

**Bank of England PRA**

# Appendix 5: Solvency II internal models: Permissions and ongoing monitoring

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# 1. Introduction

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1.1 This statement of policy (SoP) sets out the Prudential Regulation Authority's (PRA) approach to considering applications and granting permissions for the use of internal models (IMs) for the purpose of calculating the Solvency Capital Requirement (SCR), as well as variations to those permissions. It also sets out the PRA's supervisory approach to the ongoing review and evaluation of compliance with the requirements relating to IM permissions. For the remainder of this statement reference to IM should be taken to mean both full and partial IMs, unless explicitly stated.

1.2 When granting these permissions, the PRA would exercise its powers under s138BA of the Financial Services and Markets Act 2000 (FSMA) to grant a permission and would waive or modify the PRA's rules on the calculation of the SCR using the Standard Formula to allow the firm to use an IM. Similarly, for the purposes of a major model change, the PRA would exercise the same power to vary an existing permission allowing a firm to calculate its SCR using a full or partial IM.

1.3 This SoP is relevant to all UK Solvency II firms, the Society of Lloyd's, and its members and managing agents, referred to collectively as 'firms'. It is most relevant to firms that have permission to use an IM to calculate their SCR. It will also be of interest to UK Solvency II firms seeking permission to use an IM and to UK Solvency II firms that are part of groups within the European Economic Area (EEA) or non-EEA groups with a group IM.

## 2. The procedure for considering Internal Model permissions

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### Overview

2.1 This chapter outlines the PRA's approach to considering applications and granting permission for a firm to use an IM to calculate its SCR.

2.2 It also outlines the PRA's approach to variations of existing IM permissions to enable firms to make major changes to their IMs and any changes to their IM change policies, in accordance with Solvency Capital Requirement – IMs 6.3 to 6.5.

## Interaction between the PRA and firms before an application

2.3 The PRA expects firms to engage with it as early as possible regarding applications for initial IM permissions and for variation of existing permissions to enable firms to make major model changes to their IMs and any changes to their IM change policies. This includes model changes that arise from expected future changes in firms' risk profiles, for example, because of a potential business transaction.

2.4 When considering an application for variation of an existing permission to enable a firm to make a major model change, the PRA will seek to understand the reasons for the proposed change, the potential impact (both qualitative and quantitative) of the change, and the intended timescales for implementation of the change.

2.5 The PRA will also seek to understand how a firm has addressed any previous PRA feedback, data audits, and previously identified model limitations. The PRA will also seek to understand how a firm has identified and prioritised the model change(s) included in its application, as opposed to other model improvements in its model development plan.

2.6 The PRA will consider and discuss with a firm whether it would be useful for the firm to enter into a pre-application review process before submitting a formal application. This will depend on the complexity and scale of a potential model (change) application, and the firm's readiness to submit a formal application. The length of any pre-application period would also be subject to discussion with the PRA and would reflect the extent of review work considered necessary. If a firm chooses to make use of a pre-application period, the PRA expects to provide feedback during this process; however, this would not be a substitute for the firm's own model development, internal governance, or validation processes. In particular, the PRA considers that a firm should have completed a full cycle of validation for its model (or major model change) before entering into a pre-application review process.

## Initial application to calculate the SCR using an Internal Model

2.7 A firm should submit a written application to the PRA for permission to use an IM for the purposes of calculating its SCR.

2.8 The application should be accompanied by the self-assessment application template.

2.9 A firm making an IM application must comply with Solvency Capital Requirement – Internal Models 3.1. In the case of Solvency Capital Requirement – Internal Models 3.1(2) applying,<sup>1</sup> the firm or the PRA may propose the use of one or more safeguards to mitigate any non-compliance with the internal model requirements (defined in the PRA Rulebook as

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<sup>1</sup> For example, due to the presence of some residual model limitations (RMLs). RMLs are defined in the PRA Rulebook and described in more detail in chapter 3.

the requirements set out in Solvency Capital Requirement – Internal Models 10 to 16A),<sup>2</sup> and/or to ensure compliance with the calibration standards in Solvency Capital Requirement – General Provisions 3.3 to 3.4. Safeguards are described in more detail in chapter 3. However, RMLs in the proposed IM should not lead, individually or overall, to significant non-compliance with the calibration standards and internal model requirements in all the circumstances in which the IM is to be used.

2.10 The documentary evidence referred to in Solvency Capital Requirement – Internal Models 3.1 should include at least the following:

(a) a cover letter including:

- (i) a request for permission to use a full or partial IM for the purpose of calculating the SCR, starting from a specified date, and a general explanation of the IM including a brief description of the proposed structure and scope of the IM;
- (ii) a confirmation of the period prior to the application for which the IM has been used in the firm's risk management system and decision-making processes in accordance with the requirements set out in Solvency Capital Requirement – Internal Models 10;
- (iii) a confirmation that the application is complete and includes an accurate description of the IM, and that no relevant facts have been knowingly omitted;
- (iv) a confirmation whether the firm is part of a group using an IM for the calculation of the consolidated group SCR, or whether an application to use any IM for calculating the consolidated group SCR is currently under consideration and awaiting a decision;
- (v) a list of any other applications to the PRA related to Solvency II requirements submitted by the firm or currently anticipated within the next 6 months under s138BA of FSMA and of special purpose vehicles to be established to carry out the regulated activity specified in article 13A of the Regulated Activities Order, together with the corresponding application dates; and
- (vi) contact information of the relevant personnel within the firm involved in the activities related to the IM, as well as of the relevant personnel within the firm to whom the requests for supplementary information can be submitted;

(b) an explanation of how the IM covers all the material quantifiable risks to which the firm, or where the firm is part of a group, is exposed. Where the application for the permission

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<sup>2</sup> Where a safeguard is needed to mitigate non-compliance with the internal model requirements, the PRA will notify a firm of any waiver or modification of those requirements that may be necessary for the period during which the safeguard is in place, so that the firm would not be in breach of those requirements (as they appear in the PRA's Rulebook).

- relates to a partial IM, the explanation should be limited to the material and quantifiable risks within the scope of the partial IM, and the firm should also provide an explanation of how the additional requirements set out in Solvency Capital Requirement – Internal Models 4.2, 5, and 16A have been satisfied;
- (c) an explanation of the adequacy and effectiveness of the integration of the IM into the firm’s risk management system and the role it plays in the firm’s system of governance, including how the IM allows the firm to identify, measure, monitor, manage, and report risks on a continuous basis; for this purpose, the application should include the relevant extracts of the firm’s risk management policy referred to in Conditions Governing Business 2.5;
- (d) an assessment and a justification by the firm of the material strengths, weaknesses, and limitations of the IM, including a self-assessment of the extent to which the firm complies with the calibration standards and internal model requirements; the firm should also outline its plan for the future improvement of the IM in order to address identified weaknesses, limitations, or to develop or extend the IM;
- (e) where the firm is part of a group using an IM for the calculation of the consolidated SCR, or where an application to use any IM for calculating the consolidated group SCR is currently under consideration and awaiting a decision, a justification of why the group IM is not fit for the risk profile of the firm, and a description of the differences between the IM to be used by the firm and the group IM;
- (f) the technical specifications of the IM, including a detailed description of the structure of the IM, together with a list and justification of the assumptions underlying the IM, where adjustments to those assumptions would have a material impact on the SCR;
- (g) an explanation of the adequacy of the resources, skills, and objectivity of the personnel responsible for the development and validation of the IM;
- (h) the IM change policy referred to in Solvency Capital Requirement – Internal Models 3.3;
- (i) a description of the process which ensures the consistency between the methods used to calculate the probability distribution forecast with the methods used to calculate technical provisions, in accordance with Solvency Capital Requirement – Internal Models 11.2(3);
- (j) a description of the independent validation process of the IM and a report of the results of the last validation in accordance with Solvency Capital Requirement – Internal Models 14.1, including what recommendations were made and how they were acted upon;



- (k) the inventory of the documents that form part of the documentation of the IM set out in Solvency Capital Requirement – Internal Models 15.1 to 15.2;
- (l) a demonstration that the use of external models or data obtained from a third party does not impair the firm's ability to meet the calibration standards and internal model requirements, the suitability for the use of that model or data within the IM and an explanation of the preference of external models or data to internal models or data;
- (m) an estimation of the SCR calculated with the IM at the most granular level according to the firm's risk categorisation, and an estimation of the SCR calculated with the Standard Formula (SF) at the most granular level for the last point in time prior to the date of submission of the application where the firm calculated the SCR with the SF;
- (n) an identification of those parts of the business of the firm or group which have been classified as a major business unit and a justification for that classification; and
- (o) in the case of a partial IM, an explanation of how the proposed integration technique fulfils the requirements set out in Solvency Capital Requirement – Internal Models 4.2, and, in case of a technique different from the default one set out in Solvency Capital Requirement – Internal Models 16A.1, a justification of the integration technique proposed.

2.11 A firm should also submit evidence of the approval of the application by its governing body as set out in Solvency Capital Requirement – Internal Models 7.1.

2.12 Where a firm applies for a new model permission, the PRA may expect it to carry out and submit the results of an analysis of change (AoC) exercise, comparing its SCR as at or around the application date to its SCR one year before, with both SCRs calculated using its proposed IM. Where the PRA notifies a firm of this expectation, it should include reasons for any changes in the SCR, and documentary evidence to support those reasons, as set out in Solvency Capital Requirement – Internal Models 13A and SS17/16 – 'Solvency II: internal models – assessment, model change and the role of non-executive directors' section 10.

2.13 A firm should provide an inventory of all the documents and evidence included in the application. Where the content of a document is relevant for other documents, the firm should highlight the relevance and include cross-references. Where the firm has been through a pre-application process, any changes to documentation made when applying for permission should be identified.

2.14 In addition to the documents and information specified in paragraphs 2.10 to 2.13, an application to use an IM or partial IM to calculate the consolidated group SCR should include the following documents and information:

(a) the proposed scope of the model:

(i) a list of the related undertakings that are included in the scope of the IM for the calculation of the consolidated group SCR; for each related undertaking, the list should include a reference to its supervisory authority, the lines of business written by the related undertaking, the method used for the purposes of determining the consolidated data in accordance with Group Supervision 11.1A-C and the proportional share applied in accordance with Group Supervision 8.2(1);

(ii) the legal and organisational structure of the group, with a description of all subsidiaries, material related undertakings and significant branches, and information on relevant operations and transactions within the group, unless this information has not changed since the last group supervisory report submitted pursuant to Reporting 2.5B;

(iii) where applicable, a list of the related undertakings excluded from the scope of a partial IM for the calculation of the consolidated group SCR, together with an explanation of the reasons for their exclusion; a description of the methods used to assess the risks in these excluded related undertakings in order to demonstrate that the exclusion does not lead to an underestimation of the overall risks to which the group is exposed; and evidence that the consolidated group SCR calculated using a combination of the partial IM and the SF will adequately reflect the overall risk profile of the group; and

(iv) for each related firm included in the scope of the IM for the calculation of the consolidated group SCR, where applicable, a justification of the reasons why the IM covers that related firm for the calculation of the consolidated group SCR, but it is not used to calculate the SCR of that firm; an explanation of how the full or partial IM used to calculate the consolidated group SCR differs from and interacts with the full or partial IM used for the calculation of the SCR of any of the related firms for which the PRA has previously granted permission, and information on any future plans to extend the use of the full or partial IM to calculate the SCR of any related firm;

(b) the group's consolidated group SCR:

(i) an estimation of the consolidated group SCR calculated using the IM and the SF for the most recent reporting period prior to submission of the application when the consolidated group SCR was calculated using the SF;

(ii) for each related undertaking, the SCR calculated using the SF for the most recent reporting period prior to submission of the application;

(iii) where applicable, the regulatory capital requirement for related undertakings that are also regulated entities other than Solvency II undertakings and third country insurance and reinsurance undertakings, included in the scope of the IM, for the most recent



reporting period prior to submission of the application when the consolidated group SCR was calculated with the SF; and

(iv) an explanation of the difference between the sum of the SCR of all the related insurance and reinsurance undertakings of the group and the consolidated group SCR calculated with the IM.

2.15 An application to use a group IM should also include the following documents and information, in addition to those referred to in paragraph 2.14, where applicable:

(a) in relation to paragraph 2.14(a)(i), a list of all the firms applying to use the group IM to calculate their SCRs; and

(b) the documents referred to in paragraph 2.10(o) in relation to the use of an IM or partial IM for the calculation of the SCR of each firm in the group applying for the use of the group IM to calculate its SCR. For this purpose, the firm may restrict these documents to those with content that is not already covered in the documents submitted in accordance with point (a).

## Assessment of the application

2.16 The PRA will confirm receipt of the firm's application.

2.17 An application for permission to use an IM to calculate the SCR is expected to be considered complete if it includes all documentary evidence set out in paragraphs 2.10 and 2.11, and in the case of any non-compliance with the calibration standards and internal model requirements, Solvency Capital Requirement – Internal Models 3.1(2). An application for permission to use a group internal model to calculate the consolidated group SCR will be considered complete if it includes all of the documentary evidence set out in paragraphs 2.10 to 2.11 and 2.14 to 2.15, and in the case of any non-compliance with the calibration standards and internal model requirements, Solvency Capital Requirement – Internal Models 3.1(2).

2.18 The PRA will inform the firm of the status of the application as either complete or incomplete. In the latter case, the PRA will specify the reasons why the application is incomplete and may decide to carry on considering the application only once it considers it to be complete.

2.19 Where the PRA has considered an application to be complete, the PRA may still request additional information necessary for carrying out its assessment. Any such request will specify the additional information required and will include the reasons for the request. This may delay the decision on the application beyond the indicative timeframe in paragraph 2.23.

2.20 A firm should ensure that all documentation referred to in Solvency Capital Requirement – Internal Models 15.1 to 15.2 is made available to the PRA throughout the assessment of the application.

2.21 The assessment of the application will involve ongoing communication with the firm and may include discussions regarding adjustments to the IM and, in the case of a partial IM, a request for a transitional plan to extend the scope of the model, as set out in Solvency Capital Requirement – Internal Models 5. If the PRA is not satisfied by the firm's transitional plan to extend the scope of its partial IM, this may result in the PRA rejecting the firm's IM application.

2.22 If the PRA considers that it is unlikely to grant an IM permission, based on the application as submitted, it may notify the firm that:

- (a) adjustments would need to be made to the IM to ensure compliance with calibration standards and internal model requirements; this may include Model Limitation Adjustments (MLAs), to ensure compliance with the calibration standards, as described in paragraphs 3.24 to 3.33; and/or
- (b) safeguards would need to be set by the PRA to ensure compliance with the calibration standards and/or mitigate non-compliance with the internal model requirements and, where a safeguard is imposed in the latter case, of any waiver or modification of the underlying internal model requirements for the period during which the safeguard is in place (which would be specified in a written notice to the firm), so that it would not be in breach of those requirements as they appear in the PRA's Rulebook.

2.23 The PRA expects to determine the outcome of a complete application within 6 months from the date of receipt of the application and to provide the firm with a written notice of that determination.

2.24 Where related undertakings are excluded from the IM used for the calculation of the consolidated group SCR, the PRA will assess whether the explanation provided under paragraph 2.14(a)(iii) adequately demonstrates that the overall risks to which the group is exposed are not underestimated by use of a partial IM.

2.25 Where the IM used for the calculation of the consolidated group SCR covers a firm but is not used to calculate that firm's SCR, the PRA will assess whether the justification provided in paragraph 2.14 is sufficient.

## Right to withdraw the application by the firm

2.26 A firm which has applied for permission to use a full or partial IM to calculate its SCR or for a variation of an existing IM permission may withdraw that application by notifying the PRA in writing at any time before the PRA reaches a decision on the application.

## Decision on the application

2.27 The PRA's approach to granting permissions for the use of an IM to calculate the SCR is set out in chapter 3. The PRA expects to grant such a permission in the following circumstances:

- (a) the firm demonstrates to the PRA's satisfaction that it satisfies the calibration standards and internal model requirements, or where safeguards are intended to mitigate non-compliance with the internal model requirements and/or ensure compliance with the calibration standards, as described in paragraph 3.4;
- (b) the firm's systems for identifying, measuring, monitoring, managing, and reporting risk are adequate; and
- (c) if it is satisfied that the firm's policy for changing the IM fulfils the requirements set out in Solvency Capital Requirement – Internal Models 6.1 to 6.5.

2.28 When the PRA has reached a decision on an application, it will notify the firm in writing with its decision. The written notice will specify the following:

- (a) where the PRA grants the permission, the starting date from which the model can be used to calculate the SCR;
- (b) where the PRA grants the permission, any waivers or modifications of internal model requirements,<sup>3</sup> any safeguards (RML capital add-ons (CAOs) and/or other requirement safeguards) set by the PRA relating to the permission, together with the reasons for those safeguards, the PRA's expectations as regards a firm's remediation of the RMLs underlying those safeguards, and, where relevant, an expected timeframe for remediation (as described in paragraphs 3.11 to 3.12); where the PRA has requested a transitional plan in accordance with Solvency Capital Requirement – Internal Models 5, it will include within the written notice a decision on the transitional plan submitted by the firm; and
- (c) where the PRA does not grant the permission, the reasons on which the decision is based.

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<sup>3</sup> Where these are needed to account for any safeguards applied to mitigate non-compliance with the internal model requirements as they appear in the PRA's Rulebook.

2.29 In the case of an application for permission to calculate a consolidated group SCR using a full or partial IM, the PRA will provide its decision to the firm and, where relevant, to each related firm applying for the use of the group IM to calculate its solo SCR.

## Transitional plan to extend the scope of the model

2.30 In the case referred to in Solvency Capital Requirement – Internal Models 5 and when it is applicable to groups under Group Supervision 11.2, the PRA will explain the reasons for requiring a transitional plan and set the minimum scope which the IM must cover after the implementation of the transitional plan.

2.31 The transitional plan should be approved by the firm's governing body and should clearly identify the period for implementing the plan, the extension of the scope and the measures and resources necessary to extend the scope of the IM. The PRA will evaluate the plan presented by the firm. The PRA may, where necessary, require the firm to submit an amended transitional plan.

2.32 If a firm fails to implement the transitional plan to extend the scope of its IM, the measures that the PRA may consider taking include:

- (a) extend the time period to implement the plan, potentially subject to amendments to the plan;
- (b) require the firm to calculate its SCR according to the SF set out in Solvency Capital Requirement – Standard Formula 2 to 7; or
- (c) vary the firm's IM permission to allow the use of a partial IM with a more limited scope than the minimum scope referred to in paragraph 2.30.

## Internal Model change applications

2.33 As required by Solvency Capital Requirement – Internal Models 3.1 and 6.4, in an application for the variation of an existing permission to calculate the SCR using a full or partial IM, a firm should either:

- (a) confirm to the PRA in writing and submit documentary evidence to demonstrate to the PRA's satisfaction that the calibration standards and internal model requirements (as waived or modified by the written notice issued to it by the PRA), would be complied with after applying the major change; or
- (b) where some of the calibration standards and internal model requirements would not be complied with after applying the major change, identify those requirements, and explain to the PRA in writing why and in what way they are not satisfied, and submit documentary

evidence demonstrating to the PRA's satisfaction that all other requirements (in the calibration standards and internal model requirements) are satisfied. Where this is the case, the firm or the PRA may propose the use of one or more safeguards in order to mitigate any non-compliance with the internal model requirements and/or to ensure compliance with the calibration standards.<sup>4</sup>

2.34 In addition to the requirements described in 2.33, where a firm applying to the PRA has been granted a waiver or modification of any of the internal model requirements by the PRA, the firm must also either confirm as described in 2.33(a) or explain as described in 2.33(b) (and in both cases submit documentary evidence) by reference to the unmodified internal model requirements (as required by Solvency Capital Requirement – Internal Models 6.5).

2.35 Additionally, in the case of a partial IM, a firm should submit documentary evidence setting out how it would fulfil Solvency Capital Requirement – Internal Models 4.2 and 5 after applying the major change.

2.36 The PRA intends to consider no more than one model change application per firm per year. A firm may include several individual model changes within a single application (along with any extension of the scope of its IM), which the PRA will review together under the same supervisory permission process. This will help to ensure that firms are able to apply robust governance to model changes and that the PRA is able to commit appropriate resources to review applications. However, the PRA understands that business or market conditions may, in some circumstances, lead to a firm submitting more than one model change application in a year.

2.37 A planned transaction (for example an acquisition or investment in a new asset class) or other event, may lead to a change in a firm's risk profile that would result in the IM no longer being compliant with the calibration standards and/or internal model requirements,<sup>5</sup> thereby prompting a model change application outside of the firm's scheduled model development plan. In such situations, the firm should consider whether the PRA could realistically consider and reach a decision on the model change application ahead of the completion of the transaction or the expected occurrence of the event. If a firm or the PRA expects that it is unrealistic for the PRA to consider and reach a decision on a model change application in the required timeframe, the firm should discuss with the PRA how it will calculate its SCR so that it remains compliant with the relevant requirements and remains adequately capitalised immediately after the transaction or event takes place.

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<sup>4</sup> Where a safeguard is needed to mitigate non-compliance with the internal model requirements, the PRA will notify a firm of any waiver or modification of those requirements that may be necessary for the period during which the safeguard is in place, so that the firm would not be in breach of those requirements (as they appear in the PRA's Rulebook).

<sup>5</sup> Subject to any waiver or modification of the internal model requirements specified in a written notice to the firm.

2.38 Where an event occurs that causes a firm to consider whether changes might be required to its IM, the PRA recognises that it might take some time for the firm to determine what changes are required and to implement those changes within its model in a way that meets the calibration standards and internal model requirements. In such circumstances, firms should discuss with the PRA what other steps might be taken in the interim until the firm can submit a model change application for consideration by the PRA.

2.39 A firm should include in its application the documents set out above in paragraphs 2.10 to 2.11 and 2.14 to 2.15, where their content would be affected by the major change to the full or partial IM. The firm should also include a detailed description of the qualitative and quantitative impacts of the major change compared with its existing model permission.

2.40 The PRA expects to be able to assess from a firms' documentation the following:

- (a) justification for the model change(s);
- (b) a description of the changes that are proposed to be made the version of the IM for which permission has been granted by the PRA;
- (c) the historical changes and any additional, future planned changes to the IM;
- (d) evidence that the model change application has been approved by the firm's governing body;
- (e) evidence that the model change(s) have been independently validated; and
- (f) evidence in the form of an updated self-assessment application template indicating which items have been altered since the version of the IM for which permission has been granted by the PRA.<sup>6</sup>

2.41 The PRA expects firms' model change applications to be of a high quality. If the PRA considers that a firm's model change application is incomplete, or that it does not otherwise appear to be a viable application, it will discuss with the firm an alternative timescale for submitting a revised application. In particular, RMLs that would be present in the IM after implementing the changes, if approved by the PRA, should not, overall, lead to significant non-compliance with the calibration standards and internal model requirements.

2. Following the submission of a model change application, a firm should continue to use the version of the IM for which permission has been granted by the PRA when calculating its SCR. The firm should continue to use that version of the IM for regulatory purposes until the PRA reaches a decision on the model change application. For the avoidance of doubt, the

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<sup>6</sup> Available at: [www.bankofengland.co.uk/prudential-regulation/authorisations/solvency-ii-approvals](https://www.bankofengland.co.uk/prudential-regulation/authorisations/solvency-ii-approvals).



firm can continue to make minor changes to its IM in accordance with its IM change policy while the PRA is considering a model change application.

2.43 Firms should have regard to the possibility that a variation of an existing permission is not granted, and the possibility of the PRA either modifying any existing safeguards, or imposing new safeguards, to address new or emerging RMLs. As such, firms should have contingency plans addressing possible outcomes of its model change application, where appropriate, and share these with the PRA.

2.44 The PRA will follow the same approach as set out in sections 'Assessment of the application' and 'Decision on the application' for assessment of and decisions on an application for variation of an existing permission, to enable a firm to make a major model change or any change to its IM change policy.

2.45 While minor changes to a firm's IM made in accordance with its model change policy do not require the firm's IM permission to be varied, the PRA will regularly review firms' reporting of minor model changes, as set out in chapter 5, and may challenge any that it considers should be classified as a major model change. In addition, minor changes may be subject to review by the PRA at any time as part of the PRA's ongoing supervisory review process. If a minor change causes a firm's IM to no longer meet the calibration standards and/or internal model requirements, firms must address this issue. Minor change accumulations will be reset at the end of an annual cycle (that firms may specify), or at the point of receiving a major change application (contingent upon approval for the application being granted), unless otherwise agreed with the PRA.

2.46 Firms are encouraged to discuss accumulated minor changes (and their collective impact) with the PRA prior to resetting the accumulation counter to zero, to ensure a common understanding of the interaction between the various minor changes and the overall IM.

2.47 Firms must remain adequately capitalised at all times,<sup>7</sup> including during the period when a model change application is being reviewed by the PRA. The PRA may consider use of supervisory tools such as a CAO or other requirement safeguard (as described in chapter 3) to ensure that any material risks to its objectives are adequately mitigated.<sup>8</sup>

2.48 Firms that apply MLAs must document governance procedures for doing so in their IM change policies and must consider whether and explain why their use of MLAs constitutes minor or major model changes as required by Solvency Capital Requirement – Internal Models 6.2. These governance procedures should include the procedures for applying, reviewing, and removing MLAs.

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<sup>7</sup> Fundamental Rules 2.4 and Solvency Capital Requirement – General Provisions 2.1.

<sup>8</sup> Statement of Policy (SoP) 'Solvency II: Capital add-ons'.

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## Applications to change the policy for changing an Internal Model

2.49 The PRA expects a firm to discuss with its normal supervisory contact a proposal to alter its IM change policy. A firm can apply for any such change separately or as part of an application for other major changes to an existing model permission.

2.50 A firm should include in its application for the variation of an existing permission for changes to its IM change policy the reason for the proposed change and evidence that, after applying the changes, the calibration standards and internal model requirements would be complied with (see Solvency Capital Requirement – Internal Models 6.1 to 6.5).<sup>9</sup> Additionally, in the case of a partial IM, a firm should submit documentary evidence setting out how it would fulfil Solvency Capital Requirement – Internal Models 4.2 and 5 after changing its IM change policy.

2.51 The PRA expects to grant a variation of an existing permission for changes to a firm's IM change policy only if it is satisfied that the scope of the policy is comprehensive, and that the procedures described in the policy for changing the IM ensure that the IM and, if the context requires, the firm meets on a continuous basis the calibration standards and internal model requirements (as waived or modified by the written notice issued to it by the PRA).

2.52 Firms should use the PRA's model change application form, which will guide them through the information the PRA will need to consider the application.<sup>10</sup>

## 3. Flexible approach to model permissions

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3.1 The PRA's approach to granting and varying IM permissions applies in a way that is proportionate without compromising on modelling standards. In particular, the PRA will consider allowing firms to remedy RMLs in their IMs after the permission (or variation) has been granted. The PRA considers that the degree to which any limitation can be considered residual will depend on the particular circumstances. In any event, it must not result in significant non-compliance with the relevant requirements. The PRA will require a safeguard as an interim means of addressing the risks arising from such a limitation. The fact that the limitation is temporary and capable of remediation (and that a safeguard may be designed to mitigate the non-compliance in the interim) is likely to be key in the PRA's assessment that the way in which the firm is unable to demonstrate compliance is not significant at the point of assessment. The PRA expects firms to make all reasonable efforts to remedy such

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<sup>9</sup> Subject to any waiver or modification of the internal model requirements specified in a written notice to the firm.

<sup>10</sup> Available at: [www.bankofengland.co.uk/prudential-regulation/authorisations/solvency-ii-approvals](https://www.bankofengland.co.uk/prudential-regulation/authorisations/solvency-ii-approvals).

limitations. The timeframe within which remediation is expected will depend on the nature of the limitation, as some, by their nature, may persist for longer than others.

3.2 The PRA will not necessarily reject an IM application if it identifies RMLs which prevent a firm from demonstrating compliance with all the relevant requirements. The PRA will consider granting (or varying) a model permission with appropriate safeguards, where safeguards achieve the following:

- (a) they mitigate residual non-compliance with the internal model requirements, and/or
- (b) they ensure compliance with the calibration standards in Solvency Capital Requirement – General Provisions 3.3 to 3.4.

3.3 The PRA's use of safeguards will be subject to supervisory judgement and will depend on case-specific circumstances, noting the importance of consistent treatment of firms. The appropriateness (eg in terms of magnitude and features) of safeguards that the PRA would consider setting in order to support granting of a model permission (or variation of an existing permission) are described in paragraphs 3.13 to 3.21.

3.4 Further to paragraph 2.27(a), where the PRA identifies RMLs in a proposed IM that individually, and when considered overall, do not lead to significant non-compliance with the calibration standards and internal model requirements, the factors the PRA will consider when deciding whether to grant a model permission, or vary a model permission for a major model change, include the following:

- (a) whether, in the PRA's judgement, the model + safeguards achieve compliance with the calibration standards;
- (b) where there is some residual non-compliance with the internal model requirements and that needs to be remedied, the PRA will consider whether one or more safeguards could mitigate that residual non-compliance in the interim;
- (c) the appropriateness of a firm's (or group's) IM change policy, which may present particular challenges in light of any identified limitations; and
- (d) whether granting a permission with safeguards, considering the factors described in paragraphs 3.15 to 3.16, would provide a better outcome for advancing the PRA's statutory objectives than the alternative of rejection and use of the SF by a firm (or group) to calculate some or all of its SCR.

3.5 Pursuant to paragraph 3.4, additional factors the PRA will consider when deciding to grant permission (or vary an existing permission in the case of a major model change) for a group IM include:

- (a) whether the consolidated group SCR calculated using the IM will adequately reflect the overall risk profile of the group;
- (b) the impact of diversification of risks within the group on the group's risk profile;
- (c) the impact of intragroup transactions on the group's risk profile, and whether the model makes appropriate allowance for interactions within the group;
- (d) the availability of eligible own funds of related undertakings to absorb losses at the level of the group;
- (e) the fungibility of capital and any restrictions on movement of capital within the group;
- (f) the method of group consolidation; and
- (g) risks specific to entities that are outside of the UK.

3.6 Where the PRA grants a permission or approves the variation of an existing permission; it will specify in a written notice issued to the firm:

- (a) any requirement safeguards set by the PRA to support the model permission; and
- (b) where a safeguard is imposed that is intended to mitigate non-compliance with any internal model requirement, a waiver or modification of that requirement for the period during which the safeguard is in place, so that the firm would not be in breach of the requirement.

3.7 A firm with an IM permission must ensure ongoing compliance with the internal model requirements, as waived or modified by the written notice issued to it by the PRA, along with any additional requirements imposed by the PRA and documented in the written notice. Where a firm detects any non-compliance with the requirements set out in the written notice, Solvency Capital Requirements – Internal Models 9.1 will apply.

## Residual Model Limitations

3.8 The PRA recognises that models with some residual deficiencies or limitations can be of value for regulatory purposes.

3.9 An RML, as defined in the PRA Rulebook, is an aspect of a model that prevents the firm from complying with the relevant rules in all the circumstances in which the model is to be used. Any such limitation should not lead to significant non-compliance with the requirements in the PRA Rulebook. The PRA distinguishes between its approach to an RML, depending on:

- (a) the extent to which it relates to the calibration standards; and/or
- (b) the extent to which it relates to an internal model requirement.

3.10 RMLs could arise in a number of circumstances, for example:

- (a) Incomplete data for modelling a risk (where the data is unavailable) could mean a firm cannot demonstrate it meets statistical quality standards as they apply to data (e.g. Solvency Capital Requirement – Internal Models 11.4). This could also result in the firm struggling to demonstrate that the model meets the calibration standards.
- (b) A simplified modelling approach for a given risk exposure, which the PRA considers to be appropriate and compliant with the relevant requirements only if the firm's risk exposure remains below a defined limit. Above that limit, the PRA considers that the model in its current form is not appropriate to calculate an SCR that meets the calibration standards and internal model requirements.

3.11 In determining whether model limitations represent significant model deficiencies, the PRA will assess those limitations individually and overall.

## Safeguards to support granting or variation of model permissions

3.12 The PRA expects to use safeguards at the point of granting an IM permission and varying an IM permission for either a major model change, or where it detects new RMLs (or changes to existing RMLs) during model reviews within the internal model ongoing review (IMOR) framework (as described in chapter 5).

3.13 There are two types of safeguards that the PRA could set to achieve the outcomes described in paragraph 3.2:

- (a) requirement safeguards, which would apply to a firm's business practices or model use, to ensure the model does not develop any significant risk profile deviations. These safeguards can be used to mitigate non-compliance with the internal model requirements; and
- (b) RML CAOs, which are intended to address an internal model residual deviation as regards the SCR (as defined in the PRA Rulebook), in order to ensure compliance with Solvency Capital Requirement – General Provisions 3.3 to 3.4.<sup>11</sup> These safeguards could

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<sup>11</sup> Additional detail on RML CAOs is provided in chapter 2 of SoP – 'Solvency II: Capital add-ons'.

also mitigate non-compliance with the internal model requirements, in particular, where that non-compliance results in a risk profile deviation as regards the SCR.

**Table 1: Summary of model permission safeguards and their effect**

| <b>Safeguard</b>             | <b>Calibration standards</b>   | <b>Internal model requirements</b>   |
|------------------------------|--|--|
| <b>RML CAO</b>               | Ensures compliance with Solvency Capital Requirement – General Provisions 3.3 and 3.4. | Mitigates non-compliance (and the PRA may need to waive or modify a rule). |
| <b>Requirement safeguard</b> |  | Mitigates non-compliance (and the PRA may need to waive or modify a rule). |

3.14 Safeguards are exogenous to an IM and will be documented by the PRA in the written notice of its decision. Where the PRA considers that one or more safeguards may be needed to support granting of an IM permission (or variation of an existing permission) to achieve the outcomes described in paragraph 3.2, the PRA expects to discuss those safeguards and underlying RMLs with a firm during the application period, in advance of taking a decision.

3.15 The PRA expects to only grant (or vary) a model permission with one or more RML CAO(s) where it determines that deviation in the firm's risk profile from the assumptions underlying the SCR, when assessed individually and overall, does not constitute an internal model significant risk profile deviation, but rather an internal model residual deviation. Internal model significant risk profile deviation and internal model residual deviation are defined in the PRA Rulebook, and additional information on these types of deviation is set out in Statement of Policy – 'Solvency II: Capital Add-ons'. The PRA expects to set RML CAOs using its powers in s.55M or s.192C of FSMA, which is the same approach used for all other types of CAOs.

3.16 Where the PRA considers it possible to set requirement safeguards to support granting of an IM permission to mitigate residual non-compliance with the internal model requirements, the PRA will consider the appropriateness of those safeguards in the context of, among other things, the firm's (or group's) business mix, risk profile, business strategy, and plans for future growth.

3.17 If, after granting a model permission (or variation of an existing permission, to enable a firm to make a major model change), the PRA determines that a risk profile deviation as regards the SCR becomes significant, the PRA would consider (among other possible supervisory measures) setting a CAO for internal model significant risk profile deviation.



3.18 Where a group applies for or has permission to use an IM to calculate its consolidated group SCR, and the PRA determines that a safeguard is appropriate to support granting or varying a model permission at the (solo) level for a firm within the group, it will take into account the factors listed in paragraph 3.5 when considering whether a corresponding safeguard should also be set at the level of the group.

3.19 Firms are required to make all reasonable efforts to remedy the deficiency that led to the imposition of a safeguard (as required by Solvency Capital Requirement – Internal Models 5B and which applies to groups through Group Supervision 13.1A and 11.2). What constitutes ‘reasonable efforts’ will depend on the underlying model deficiency. The PRA will specify any requirement safeguards needed to mitigate non-compliance with the internal model requirements within a written notice issued to the firm. The PRA will also explain in writing its expectations of what the firm needs to do in order to remediate the RML so that a safeguard can be removed.

3.20 The PRA expects safeguards to be temporary: as a firm develops its IM and remediates underlying RMLs to the PRA’s satisfaction, the PRA expects to remove safeguards. The type of RML will influence the expected duration of a safeguard. The PRA recognises that there are some situations where safeguards may need to remain in place longer-term, for example:

- (a) where safeguards relate to model weaknesses that can only be remediated through accumulation of data or further model development;
- (b) where further model development would represent spurious accuracy and overreliance on modelled outputs.

3.21 In these situations, the use of safeguards to support granting of an IM permission (or variation of an existing permission, for a major model change) could help to facilitate model development at an appropriate pace and enable the embedding of the IM within a firm’s risk management system, while mitigating risks to the PRA’s objectives. Safeguard duration will depend on a firm’s case-specific circumstances, and the PRA will regularly review the appropriateness of safeguards using the IMOR framework (as described in chapter 5). If a firm’s IM development does not keep pace with changes to its risk exposure, the PRA would take appropriate action.

3.22 Where a firm ceases to comply with a safeguard set by the PRA, the PRA will take appropriate action. In the case of an RML CAO, the firm’s SCR will include any RML CAO set by the PRA.<sup>12</sup> Non-compliance with an RML CAO would therefore constitute non-compliance with the firm’s SCR, and so Undertakings in Difficulty 3 would apply. For all safeguards, the

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<sup>12</sup> As per Solvency Capital Requirement – General Provisions 5.2.

PRA's approach to non-compliance with a safeguard will depend on the case-specific circumstances, and could include:

- (a) specifying a deadline for the firm to re-establish compliance or develop a more appropriate modelling approach that remediates the underlying RML. If the firm fails to restore compliance or address the underlying RML within the required timescales, this could lead to more severe supervisory action, such as stronger safeguards or ultimately variation or revocation of the firm's model permission (described in more detail in paragraphs 3.35 to 3.39);
- (b) setting a new safeguard or modifying the existing safeguard; and
- (c) consideration of using the PRA's enforcement tools.

3.23 The PRA will remove a safeguard and vary the firm's permission, if applicable, where the firm demonstrates to the PRA's satisfaction that it has addressed the RML that led to the imposition of the safeguard. The mechanism by which the PRA removes a safeguard and any waiver or modification of the internal model requirements will depend on its type and materiality, and could include a written request by a firm (along with supporting information) to an application for a major model change.

## Model Limitation Adjustments

3.24 In some circumstances, firms may mitigate RMLs or uncertainty by incorporating MLAs into their models. An MLA is a capital adjustment which contributes to the calculation of a firm's SCR (or a group's group SCR) that is intended to ensure that it complies with the calibration standards. The PRA recognises that MLAs can be an important (model) risk management tool for firms, enabling them to address RMLs and modelling uncertainty in a pragmatic way, and can help firms keep their models up to date and compliant with the relevant calibration requirements. An MLA could be applied as:

- (a) an adjustment to a firm's or (or group's) SCR;
- (b) an adjustment to an intermediate component of a firm's (or group's) SCR, e.g. for a risk module or sub-module, prior to aggregation; or
- (c) an adjustment to a parameter or assumption within a firm's (or group's) model, which has the effect of increasing the firm's (or group's) SCR compared to the SCR that would be calculated by the model without the adjustment.

3.25 The PRA expects that each MLA will be (or result in) a positive increase to the SCR. This is because negative MLAs (which reduce the SCR) could lead to a reduction in overall

modelling standards, since it would allow a firm to benefit from a lower SCR due to a model limitation.

3.26 MLAs form part of a firm's IM and as such are not safeguards. The PRA will document the use of relevant MLAs within a firm's IM permission when granting an initial permission or varying an existing permission for the purposes of a major model change.

3.27 Further to paragraph 2.48, a firm with an IM permission is required to include within its IM change policy its approach to using MLAs, including where they are specified as minor or major model changes.<sup>13</sup> This should include an explanation of governance arrangements relating to their use, and an explanation of where they are specified as minor and major changes and the reason they are specified as such. A firm should also include within its IM change policy a description of its procedures for applying, reviewing, and removing such MLAs. A firm with an IM permission should also include in its submission of quarterly model change (QMC) information to the PRA its use of any MLAs that it classifies in its IM change policy as minor or major model changes.<sup>14</sup> A firm must also report to the PRA the impact of MLAs on changes to its SCR as identified in its annual AoC exercise (as described in chapter 5), along with supporting narrative information to explain those impacts.

3.28 The PRA expects to review a firm's use (or proposed use) of MLAs in the following circumstances:

- (a) during the normal process of granting an IM permission, or variation of an existing permission for the purposes of a major model change, in advance of making its decision on an IM permission (or variation) application;
- (b) when reviewing proposed changes to a firm's IM change policy, where the changes relate to the firm's use of MLAs or the governance arrangements for their use;
- (c) as part of its ongoing review of firms' models via the IMOR framework (as described in chapter 5), in particular when reviewing a firm's AoC submission (as required by Solvency Capital Requirement – Internal Models 13A); and
- (d) during the PRA's review of model changes included in a firm's QMC submission.

3.29 The PRA recognises that a firm's use of MLAs will fluctuate over time, as the firm develops its IM in response to changes in the economic environment, and to reflect changes in the firm's business mix and risk profile. The PRA generally expects that an individual MLA should only be used by a firm on a temporary basis, and that the firm should make all

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<sup>13</sup> As required by Solvency Capital Requirement – Internal Models 6.2.

<sup>14</sup> A firm with an IM permission should submit this information using the QMC.01 reporting template and provide supporting narrative information.

reasonable efforts to remediate the RML or address the uncertainty which led to the use of the MLA over time. The PRA's expectations in this regard will depend on the case-specific circumstances, including the size and nature of the underlying model deficiency or uncertainty. The PRA will monitor a firm's remediation of RMLs underlying MLAs over time as part of the IMOR framework.

3.30 In some cases, the PRA may consider an MLA to be an appropriate alternative to an RML CAO, to address an RML that leads to an internal model residual deviation,<sup>15</sup> to ensure compliance with calibration standards. Whether an RML CAO or MLA is appropriate for that purpose will be subject to supervisory judgement and will depend on the case-specific circumstances. Some of the factors the PRA will consider when making such a judgement include: the size and nature of the RML underlying the internal model residual deviation, the firm's plans to remediate the RML that led to the internal model residual deviation, and whether there is additional non-compliance with internal model requirements.

3.31 Where a firm uses an MLA to address an internal model residual deviation,<sup>16</sup> and the underlying deviation grows and becomes more material over time, the PRA would consider setting an RML CAO to replace the MLA. This would ensure that the firm's SCR continues to comply with the calibration standards – provided that the risk profile deviation as regards the SCR is not significant. If the risk profile deviation as regards the SCR meets the relevant conditions to be classified as a significant risk profile deviation, then the PRA would consider (among other supervisory measures) setting a CAO for internal model significant risk profile deviation.

3.32 Where firms within a group make use of MLAs to calculate their solo SCRs, they should document their approach in their IM change policies, as described in paragraph 3.27. Those relevant firms should also consider whether an MLA applied at the solo level should also be applied at the level of the group, when calculating the group SCR. In making such a determination, firms should consider the factors set out in paragraph 3.5.

3.33 Where a group uses MLAs in the calculation of its consolidated group SCR, it should document its approach in its IM change policy, as described in paragraph 3.27.

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<sup>15</sup> For example, where the PRA considers an RML as evidence that a model is under-calibrated, or there is uncertainty as to whether the model's calibration meets the 1:200 standard required by Solvency Capital Requirement – General Provisions 3.3 to 3.4. The PRA will not grant a model permission (or vary an existing permission in the case of a major model change) where the firm's risk profile deviates significantly from the assumptions underlying the SCR.

<sup>16</sup> Either when applying for an initial IM permission, variation of an existing permission in order to make a major model change, or as a minor model change after permission is granted

## The PRA's powers to vary or revoke model permission

3.34 The PRA's power to grant model permissions under s138BA of FSMA also permits the PRA to vary or revoke a permission. The PRA expects to use its power to vary a firm's model permission, to enable a firm to make a major change to its model, as well as changes to its IM change policy, and to modify existing safeguards, set new safeguards, and remove safeguards, as appropriate.<sup>17</sup>

3.35 The PRA's power to vary a firm's IM permission could also be exercised to unilaterally reduce the scope of a firm's IM. The PRA does not expect to make use of its power in this manner routinely. It may be considered appropriate where the PRA has concerns that the IM is no longer compliant with the internal model requirements, and that part or all of the firm's IM is inadequate or no longer appropriately reflects the firm's (or group's) risk profile and, for example, where the firm has failed to remedy this situation itself. The PRA is only likely to consider this option having first explored other, more targeted supervisory actions.

3.36 Furthermore, the PRA would exercise this power in a proportionate manner, for example by only removing from the model permission the deficient parts of the IM (risk sub-modules, business units with respect to a specific risk module, or major business units, depending on the structure of the model) where the PRA considers that they no longer appropriately reflect the risk profile of the firm (or group). The following scenarios could lead the PRA to consider exercising its variation power as described:

- (a) if a firm does not make all reasonable efforts to remedy the RML that led to the setting of an IM safeguard where required by the PRA, and those limitations become significant deficiencies such that the PRA considers it is inappropriate to address them with more severe safeguards or other supervisory measures (eg CAO for internal model significant risk profile deviation);
- (b) where, over time, significant model deficiencies arise (e.g. due to underdevelopment), in particular relating to the appropriateness of the design and operation of a firm's IM, and the PRA has concerns that part or all of the firm's IM is inadequate or the SCR that the IM generates no longer appropriately reflects the firm's risk profile better than if the SF were used, and the PRA considers that those deficiencies cannot be adequately addressed via other supervisory measures;
- (c) if a firm does not make every effort to remedy the deficiencies that led to the setting of a CAO arising as a result of an internal model significant risk profile deviation or significant

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<sup>17</sup> And, where necessary, waive or modify any underlying internal model requirement for the period during which a safeguard is in place, so that the firm would not be in breach of those requirements.

system of governance deviation, and the PRA considers that those deficiencies cannot be adequately addressed via other supervisory measures;

- (d) if a firm does not comply with safeguards set by the PRA to support the IM permission, and does not take action to remediate the non-compliance as required by the PRA; and
- (e) where a firm ceases to comply with the internal model requirements and fails to comply with Solvency Capital Requirement – Internal Models 9.1, or to implement the plan to restore compliance with the internal model requirements (required by Solvency Capital Requirement – Internal Models 9.1) in a timely and cooperative manner, and the PRA considers that those deficiencies cannot be adequately addressed via other supervisory measures.

3.37 Where the PRA considers that exercise of its power to vary a firm's or group's model permission as described in paragraph 3.35 is potentially likely, then it will engage with the firm as early as possible to manage the firm's reversion to calculating some of its SCR using the SF. The engagement would require the firm to develop a transitional plan to reduce the scope of its model.<sup>18</sup> Where such a plan is requested, the PRA will explain the reasons for requiring a transitional plan and set the maximum scope which the IM can cover after the implementation of the transitional plan, by specifying which deficient risk sub-modules, business units with respect to a specific risk module, or major business units (depending on the structure of the model) should be removed from the model. Prior to submission to the PRA, the transitional plan should be approved by the firm's governing body. For a transitional plan to be considered realistic, it should clearly identify the following:

- (a) the expected period for implementing the plan to reduce the scope of the IM;
- (b) the measures and resources necessary to reduce the scope of the IM;
- (c) how the firm will integrate the capital requirement generated by the reduced scope partial IM with the SF SCR. This would be particularly relevant for a firm that has permission to calculate all of its SCR using a full IM, as the firm would need to select and justify an appropriate integration technique for that purpose. A firm with permission to use a partial IM would have to consider if its existing integration technique would continue to be appropriate for use with a partial IM of reduced scope.
- (d) how the resulting reduced scope partial IM would comply with the calibration standards, including potentially through the use of MLAs. If those requirements would not be complied with, the firm should explain to the PRA in writing why and in what way they

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<sup>18</sup> As required by Solvency Capital Requirement – Internal Models 5A.1.



would not be satisfied, so that the PRA may consider whether an RML CAO safeguard is appropriate to ensure compliance with those rules; and

(e) how the reduced scope partial IM would comply with the internal model requirements. If some of those requirements would not be complied with, the firm should identify those requirements, explain to the PRA in writing why and in what way they would not be satisfied, and submit documentary evidence demonstrating that all other internal model requirements would be satisfied. The PRA may consider whether one or more safeguards would be appropriate to mitigate any non-compliance with the internal model requirements.

3.38 The PRA will evaluate the transitional plan submitted by the firm. Where necessary, the PRA may require the firm to submit an amended transitional plan. When the PRA is satisfied with the plan, it will inform the firm in writing, setting out its expectations as regards timelines and engagement for implementing the required model developments. Once those developments are completed to the PRA's satisfaction, the PRA would vary the firm's model permission as required.

3.39 The PRA generally only expects to use its power to revoke a firm's IM permission in exceptional circumstances, having first explored all other, more targeted supervisory actions.

## 4. Significant deviations from the assumptions underlying the Standard Formula

4.1 Where it is inappropriate for a firm to calculate its SCR in accordance with the SF, because its risk profile deviates significantly from the assumptions underlying the SF calculation, then the PRA may require the firm to do one of the following:

- (a) replace a subset of the parameters used in the SF by undertaking specific parameters when calculating the life, non-life, and/or health underwriting risk modules;<sup>19</sup> or
- (b) develop an IM to calculate its SCR, or a partial IM to calculate some risk modules of its SCR.

4.2 In the circumstances described in paragraph 4.1, the action taken by the PRA will be proportionate, and will depend on the case-specific circumstances.

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<sup>19</sup> SS15/15 – [Solvency II: approvals](#), March 2015.

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## 5. Supervisory review process: Internal Model Ongoing Review

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5.1 The IMOR framework is the PRA's approach for continuous review and evaluation of firms' IMs. This framework incorporates thematic reviews, an annual AoC exercise, assessment of ongoing model compliance, and monitoring of safeguards.

### Strand 1 – PRA driven thematic schedule

5.2 The PRA has a schedule of thematic exercises it uses to engage with firms on key risk areas to which they are exposed. The PRA will use the information collated from these exercises to highlight emerging risks across the industry and identify areas of future regulatory focus. Further details on this approach are contained in the PRA's approach to insurance supervision document.<sup>20</sup>

5.3 All firms with an IM are expected to engage with this schedule of exercises, which can include, but is not limited to, analysis of market risk sensitivities (MRS) and internal model output (IMO) reviews. The PRA will communicate with the industry on the schedule of thematic reviews to ensure firms have adequate notice of upcoming exercises. It may be appropriate in certain cases for some firms to not participate, but this is subject to supervisory discretion and firms should discuss this possibility in advance with their normal supervisory contacts.

### Strand 2 – AoC exercise

5.4 The PRA will review a firm's submission in respect of its annual AoC exercise comparing the change in its SCR as at the firm's most recent financial year end and its SCR as at the firm's previous financial year end. Firms are required to complete and submit the AoC.01 reporting template to explain all material causes of changes in their SCRs over the year. This should include changes in a firm's risk profile, changes to its IM (including any changes to MLAs used within its IM), changes in the amount of any CAOs set by the PRA, changes in risk exposures, economic conditions, etc.

5.5 Firms should use the output of their AoC exercises to identify causes of movements in their SCRs, and assess the possibility and sources of model drift. In addition, firms are required to provide reasons, and documentary evidence to support those reasons, explaining any change in SCR identified in AoC.01. The PRA expects this documentation to also include

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<sup>20</sup> Available at: <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/approach/insurance-approach-2018.pdf>.

other details relevant to the AoC exercise, as explained in Solvency Capital Requirement – Internal Models 13A and section 2.21 of Supervisory Statement 17/16 – ‘Solvency II: internal models – assessment, model change and the role of non-executive directors’.

5.6 As described in paragraph 2.12, the PRA may expect firms to carry out and submit to the PRA the results of an AoC exercise when applying for a new model permission. The PRA may also expect this of firms when applying for variation of an existing permission in relation to a major model change. It will notify firms where it expects them to do so.<sup>21</sup>

5.7 The PRA will engage with firms on their AoC submissions if further information is required.

### Strand 3 – Assessment of ongoing model compliance

5.8 The PRA expects to engage with firms on a case-by-case basis relating to any concerns regarding their compliance with the calibration standards and internal model requirements.

5.9 The PRA will take into account as part of its own review a firm’s annual attestation regarding the ongoing compliance of its IM and, where the context requires, the firm itself, with the internal model requirements (paragraph 2.9 in proposed SS – Expectations for complying with the Solvency II internal model requirements). This will include a review of a firm’s plans to address any problems identified by the model validation process.

5.10 The PRA will also consider whether the emergence of RMLs or significant deficiencies over time may require an adjustment to the firm’s model or SCR to ensure that the firm complies with the calibration standards.<sup>22</sup> Where this is the case, a firm should explain its proposed model development (in line with its IM change policy), including any relevant judgements, to the PRA.

5.11 Following the granting of an IM permission, where a firm fails to make all reasonable efforts to remedy the RML that led to the setting of a safeguard, or where failures to follow internal model requirements (eg use test requirements in Solvency Capital Requirement – Internal Models 10) point to possible issues relating to the governance of a firm, the PRA will consider imposing a governance CAO (GCAO). An example of a governance issue that could result in a GCAO is the failure by a firm to follow the arrangements set out in its IM change policy.

<sup>21</sup> For example, where the impact on a firm’s SCR in the event of the PRA granting (or varying) the permission would be significant, or where a firm proposes complex changes to its IM.

<sup>22</sup> For example, where an RML gives rise to an internal model residual deviation or where significant deficiencies lead to a significant deviation in the firm’s risk profile from the assumptions underlying the SCR.

## Strand 4 – Monitoring of safeguards

5.12 The PRA will monitor any safeguards it imposes at the time of granting or varying a firm's IM permission, or as part of the ongoing assessment of the IM and the SCR. Where appropriate, this could result in any of the following:

- (a) request by the PRA for submission of a progress report setting out the measures taken, and progress made on remedying the RML that led to the imposition of an IM safeguard.<sup>23</sup> The PRA will discuss the timing and frequency of such progress reports with a firm. The PRA will evaluate a progress report submitted by a firm and provide feedback where relevant. Where necessary, the PRA may request a firm to submit additional information or an amended progress report;
- (b) re-calibration of the safeguard(s), if the existing calibration is no longer considered appropriate for the model's circumstances, eg if the firm's risk profile has changed or for other reasons;
- (c) removal of the safeguard(s), as described in paragraphs 3.20 to 3.23, if the PRA considers the underlying RML has been fully addressed;
- (d) setting of new safeguard(s) to mitigate new or emerging non-compliance with the internal model requirements, or to ensure compliance with the calibration standards;<sup>24</sup>
- (e) the PRA taking appropriate action in response to a firm ceasing to comply with a safeguard set by the PRA as described in paragraph 3.22;
- (f) revoking or varying the IM permission to reduce the scope of the IM, as described in paragraphs 3.36 to 3.40.

5.13 The PRA expects to publish on a regular basis a report summarising at an aggregate level its use of IM permission safeguards and all types of CAOs.

<sup>23</sup> As required by Solvency Capital Requirement – Internal Models 5B.2.

<sup>24</sup> And, where necessary, waive or modify any underlying internal model requirements for the period during which a safeguard is in place, so that the firm would not be in breach of those requirements.