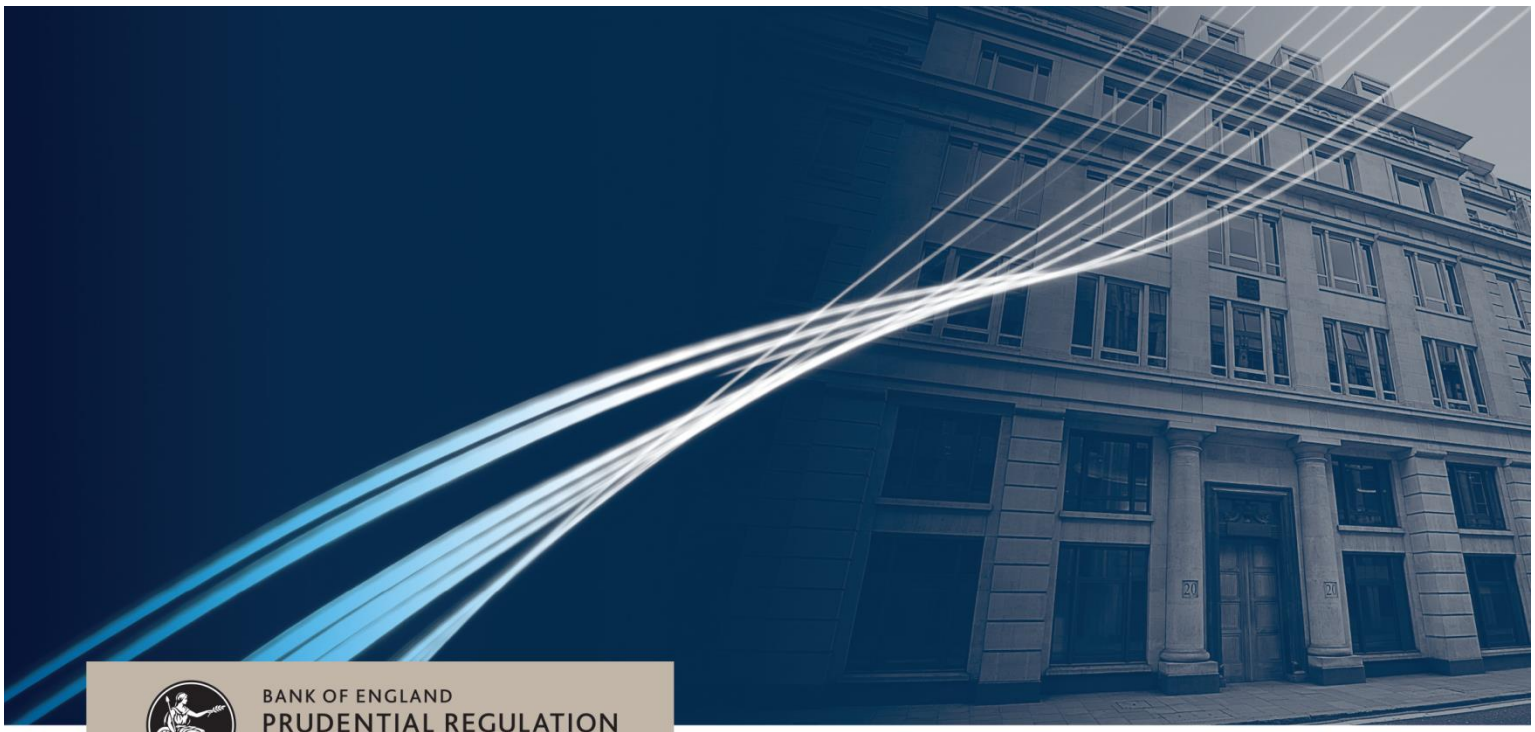

BANK OF ENGLAND
PRUDENTIAL REGULATION AUTHORITY

Consultation Paper | CP20/16

Solvency II: consolidation of Directors' letters

May 2016

Prudential Regulation Authority
20 Moorgate
London EC2R 6DA

Prudential Regulation Authority, registered office: 8 Lothbury, London EC2R 7HH.
Registered in England and Wales No: 07854923

BANK OF ENGLAND
PRUDENTIAL REGULATION AUTHORITY

Consultation Paper | CP20/16

Solvency II: consolidation of Directors' letters

May 2016

The Bank of England and the Prudential Regulation Authority (PRA) reserve the right to publish any information which it may receive as part of this consultation.

Information provided in response to this consultation, including personal information, may be subject to publication or release to other parties or to disclosure, in accordance with access to information regimes under the Freedom of Information Act 2000 or the Data Protection Act 1998 or otherwise as required by law or in discharge of our statutory functions.

Please indicate if you regard all, or some of, the information you provide as confidential. If the Bank of England or the PRA receives a request for disclosure of this information, the Bank of England or the PRA will take your indication(s) into account, but cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system on emails will not, of itself, be regarded as binding on the Bank of England and the PRA.

Responses are requested by Friday 5 August 2016.

Please address any comments or enquiries to:

Jack Middleton
Prudential Regulation Authority
20 Moorgate
London
EC2R 6DA

Email: CP20_16@bankofengland.co.uk

Contents

1	Overview	4
2	Proposals	5
3	Statutory obligations	7
4	Cost benefit analysis	9
Appendices		10

1 Overview

1.1 In this consultation paper (CP), the Prudential Regulation Authority (PRA) sets out its proposals for streamlining the presentation of the ways in which it expects firms to meet various requirements of Solvency II (the Directive).[1]

1.2 The draft and updated supervisory statements appended to this CP set out the PRA's expectations of firms that were in formats including Solvency II Directors' letters, Executive Director's letters and feedback statements ('Directors' letters') published in the period 1 April 2013 to 15 February 2016.

1.3 In advance of the implementation of the Directive, in order to share information with firms and clarify the policy environment as soon as was practicable, the PRA published Directors' letters. In part, these publications set out PRA expectations as they were developed alongside the Directive framework. This ensured that firms had the information they needed to enable them to comply with the Directive from 1 January 2016.

1.4 In order to be fully consistent with the PRA insurance approach[2] and therefore to enable firms to most easily access PRA expectations as a whole, the PRA is proposing that those supervisory expectations published in forms other than as supervisory statements be re-published, either as new supervisory statements or as amendments to existing supervisory statements, as appropriate. Drafts of these new or amended supervisory statements are included in the appendices.

1.5 Appendix 8 details from which documents the information for the supervisory statements originate. Three of the seven draft supervisory statements (Appendices 5 to 7) are updates to current supervisory statements to include the PRA's expectations contained in the Directors' letters.

1.6 Appendix 9 provides a list of those topics that have not been included in the supervisory framework together with the PRA's reasons for these decisions.

1.7 This consultation is structured to allow respondents to address those areas that are important to them. It does not ask any specific questions. Please note that the PRA does not expect to revise parts of supervisory statements that have previously been consulted on, where their contents have not changed.

1.8 On publication of the final supervisory statements the Directors' letters that inform this consultation will be archived. This means that they will be still be available as a historical record, but will no longer be current.

1.9 This consultation is relevant to all insurance firms within the scope of the Directive and to Lloyd's.

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.

2 Proposals

Solvency II: internal models – assessment, model change policy and the role of non-executive directors

2.1 The PRA has issued its expectations for firms' internal models in a number of Directors' letters.[1] This statement sets out the PRA's expectations on internal model approval assessments as well as ongoing maintenance of the model. The PRA has also provided firms with information on its own quantitative framework. Although the latter does not detail any specific PRA expectations for firms, it does discuss some of the factors that need to be considered in evaluating the risks a firm faces. It also reflects how the various areas may be included in an internal model and therefore how they may be assessed.

2.2 The draft supervisory statement for internal models is included in Appendix 1.

Solvency II: longevity risk transfers

2.3 In February 2016, a Directors' letter was issued on the issue of longevity risk transfers.[2] It set out the PRA's expectations on the use and management of these transfers as a mitigant to longevity risk. Additionally, it set out the firm's notification requirements to the PRA with regard to these transfers.

2.4 The information contained in this letter has been included in the draft supervisory statement in Appendix 2.

Solvency II: ORSA

2.5 In June 2015, the PRA issued an Executive Director's letter on its expectations of firms regarding the Own Risk and Solvency Assessment (ORSA).[3] The letter provided feedback on the pre-Solvency II ORSA reviews that the PRA had conducted in 2014 and 2015. It included the PRA's expectations with regard to the policy and processes, and the required documents that firms need for an effective ORSA policy.

2.6 The draft supervisory statement on the ORSA is contained in Appendix 3.

Solvency II: reinsurance

2.7 In 2015, the PRA issued two letters dealing with the PRA's expectations on reinsurance issues.[4] The first letter, in November 2015, was a PRA Solvency II Directors' update letter to firms on various issues including reinsurance counterparty credit risk, and addressed the way in which the PRA expects firms to deal with the conflicting priorities that often accompany the freedom of capital movement and risk management. The second letter was sent in December 2015 and dealt with issues in soft markets for general insurance (GI) firms, including reinsurance.

2.8 The draft supervisory statement on reinsurance based on these letters is included in Appendix 4.

Solvency II: recognition of deferred tax

2.9 The February 2015 update to the PRA Supervisory Statement 2/14 'Solvency II: recognition of deferred tax', April 2014,[5] included the PRA's expectations on the EIOPA Guidelines on the

1 See Appendix 8 – Mapping table for issues included as supervisory statements.
2 See Appendix 8.
3 See Appendix 8.
4 See Appendix 8.
5 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss214update.aspx.

loss-absorbing capacity of technical provisions and deferred taxes, the recognition test, contract boundaries, the risk margin and projection methodology. The PRA published additional material on some of these issues in a Directors' letter in March 2015 to assist firms in the lead-up to the implementation of the Directive.[1]

2.10 This May 2016 update, contained in Appendix 5, makes the following additions and changes:

- paragraph 1.6: provides a new paragraph which clarifies that the expectations in this supervisory statement apply equally to standard formula or internal model firms, except in regard to the ability to apply group relief. Text in a previous paragraph 1.3, which related to the pre-Solvency II environment, is no longer relevant and has been deleted;

- paragraph 2.11: covers the PRA's expectations of firms with regard to their capital resources in a post-shock environment;

- paragraph 2.12: sets out the expectation that where a firm calculates its Solvency Capital Requirements (SCR) using an internal model, and does not routinely calculate the tax effect of the shock loss across the whole probability distribution, it will document clearly how it identifies which data points to exclude;

- paragraph 4.4: sets out the importance of demonstrating the credibility of assumptions for asset returns after the SCR stress; and

- throughout the document: references to the Directive have been updated with references to the PRA Rulebook, where appropriate.

2.11 The draft supervisory statement is included in Appendix 5.

Solvency II: transitional measures on risk-free interest rates and technical provisions

2.12 In September 2015, a Solvency II Directors' update letter[2] provided further information on the PRA's expectations to those contained in the Supervisory Statement 17/15 'Solvency II: transitional measures on risk-free interest rates and technical provisions', March 2015,[3] which set out the application process and the calculation methodology for these transitional measures.

2.13 This May 2016 update, contained in Appendix 6, makes the following additions and changes:

- paragraphs 3.7 to 3.10: set out the PRA's expectations for Part VII transfers;

- paragraphs 3.11 to 3.13: set out the PRA's expectations for reinsured business;

- paragraph 3.14: sets out the limits of the transitional measure for technical provisions;

- the section on the recalculation of the transitional measure has been removed from this statement and a separate draft supervisory statement was released in April 2016 with this information (for more details see paragraph 2.14);

1 See Appendix 8 – Mapping table for issues included as supervisory statements.
2 See Appendix 8 – Mapping table for issues included as supervisory statements.
3 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss1715.aspx.

- paragraphs 3.18 to 3.19: set out the PRA's expectations regarding the review of the individual capital guidance;

- paragraphs 5.1 to 5.8: set out the management of the run-off of transitional measure on technical provisions (TMTP) relief in future years;

- paragraph 7.1: sets out the PRA's expectations for the verification of calculations; and

- throughout the document: references to the Directive have been updated with references to the PRA Rulebook, where appropriate.

2.14 This draft supervisory statement is included in Appendix 6. It should be noted that the information in this supervisory statement does not affect the content of Consultation Paper 15/16 'Recalculation of the 'transitional measure on technical provisions' under Solvency II', published in April 2016.[1]

Solvency II: the treatment of pension scheme risk

2.15 In July 2015, a Directors' letter with feedback on the way firms' internal models treated pension scheme risk in terms of their assessment of the credit spread risk, was issued.[2] It updated some of the information included in the Supervisory Statement 5/15 'Solvency II: the treatment of pension scheme risk', March 2015.[3]

2.16 This May 2016 update, contained in Appendix 7, makes the following additions and changes:

- paragraphs 3.3 and 3.4: set out some additional considerations in terms of the calibration of internal models with regard to credit spread widening; and

- the paragraph on the cost benefit analysis (paragraph 6.1 in the previous version of this supervisory statement) has been removed as this analysis has been reviewed for the current consultation and is now included in this CP.

3 Statutory obligations

3.1 The PRA has a statutory duty to consult when introducing new rules and a public law duty to consult widely on any other measures that significantly affect firms. In discharging its general functions the PRA must, as far as it is reasonably possible, act in a way that advances its general objective and its insurance objective.

3.2 The PRA believes that the proposals in this CP are compatible with the PRA's statutory objectives to promote the safety and soundness of PRA-authorised firms;[4] and in the context of insurance, to contribute to policyholder protection.[5] By providing guidance to firms on how the PRA expects firms to implement the Directive, the PRA is ensuring the main objective of the Directive, described in Article 27 of the Directive as the protection of policyholders and beneficiaries, is met.

1 Available at www.bankofengland.co.uk/pra/Pages/publications/cp/2016/cp1516.aspx.
2 See Appendix 8 – Mapping table for issues included as supervisory statements.
3 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss515.aspx.
4 See s.2B(1) and s.2B(2) FSMA.
5 See s.2C FSMA.

3.3 The PRA also has a duty to facilitate effective competition as a secondary objective subordinate to its general safety and soundness objective. The PRA has assessed whether the proposals in this CP facilitate effective competition and does not expect these draft statements to have any material effect on competition. The effect on competition of the implementation of the Directive has already been considered in the Financial Services Authority's (FSA's) CP11/22[1] and the PRA's CP16/14.[2] In addition, the impact of the transitional measures was considered further in HM Treasury's impact assessment on the transposition of the Directive.[3]

3.4 In making its rules and establishing its practices and procedures, the PRA must have regard to the regulatory principles as set out in the Financial Services and Markets Act 2000 (FSMA).[4] Three of the principles are of particular relevance:

- 3B(b) - the principle that a burden or restriction which is imposed on a person, or on the carrying on of an activity, should be proportionate to the benefits, considered in general terms, which are expected to result from the imposition of that burden or restriction. The PRA has followed this principle in consolidating the PRA's expectations contained in Directors' letters by making the information more accessible to firms;

- 3B(e) - the desirability in appropriate cases of each regulator publishing information relating to persons on whom requirements are imposed by or under this Act, or requiring such persons to publish information, as a means of contributing to the advancement by each regulator of its objectives. The PRA has followed this principle by re-issuing this information as soon as possible after the implementation of the Directive; and

- 3B(f) - the principle that the regulators should exercise their functions as transparently as possible. The PRA has followed this principle by issuing a consultation on these supervisory expectations that are already in the public domain, and by maintaining the historic documents in an archive that includes signposting to where the new material is to be found.

3.5 The PRA may not act in an unlawfully discriminatory manner. It is required, under the Equality Act 2010, to have due regard to the need to eliminate discrimination and to promote equality of opportunity in carrying out its policies, services and functions.[5] These draft statements are not expected to have any direct or indirect discriminatory impact under existing UK law.

3.6 When making general policy, the PRA considers whether, in its opinion, the impact of the proposed rules on mutuals will be significantly different from the impact on other firms. It is not expected that the effect on mutuals will be significantly different to that of other firms.

3.7 The PRA has consulted with the Financial Conduct Authority (FCA) on these draft statements.

1 FSA Consultation Paper, CP11/22, 'Transposition of Solvency II: Part 1', November 2011; http://www.bankofengland.co.uk/publications/Documents/other/pra/policy/2013/transportationofsolvency2-1cp11-22.pdf.
2 PRA Consultation Paper 16/14, 'Transposition of Solvency II: Part 3', August 2014; http://www.bankofengland.co.uk/pra/pages/publications/cp/2014/cp1614.aspx.
3 HM Treasury Impact Assessment, 'Transposition of Solvency II Directive (2009/138/EC) and Omnibus II', December 2014, RPC11-HMT-1094(3); http://www.legislation.gov.uk/ukia/2015/143/pdfs/ukia_20150143_en.pdf.
4 See s.2H and s.3B FSMA.
5 Equality Act 2010, section 149(1).

4 Cost benefit analysis

4.1 The overall economic effects of the proposals in these draft supervisory statements have been considered previously, in the FSA's CP11/22[1] and the PRA's CP16/14.[2] In addition, the impact of transitional measures was considered further in the impact assessment undertaken by HM Treasury.[3]

4.2 The proposed draft supervisory statements clarify the PRA's expectations of firms and do not impose additional requirements. Furthermore, the PRA's expectations contained within these draft statements have been issued previously in the form of Director's letters, so firms should already be familiar with their contents. Therefore, the PRA does not expect additional costs to firms.

1 FSA Consultation Paper, CP11/22, 'Transposition of Solvency II: Part 1', November 2011; http://www.bankofengland.co.uk/publications/Documents/other/pra/policy/2013/transportationofsolvency2-1cp11-22.pdf.
2 PRA Consultation Paper 16/14, 'Transposition of Solvency II: Part 3', August 2014; http://www.bankofengland.co.uk/pra/pages/publications/cp/2014/cp1614.aspx.
3 HM Treasury Impact Assessment, 'Transposition of Solvency II Directive (2009/138/EC) and Omnibus II', December 2014, RPC11-HMT-1094(3); http://www.legislation.gov.uk/ukia/2015/143/pdfs/ukia_20150143_en.pdf.

Appendices

1	Draft supervisory statement 'Solvency II: internal models – assessment, model change and the role of non-executive directors'
2	Draft supervisory statement 'Solvency II: longevity risk transfers'
3	Draft supervisory statement 'Solvency II: ORSA'
4	Draft supervisory statement 'Solvency II: reinsurance – counterparty credit risk'
5	Draft updated Supervisory Statement 2/14 'Solvency II: recognition of deferred tax'
6	Draft updated Supervisory Statement 17/15 'Solvency II: transitional measures on risk-free interest rates and technical provisions'
7	Draft updated Supervisory Statement 5/15 'Solvency II: the treatment of pension scheme risk'
8	Mapping table for issues included as supervisory statements
9	Mapping table for issues not included as supervisory statements

Appendix 1 Draft supervisory statement Solvency II: internal models – assessment, model change and the role of non-executive directors

Contents

1	Introduction	12
2	Application for internal model approval	12
3	Credit risk	13
4	Modelling of the premium provision for general insurance firms	14
5	Volatility adjustment in the modelling of market risk and credit risk stresses	14
6	Role of non-executive directors	14
7	Validation of models	15
8	How the PRA uses quantitative analyses as part of model approval	17
9	How the PRA has developed its quantitative framework	18
10	How model reviews have benefited from the use of the quantitative framework	19
11	Technical overview of the PRA's credit risk QIs	20
12	Technical overview of the PRA's longevity risk QIs	24
13	Technical overview of the PRA's dependency QIs	28
14	Internal model change policy	31

1 Introduction

1.1 This supervisory statement is addressed to all UK firms that fall within the scope of Solvency II,[1] and to Lloyd's. It sets out the Prudential Regulation Authority's (PRA's) expectations of firms regarding internal models.

1.2 This statement should be read in conjunction with the PRA's rules in the Solvency II sector of the PRA Rulebook, and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

2 Application for internal model approval

2.1 Firms are reminded that once a formal internal model application has been submitted to the PRA, there is very limited opportunity for firms to make any substantive changes. Firms should therefore make sure their applications are stable and approved by their internal governance processes prior to formal application. Where firms become aware that they may need to make changes during the application period, these should be discussed with their usual supervisory contact as soon as possible. Where changes are material, a new application is likely to be required. Alternatively, firms themselves have an option to 'stop the clock' on the current application. Neither of these options should be approached lightly. If firms believe that significant model changes are likely to continue into the formal application phase, they are encouraged to consider delaying their application to the PRA and to discuss options with their usual supervisory contact. In this respect, the pre-application process is a means to help firms verify if they are on the right path before they send in an application.

2.2 The PRA can approve an internal model application only where it is satisfied that the model has met all the Solvency II ('the Directive') tests and standards (T&S). Approval must be based on this requirement and not an 'on-balance' judgement. Some firms have proposed applying internal management loadings to models to help deal with known areas of weakness which cannot be fixed fully ahead of the formal application. In some cases, such adjustments might help firms to demonstrate that specific areas of the model meet the relevant T&S (for example, the Directive calibration standard of 99.5% over one year).[3] However, all areas of the model must meet the Directive requirements and the use of more generic management loadings cannot be used by firms as a mitigant where the model does not meet the required T&S.

2.3 Irrespective of internal model progress, firms should have an alternative approach that they can use if they fail to gain model approval after submitting an application, and ensure that they have a clear understanding of the actions they would take in those circumstances. For example, a merger or restructuring may make the existing standard formula inappropriate and therefore the applicant would need to have a contingency plan in the event of non-approval.

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook.

3 Credit risk

3.1 For the purposes of assessing credit risk, it is important that firms' internal models do not adopt a purely 'mechanistic approach' to calculating fundamental spreads for the matching adjustment (MA) using the methods and assumptions prescribed by the European Insurance and Occupational Pensions Authority (EIOPA)[1] for the purposes of calculating technical provisions (in technical information in accordance with Article 77(e) of the Directive) following the modelled stresses to economic conditions. The PRA believes that this approach is not consistent with the T&S for model approval because:

- EIOPA's approach is specifically designed to be used for the purposes of calculating technical provisions. At present, conditions are relatively benign and EIOPA has undertaken its calibration work in this context. The solvency capital requirement (SCR) is intended to cover extreme scenarios. The techniques that are appropriate for valuing technical provisions in base conditions may not remain appropriate for re-valuing technical provisions under stress. For example, firms should consider the risk that the actual migration and default rates over the future holding period of their assets are more onerous than historic averages;

- it is implausible to assume that economic conditions will necessarily immediately revert, following the one-year modelled stress, to long-term average levels of spread, migration and default, which is the implicit assumption behind any calibration of fundamental spread to long-term average data that is unconditional on (or relatively insensitive to) the modelled credit stress;

- EIOPA's approach is new, and firms cannot know with any certainty whether and how EIOPA might revise its approach under extreme conditions such as a 1-in-200 credit stress event;

- for the reasons noted above, a mechanistic approach based on the re-application of EIOPA's calibration methodology, where the methodology has not been updated to reflect the modelled credit conditions, is unlikely to result in a stressed level of technical provisions that corresponds to a transfer value of liabilities; and

- reliance on predictions of EIOPA's technical information for the purposes of calculating technical provisions to assess the level of risk capital that a firm needs to hold is difficult to reconcile with the requirements of the use test and, in particular, the wider use of the model in a firm's risk management system.

3.2 For these reasons, a purely mechanistic approach to calculating the amount of the matching adjustment (MA) under stress, or the fundamental spread, is unlikely to satisfy the requirement that the SCR shall take into account all quantifiable risks to which a firm is exposed.[2] Indeed, the standard formula does not mechanistically assume the same fundamental spreads post-stress as are applied for the purposes of calculating technical provisions. The PRA therefore encourages firms to ensure that their internal models do not, through adopting a purely mechanistic approach to assessing the level of fundamental spreads under stress, ignore any of the quantifiable risks to which firms are exposed. Firms should

1 The relevant Commission Implementing Regulation, the latest of which at the time of writing was Commission Implementing Regulation (EU) of 5 February 2016 laying down technical information for the calculation of technical provisions and basic own funds for reporting with reference dates from 1 January until 30 March 2016 in accordance with Directive 2009/138/EC of the European Parliament and of the Council (Solvency II).

2 See Solvency Capital Requirement – General Provisions 3.3 of the PRA Rulebook.

particularly consider those risks the firm has retained within an MA portfolio and ensure that the parameters of their models result in an SCR that covers those risks at the 99.5% confidence level.

4 Modelling of the premium provision for general insurance firms

4.1 The PRA recommends that general insurance firms should consider variability in premium provisions on their year-end Solvency II balance sheet. In the same way that events can occur that cause claims provisions to vary, some of those same events will also cause the premium provision to vary. Examples include changes in court awards for liability claims or a natural catastrophe event that was previously thought to be impossible, like the Tohoku earthquake.

4.2 Firms that do not consider this risk may fall short of the internal model T&S. The PRA considers this risk exists for all actively underwriting internal model firms who model on a one-year earned basis, although it may be that for some firms this risk will be small in the context of their total SCR.

5 Volatility adjustment in the modelling of market risk and credit risk stresses

5.1 This section should be read in conjunction with *PRA Supervisory Statement 23/15*, 'Solvency II: supervisory approval for the volatility adjustment', June 2015.[1]

5.2 Solvency Capital Requirement – General Provisions 3.6 requires that a firm's SCR shall not cover the risk of loss of basic own funds resulting from changes to the volatility adjustment. As a result, the PRA expects that firms would not assume any change to the level of VA (expressed as the number of basis points in addition to the basic risk free curve) when calculating the SCR.

6 Role of non-executive directors

6.1 This chapter sets out the PRA's expectations regarding the role of the non-executive directors when considering a firm's internal model.[2]

6.2 The use test is one of the T&S firms need to meet. As part of the use test, firms must ensure that members of the board and others involved in running the firm have an understanding of the model.[3] One of the methods the PRA may use to assess whether firms are meeting the use test is to speak to non-executive directors (either individually or collectively) to gauge their understanding. The PRA does not believe that it is necessary for board members to be technical experts in modelling techniques in order to meet the use test requirements. Rather, the PRA expects board members to understand and be able to explain areas such as the:

- key strengths, limitations, and judgements within the model;
- assumptions and judgements that have the most material impact on the model output; and
- key sources of information and advice the board has relied upon in order to satisfy itself about the appropriateness of both the model design and the model output.

1 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss2315.aspx.
2 PRA Supervisory Statement 5/16, 'Corporate Governance: Board responsibilities', March 2016; www.bankofengland.co.uk/pra/Pages/publications/ss/2016/ss516.aspx.
3 Solvency Capital Requirement – Internal Models 10.1 of the PRA Rulebook.

6.3 Board members should be supported by the executive management to understand and engage with the key features of models. Boards should draw on a wide range of sources to understand, challenge and make a decision on the validity of a model. For example, independent validation can play an important role in helping boards gain an overall understanding of a model and its strengths and limitations, as long as the validation work is focused appropriately on a critical appraisal of the most material aspects of the model, and if its conclusions are summarised and presented appropriately for a board-level audience.

6.4 Non-executive directors, under the leadership of the chair, should consider and challenge, as appropriate, the executive management on all aspects of the firm's strategy, which includes the viability and sustainability of the business model and the establishment, maintenance and use of the risk appetite and management framework. Non-executive directors are expected to challenge how these elements are reflected in the internal model.

6.5 The executive management should be able to explain the firm's internal model in simple and transparent terms to non-executive directors. This includes explaining the uncertainty around judgements, in what circumstances the results may deteriorate (eg the analysis or strategy could be wrong), and the implications on the internal model of different methods of measurement for issues such as liquidity. In order to explain complexity to the non-executive directors, the executive management should provide good management information to enable challenge and thus encourage accountability. If non-executive directors do not feel that they can meet these expectations, they should demand the time and support to enable them to do this.

7 Validation of models

7.1 The PRA has observed that while model justification and validation are two separate processes and represent important components of the Directive requirements, their implementation by firms is not clearly demarcated.

7.2 The Statistical Quality Standards (SQS) for internal models in the PRA Rulebook Solvency Capital Requirements – Internal Models 11 and Articles 228 to 237 of the Commission Delegated Regulation,[1] set out requirements in particular on the methods and assumptions to be used in the internal model. Compliance with those requirements will have to be evidenced to the PRA (Solvency Capital Requirements – Internal Models 3.1 of the PRA Rulebook).

7.3 For instance, firms will have to justify that the chosen actuarial and statistical methods are adequate[2] and will have to justify the assumptions used taking into account the significance of those assumptions.[3] Such justifications need to be satisfied as part of the SQS requirements, and it is not the aim of the validation to create a substitute for these requirements. Depending on the firm, such justification either could be completed by the first line of defence (as part of the production of outputs within the calculation kernel), or by the second line.

7.4 In contrast, the validation is a regular and independent (from the development and operation of the model) process which includes reviewing the model in terms of the

1 Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) Text with EEA relevance.
2 Article 229(1a) of the Commission Delegated Regulation (EU) 2015/35.
3 Article 230(2a) of the Commission Delegated Regulation (EU) 2015/35.

appropriateness of its specifications, the correspondence of its results against experience and its overall performance over time.[1]

7.5 Model justification, as part of the internal model development, is often covered by the validation using a bottom-up approach. Part of this includes the justification of why the modelling choices are reasonable and defensible. However, the bottom-up approach should cover the validation objectives fully and help boards and senior management to obtain an adequate understanding of the model.

7.6 The PRA expects validation to be a combination of detailed 'bottom-up' testing and 'top-down' ownership by boards.[2] The PRA expects firms to be able to produce clear evidence showing how boards are overseeing and influencing the design of the validation process, how the findings from validation work are summarised and reported to them and how boards are then involved in tracking validation issues through to resolution. The PRA expects firms to demonstrate clearly that boards are using validation as a tool to enable them to gain a good understanding of a model and its strengths and weaknesses. The PRA has high-level expectations on board involvement in validation. See also Chapter 5 'Role of non-executive directors'.

7.7 During its internal model review work, the PRA has observed that validation materials provided by firms are focussed primarily on the bottom-up justification of parameters and assumptions. As a result, these may not be aligned clearly enough to enable senior management and boards to challenge effectively the key assumptions and limitations of the model.

7.8 Although a bottom-up approach is an important aspect of the internal model validation, the PRA emphasises that boards should value the role that good validation can play in helping them to understand the key drivers and limitations of a model. The PRA expects that firms would be able to provide evidence that the board has:

- challenged the validation process and its results;
- understood and satisfied itself on the key assumptions and limitations of the model;
- considered the possible quantification of these limitations; and
- taken appropriate mitigating actions.

The PRA expects boards to be tracking progress actively in addressing key issues identified by validation work.

7.9 The PRA does not expect boards or senior management to be able to discharge their duty in isolation. Boards should demand support from executive management to ensure that key features of models are explained in a way that directors can engage with properly, and they should draw on a wide range of sources, not limited to model developers, to ensure they are satisfied with the model.

7.10 To verify the robustness of the internal model, the T&S are designed to ensure that a model is well grounded in its technical content, with good sources of underlying data. The T&S

1 Solvency Capital Requirements – Internal Models 14 of the PRA Rulebook.
2 Solvency Capital Requirement – Internal Models 7 of the PRA Rulebook.

also require that the model and its limitations are properly understood by its users and by senior management at firms, including the board.

7.11 In summary, a comprehensive validation process should put specific attention on those key assumptions and expert judgments that have a material impact on the model, and should also articulate how the sensitivity to the key assumptions and expert judgement are being assessed and taken into account in the decision process.

7.12 The PRA expects that validation of the internal model clearly evidences the review and challenge that has taken place in assisting the board to meet its objectives.

8 How the PRA uses quantitative analyses as part of model approval

8.1 The PRA's quantitative framework falls within the context of the overall model review process which is structured around the T&S. The internal toolkit the PRA uses in its assessments is framed around those requirements so that the PRA is able to satisfy itself that the model meets the T&S. Within this structure, the PRA applies a series of qualitative and quantitative tools to help guide areas that are in need of greater review focus. One of those tools is the quantitative framework for model reviews, which includes the use of specific quantitative indicators ('QIs') where risks are sufficiently homogeneous.

8.2 The PRA's decision-making process is built around assessing the T&S, building from a granular assessment of each of the criteria into broader requirement categories (eg 'documentation') through to a final approval or rejection decision. As part of this overall assessment, the PRA has used its risk-based approach to supervision to focus additional scrutiny on a firm-by-firm basis. In this assessment process the PRA uses a series of indicators to determine the focus of review scrutiny: these are both qualitative (eg a view on the embedding of the model from previous supervisory engagement) and quantitative.

8.3 One of the T&S categories relates to the calibration standards, which are set out in Solvency Capital Requirement – General Provisions 3 and Solvency Capital Requirement – Internal Models 12 of the PRA Rulebook. An assessment of these requirements is geared towards ensuring that the SCR produced by the model corresponds to the value at risk (VaR) of the firm's basic own funds at the 99.5% confidence level over one year.[1]

8.4 The PRA uses its quantitative framework as:

(a) a diagnostic tool to help assess model rigour and capital adequacy and hence highlight areas of potential concern;

(b) a prioritisation tool, to help inform where review teams should direct their attention, eg by identifying risks or correlations which may be under-calibrated; and

(c) one contributor to decision making as to whether a firm has met the T&S, and therefore whether its model should be approved.

8.5 Internal models are required to be calibrated to the standard specified in Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook. Where risks are homogeneous, a PRA quantitative assessment of the calibration of individual risks and their dependency structures can give an efficient diagnosis of whether there are areas of potential concern

1 Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook.

where the model has not been calibrated adequately to meet the T&S. Where the risks are largely (but not totally) homogeneous, the PRA has tailored its quantitative assessments to reflect a firm's specific risk profile.

8.6 Quantitative tools are also important in helping the PRA to prioritise areas for early review where firms may not have calibrated their risks or correlations adequately. However, they are not determinative of the PRA's final view of a model or model component. It is also worth noting that the PRA looks at the calibration of any model as a whole, as well as in its constituent parts, with particular consideration being given to whether the model remains appropriate in a range of conditions and over time when the balance of risks may change.

8.7 Finally, the outputs of this quantitative analysis constitute one of the many indicators that are taken into account by the PRA in concluding whether the model meets the T&S. Specifically, while the PRA's quantitative analysis assists in verifying that the calibration standard in Solvency Capital Requirement – General Provisions 3 of the PRA Rulebook has been met it does not negate the need for other aspects of the model to be reviewed including SQS in Solvency Capital Requirement – Internal Models 11 of the PRA Rulebook.

8.8 As is apparent from the description above, the operation of the quantitative framework does not yield a mechanistic 'pass/ fail' decision. It is worth highlighting once more that model approval does not hinge on meeting any particular quantitative criterion, but on meeting the T&S. It must also be emphasised that the use of the tools underlying the PRA's quantitative framework is always tailored having regard to a firm's own risk profile.

9 How the PRA has developed its quantitative framework

9.1 The PRA has tailored the quantitative framework for model reviews to best fit its intended uses, as specified above. The PRA has paid particular care to the following areas:

(a) use in homogeneous risks assessments: many of the risks that life insurers are exposed to are largely homogeneous. Where this is the case, it is useful to employ a homogeneous quantitative assessment as part of the PRA's evaluation of the model. This quantitative assessment comprises both comparisons against generally accepted market practice as well as comparison against QIs which the PRA believes are representative of models likely to meet the calibration standard. Where risks are not sufficiently homogeneous the PRA has not used this quantitative framework as part of the PRA's assessment;

(b) alignment to firm's risk profile: when using the quantitative framework the PRA has ensured that any cross-firm comparisons are made with firms that have similar risk profiles. Likewise, when compared against the QIs mentioned in the previous paragraph, the PRA has tailored the assessment to reflect firms' respective risk profiles; and

(c) alignment to the Directive requirements: The PRA has ensured that the development of its QIs reflects the requirements of the Directive (eg such as using a consistent definition of the risk-free rate).

9.2 In order to provide more clarity on the underpinnings of the PRA's approach, specific details are provided in Chapters 11, 12 and 13 on how the PRA has derived the QIs for three important areas (credit risk, longevity risk, and dependency structures).

10 How model reviews have benefited from the use of the quantitative framework

10.1 The PRA believes there are three benefits of using the quantitative framework for internal model reviews:

(a) enhanced consistency and efficiency;

(b) increased effectiveness in the PRA's assessment of firms' justifications and application of an appropriate level of challenge; and

(c) improved assessment of compliance with the calibration standard of the Directive ie the 99.5% VaR of the firm's basic own funds.

10.2 The PRA believes that the use of this quantitative framework as part of model assessments has helped ensure that similar risks are assessed consistently across firms, and has resulted in an efficient approach to model reviews.

10.3 The T&S are principles-based and require supervisory judgement to come to a view on whether specific standards are, in fact, met. The quantitative framework has been an important part of this structure and has allowed the PRA to apply consistency in its reviews, for example by assessing model outputs to ensure that more complex models can be assessed and compared in a consistent manner.

10.4 The development of QIs has served to identify critical assumptions that need to be made in order to calibrate risks for homogeneous risk categories. Where firms have been identified as weak against these indicators the PRA has followed through to the judgements that firms have made so as to allow a thorough assessment of those assumptions. For example, in applying the framework the PRA has been able to identify and challenge firms which were using data misaligned to their exposures or which had inconsistencies in their modelling.

10.5 In other circumstances, however, firms have been able to justify their assumptions based on their specific risk profile. As noted above, the quantitative framework is not a 'pass/ fail' test: some firms have been able to justify their calibration based on their specific risk profile or on the overall quality of their model judged against the T&S. In other cases, the review activity has led to an update to the QI where the PRA has recognised a better way to reflect the relevant risk data.

10.6 In particular, when applying the QIs during model reviews, the PRA has taken into account the fact that firms' models may use a different definition of risks, as well as reflect their specific exposures. Moreover the approach explicitly recognises that there is a range of reasonable judgements that can be made when modelling risks for capital purposes that the PRA needs to consider when concluding whether it is satisfied that the T&S have been met.

10.7 Internal models must be calibrated to the standard set out in Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook. The T&S recognise the need for supervisors to assess the calibration of the internal model against this standard as part of the model assessment, which the PRA has sought to do through the quantitative framework. This has allowed the assessment of firms' calibrations against peers as well as the reference point of the QIs, which has provided further assurance that the approved models meet the calibration standard of the Directive in Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook.

10.8 Peer group analysis plays an important role in the PRA's use of the quantitative framework and the construction of the framework itself has been informed by views and expertise from the industry. However, the PRA does not consider that, in itself, the fact that firms may have calibrations for key risks that are consistent with those of some of their peers means that the calibration requirements have necessarily been met.

11 Technical overview of the PRA's credit risk QIs

11.1 Life insurers invest in a range of assets whose market value reflects the likelihood of the asset owner receiving the contractual payments in full and on time; the PRA refers to such assets as 'credit risky assets'. In the context of the Directive SCR calculations, insurers need to consider two sources of exposure to credit risky assets:

(a) asset-side credit risk: the risk of changes in the market value of credit risky assets; and

(b) liability-side credit risk: the risk of changes in the discount rate used to value annuity liabilities by those firms that have received permission to apply an MA.

Asset-side credit risk

11.2 Considering credit risky assets as a whole, corporate bonds constitute the largest single asset class to which life insurers are exposed and the PRA has developed QIs to assist in its reviews of firms' models of these assets. The PRA has not developed specific QIs for other credit risky assets; however, it has applied the same underlying principles (as for corporate bonds) when considering internal model firms' calibrations of credit risk for these other asset classes.

11.3 The PRA notes that firms' exposure to other credit risky asset classes, such as infrastructure investments and commercial real estate, is increasing and the PRA expects firms to increase the sophistication of their internal models for these assets accordingly.

11.4 Firms generally model the change in corporate bond prices via changes in corporate bond spreads. Spread models have increased greatly in complexity and the calibrations for these models involve a significant number of material judgements. This has increased the importance for the PRA of having QIs for corporate bond credit risk, in order to provide an overall view of firms' calibrations on a consistent basis.

11.5 The PRA's QIs have, in its view, provided an effective basis for challenging firms' credit risk modelling, and improving the quality and robustness of firms' calibration approaches. For example, the PRA relied mainly on sterling denominated bond data series in building its QIs while many firms were allocating material weight in their overall calibration to US credit risk data from many decades ago. The PRA considered this weighting to be inappropriately strong, particularly as these data were unlikely to be reflective of firms' actual asset holdings.

11.6 Regarding the term structure of credit risk, firms developed a wide range of practices. The PRA considers that there is evidence for a term structure of credit spread changes for corporate bonds (ie there is evidence that spread widening varies by term of the bond). This view is based on the PRA's analysis of historical credit risk index data, allowing for adjustments made by data providers for the treatment of callable bonds during 2008-9. The PRA has challenged firms that did not vary credit risk calibrations by term and has seen general acceptance of the need to model the term structure of credit spreads.

11.7 In deriving its QIs the PRA has not assumed different levels of spread change for bonds of different sectors. In the PRA's view, the spread-widening experienced by financial sector bonds in 2008-9 is an example of a single-sector event that could reasonably be indicative of a future shock to another (non-financial) sector. The PRA considers that non-financial bonds could move under stress to such levels in the future.

11.8 The PRA found that some firms used overly data-driven approaches that did not adequately distinguish between data sources of varying relevance and credibility. In finalising its QIs, the PRA has applied judgment to the raw results of its analysis to ensure that the final QIs make economic sense and do not unduly reflect any less credible features of the calibration data, and it has encouraged firms to do the same. In particular, the PRA used judgement to produce consistent (smoothed) distributions across ratings and terms. The PRA informed its judgement in this area by considering the implied percentage change in bond prices, comparing against the changes expected for other asset classes, both more and less risky. The PRA considers that the percentage fall in credit risky asset prices is a useful additional QI metric, because the balance sheet impact of spread changes is dependent on the precise model used to revalue assets.

11.9 The PRA's asset-side credit risk QIs have been developed to a full-risk distribution, for consistency with the Directive internal model requirements. In line with firms, the PRA considers this distribution to be fatter-tailed than a normal distribution, although the PRA has challenged firms with distributions that it considered excessively fat-tailed.

Liability-side credit risk

11.10 The PRA has seen a wide variation in firms' approaches to modelling liability-side credit risk for their matching adjustment (MA) portfolios. The PRA has not sought to impose a single approach, but it has challenged firms and asked them to justify their methodology in the context of the PRA's proposed five-step framework.[1] Firms have responded well to this challenge and the PRA has seen significant improvements in firms' methodologies and calibrations as a result. Where firms assume that the value of their liabilities in stress scenarios would benefit from use of an MA, they need to consider both whether they would continue to qualify for MA in stress and what the applicable MA might be. On the former point, the PRA expects firms to verify that their portfolios still qualify for the MA, and to consider all risks that arise in respect of the use of the MA. On the latter point, as noted in Chapter 3, the PRA does not consider it would be appropriate simply to re-calculate the fundamental spreads using the methods and assumptions prescribed by EIOPA for the purposes of calculating technical provisions in the base balance sheet (ie a purely 'mechanistic approach'), and its QIs have been developed accordingly.

11.11 As already noted, the PRA has seen a wide variety of modelling approaches and methodologies for liability-side credit risk, and therefore it felt it was appropriate to consider a simple overall QI. The PRA considers that 'matching adjustment or fundamental spread, expressed as a percentage of spread' is a useful metric to enable comparisons with the Directive calibration standard and between firms. The PRA has developed its QI as a range based on this metric, and has challenged firms whose calibrations were below this range. In many cases a calibration approach that the PRA considered overly 'mechanistic' (ie which simply applied EIOPA's methods and assumptions for the purposes of calculating technical provisions in stress without consideration of whether this required adjustment) caused firms' calibrations to fall below this range. Such approaches gave insufficient consideration to wider possible economic scenarios, such as a material increase in expected future defaults in excess

1 See paragraphs 11.13 to 11.25.

of the default rates seen in the period used by EIOPA to calibrate fundamental spreads. On this latter point in particular, the PRA expects that firms incorporate their existing credit default analysis work into their liability-side credit risk calibrations, as the PRA does not consider that the underlying risk would change fundamentally.

11.12 The PRA also considers it appropriate to assess the capital held in respect of credit risk (post any allowance for an increased MA in stress) against the reduction in value of the credit risky assets in response to a stressed environment (ie the capital relating to the asset-side credit stress). Due to the complexity of many credit risk models, it is often necessary to assess the calibration against this capital output-based QI, in addition to the input-based liability-side modelling approach outlined below.

The PRA's framework for considering the risks in MA portfolios

11.13 As part of its quantitative framework for assessing internal models, in addition to the QIs, the PRA also developed a five-step framework for assessing how firms reflected the risks arising from the use of an MA in their internal models. The following paragraphs provide further observations on the liability-side credit risk approaches used by internal model firms, with reference to the PRA's five-step framework.

11.14 The PRA expects firms' own methodologies to capture all the relevant issues and will consider the quality of the thinking and methodology that firms apply to each step. The steps in the PRA's framework are:

- **step 1**: re-value the MA portfolio assets under a one-year stress;
- **step 2**: calculate updated fundamental spread values, reflecting the stressed modelled economic environment;
- **step 3**: verify whether the MA qualifying conditions are still met;
- **step 4**: if step 3 has failed, then the cost of re-establishing a MA compliant position should be specified, such as considering the cost of re-balancing the asset portfolio; and
- **step 5**: re-calculate the MA. Note that based on the analysis in the previous steps this may need to be based on a re-balanced MA asset portfolio.

Step 1: re-value the MA portfolio assets under a one-year stress

11.15 The primary output of this step is the change in total asset portfolio value over one year, ie the calculation of asset-side credit risk. As such, the PRA developed a QI for corporate bonds that assesses the change in asset values compared to the starting value of the credit risky assets, noting that this is dependent on the characteristics of the actual corporate bond portfolio held by individual firms. The liability-side impact of a credit stress is directly related to the asset-side behaviour and so should not be viewed in isolation, hence the development of a QI for both the asset and liability side of credit risk.

Step 2: calculate updated fundamental spread values, reflecting the stressed modelled economic environment

11.16 The PRA has seen many firms calculate stressed fundamental spreads via a number of different approaches and then apply the maximum. These approaches include (among others): updating the long-term average spread with one year of stressed spreads; applying a separate non-mechanistic calculation (following the five-step framework); considering a deterministic (stressed) run-off approach; and applying the 'EIOPA in a box' approach which involves a firm

building its own version of what it considers EIOPA would do to recalculate the fundamental spread in a stressed environment.

11.17 The non-mechanistic approaches tend to consider the impact of stressed probability of default and cost of downgrade assumptions, as well as taking into account the increased transaction costs that might be incurred when attempting to rebalance the MA portfolio under stressed conditions. The PRA has also seen firms developing their views on the relationship between increased probability of default and cost of downgrade, through the correlation assumptions between these two risks. Many approaches reflect that stressed conditions do not immediately revert to long-term averages, and as such stressed conditions persist for a number of years, decaying to a long-term average over that period.

11.18 The PRA expects the non-mechanistic approach developed by each firm to reflect the nature of the risks faced by the individual firm in the context of the MA. Firms have acted on previous communications from the PRA and have demonstrated that they have considered the applicability of models to the particular risks to which they are exposed and have focussed on the components of the five-step process that are most material to their particular exposure. While the calculation of updated mechanistic figures may provide a minimum underpin, the PRA expects firms to focus on the results of its non-mechanistic approach which should reflect the firm's own view of the risks to which it is exposed.

11.19 A number of firms have leveraged earlier work on recessionary scenarios, such as the 1930s depression, as either a stress event to determine stressed fundamental spreads or as a validation tool. While the PRA believes that such scenarios are very useful in the calibration and validation of the model, the PRA also expects firms to consider potential future events that may differ in the nature, magnitude and duration to events seen previously.

Steps 3 and 4: verify whether the MA qualifying conditions are still met and, if this has failed, then the cost of re-establishing an MA compliant position should be specified, such as considering the cost of re-balancing the asset portfolio

11.20 It is likely that, following an extreme economic or insurance risk stress, and after making a suitable estimate of the revised pattern of liability cash flows, firms might conclude that the MA qualifying conditions are no longer met. Assuming that the conclusion is that the qualifying conditions would no longer be met, firms would need to determine the actions required to re-establish a qualifying portfolio and the cost of doing so. For example, additional assets might need to be inserted into the MA portfolio for a number of reasons, including in order to:

- deliver additional risk-adjusted cash flows following the downgrade of some assets and/or a change in expectations for the probability of default, and consequent reduction in the default-adjusted cash flows of those assets; or

- meet new expected long-term cash flows following a longevity stress.

11.21 Whatever the reason for needing additional assets, firms should also consider whether under the range of scenarios in their internal models they would be able to source additional assets of at least the same or equivalent credit risk characteristics as the existing assets. Firms should consider whether, under extreme conditions and within the year of consideration in the internal model, they might be forced to buy assets that are more liquid and/ or of higher credit quality than existing assets, particularly if their portfolios contain large exposure to illiquid and/ or untraded assets. As a result, firms should not simply assume that they could maintain the pre-stress risk characteristics of their asset portfolios, ie they should not simply scale up

their existing credit portfolios to deliver the additional cash flows required without investigating and justifying the plausibility of this assumption.

11.22 Typically, the costs of rebalancing the MA portfolio include the costs associated with asset disposal and acquisition, along with other frictional costs, all within the stressed environment. Sourcing appropriate assets that are eligible for use in the MA portfolio may not be a straightforward task and could involve further costs, as could reinvestment or sourcing longer-dated assets under a longevity stress. Firms may also need to consider implementing hedges or other risk mitigation. Given the variety of approaches implemented by firms, and the different types of assets held, for some firms the stressed fundamental spreads are the most material component of the framework, while for others the cost of rebalancing dominates the capital calculation.

Step 5: recalculate the MA

11.23 Based on the analysis in the previous steps, this recalculation may need to be based on a re-balanced MA asset portfolio.

11.24 Following a stress, the efficiency of assets in terms of the MA benefit gained may be impaired (due to downgrade below investment-grade, for example). Firms should consider the need to address this reduced efficiency by having appropriate levels of eligible assets available outside the MA portfolio that could be injected, or sufficient liquid assets to purchase eligible assets.

11.25 Firms may find it useful to apply some high-level 'sense checks' such as verifying that the MA expressed as a percentage of spread is consistent with their own view of the inherent level of credit risk for such assets.

12 Technical overview of the PRA's longevity risk QIs

Background

12.1 Internal models must capture longevity risk where a firm is exposed to such risk.[1] In developing its QIs, the PRA has defined longevity risk as the risk that policyholders or pension scheme members, in aggregate, live longer than expected. The main life insurance products exposed to this risk are immediate and deferred annuities although there will be some exposure to longevity risk in an insurer's own pension scheme (if defined benefit), in respect of certain health contracts and possibly within with-profits funds. There is also growing exposure within general insurance in relation to periodic payment orders (PPOs).

12.2 As there is not currently a deep and liquid market for longevity risk,[2] firms are required to derive their longevity assumptions from first principles for two purposes:

(a) the valuation assumption: to value their annuity (and other longevity-dependent) liabilities; and

(b) the capital assumption: to quantify the level of capital that has to be held to cover longevity risk.

1 Solvency Capital Requirements – Internal Models 11.6 of the PRA Rulebook.
2 See Appendix 2 – Draft Supervisory Statement Solvency II: longevity risk transfers.

Decomposition of longevity risk into component parts

12.3 In line with industry practice, the PRA considers that longevity risk includes at least two sub-risks which effectively mirror the main components of the valuation assumption. These are:

(a) base mis-estimation risk which represents the risk that the actual current mortality experience differs from the assumption about current mortality rates used in the best estimate assumption; and

(b) future improvement risk (or trend) risk which represents the risk that future improvements differ from future improvements assumed in the best estimate assumption.

12.4 In terms of risk decomposition, the PRA notes that most firms have used this broad split of longevity risk, although some firms include more risks under the longevity risk banner than the PRA has indicated (eg other risks such as proportion married risk are included) or define the risks slightly differently (eg split what the PRA calls 'event risk' – see below - into more granular components).

Determining the sub-components of longevity risk for which a QI is appropriate

12.5 Although the concept of setting and potentially mis-estimating the current level of mortality is well understood, quantifications are likely to vary markedly by firm due to the heterogeneity of exposure. For this reason the PRA decided not to develop QIs for current mortality rates and base mis-estimation risk in valuation and capital assumptions respectively.

12.6 The allowance for future improvements in mortality tends to be less heterogeneous across firms. The PRA therefore considers it is appropriate to derive a QI for future improvement risk in both valuation and capital assumptions.

Modelling time horizon

12.7 Under the Directive, the calibration standard for the SCR is set out in Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook. However, for internal models, the risk measure or time period used may differ from this provided it can be demonstrated that there is an equivalent level of policyholder protection.[1]

12.8 While some firms have opted to model longevity risk over a time period that is greater than one year, for the purposes of setting its QIs the PRA has modelled longevity risk directly over a one-year time horizon.

12.9 For the direct one-year approach the PRA has modelled future improvement risk by considering how much the best estimate future improvement assumptions could change over one year. This has been split into data-driven changes in the best estimate assumptions ('data risk', ie the impact of introducing an additional year of mortality data) and event-driven changes ('event risk', ie the impact of new information emerging that is not contained in the data).

Construction of the QIs for future improvements

12.10 The QIs for future improvements have been developed using the following steps:

1 Solvency Capital Requirement – Internal Models 12.1 of the PRA Rulebook.

Step 1 – The PRA modelled future improvement risk using Office of National Statistics data. The specific choices of data period and age range used are supported by a desire to focus on data of sufficient credibility and relevance to annuity business.

Step 2 – One model was selected from each of four commonly used families of stochastic longevity risk models for investigation. These models are all industry-recognised and have been subject to extensive challenge. None of the models are cause of death models due to their greater complexity, data requirements and the need for a greater level of judgement to be exercised. In particular the PRA was concerned that the correlations between causes of death were not easily measured and would not be stable over time.

Step 3 – The PRA ran the selected models to obtain the valuation assumption (taken to be the 50th percentile output). It also made a judgement that the future improvements would reduce to nil between the highest age modelled and age 100. The range of valuation assumptions implied by the different models was wide and so the PRA used judgement to derive a reasonable range for the best estimate. This was informed by the assumptions firms are currently making and judgements the PRA had made around the expected shape of future longevity improvements.

Step 4 –The PRA split the modelling of future improvement risk into data risk and event risk.

Step 5 – Data risk was modelled by simulating an additional one year's worth of longevity data and re-fitting the models. The PRA repeated this a number of times and then selected the empirical 99.5th percentile change in the 50th percentile simulation as a result of the additional year's worth of data. All models gave similar calibrations for this risk.

Step 6 – There is no statistically robust method for calibrating event risk. The PRA has therefore done this by looking at the variation in the valuation assumptions implied by each of the models (Step 3 above). It considers a change in model to be a good proxy for this risk as the PRA considers that a 1-in-200 longevity risk event is likely to lead firms to change their modelling approaches.

Step 7 – The strength of the calibration obtained was validated by comparing the resulting calibration to the results in published papers on longevity risk modelling, other published projections and the impact of historic events (most notably the introduction of the cohort improvement factors).

Step 8 – A full probability distribution function (PDF) was derived by fitting a lognormal distribution to the 50th percentile from step 3 and the 99.5th percentile from Step 6.

12.11 Further detail on these steps is provided below.

Steps 1 – 3: QI calibration at the 50th percentile

12.12 The QI is based on output from the four families of stochastic models that are considered under the PRA's methodology. In setting the actual QI, the PRA made the following judgements:

(a) model families used: the four model families used are all stochastic or pseudo-stochastic model families. They are: Lee Carter, p-spline, Age-period-cohort (APC), and Cairns, Blake and Dowd (CBD);

(b) shape of improvements over time: the high improvements that have been seen in recent decades in the age range 50 to 80 will reduce to the historical average over the next 10 to

20 years. This judgement reflects the changing mix of causes of death. The high improvements in recent years have arisen mainly as a result of significant improvements in mortality from cardiovascular disease. During this time period, cardiovascular disease was the dominant cause of death particularly for men: dramatic reductions in deaths from this cause were therefore a key driver in overall population longevity improvements. However, due to these improvements, cardiovascular disease is now being replaced by cancer as the leading cause of mortality between ages 50 and 80. As cancer covers a diffuse range of diseases, it is much more difficult to develop treatments applicable to all cancers and so the PRA considers that the pace of improvements can be expected to reduce over the medium to longer term; and

(c) ages at which improvements occur: historically, the ages seeing the largest reductions in mortality rates have increased over time. This reflects shifting medical research priorities and diminishing impact of medical improvements as mortality rates at younger ages are reduced. Based on this, the PRA has made a judgement that it will see increasing reductions in mortality rates at ages 80 to 90 over the next 10 to 20 years.

12.13 The PRA recognises that in recent years UK population mortality experience has exhibited lower mortality improvements than previous years. When calibrating QIs for longevity trend, it has used the most up-to-date data available. Therefore, as part of its regular review of QIs these changes to population experience are considered and incorporated into both the modelling approach and associated judgements as appropriate.

Steps 4 – 7: QI calibration at the SCR (99.5th percentile)

12.14 The calibration of data risk is a natural output of the statistical models used in the PRA's methodology. The PRA has followed the industry standard approach to doing this which effectively involves repeatedly simulating an additional year's worth of data and then re-fitting the model.

12.15 However, as event risk relates to information not in the data, this is by definition not captured directly in any of the model outputs. The nature of this risk therefore means that judgement is essential to its calibration. In reviewing firms' models the PRA has seen a number of different approaches taken to allowing for this risk: the PRA welcomes this and has no desire to impose a preferred approach on firms in this area.

12.16 However, for its QIs, the key judgement the PRA has made, in order to calibrate event risk, is that if event risk were to crystallise then firms are likely to have to change the model(s) used to calibrate their best estimate assumptions. This is supported by historic evidence where the PRA has generally seen firms change models following a major change in longevity risk drivers (eg introduction of the cohort effect). Hence, it has used differences between the 50th percentile calibrations implied by the four models it investigated as a proxy for the impact of event risk.

12.17 The PRA recognises that this approach could be argued to include some model risk as well as event risk. The intention of the framework is for event risk to be relatively widely defined and so where some firms have split event risk and model risk into separate components the PRA combines them.

12.18 Validation of a 99.5th percentile one-year stress calibration for changing perceptions of future longevity improvements can be challenging due to lack of data and consistency of available data over time. In validating the strength of its QI calibration at the 99.5th percentile the PRA has considered information from a range of sources including:

(a) in circa 2001, the Continuous Mortality Investigation (CMI) published a new analysis of historic longevity improvements and a revised projection of future improvements in longevity. This implied materially higher future improvements than had been recognised previously. The PRA considers this to be an extreme longevity event along the lines that it would be expecting an internal model to capture. The PRA's QIs give a broadly similar impact to the introduction of these cohort improvements; and

(b) a number of other historic changes to longevity assumptions over the past 60 years (generally driven by the publication of new longevity improvement projections) gave rise to impacts that are consistent with the PRA's QIs.

12.19 That said, in terms of the overall calibration of the QI at the 99.5th percentile, the changes in population mortality experience in recent years discussed above may also have an impact and this will again be a factor the PRA will take into account when updating the QIs. However, any experience data emerging, particularly where changes have only been seen over a relatively short timescale, are likely to have a lower impact on the stress calibration than on the calibration for the best estimate (ie 50th percentile).

Step 8: The QI distribution

12.20 The PRA has calibrated at the 50th and 99.5th percentiles of the distribution directly and then fitted a parametric distribution (the lognormal) around these two calibration points – this distribution has been chosen so as to reflect the key characteristics of the risk (as described below). This approach is generally consistent with approaches where firms have tended also to calibrate only one or two percentiles and then fit a distribution to this. The 50th percentile calibration is used for the calculation of firms' best estimate liabilities.

12.21 The PRA considers that there are a range of reasonable underlying judgements that could be made in calibrating at both the 50th and 99.5th percentiles. For this reason, the PRA calibrated a QI range at both percentiles and hence effectively calibrated a range for the whole QI distribution for trend risk.

12.22 When selecting an appropriate distribution to fit around the two calibration points, the PRA made a judgement that a fat-tailed distribution is appropriate as, in reality, longevity risk only tends to become particularly onerous in the most extreme events.

12.23 The PRA has also made a further judgement that the shape of the trend risk distribution should not allow future improvements in longevity to be negative in order to ensure that in scenarios with weak longevity improvements the impact of other risks is not distorted.

12.24 These two preceding points are the PRA's key justifications for the choice of a lognormal distribution although it recognises that some other distributions may be appropriate and some firms have indeed used these instead.

13 Technical overview of the PRA's dependency QIs

How diversification effects feature in a firm's internal model SCR

13.1 A firm's SCR must capture all of the material risks to which the firm is exposed. While those risks may be inter-related, it is recognised that an extreme event affecting one risk will not always simultaneously coincide with extreme events affecting other risks. This absence of automatic coincidence gives rise to diversification effects, which is a key economic reality of insurance activity. More precisely, the Directive (as set out in the Glossary of the PRA Rulebook) defines diversification effects as the effect on a UK Solvency II firm's risk exposure

based on the possibility that an adverse outcome from the emergence of one risk may be offset by a less adverse or more favourable outcome from another risk, where these risks are not fully correlated.

13.2 Diversification refers to the concept that incidences of different risks are generally partly or fully unconnected with each other and the financial impact of this can be modelled using a dependency structure that captures the extent to which different risks are correlated with each other. In general, the PRA expects models to specify both the individual distributions of risks as well as their dependency relationship. The dependency relationship may be imposed (eg set as a parameterised copula) or set structurally (eg captured in the equations that drive the output of a scenario generator).

Developing QIs for dependency

13.3 The PRA has based its QIs for dependency on the analysis of the relations between standardised risk categories. These correspond to the most common homogeneous risks that life insurance firms are exposed to.

13.4 The PRA has developed its QIs on the basis of a simple dependency structure based on the use of a Gaussian copula parameterised via the analysis of correlations between risks. In this parameterisation the PRA has considered various market and other publicly available information. The PRA has focused on its technical analysis based on its investigation of the relevant historic data (where available) as well as its application of judgement as described below. It has also considered and taken into account the calibration views of firms and other parties, particularly as part of its internal validation and challenge process.

13.5 The PRA's approach should not be seen as an endorsement of a particular methodology: in practice it has reviewed and approved models that use a variety of dependency structures. The extensive modelling freedom afforded by the Directive allows the choice of simple models of dependency provided that appropriate adjustments are made in a manner compliant with the Directive requirements, eg that the model will appropriately support the risk management of the firm and generate capital requirements consistent with the standard set out in Solvency Capital Requirement – General Provisions 3.4 of the PRA Rulebook. Given the difficulty in specifying the dependency relations between multiple risks across the whole distribution, the PRA has viewed all dependency structures as pragmatic approximations valid for modelling in specific contexts, provided firms can demonstrate that they understand the limitations and, where appropriate, mitigate them.

13.6 For example, simple symmetric copulas such as the Gaussian may be too limited to describe the actual dependency relationship between risks whose joint behaviour may vary in different parts of their joint distribution. However, the PRA has accepted that most parsimonious dependency structures, which contain simplifications or approximations, can meet the Directive requirements, and has derived its QIs accordingly. Two particular areas where the Gaussian copula was deemed to be too simplistic and required adjustment were:

(a) allowance for lack of diversification in stressed conditions (also known as 'tail dependency' allowance). For example, where data analysis is used in the QI derivation, the QI calibration is generally stronger than would simply be obtained by calculating the mathematical rank correlation between two historical data series. The PRA's overall data analysis has involved considering the results of a number of statistical tools such as time series plots, scatter plots, rolling correlations over the data period, historic correlation, confidence intervals, goodness-of-fit tests and the coefficient of finite tail dependence observed in the data; and

(b) asymmetric relations: the real-world dependency relation between two risks will not generally depend on the exposure of an individual insurer to those risks. However, where simplifications are adopted to describe a complex dependency relation by means of simple dependency structures (eg a Gaussian copula) it may be necessary to adjust the correlations depending on exposures to ensure the system used to measure diversification benefits captures the right dependency characteristics (eg reduced diversification in extreme scenarios compared to benign scenarios).

13.7 The PRA has also applied judgement in the development of the QIs between all risk pairs, particularly for those pairs where relevant data is scarce or absent.

13.8 In applying its judgement, the PRA has sought to identify not only direct links, but also non-intuitive links between variables and common drivers of variables. This is because it is well known that correlation is not equivalent to causation, and that in fact correlations between variables can be counterintuitive. In particular, variables that might superficially appear to be independent (because neither directly causes the other) can, in fact, be related by common drivers that result in a non-zero correlation between them even in the absence of a direct causal link. These common drivers are often hard to identify, especially in benign conditions; the role of judgement in this area is to consider all of the routes by which changes in one variable could be reflective of conditions that might affect the other variable.

Application of the dependency QIs

13.9 Where firms have other means of allowing for the features referred to in this chapter's previous section (e.g. a more sophisticated copula structure) the PRA has considered this when comparing calibrations against the QIs.

13.10 When assessing firms' calibrations compared to its QIs the PRA has emphasised a qualitative review to ensure that correlations are set with an overlay of expert judgement, as it has done in the derivation of its QIs. That qualitative review has been based on the EIOPA Guidelines on the use of internal models[1] regarding the application of expert judgement in internal models.

13.11 As an illustration of the general approach taken in the derivation and application of the PRA's QIs, consider the important correlation between longevity trend and credit spreads:

(a) generally there is not enough relevant data to set this correlation, and therefore this must be done using judgement. In applying its judgement, the PRA has sought to identify not just direct links between these variables but also non-intuitive links and common drivers between them. However, the PRA has also recognised that there is a range of reasonable judgements that may be made in setting this correlation; and

(b) the PRA has used this QI to identify firms that may have under-calibrated the assumption in this area, and has applied additional scrutiny to the justification provided by the firms. The PRA has challenged firms which had, for example, derived this correlation based on an application of expert judgement that fell short of the Directive standards, assessed following the EIOPA Guidelines noted above.

13.12 In summary, the PRA's QIs in this area have helped to identify firms that had, in the PRA's view, insufficiently strong assumptions, and helped to focus the PRA's reviews on

1 EIOPA Guidelines on the use of internal models, EIOPA-BoS-14/180 EN.

establishing the quality of the evidence provided and assessing whether their models meet the T&S.

14 Internal model change policy

14.1 Firms with an approved internal model are required to have an approved model change policy.[1] Following approval, the model change policy is expected to play a central role in the wider governance of a firm's internal model. For example, it should help ensure that the internal model continues to reflect the risks to which a firm is exposed and meet the requirements of the Directive.

14.2 It is important that the model change policy is of a good standard. Firms should consider all the relevant Directive requirements and Guidelines when developing and maintaining their model change policy.

14.3 This chapter outlines some further expectations for firms on setting out their internal model change policy.

Scope of the model change policy

14.4 When defining the scope of the policy, it is important for firms to consider whether it is sufficiently broad and appropriately flexible to be able to capture any changes which could have a material impact on the SCR or to enable the firm to meet the T&S. For example, the policy recognises that a particular change to a technical provision model may be within scope if that change leads to an impact on the internal model SCR.

14.5 There may also be situations where firms consider it appropriate to exclude something from the scope of the model change policy. In these circumstances, it is good practice for firms to justify these exclusions clearly.

14.6 Firms should also be mindful of monitoring circumstances that might necessitate the need to change the scope of the policy.

Identification of model changes

14.7 It is important for firms to recognise that the need for model changes may arise from a wide range of potential sources. For example, model changes may be instigated through a firm's model development plans, validation activities, the own risk and solvency assessment (ORSA) or evolving use of the model. In addition, changes in a firm's own risk profile and factors external to the firm, such as the economic or commercial environment, may be potential triggers of model changes. A good model change policy would establish a robust process to identify, collate and manage all sources of potential model changes.

Classification of major changes

14.8 The PRA reminds firms that the EIOPA Guidelines on the use of internal models[2] expects firms to develop and use a number of key quantitative and qualitative indicators for major changes.

14.9 In terms of quantitative indicators, the majority of firms define major changes based on a percentage change in the total SCR. An improved approach, adopted by some firms, specifies additional indicators at a more granular level, for example, indicators that relate to changes in

1 Solvency Capital Requirement – Internal Models 6 of the PRA Rulebook.
2 EIOPA-BoS-14/180 EN.

the strength of the marginal risk distribution at certain percentiles or the amount of pre-diversified capital requirements for that risk.

14.10 It is important for the model change policy to include qualitative indicators for major changes. An example of a qualitative indicator is where a major change is triggered after a fundamental change in the methodology or a key expert judgement relating to a particular risk regardless of the impact that the change has on the SCR. Another potential qualitative major change indicator is if a proposed model change needs to be signed off at, or above, a certain level of seniority within the firm. Firms may also wish to consider what indicators might be appropriate to use to determine whether a major change might be triggered through ongoing model validation.

14.11 When developing major change indicators, the PRA encourages firms to consider the appropriateness of having different indicators or threshold levels for different risks or components of the model. For example, it may be desirable to include specific change thresholds for certain elements of the model that are of key interest because they are highly material, highly judgemental or have known limitations.

14.12 Finally, it is important that firms justify their choice of major change indicators including why any thresholds chosen are at an appropriate level for the ongoing supervision of the model. In this regard, it can be helpful if firms provide examples of model changes (eg past model changes) that meet their major change indicators in order to demonstrate the appropriateness of thresholds chosen.

Combination of minor model changes

14.13 Firms may struggle to articulate how they would define the circumstances in which a combination of minor model changes would constitute a major model change. Better model change policies have specified at least the following:

- how the impact of minor changes will be accumulated together;
- the time period over which these changes will be accumulated; and
- the indicators or thresholds used to determine when such an accumulation becomes a major change.

14.14 A reasonable starting point for each of these may be to:

- accumulate the absolute values of the impact of the minor changes together, unless it could be demonstrated why it would be reasonable to allow the impact of two minor changes to offset each other;
- accumulate changes from the date of the latest approved internal model (as per the EIOPA Guidelines on the use of internal models).1 As part of this, it is sensible for firms to treat the resetting of the starting point of the accumulation (of minor changes) as a major change, unless otherwise agreed with the PRA as part of the supervisory review process. Resetting the accumulation period may arise as a result of qualitative considerations, for example to ensure alignment with the governance of the model or with the model development and validation cycles; and

1 EIOPA-BoS-14/180 EN.

- use indicators similar to those defined for single major changes, where considered appropriate.

14.15 A further consideration firms may wish to make is whether it is informative to group minor model changes together by risk or other common feature of the model.

Governance

14.16 The better model change policies clearly articulated the governance framework covering the internal process for identifying, approving and implementing the model changes. These included an articulation of how the model change policy fits in within the wider model governance, risk management and validation processes.

14.17 The PRA generally expects firms' executive management to be responsible for the internal sign-off of major model changes and to at least be made aware of minor changes where appropriate.

14.18 It is important that firms also ensure that there is a robust governance process to agree whether changes should be classified as either major or minor, especially in cases where the classification is borderline or subject to judgement.

Reporting of model changes to the PRA

14.19 In addition to submitting major changes for approval, according to EIOPA Guidelines on the use of internal models,[1] firms are expected to provide a quarterly summary of minor model changes to the PRA. It may be helpful for the summary to group related changes together, for example by risk area or function of the model.

Review of the model change policy

14.20 The PRA encourages firms to review on a regular basis the effectiveness of the model change policy in order to ensure that the internal model continues to reflect the firm's risk profile and meet the T&S. Firms are also reminded that any change to the model change policy itself is subject to the PRA's approval.

1 Guideline 8, EIOPA-BoS-14/180 EN.

Appendix 2 Draft supervisory statement 'Solvency II: longevity risk transfers'

Contents

1	Introduction	35
2	Risks associated with longevity risk mitigation measures	35
3	Notification	36

1 Introduction

1.1 This supervisory statement is addressed to all UK firms that fall within the scope of Solvency II,[1] and to Lloyd's. It sets out the Prudential Regulation Authority's (PRA's) views on the general issues arising from longevity risk transfers, and clarifies the PRA's expectations on UK insurers and reinsurers carrying out these transactions as either the buyer or the seller of longevity protection.

1.2 This statement should be read in conjunction with the PRA's rules in the Solvency II sector of the PRA Rulebook and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

1.4 Longevity risk is the risk that policyholders, pension scheme members or other underlying beneficiaries, in aggregate, live longer than expected. The main life insurance products exposed to this risk are immediate and deferred annuities, although certain health contracts and possibly with-profits funds may also be exposed. In addition, there is likely to be some exposure to longevity risk in an insurer's own staff pension scheme, if this is defined benefit. There is also growing longevity exposure among general insurers in relation to periodic payment orders.

1.5 The PRA recognises that there has been an active market in the transfer of longevity risk for a number of years. However, the PRA would be concerned if firms became active in this market for reasons other than seeking genuine risk transfer.

2 Risks associated with longevity risk mitigation measures

2.1 An insurer accepting risk from, transferring risk to, or hedging risk with, a single or small number of counterparties (or connected counterparties) may expose itself to possibly significant levels of counterparty risk.[3] Solvency II introduces specific risk management rules which require insurers and reinsurers to have an effective risk management system comprising strategies, processes and reporting procedures necessary to identify, measure, monitor, manage and report, on a continuous basis, the risks facing them both now and potentially in the future (see Rule 3.1 of the PRA Rulebook: Solvency II Firms – Conditions Governing Business). The PRA accordingly expects firms to monitor, manage and mitigate these concentration risks. This includes risks which are covered by the solvency capital requirement (SCR) as well as those which are not. In practice this means that holding capital under the SCR in relation to counterparty default risk may not be sufficient in and of itself to mitigate this risk – additional measures besides capital may be necessary.

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 The PRA has set out more information on this risk in Appendix 4 – Draft Supervisory Statement Solvency II: reinsurance.

3 Notification

3.1 In order to supervise firms' risk management practices, the PRA expects to be notified of longevity risk transfer and hedge arrangements and the firm's proposed approach to risk management well in advance of the completion of any transaction. This expectation applies where a firm is buying or selling longevity protection. As well as allowing the PRA to gain a fuller picture of the market, this would also allow it to understand the potential build-up of risk concentrations as a result of these transactions. This will enable supervisors to consider whether the risks of the proposed transaction are being appropriately managed and that the transaction has an underpinning rationale that is consistent with good risk management principles.

Appendix 3 Draft supervisory statement 'Solvency II: ORSA'

Contents

1	Introduction	38
2	ORSA supervisory report	38
3	The ORSA policy	39
4	Board sign-off and embedding of the ORSA	39
5	Business strategy	40
6	Risks	40
7	Capital and solvency	40
8	Stress testing	41
9	Groups	41
10	Internal model	41
11	Standard formula	42

1 Introduction

1.1 This supervisory statement is addressed to all UK firms that fall within the scope of Solvency II,[1] and the Society of Lloyd's. It sets out the Prudential Regulation Authority's (PRA's) expectations of firms regarding their own risk and solvency assessment (ORSA).

1.2 This statement should be read in conjunction with the PRA's rules in the Solvency II sector of the PRA Rulebook, and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's approach to insurance supervision as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

1.4 This supervisory statement contains PRA expectations of firms regarding their ORSA, including the ORSA report, the firm's policy regarding its ORSA and the associated processes. This statement should be read together with the *PRA Supervisory Statement 41/15*, 'Solvency II: applying EIOPA Set 2, System of Governance and ORSA Guidelines', published in October 2015.[3]

1.5 For non-life firms, this draft supervisory statement should be read together with the *PRA Supervisory Statement 26/15,* 'ORSA and the ultimate time horizon – non-life firms', published in June 2015.[4]

2 ORSA supervisory report

2.1 It is fundamental to the ORSA that it is forward-looking. The PRA expects firms to find ways to estimate their future solvency position while assessing their current risk profile and how it is likely to change with the proposed business strategy. The ORSA should contemplate those risks to which the firm may become exposed in the future.

2.2 The PRA expects all insurance firms to consider stress testing as a tool for assessing the risks to which they are exposed and to assist in quantifying their potential impact. For more on this topic, see FSA Policy Statement PS09/20, 'Stress and scenario testing', December 2009.[5]

2.3 It is important that the ORSA supervisory report has an identifiable and analytical framework. The PRA finds that good ORSA reports often:

- include a clear summary;
- highlight the key outcomes of the process;
- are not too long; and
- clearly signpost supporting documentation.

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss4115.aspx.
4 Available at www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss2615.aspx.
5 http://www.fsa.gov.uk/pubs/policy/ps09_20.pdf.

3 The ORSA policy

3.1 The ORSA policy is a standalone document and not, for example, part of the ORSA report. The PRA expects a separate ORSA policy to be sufficiently detailed, rather than generic. The ORSA policy is expected to include the process and procedures required by the ORSA framework. Examples of good practice include:

- a clear scope which states whether the ORSA is for a group, solo entity or both;
- a clear list of all entities captured by the ORSA (as well as a list of entities which have been excluded);
- a description of how the ORSA incorporates the strategic and business planning processes;
- a description showing how the ORSA incorporates the risk profile, approved risk tolerance limits and overall solvency needs;
- the timing and frequency of the ORSA framework (including, for example, its detailed elements such as stress tests, sensitivity analyses and reverse stress tests) and the ORSA report, including the triggers for an *ad hoc* ORSA;
- information on data quality standards;
- the structure of the ORSA report, including details of the key ORSA records;
- a description of the roles and responsibilities of all those involved with the ORSA, including those of the board;
- details of how the board owns the ORSA framework and process; and
- a requirement for the board to approve the ORSA policy at least annually.

4 Board sign-off and embedding of the ORSA

4.1 The Board plays a crucial role in owning the ORSA process, actively steering the process and embedding outcomes of the process into the overall decision-making framework. The PRA expects the ORSA report to evidence the board sign-off, and the key conclusions and management actions agreed. The report will be expected to provide details of how the different elements of the ORSA assessment have been considered (ie if a breach is within risk appetite) and how the output of the assessment supports strategic decisions.

4.2 Although the detail may not necessarily form part of the report, the PRA expects firms to have good supporting evidence which demonstrates any board or committee discussion and sign-off, and underlying material used during these assessments. A log of key decisions, documents used and a list of follow-up actions for named individuals are useful evidence of these processes.

4.3 To demonstrate embedding of the ORSA, some firms have introduced high-level management information as part of the ORSA framework, an 'ORSA dashboard', which follows a similar structure to the ORSA report but with up-to-date information presented visually, with tables, charts and key messages. This has enabled the board to revisit key decisions taken periodically, analyse the current and future risk profile, assess material risk drivers and

challenge firms' solvency assessment and strategy. Firms are encouraged to use methods such as these which are part of good practice.

5 Business strategy

5.1 Central to the concept of the ORSA is that it may be used to demonstrate strong linkages between business strategy, risk, capital and stress testing. In addition, firms are expected to be able to demonstrate that they have considered fully the impact of internal and external risks when presenting their strategy.

5.2 Good examples include a high-level summary of firms' most recent performance as well as a 3 to 5 years forecast. The forward-looking quantitative information may include some granular data eg class of business breakdown, and may be followed by a reasonable rationale on the strategies the firm is pursuing to meet its stated objectives. The analysis of different scenarios is important to identify how perceived risks are likely to impact the firm's strategy and support the firm's development of a proactive intervention framework, such as proposed controls and management actions.

5.3 The PRA expects firms to provide sufficient information to demonstrate the overall direction of the group from a strategic and risk perspective.

6 Risks

6.1 The PRA expects the ORSA to include an assessment of the risks it faces or may face in the future. Key risks would not be limited to quantifiable risks and would include non-quantifiable risks such as reputational, strategic and group risks. The PRA expects firms to identify the key risks to their strategy and show how these drive current and future risk profiles, as against firms' stated risk appetite and tolerances. For example, within insurance risk, the PRA expects firms to consider how capital is distributed through the different classes and how it is likely to look in the future. Where necessary, the ORSA would highlight proposed management actions upon a perceived risk that may fall outside its appetite.

6.2 Following the identification of key and emerging risks, the PRA expects the assessment to include the identification of key controls and risk owners and to demonstrate that management actions to mitigate those risks are discussed and agreed. Where a firm decides to accept a material risk, the PRA expects the report to explain why it was considered appropriate.

6.3 For groups, the PRA expects firms to consider group-specific risks (such as leverage, dividend sustainability, access to funding and liquidity) as well as group-wide risks (those risks associated with businesses owned by the group) including the risks from non-regulated, non-financial and non-EEA entities.

7 Capital and solvency

7.1 The PRA expects the assessment of firms' solvency over the business planning period to form part of the ORSA process and report. In addition to articulating current regulatory (SCR and MCR) and own view of capital, the report is expected to highlight why firms believe capital buffers to be appropriate, set a capital contingency plan in case it breaches the required capital level, and include an assessment of the impact of any stress-testing. The PRA expects key aspects of the methodology used and any deviations from the standard formula or internal model calculations to be explained.

7.2 The report is expected clearly to state the quality of own funds and how this is likely to change over the business planning period. Dividend policy is a key point in this assessment.

7.3 The PRA expects group reports to explain the derivation of the group solvency position, and any diversification benefit. This will include the capital position of any key subsidiaries, as well as the management actions the entities and the group could take if needed, and an assessment of the availability and transferability (fungibility) of own funds.

8 Stress testing

8.1 The PRA expects the ORSA to include a sufficiently wide range of plausible stress tests derived from the strategy and key risks identified during the process, to include a summary of the outputs from these tests and to describe how they affect firms' solvency positions before and after proposed management actions.

8.2 The PRA expects firms to apply reverse stress testing as part of their ORSA process. The ORSA report should define what constitutes business failure and then detail what events could drive that outcome.

8.3 Firms are expected to perform sensitivity tests as part of stress testing. Within this assessment, firms are expected to identify key model assumptions and parameters used, given changes in parameters and its impact on capital.

8.4 The PRA expects firms to consider the quality and volatility of own funds with consideration of the capital's loss absorbing capacity under different scenarios.

9 Groups

9.1 Where a group has received approval from the PRA to submit a single ORSA report which covers a number of entities,[1] the PRA expects it to describe how the boards of each of the individual entities are involved in the process and sign-off. The report is expected to cover each of the entities to a suitable level of detail.

9.2 Conversely, where a group chooses to provide individual ORSA reports for each entity in the group, alongside a group ORSA covering just the group functions, the PRA expects the documents to describe how the individual ORSAs link to the overarching group ORSA.

9.3 The PRA expects group ORSAs to cover the business strategy, risk, capital and stress testing of the group as well as a consideration of the strategies of group businesses and any risks they may present.

10 Internal model

10.1 The PRA expects, in line with Guideline 10 of the EIOPA Guidelines on own risk and solvency assessment,[2] that all internal model firms' ORSA reports will confirm and evidence the continued adequacy of the model to calculate the solvency capital requirement, and will confirm that all risks identified by the firm are included in the internal model. Any risks which

1 Group Supervision – Group SFCR 18.1 of the PRA Rulebook.
2 EIOPA Guidelines on own risk and solvency assessment (ORSA) EIOPA-BoS-14/259 EN.

are not accounted for in the internal model are expected to be included in the ORSA along with a justification for their exclusion from the model.

11 Standard formula

11.1 The PRA expects firms using the standard formula to explain clearly within the ORSA report where the firm's own risk profile deviates from the standard formula assumptions, and conclude whether the standard formula is appropriate for the risks in the business and is representative of its risk profile. The PRA expects firms to consider any material deviations of the risk profile from the standard formula, and to demonstrate how the ORSA framework will be used by the firm to monitor, on an ongoing basis, the appropriateness of the standard formula.

Appendix 4 Draft supervisory statement 'Solvency II: reinsurance – counterparty credit risk'

Contents

1	Introduction	44
2	General considerations	44
3	Counterparty credit risk	45

1 Introduction

1.1 This draft supervisory statement is addressed to all UK firms that fall within the scope of Solvency II,[1] and to Lloyd's. It sets out the Prudential Regulation Authority's (PRA's) expectations of firms with respect to general issues regarding reinsurance and the management of reinsurance counterparty credit risk.

1.2 This statement should be read in conjunction with the PRA's rules in the Solvency II sector of the PRA Rulebook, and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

2 General considerations

2.1 The PRA recognises that reinsurance can be an important part of risk management. As firms decide on appropriate reinsurance to place, the PRA expects boards to:

(i) understand the risk transfer taking place;

(ii) ensure that the economic impact is adequately reflected in business planning, capital setting and reserving; and

(iii) appreciate the wider associated risks which reinsurance placements can give rise to.

2.2 The PRA is aware that complex reinsurance arrangements exist in the market. For these, as for all reinsurance contracts, the PRA expects appropriate treatment, both with respect to preparing regulatory statements, and with regard to ensuring appropriate treatment when considering capital requirements. The PRA expects boards to ensure that any changes to capital requirements (whether arising from standard formula or internal model calculations) properly reflect the extent of risk transfer by the reinsurance arrangement. Boards should satisfy themselves that the methodology chosen to calculate the solvency capital requirement (SCR), whether for the standard formula or an internal model, continues to remain appropriate for the firm's risk profile.

2.3 Additionally, the PRA expects firms' risk management systems to be sufficiently robust to ensure that the level of risk transfer arising is reflected appropriately within their SCR requirements, and that the total uncertainty and risk over the time horizon of the run-off of a life or non-life firm's obligations has been considered within the own risk and solvency assessment (ORSA).[3]

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 See Supervisory Statement 26/15 'Solvency II: ORSA and the ultimate time horizon – non-life firms', June 2015; www.bankofengland.co.uk/pra/Pages/publications/ss/2015/ss2615.aspx.

3 Counterparty credit risk

3.1 The Solvency II framework promotes wider interests for the insurance sector such as competition, the freedom of movement of capital and the removal of restrictive practices. It also requires management of risk in a prudent fashion. The PRA appreciates that, to some extent, these aspects can potentially be in conflict, for example when firms have significant concentrations of reinsurance counterparty default risk.

3.2 Many UK-regulated insurance firms make extensive use of risk transfer through reinsurance (often intragroup reinsurance). Where a firm reinsures to a single or only a few counterparties (or connected counterparties), that firm can be exposed to a significant concentration of counterparty default risk. The PRA expects firms to manage and mitigate reinsurance counterparty default risk under Solvency II. Conditions Governing Business 3.1(2)(c)(iv) of the PRA Rulebook requires firms to have a risk management system covering concentration risk management. This includes all risk exposures with a loss potential which is large enough to threaten the firm's solvency or financial position. Conditions Governing Business 3.1(2) makes clear that the risk management system must cover risks which are covered by the SCR as well as those which are not, or not fully, included in the calculation of the SCR. Where material risks are ceded to very few counterparties, the PRA expects a firm's risk management system to consider what additional measures might be required over and above the SCR components covering counterparty default risk and risk concentrations.

3.3 While recognising that Solvency II promotes the removal of restrictive practices, for example by prohibiting requirements concerning the localisation and pledging of assets in relation to certain reinsurance cessions (Articles 134 and 173 of the Directive), the PRA will continue to expect firms to mitigate reinsurance counterparty default risk concentrations by demonstrating prudent risk management and compliance with other relevant requirements within the PRA Rulebook. This mitigation may take various forms (including but not limited to funds withheld and collateral agreements), and will often be uniquely tailored to a firm's specific business. The PRA expects firms assessment of reinsurance counterparty default risk to include their appetite for this risk, and their identification, reporting and mitigation of major instances of this risk. Firms are expected, among other actions, to continue monitoring the level of annual cessions as a proportion of their gross premiums and the quantity of reinsurance recoverables compared to their available capital resources, and take appropriate actions to manage risks arising. Additionally, firms should consider aspects relating to the prudent person principle (set out in the Investments part of the PRA Rulebook) as well as to what extent reinsurance concentrations may impede effective resolution (as required by Fundamental Rule 8 of the PRA Rulebook).

3.4 The PRA's expectations of risk management increase in proportion to the size of the concentration and the risk it poses to a firm. In addition, where satisfactory mitigation is absent, the PRA will make clear to firms that better management of counterparty default risk is required and, where necessary, take a proportionate approach to enforcing this.

Appendix 5 Draft updated Supervisory Statement 2/14 'Solvency II: recognition of deferred tax'

Contents

1	Introduction	47
2	Requirements for the recognition of deferred tax assets and the tax effect of the stress scenario	47
3	Areas requiring particular attention	49
4	Demonstrating the credibility of projected future taxable profits	51

1 Introduction

1.1 This supervisory statement is addressed to all UK firms that fall within the scope of Solvency II,[1] and to Lloyd's. It sets out the Prudential Regulation Authority's (PRA's) expectations of firms in relation to the recognition of deferred tax under Solvency II.

1.2 This statement should be read in conjunction with the PRA's rules in the Solvency II sector of the PRA Rulebook, and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

1.4 The three key principles for firms addressed by this statement, whether life or general, standard formula or internal model, can be summarised as:

(i) projections and assumptions should be credible;

(ii) there should be no double counting of future tax payable; and

(iii) any set-off should be appropriate, for example as regards the type of tax and jurisdiction.

1.5 In particular this statement:

- highlights areas (in respect of both balance sheet recognition and the solvency capital requirement (SCR) calculation) to which a firm should pay particular attention when considering whether it can recognise deferred tax assets (DTA) or the tax effects of a 1-in-200 shock; and

- sets out the PRA's expectations in relation to the credibility of profit projections. Unless otherwise stipulated, these relate to the SCR calculation.

1.6 The expectations set out in this supervisory statement apply equally to firms using the standard formula or an internal model to calculate their SCR, except in regard to the ability to apply group relief where the expectations are different depending on the means of calculation.

2 Requirements for the recognition of deferred tax assets and the tax effect of the stress scenario

2.1 Provided firms comply with the recognition criteria set out in relevant international accounting standards (particularly International Accounting Standard (IAS) 12),[3] they can:

- recognise DTA on the Solvency II balance sheet, thus increasing own funds; and

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 http://ec.europa.eu/internal_market/accounting/docs/consolidated/ias12_en.pdf.

- reflect the tax effects of the 1-in-200 shock when calculating the SCR (known as the loss-absorbing capacity of deferred tax in the context of standard formula firms) thus lowering their SCR.

Either of these aspects may have a material impact on a firm's Solvency II solvency position.

2.2 Under the UK tax regime a firm can recognise DTA in accordance with IAS 12 (for either balance sheet or SCR purposes) if it can:

- offset DTA arising from temporary timing differences against a deferred tax liability (DTL) arising from temporary timing differences, to the extent that the temporary difference related to the DTL is expected to reverse in the same period as the DTA, or in periods to which the tax loss can be carried back or forward; or

- develop forward projections to demonstrate that it will earn future taxable profits against which the DTA can be set in future.

2.3 The future taxable profits against which the DTA can be set in the future do not include profits on any insurance business already included within the relevant technical provisions.

Relevant technical provisions

2.4 When supporting the utilisation of DTA on the Solvency II balance sheet, the PRA expects that the relevant technical provisions will be the technical provisions on the Solvency II balance sheet.

2.5 When supporting the utilisation of the tax effects of stress, the relevant technical provisions will depend upon how the SCR is calculated:

- if the standard formula is used, the relevant technical provisions are again the technical provisions on the Solvency II balance sheet; or

- if an internal model is used, the relevant technical provisions are those of the biting scenario.1

Further means of recognition for SCR calculations

2.6 As well as the means of recognition mentioned above, a firm can also recognise the tax effects of the 1-in-200 stress for the purposes of calculating its SCR if it can demonstrate that the tax loss created could be:

- set against tax due in the period of the stress; or

- carried back to reclaim tax paid in prior periods to the extent permitted by applicable tax regimes.

2.7 Given the restrictions on carry-back of loss in some applicable tax regimes, the timing and duration of the loss associated with the stress event may be important when firms calculating their SCR using an internal model consider utilisation. In such cases the biting scenario might not be instantaneous, and might extend for a period of time within or beyond the twelve-month period following the preparation of the Solvency II balance sheet. Firms with internal

1 The biting scenario is that which determines the SCR corresponding to the value at risk of the basic own funds subject to a confidence level of 99.5%.

models are expected to consider the extent to which the timing of the loss will influence their ability to use carry-back.

IAS 12 'more likely than not' recognition test

2.8 Judgement both by firms and supervisors will be required to decide whether future taxable profits are 'probable' in accordance with IAS 12 and can be used to justify recognition of relevant DTA. The IAS 12 'more likely than not' recognition test applicable to the statutory balance sheet applies equally to the Solvency II balance sheet and the 1-in-200 shock scenario. However the PRA expects that the evidential requirement to demonstrate what is 'more likely than not' would differ depending upon the degree of uncertainty associated with the balance sheet and the shock scenario respectively.

2.9 The PRA expects the evidence required to support 'more likely than not' in relation to the Solvency II balance sheet to be similar to that for the statutory balance sheet. However, it expects the increased uncertainty associated with the 1-in-200 shock scenario will mean that more evidence would be needed.

2.10 The determination of the SCR calculated by an internal model is likely to require firms to consider the extent to which the gross shock can be reduced by the tax effect, having regard to the:

- source of the loss;
- ability to offset that type of tax; and
- ability to utilise the tax effect if it can be offset.

This will be the case regardless of whether the firm uses a gross or net model.

2.11 To meet the recognition test, the PRA expects that the capital resources needed to support the assumed level of trading in the post-shock environment will be consistent with a firm's own risk and solvency assessment (ORSA). Further, the PRA expects the assumptions and projections supporting availability and timing of any capital replenishment in the post-shock environment to be credible. This will give the PRA confidence in accepting the expert judgements taken by the firm.

2.12 The PRA expects the same standard of documentation to support the tax effects of the shock, regardless of whether the SCR is calculated using an internal model or the standard formula. The PRA expects an internal model to be capable of calculating the tax effect of the shock across the whole probability distribution, but would not expect that calculation necessarily to be undertaken across the whole population as a matter of course: any pre-tax loss data points which are sufficiently far from the pre-tax biting scenario that they could not provide the post-tax biting scenario will be of less interest. However, where a firm does not calculate the tax effects across the whole population, the PRA expects the firm to document how it identifies which data points are relevant and which are not included.

3 Areas requiring particular attention

Inappropriate set-off

3.1 The PRA expects firms' calculation processes to be at a sufficient level of granularity to address the relevant detail of all applicable tax regimes, and to prevent inappropriate offsetting being used to support the recognition of DTA. Inappropriate offsetting would

include, but is not restricted to, the offset of different types of tax which are not permitted in the relevant tax regime.

3.2 When assumptions are made for the purposes of these calculations, the PRA expects firms to ensure that these assumptions are reasonable, and that any simplifications have been subject to a sufficient degree of testing.

Double counting of deferred tax liabilities

3.3 If firms have both DTA and DTL in the Solvency II balance sheet, any DTL they wish to use to support utilisation of the tax effects of the SCR shock should not already be in use to support utilisation of the balance sheet DTA.

Solvency II contract boundary assumptions

3.4 Differences in contract boundaries between statutory accounting and Solvency II may be a credible source of future taxable profits. However, double counting would occur if firms were to recognise taxable profit arising from differences in contract boundaries, and include the same taxable profits within projections of taxable profits arising from new business. If firms calculate this impact separately from projections of new business, they are reminded to take care to prevent double counting. The PRA expects that the need to ensure consistency of assumptions for the two figures will be particularly acute if they are not being calculated by the same person or team.

Risk margin

3.5 Technical Provisions 2-4 of the PRA Rulebook make it clear that the risk margin is an integral part of technical provisions and will need to be determined each time a firm calculates its solvency position.

3.6 The Solvency II regime assumes that firms will continue in business after the shock, and as such, the risk margin is maintained from year to year. Any risk margin released on liabilities which run off would usually be replaced with risk margin to be provided in respect of new liabilities. Where this is the case, it is not appropriate to include the amount of the current risk margin as an element of future taxable profits in a firm's projections.

3.7 Following a PRA consultation some firms asked whether the current risk margin could be permitted as a source of future taxable profits if an allowance for risk margin was made in projections of future new business profits.

3.8 The PRA expects that including the current margin as a source of future taxable profit would create double counting of the risk margin on business already written, as illustrated by the example in Box 1 below.

Box 1: Example of double counting

Consider a Solvency II balance sheet before setting up a risk margin (ie liabilities valued on a best estimate basis). For simplicity, assume that this balance sheet has a net DTL.

When a risk margin is added to the best estimate, so as to obtain the Solvency II compliant technical provisions on the Solvency II balance sheet, the associated deferred tax effect would also be recognised: DTA would be created that would reduce the net DTL position.

As the risk margin reduces over time so too would the related DTA, increasing the net DTL position as the Solvency II balance sheet and tax base converge. This DTL is a way to demonstrate probable utilisation of potential loss absorbing capacity of deferred tax (LACDT).

Over time it would therefore be double counting to recognise as a source of utilisation both the DTL increase that occurs as the risk margin unwinds and the unwinding of the risk margin.

3.9 The PRA does not expect that the inclusion of an allowance for risk margin in projections of future new business profits would be an effective mitigant to this. Since the expected tax payable on future new business is not calculated based on amounts valued using Solvency II valuation principles, the inclusion or not of a risk margin in the projections has no impact on the expected tax payable on such business.

3.10 While different considerations might apply to firms which are completely closed to new business, the PRA still expects firms to be able to demonstrate how such double counting could be avoided. These firms would also be expected to have regard to the:

- time the firm has been in run-off;
- nature of the firm's business and business model;
- availability of historical data regarding differences between actual and projected experience;
- likely period until run-off is complete; and
- credibility of the planning period of the firm.

Firms with unrecognised DTA in their statutory accounts

3.11 The deferred tax effects of revaluing items from a statutory balance sheet basis to a Solvency II balance sheet basis may result in the creation of some DTL. If this occurs, it might justify the recognition of some further DTA on the Solvency II balance sheet.

3.12 The PRA does not expect a firm to reflect any tax effects of the 1-in-200 shock in its SCR calculation if the notes to its statutory accounts disclose that:

- it has unrecognised tax losses; and
- those tax losses were not recognised because it was considered not probable that future profits would arise against them which might be utilised.

3.13 The PRA expects any rebuttal of this expectation to include a credible explanation as to why the firm's taxable profitability would improve to such a material extent after the stress scenario, or why losses generated in the stress scenario might otherwise be expected to be utilised, for example because they relate to a different type of tax or another jurisdiction.

4 Demonstrating the credibility of projected future taxable profits

Projection horizons (applies also to balance sheet recognition)

4.1 Neither IAS 12 nor Solvency II stipulate a maximum time frame for forward projections. As with any projection, the further out the prediction, the less credible it is likely to become. The PRA expects firms to consider and be able to support the credibility of timescales in their assessment of whether future profits are 'probable'. In particular, firms wishing to make projections beyond their medium-term planning horizon would be expected to pay particular attention to their ability to do so with an appropriate degree of certainty.

Assumptions regarding the post-shock position and subsequent trends

4.2 Any projection of profit will require assumptions about the future. This is particularly difficult when projecting new business after a 1-in-200 shock. The PRA expects that a firm would consider assumptions regarding both the immediate effect of the stress and the way the market might subsequently develop. For example, the PRA expects a firm to pay particular attention to its assumptions both on new business volumes immediately after the stress and how the stress would influence subsequent growth patterns.

4.3 In projecting future profits, a firm may wish to reflect proposed management actions, including tax planning opportunities or changes in investment strategy. Where it does so, the PRA expects that the firm will be able to support the reasonableness of assumptions regarding management actions, including consideration of:

- the extent to which such actions would be consistent with the PRA's expectations of the firm;

- what constraints to management actions would arise from the fact that other firms in the sector would have been subject to the same shock, and would therefore be likely to consider similar changes; and

- how the firm expects to be able to comply with any policyholder commitments or regulatory requirements regarding the make-up of its investment portfolio following such management actions.

4.4 The PRA expects firms to consider carefully the use of generalised assumptions that some asset classes will earn above the risk-free rate of return after the SCR stress either as a result of an assumed market recovery ('mean reversion') or the emergence of risk premiums. The inherent complexity and significant judgements required in modelling such returns post-stress pose significant challenges to firms demonstrating the credibility of that assumption.

4.5 The PRA expects that firms will have identified the assumptions that are particularly critical to the projected outcome and hold evidence to support the reasonableness of each of these.

Projection methodology

4.6 In order to support likely utilisation of LACDT from expected tax on new business, firms would need to project new business and the resulting tax payments. As these tax payments are calculated based on the accounting data, and the stress is calculated based on a Solvency II balance sheet, two means of calculating that tax appear possible:

- firms could develop future projections based on future Solvency II positions. These projections would then need to be adjusted to reflect the tax base positions in order to calculate the tax implications of those projections; and

- firms could develop future projections based on the statutory base. While this approach would likely give rise to simpler tax calculations, it would necessitate the preparation of a post-shock statutory balance sheet as a starting point, when projecting forward beyond the 1-in-200 event.

4.7 As both approaches should result in the same tax figures being projected, either approach, or both with reconciliation of any differences, would appear to be reasonable. The PRA has no expectation that one method should be used in preference to the other.

Income from surplus assets

4.8 While income from assets in excess of liabilities in the post-stress scenario may be capable of providing taxable profits, the PRA expects that firms' projections of income from such assets will reflect likely changes arising from the reduction in value to dividend levels, default rates of debt etc. after the 1-in-200 shock.

Group relief

4.9 The PRA expects firms applying the standard formula to comply with Guideline 9 of EIOPA's 'Guidelines on the loss-absorbing capacity of technical provisions and deferred tax'.[1] This makes clear that firms using the standard formula to calculate their SCR should only recognise the payment or benefit receivable to the extent that the deferred tax adjustment could be recognised (under Guideline 10) by the firm if not transferred.

4.10 Firms using an internal model to calculate the SCR may wish to assume that they can obtain value for the tax effects of the stress loss by selling tax losses to other group companies which have taxable profits. To be credible, such an assumption would be expected to take account of:

- the impact of the shock on the taxable profits of each company within the group (not just those falling under Solvency II);
- the combination of tax assumptions regarding each company within the group; and
- how sensitive the availability of taxable profits is to assumptions on the impact of the shock on non-Solvency II group members.

4.11 Before committing resources to such work, firms may find it useful to consider whether the results from such complex assumptions and inter-related calculations are likely to result in output of sufficient quality to justify the recognition of a tax effect. If the calculation is so complex that credibility is doubtful, then neither reflecting more inter-relationships nor increasing the volume of assumptions and data used in the modelling is likely to address any underlying concerns.

1 https://eiopa.europa.eu/Pages/Guidelines/Guidelines-on-the-loss-absorbing.aspx.

Appendix 6 Draft updated Supervisory Statement 17/15 'Solvency II: transitional measures on risk-free interest rates and technical provisions'

Contents

1	Introduction	55
2	Transitional measure on the risk-free interest rate	55
3	Transitional measure on technical provisions	56
4	Ongoing supervision of the TMTP	58
5	Management of the run-off of the TMTP in future years	58
6	The approval process	59
7	Verification of calculations	59
8	Interaction with other Solvency II approvals and contingency planning	60

1 Introduction

1.1 This supervisory statement is of interest to all UK firms that fall within the scope of Solvency II[1] and to the Society of Lloyd's. In particular, it is relevant to firms that are considering applying for, or that have been granted approval to use, either the transitional measure on the risk-free interest rate or the transitional measure on technical provisions.

1.2 It sets out the calculation and application process to be used for these transitional measures, as specified in Transitional Measures 10 and 11 in the Prudential Regulation Authority (PRA) Rulebook.

1.3 This statement should be read in conjunction with those chapters of the Transitional Measures Part of the PRA Rulebook, the rules in the rest of the Solvency II sector of the PRA Rulebook, the Solvency II Regulations, the European Insurance and Occupational Pensions Authority (EIOPA) Level 3 Guidelines and the PRA's insurance approach document.[2]

1.4 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

2 Transitional measure on the risk-free interest rate

Calculation of the single interest rate

2.1 In meeting the requirements set out in Transitional Measures 10.2(1) and 10.2(2), the PRA expects firms to determine the single interest rate in 10.2(1) in such a manner that the comparison with the annual effective rate in 10.2(2) is meaningful. For example, firms could compute the annual effective rate that, when applied to the cash flows of the admissible insurance and reinsurance obligations, results in a present value that is equal to the value of the admissible insurance obligations calculated in accordance with Chapter 1 of the Prudential Sourcebook for Insurers (INSPRU 1) as at 31 December 2015. In their applications, firms are expected to explain and justify the method used.

Interaction with the volatility adjustment

2.2 Where a firm includes a volatility adjustment within the Solvency II relevant risk-free interest rate, but also intends to use the transitional measure on the risk-free rate, the annual effective rate calculated in Transitional Measures 10.2(2) should reflect the effect of the volatility adjustment. The admissible insurance and reinsurance obligations should then be discounted at a rate equal to the basic risk-free rate plus the transitional adjustment to the risk-free rate. A volatility adjustment should not be added on top of this, as that would result in double counting the effect of the volatility adjustment (which was already reflected when determining the transitional adjustment).[3]

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 See Transitional Measures 10.5(1) in the Transitional Measures Part of the PRA Rulebook.

3 Transitional measure on technical provisions

3.1 Under Solvency II, firms may apply to the PRA for approval to apply a transitional measure for technical provisions (TMTP). This chapter sets out the PRA's expectations of the calculation methodology that firms should use for the transitional measure.

3.2 The scope of this chapter is limited to the calculations a firm must perform to apply the transitional deduction.

Calculation of the transitional measure before application of the limit

3.3 Solvency I Pillar 2 insurance liabilities are the starting point for the transitional deduction. They will capture all relevant features of the liabilities, including those that may not be adequately reflected in a firm's Solvency I Pillar 1 technical provisions as set out in INSPRU 1.

3.4 When calculating the Solvency I Pillar 2 insurance liabilities, the PRA's default assumption is that firms will use methodologies, assumptions and input data that are consistent with their current Solvency I Pillar 2 insurance liabilities valuation basis, including any margins held (eg unearned premium reserves, management margins), or amounts included within the insurance liabilities following guidance given by the PRA or its predecessor.

3.5 Where the Solvency I Pillar 2 insurance liabilities valuation basis contains material differences from that which was used for the firm's most recent Individual Capital Assessment (ICA) review, these differences should be clearly explained within the application, along with an indication of their impact.

3.6 Where firms have voluntarily decided to hold additional margins alongside their Solvency I Pillar 2 insurance liabilities, and do not believe it would be appropriate for these margins to be included when calculating the transitional deduction, firms should discuss this with their supervisory contact. Where Individual Capital Guidance (ICG) was issued taking into account the holding of these additional margins, this may also need to be revisited for the purposes of assessing the limit to the amount of the deduction. Firms who believe they will be in this position should notify the PRA at the earliest opportunity.

Part VII transfers

3.7 Approval for use of the TMTP remains with the legal entity which sought the approval. For business transferred under Part VII of FSMA, any associated TMTP relief which applied within the ceding firm will not therefore be automatically transferred with the liabilities. Both the transferor and transferee should consider how their risk profile has changed.

3.8 Where the business transferred is material and should the transferee firm seek to benefit from the TMTP relief in respect of the transferred business, the PRA's view is that an application to recalculate the value of the TMTP, would be reasonable where the business transferred was written on or before 31 December 2015.

3.9 Furthermore the PRA's expectation is that the transferor will also need to seek approval to recalculate the value of the TMTP. The value of the TMTP within the transferor would be expected to decrease, reflecting the reduction in business in force.

3.10 The PRA note that the amount of the TMTP in respect of liabilities not subject to the transfer may also change as a result of the transaction. This might arise where the transaction results in a change to the assumptions underlying the technical provisions (eg expenses), or the balance of risks in the SCR and hence risk margin.

Reinsured business

3.11 The reinsurance of risks arising from liabilities can result in a similar economic impact to the transfer of business to a third party. A reinsurance arrangement and transfer of business are, however, not equivalent transactions. The reinsurance arrangement is a new contract written by the reinsuring entity which transfers risks, with the original contract remaining in force between the cedant and their policyholder(s).

3.12 Where reinsurance materially changes the value of technical provisions used to calculate TMTP in the cedant, the PRA expects that the cedant will seek approval to update the calculation of the TMTP.

3.13 The PRA expects that there may be circumstances under which it would be reasonable for the reinsurer to seek approval to update its calculation of the TMTP given the expected increase in technical provisions which would result from the transaction. However, given the wide variation in the nature of reinsurance arrangements, firms should discuss the position with their PRA supervisory contact, and the PRA will need to make a decision on a case-by-case basis considering the specific details of the proposed transaction.

Scope and granularity of application of the transitional measure

3.14 The PRA expects the application of TMTP to be limited to business that is in force on or before 31 December 2015.

3.15 Firms can select the individual Homogeneous Risk Groups (HRGs) that they wish to include within the scope of the transitional deduction. For this purpose, HRG has the meaning as under Technical Provisions 10.1, ie the HRGs are those that are used to segment the technical provisions under Solvency II.

3.16 The PRA expects that the only limitations on the level of granularity chosen for the scope of the deduction are that:

(iv) an HRG should not be 'split', with part of the HRG in scope of the transitional calculation and part of the HRG excluded from scope;

(v) it should be possible for the firm to identify corresponding HRGs for the purpose of the Solvency I Pillar 2 insurance liabilities calculation, and to calculate Solvency I Pillar 2 insurance liabilities in respect of these HRGs reliably; and

(vi) the firm must demonstrate that the technical provisions calculations made at HRG level can be reconciled with the technical provisions calculation for the entity as a whole.

Limiting the amount of the transitional measure

3.17 The PRA's view is that an ability to limit the amount of the transitional deduction is likely to be necessary to ensure that the deduction will not reduce the current level of policyholder protection. The assessment of whether it is necessary to limit the amount of the deduction is made at the level of the legal entity, regardless of the scope that the firm has chosen for calculating and applying the deduction.

Review of Individual Capital Guidance

3.18 The PRA is aware that at 31 December 2015, some firms will not have had a review of their Individual Capital Assessment (ICA) or received Individual Capital Guidance (ICG) for some time. The PRA does not generally expect to revisit or reassess ICG as part of the process of approving the transitional deduction. However, where firms believe that the assumptions

underlying their most recent ICA review and ICG are out of date, and that the effect on the resulting transitional deduction is material, the PRA will consider conducting a proportionate review of those areas of the firm's ICA that have altered since ICG was last set.

3.19 When deciding whether to undertake such a review, the PRA will consider whether the resource burden involved for the firm and the PRA would be proportionate.

4 Ongoing supervision of the TMTP

Limiting the amount of the transitional measure in future years

4.1 The PRA's default assumption is that once any limit on the amount of the transitional deduction has been determined, it will not need to be assessed again unless the transitional deduction is recalculated at either the firm's or the PRA's initiative. Assuming the deduction is not recalculated, it is expected to run off linearly each year from its starting amount until it reaches zero.

5 Management of the run-off of the TMTP in future years

5.1 There is a 16-year linear run off for the TMTP.[1]

Capital releases

5.2 Where firms are reliant on the TMTP in order to cover their SCR, they will be required to submit a phasing-in plan to the PRA.[2]

5.3 The use of transitional measures, regardless of whether or not they are needed to cover the SCR, will not prevent firms from paying dividends or releasing capital from subsidiaries.

5.4 However, firms reliant on the TMTP to cover their SCR are expected to be able to demonstrate that their capital position is sustainable under a range of operating conditions after allowing for any capital distributions and the TMTP run-off. This is likely to take the form of an updated phasing-in plan, and the PRA expects firms to evidence the adequacy of capital resources, stress-testing analysis and a medium-term capital plan before making any capital distribution.

Run-off of TMTP compared with technical provisions

5.5 Firms are expected to allocate the aggregate the TMTP by class of business and these lines of business may run off faster or slower than the 16 years for the TMTP. Where the liabilities run off more quickly this could lead to firms carrying a significant TMTP for business which is no longer in force or has substantially reduced volumes. Alternatively the TMTP could run off more quickly than the associated liabilities. In this instance, there may be a strain on the emergence of surplus and consequent expected deterioration in the solvency position of the firm.

5.6 The PRA therefore expects firms as part of their risk management to consider carefully:

- the projected risk profile relative to that implicit in the initial application for the TMTP; and

- the adequacy of technical provisions net of any TMTP.

1 Regulation 54 of The Solvency 2 Regulations 2015 (2015/575); http://www.legislation.gov.uk/uksi/2015/575/contents/made.
2 Transitional Measures – Phasing-in Plan 12.1(3) of the PRA Rulebook.

5.7 The PRA expects that the amount of the TMTP relative to the technical provisions for business remaining in force will be monitored on a continuing basis in firms' own risk and solvency assessments (ORSA).

5.8 If a firm's ORSA highlights the risk that the TMTP may become disproportionately large, because of differences in the rate of run-off of the business and the TMTP, or if the surplus emerging from the business is not sufficient to support the projected TMTP run-off, the PRA would expect the firm to set out how this risk will be managed. Possible mitigants could include restricting the amount of the TMTP or setting up a provision to cover the potential shortfall.

6 The approval process

6.1 Firms wishing to use the transitional measures on the risk-free interest rate or on technical provisions may submit an application to the PRA electronically. For planning purposes, the PRA asks firms to notify their usual supervisory contacts at the earliest opportunity if they intend to make an application.

6.2 For the approval process on the transitional measures, the PRA intends to apply the following timeframes:

- within 30 days of receiving the application, confirm whether or not the application is complete; and

- within six months of receiving a completed application, determine the application, and give the firm written notice of that determination.

6.3 If further information is required from the firm during the review, the PRA will request this information in writing.

6.4 When submitting an application for these transitional measures, firms should inform the PRA of any other approvals for which they have applied. The PRA encourages firms to also give details of any other approvals for which they intend to apply.

6.5 As part of the application process the PRA may ask firms to obtain an external validation of the calculations they have performed. In such cases, the scope and timescales for the validation will be agreed with firms on a case-by-case basis.

7 Verification of calculations

7.1 The PRA expects that the calculation of the TMTP and the resulting quantum of the deduction, and similarly, any calculation using the transitional measure for the risk-free interest rates and the resulting quantum of the deduction that the use of these risk-free interest rate implies, will be overseen by the audit committee of the firm. The chair of the audit committee will be asked to provide written confirmation to the PRA that the numbers are suitable for use and meet the requirements of the written notice. This should be done for the opening Solvency II balance sheet, repeated after any recalculations are performed, and on an annual basis. For the annual review, where no recalculation has been performed in between periods, the audit committee is only required to confirm that there has been no change in risk profile that would have required a recalculation, and that the TMTP has been appropriately reduced in line with Solvency II requirements.

8 Interaction with other Solvency II approvals and contingency planning

8.1 Firms submitting applications for multiple Solvency II approvals, including for the internal model, are expected to understand any dependencies between the applications and how these may affect the order in which they submit their applications. In addition, as a result of the relationship which exists between certain approvals, firms are also expected to have a contingency plan in case they do not receive approval for applications where dependencies exist.

8.2 Where firms apply for the transitional deduction at the same time as applying for other approvals, the PRA may ask firms to provide sensitivity tests showing the impact on the transitional deduction if the other applications were to be rejected.

Appendix 7 Draft updated Supervisory Statement 5/15 'Solvency II: the treatment of pension scheme risk'

Contents

1	Introduction	62
2	Pension schemes sponsored by intragroup service companies and the impact on authorised firms	62
3	Consideration of pension scheme obligations in the calibration of internal models with regard to credit spread risk	64
4	Consideration of restrictions on the recognition of a pension scheme surplus as part of the calibration of an internal model	65
5	Allowance for diversification between pension scheme risks and a firm's other risks in the calibration of an internal model	65

1 Introduction

1.1 This supervisory statement is of interest to all UK insurance firms within the scope of Solvency II[1] and to Lloyd's.

1.2 This statement should be read in conjunction with the Prudential Regulation Authority's (PRA) rules in the Solvency II sector of the PRA Rulebook, and the PRA's insurance approach document.[2]

1.3 This supervisory statement expands on the PRA's general approach as set out in its insurance approach document. By clearly and consistently explaining its expectations of firms in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders.

1.4 This statement sets out the PRA's expectations of firms in relation to defined benefit pension schemes and provides further clarity to firms which are the sponsor of a defined benefit pension scheme, or that are part of a group that contains a company which sponsors a defined benefit pension scheme. In particular this statement:

- explains what the PRA expects of firms that are not the legal sponsor of a defined benefit pension scheme but are part of a group that contains a company that sponsors a defined benefit pension scheme; and

- highlights areas to which firms should pay particular attention when considering the risks posed by a defined benefit pension scheme for the purpose of determining the solvency capital requirement (SCR). This includes risks arising both from pension schemes sponsored by the firm itself and those sponsored by another group company. This is relevant to the calculation of both the solo and group SCR.

2 Pension schemes sponsored by intragroup service companies and the impact on authorised firms

Impact on the determination of own funds at a solo level

2.1 Article 9(2) of the Solvency II Commission Delegated Regulation3 (Delegated Regulation) requires that most financial liabilities, including pension liabilities, should be recognised and valued in accordance with International Financial Reporting Standards.

2.2 There may be circumstances where International Financial Reporting Standards do not require a firm to recognise a pension scheme on its solo balance sheet.4

2.3 In making the determination as to whether to recognise a pension scheme on their balance sheets, firms should have particular regard to the requirement in International Accounting Standard (IAS) 19 that a pension scheme should be recognised on the balance

1 Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast).
2 Available at www.bankofengland.co.uk/publications/Pages/other/pra/supervisoryapproach.aspx.
3 Solvency II Commission Delegated Regulation (EU) 2015/35 of 10 October 2014, supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II).
4 Article 9(1) and 9(2) of the Regulation (EU) 2015/35.

sheet of a firm if there is contractual agreement or stated policy in place under which the firm will contribute to the scheme.1

2.4 Firms should also pay particular attention to relationships with intragroup service companies, where provision of staff can be regarded as having been outsourced to the service company for the purposes of Conditions Governing Business 7 of the PRA Rulebook. The Delegated Regulation requires that, where a firm outsources critical or important operational functions or activities, a written agreement should be entered into between the firm and the service provider which clearly defines the respective rights and obligations of each party.2 Firms should consider whether a written agreement of this nature leads to a requirement under International Accounting Standard 19 to recognise the pension scheme on the balance sheet of the authorised firm.

2.5 Obligations in relation to a pension scheme sponsored by an intragroup service company will generally be recognised on the group's consolidated balance sheet, regardless of whether or not they are recognised on the balance sheet of an authorised firm. This will lead to obligations to a pension scheme being reflected in the calculation of group own funds and the group SCR.3

Impact on the solo SCR

2.6 Firms should also consider the extent to which a pension scheme sponsored by an intragroup service company poses a risk to the safety and soundness of an authorised firm whether or not obligations in connection with a pension scheme are recognised on the solo balance sheet. An example of such a risk is that the firm might find it necessary to provide support for the scheme in the future in order to assist an intragroup service company on which the firm's operations depend. Firms should also consider the powers of the Pensions Regulator regarding entities that are considered to be connected to a pension scheme sponsor. These considerations should continue to apply if the sponsorship of the pension scheme were taken on by another group company, for example an intermediate holding company.

2.7 The PRA considers that pension schemes sponsored by intragroup service companies may pose a risk to authorised firms in that group. Therefore, where a firm intends to use an internal model to calculate its solo SCR, the model should take account of the risk posed by the pension scheme. Generally, such a model should take account of the risk of the firm needing to fund any existing pension scheme deficit that is not currently recognised on the firm's balance sheet, as well as the risk of the pension scheme's financial position deteriorating.

2.8 Where a firm decides not to model the risk posed by a pension scheme sponsored by an intragroup service company, on the basis that modelling this risk is not necessary, the firm is expected to provide evidence that this is the case, which might include evidence that:

- the risk to the authorised firm would be addressed by the capital required to support the pension scheme being held elsewhere in the group and not in the authorised firm;

- the capital held elsewhere in the group is sufficient to support the pension scheme and that this capital is unencumbered; and

1 Paragraph 41 of IAS19: http://ec.europa.eu/internal_market/accounting/docs/consolidated/ias19_en.pdf.
2 Article 274(3) of the Regulation (EU) 2015/35.
3 Article 335(1) of the Regulation (EU) 2015/35.

- this capital may be freely transferred to the authorised firm, including at times of stress, should the firm be required to support the pension scheme in the future.

2.9 Firms are required to assess the significance of the extent to which its risk profile deviates from the assumptions underlying the standard formula.[1] As part of this assessment, the PRA expects firms to consider the risks posed by a pension scheme sponsored by an intragroup service company. Depending on whether the obligations in relation to the pension scheme are recognised on the solo balance sheet and the materiality of the pension scheme risk to the firm, the risk may be dealt with through Pillar 2 measures or the firm may need to consider whether it should use a partial internal model to calculate the SCR, in the event that the standard formula does not reflect the firm's risk profile. The PRA will take a proportionate approach in assessing how the risk should be reflected.

2.10 Notwithstanding paragraph 2.9, the calculation of the group SCR should reflect the risks posed by any defined benefit pension schemes within the group, regardless of whether or not the risks have been reflected in the solo SCR of any authorised entity.

3 Consideration of pension scheme obligations in the calibration of internal models with regard to credit spread risk

3.1 Internal models will need to cover the risk of credit spreads widening, where this is a material risk to the firm.[2]

3.2 IAS19 requires the pension scheme discount rate to be based on the yield on high-quality corporate bonds for which there is a deep market.[3] When a firm's internal model projects the value of the pension scheme liabilities following a hypothetical shock to credit spreads, the PRA will expect any change to the liabilities following this shock to be justified. Firms also should consider which bonds will remain high quality with a deep market following this shock, and what their yield would be in these circumstances.

3.3 The approach taken should capture adequately the risks that the firm is exposed to. In particular, there is a risk that under stressed conditions:

- the market in some high quality corporate bonds may not be considered 'deep' and therefore using the yield on these bonds may not satisfy the requirements of IAS19, even if an adjustment is made to ensure that they remain high quality; and

- there is a significant divergence between the IAS19 deficit and the scheme funding deficit, increasing the likelihood that the firm is required to pay additional contributions to the pension scheme.

3.4 The PRA expects firms to reflect these risks within their internal models and considers that an approximate approach of assuming that only part of the movement in credit spreads is passed on to the IAS19 discount rate may be acceptable in appropriate circumstances.

1 Conditions Governing Business 3.8(2)(c) of the PRA Rulebook.
2 Solvency Capital Requirement — Internal Models 11.6 of the PRA Rulebook.
3 Paragraph 83 of IAS 19.

4 Consideration of restrictions on the recognition of a pension scheme surplus as part of the calibration of an internal model

4.1 Firms should consider requirements in the relevant International Financial Reporting Standards concerning the circumstances under which a pension scheme surplus may be recognised as an asset of the sponsor.

4.2 These considerations are relevant for determining the impact of the pension scheme on a firm's own funds. If the firm uses an internal model to calculate its SCR then restrictions on the ability to utilise a pension scheme surplus will also be relevant for determining the SCR.

4.3 The SCR calculated by an internal model should provide policyholders with a level of protection that is equivalent to a calibration corresponding to the value-at-risk of the firm's basic own funds subject to a confidence interval of 99.5% over a one-year period.[1] It is important for the firm to consider how basic own funds may change as a result of risk events. Part of this change may be driven by changes in the value of the assets and liabilities of a pension scheme.

4.4 When considering how basic own funds may change owing to risk events, firms should consider whether restrictions on the ability to utilise pension scheme surpluses would apply in those circumstances. In doing so, firms should consider any obstacles to covering losses with resources in the form of a surplus in a pension scheme. These obstacles might arise from any barriers to moving resources from the pension scheme to the entity.

5 Allowance for diversification between pension scheme risks and a firm's other risks in the calibration of an internal model

5.1 Firms should consider carefully the extent to which correlations exist and can be justified between the risks posed by a pension scheme and other risks that the firm faces. Relevant considerations include the extent to which:

- correlations exist owing to the firm and the pension scheme holding similar assets or assets whose values are expected to be correlated; or

- the pension scheme exposes the firm to demographic risks that are similar to the underwriting risks run by the firm. A particular example of strong correlations would be where a firm's insurance business exposes it to longevity risk.

5.2 Where correlations between risks are not perfect, Solvency II permits this diversification benefit to be reflected in the calibration of an internal model.[2] However, the PRA expects the firm to justify robustly any allowance that has been made in an internal model for diversification between the risks associated with a pension scheme and the other risks faced by the firm.

1 Solvency Capital Requirement — General Provisions 3.3 and 3.4 of the PRA Rulebook.
2 Solvency Capital Requirement — Internal Model 11.8(1) of the PRA Rulebook.

Appendix 8 Mapping table for issues included as supervisory statements[1]

Appendix	Topic	Date of Documents
1	Internal models - assessment, internal model change policy and the role of non-executive directors	19 December 2014, 9 March 2015, 13 March 2015, 16 March 2015, 7 May 2015, 22 May 2015, 5 June 2015 and 15 January 2016.
2	Longevity risk transfers	9 February 2016.
3	ORSA	15 June 2015.
4	Reinsurance - general and counterparty default risk	6 November 2015 and 4 December 2015.
5	Recognition of deferred tax - updated	13 March 2015.
6	Transitional measures on risk-free interest rate and technical provisions - updated	16 September 2015 and 6 November 2015.
7	The treatment of pension scheme risk - updated	14 July 2015.

To be helpful to readers, the table below shows where each of the items referenced in the table above can be found on the Bank's website.

Date	Title of Letter	URL
9 February 2016	Insurance Directors' update letter	http://www.bankofengland.co.uk/pra/Documents/about/insdirectorsletter09022016.pdf
15 January 2016	Reflections on the 2015 Solvency II internal model approval process	http://www.bankofengland.co.uk/pra/Documents/solvency2/edletter15jan2016.pdf
4 December 2015	Continued soft market conditions in the UK general insurance sector	http://www.bankofengland.co.uk/pra/Documents/about/insuranceletter041215.pdf
6 November 2015	PRA Solvency II Directors' update letter	http://www.bankofengland.co.uk/pra/Documents/solvency2/insdirectorsletter11nov2015.pdf
16 September 2015	Directors' letter 'Longevity risk transfers'	http://www.bankofengland.co.uk/pra/Documents/about/directorsletter16sep2015.pdf
14 July 2015	PRA Solvency II: Insurance Directors' update letter	http://www.bankofengland.co.uk/pra/Documents/solvency2/directorsletterjuly2015.pdf
15 June 2015	Solvency II ORSA feedback	http://www.bankofengland.co.uk/pra/Documents/solvency2/s2orsafeedback15June2015.pdf
5 June 2015	Volatility adjustment in the modelling of market and credit risk stresses	http://www.bankofengland.co.uk/pra/Documents/solvency2/solvency2vaclarificationjune2015.pdf
22 May 2015	Solvency II: Insurance Directors' update letter	http://www.bankofengland.co.uk/pra/Documents/solvency2/insurancedirectorsupdateletter22May2015.pdf
7 May 2015	internal model change policy	http://www.bankofengland.co.uk/pra/Documents/solvency2/imchangepolicymay2015.pdf
16 March 2015	Observations of internal model validation	http://www.bankofengland.co.uk/pra/Documents/solvency2/intmodvalidmar2015.pdf
13 March 2015	PRA Solvency II Insurance Directors' update letter	http://www.bankofengland.co.uk/pra/Documents/solvency2/insurancedirectorsupdatemarch2015.pdf
9 March 2015	Solvency II internal model and matching adjustment update	http://www.bankofengland.co.uk/pra/Documents/solvency2/intmodmaupdatemar2015.pdf
19 December 2014	PRA Solvency II Insurance Directors' update	http://www.bankofengland.co.uk/pra/Documents/solvency2/insurancedirectorsupdatedecember2014.pdf

1 Supervisory statements on the matching adjustment and groups will be in a forthcoming consultation paper in 2016.

Appendix 9 Mapping table for issues not included as supervisory statements

No.	Topic	Reason for not including as supervisory statements
1	Balance sheet, technical provisions and own funds review	Pre-Solvency II procedure that will be updated if needed. Currently, there are no relevant issues.
2	Employer's liability and motor insurance	To be included as part of the quarterly reporting update on the website available at www.bankofengland.co.uk/pra/Pages/regulatorydata/insurance/technical.aspx.
3	Outwards reinsurance	This information may be obtained from the Directive materials.
4	Risk margin	More of a feedback statement; no PRA expectations expressed.
5	Standard formula risk classification for income protection claims	This information is already contained in the Commission Delegated Regulation.
6	Underwriting, reserving and assessing capital requirements for GI firms in soft market conditions	Already included under SS5/14, also refers to specific time period and is re-affirming material included elsewhere for Solvency II.