

This SS has been superseded. Please see:

<https://www.bankofengland.co.uk/prudential-regulation/publication/2017/solvency-2-matching-adjustment-illiquid-unrated-assets-and-equity-release-mortgages-ss>.

# Supervisory Statement | SS3/17

## Solvency II: Illiquid unrated assets

April 2020

(Updating September 2019)



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PRUDENTIAL REGULATION  
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Superseded

## 1 Introduction

1.1 This supervisory statement (SS) sets out the PRA's expectations in respect of firms investing in illiquid, unrated assets within their Solvency II matching adjustment (MA) portfolios. It is relevant to life insurance and reinsurance companies holding or intending to hold unrated assets (including restructured equity release mortgages (ERMs)) in an MA portfolio.

1.2 This statement should be read in conjunction with Chapters 6 and 7 of the Technical Provisions Part of the PRA Rulebook.

1.3 As part of firms' MA applications, they are required to explain how they will group the assets in the MA portfolio credit quality step (CQS), asset class and duration for the purposes of determining the fundamental spread (FS). For assets with credit ratings provided by External Credit Assessment Institutions (ECAIs), the CQS and hence FS assignment process is relatively prescriptive, with the only judgement being over the categorisation by asset class. In contrast, for internally-rated assets there is more judgement involved in determining which CQS and hence which FS should apply.

1.4 Firms need to have confidence that the risk management of these more complex credit exposures, in particular the CQS mapping process and the size of the MA benefit claimed on them, is fit for purpose. It is therefore expected that firms will be able to provide strong evidence to support the CQS mapping for those internally-rated assets that present the greatest complexity and/or risk exposure.

1.5 The PRA reminds firms of the responsibilities resting with Senior Management Functions under the Senior Managers Regime (SMR). Specifically the:

- Chief Actuary is responsible for advising the board about the reliability and adequacy of the calculation of the technical provisions;
- Chief Risk Officer is responsible for reporting to the board on the risk management strategies and processes in relation to credit assessments; and
- Head of Internal Audit is responsible for independent assurance on the adequacy and effectiveness of these processes and the firm's accounting and reporting procedures.

1.6 Where material reliance is being placed on the CQS mapping for internally-rated assets, the Chief Actuary and Chief Risk Officer will need to be satisfied that an appropriate FS is being applied and the Internal Audit function will need to be satisfied that appropriate processes and procedures have been followed.

1.7 Chapter 2 of this SS clarifies the PRA's expectations where internal credit assessments are used as part of determining the FS, including some expectations that are specific to restructured assets (including ERMs). Chapter 3 then sets out some principles to be applied when assessing the risks from guarantees embedded within ERMs, for the purposes of verifying the appropriateness of the FS for restructured ERM notes. Chapter 4 sets out the PRA's expectations regarding the risk identification exercise and the risk calibration and validation of internal models for illiquid assets.

## 2 Use of internal credit assessments for assigning fundamental spreads

2.1 Firms are reminded that performing an internal credit assessment and mapping an asset onto a CQS are two distinct processes. Generally, a CQS mapping for an exposure should reflect all of the sources of credit risk relevant to that exposure. This is particularly important when the CQS is used for the purposes of deriving an FS, because the FS should reflect the risks retained by the firm, as per Technical Provisions 7.2(2) in the PRA Rulebook.

2.2 As part of the initial MA approval process, the PRA requires firms to obtain proportionate independent assurance reviews of the internal credit assessment processes used for assets within the MA portfolio.<sup>1</sup> These reviews generally focus on providing assurance on the processes themselves based on the opinion of the reviewer, as opposed to the outcome CQS and FS that firms assign to their assets as a result of those processes.

2.3 The overarching aim of the FS is to determine how much of the spread on an eligible asset should be taken to reflect the risks retained by the firm on the assumption that the asset is held until maturity. To serve as a useful starting point for that calculation, an internal credit assessment should consider all possible sources of credit risk, both qualitative (eg due to strength of the terms and conditions in the loan agreement or a lack of default data) and quantitative (eg due to economic stresses), and how these may interact.

2.4 An internal credit assessment will then need to be mapped onto a CQS. The PRA's view is that the CQS to which an internal credit assessment maps lie within the plausible range of CQs that could have resulted from an issue rating given by an ECAI. Broad consistency between the CQs resulting from firms' internal assessments and ECAI issue ratings will help to give the PRA assurance that the FS resulting from the assigned CQS and sector is appropriate.

2.4A The PRA notes that the mapping of ECAI credit ratings to CQS for the purposes of Solvency II is set out in the Commission Implementing Regulation (EU) 2016/1799 and 2016/1800 (the ITSs). The PRA will consider the ITSs in assessing whether a firm's mapping of its internal rating to CQS is within the plausible CQS range that could have resulted from an issue rating given by an ECAI. The PRA's expectations for internal credit assessments are expanded on in paragraph 2.8A to 2.8N.

2.5 Once a CQS and asset class has been assigned, firms are required by Article 77e(3) of the Solvency II Directive to use the corresponding FS set out in the technical information published by the European Insurance and Occupational Pensions Authority (EIOPA), where this information has been adopted in an Implementing Technical Standard (ITS). Firms should not alter the CQS mapping of an asset on the grounds that they disagree with the technical information adopted in the relevant ITS, eg if a firm's opinion on the appropriate recovery rate for that asset differs from that specified in Article 54(2) of the Delegated Regulation.

2.6 To determine whether these expectations are being met, the PRA will seek assurance on firms' CQS mappings in a proportionate way, focusing on the exposures which in its view present the greatest risk and potential for inappropriately large MA benefit. In assessing the risk of an exposure to a particular asset class, the PRA will consider both the proportion and the absolute amount of the spread that is being claimed as MA benefit, as well as the

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<sup>1</sup> As previously communicated to firms in 'Solvency II: matching adjustment', March 2015: <https://www.bankofengland.co.uk/prudential-regulation/letter/2015/solvency-2-feedback-on-firms-matching-adjustment-pre-application-submissions>. Please note, this letter was archived as part of SS7/18 'Solvency II: Matching adjustment', July 2018: <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-2-matching-adjustment-ss>.

materiality of the exposure. Specifically the PRA will focus on assets which present some or all of the following features:

- they are more complex (eg because they have been restructured);
- the absolute amount of MA benefit derived from the asset is material to the firm; or
- the MA benefit (expressed as a proportion of the total spread on the asset) is high either in its own right or when compared to the benefit from a comparable reference instrument.

2.7 The PRA will calibrate thresholds around these features using data on firms' asset exposures. For assets that exceed these thresholds, the PRA will seek additional assurance that the FS resulting from the assigned CQS and sector are appropriate, taking into account the specific risks posed by the assets.

2.8 [Deleted]

2.8A In order for a firm to evidence the robustness of its internal credit assessments, and hence provide assurance in respect of the assigned CQS and FS, the PRA expects the following areas to be implemented and documented.<sup>2</sup> This is not an exhaustive list.

#### Identification of risks

2.8B There should be an identification of all the risks affecting each asset and an assessment of how the firm has satisfied itself that it has considered all potential sources of systemic and idiosyncratic risk in its internal credit assessment. This should include consideration of the following factors at a minimum:

- external market factors;
- cash-flow predictability;
- collateral;
- loan characteristics (eg refinancing risk);
- risks arising from third-parties (eg sponsors, parties involved in the servicing and managing of the loan);
- legal, political and regulatory risks; and
- potential future risks eg impacts arising from climate change risks.

2.8C In addition, where a firm uses an internal model, the PRA expects the same underlying risk identification exercise to be used as a starting consideration for both the internal model and internal credit assessment process. However, a firm may justify why only a subset of the identified risks is then selected for inclusion in the internal model or credit assessment. This subset of risks may differ between the internal model and credit assessment.

#### Internal credit assessment methodology and criteria

2.8D The PRA expects firms' internal credit assessment methodology and criteria to:

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<sup>2</sup> Solvency II Directive 2009/138/EC Article 44 (2) (c).



- set out the overall credit assessment philosophy and the ratings process;
- set out the scope of types of loans or entities the methodology applies to;
- set out the scope of risks covered and define the credit and other relevant risks being measured;
- where an ECAI has a published credit rating methodology for an asset class, have in scope at least the same range of risks, qualitative and quantitative factors and risk mitigating considerations or justify any difference in the scope;
- describe how different loan features, risks and other factors relevant are assessed;
- set out the key assumptions and judgements underlying the assessment, including the treatment of assumed risk mitigating actions which rely on the firm's own or outsourced processes involved in managing assets through their lifecycles;
- define whether the credit assessment is calibrated to a point-in-time or through-the-cycle;
- use both qualitative and quantitative factors; and,
- explain the limitations of the internal credit assessment, for example, risks which are not covered, and when it would not be appropriate to allow for these limitations by overriding judgements.

2.8E The PRA expects a firm to justify its internal credit assessment methodology and to recognise any limitations.

2.8F Where a firm has decided that its internal credit assessment methodology for a particular asset class should be based on an ECAI's published credit rating methodology that is applicable for that asset class, the PRA also expects the firm to apply that methodology in full in the manner applied by the ECAI.

2.8G Regardless of the choice of a firm's internal credit assessment methodology, firms should also describe how they have maintained broad consistency between the CQSs resulting from their internal assessments and those which could have resulted from an issue rating given by an ECAI.

#### Data

2.8H The PRA expects firms to consider the availability, appropriateness, and quality of the data over the credit cycle on which their internal risk assessments and calibrations are based, and should clearly document how they have allowed for incomplete or missing data in the internal credit assessment. This includes consideration of whether the data is sufficient to support the proposed CQS mapping.

#### Expert judgements

2.8I The PRA expects expert judgements made in the determination of the internal credit assessment and CQS mappings to be transparent, justified and documented, and consideration given to the circumstances in which judgements on the rating would be considered false. Furthermore, the history of judgements applied to deviate from the result of the internal credit rating methodology should be well documented, as should any other end of process overriding adjustments to the internal credit ratings themselves. The key judgements should be subject to the appropriate level of governance within the overall credit assessment process.

### Expertise and potential conflicts of interest

2.8J The PRA expects to see evidence that the credit rating methodology and criteria development and approval, credit assessment and CQS mapping have been performed by individuals with relevant asset-specific credit risk expertise and competency, who are independent and with minimised conflicts of interest, be they internal or external to the firm. In particular, firms should demonstrate the independence of the internal credit assessment function and that effective controls are in place to manage any potential conflicts of interest between different stakeholders involved in the overall management of the assets.

### Validation

2.8K The PRA expects firms to undertake validation of the internal credit assessment methodology and criteria including how it has identified and allowed for all sources of credit risk, whether qualitatively or quantitatively. In addition, the PRA expects the firm's validation to ensure that the internal credit assessment has satisfied the points in paragraph 2.4.

### On-going appropriateness

2.8L The PRA expects firms to have a robust process for the ongoing review of the credit assessments (and CQS mapping), including how the firm has satisfied itself that these will remain appropriate over the lifetime of the assets and operate robustly under a range of different market conditions and operating experience. The credit assessment and CQS mapping should be reviewed at regular intervals, as well as in response to changes in relevant external market conditions or other factors which are expected to impact the rating. In addition to this firms should monitor how the internal credit assessment criteria is applied consistently both within and across asset categories.

### Process improvements

2.8M The PRA expects firms to identify potential refinements needed to their methodology by monitoring their own credit experience against the internal credit rating assessments and changes made by ECAs to their methodology and criteria. This should include addressing any previously identified shortcomings in the firm's internal credit assessment process (including any that were identified as part of the independent reviews mentioned in paragraph 2.2 above).

2.8N Where some or all of the internal credit assessment process is outsourced, the PRA expects firms to also demonstrate the effectiveness of the systems and processes the outsourcer has in place, including validation, to ensure that outsourced internal credit assessments for assets satisfy the expectations set out in 2.8A to 2.8M and that the requirements of SII Regulations 2015/35/EC Article 274 are also satisfied. Firms should provide evidence that appropriate oversight systems and processes including governance are in place and have been carried out effectively for outsourced credit assessments.

2.9 If the PRA judges that a firm is unable to provide satisfactory assurance using its own internal resources, it may choose to commission an independent review, which may take the form of a report commissioned from a skilled person under Section 166 of the Financial Services and Markets Act 2000 (FSMA).

### **Additional expectations on internal credit assessments for restructured assets including equity release mortgages**

2.10 The PRA expects that internal credit assessments for restructured assets will be anchored on a risk analysis of the legal documentation between all parties concerned. In the case of restructured ERMs, this includes, for example, the original loan agreement between the



borrower and the lender, the contract between the originator and the insurance firm, and the legal structure of the notes issued by the special purpose vehicle (SPV).

2.11 As mentioned in paragraph 2.3, firms should consider both qualitative and quantitative sources of risk in their credit risk assessments. The PRA expects that all of the risks to which the senior notes are exposed (including combinations of risks) will be considered in the internal credit assessment, the assigned CQS and therefore the FS derived.

2.12 In respect of ERMs some of the quantitative features the PRA would expect to be considered explicitly include (but are not limited to):

- underwriting terms of the underlying ERMs (eg prepayment terms, interest rate at which the loan will accrue, conditions attaching to the borrowers, conditions attaching to the property);
- exposures (eg loan to value ratios, ages of borrowers, health of borrowers);
- strength of security (eg location, state and concentration of the properties used as collateral, rights of the SPV to substitute underlying ERMs);
- leverage, including a full analysis of the cash flow waterfall between the loan receivables and the cash flows paid to the senior noteholder; and
- stress and scenario testing of the amount and timing of receivables, for instance as a result of:
  - changes in the value of the properties that collateralise the ERMs, both in the immediate and longer term, including allowance for additional costs (eg dilapidation costs, transaction costs relating to sales);
  - demographic risks relating to the borrowers under the ERMs (eg longevity trend and volatility, morbidity); and
  - prepayment risk.

2.13 Where these exposures involve a large number of homogeneous retail exposures, as would be expected in the case of most ERM securitisations, statistical approaches could be an acceptable proportionate method for assessing exposures and risks. However we note this is unlikely to be acceptable for wholesale exposures (corporate lending and specialised lending) which tend to be large and heterogeneous.

2.14 Where a firm has restructured an asset, eg an ERM portfolio, into a range of tranches, the spread on a given tranche should be commensurate with the level of risk to which that tranche is exposed. The more junior the tranche, the greater the spread would be expected to be in order to reflect the higher exposure to risk.

2.15 Likewise the PRA would expect to see evidence that the securitisation structure provides loss absorbency to protect the senior note payments, eg a proportion of the cash flows accruing to the junior note in the early years of the transaction being kept in reserve in case of subsequent losses that reach the senior notes.

2.16 Reliance on any credit-enhancing or liquidity-enhancing features should be carefully justified, taking into account the availability of these facilities over the expected lifetime of the SPV, including under stressed scenarios such as those referred to in paragraph 2.12.

2.17 Qualitative factors that a firm may need to reflect in the internal credit assessment could include:

- uncertainty over the quantitative risk factors above resulting from a lack of data;
- the terms and conditions of the legal agreement(s) between the insurer and the SPV (eg cross-default provisions, covenants);
- uncertainty about the recoverability of the receivables when they become due (eg due to legal rights or practical considerations); and
- quality of loan servicing (eg ability to monitor properties and maintain knowledge of exposure and risk).

### 3 Assessing the risks from equity release mortgages

3.1 This chapter sets out the PRA's approach to assessing the risks to which insurers that invest in ERMs are, directly or indirectly, exposed. The assessment covers the appropriateness of the amount of MA benefit arising from restructured ERM notes.

#### Assessing the size of MA benefit from restructured ERM notes

3.1A The size of the MA benefit arising from restructured ERM notes depends on the:

- contractually-agreed cash flows of the notes and the value placed on those notes, which will determine their spread; and
- FS assigned to the notes. The FS must reflect the risks that the firm retains in relation to the cash flows of the notes, including default and downgrade risk. These, in turn, will be driven by the risks presented by the underlying assets.

3.2 ERMs are complex assets that often have embedded features such as a 'no negative equity guarantee' (NNEG) and no fixed maturity date. Restructuring them to produce MA-eligible notes with fixed cash flows adds a further layer of complexity. And there are typically no ECAI ratings or observable market prices for restructured notes on which firms and the PRA could place reliance.

3.3 As with any securitisation, there is a risk that the valuation and/or credit assessment of the MA-eligible notes is not aligned with their true risk profile, leading to a spread that is too high or an FS that does not reflect all of the risks retained by the firm. As noted in paragraph 2.6, the PRA will apply a higher supervisory intensity where it considers that there is a risk that the FS on internally-rated assets may be inappropriate. For restructured ERM notes, this increased oversight will include both an assessment of the quality of the firm's internal credit assessments (see paragraphs 2.10 to 2.17), and a verification that the risks retained by the firm as a result of the embedded NNEGs have been appropriately allowed for, as described below.

3.3A Where firms hold all of the tranches of a securitisation, the economic substance of their aggregate exposure remains the same regardless of the form of the securitisation. Understanding the risks posed to a firm by holding ERMs, in particular the NNEG, and how

these risks have been distributed between the various tranches of restructured notes (for example in the FS of MA eligible notes and the spread or valuation of the junior and senior notes), is an important part of ensuring that the MA does not arise from risks retained by the firm.

3.3B The approach to assessing NNEG risk set out under the heading ‘The Effective Value Test’ (the ‘EVT’) (below) is not the only method that could be used for these purposes but it is consistent with principles (ii) to (iv) in paragraph 3.8 and firms using this approach to demonstrate that they are not taking inappropriately large MA benefit from restructured ERM cash flows will meet the PRA’s expectations for this assessment. Any alternative approaches that calculate property forward prices assuming property growth in excess of the risk-free rate while simultaneously discounting at the risk-free rate, without also making a sufficient allowance for the risk in the assumed property growth (as envisaged by principle (iv) in paragraph 3.8), are equivalent to assuming a negative deferment rate and would not meet principle (iii).

### Assessing the NNEG risk

3.4 The NNEG guarantees that the amount repayable by the borrower under the ERM need never exceed the market value of the property collateralising the loan at the repayment date. As such it is an important source of risk for an ERM. As part of the review of the amount of MA benefit being claimed by a firm, the PRA will assess the extent to which the contractual terms, value and rating of restructured notes properly reflect the underlying NNEG risks and the extent to which these underlying risks flow through to the notes held within the firm’s MA portfolio (and as such are effectively retained by the firm for these purposes).<sup>3</sup> Compensation for these NNEG risks should not lead to an MA benefit. For example, assuming future house price growth in excess of risk-free rates should not lead to a lower valuation of the NNEG and hence higher MA, because firms are fully exposed to the risk that the excess house price growth will not be achieved.

3.5 Assets such as ERMs generally do not have directly observable market prices, and so nor do they have directly observable spreads. Instead a spread must be derived, having first determined both a fair value for the ERM using alternative valuation methods as well as assumptions about cash flows.

3.6 The presence of an NNEG will increase the derived spread on an ERM versus an equivalent loan without such a guarantee. It will also increase the amount of spread that should properly be attributed to risks retained by the firm.

3.7 When determining the fair value of an asset for the purposes of deriving its spread, it is important that any embedded guarantees are valued consistently with the rest of the asset (ie on fair value principles).<sup>4</sup> Otherwise, the component of the asset’s spread that is assumed to represent compensation for the risks arising from the guarantee may be underestimated. Further, it is not sufficient simply to ensure that the value placed on the asset as a whole represents a fair value, since there could still be an incorrect attribution of value between the NNEG and the other components driving the valuation.

3 The focus on the NNEG should not be taken to imply that other risks (eg prepayment risk) are not considered material by the PRA and indeed Chapter 2 is clear that these other risks should all be considered in the internal credit assessment and FS mapping.

4 The PRA’s rules on valuation are set out in rule 2.1 of the Valuation Part in the PRA Rulebook.

3.8 The PRA will assess the allowance made for the NNEG risk against its view of the underlying risks retained by the firm. This assessment will include the following four principles, which are explained in more detail below:

- (i) securitisations where firms hold all tranches do not result in a reduction of risk to the firm;
- (ii) the economic value of ERM cash flows cannot be greater than either the value of an equivalent loan without an NNEG or the present value of deferred possession of the property providing collateral;
- (iii) the present value of deferred possession of property should be less than the value of immediate possession; and
- (iv) the compensation for the risks retained by a firm as a result of the NNEG must comprise more than the best estimate cost of the NNEG.

3.9 [Deleted]

### **(I) Securitisations where firms hold all tranches do not result in a reduction of risk to the firms**

3.10 Where firms hold all of the tranches of a securitisation (as is generally the case for correctly restructured ERM portfolios), the economic substance of their aggregate exposure remains the same regardless of the form of the securitisation. Understanding the risks posed to a firm by the NNEG, and how these risks have been distributed between the various tranches of restructured notes, is an important part of ensuring that the FS appropriately reflects all of the NNEG risks that are retained by the firm in relation to the cash flows on the MA-eligible notes.

3.11 Some of the exposure to the risks posed by the NNEG will remain in the junior tranches outside of the MA portfolio. Nevertheless it is important to verify that the combination of the junior tranche values and the FS of the MA-eligible tranche(s) have appropriately covered all of the risks retained by a firm that holds the ERMs until maturity, including those that arise from the NNEG. For this reason the PRA will assess the overall 'Effective Value' of the restructured ERM against the components of the value of the un-restructured ERM (the 'economic value decomposition'), as described below and illustrated in Figure 1 below.

3.12 The 'Effective Value' of restructured ERMs is the total value of all tranches of the restructured ERMs on the asset side of the balance sheet, plus the MA benefit arising from the restructured ERMs on the liability side of the balance sheet. The right-hand side of Figure 1 illustrates the construction of Effective Value, alongside an illustration of one way in which the value of un-restructured ERMs can be made up. The total value of the securitisation tranches is illustrated as being somewhat lower than the value of the un-restructured ERMs, to reflect the frictional costs of restructuring, on the assumption that an equation of value holds.

3.13 On the left-hand side of Figure 1, the value of un-restructured ERMs has been illustratively decomposed into:

- the value of expected ERM cash flows prior to deductions (ie as a risk-free loan on expected decrements) (in blue),
- expenses (in red),

- NNEG (in red),
- any other adjustments (for example to allow for pre-payment risk) (in red).

For the purposes of this SS, the remainder (in green) is referred to as the economic value of ERM cash flows. The PRA expects the Effective Value to be less than this amount.<sup>5</sup> Calculation of the economic value should use methods and calibrations that are consistent with the other three principles.

3.13A Where the SPV holds assets other than ERMs, the PRA expects firms to take the value of these other assets into account when conducting the EVT only if they are held for a purpose that supports the restructuring of the ERMs, for example to improve the credit quality of the restructured ERM notes, or to assist with risk or liquidity management, subject to the following expectations:

- Other than as noted in (v) below, the balance sheet value of the other assets should be calculated in accordance with the PRA Rulebook and any other relevant requirements. This value of the other assets should be added to the economic value of ERMs.
- When determining Effective Value, firms should allow for the balance sheet value of the other assets in valuing each tranche. In particular, firms should allow for the impact on the security of the senior tranches arising from the other assets, and ensure that the valuation, spread and mapped CQS of the senior tranches reflects the presence of the other assets in the SPV, having regard to paragraph 2.4 above. The PRA considers it would be difficult to demonstrate that the presence of a material value of other assets had no effect on the value or credit quality of the senior tranches and hence does not consider that it would be credible to assume that the value of the other assets was allocated in full to the junior tranche. The PRA expects firms to be able to justify any allocation to the junior tranche in relation to the design of its restructuring approach.
- Firms should allow for any basis and counterparty risk associated with the other assets, for example any derivative or reinsurance contracts based on a property index are exposed to the basis risk of idiosyncratic property movements, as well as counterparty risk.
- Firms should allow for relevant costs associated with the other assets, for example commitment fees associated with liquidity facilities used to support the credit ratings of the MA-eligible notes.
- For some assets other than ERMs, the PRA recognises that it may in principle be appropriate to depart from a balance sheet value calculated in accordance with the PRA Rulebook for the purposes of conducting the EVT. In particular the PRA considers this may in principle be appropriate for some assets held to (partially) hedge NNEG risk. Where either a firm or the PRA believes it is appropriate to adopt a bespoke valuation approach for assets other than ERMs for the purposes of conducting the EVT, the PRA expects firms to discuss and agree an appropriate valuation approach with their supervisor. In such cases, the PRA expects firms to justify the relationship between the value of the asset for the purposes of the EVT and the allowance for NNEG risk included in the calculation of economic value.

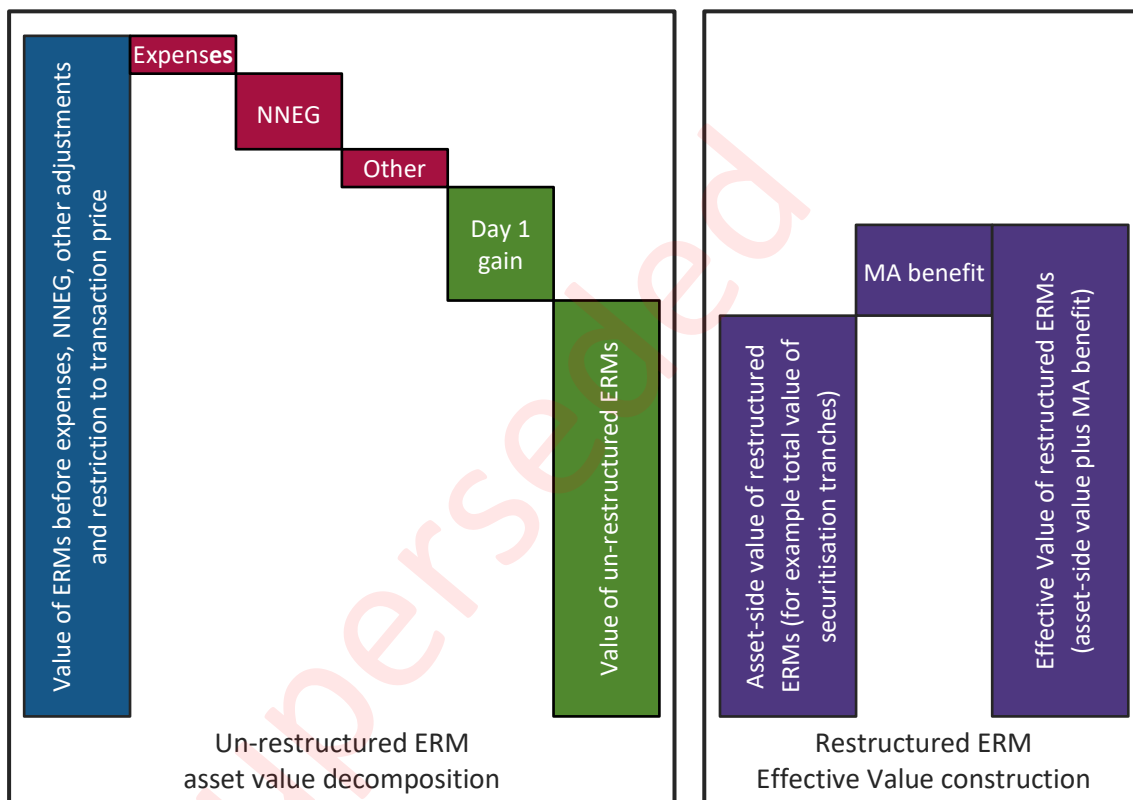
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<sup>5</sup> The economic value has been broken down into the value of un-restructured ERMs and the restriction on the value to a transaction price, (labelled as 'Day 1 gain' in Figure 1 for brevity). The MA benefit has been illustrated in Figure 1 as partially offsetting the elimination of the Day 1 gain.

The PRA expects firms to be able to demonstrate that the value of other assets has been allowed for in economic value and Effective Value in accordance with (i) – (v) above.

3.14 The EVT assessment will be carried out on a firm-by-firm basis to provide assurance that all of the risks to which the firm is exposed have been appropriately reflected, either in the value of the securitised assets or in the FS assigned to those assets in the MA portfolio.

**Figure 1: Illustration of the construction of Effective Value**



**(II) The economic value of ERM cash flows cannot be greater than either the value of an equivalent loan without an NNEG or the present value of deferred possession of the property providing collateral**

3.15 This concept was introduced as the first proposition of paragraph 4.9 of Discussion Paper (DP) 1/16.<sup>6</sup> It is derived from the following considerations:

- (i) Given the choice between an ERM and an equivalent loan without an NNEG, a market participant would choose the latter, since either the guarantee is not exercised, in which case the ERM and the loan have the same payoff, or it is, in which case the ERM pays less.
- (ii) Similarly, a market participant would prefer future possession of the property on exit to an ERM, given that the property will be of greater value than the ERM if the guarantee is not exercised, or the same value if it is.

<sup>6</sup> 'Equity release mortgages' March 2016: see page 3 of 3 at <https://www.bankofengland.co.uk/prudential-regulation/publication/2016/equity-release-mortgages>.



### **(III) The present value of deferred possession of a property should be less than the value of immediate possession**

3.16 This statement is equivalent to the assertion that the deferment rate<sup>7</sup> for a property is positive. The rationale can be seen by comparing the value of two contracts, one giving immediate possession of the property, the other giving possession ('deferred possession') whenever the exit occurs. The only difference between these contracts is the value of foregone rights (eg to income or use of the property) during the deferment period. This value should be positive for the residential properties used as collateral for ERMs.

3.17 It is important to note that views on future property growth play no role in preferring one contract over the other. Investors in both contracts will receive the benefit of future property growth (or suffer any property depreciation) because they will own the property at the end of the deferment period. Hence expectations of future property growth are irrelevant for this statement.

### **(IV) The compensation for the risks retained by a firm as a result of the NNEG must comprise more than the best estimate cost of the NNEG**

3.18 As noted in paragraphs 3.10 and 3.11, the purpose of the assessment of Effective Value is to verify that all risks that have been retained by the firm on the assumption that it holds the ERMs until maturity have been appropriately reflected in the value assigned to the different tranches and the FS derived for those tranches in the MA portfolio. The NNEG component of the economic value decomposition should capture all of the risks to which the firm remains exposed as a result of giving this guarantee. The PRA's view is that the compensation for the risks that have been retained by the firm as a result of giving the NNEG will comprise more than the best estimate cost of the guarantee. This is consistent with the fact that the FS captures more than the expected cost of defaults: it also includes additional components for the cost of downgrades (eg calibrated as the cost of rebalancing the portfolio to maintain a certain probability of default), as well as a floor to allow for other sources of uncertainty in the cash flows. When considering the fair value of the ERMs, a rational investor would require compensation above and beyond the average outcome based on their best estimate assumptions, to reflect the risk of loss in adverse scenarios. The same analysis applies to securitised notes: the junior note should be held at fair value and the more a junior note is structured to absorb the risk from the NNEG (and other risks), the higher its spread should therefore be.

3.19 [Deleted]

### **The Effective Value Test (the 'EVT')**

3.20 Firms can demonstrate that the Effective Value is less than the economic value of ERM cash flows (taking into account other assets held by the SPV in accordance with paragraph 3.13A) using the following approach for calculating NNEG risk. Firms should calculate the allowance for NNEG risk for the portfolio of loans as the sum of a series of allowances for each ERM for each annual period during which ERM cash flows could mature, each allowance being multiplied by an exit probability appropriate to the annual period determined using best estimate assumptions for mortality, morbidity and pre-payment. Firms should calculate the allowance for each loan and period using the Black-Scholes option pricing formula shown below with the specified assumptions:

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<sup>7</sup> By deferment rate, the PRA means a discount rate that applies to the spot price of an asset resulting in the deferment price. The deferment price is the price that would be agreed and settled today to take ownership of the asset at some point in the future; it differs from the forward price of an asset in that the forward price is also agreed today, but is settled in the future.

$$e^{-rT} [KN(-d_2) - Se^{(r-q)T} N(-d_1)]$$

$$\text{where } d_1 = \frac{1}{\sigma\sqrt{T}} \left[ \ln\left(\frac{S}{K}\right) + \left(r - q + \frac{1}{2}\sigma^2\right)T \right] \text{ and } d_2 = d_1 - \sigma\sqrt{T}$$

and N() is the standard Normal cumulative distribution function

- S = Current reasonable estimate at the balance sheet date of the value of the property providing collateral against the ERM;
- T = term to maturity as described above,;
- K = loan principal and expected accrued interest at time T, calculated in accordance with the principles in paragraph 3.20A below;
- r = published Solvency II basic risk-free interest rate for maturity T, adjusted for use on a continuously-compounded basis;
- $\sigma$  = published volatility parameter; and
- q = published deferment rate parameter.

3.20A For ERM loans where the value of K at time T is dependent on borrower behaviour relating to principal or interest, the PRA expects firms to follow the principles below:

- (i) K should not include principal or the interest accruing thereon that is (a) projected to be lent after the date at which the EVT is conducted and (b) where the amount and timing of principal is at the borrower's discretion or otherwise not known in advance by the lender.
- (ii) K should incorporate the principal and interest arising from a regular series of additional lending taking place after the date at which the EVT is conducted (a) where the amount and timing is known and certain in advance (other than any option to cease borrowing regular additional principal), and provided (b) that a best estimate of the rate at which borrowers cease to take additional borrowing is used.
- (iii) In the case of loans where borrowers pay some or all of the interest due as it accrues, K should reflect the expected accrual of interest at time T, allowing on a best estimate basis for the rate at which borrowers take up options to cease or reduce the interest they pay.

- (iv) Notwithstanding (i) above, the assessment of NNEG risk on existing lending should take account of any additional risk arising from future additional principal or interest arising from a pre-agreed lending facility, on a best estimate basis, having regard to the legal mechanisms by which future additional principal is expected to be incorporated into existing or additional restructured ERM notes. The purpose of this expectation is to reflect the risk to existing lending arising from future lending, and not the risks to which future lending would be exposed in itself. This is a potentially complex area and the PRA encourages firms to discuss their approach with their supervisor. In determining their best estimates of future lending, firms should not take account of contractual variation terms that purport to allow the firm to curtail future lending in certain circumstances unless they can:
- (a) justify that relying on such terms is consistent with their business plans with due consideration given to the franchise risk which could arise from such actions, and
  - (b) demonstrate they have considered carefully any legal and conduct requirements and expectations, including how a court might view these terms.

However, for the purposes of the EVT the PRA does not expect firms to allow for risks to existing lending arising from future lending that is at the firm's sole discretion ('discretionary future advances') and does not form part of a pre-agreed lending facility, subject to firms' demonstrating that this treatment of discretionary future advances for the purpose of the EVT has also had appropriate regard relevant legal and conduct requirements and expectations.

- (v) Where the value of  $K$  is uncertain in a way not otherwise covered by the principles above, the PRA expects firms to agree an appropriate approach to the calculation of  $K$  with their supervisor.

The PRA expects firms to be able to demonstrate that their calculation of  $K$  has been performed on a basis that is at least as prudent as that embodied in these principles. The PRA recognises that firms could adopt a range of methods that would meet these principles.

3.21 The PRA will expect firms to conduct the EVT from 31/12/2019, with a minimum value of  $q=0\%$ . This is consistent with PRA policy as set out in principle (iii) of paragraph 3.8 above. Subsequently, the PRA will expect firms to conduct the EVT with a minimum of the published value of  $q$  from 31/12/2021 at the latest, allowing a short phasing-in period for all firms that wish to use it.

3.21A The values of  $q$  and  $\sigma$  will be published on the PRA's website.<sup>8</sup> The PRA expects to review the value of  $q$  twice a year and to publish an updated value, or to confirm the prior value, by the end of March and September each year. The PRA expects to review and update or confirm the volatility parameter once per year, by the end of September. The initial review will take place by the end of September 2019. The PRA may publish updated values more frequently and at other times of the year when it considers it is appropriate to do so, taking into account market conditions. When reviewing the values of  $q$  and  $\sigma$  the PRA will use the following framework:

- The PRA will use its judgement informed by a range of analysis to inform its decision on the values, rather than a purely mechanistic approach.

<sup>8</sup> Available at: [www.bankofengland.co.uk/prudential-regulation/key-initiatives/solvency-ii/effective-value-test-parameters](https://www.bankofengland.co.uk/prudential-regulation/key-initiatives/solvency-ii/effective-value-test-parameters).

- For  $q$ , the PRA will have regard to movements in long-term real risk-free interest rates, measured using a range of swaps-based data sources, at a range of tenors from 10 to 30 years. In general, material increases in long-term real risk-free interest rates will lead to an increase in  $q$ , and conversely material reductions in long-term real risk-free interest rates will lead to a reduction in  $q$ , subject to the value of  $q$  remaining positive in line with Principle (iii) of paragraph 3.8 above.
- For  $\sigma$ , the PRA will update its analyses to take account of any additional data on property price returns and relevant advances in techniques for estimating volatility.
- To avoid spurious precision, in general the PRA does not expect to publish an updated value of  $q$  or  $\sigma$  that results in an absolute change of under 0.5 percentage points or 1.0 percentage points respectively.
- The PRA will set out a summary of its rationale for updating the parameters (or confirming their prior values) at the time of publication.
- The PRA will consult further in the event that it wishes to make substantive changes to this framework.

3.22 Where firms are unable to meet the EVT using the above approach and cannot offer appropriate and credible explanations (or alternatives that are consistent with principles (ii) to (iv) of paragraph 3.8 above, as explained in paragraph 3.3B above) this will be an indication that they may be deriving inappropriately large MA benefit from restructured ERMs. This could be because some or all of: the contractual terms of the ERM re-structure, valuation and spread of the restructured ERM notes or the rating (and hence CQS mapping) of the restructured ERM notes, do not adequately reflect the risk profile of the ERM cash flows that underpin the restructure. In such circumstances, firms will need to consider whether to adjust one or more of those components in order to properly reflect that risk profile.

3.23 Figure 1 shows an allowance for ‘other’ risks in the decomposition of economic value of ERM cash flows. The PRA will not assess each firm’s allowance for other risks using a single specified approach, because the size and nature of the allowance is likely to depend on the specific contractual terms and risk profile of each firm’s ERM cash flows. However, the PRA will expect firms to demonstrate that they have made a realistic and credible allowance for other risks when assessing the economic value of ERM cash flows. In particular, the PRA expects firms to include an allowance for the likelihood and potential impact of early pre-payment of ERMs, and a further allowance for the uncertainties discussed in paragraph 3.20A above.

3.24 The PRA expects firms to conduct the EVT in the following circumstances:

- when restructured ERM notes are established or amended;
- regularly in support of the Supervisory Review Process<sup>9</sup>: this should be at least annually at firms’ financial year end dates. For firms where exposures to restructured ERMs (as a proportion of total assets in the MA portfolio) are more material, or if the PRA judges there to be an increased risk of the firm taking an inappropriately large MA benefit from restructured ERMs, firms may be expected to assess more frequently, as agreed with supervisors;

<sup>9</sup> See ‘The PRA’s approach to insurance supervision’ available at <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/pr-a-approach-documents-2018> and Article 36 of Directive 2009/138/EC.

- (iii) when recalculating the transitional measure on technical provisions, whether at a regular two-year recalculation point, or as a result of a relevant change in risk profile;
- (iv) where a firm has reason to believe that the result of the EVT would show that it would no longer be met; and
- (v) on request by their supervisor.

Firms may wish to conduct the EVT for their own purposes at any time.

3.25 The PRA expects firms to communicate the results and calculation of the EVT to their supervisor promptly, and as soon as possible in the event that the EVT result indicates that an inappropriately large amount of MA benefit may be derived from restructured ERMs. The results and calculation of the EVT should consist of a written statement setting out, for each separate securitisation, the following:

- (i) the effective date at which the test has been conducted;
- (ii) the value of  $q$  and  $\sigma$  used when conducting the test;
- (iii) economic value, as a total broken down into the major elements in Figure 1 above;
- (iv) Effective value, as a total broken down into the fair value for each tranche of the restructuring, and the Matching Adjustment benefit arising from each eligible tranche; and
- (v) the result of the test (whether or not it has been met) together with any commentary that the firm considers to be relevant.

### Assessing the internal model SCR for restructured ERMs

3.26 The PRA reminds firms of the PRA's expectations for modelling MA in stress in SS8/18<sup>10</sup>, in particular the expectations relating to using a different technique to the primary methodology when validating internal models for MA in paragraph 6.8 of SS8/18.

3.27 The PRA considers that assessing the EVT in stressed scenarios could be a relevant validation technique in relation to paragraph 6.8 of SS8/18. Specifically, assessing the EVT in stress entails considering:

- (i) the stressed economic value of ERMs;
- (ii) the stressed value of other assets held by the SPV;
- (iii) the stressed Effective Value of restructured ERMs (deriving from the stressed value and mapped CQS of the restructured ERM notes); and
- (iv) the relationship between stressed economic and Effective Value.

The PRA considers reassessment of the EVT in stress, in particular the comparison of stressed economic and Effective Value in (iv) above, to be a helpful validation exercise that could contribute to firms meeting the Solvency II validation tests and standards. When assessing

<sup>10</sup> 'Solvency II: Internal models – modelling of the matching adjustment', July 2018:  
<https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-2-internal-models-modelling-of-the-matching-adjustment-ss>.

internal model applications, and firms' continued compliance with the tests and standards for internal model approval, the PRA will ask firms to apply a test based on the EVT in stress, to assist in providing assurance that the amount of MA in stress is not overstated. Firms may wish to consider adding an EVT in stress to their regular suite of validation tools.

3.28 Assessing the EVT in stress is not intended to replace firms' existing primary approaches in their internal model methodologies for restructured ERMs. In particular, the PRA expects firms to follow the five-step framework set out in Chapter 3 of SS8/18, part of which entails applying appropriate stresses to firms' valuation methodologies for restructured ERMs.

3.29 The PRA will ask firms to apply a test based on the EVT in stress as a validation technique from 31 December 2021 at the latest, ie when the phasing-in period in paragraph 3.21 ends.

3.30 Firms assessing the EVT in stressed scenarios should consider the following principles:

- (i) All the relevant inputs to the EVT should be stressed appropriately, including without limitation the value of other assets; the opening property value, having regard to the risk that individual properties do not necessarily perform in line with a diversified index; the risk-free rate; mortality, morbidity and prepayment assumptions; best-estimate assumptions used in the calculation of the principal and interest; the deferment rate; and the volatility parameter. After allowing for appropriate diversification effects, the stresses should be consistent with the confidence level of 99.5% over a 1-year period for the SCR of the MA portfolio holding the restructured ERMs.
- (ii) The minimum deferment rate and volatility parameters for the EVT are set by the PRA using the framework in paragraph 3.21A from time to time. These parameters are designed to inform a diagnostic test on the base balance sheet. The PRA expects firms to engage with the principles underlying the EVT and the framework for reviewing the parameters as set out earlier in this chapter, and to derive their own stresses to the deferment rate and volatility parameters. In doing so, firms may wish to consider adverse historical environments and prospective scenarios for property prices, both in the UK and internationally, as well as the framework for the parameters in paragraph 3.21A above.
- (iii) The deferment rate parameter of the EVT assessed on the base balance sheet has been set as a minimum view. Firms should therefore consider what the minimum view would be in stressed economic conditions, having regard to the levels of variables such as nominal and real interest rates, and property prices. A zero value for the deferment rate does not meet Principle III above, and so the PRA does not consider this to be a realistic or credible value when using the test to meet the intended purpose other than during the phasing-in period in paragraph 3.21 above.
- (iv) Firms may wish to stress the inputs to the EVT in different ways depending on the design of their internal model. For example, firms could stress the risk-free rate  $r$  and the deferment rate  $q$ , or apply stresses to  $r$  and  $r-q$ . On the basis of the broad linkage between the deferment rate and real interest rates, firms may wish to consider changes in  $r-q$  as being broadly linked to implied inflation.
- (v) Firms should consider carefully the dependency structure among all risk drivers used in deriving stresses to the EVT parameters, in particular between  $r$  and  $q$  (or  $r$  and  $r-q$ ), and ensure that the stressed scenarios used in the application of the EVT as a validation technique are economically realistic.



- (vi) Firms may wish to consider management actions to support the SPV under stress, for example injecting assets to support the credit quality of senior notes, or amending note cash flows. In respect of management actions, firms are reminded to consider carefully the relevant tests and standards as set out in Article 236 of the Delegated Regulation, and any implications for the MA eligibility of the restructured ERM notes or the MA portfolio as a whole.
- (vii) Firms should apply the EVT in a sufficiently wide range of scenarios to give reasonable assurance that the MA benefit in stress is not overstated. Firms whose internal model is based on Monte Carlo simulations could in principle limit the application of the EVT in stress to a key subset of the scenarios generated, provided they can demonstrate that the results of the test do not indicate that any material re-ranking of simulated scenarios would be required. The PRA considers that it would be good practice to apply the EVT in upside and downside scenarios.

## 4 Risk identification and modelling of Income Producing Real Estate loans

4.1 This chapter sets out the PRA's expectations of firms regarding the risk identification exercise and the risk calibration and validation of internal models (particularly in respect of the application of the MA within the calculation of the SCR) for illiquid assets. It includes, as an example, several expectations, specific to Income Producing Real Estate (IPRE) loans. Given the heterogeneity of illiquid asset classes, the PRA expects firms to consider whether these expectations are applicable to other relevant assets within their portfolios. Where firms consider the expectations are not applicable to assets with similar features to IPRE, the PRA expects them to provide, upon request, a justification of why this is the case. The PRA will seek assurance against these expectations in a proportionate way, using similar criteria to those discussed in paragraph 2.6.

4.2 IPRE lending refers to a category of funding to real estate where the prospects for ultimate repayment and recovery on the exposure depend primarily on the cash flows generated by the underlying property asset(s).<sup>11</sup> The primary source of these cash flows would usually be lease or rental payments from commercial tenants (generally for the payment of interest and any amortizing principal) and the sale or refinancing of the asset(s) (generally for the payment of any non-amortizing principal at maturity). The distinguishing characteristic of IPRE (versus other corporate exposures that are collateralised by real estate) is the strong positive correlation between the prospects for repayment of the interest and principal due on the exposure and the prospects for recovery in the event of default. Both primarily depend on the realisation of cash flows generated by a property, whether these are in the form of rental income or sale/refinancing proceeds. Note that the PRA considers this definition to be a useful reference. However, it need not be applied rigidly and the PRA expects the expectations set out below to also be relevant for assets with similar features.

4.3 The PRA's observation is that IPRE loans are generally structured to isolate the collateral from the bankruptcy and insolvency risks of the other entities that participate in the transaction, eg via an SPV.

4.4 The MA allows firms to adjust the relevant risk-free interest rate term structure for the purpose of calculating the best estimate of a portfolio of MA-eligible insurance or reinsurance obligations. To apply an MA, firms must have PRA approval, as per Regulation 42 of The

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<sup>11</sup> Basel Committee on Banking Supervision –The Basel Framework: IRB approach: overview and asset class definitions: [https://www.bis.org/basel\\_framework/chapter/CRE/30.htm](https://www.bis.org/basel_framework/chapter/CRE/30.htm)

Solvency 2 Regulations 2015. Firms with MA approval are permitted to apply an MA for the purposes of determining both technical provisions (TPs) and the Solvency Capital Requirement (SCR). The PRA expects firms to have confidence that the level of MA benefit assumed in each of these calculations is fit for purpose. The PRA has previously published its expectations relating to modelling of the MA within the SCR calculation in SS8/18 'Solvency II: Internal models – modelling of the matching adjustment'.<sup>12</sup> These expectations primarily apply to the risks arising in respect of corporate bond assets within firms' MA portfolios. However, the PRA recognises that many of the expectations in paragraph 1.8 of SS8/18 would apply regardless of the assets held.

## Risk identification

### The role of the risk identification exercise

4.5 The PRA requires that 'as regards investment risk, a firm must demonstrate that it complies with the Investments Part of the PRA Rulebook.'<sup>13</sup> The Investments Part sets out the 'prudent person principle' which requires that firms 'must only invest in assets and instruments the risks of which it can properly identify, measure, monitor, manage, control and report, and appropriately take into account in the assessment of its overall solvency needs in accordance with Conditions Governing Business 3.8(2)(a).'

4.6 The PRA reminds firms that the SCR must capture all quantifiable risks to which firms are exposed<sup>14</sup> whether using the standard formula or internal model, and internal models used to calculate the SCR must capture all material risks that firms are exposed to.<sup>15</sup>

4.7 In order to ensure that these requirements are satisfied for IPRE loans, the PRA expects firms to complete a comprehensive risk identification exercise that considers all sources of risks that the firm could be exposed to in relation to their IPRE loans. Due to the bespoke nature of IPRE loans, the risk identification exercise should consider features of individual loans. This applies to standard formula or internal model firms that have IPRE loans.

4.8 The internal rating process (including internal rating models used to derive the MA benefit attributed to IPRE loans for the purposes of calculating technical provisions or for assigning stressed fundamental spread) and the SCR should reflect the relevant risks identified in this risk identification exercise.

4.9 The PRA expects firms to be able to demonstrate that the IPRE loan risks captured by its internal ratings process offer sufficient discriminatory power in determining the credit quality of its assets and that these risks are reflected, as appropriate, in the internal rating models.

4.10 The PRA expects internal model firms to use the risk identification exercise to influence the scope, methodology and calibration of the internal model used to calculate the SCR.

4.11 Whilst the SCR may be calibrated to cover only a subset of the risks identified in the risk identification exercise, eg where some risks have been fully mitigated by the firm, firms are expected to clearly justify and explain any exclusions of risks identified in the risk identification exercise from the SCR calibration. Firms should also allow for any secondary risks introduced through risk-mitigation.

<sup>12</sup> July 2018: <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-2-internal-models-modelling-of-the-matching-adjustment-ss>.

<sup>13</sup> Conditions Governing Business 3.4 of the PRA Rulebook.

<sup>14</sup> Solvency Capital Requirement – General Provisions 3.3 of the PRA Rulebook.

<sup>15</sup> Solvency Capital Requirement – Internal Models 11.6 of the PRA Rulebook.

4.12 Firms using the standard formula are required as part of the Own Risk and Solvency Assessment to assess the significance of the extent to which its risk profile deviates from assumptions underlying the standard formula.<sup>16</sup> The PRA expects the output of the risk identification exercise to be considered and incorporated into that assessment. In the event that the standard formula does not reflect the firm's risk profile, firms may need to consider whether it should use a partial internal model to calculate the SCR. For internal model firms, the internal model should be validated against the output of the risk identification exercise, noting any model limitations.

4.13 The PRA expects the risk identification exercise to be carried out by persons with the appropriate skills and experience.

4.14 The risk identification exercise should also take into account how the firm's own or outsourced credit risk management processes may have an impact on the performance, and hence risks, of the assets.

4.15 The PRA does not expect the risk identification exercise to be a one-off exercise. Firms are expected to undertake a risk identification exercise regularly to maintain an up-to-date view of existing exposures, and to capture potential risks arising from the known pipeline of new IPRE loans. Other circumstances which may require a risk identification review include, but are not limited to, changes to the risk appetite, changes in the legal, political or regulatory landscape, a significant change to external market conditions, a change in investment mandates, or the consideration of new IPRE loans.

#### The process and scope of the risk identification exercise

4.16 In the risk identification exercise, the PRA expects firms to consider all relevant systemic and idiosyncratic risks associated with their IPRE loans.

4.17 The risk identification exercise should consider features of existing individual IPRE loans and those that may be accepted in future in line with a firm's risk appetite and tolerances set out in its underwriting policy and investment mandates. Grouping of assets by features may be acceptable but care is required to ensure no risks introduced by bespoke features are missed.

4.18 The PRA also expects firms to consider interactions between the risks identified, and how any interdependence may affect both the outcome and impact of risks crystallising. For example, a reduction in the level of rent receivable from a commercial property would increase the probability of default through a reduction of the income coverage ratio, and increase the loss given default, through a reduction in the value of the property on which the loan is secured.

4.19 The risk identification exercise should consider the following high-level areas, as a minimum:

- (i) external market factors, taking into account property market conditions (eg supply vs demand) and wider economic risks (eg interest rates, economic growth);
- (ii) cash-flow predictability, taking into account for example the tenant(s), lease terms, voids and re-lettings;

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<sup>16</sup> Conditions Governing Business 3.8(2)(c) in the PRA Rulebook.

- (iii) collateral, taking into account the characteristics (eg location, design and condition) of the underlying property(s), property and valuation risks, and ability to realise the collateral value within a timely manner and the security package;
- (iv) loan characteristics (eg leverage, serviceability, pre-payment risk, refinancing risk, covenants or structural protections);
- (v) risks arising from third-parties, such as the strength of sponsor and its willingness to provide support, and parties involved in the servicing and managing of the loan, SPV and/or underlying property(s);
- (vi) concentration, basis and liquidity risks; and
- (vii) legal, political and regulatory risks.

4.20 The PRA expects firms to demonstrate that they have appropriate skills and experience to implement the controls and risk management actions assumed in the management of IPRE loan exposures within the internal model. Firms should also demonstrate that these controls and risk management actions can be executed in the timescales assumed. Where this is not possible, firms should consider the extent of any differences between the assumed and actual effect of controls relating to the management of IPRE loan exposures, including timeliness and whether any adjustments are necessary to the internal model as a result.

4.21 The PRA expects firms' risk identification exercise and the assumptions underpinning the internal model to reflect the risk profile of the firm's IPRE loans. This will be influenced by relevant policies and practices of a firm relating to IPRE lending. Such policies and practices are likely to cover the following areas:

- (i) underwriting of loans, eg the criteria upon which the approval of any loan is based,<sup>17</sup> and the impact this may have on the risks accepted on IPRE lending;
- (ii) the due diligence process applied to the loan, including any documented standards, relating to IPRE loans that may be applied to sponsors, borrowers, contracts, collateral property and security package;
- (iii) agreements between the firm and an internal or external IPRE loan investment manager relating to the obligations of the investment manager,<sup>18</sup> eg investment mandates;
- (iv) legal protections required through loan covenants or structural protections;
- (v) potential conflicts of interest relating to IPRE lending, including identification and management thereof;<sup>19</sup>
- (vi) outsourcing of any functions relating to IPRE lending,<sup>20</sup> where relevant;
- (vii) ongoing administration, servicing and monitoring of IPRE lending;<sup>21</sup> and

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<sup>17</sup> Article 261 (1) (a) of the Commission Delegated Regulation.

<sup>18</sup> Article 274 (3)(c) of the Commission Delegated Regulation.

<sup>19</sup> Article 258 (5) of the Commission Delegated Regulation.

<sup>20</sup> Article 274 (1) of the Commission Delegated Regulation.

<sup>21</sup> Article 261 (1)(c) of the Commission Delegated Regulation.

(viii) dealing with any distressed assets,<sup>22</sup> eg through the workout process.

### Impact of loan underwriting practices on risk profile

4.22 The PRA expects firms' risk identification exercise to reflect the loan underwriting policies and practices of a firm, and the impact of these on the risks that may be accepted. Firms' considerations should cover at least the following:

- (i) IPRE loan features that would be acceptable, such as property, tenant and borrower/sponsor features;
- (ii) covenants or protections relating to the ongoing management of the IPRE loans that are required as a minimum; and
- (iii) the sources of concentration risk for IPRE loans and the limits that apply.

4.23 In order to demonstrate that all material risks have been identified, the PRA expects firms to evidence that underwriting due diligence has been carried out on sponsors, borrowers, contracts, collateral property and security package to the standard required by the firm's risk appetite and tolerances as set out in its underwriting policy and investment mandates.

### Impact of investment management agreements on risk profile

4.24 The PRA expects firms' risk identification exercise to consider the agreements with investment managers, such as investment mandates for IPRE loans, including any potential risks introduced by discretion available to investment managers. Firms' risk identification should also consider the potential for the investment manager to act against the firm's interests.

### Impact of legal agreements on risk profile

4.25 The PRA expects the risk identification exercise to consider the impact of the protections provided in the loan agreement by the security package and terms and conditions (eg covenants and structural protections) on the risks accepted on IPRE loans. Any gaps in the protection provided should be captured in the risk identification exercise. In addition, the PRA expects firms to consider any difficulties that may arise in enforcing the legal agreements.

### Impact of third-parties and potential conflicts of interest on risk profile

4.26 The PRA expects firms to demonstrate that the IPRE loan risk identification exercise takes account of potential third-party actions and conflicts of interest that may impact the IPRE loan risk profile, and the process around managing any such conflicts. The PRA does not expect that the interests of all parties in an IPRE loan transaction will be fully aligned at all times and firms should therefore consider scenarios when there is likely to be a lack of alignment in determining the risks to which they are exposed via their IPRE loans.

### Impact of outsourcing arrangements on risk profile

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<sup>22</sup> Article 261 (1)(c) of the Commission Delegated Regulation.

4.27 Where any key functions are outsourced, the PRA expects firms to demonstrate that the outsource providers are able to identify, mitigate and manage any conflicts of interest and report them to the firm.

#### Impact of IPRE loan management, including workout capabilities on risk profile

4.28 The risk identification exercise is expected to consider the processes and policies covering the ongoing maintenance of IPRE loan exposures, including the firm's capabilities in the management of distressed assets eg the firm's workout function, which may affect the level of recoveries achievable, and the timeliness of this. The functionality of these processes and policies is expected to be considered in economic downturn scenarios, where multiple loans could become distressed at the same time.

4.29 Firms may choose to design IPRE loan contracts that include options that may be triggered in the event of a risk crystallising, such as technical defaults.<sup>23</sup> If options are available to a firm in the event of a technical default on IPRE lending, the risk identification exercise is expected to consider the impact and reasonableness of exercising any such option upon technical default.

#### Risk calibration and validation of internal models

4.30 For internal models, the PRA does not have a preference on the approach taken by firms to model the risks on IPRE loans, subject to the chosen approach meeting the relevant tests and standards. For example, firms may choose to model a proxy for the IPRE loan exposures, or to model the underlying IPRE loan risk drivers directly. In deciding an appropriate approach to take, however, the PRA expects firms to consider whether the robustness of the modelling approach is commensurate with the materiality of IPRE loans held, and to clearly explain how the IPRE loan risks (ie arising from the risk identification exercise in the previous section on Risk Identification) have been adequately captured by the model. In addition, firms should be able to articulate the link between its modelling approach and its internal credit rating approach, and to demonstrate that the approach taken meets the requirements of the Use Test.<sup>24</sup>

4.31 The PRA is aware that firms may have more limited data for IPRE loans than for other types of asset that are traded more frequently. Consequently, the PRA expects that the model methodology and calibration will make greater use of expert judgement and a qualitative assessment of IPRE loan characteristics. These judgements should be based on the expertise of persons with the appropriate skills and experience. Firms should assess the credibility of expert judgements made in calibrating extreme scenarios where data is limited, and the materiality of these judgements. These judgements should reflect the level of uncertainty within the data in order to demonstrate that firms' allowance for IPRE loan risks is appropriately calibrated. Firms should ensure that these have gone through appropriate governance, communication, documentation and validation in line with Chapter 4 (Assumption setting and expert judgement) of the EIOPA Guidelines on the use of internal models.<sup>25</sup>

#### A one-year stress on IPRE loans

4.32 The PRA expects firms to re-value IPRE loans in stress, in a manner consistent with the valuation methodology applied to determine the asset value reported in the Solvency II

<sup>23</sup> A condition or covenant in the contract terms is breached that is defined to be a default event, distinct from payments not being made when they fall due.

<sup>24</sup> Chapter VI, Section 2 of the Commission Delegated Regulation.

<sup>25</sup> [https://www.eiopa.europa.eu/sites/default/files/publications/eiopa\\_guidelines/im\\_final\\_document\\_en.pdf](https://www.eiopa.europa.eu/sites/default/files/publications/eiopa_guidelines/im_final_document_en.pdf)



balance sheet. However, some modifications may be required. For example, to ensure that the output of the internal model does not include a material model error<sup>26</sup> adjustments for valuation uncertainty may be required to complete the valuation in stress for the purposes of determining the SCR. In this case, firms should demonstrate that the resulting methodology produces a valuation that is no higher than the valuation based on the valuation methodology without any modifications including any allowance for valuation uncertainty or model error.

4.33 For the purposes of determining the SCR, firms may choose to determine an implied IPRE loan transition matrix by stressing inputs into the internal credit rating model. Such firms should consider the risks that may affect the IPRE loan cash flows in this assessment, including those noted in paragraph 4.19.

4.34 The PRA expects firms to assess the shape (ie distribution by rating) of the IPRE loan transition matrix (where this is used or defined by the firm), if relevant, and validate the appropriateness of the output of the chosen methodology. In applying the IPRE loan transition matrix, firms should consider the binary effect of credit transitions on individual IPRE loans and the impact of name level concentration risks.

4.35 The PRA considers that an assumption that a firm can exercise an option triggered by a technical default (eg option to accelerate loan repayment upon covenant breach) in its internal model constitutes a future management action within the internal model. The PRA therefore expects firms to demonstrate how these assumptions meet the requirements set out in Article 236 of the Commission Delegated Regulation. In particular, if firms assume such actions in their SCR calculations then they should allow for both the benefit and associated costs of the actions within the SCR. Firms should also consider the consistency of assumptions made in respect of these actions in valuing assets and technical provisions pre and post stress.

### Stressed fundamental spread on IPRE loans

4.36 The PRA expects firms to identify the risks pertaining to their IPRE loans that would be retained in stress, and ensure that these are appropriately reflected in the calculation of the fundamental spread (FS) in stressed conditions where the MA portfolio includes IPRE loans. When calculating the stressed FS on IPRE loans, firms should consider the risks noted in SS8/18. Specific additional considerations relevant to IPRE loans are set out in this section.

4.37 The PRA expects firms to include all relevant retained credit risks within the calculation of the stressed FS for the purposes of determining the SCR. For IPRE loans, this should draw on the risk identification exercise and it is expected that firms consider at least the following areas:

- (i) cash-flow predictability;
- (ii) loan characteristics, eg refinancing risk;
- (iii) concentration risk, which may be more material than in the case of corporate bond holdings; this should also consider the impact of future risks such as political and climate change risks on a concentrated portfolio;

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<sup>26</sup> Article 229 (g) of the Solvency II Directive.

- (iv) basis risk, which as a consequence of the heterogeneity of these assets, may be more material than in the case of corporate bond holdings;
- (v) liquidity risk;<sup>27</sup> and
- (vi) idiosyncratic risks.

4.38 Within the calculation of the stressed FS on IPRE loans, the PRA also expects firms to consider risks that may impact the value of collateral and security underpinning the loan and therefore the potential recoveries that may be achieved upon default. Of primary importance is property risk and the ability to realise recoveries within a timely manner. Particular components of property risk expected to be included within the stressed FS calculation include (note the below are not necessarily mutually inclusive):

- (i) stressed property values and valuation risks;
- (ii) characteristics of the property, eg location, design and condition;
- (iii) property market conditions, eg supply vs demand for the properties; and
- (iv) the ability to sell or refinance the underlying property in stress, the time required to complete the sale, and potential haircuts to value to achieve a sale in a timely manner.

4.39 In order to allow for these risks, the PRA would ordinarily expect that firms would not assume a zero loss given default (LGD) on IPRE loans, if the modelling of LGD is applicable to a firm's methodology.

4.40 When modelling changes to the FS within the calculation of the SCR, firms should consider the rate of recovery against the collateral and security upon default that is achievable within the two month window in order to restore compliance with the relevant eligibility conditions as set out in the Solvency 2 Regulation 2015, regulation 42(3). The assessment of recovery rate should also allow for the firm's assumptions about its workout process, eg the assumed recovery amounts in stress, costs of recoveries and timing of recoveries all taking into account the illiquid nature of IPRE lending.

4.41 Within the stressed FS calculation for IPRE loans, firms should consider the impact of a default (eg failure for the borrower to meet interest payments or full repayment at maturity as a minimum).

4.42 The PRA expects that the stressed FS calibration captures the risks retained by the firm, including both the risk of a default event given the asset's current credit quality and the risk of an increase in the likelihood of a default event (ie downgrade in credit quality), as per the firm's definition of a default event.

4.43 Firms should continue to compare the levels of downgrades and defaults in their internal models against those seen historically for other relevant credit risky assets. In the case of IPRE loans, firms should specifically look at historic periods of poor commercial property experience. Firms should be able to justify any assumptions that appear materially weak compared to historic experience.

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<sup>27</sup> This refers to the risk of poor liquidity management within the SPV and the financial impact of illiquidity of collateral, unless adequately mitigated.

4.44 Firms may alternatively choose to assign stressed FS assumptions for IPRE loans by, for example, applying the stresses applied for corporate bonds of the same duration, rating and sector. The PRA expects, however, that firms justify why this approach is appropriate and how it reflects all of the relevant risks for IPRE loans. In particular, firms should justify why the risks included in their corporate bond methodology and calibration adequately allow for the risk identified in the IPRE loan risk identification exercise, and that the corresponding SCR is appropriate for IPRE loan exposures.

4.45 Firms may choose to assign stressed FS assumptions for IPRE loans using a stressed credit rating assessment, either directly or indirectly. In this case, the PRA expects firms to consider how the credit rating methodology, including any expert judgements, would apply in practice under stressed conditions. This should include considering the key quantitative and qualitative factors that drive the credit rating.

4.46 The PRA expects firms to maintain a floor (ie a minimum level of FS) based on long term observations of the risk on IPRE lending as part of the modelling of stressed FS in line with expectations set out in paragraph 4.30 of SS8/18. As a minimum, the PRA expects firms to reapply the methodology and calibration as set out in Article 77c of the Solvency II Directive for the floor.

4.47 For the purposes of determining the technical provisions, the base FS calibrations used in the MA calculation are published by EIOPA in technical information produced in accordance with Article 77e of the Solvency II Directive 2009. If the stressed FS for IPRE loans have been derived based on an economic view that results in a different base FS compared to the base FS published by EIOPA, the PRA expects firms to consider the materiality of this difference and the implications of this for the calculation of the SCR. The SCR should reflect the increase in FS attributed to the risks retained in stress.

#### The MA qualifying conditions in stress

4.48 Considerations relevant to rebalancing of the MA portfolio within the SCR calculation are set out in paragraphs 5.5 to 5.14 of SS8/18. Specific considerations relating to rebalancing of IPRE loans are set out in this section.

4.49 Firms may choose to assume that rebalancing of the MA portfolio may be achieved by injecting existing IPRE loans from elsewhere in the business outside of the MA portfolio. In this case, the PRA expects firms to demonstrate that such assets are MA-eligible and have the same features as the assets already in the MA portfolio. The PRA further expects that such an assessment of eligibility and same features may constitute a material exercise, due to the relatively complex and bespoke nature of IPRE loans.

4.50 The PRA would not usually expect firms to assume that IPRE loans may be sold to fund the purchase of assets required to rebalance the MA portfolio in stress, owing to the potential timescale required to achieve such a sale. If a firm is reliant on such an assumption then the PRA expects that strong evidence would be provided to show that the firm has considered, at least:

- (i) whether a sale would be allowable under the original terms of the loan;
- (ii) the likely counterparties to the sale and the impact that the stress event may have on the appetite to engage;

- (iii) the likely timescale in which a sale or sales could be achieved, substantiated by market data if possible; and
- (iv) the value at which a sale could be achieved, including any allowance for haircuts, substantiated by market data if possible.

4.51 The PRA expects firms would not place reliance on the ability to source new IPRE loans to address a mismatch in the MA portfolio in stress due to the uncertainty around the pipeline and market conditions in stressed conditions.

## Validation

4.52 The PRA expects firms' validation teams to carefully consider the challenges of developing the methodology and calibration of IPRE loans based on limited data, including the need to robustly validate the use of proxy datasets (eg CMBS data) and expert judgements. The validation should be mindful of how the firm will demonstrate that the capital requirements resulting from the internal model are appropriate given the potentially greater level of uncertainty of the SCR calculated by the model.<sup>28</sup> In particular, the validation should review all the key expert judgements made in the calibration process, the range of alternative judgements available, and quantify the impact of changes in these judgements.

4.53 The PRA expects firms with IPRE loans within an MA portfolio to consider, as part of the validation of the stressed MA allowed for within the SCR, a comparison of the stressed FS on IPRE loans with a mechanistic reapplication of the methodology used to assign the FS for the purposes of calculating the technical provisions. This assessment should consider how the CQS of the IPRE loan could change in stress. As set out in paragraph 2.5 of SS8/18, the PRA considers that a 'mechanistic approach' based on re-application of the approach used to calculate TPs is unlikely to take into account all quantifiable risks to which a firm is exposed. The PRA would therefore expect a firm's stressed FS to exceed that implied by a mechanistic re-application of the approach used to derive the FS used to calculate the TPs.

4.54 The PRA expects firms to ensure that the MA qualifying conditions in stress can be met in order to support the level of MA on IPRE loans allowed for in the SCR calculation given the risks to which the portfolio is exposed and the interaction between these risks. This expectation also applies in the case of firms using a less bespoke modelling approach to model risks on IPRE loans.

4.55 In validating the appropriateness of the calibration, the PRA expects firms should conduct back-testing of its calibration for IPRE lending against its own loss experience and appropriate historical data to the extent that such data are reasonably available.

4.56 The PRA recognises that industry benchmarking surveys comparing the calibration and treatment of IPRE loans by firms may be a useful validation tool. However, firms should consider the extent to which such comparisons are affected by differences in the risk profile of its holdings due to the bespoke nature of IPRE loans, and differences in the materiality of these holdings which may justify the use of less sophisticated models. Firms should therefore not place material reliance on such benchmarking unless they are sure that comparisons are made on a like-for-like basis.

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<sup>28</sup> Article 124 (2) of the Solvency II Directive..

## Annex

This annex details the changes that have been made to this Supervisory Statement (SS) following its initial publication in July 2017 alongside Policy Statement (PS) 14/17 ‘Solvency II: matching adjustment – illiquid unrated assets and equity release mortgages’.<sup>29</sup>

### Updates

#### April 2020

This SS has been updated to incorporate the proposals set out in the appendix to Consultation Paper (CP) 23/19 ‘Solvency II: Income producing real estate loans and internal credit assessments for illiquid, unrated assets’.<sup>30</sup> The wording of these proposals has been clarified following the responses received in the consultation. Details of the PRA’s feedback to responses received are available in Chapter 2 of PS9/20. Some minor typographical and formatting corrections have also been made and the name of the SS changed to ‘Solvency II: Illiquid unrated assets’, in line with the proposals in CP23/19.

#### September 2019

This SS has been updated alongside the publication of Policy Statement (PS) 19/19 ‘Solvency II: Equity release mortgages – part 2’.<sup>31</sup> Details of the PRA’s feedback to responses received are available in Chapter 2 of the PS. The SS has been updated to incorporate the proposals set out in the appendix to Consultation Paper (CP) 7/19 except for the following:

- paragraph 3.13A(v) has been added (see section C.2 in the PS);
- paragraph 3.20A(iv) has been amended (see section E.1 in the PS);
- paragraph 3.21A has been amended (see section A.2 in the PS);
- paragraph 3.25 has been expanded (see section D in the PS);
- paragraph 3.30(vii) has been added (see section F.2 in the PS); and
- some minor typographical corrections and clarifications to internal cross-references have been made.

#### December 2018

This SS has been updated alongside the publication of Policy Statement (PS) 31/18 ‘Solvency II: Equity release mortgages’.<sup>32</sup> Details of the PRA’s feedback to responses received are available in Chapter 2 of the PS. The SS has been updated to incorporate the proposals set out in the appendix to Consultation Paper (CP) 13/18 except for the following:

- removal of the final sentence of paragraph 3.1 (see section ‘E ICAS TPs and TMTP’ in the PS);

<sup>29</sup> <https://www.bankofengland.co.uk/prudential-regulation/publication/2016/equity-release-mortgages>.

<sup>30</sup> <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/solvency-ii-ipre-loans-and-internal-credit-assessments-for-illiquid-unrated-assets>

<sup>31</sup> <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/solvency-ii-equity-release-mortgages-part-2>

<sup>32</sup> <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-ii-equity-release-mortgages>.

- removal of paragraph 3.9A (see section 'E ICAS TPs and TMTP' in the PS);
- paragraph 3.21 has been redrafted (see sections B.6, D.5 and D.6 in the PS); and
- removal of the section on TMTP shown as paragraphs 3.24 and 3.25 (see section 'E ICAS TPs and TMTP' in the PS).

This SS was also updated to simplify the formatting and aid readability, including sequential numbering of footnotes, the updating of hyperlinks to reflect the location of materials on the Bank of England's website, and to make hyperlinks more easily identifiable. Footnote 1 was updated accordingly.

#### July 2018

This SS has been updated to reflect changes in terminology as a result of the publication of Policy Statement 15/18 'Strengthening individual accountability in insurance: extension of the SM&CR to insurers'.<sup>33</sup>

Superseded

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<sup>33</sup> <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/strengthening-individual-accountability-in-insurance-extension-of-the-smcr-to-insurers>.