Bank of England PRA

Expectations for meeting the PRA's internal model requirements for insurers under Solvency II

Supervisory statement | SS1/24

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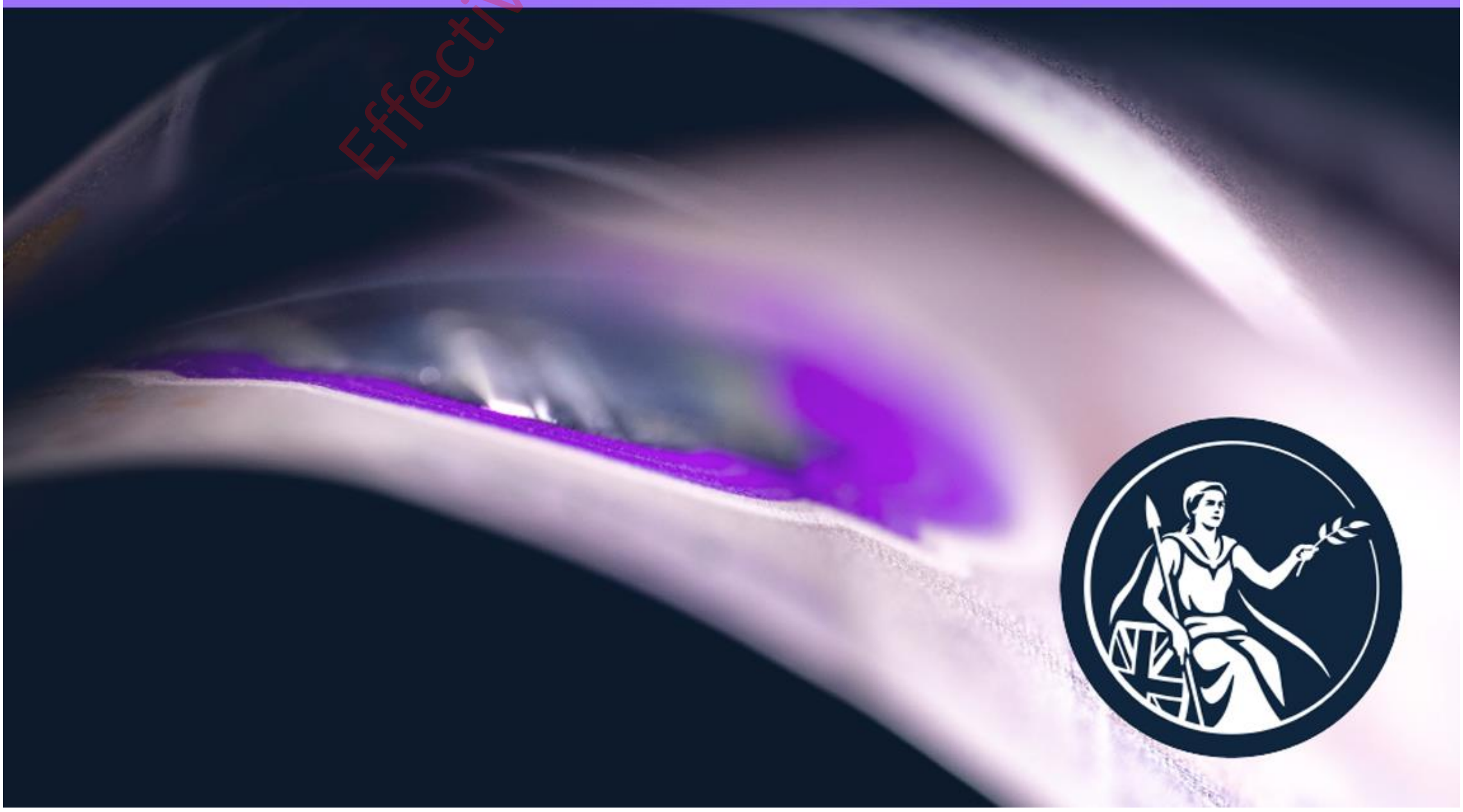

Contents

1: Introduction

1.1 This Prudential Regulation Authority (PRA) supervisory statement (SS) sets out expectations for meeting the PRA's internal model requirements for insurers under Solvency II.

1.2 This SS is relevant to all UK Solvency II firms, the Society of Lloyd's, its members and managing agents. It is most relevant to firms that have permission to calculate their Solvency Capital Requirement (SCR) using an internal model (IM). It may 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 the European Economic Area (EEA) or non-EEA groups with a group IM.

1.3 This SS, which should be read in conjunction with the Solvency Capital Requirement – Internal Models Part of the PRA Rulebook, sets out the PRA's expectations under the rules in that Part. 'Internal model requirements' means Solvency Capital Requirement – Internal Models 10 to 16A.

1.4 The PRA's expectations are set out in the following areas:

- probability distribution forecast related to a partial IM;
- including new risks in the IM;
- data used in the IM;
- model validation process;
- validation tools;
- documentation standards;
- minimum content of the documentation;
- circumstances under which the IM does not work effectively; and
- changes to the IM.

2: Expectations for firms using internal models

Probability distribution forecast related to a partial internal model

2.1 Firms are expected to calculate the probability distribution forecast of a partial IM at the highest level of aggregation of the components of the partial IM. If a partial IM consists of different components which are separately calculated and not aggregated within the partial IM, the probability distribution forecast is expected to be calculated for each component.

Including new risks in the internal model

2.2 The PRA expects that including new risks in the IM should be considered a major model change in firms' IM change policies.

2.3 However, firms may be able to justify that in the following cases the changes do not introduce new risks to the IM and, provided that such changes do not exceed the major model change threshold specified in firms' model change policies, can be treated as minor model changes:

(a) making model changes that involve splitting or combining risks already within the IM scope; and

(b) an additional risk falls within a sub-module of a risk already within the IM scope.

Firms are expected to provide their justification in the model change records.

Data used in the internal model

2.4 Data used in the IM are expected to only be considered accurate for the purposes of Solvency Capital Requirement – Internal Models 11.4 where the data are free from material errors. Where unavoidable data limitations exist, firms are expected to consider the impact of these limitations on the credibility of the model and make any appropriate adjustments, justifying any expert judgement.

2.5 Data used in the IM are expected to only be considered complete for the purposes of Solvency Capital Requirement – Internal Models 11.4 where data include sufficient historical information to assess the characteristics of the underlying risk, in particular to identify trends in the risks.

2.6 Data used in the IM are expected to only be considered appropriate for the purposes of Solvency Capital Requirement – Internal Models 11.4 where the amount and nature of the data ensure that the estimations made in the IM on the basis of the data do not include a material estimation error.

Model validation process

2.7 The model validation process is expected to apply to all parts of the IM and is expected to cover all requirements set out in Solvency Capital Requirement – General Provisions 3.2 to 3.5, and Solvency Capital Requirement – Internal Models 3.2, 10 to 13A, and 15 to 16A. In the case of a firm making a partial IM permission application, this should additionally cover Solvency Capital Requirement – Internal Models 4.2 and 5.1.

2.8 For the purpose of the model validation process, firms are expected to specify all of the following:

(a) the processes and methods used to validate the IM and their purposes; and

(b) the persons who are responsible for each validation task.

2.9 As part of the model validation process, firms are expected to assess the quality and independence of the validation. In the assessment of independence, firms are expected to take the following into account in case of an:

(a) internal validation process – the responsibilities and reporting structure of the persons involved in the process; and

(b) external validation process – the remuneration structure of the persons, including where applicable their employees or other persons acting on their behalf, who are involved in the process and any other mandates of these persons relating to the firm.

2.10 The PRA expects an appropriate individual in a Senior Management Function role, in most cases the Chief Risk Officer (SMF4), to provide on an annual basis a written attestation that:

(a) the firm satisfies Solvency Capital Requirement – General Provisions 3.3 to 3.4 and internal model requirements, subject to any modifications to those requirements, and any additional requirements imposed by the PRA in relation to the firm's IM; or

(b) where there is non-compliance with any of the requirements in (a), the firm satisfies all the other requirements in (a) and has in place a credible plan to address any non-compliance identified by the model validation process.

Validation tools

2.11 The statistical process for validating the IM, referred to in Solvency Capital Requirement – Internal Models 14.1, is expected to be based on the following:

(a) current information – taking into account, where it is relevant and appropriate, developments in actuarial techniques and the generally accepted market practice; and

(b) a detailed understanding of the economic and actuarial theory and the assumptions underlying the methods to calculate the probability distribution forecast of the IM.

2.12 The model validation process is expected to include an analysis of the stability of the outputs of the IM for different calculations of the IM using the same input data.

Documentation standards

2.13 The documentation of the design and operational details of the IM as required by Solvency Capital Requirement – Internal Models 15, is expected to be sufficient to ensure that any independent knowledgeable third party would be able to understand the design and operational details of the IM and form a sound judgement as to its compliance with Solvency Capital Requirement – General Provisions 3.2 to 3.5 and Solvency Capital Requirement – Internal Models 10-14, 16, and 16A.

2.14 The PRA expects firms to appropriately structure, detail, complete and keep up to date the documentation referred to in Capital Requirement – Internal Models 15.1 and 15.2. The PRA expects firms to be able to reproduce outputs of the IM using the IM documentation and all of the inputs into the IM.

Minimum content of the documentation

2.15 The documentation of the IM is expected to include all of the following information:

(a) an inventory of all the documents which form part of the documentation;

(b) the policy for changing the IM as referred to in Solvency Capital Requirement – Internal Models 3.3, 6, and 10.5;

(c) a description of the policies, controls, and procedures for the management of the IM, including responsibilities assigned to staff members of the firm;

(d) a description of the information technology used in the IM, including any contingency plans relating to the information technology used;

(e) all relevant assumptions on which the IM is based and their justification;

(f) the explanation of the methodology used to set assumptions which are expected to cover the following:

(i) the inputs on which the choice of assumptions is based;

(ii) the objectives of the choice of assumptions and the criteria used for determining the appropriateness of the choice; and

(iii) any limitations in the choice of assumptions made.

(g) a directory of the data used in the IM, specifying their source, characteristics, and usage;

(h) where data are not used consistently over time in the IM, a description of the inconsistent use and its justification;

(i) the specification of the qualitative and quantitative indicators for the coverage of risks referred to in Solvency Capital Requirement – Internal Models 11.6A and 11.6B;

(j) a description of the risk-mitigation techniques that are taken into account in the IM as referred to in Solvency Capital Requirement – Internal Models 11.10 - 11.12 and an explanation of how the risks arising from the use of risk-mitigation techniques are reflected in that IM;

(k) a description of the future management actions taken into account in the IM as referred to in Solvency Capital Requirement – Internal Models 11.8;

(l) the specifications for the model validation process referred to in paragraph 2.8 of this document;

(m) the results of the validation in relation to compliance with Solvency Capital Requirement – General Provisions 3.2 to 3.5; and

(n) in relation to external models and data:

(i) the role of external models and data in the IM;

(ii) the reasons for preferring external models to internally developed models and external data to internal data; and

(iii) the alternatives to the use of external models and data considered by the firm and an explanation of the decision in favour of a particular external model or a set of external data.

Circumstances under which the internal model does not work effectively

2.16 When assessing and documenting circumstances under which the IM does not work effectively, firms are expected to take all of the following into account:

(a) the risks which are not covered by the IM;

(b) the limitations in risk modelling used in the IM;

(c) the nature, degree, and sources of uncertainty connected with the results of the IM including the sensitivity of the results for the key assumptions underlying the IM;

(d) the deficiencies in data used in the IM and the lack of data for the calculation of the IM;

(e) the risks arising out of the use of external models and external data in the IM;

(f) the limitations of information technology used in the IM; and

(g) the limitations of IM governance.

Changes to the internal model

2.17 The PRA expects firms to include a record of major and minor changes to the IM in the documentation of the IM, including all of the following:

(a) a description of the rationale for the major and minor changes;

(b) a description of the implications of the major changes for the design and operations of the IM; and

(c) where a major change or a combination of minor changes has a material impact on the outputs of the IM, a quantitative and qualitative comparison of the outputs before and after the change relating to the same valuation date.