downturn (the GL on downturn LGD).

1 September 2019: https://www.bankofengland.co.uk/prudential-regulation/publication/2019/credit-risk-probability-of-default-and-loss-given-default-estimation.
2 https://eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models.
3 July 2018: https://www.bankofengland.co.uk/prudential-regulation/publication/2018/credit-risk-the-definition-of-default.
4 March 2019: https://www.bankofengland.co.uk/prudential-regulation/publication/2018/credit-risk-the-definition-of-default.

1.6 The PRA has informed the EBA that it intends to comply with the GL on DoD, the GL on PD & LGD and the GL on downturn LGD.

1.7 This PS covers the three regulatory products that relate to PD and LGD estimation: the GL on PD & LGD, the RTS on economic downturn and the GL on downturn LGD. The PS also relates to the PRA's expectations outlined in PS13/17 'Residential mortgage risk weights', regarding the 'mortgage hybrid approach'.[5]

1.8 This PS sets out the PRA's approach to implementing these three products. The PRA notes that the RTS on economic downturn is, at the time of publication, in draft. This PS, including the changes to SS11/13, assume that the RTS will be made before the end of the transition period in the same form as the draft. The PRA will consider further changes that may be required to SS11/13 if the final RTS differ from the current draft.

1.9 In CP21/19, the PRA proposed to update its expectations in the following areas:

- implementation deadlines;
- compliance with the EBA roadmap for IRB;
- cyclicality of downturn LGD estimates;
- discount rate;
- use of a component-based modelling approach for downturn LGD;
- identification of an economic downturn;
- LGD exposure-level floor for residential mortgages;
- treatment of defaulted exposures; and
- rating and calibration philosophy for non-mortgage exposure classes.

Summary of responses

1.10 The PRA received eight responses to the CP, which were generally supportive. Responses also outlined specific concerns and requests for clarification. Specific areas where the PRA has amended or clarified the proposals are detailed in Chapter 2.

Changes to draft policy

1.11 After considering the responses, the PRA has made several changes to the draft policy in the CP. These are:

- extending the implementation deadlines for the EBA roadmap and the mortgage hybrid approach, including removing the transitional period outlined in paragraph 2.8 of PS7/19;

5 June 2017: https://www.bankofengland.co.uk/prudential-regulation/publication/2016/residential-mortgage-risk-weights.

- amending the approach to discounting cured exposures;
- accepting temporary divergence between accounting impairment models and approved IRB models for defaulted exposures, due to the need to make timely changes to impairment models; and
- clarifying the use of Sterling Overnight Index Average (SONIA), including for defaults that occurred before the first date SONIA is available from the Bank of England.

1.12 The PRA has considered the cost-benefit impact of these changes relative to the draft policy:

- the extension of the implementation deadlines should reduce the operational cost and resource burdens on firms to implement the policy against the backdrop of Covid-19;
- the updated approach to discounting cured exposures should ensure that firms do not implement an overly conservative approach that causes an unwarranted capital impact;
- the new approach to accept temporary divergence between accounting impairment models and certain approved IRB models for defaulted exposures will mean that when firms make changes to their impairment models, they will not need to be concerned that any temporary divergence with the approved IRB model might be inconsistent with the PRA's expectations. Therefore, this change removes any perceived barrier to firms keeping impairment models appropriately up-to-date;
- the new expectations on the use of SONIA help clarify its use in firms' LGD models; and
- a further benefit of the above policy changes arises from the additional clarification of requirements. This should reduce the implementation burden for firms. It should also reduce unwarranted variability in and increase the comparability of IRB risk parameters, risk weighted assets, and capital metrics both among UK firms, and between UK firms and other European Economic Area (EEA) firms. It should ensure that differences in estimates across firms are based on risk and not on different practices or interpretations.

1.13 The PRA does not consider that these changes will have a significantly different impact on mutuals relative to other PRA-authorised firms.

Implementation

1.14 The policy set out in this PS will take effect from Saturday 1 January 2022. Further information on the implementation dates for the EBA roadmap is set out in paragraphs 2.3 to 2.21).

1.15 The policy set out in this PS has been designed in the context of the UK's withdrawal from the European Union and entry into the transition period, during which time the UK remains subject to European law. The PRA will keep the policy under review to assess whether any changes would be required due to changes in the UK regulatory framework at the end of the transition period, including those arising once any new arrangements with the European Union take effect.

1.16 The PRA has assessed that the updated parts of SS11/13 would not need to be amended under the EU (Withdrawal) Act 2018 (EUWA). Please see PS5/19 'The Bank of England's amendments to financial services legislation under the European Union (Withdrawal) Act 2018' for further details.[6]

1.17 The updated SS attached to this PS should be read in conjunction with SS1/19 'Non-binding PRA materials: The PRA's approach after the UK's withdrawal from the EU'.[7]

1.18 As these changes relate to EU Guidelines, the updated SS11/13 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'.[8]

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

7 February 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.

8 February 2019: https://www.bankofengland.co.uk/paper/2019/interpretation-of-eu-guidelines-and-recommendations-boe-and-pra-approach-sop.

2 Feedback to responses

2.1 The PRA has considered the responses received to the CP. This chapter sets out the PRA's feedback to those responses, and its final decisions.

2.2 The consultation responses have been grouped as follows:

- implementation deadlines;
- recognition of local regulatory approaches for calculating group consolidated capital requirements;
- approach to discounting cured exposures;
- treatment of defaulted exposures;
- availability of the approaches under Section 7 of the GL on downturn LGD; and
- other feedback.

Implementation deadlines

2.3 In CP21/19, the PRA proposed implementation deadlines of:

- Thursday 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 GL on DoD for non-mortgage portfolios.
- Saturday 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 DoD for the identification of defaults.
  - Deadline for firms that use the SA for calculating capital requirements for credit risk to apply changes from the GL on DoD for non-mortgage portfolios.

2.4 Some respondents requested an extension of the implementation deadline for residential mortgages by one day to Friday 1 January 2021. In their view, a deadline of Thursday 31 December 2020 introduces a disproportionate implementation and reporting burden.

2.5 The PRA has also considered operational burdens in the wake of the Covid-19 outbreak. This includes the achievability and proportionality of the proposed implementation deadlines in the current environment.

2.6 Having considered the consultation feedback and the implications of Covid-19, the PRA has decided to extend the implementation deadline for all changes to residential mortgage exposures by one year and one day to Saturday 1 January 2022. This applies to changes resulting from both the EBA roadmap for IRB, including the move from 180 days past due to 90 days past due in the definition of default, and the mortgage hybrid approach.

2.7 The extension does not apply to the RTS for the materiality threshold for firms only using the SA approach, as this RTS states that competent authorities cannot set an implementation date later than Thursday 31 December 2020.

2.8 The PRA notes that in paragraph 2.8 of PS7/19, the PRA indicated that firms could agree a transitional period, if appropriate, to meet any increase in capital requirements resulting from moving from 180 to 90 days past due in the definition of default for residential mortgages. The PRA considers the extension of the implementation deadline for residential mortgages to materially reduce the justification for a transitional period, and that a transitional period is no longer necessary. Consequently, the PRA has decided to remove the availability of the transitional period to meet any increase in capital requirements from removing the use of 180 days past due.

2.9 Therefore, the implementation deadline is Saturday 1 January 2022 for all asset classes for all IRB firms. The new deadlines are summarised in the table below:

	Residential Mortgage Exposures			**Non-Residential Mortgage Exposures**	
Regulatory Change	Definition of default[9]	PD and LGD estimation[10]	Mortgage Hybrid Approach[11]	Definition of default	PD and LGD estimation
Firms using the IRB approach	1 January 2022	1 January 2022	1 January 2022	1 January 2022	1 January 2022
Firms only using the SA approach	31 December 2020 for RTS for the materiality threshold only 1 January 2022 for GL on definition of default only	N/A	N/A	31 December 2020 for RTS for the materiality threshold only 1 January 2022 for GL on definition of default only	N/A

2.10 In the event that an RTS has not entered into force by the relevant deadline, the implementation deadline for that RTS would instead be the date that the RTS enters into force and applies in the UK.

2.11 For the avoidance of doubt, and to ensure a level playing field between firms, the above dates are the final deadlines for firms to be compliant. In the case of residential mortgage models, this will likely result in changes to submission deadlines previously agreed. Firms should agree revised residential mortgage submission deadlines with their supervisors that allow time for PRA review, any necessary firm remediation and implementation of the final approved models to take place in advance of the implementation deadline.

2.12 For all exposure classes, in cases where the deadline is not met, firms should consider if a post-model adjustment (PMA) is warranted, in line with Chapter 19 of SS11/13. The PRA will

9 CP17/18 and PS7/19 'Credit risk: the definition of default', which implements the RTS for the materiality threshold, the Guidelines on the definition of default and, for residential mortgage IRB exposures only, the EBA Opinion on the use of the 180 days past due criterion in the days past due component of the definition of default.

10 CP21/19 and PS11/20 'Credit risk: the Probability of Default and Loss Given Default estimation', which implements the RTS on economic downturn, the GL on PD & LGD, and the GL on downturn LGD.

11 CP29/16 and PS13/17 'Residential mortgage risk weights'. For the avoidance of doubt, this is not part of the EBA roadmap.

also consider using powers under Capital Requirements Directive (CRD) IV and the Capital Requirements Regulation (CRR) on a case-by-case basis. This could include imposing a PMA where it considers the implementation delay results in deficiencies in risk capture or undercapitalisation of risk.

2.13 The PRA may reconsider the implementation deadlines should the Covid-19 pandemic impact firms' ability to implement the changes for a significant additional period of time beyond that currently anticipated. However, in any case, the PRA expects firms to prioritise changes to residential mortgage portfolios.

2.14 Firms with permission to use the IRB approach can rely on CRR Article 146[12] in order to meet these deadlines and manage any temporary non-compliance.[13]

2.15 Firms that are currently only using the SA approach are not able to rely on CRR Article 146. Therefore, for firms that are currently only using the SA approach and apply for permission to start using the IRB approach, the PRA will assess applications against:

- the requirements set out in the CRR;
- any relevant RTS that will be in force and applicable on the date that the PRA will take the decision on the application;
- the Guidelines in the EBA roadmap, if the PRA will take the decision on the application on or after Saturday 1 January 2022; and
- the revised expectations set out in SS11/13, if the PRA will take a decision on the application on or after Saturday 1 January 2022 (in other cases the PRA will assess against the previous version of SS11/13).

2.16 In extending the implementation deadlines, the PRA has sought to maintain a level playing field between firms as far as possible.

Implementation deadline for portfolios treated under the SA by IRB firms

2.17 Some respondents asked if the implementation date of Thursday 31 December 2020 for the RTS for the materiality threshold is only applicable to SA firms, or if it also applies to the SA exposures of IRB firms that treat certain exposures under the SA.

2.18 The PRA considers that the intention of the RTS for the materiality threshold is to align the implementation dates of SA portfolios and IRB portfolios held by IRB firms. Therefore, the PRA considers that firms that use the IRB approach for at least one exposure class can extend the implementation deadline of the materiality thresholds for all SA exposures to match the deadline for IRB exposures.

Sequencing of different changes

2.19 One respondent asked the PRA to clarify the extent to which implementation of DoD changes in systems and processes may be made in advance of making model changes. The PRA

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12 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.

13 However, applications to make changes to existing IRB models will need to comply with any RTSs that apply in the UK on the date that the PRA takes a decision on the application.

considers it unlikely that implementing the DoD in systems and processes prior to making model changes makes effective and efficient use of the firm's and the PRA's resources.

Portfolios for which Advanced IRB modelling is not permitted under Basel 3.1

2.20 In CP21/19, the PRA stated that it did not expect firms to prioritise changes to LGD and Exposure at Default (EAD) models for exposures that are expected to move to Foundation IRB (FIRB) under Basel 3.1. One respondent asked if definition of default changes can also be deprioritised for such exposures given that definition of default changes impact both PD and LGD models.

2.21 The PRA has considered the responses and provides the following feedback:

- firms should continue to implement changes to the DoD and PD models for exposures moving to FIRB under Basel 3.1 by Saturday 1 January 2022. This is because PD models will still be required once the Basel 3.1 revisions take effect;
- the PRA proposed that firms may deprioritise changes to LGD and EAD models that are expected to move to FIRB under Basel 3.1. However firms should still implement the model changes to LGD and EAD models by Saturday 1 January 2022 for any part of the models that are not moving to FIRB. While firms may need to split LGD and EAD models in order to deprioritise the appropriate part of the model, the PRA considers this to be justified as firms will need to perform this split in order to implement Basel 3.1;
- if the deprioritised part of the LGD or EAD model ceases to perform robustly after the model has been split, firms should consider a PMA if a material deficiency in risk capture arises. Firms may also apply to the PRA to move the deprioritised part to the FIRB approach where the conditions in CRR Article 149(2) are met; and
- firms may alternatively opt to not deprioritise any part of an existing model.

Recognition of local regulatory approaches for calculating group consolidated capital requirements

2.22 Some respondents asked whether, for IRB models used by non-UK subsidiaries of UK groups, the PRA would permit the non-UK solo capital requirements calculated using local IRB requirements to also be used in the UK group consolidated capital requirement calculation. One respondent asked about the reverse case where a UK firm has a parent organisation in a different EEA jurisdiction.

2.23 The PRA has considered the responses and provides the following feedback:

- the joint decision process under CRR Article 20 applies until the end of the transition period following the UK's withdrawal from the European Union on Thursday 31 December 2020;[14]
- the PRA will clarify its approach on the treatment of overseas models post-Thursday 31 December 2020 at a later date. Firms will be given an appropriate amount of time to make necessary changes if the PRA's approach requires model changes to be made by firms; and
- for the avoidance of doubt, the policy published in paragraphs 2.16 to 2.19 of PS7/19 is still applicable. This policy permits UK firms to apply the definition of default materiality thresholds set by other prudential regulators in their group consolidated capital

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14 https://www.gov.uk/transition.

requirements on the basis that the thresholds should be tailored to local market characteristics, economic conditions and financial risk.

Approach to discounting cured exposures

2.24 In CP21/19, the PRA proposed to update its expectations for the discounting of the 'artificial cash flow' in the GL on PD & LGD.[15] The PRA proposed that firms should only include accrued interest up to the moment of cure when calculating the artificial cash flow. In addition, the PRA proposed that the artificial cash flow should only be discounted over the actual period the exposure was in default, therefore not including the probation period[16] or the independence period.[17]

2.25 The PRA received a range of responses to these proposals. In summary: some respondents requested that the PRA further align its approach to discounting cured exposures with the economic reality of the exposure (ie apply the PRA's proposed approach in the CP to interest payments to all other components of the artificial cash flow); and some respondents requested that the conservatism of the approach be reduced.

2.26 Having considered the responses, the PRA has decided to make the following amendments to its proposed approach to discounting cured exposures:

- apply the proposed approach to calculating the value of interest payments to other components of the artificial cash flow. Therefore, the artificial cash flow should reflect:

(a) **principal:** total outstanding amount of the full loan at the moment of cure, but only the amount of missed repayments of principal (ie actual past due payments) accrued up to the moment of cure should be discounted;

(b) **interest:** amount accrued between the moment of default and the moment of cure;

(c) **fees:** amount accrued between the moment of default and the moment of cure;

(d) **additional observed recoveries:** total amount received up to the moment of cure;

(e) **additional drawings:** firms should follow the requirements of CRR Articles 182(1)(c), 181(2)(b) and 182(3), and paragraphs 139 – 142 of the GL on PD & LGD. Additional drawings included in the artificial cash flow should be treated in the same way as the principal;

(f) **costs:** amount accrued between the moment of default and the moment of cure;

- remove the 'independence period' from the definition of the 'minimum cure period'. As the minimum cure period is now only comprised of the probation period, the PRA will delete the concept of the 'minimum cure period' and, instead, refer to it as the 'probation period'; and

- align the 'accrual period' (ie the period in which the components of the artificial cash flow are accrued) with the 'discounting period' (ie the period over which the artificial cash flow is discounted). The discounting period for the artificial cash flow is the actual period the exposure was in default, and therefore does not include the probation period. The accrual

15 As outlined in Paragraph 135 of the GL on PD & LGD.
16 Paragraph 71(a) of the GL on DoD.
17 Paragraph 101 of the GL on PD & LGD.

period for the artificial cash flow should only be the actual period the exposure was in default, and therefore does not include the probation period.[18]

2.27 The PRA has added paragraph 13.5A to SS11/13 to reflect the above changes.

Other feedback for the approach to discounting cured exposures

2.28 Some respondents asked about the treatment of discounting cured exposures in the case of exposures that defaulted multiple times before curing. Specifically, some respondents asked whether the discounting period should cover the entire period from initial default to final cure, or should it only cover the periods that the exposure was actually in default and, therefore, exclude the periods of 'temporary cure'.

2.29 The PRA considers that firms should not exclude periods of 'temporary cure' and should discount over the entire period from the initial default to the start of the final probation period. This is because exposures that have defaulted multiple times, where the re-default occurred during the independence period, are considered to have been constantly defaulted from the first moment when the default occurred, in line with paragraph 101 of the GL on PD & LGD, for the purposes of LGD modelling. In addition, the PRA notes that while the probation period may be removed from the discounting period and the accrual period when discounting the artificial cash flow, the probation period must still be completed for the exposure to be deemed a regulatory cure. If the exposure were to re-default, the independence period must be completed for the default to be considered a new and separate default, for the purposes of LGD modelling.

2.30 Some respondents asked about the definition of cured exposures, such as asking about the treatment of cured exposures that are still within the probation period. The PRA considers that for an exposure to be considered a cure for regulatory purposes, it must have no trigger of default apply and it must have completed the probation period. The probation period only starts once no trigger of default still applies. If these conditions are not met, the exposure is considered to remain in default for regulatory purposes and in IRB models. When quantifying LGD, firms should treat this exposure as it would its other defaulted exposures.

Treatment of defaulted exposures

2.31 In CP21/19, the PRA proposed to delete its existing expectations for the treatment of defaulted exposures in paragraphs 13.18 to 13.20 of SS11/13, in order to fully align with the approach in the EBA roadmap.

2.32 Some respondents requested that the PRA permit the use of existing IFRS9 impairment models, which are used to model provisions, as Best Estimate of Expected Loss (known as 'BEEL' or 'ELBE') and LGD in-default estimates. In addition, one respondent argued that firms should not be required to submit their full IFRS9 models and accompanying documentation as model changes to the PRA.

2.33 Having considered the responses, the PRA has decided that:

- **permissible ELBE and LGD in-default models:** consistent with Section 7.3.2.3 of the GL on PD & LGD, the PRA does not necessarily expect firms to develop new, separate or original IRB models for defaulted exposures, provided that firms can demonstrate the model used

[18] For the avoidance of doubt: the independence period has not been referenced in the discounting period or the accrual period as it has now been removed from the 'minimum cure period' and the concept of the 'minimum cure period' has been deleted. The discounting period and the accrual period do not include the independence period. Therefore, the actual period the exposure was in default is from the moment of default, where a trigger of default applies, to the moment when no triggers of default continue to apply.

either satisfies or can be adjusted to satisfy the requirements for own-LGD estimates in Part Three, Title II, Chapter 3, Section 6 of the CRR;

- **approval requirements:** all new IRB models and changes to existing IRB models require PRA approval or notification.[19] Where a firm is using an impairment model as their ELBE or LGD in-default model, under Section 7.3.2.3 of the GL on PD & LGD, the PRA accepts that there may need to be temporary divergence between the impairment model and the approved IRB model due to the need to make timely changes to accounting impairment models. This will be as and when changes need to be made to the accounting impairment model, and to the extent that the change in the impairment model necessitates a change to the approved IRB model. This temporary divergence should be limited to the period until the IRB model change may be implemented following notification to or approval by the PRA, as appropriate. The PRA has added paragraph 19.19 in SS11/13 to reflect this expectation; and

- **documentation requirements:** firms should submit appropriate documentation for all new IRB models and changes to existing IRB models in line with regulatory requirements, in order to demonstrate compliance with the CRR and relevant RTSs, Guidelines and PRA SSs.

Other feedback for the treatment of defaulted exposures

2.34 One respondent asked if there is an inconsistency between paragraph 183 of the GL on PD & LGD, which suggests that macroeconomic variables should be taken into account in ELBE estimates; and paragraph 184, which states that ELBE should be based on the long-run average LGD, which would be neutral regarding macroeconomic variables. The PRA does not consider there to be an inconsistency:

- paragraph 167 of the GL on PD & LGD states that Chapter 7 of the GL on PD & LGD provides guidance on specific aspects of where a different treatment for LGD estimation for defaulted exposures is justified.[20] One example of this is the requirement that ELBE is based on current economic circumstances, as required by CRR Article 181(1)(h); and

- paragraph 184 of the GL on PD & LGD clarifies that no further adjustments are required to an ELBE model in order to comply with the requirement that ELBE must reflect current economic circumstances, provided that any of the conditions in either paragraph 184(a), (b) or (c) is met.

Availability of the approaches under Section 7 of the GL on downturn LGD

2.35 The GL on downturn LGD includes three approaches for downturn LGD estimation:

- downturn LGD estimation based on observed impact (Section 5 of the GL on downturn LGD): 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;

- downturn LGD estimation based on estimated impact (Section 6 of the GL on downturn LGD): where sufficient loss data are not available to base the downturn LGD calibration on

19 In accordance with the RTS for assessing the materiality of extensions and changes of the IRB approach and Advanced Measurement Approach.

20 'For the purposes of ELBE and LGD in-default estimation, and unless otherwise specified in [Chapter 7 – Estimation of risk parameters for defaulted exposures] institutions should use the same estimation methods used for estimating LGD on non-defaulted exposures, as set out in [Chapter 6 – LGD estimation]'.

an observed impact for a considered downturn period, as outlined above, the downturn LGD should be calibrated using a haircut approach or an extrapolation approach, or a combination of both approaches; and

- downturn LGD estimation where observed or estimated impact is not available (Section 7 of the GL on downturn LGD): 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 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.

2.36 In CP21/19, the PRA proposed 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 would be able to justify using an approach in line with Section 7 of the GL on downturn LGD.

2.37 Some respondents argued that some portfolios could have insufficient data to use a method in line with Section 5 or 6 of the GL on downturn LGD. These approaches could be disproportionately complex for small data sets and may not produce a credible or robust output that is fit for purpose, or usable for sound risk management.

2.38 In response, the PRA clarifies that even if an approach under Section 7 of the GL on downturn LGD were applied, firms would still be required to produce a downturn LGD model that is fully compliant with the CRR and the relevant RTSs, GLs and PRA SSs. Under Section 7, while the downturn LGD estimate cannot be lower than the long-run average LGD + 15 percentage points, this add-on cannot be used as a substitute for CRR compliant modelling. Also, paragraph 36 of the GL on downturn LGD requires a justification to the satisfaction of the supervisor that the firm cannot calibrate downturn LGD by using an approach under Section 5 or 6. In addition, approaches under Section 7 need to meet CRR requirements to have robust and representative data.

2.39 In addition, the PRA still considers it unlikely that a firm would be able to justify using an approach in line with Section 7 of the GL on downturn LGD. Therefore, the PRA has decided to maintain the proposed policy. Approaches under Section 7 were designed to be used in exceptional cases only. Section 7 was not designed to be used extensively or for material portfolios. The PRA also considers that the add-on of 15pp may be insufficient for certain portfolios.

2.40 Therefore, the PRA expects firms to apply an approach under Section 5 or 6. For low default wholesale portfolios, this may involve applying the PRA’s wholesale LGD framework for low default portfolios as set out in SS11/13. If a firm does not have sufficiently robust data for a large proportion of its portfolio, it is questionable whether it can build a compliant IRB model for that portfolio. In such cases, it may be more appropriate for the firm to use a non-modelled LGD approach, such as the FIRB approach or the standardised approach to credit risk.

2.41 The PRA has added paragraph 13.7B(b) in SS11/13 to reflect the above expectation.

Other feedback

Cyclicality of downturn LGD estimates

2.42 One respondent cited Table 1 in the Background and Rationale of the GL on PD & LGD and asked if the PRA can provide generic numerical examples of compliant methodologies, particularly for unsecured retail portfolios. The PRA considers that firms should comply with Section 5.2.4 of the GL on PD & LGD with regard to rating and calibration philosophy. As set out in paragraph 2.44 of CP21/19, for retail exposure sub-classes other than residential mortgages, the PRA did not propose expectations on rating and calibration philosophy. In such cases, firms should choose an appropriate approach, which could include models that use dynamic recalibration to achieve a Point-in-Time approach. For residential mortgage exposures, the PRA has clarified its expectations for rating and calibration philosophy in PS13/17. The PRA does not consider it necessary to provide generic numerical examples.

2.43 One respondent argued that appropriate calibration for residential mortgage models is not necessarily dependent on the use of origination or indexed loan-to-value. Instead, it is important that firms use a data sample that is representative of the firm's repossession practices, including forbearance measures offered to help customers avoid repossession. Specifically, they suggested the probability of possession given default (PPGD) model should be developed on a data sample where strategy is known to be geared towards potential possession outcomes, to avoid the possibility that the calibration of the model becomes unrepresentative. The PRA expects firms to ensure that data used in IRB models is appropriately representative. This includes an assessment of the firm's forbearance and recovery practices. Firms should also comply with paragraph 26(b) of the GL on downturn LGD.

2.44 One respondent asked for clarification on the level of granularity at which the 25% peak-to-trough property value fall assumption should be applied in the PPGD component of LGD models. The PRA considers that firms should adopt a consistent approach across the LGD model regarding the granularity at which property value fall assumptions are applied.

Discount rate

2.45 One respondent argued that for the discount rate used in long-run average LGD estimation, SONIA at the point of observation should be used and not SONIA at the moment of default. The PRA considers that firms should comply with paragraph 143 of the GL on PD & LGD, which states that the discount rate used should be 'applicable at the moment of default'. This is to ensure that the discount rate reflects the full and total uncertainty in the receipt of recoveries.

2.46 One respondent asked if the PRA's 9% discount rate floor applies to all currency denominations of the interbank rate. The PRA's 9% discount rate floor applies to all discount rates used by firms in downturn LGD estimation.

2.47 Some respondents asked if SONIA should be used only for exposures denominated in pounds sterling (GBP), or for all exposures irrespective of the currency of denomination. The PRA considers that firms should comply with paragraph 143 of the GL on PD & LGD. Therefore, SONIA should be used for exposures denominated in GBP and, for exposures denominated in currencies other than GBP, firms should use a comparable liquid interest rate in the currency of that exposure.

2.48 One respondent requested clarity on which discount rate should be applied to Best Estimate of Expected Loss and LGD in-default estimates. The PRA considers that a discount rate of SONIA + 5% should be used for estimating ELBE, which is based on the long-run average

LGD; and the minimum 9% discount rate should be applied for estimating LGD in-default, as it should include a downturn adjustment.

2.49 One respondent requested clarity on the discount rate that should be used for defaults that occurred before Thursday 2 January 1997 (ie the first date SONIA is available from the Bank of England). The PRA considers that firms should develop an approach, for example an extrapolation based on available data, or use an appropriate alternative for that period, for example the relevant central bank rate.

2.50 One respondent asked, where monthly SONIA rates are used, if the PRA would expect the monthly average SONIA rate or the month-end SONIA rate to be used. The PRA has not set an expectation that monthly SONIA rates should be used. Firms should use the daily SONIA rate that corresponds to the date of default for an exposure.

2.51 Some respondents asked if SONIA + 5% should be used as the discount rate for downturn LGD estimation if it exceeds the PRA's 9% floor. The PRA considers that the 9% floor is a minimum expectation. It is not necessarily the actual discount rate to be used by firms. Firms should use an appropriate method for calculating a suitable discount rate for downturn LGD estimation. Once calculated, the discount rate should then be subjected to the 9% floor. It follows that when the calculated discount rate is below the floor, the discount rate used in downturn LGD estimation is 9%; and when the calculated discount rate is above the floor, the discount rate used is the calculated discount rate. This does not preclude or require the use of SONIA + 5% as the method to compute an appropriate discount rate for downturn LGD estimation.

2.52 The PRA has added paragraphs 13.13 to 13.13C to SS11/13 to reflect the above expectations.

Margin of Conservatism

2.53 One respondent asked which category of margin of conservatism (MoC) the 5% exposure-level LGD floor for residential mortgages should be assigned to and how it should be applied in relation to other margins of conservatism. The PRA considers that firms should develop policies to assign MoC to the appropriate category in line with Section 4.4 of the GL on PD & LGD. The 5% exposure-level LGD floor for residential mortgages should be applied after all other MoCs have been applied.

2.54 One respondent sought clarity on whether the MoC should be quantified as a discrete parameter, or if the MoC can be quantified from conservative assumptions incorporated in the IRB model and/or model components. The PRA considers that Section 4.4 of the GL on PD & LGD requires firms to identify all model deficiencies, apply an appropriate adjustment if possible/necessary and quantify a MoC for all identified deficiencies and the general estimation error. The MoC should be assigned to one of the three MoC categories. The PRA understands that firms may have conservatism embedded within their existing models. For firms that do not intend to identify, quantify and document MoC as a discrete parameter, the PRA expects firms to disaggregate the MoC embedded within their models and attribute it to a MoC category, including identifying the corresponding deficiency when the MoC is in Category A or B.

2.55 One respondent requested clarity that the approach to MoC in the GLs on PD & LGD is not expected to result in additional MoC or to increase RWAs. The respondent asked if the PRA will issue any further detailed guidance for how MoC should be reflected in IRB parameter estimates. The PRA considers that the stated aim of the EBA roadmap is to reduce undue variability and improve the comparability of IRB risk parameters and RWAs across firms. The intention is not to increase RWAs by design, although it follows that outlier firms may be required to increase their RWAs. In the specific case of MoC, the PRA expects that the total amount of MoC could increase if a firm has not previously identified all of its model deficiencies and/or has not previously fully calculated MoC for all three MoC categories. Firms should not seek to offset any potential new instances of MoC by reducing MoC elsewhere in the model or through recalibration, unless this has been justified to their PRA supervisor. For the avoidance of doubt, paragraph 13.22D of SS11/13 is a specific PRA expectation for MoC in PPGD modelling. The PRA does not propose to provide more detailed guidance on MoC.

Identification of an economic downturn

2.56 Some respondents requested clarity on the requirements for identifying the downturn period for downturn LGD estimates. One firm requested that the PRA identifies the period of economic downturn for various asset classes to improve consistency across firms. One firm argued that the definition of 'sufficiently severe', when assessing economic factors in accordance with the RTS on economic downturn, is not clear. The PRA considers that the RTS on economic downturn aims to reduce the variability in the manner in which firms identify an appropriate economic downturn for use in the downturn LGD models. The RTS is not intended to harmonise the actual downturn used in LGD models. This approach should both reduce undue variability but also ensure that the identified economic downturn is appropriate to the specific asset class and firm. The PRA also considers that 'sufficiently severe' is adequately defined in Article 3(3) of the RTS on economic downturn.

2.57 The PRA has added paragraph 13.7A to SS11/13 regarding its expectations for identifying an economic downturn.

2.58 One respondent asked what the appropriate PRA approval or notification requirement is for a change in the downturn period. The PRA notes that all new IRB models and changes to existing models should be submitted to the PRA for either pre-approval, pre-notification or post-notification in accordance with the RTS for assessing the materiality of extensions and changes of the Internal Ratings Based Approach and the Advanced Measurement Approach.

Incomplete recovery processes

2.59 One respondent asked if incomplete recovery cases should be estimated at the overall level or at the sub-component level when estimating the long-run average LGD. The PRA notes that the GL on PD & LGD do not specify the level at which the incomplete recoveries should be estimated. Whilst the GL on PD & LGD require the LGD estimation of incomplete recoveries to be based on the long-run average LGD, it does not preclude the use of a component-based approach.

Scope of the consultation paper

2.60 Some respondents noted that the CP appears to be focused on mortgage portfolios. One respondent requested the PRA's views on the approach to be taken for wholesale and unsecured retail models. The PRA had only proposed to clarify its expectations where it considered it necessary to facilitate the effective implementation of the EBA roadmap. For requirements or exposure classes that the PRA did not explicitly address in CP21/19 or this PS, firms should apply the relevant requirements of the EBA roadmap. The updated PRA expectations in SS11/13 apply to all exposure classes unless otherwise stated.

Treatment of post-default drawings

2.61 Some respondents expressed concern with the EBA's guidance that any additional drawings post-default should be recognised in EAD. The respondents argued that it would be more appropriate to reflect post-default drawings in the LGD model instead. The PRA considers that firms should comply with CRR Articles 182(1)(c), 181(2)(b) and 182(3) and paragraphs 139 to 142 of the GL on PD & LGD. For retail exposures, CRR Article 181(2)(b) and 182(3) permit firms to recognise future drawings in either Conversion Factor (CF) or LGD estimates. Paragraph 142 of the GL on PD & LGD states that firms should include additional drawings in the economic loss calculation in the LGD model, irrespective of whether firms reflect additional drawings in CF or LGD estimates. For non-retail exposures, firms should recognise additional drawings in CF estimates (CRR Article 182(1)(c)).

Use of time lags in component-based modelling for downturn LGD

2.62 One respondent requested clarity regarding the approach to be taken for peak values of components that may occur outside of the identified downturn period, particularly with respect to residential mortgages. Another respondent asked the PRA to clarify:

- the requirements for model cyclicality for downturn LGD for mortgages and how it relates to downturn PPGD calibration;
- if the worst/peak value occurs outside of a defined downturn period, should it nevertheless be connected/attributed to the occurrence of that same economic downturn; and
- if the PRA expects data to go back to the early 1990s for the purposes of LGD modelling of residential mortgages.

2.63 The PRA considers that firms should comply with paragraph 13.7C of SS11/13.13. Regarding the respondent's specific questions, the PRA considers:

- the expectations for model cyclicality for downturn LGD for mortgages are set out in paragraph 13.8 of SS11/13. The PRA has also added paragraphs 13.22A to 13.22D in SS11/13 regarding its expectations for model cyclicality for downturn PPGD calibration;
- model components should all reflect the same downturn. But, the manifestation of the same economic downturn may occur after different time periods for different model components. Therefore, a time lag may be necessary so that the peak/worst value attributable to the same economic downturn is used for each model component. Consequently, if the peak/worst value of a model component is observed outside of a defined downturn period, it should nevertheless be attributed to the occurrence of that same economic downturn, unless the firm is able to convincingly justify and demonstrate that it is not the manifestation of the same economic downturn on the model component. If a firm is able to justify that the peak is not related to the same economic downturn, it does not need to be included in the model. Data must be representative of the current portfolio, so the subsequent peak could, instead, indicate the need for an adjustment if, for example, recovery practices have changes and this is the driver of the new peak; and
- the length of time for which data are required is dependent on the economic downturn identified by each firm in accordance with the RTS on economic downturn. The PRA notes that while Article 3(1)(a) of the RTS on economic downturn requires firms to consider the most severe value of each economic factor over the preceding twenty years, Article 3(1)(c) requires that firms consider a period that is longer than the preceding twenty years

if the values for the considered economic factor are not sufficiently severe as defined in Article 3(3).

Capping recoveries at those the firm is contractually entitled to retain

2.64 CP21/19 proposed 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. One respondent asked if the proposal would apply to artificial cash flows for the purpose of calculating Loss Given Cure or to the realisable collateral value for the purpose of calculating Loss Given Possession. The proposal in paragraph 2.19(iii) of CP21/19 purely related to the amount of recoveries to which the firm is contractually entitled. The expectation does not relate to valuation or discounting techniques. The PRA has reviewed a number of models where firms have recognised the full value of the underlying collateral when the firm is only contractually entitled to a portion of the collateral. This has the effect of incorrectly inflating the amount of recoveries the firm receives and decreasing the modelled risk of the exposure. Therefore, this expectation applies to any model and/or model component that includes collateral, including both the Loss Given Cure and Loss Given Possession components. The PRA has added paragraph 13.13D to SS11/13 to reflect this expectation.

2.65 The respondent also argued that if the cap is applied to Loss Given Possession components, there is a mismatch between the discount rates used to discount the exposure at sale to calculate the bank's contractual entitlement and to discount the recoveries from repossession. The PRA considers that the two discount rates serve two different purposes. The contractual rate is used to calculate the net present value of the bank's contractual entitlement (ie the discounted cash flow), whilst the regulatory discount rate is to reflect the uncertainty in the receipt of recoveries.

Direct and indirect costs of recovery

2.66 Some respondents requested clarity on the definition of 'indirect costs'. The PRA considers 'indirect costs' to be adequately defined in paragraph 146 of GL on PD & LGD.

Interaction with Basel 3.1

2.67 Some respondents argued that the implementation of the EBA roadmap coupled with the implementation of Basel 3.1 means that the PRA's current LGD supervisory framework floors of 35% and 45% for low default portfolios should no longer be necessary and should be removed. SS11/13 contains a framework for wholesale LGD and EAD models with a low number of defaults. The PRA considers that this framework remains relevant after implementation of the EBA roadmap. The PRA will consider the continued appropriateness of the framework as part of its implementation of Basel 3.1.

10% portfolio-level LGD floor for residential mortgages

2.68 One firm asked if the 10% portfolio-level LGD floor for residential mortgages continues to apply and, if so, whether it should be considered a MoC. Firms are required to continue applying the 10% floor under CRR 164(4). Therefore, the PRA does not consider that this floor should be treated as a MoC.

Compliance with the EBA roadmap for IRB

2.69 One respondent asked whether firms will be required to attest to compliance with the new EBA roadmap requirements. The PRA considers that firms should attest to compliance with the CRR, relevant Technical Standards, relevant EBA Guidelines and SS11/13.

Appendix

1	**Supervisory Statement (SS) 11/13 'Internal Ratings Based (IRB) approaches', available at: https://www.bankofengland.co.uk/prudential-regulation/publication/2013/internal-ratings-based-approaches-ss**