

## Consultation Paper No. 37

**Draft CEIOPS' Advice for  
Level 2 Implementing Measures on Solvency II  
on:  
The procedure to be followed for the approval  
of an internal model: General provisions and  
some specificities related to partial internal  
model**

*CEIOPS welcomes comments from interested parties on "Draft Advice to the European Commission in the framework of the Solvency II project on the procedure to be followed for the approval of an internal model".*

*Please send your comments to CEIOPS by email ([Secretariat@ceiops.eu](mailto:Secretariat@ceiops.eu)) by 01.07.2009, indicating the reference "CEIOPS-CP-37/09".*

*Please note that comments submitted after the deadline or not submitted in the provided template format, **cannot** be processed*

*CEIOPS will make all comments available on its website, except where respondents specifically request that their comments remain confidential.*

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# 1. Introduction

- 1.1 One of CEIOPS' primary responsibilities is to provide technical support to the European Commission in developing a new solvency system for insurance and reinsurance undertakings in the EU – Solvency II.
- 1.2 In its letter of 19 July 2007, the European Commission requested CEIOPS to provide final, fully consulted advice on Level 2 Implementing measures by October 2009 and recommended CEIOPS to develop Level 3 guidance on certain areas to foster supervisory convergence.
- 1.3 The main objective of this document is therefore to provide the European Commission with sufficient technical advice so that it is in a position to finalise its proposal for the 'Level 2' implementing measures setting out:

*"The procedure to be followed for the approval of an internal model" (Article 112(1) of the General approach on the Solvency II Directive proposal adopted by the ECOFIN Council on 2 December 2008, hereafter: Level 1 text).<sup>1</sup>*

- 1.4 Generally, the advice in this paper may be seen as an extension of the Level 1 text. This provides further detail on specific issues or offers greater clarity with respect to the general provisions for the procedure to be followed for the approval of full and partial internal models. Some specific requirements apply only to the approval process of a partial internal model.
- 1.5 Specificities related to the approval of group internal models as set out in Article 229 of the Level 1 text will be provided as an addendum to this Consultation Paper later in 2009.
- 1.6 After the publication of this consultation paper CEIOPS will continue to develop further detailed advice to the Commission of the European Communities to ensure a harmonised approach to the use of internal models and to enhance the better assessment of the risk profile and management of insurance and reinsurance undertakings with respect to:
  - Articles 118 to 124 of the Level 1 text; and
  - to the adaptations to be made to the standards set out in Articles 118 to 123 of the Level 1 text to take account of the limited scope of the application of the partial internal model.
- 1.7 Furthermore, CEIOPS will also work to develop 'Level 3' standards and guidance to enable further convergence of supervisory practice.

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<sup>1</sup> <http://register.consilium.europa.eu/pdf/en/08/st16/st16237.en08.pdf> and the corrigendum: <http://register.consilium.europa.eu/pdf/en/08/st16/st16237-co01.en08.pdf>.

- 1.8 This and any further advice on internal models shall be subject to public consultation. Once CEIOPS has carefully considered comments from stakeholders on its consultation paper and has revised the contents, where appropriate, the final advice shall be submitted to the European Commission together with an explanation of how each comment has been addressed.
- 1.9 Finally, CEIOPS would like to acknowledge the significant contribution made by stakeholder groups during the preparation of this Consultation Paper, the Stock-taking report on the use of internal models in insurance<sup>2</sup> and the support provided through the past QIS exercises. Good working level contacts have been established with a number of groups, enabling CEIOPS to receive expert input and to test ideas quickly.

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<sup>2</sup> CEIOPS (2009) - "Stock-taking report on the use of internal models in insurance", available at: <http://www.ceiops.eu/media/files/publications/reports/Stock-taking-report-on-the-use-of-Internal-Models-in-Insurance.pdf>

## 2. Legal basis

### 2.1 Key extracts from the Level 1 text

2.1 This section reproduces the key extracts from the Level 1 text which are directly relevant for the procedure to be followed for the approval of an internal model.

2.2 Articles 100 and 101 deal with the general provisions for the solvency capital requirement (SCR) using the standard formula or an internal model. More specifically, according to Article 100:

*"Member States shall ensure that insurance and reinsurance undertakings hold eligible own funds covering the Solvency Capital Requirement.*

*The Solvency Capital Requirement shall be calculated, either in accordance with the standard formula in Subsection 2 or using an internal model, as set out in Subsection 3".*

2.3 Whereas, according to Article 101:

*"1. The Solvency Capital Requirement shall be calculated in accordance with paragraphs 2 to 5:*

*2 The Solvency Capital Requirement shall be calculated on the presumption that the undertaking will carry on its business as a going concern.*

*3. The Solvency Capital Requirement shall be calibrated so as to ensure that all quantifiable risks to which an insurance or reinsurance undertaking is exposed are taken into account. With respect to existing business, it shall cover unexpected losses.*

*It shall correspond to the Value-at-Risk of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of 99.5% over a one-year period.*

*4. The Solvency Capital Requirement shall cover at least the following risks:*

*(a) non-life underwriting risk;*

*(b) life underwriting risk;*

*(c) health underwriting risk;*

*(d) market risk;*

*(e) credit risk;*

*(f) operational risk.*

*Operational risk as referred to in point (f) of the first subparagraph shall include legal risks, and exclude risks arising from strategic decisions, as well as reputation risks.*

*5 When calculating the Solvency Capital Requirement, insurance and reinsurance undertakings shall take account of the effect of risk mitigation techniques, provided that credit risk and other risks arising from the use of such techniques are properly reflected in the Solvency Capital Requirement.*

2.4 Article 110 deals with the general provisions for the approval of full and partial internal models:

*"1. Member States shall ensure that insurance or reinsurance undertakings may calculate the Solvency Capital Requirement using a full or partial internal model as approved by the supervisory authorities.*

*2. Insurance and reinsurance undertakings may use partial internal models for the calculation of one or more of the following:*

*(a) one or more risk modules, or sub-modules, of the Basic Solvency Capital Requirement, as set out in Articles 104 and 105;*

*(b) the capital requirement for operational risk as laid down in Article 106;*

*(c) the adjustment referred to in Article 107.*

*In addition, partial modelling may be applied to the whole business of insurance and reinsurance undertakings, or only to one or more major business units.*

*3. In any application for approval, insurance and reinsurance undertakings shall submit, as a minimum, documentary evidence that the internal model meets the requirements set out in Articles 118 to 123.*

*Where the application for that approval relates to a partial internal model, the requirements set out in Articles 118 to 123 shall be adapted to take account of the limited scope of the application of the model.*

*4. The supervisory authorities shall decide on the application within six months from the receipt of the complete application.*

*5. Supervisory authorities shall give approval to the application only if they are satisfied that the systems of the insurance or reinsurance undertaking for identifying, measuring, monitoring, (...) managing and reporting risk are adequate and in particular, that the internal model complies with the requirements referred to in paragraph 3.*

*6. Any decision by the supervisory authorities to reject the application for the use of an internal model shall be accompanied by the reasons therefore.*

*7. For a period of two years after having received approval from supervisory authorities to use an internal model, insurance and reinsurance undertakings shall provide supervisory authorities with an estimate of the Solvency Capital Requirement determined in accordance with the standard formula, as set out in Subsection 2".*

2.5 Article 111 deals with the specific provisions for the approval of partial internal models

*"1. In the case of a partial internal model, supervisory approval shall only be given if that model complies with the requirements set out in Article 110 and the following additional conditions:*

*(a) the reason for the limited scope of application of the model is properly justified by the undertaking;*

*(b) the resulting Solvency Capital Requirement reflects more appropriately the risk profile of the undertaking and in particular meets the principles set out in Subsection 1;*

*(c) its design is consistent with the principles set out in Subsection 1 so as to allow the partial internal model to be fully integrated into the Solvency Capital Requirement Standard Formula.*

*2. When assessing an application for the use of a partial internal model which only covers certain sub-modules of a specific risk module, or some of the business units of an insurance or reinsurance undertaking with respect to a specific risk module, or parts of both, supervisory authorities may require the insurance and reinsurance undertakings concerned to submit a realistic transitional plan to extend the scope of the model.*

*The transitional plan shall set out the manner in which insurance and reinsurance undertakings plan to extend the scope of the model to other sub-modules or business units, in order to ensure that the model covers a predominant part of their insurance operations with respect to that specific risk module".*

2.6 Article 113 deals with the policy for changing the full and partial internal models:

*"As part of the initial approval process of an internal model, the supervisory authorities shall approve the policy for changing the model of the insurance or reinsurance undertaking.*

*Insurance and reinsurance undertakings may change their internal model in accordance with that policy.*

*The policy shall include a specification of minor and major changes to the internal model.*

*Major changes to the internal model, as well as changes to the policy, shall always be subject to prior supervisory approval, as laid down in Article 110.*

*Minor changes to the internal model shall not be subject to prior supervisory approval, insofar as they are developed in accordance with the policy".*

2.7 Article 114 deals with the responsibilities of the administrative and management bodies:

*"The administrative or management bodies of the insurance and reinsurance undertakings shall approve the application to the supervisory authorities for approval of the internal model referred to in Article 110, as well as the application for approval of any subsequent major changes made to that model.*

*The administrative or management body shall have responsibility for putting in place systems which ensure that the internal model operates properly on a continuous basis".*

## **2.2 Legal basis for the level 2 implementing measures**

2.8 This section deals with the identification of the legal basis for the Level 2 implementing measure being examined, i.e. identification of the Article(s) calling for an implementing measure with respect to that issue. Nevertheless, other implementing provisions that we have not mentioned in this section may be impliedly drawn on in relation to related or ancillary areas, such as internal controls under Chapter IV, Section 2 of the Directive.

2.9 Article 112(1) calls for an implementing measure for the procedure to be followed for the approval of an internal model:

*"The Commission shall adopt implementing measures setting out following:*

*(1) the procedure to be followed for the approval of an internal model;*

*(2) the adaptations to be made to the standards set out in Articles 118 to 123 in order to take account of the limited scope of the application of the partial internal model.*

*Those measures designed to amend non-essential elements of this Directive, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 304(3)".*

## **3. Procedure to be followed for the approval of an internal model**

### **3.1 Pre-application**

#### **3.1.1 General Provisions**

- 3.1. The Level 1 text for Solvency II imposes a tight timeframe of six months after receipt of a complete application during which supervisory authorities shall reach a decision on the application for approval of an undertaking's internal model for use in calculating the SCR. CEIOPS' work with industry during the preparation of the Stock-take report<sup>3</sup> suggests that undertakings' internal models may be extremely complex and varied, and that even the best prepared undertakings are still some way short of the expected Solvency II standards in at least some areas.
- 3.2. To ensure that the approval process for both the undertaking and its supervisory authority is conducted in an efficient, coordinated and effective manner, supervisory authorities will need to spend significant amounts of time reviewing the internal models against the requirements in the Level 1 text, as well as reviewing the undertaking's risk management framework.
- 3.3. To facilitate this process, many undertakings have suggested during the preparation of the stock-taking exercise that they would welcome a period of engagement with supervisory authorities prior to the submission of their formal application, to enable them to develop and refine their internal model practices in preparation for meeting Solvency II requirements.
- 3.4. CEIOPS are also of the opinion that undertakings that have engaged with the Solvency II project prior to implementation are likely to be more prepared for actual implementation. This can be seen from the undertakings that have taken part in the QIS exercises – those that completed the spreadsheets have a much greater understanding of what will be required from them, and are hence better able to prepare.
- 3.5. As a consequence, CEIOPS has analysed the pros and cons of introducing a pre-application stage prior to the undertakings formal application for internal model approval.
- 3.6. A pre-application stage requires more resources from the supervisory authorities, but should prove more efficient in the long run as

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<sup>3</sup> CEIOPS (2009) - "Stock-taking report on the use of internal models in insurance", available at: <http://www.ceiops.eu/media/files/publications/reports/Stock-taking-report-on-the-use-of-Internal-Models-in-Insurance.pdf>

supervisory authorities will be better able to plan resources for assessing internal models. This will also give supervisory authorities the opportunity to become familiar with the undertaking's internal model, making the assessment stage more straightforward with a direct positive effect on the quality of future applications. The undertaking shall also be able to come to a view about the likely success of its application and review any elements of the internal model that may require further work before making a formal application.

- 3.7. Several regulatory regimes have already introduced a pre-application stage, although with different levels of formality<sup>4</sup>. For example, CEBS Guidelines introduced this stage to facilitate banks' preparation of their internal model approval application<sup>5</sup>.
- 3.8. CEIOPS would not wish to specify in the Level 2 implementing measures the format of the pre-application, for example, whether it should include a face-to-face meeting between the undertaking and the supervisory authorities, but does consider that this will generally be desirable<sup>6</sup>. The content of the pre-application discussion with the supervisory authorities may vary. CEIOPS considers that it is reasonable to assume that the initial discussion shall at least include:
- a) an indication that the undertaking **intends to apply** for approval to use its internal model to calculate the solvency capital requirement (SCR) and when it plans to apply;
  - b) the **scope of the internal model** application and for which risks / entities / lines of business / major business units are covered by the model;
  - c) an initial view from the undertaking on how the internal model meets the requirements for approval in the Level 1 text (i.e. a **self-assessment of internal model readiness**); The self-assessment of internal model readiness shall not be a substitute for the internal model requirements in the Level 1 text. The format of the self-assessment might develop over time, based on the supervisory authorities experience of internal model approvals, or could be based on experience in other countries / industries. Supervisory authorities will need to consider to what extent a standard format could be developed for all undertakings, and how the format should vary according to the nature, scale and

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<sup>4</sup> CEIOPS (2009) - "Stock-taking report on the use of internal models in insurance", available at: <http://www.ceiops.eu/media/files/publications/reports/Stock-taking-report-on-the-use-of-Internal-Models-in-Insurance.pdf>

<sup>5</sup> CEBS (2006) - "Guidelines on the implementation, validation and assessment of Advanced Measurement (AMA) and Internal Ratings Based (IRB) Approaches", available at: <http://www.cebs.org/formupload/ab/abdd0561-d123-4961-81aa-6b2cad7c272b.pdf>

<sup>6</sup> CEIOPS will provide further guidance on the pre-application process at Level 3.

complexity of risks borne by the undertaking and how the undertaking is managed.

- d) the undertaking shall also be able to explain their concrete project **plan for meeting the internal model requirements** by the date of the application.
- e) any information the (re)insurance undertaking deems necessary and relevant to understand the model at the provisional stage of pre-application (e.g. a draft of the information to be submitted later for the internal model approval application). An undertaking indicating that they intend to apply for internal model approval should be expected to be well on the way to preparing the documentation for the application.
- f) access to any draft documentation of the internal model as set out by Article 123 of the Level 1 text.

3.9. CEIOPS emphasises these are minimum requirements, and supervisory authorities may consider other relevant information or documents as part of the pre-application discussions. Subsequently, the pre-application stage may include a review of this information by the supervisory authorities, including on-site inspection(s), if appropriate. This review would be alongside the information that the supervisory authorities already has from the undertaking through supervisory review process including the standard reporting to supervisory authorities. The supervisory authorities could also require any further information from the undertaking to assist in the review.

3.10. The aim of the review would be for the supervisory authorities to give a view on how prepared the undertaking is to submit an application, including the scope of the application and the time schedule for the submission of the formal application.

## **CEIOPS' Advice**

### **Pre-application**

#### ***General Provisions***

3.11. CEIOPS considers that a "pre-application" stage to the approval process will be of benefit to undertakings as it would give them the opportunity to liaise with their supervisory authorities as they develop and embed their internal models and prepare their application for approval. This will also facilitate the subsequent approval process and enable supervisory authorities to start from an informed position when reviewing the internal models for approval.

3.12. Therefore, CEIOPS recommends that such a pre-application stage is developed by supervisory authorities and is consistently applied on a regular basis.

3.13. During this pre-application period, it would be desirable that:

- a) Supervisory authority(ies) understand the extent and nature of the intended use, scope of application and coverage of the internal model (for example, which risks, business units, and exposures are to be covered, how internal model components are being rolled out across the undertaking, governance and risk management arrangements, data collection and management, and testing).
- b) The undertaking familiarises itself with the approval framework and the requirements and standards concerning the information that it will need to submit.
- c) There is early identification and communication of any specific concerns or issues that need to be factored into the process.

3.14. The aim of the review would be for the supervisory authorities to give a view on how prepared the undertaking is to submit an application, including the scope of the application and the time schedule for the submission of the formal application.

## **3.2 Application**

### **3.2.1 General Provisions**

3.15. Article 110(1) requires that "Member States shall ensure that insurance and reinsurance undertakings may calculate the solvency capital requirement using a full or partial internal model as approved by the supervisory authorities".

3.16. To decide on an application, supervisory authorities need an overview of the model that the undertaking uses or plans to use, the scope of application and coverage, and of how it will be implemented in the insurer's policies, procedures and risk management. Detailed information will be required on the construction and calibration of the models, the database, the technological environment, including the insurer's control environment.

3.17. Permission to use an internal model, full or partial, shall be requested in writing by a cover letter to the relevant supervisory authority stating that the supervised (re)insurance undertaking applies for permission to use an internal model, starting from a specified date. Attached to this cover letter the undertaking shall provide an adequate description of the model and its scope together with all the documents ('application pack') that constitute the documentary evidence that the internal model meets the requirements set out in the level 1 text including Articles 100, 110 and 118 to 124, is appropriate to calculate the SCR, that the undertaking has adequate systems for monitoring and managing risk, and the specific provisions for partial internal models set out in Article 111(1), if

applicable. All these information shall be provided in an official language of the Member State, except if the supervisory authority agrees that information is provided in another language. Therefore, the undertaking is responsible to carry out any translation of documents related to the application.

- 3.18. The application shall not contain irrelevant information to ensure that the application is appropriately focussed and it shall also be easily navigable.
- 3.19. The six month period for taking a decision on an application shall begin on the date that a complete application is received by the supervisory authorities referred to in Article 110(4). In particular, the 6 month period starts as soon as the relevant supervisory authorities are satisfied that they have received an application that is complete with respect to the signatory, content, and minimum requirements, and it is complete to the relevant supervisory authorities' satisfaction in all other essential aspects and does not raise any significant doubt or non fulfilment in this regard.
- 3.20. If the application is not complete in all essential aspects, including being provided in the official language, and/or it raises any significant doubt or non fulfilment in this regard, or if it does not meet the standards set out in the Level 3 guidelines or in more detailed standards imposed by the competent supervisory authorities, the application will not be considered complete and therefore the application does not enter the formal assessment process and the 6 month period does not start. Any rejection decision by the supervisory authorities not to proceed with the formal assessment of the application shall be accompanied by the reasons therefore. These motivations may include an indication of the necessary steps the undertaking may follow in order to achieve a complete application.
- 3.21. Supervisory authorities may request supplementary information, either in the initial application or at a later stage, to allow an effective assessment of the application. These documents, like all internal documentation, have to be made available to the supervisory authorities upon request.
- 3.22. The required minimum documentation for such an application shall be divided into:
  - a) **Cover letter requesting approval** approved and signed by the administrative or management body of the (re)insurance undertaking. The letter shall at least include the following information:
    - a.1. request for permission to use the internal model starting from a specified date and general information;
    - a.2. a formal confirmation that:

- all the necessary measures and processes concerning the structure and completion of the internal model have been implemented for a reasonable period prior to the application;
  - the internal model submitted for approval has been used as an authoritative instrument for the quantitative measurement and control of the undertaking-specific risk for a reasonable period prior to the application;
  - the use of the internal model for the quantitative measurement and control of undertaking-specific risks and for determining the regulatory SCR is deemed appropriate; and
  - that the documents presented are complete
- a.3. the rationale for the internal model;
- a.4. contact information for relevant people (e.g. members of the modelling team, etc.);
- a.5. the letter should also confirm that the material attached to the application is a true and fair summary of the topics covered. 'True and fair summary' means that the document provides only a summary of the topic in question, 'true' means that the information contained in the summary is not false or misleading, and 'fair' means that the information presents a reasonable overall summary, without omitting material facts.
- b) a written declaration from the administrative or management bodies of the (re)insurance undertaking to confirm that all clarifications and supporting document have been provided and no material facts and/or details relevant to the approval have been knowingly concealed.
- c) A copy of the application approval of the administrative or management bodies as set out in Article 114 (e.g. extracts from the relevant minutes).
- d) the results of the latest ORSA and details of the undertaking's business and risk strategies as set out in Article 44.
- e) **Scope of application for full and partial internal models and model coverage** - The undertaking shall explain what elements, including material quantifiable risks, lines of business and entities are proposed to be covered by the internal model.

For a full internal model, an undertaking:

- e.1. shall explain the overall scope of the full internal model;

- e.2. why it considers each of its model components to adequately cover the risk, not only partially, but fully in its domain of definition, according to concrete regulatory criteria to be developed by CEIOPS in another Consultation Paper later in 2009.

For a partial internal model, an undertaking:

- e.3. shall also justify the limited scope of the model;
  - e.4. why it considers that using partial internal modelling for determining regulatory capital requirements is more consistent with the risk profile of the business than the application of the standard formula; and
  - e.5. why it considers its design consistent with the general provisions for the solvency capital requirement so as to allow the partial internal model to be fully integrated in the standard formula.
- f) **Risk management process and risk profile** - The undertaking shall demonstrate in the context of the internal model that it has in place an adequate and effective risk management system, including an agreed risk appetite, a procedure for recording risks and that its related results are adequately documented. Using an adequate process of analysis, undertaking must be able to understand the nature of the risks they have identified, their origins, the possibility or need to control them and the effects that could arise, both in terms of losses and opportunities. The process of analysis includes a qualitative assessment and, for quantifiable risks, the adoption of methods to measure the exposure to risk.
- g) **Self-assessment** - The self assessment shall identify strengths and weaknesses of the internal model and demonstrate compliance with the regulatory requirements, including provisions set out in Articles 100, 110(3)<sup>7</sup>. The self assessment carried out by undertakings shall at least :
- g.1. provide information on the reconciliation process used to ensure the accuracy of input data and its accurate transfer into the internal model;
  - g.2. describe the testing performed to ensure that internal model outputs are reasonable, accurate, complete, appropriate and comprehensive;
  - g.3. provide a description of any internal model limitations or shortcomings identified during the validation process and the steps taken to address these - where any risks may be

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<sup>7</sup> Level 2 implementing measures on further internal model requirements are part of further detailed advice to the Commission of the European Communities that CEIOPS is developing.

identified, but outside of scope of the quantitative tool, these may be indicated;

- g.4. describe the process used to demonstrate the appropriateness of internal model structure, parameters and methodologies;
- g.5. the self-assessment shall end with a statement by the administrative or management body of the (re)insurance undertaking about the deviance of the model from the existing risk profile.
- h) **Technical Characteristics** - The undertaking shall describe the structure of the internal model. This shall include a list of assumptions, such as choice of distributions or dependencies, for which the insurer is aware that making a different but still reasonable choice may cause a significant change in the capital requirement. For each one, the undertaking shall explain the choice made (e.g. tests which involve one single parameter) and/or scenario testing (tests which involve more parameters or require a new stochastic simulation).
- i) **External models and data** – As set out in article 124, the use of a model or data obtained from a third party, shall be not considered to be a justification for exemption from any of the requirements for the internal model set out in articles 118 to 123. The undertaking shall disclose the use of external models and data and demonstrate the suitability for use within the internal model. The undertaking shall demonstrate how the external models and data have been validated and how the performance of external model results is regularly reviewed and how the integrity of the external data has been verified<sup>8</sup>.
- j) **Model governance, systems and controls, including documentation** - The undertaking shall demonstrate an appropriate organisation and an adequate system of internal controls, proportionate to the size and operational characteristics of the undertaking and the nature and complexity of its risks. Moreover, the undertaking shall demonstrate adequate resources, skills and objectivity of the people responsible for the development and review of the internal model<sup>9</sup>.
- k) a copy of the relevant **organisation charts**.
- l) **Up-to-date independent review/Validation report** - The undertaking shall provide documentation of the most recent independent review/validation report of the internal model, which

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<sup>8</sup> Level 2 implementing measures on Article 124 of the Level 1 Text are part of further detailed advice to the Commission of the European Communities that CEIOPS is developing.

<sup>9</sup> Level 2 implementing measures on Article 118 of the Level 1 Text are part of further detailed advice to the Commission of the European Communities that CEIOPS is developing.

may be undertaken by an internal group or by an appropriately qualified external party. The party performing the review must be independent from the normal business operations and the preparation of the annual financial statements of the undertaking and must not have been significantly involved in the development and calibration of the internal model.

- m) **Policy for changing the full and partial internal models and other policies for internal model governance** - This shall include at least the draft of the proposed policy for model changes as provided in Article 113 and any other internal model governance policy required by supervisory authorities (e.g. validation policy, data policy, etc)<sup>10</sup>.
- n) **Plan for future model improvement** - In this paragraph the undertaking shall explain the plan and the areas for future model development and improvement. This shall include a plan to address not just the weaknesses of the internal model.
- o) **Capital requirement** - The undertaking shall provide their assessments of economic capital and the SCR from the internal model. Undertaking shall also provide the allocations of these assessments used in their system of governance (as described in Article 118) to the most granular level used. Undertakings shall also provide an estimate of the SCR calculated in accordance with the standard formula<sup>11</sup>. In the case of a partial internal model this estimate shall not only encompass the overall SCR, but also at least all risk modules or sub-risk modules or risks, or business units (depending on the case) modelled by the internal model.

3.23. Documents (b) through (o) are considered to be part of the application pack. The application pack provides a summary of the (re)insurer undertaking's current or planned practices in sufficient depth to enable the supervisory authorities to make an initial supervisory assessment of the application, and to develop a risk-based plan for a more detailed assessment.

3.24. The application should be signed by the administrative or management body of the undertaking.

3.25. The content of the documents referred to above shall be further detailed in Level 3.

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<sup>10</sup> Policies for model governance will be discussed in the CEIOPS advice to the Commission of the European Communities on the Level 2 implementing measures on Articles 118 to 124 of the Level 1 Text, which shall be published for consultation later in 2009.

<sup>11</sup> Where the undertaking has been using the standard formula to calculate the SCR prior to its application for internal model approval it shall provide the SCR calculated in accordance with the standard formula. This may refer to applications submitted after the first date of implementation of the Solvency II regime.

## **CEIOPS' Advice**

### **Application**

#### **General Provisions**

- 3.26. Permission to use an internal model, full or partial, shall be requested in writing by a cover letter to the relevant supervisory authorities stating that the supervised (re)insurance undertaking applies for permission to use an internal model, starting from a specified date. Attached to this cover letter the undertaking shall provide all the documents ('application pack') that constitute the documentary evidence that the internal model meets the requirements set out in the level 1 text, including Articles 100, 110 and 118 to 124 as well as specific provisions for partial internal models set out in Article 111(1), if applicable. All these information shall be provided in an official language of the Member State, except if the supervisory authority agrees to the information being provided in another language. The undertaking is therefore responsible to carry out any translation of documents related to the application.
- 3.27. The application shall not contain irrelevant information to ensure that the application is appropriately focussed and easily navigable.
- 3.28. The six month period for taking a decision on an application shall begin on the date that a complete application is received by the supervisory authorities referred to in Article 110(4). In particular, the 6 month period starts as soon as the relevant supervisory authorities are satisfied that they have received an application that is complete with respect to the signatory, content, and minimum requirements and it is complete to the relevant supervisory authorities' satisfaction in all other essential aspects and does not raise any significant doubt or non fulfilment in this regard.
- 3.29. If the application is not complete in all essential aspects, including being provided in the official language and/or it raises any significant doubt or non fulfilment in this regard, or if it does not meet the standards set out in the Level 3 guidelines or in more detailed standards imposed by the competent supervisory authorities, the application will not be considered complete and therefore the supervisory authorities shall not proceed with the formal assessment of the application and the 6 month period does not start. Any rejection decision by the supervisory authorities not to proceed with the formal assessment of the application shall be accompanied by the reasons therefore. These motivations may include an indication of the necessary steps the undertaking may follow in order to achieve a complete application.
- 3.30. The required minimum documentation for an application shall be divided into:

- a) Cover letter requesting approval, approved and signed by the administrative or management body of the (re)insurance undertaking;
- b) Written declaration from the administrative or management body of the (re)insurance undertaking confirming that all clarifications and supporting document have been provided, but no material fact and/or details relevant to the approval have been concealed;
- c) Copy of the application approval from the administrative or management body of the (re)insurance undertaking, as set out in Article 114;
- d) The results of the latest ORSA and details of the undertaking's business and risk strategies as set out in Article 44;
- e) Scope of application for full and partial internal models and model coverage<sup>12</sup>;
- f) Risk management process and risk profile;
- g) Self-assessment;
- h) Technical characteristic of the internal model;
- i) External models and data;
- j) Model governance, systems and controls, including documentation;
- k) Copy of the relevant organisation charts;
- l) Up-to-date independent review/validation report;
- m) Policy for changing the full and partial internal model (Article 113) and other policies for internal model governance;
- n) Plan for future model improvement; and
- o) Capital requirement, including an estimate of the SCR calculated in accordance with the standard formula<sup>13</sup>.

3.31. Documents (b) through (o) are considered to be part of the application pack. The application pack provides a summary of the insurer's current or planned practices in sufficient depth to enable the supervisory authority to make an initial supervisory assessment of

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<sup>12</sup> Criteria for the assessment of the scope of the application for internal models and the model coverage in order to achieve either a partial or a full internal model will be part of further detailed advice to the Commission of the European Communities that CEIOPS is developing, especially on Article 119.

<sup>13</sup> Where the undertaking has been using the standard formula to calculate the SCR prior to its application for internal model approval it shall provide the SCR calculated in accordance with the standard formula. This may refer to applications submitted after the first date of implementation of the Solvency II regime.

the application, and to develop a risk based plan for a more careful assessment.

3.32. Further guidance about these documents shall be provided at Level 3.

### **3.3 Policy for changing the full and partial internal models**

#### **3.3.1 General Provisions**

- 3.33. The development of a model change policy is a requirement on all undertakings applying for approval to use the internal model to calculate the SCR. The model change policy forms part of the application from the undertaking, and shall be approved by the supervisory authorities (Article 113, Level 1 text).
- 3.34. It is good practice for insurance and reinsurance undertakings to update their internal models, and CEIOPS expects them to, for example, update methodologies as appropriate to reflect improved techniques. The requirement for an approved change policy should not impede good modelling practice and reflects the need for supervisory authorities to be aware of changes and to be able to satisfy themselves that the internal model still complies with the requirements set out in the Level 1 text. In addition, it is a good discipline and should form a key part of the internal model governance in the undertaking.
- 3.35. Insurance and reinsurance undertakings will therefore be allowed to change the internal models in accordance with these principles and the requirements of the Level 1 text. This ensures that the approval relates only to the internal model as approved by the supervisory authorities. Major changes to the internal model will trigger the need for prior supervisory approval (of those changes), and until approval is granted, the amended internal model (i.e. including changes) shall not be used to calculate the SCR (except in the cases set out in paragraph 3.60). In this case undertakings shall determine the SCR by using the approved internal model (which at that point in time excludes the major changes). In addition, any change not covered by the scope of the change policy will also need to be approved by the supervisory authorities before it takes effect. In such cases, the change policy will need to be amended and then re-approved by the supervisory authorities.
- 3.36. This conveys the idea that an internal model, as approved by the competent supervisory authorities may be used by the undertaking to assess on an ongoing basis the solvency capital requirements of the risks included in the internal model.

- 3.37. The full or partial internal model is, however, an integral part of the risk management organisation of insurance and reinsurance undertakings or groups. The undertaking is therefore required to regularly review the adequacy of the full or partial internal model, including the risks covered and to adapt the model where necessary. In this respect, for an approved internal model, the “decision document” (i.e. the permission) also approves the undertaking’s ability to correctly implement future changes to the model.
- 3.38. The policy for changing the full and partial internal model shall include a specification for identifying major and minor changes to the internal model (Article 113 paragraph 2). It is assumed that certain minimum changes to the model will be required each year, as described in Articles 112 and 119. A process to deal with these model changes shall be set out in the policy and agreed by the supervisory authorities, including internal governance for changes.
- 3.39. The ultimate goal is for the undertaking to develop a reliable structure to classify as far as possible any anticipated types of model changes. This structure has to be simple and clear. It also has to be flexible enough to serve both the undertaking’s need for creative innovations on risk models and the supervisory authorities’ need to control the implementation of these innovations in order to maintain the overall integrity and adequacy of the approved internal risk model in an effective and efficient way. The structure of the model change policy shall cover the criteria for the classifications, the necessary communication between undertaking and supervisory authorities regarding the model changes and the signoff procedures of the supervisory authority for these model changes, as approved by the supervisory authorities.
- 3.40. In developing the advice CEIOPS considered five key issues:
- The scope of the model change policy (What changes are to be addressed by the policy?);
  - The number of different model change categories;
  - Principles to differentiate model changes between each of those categories;
  - Reporting requirements, communication procedures and documentation standards for each model change category (including the frequency with which reports are required for minor model changes); and
  - Signoff procedures for each model change category.

***Scope of application of the model change policy***

- 3.41. The scope of application of the model change policy sets out the changes to the undertakings full and partial internal model that are subject to the procedures outlined in the policy.

3.42. CEIOPS considered two extreme options, with some potential for further options in between:

<b>Option</b>	<b>Arguments in favour of this option</b>	<b>Arguments against this option</b>
<p><b>Minimum scope</b> The model change policy only covers changes to the calculation kernel of the internal model.</p>	<p>Little intervention into business decisions</p>	<p>Changes not directly related to the quantitative core of the model, but relevant for its appropriateness are not subject to supervisory scrutiny</p>
<p><b>Maximum scope</b> The model change policy covers all changes to parts of the (re)insurance undertaking which are relevant for the internal model, including changes to the organisation, any processes or policies, or business strategy, practices or products.</p>	<p>No change that is potentially relevant to the appropriateness of the model is overlooked</p>	<p>Potentially big impact on business decisions of the (re)insurance undertaking, as it implies a large degree of supervisory influence even where the internal model is only marginally concerned.</p>

3.43. CEIOPS considers that areas of relevance for the internal model include the system of governance mentioned in Chapter IV, Section 2 of the Level 1 text, as well as the provisions and requirements set out in Articles 110 to 124, as well as any relevant changes to the risk profile of the undertaking.

3.44. CEIOPS recommends that the model change policy covers any change which impacts these areas of relevance. Examples of relevant changes are changes to the undertaking's organisation and allocation of responsibilities as well as its strategies, processes, policies and reporting procedures. They include changes to quantitative methods used for measuring the relevant risks but also changes to qualitative elements which implement the generated information into the system of governance of the undertaking (e.g. use within the risk management structure and its procedures, provision for the internal risk model and its changes within organisational structure of the undertaking).

### ***Model change categories***

3.45. The first question is what shall be the optimal number of model change categories?

- 3.46. CEIOPS identified two extreme options, with some potential for further options in between:
- 3.47. On one hand, model changes may only be defined according to the two categories set out in Article 113: major and minor changes.
- 3.48. On the other hand, a different approach to separate different types of model changes may be followed. The purpose is given by the need to monitor and control model changes effectively because of their potential impact on the adequacy of the approved internal risk model. This objective has to be balanced by an efficient supervisory approach. This may lead to a further refinement of the classification of model changes into:
- **First level** - differentiation between major and minor changes.
  - **Second level** – differentiation between major model changes that require supervisory on-site inspection(s) and those that do not.

Option	Arguments in favour of this option	Arguments against this option
<p><b>Practical classification:</b> We define two categories as suggested in Article 113: major and minor changes.</p>	<p>The classification will be simple and clear for all relevant parties (undertakings and supervisory authority)</p>	<p>None</p>
<p><b>Maximal granular classification:</b> We classify the model changes by all imaginable categories of supervisory authority's regulatory actions. (e.g. related to obligatory or facultative on-site inspection as a condition for supervisory approval)</p>	<p>The classification will comply with the supervisory authority's needs</p>	<p>The classification may be too complex for the undertakings to comply with and restricts the supervisory authority to decide its actions on a case-by-case base</p>

- 3.49. CEIOPS recommends classifying model changes into the two categories set out in Article 113 of the Level 1 text, i.e. major and minor changes. This simple classification complies with the needs of all parties. The supervisory authority is able to act as needed and is not restricted by the classification.
- 3.50. Besides changes to the model, there are **model scope extensions**. Model scope extensions denote new elements of the internal model which are not covered by the existing model approval, such as additional risk modules or sub-modules, or business units that are not included in the model. Changes to the internal model which are

not model extensions shall be dealt with in the policy for model changes.

- 3.51. Model scope extensions may or may not be part of a transitional plan (Article 111(2)), but in any case they shall follow the same approval procedure as set out in Article 110.
- 3.52. Undertakings may further assign model changes to the following sub-categories:

**a) Major/minor changes with respect to:**

- a.1. the calculation kernel of the internal model;
  - a.2. the risk management;
  - a.3. internal model governance; and
  - a.4. other aspects of the internal model (e.g. the model change causes a significant increase/decrease of the VaR within substantial sub-portfolios).
- 3.53. As set out in Article 113 of the Level 1 text, changes to the approved internal model change policy of the undertaking shall always be subject to prior supervisory approval.
  - 3.54. Supervisory authorities have to be comfortable that undertakings will not attempt to abuse the system by changing material parts of their internal model through the use of a combination of minor changes, which individually are not subject to prior supervisory approval.
  - 3.55. To further explain the regulatory philosophy, facilitate the undertaking's task and mitigate the potential misuse of minor changes CEIOPS may provide guidance about representative examples of model changes which may fall within each category (see Annex C). Supervisory authorities may perform an in-depth review of minor changes to the internal model.

***Communication, documentation and sign-off procedures for model changes***

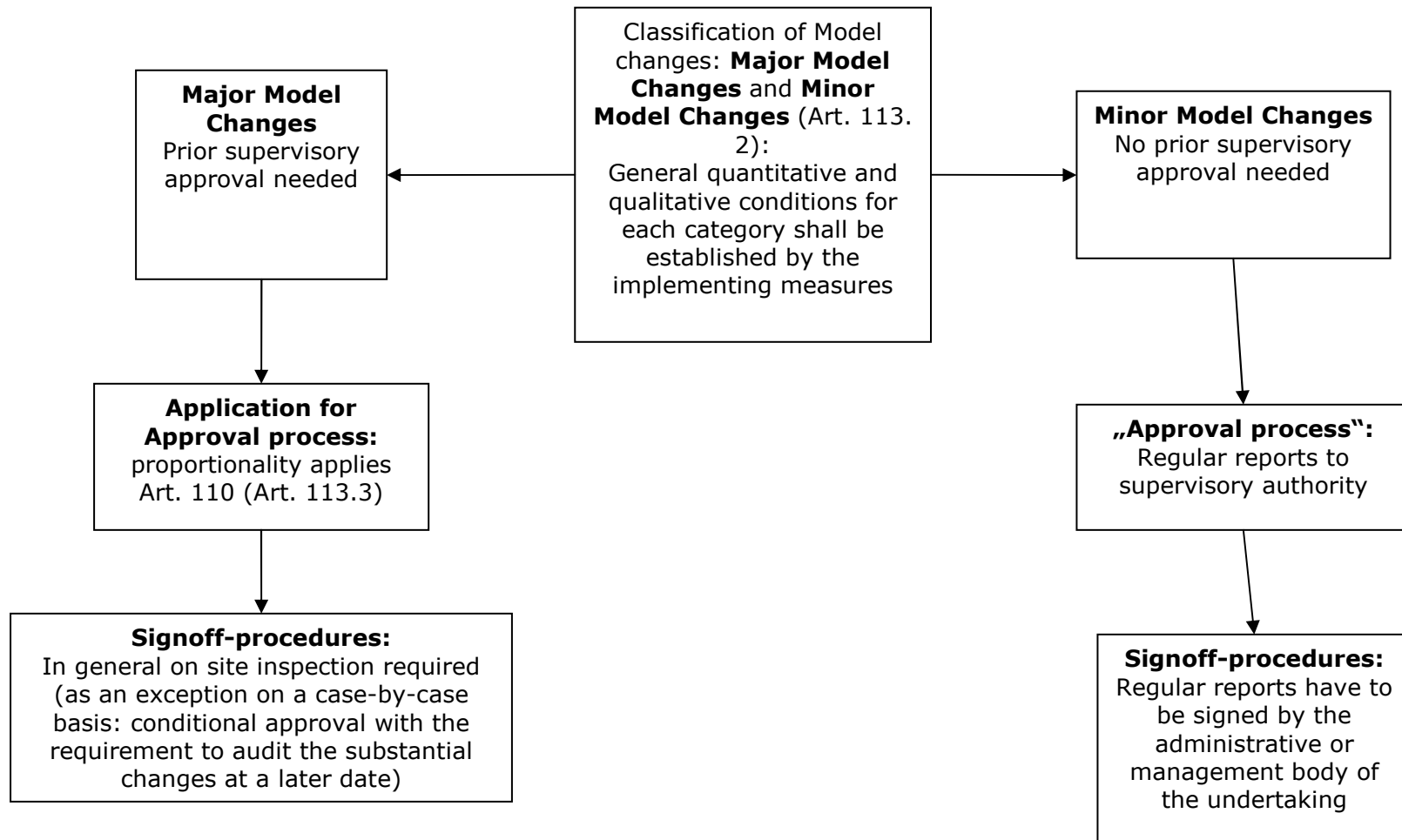
- 3.56. CEIOPS recognises that communication, documentation and approval requirements for model changes may be onerous and resource intensive both for the undertaking and the supervisory authority. Therefore, requirements should be proportionate to the nature, scale and complexity of the impact of the intended model change.
- 3.57. CEIOPS recommends that
  - **major changes** shall be communicated to the supervisory authority for approval as soon as the decision has been taken by the administrative or management body and prior to implementation of the changes. The communication of major changes shall be made to the supervisory authority well in advance of intended

implementation. The undertaking shall support and justify the request to the supervisory authority with sufficient information about the estimated impact of the change on the quantitative and qualitative adequacy of the approved internal risk model. The administrative or management bodies of the insurance undertaking shall approve the request.

- (re)insurance undertakings shall report **minor model changes** to the supervisory authority quarterly, or at a higher frequency if it is deemed more appropriate. Minor changes shall be communicated in summarised report that describes both the effects of each change and the cumulative effects of the changes on the quantitative and qualitative adequacy of the approved internal model. The administrative or management bodies of the insurance undertaking shall approve the report and thereby the minor changes if they are in line with the approved model change policy.
  - The supervisory authority shall have systems in place to record and track undertakings' notification requirements
- 3.58. Updates, changes, adjustments and extensions of the model are to be detailed in the report on solvency and financial condition in accordance with Articles 50, 52 to 54<sup>14</sup>.
- 3.59. Major changes, as well as changes to the model change policy itself, may be subject to a supervisory on-site inspection prior to approval.
- 3.60. The supervisory authority may also decide, on a case-by-case basis, and only in exceptional circumstances, to grant a prior conditional approval on a provisional basis of the major change based on the documentation submitted by the undertaking and if permission in favour of the applicants may be reasonably expected. If deemed necessary this can be followed up with an on-site inspection later in time. The approval can be withdrawn at any time if the (re)insurance undertaking fails to comply or cease to comply with the conditions.

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<sup>14</sup> Level 2 implementing measures on these topic are part of further detailed advice to the Commission of the European Communities that CEIOPS is developing.



## **CEIOPS' Advice**

### **Policy for changing the full and partial internal models**

#### ***Scope of application***

- 3.61. The undertaking has responsibility for creating the policy for changing the full and partial internal model.
- 3.62. CEIOPS considers that areas of relevance for the internal model include the system of governance mentioned in chapter IV, section 2 of the Level 1 text, as well as the provisions and requirements set out in articles 110 to 124, as well as any relevant changes to the risk profile of the undertaking.
- 3.63. The model change policy shall cover any change which impacts these areas of relevance.

#### ***Model change categories***

- 3.64. As set out in Article 113 of the Level 1 text model changes shall be classified into:
- Major changes; and
  - Minor changes.
- 3.65. Undertakings may further assign model changes to the following sub-categories:
- **Major/minor changes** with respect to:
    - the calculation kernel of the internal model
    - the risk management
    - the internal model governance
    - the existing and regulatory approved internal model change policy of the undertaking
    - other aspects of the internal model
- 3.66. As set out in Article 113 of the Level 1 text, changes to the approved internal model change policy of the undertaking shall always be subject to prior supervisory approval.
- 3.67. Supervisory authorities have to be comfortable that undertakings will not attempt to abuse the system by changing material parts of their internal model through the use of a combination of minor changes, which individually are not subject to prior supervisory approval.
- 3.68. CEIOPS may provide guidance about representative examples of model changes which may fall within each category
- 3.69. Besides changes to the model, there are model scope extensions. Model scope extensions denote new elements of the internal model

which are not covered by the existing scope of the model approval, such as additional risk modules or sub-modules, or business units that are not included in the scope of model.

- 3.70. Model scope extensions may or may not be part of a transitional plan (Article 111(2)), but in any case they shall follow the same approval procedure as set out in Article 110. The model change policy shall therefore exclude such extensions to the scope of the internal model.

***Communication, documentation and sign-off procedures for model changes***

- 3.71. The policy for model changes shall contain an indication of the undertaking internal governance for changes to the model (e.g. internal approval of changes, escalation path, internal communication, documentation and validation of changes, etc.).
- 3.72. The communication of planned **major changes** shall be made to the supervisory authority well in advance of intended implementation. The undertaking shall support the request to the supervisory authority with sufficient information about the impact of the change on the quantitative and qualitative adequacy of the approved internal risk model. The administrative or management bodies of the insurance undertaking shall approve the request.
- 3.73. Major changes, as well as changes to the model change policy itself, may be subject to a supervisory on-site inspection prior to approval.
- 3.74. The supervisory authority may also decide, on a case-by-case basis, and only in exceptional circumstances, to grant a prior conditional approval on a provisional basis of the major change based on the documentation submitted by the undertaking and if permission in favour of the applicants may be reasonably expected. If it is deemed necessary, this can be followed up with an on-site inspection later in time. The approval can be withdrawn at any time if the (re)insurance undertaking fails to comply or cease to comply with the conditions.
- 3.75. Re(insurance) undertakings shall report **minor model changes** to the supervisory authority quarterly or at a higher frequency, if it is deemed more appropriate. Minor changes shall be communicated in a summarised report that describes both the effects of each change and the cumulative effects of the changes on the quantitative and qualitative adequacy of the approved internal model. The administrative or management bodies of the insurance undertaking shall approve the report.
- 3.76. In addition, any change not covered by the scope of the change policy will also need to be approved by the supervisory authorities. In such cases, the change policy will need to be amended and then re-approved by the supervisory authorities.
- 3.77. Supervisory authorities shall have processes in place to record and track undertakings' notification requirements.

3.78. Supervisory authorities may perform an in-depth review of minor changes to the internal model.

## 3.4 Assessment

### 3.4.1 General Provisions

3.79. Under Article 110(4), the supervisory authorities shall decide on the application within six months of receipt of the complete application<sup>15</sup>.

3.80. This implies that the entire approval process is subject to a decision by the competent supervisory authorities and cannot be delegated to third parties.

3.81. During the assessment the supervisory authorities shall analyse and assess the information submitted by (re)insurance undertakings as part of the application. This may also include supplementary information provided by the (re)insurance undertaking or requested by the supervisory authorities, in order to make a decision as to whether the (re)insurance undertaking is allowed to use the internal model to determine its capital requirements.

3.82. The internal model is required to be able to calculate the SCR for the undertaking, as set out in Article 100 of the Level 1 text. Pursuant to Article 110(5) of the Level 1 text, supervisory authorities shall give approval to the application only if they are satisfied that the systems of the insurance or reinsurance undertaking concerned for identifying, measuring, monitoring, managing and reporting risk are adequate and in particular, that the internal model complies with the requirements referred to in Article 110(3) and the specific provisions for partial internal models set out in Article 111 (1), if applicable. This process shall not only assess how the internal model meets the requirements set out in the Level 1 text in isolation, but it shall also consider any potential interrelation between these requirements. The review process shall therefore include the necessary steps and tools to ensure supervisory authorities are able to satisfy themselves that these requirements are met or otherwise.

3.83. Therefore, the assessment is likely to imply an iterative process, with feedback to undertakings resulting in modifications to their models. If such changes and improvements to the model occur, the application has to be changed respectively. Depending on the dimension of such changes and improvements the following processes shall apply:

- **Minor modifications:** The supervisory authority will communicate the necessary modifications to the undertaking immediately and require it to install the modifications while setting a deadline. During

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<sup>15</sup> Further details on what is meant by complete application have been provided in the application section.

this period, the 6-month period will be suspended and shall start to run again by the receipt of the new documentation. The supervisory authority will then inform the undertaking immediately on the new end of the new 6-month period.

- **Major modifications:** If major modifications become necessary, and are classified as so serious that any qualified third parties would have to evaluate them under reasonable circumstances as a new application, then the 6-month period will be stopped and will start to run anew the moment the supervisory authority receives the new application of the undertaking consistent with the rules for re-applying.
- 3.84. As set out in Article 124 the use of a model or data obtained from a third party shall not be considered to be a justification for exemption from any requirement of the internal model. Therefore, where the internal model makes use of external model technology (vendor model components such as, for example, capital market scenarios and Cat models, software, hardware, support, etc.), the approval process shall also cover the suitability of these components<sup>16</sup>.
- 3.85. In summary, the assessment shall at least comprise a technical review of the model (i.e. its scope, design, build, integrity and applications), its coverage and ability to calculate the SCR for the undertaking, documentation, the risk management process, senior management role and their understanding of the model and shall be partly carried out by a set of on-site examinations. The issues that supervisory authorities are expected to assess may be broken down further into the following:
- **scope of full and partial internal models and model coverage** – supervisory authorities will examine and assess the adequacy of the internal model’s scope and the model coverage.
  - **methodology and documentation** – supervisory authorities will examine and assess the internal model methodology and the quality of internal documentation supporting the model.
  - **data quality.**
  - **quantitative procedures** – supervisory authorities will assess the quantitative information provided by the applicant relating to performance, validation, and monitoring of the internal model. Supervisory authorities may ask applicants to undertake additional analyses and may undertake quantitative procedures of their own.
  - **qualitative procedures**- supervisory authorities will assess the use test, internal governance, the role of senior management and their understanding of the model, the adequacy of internal controls, and other areas in order to assess the qualitative aspects of the internal model that have a bearing on the approval and to check for compliance with the Level 1 text requirements.

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<sup>16</sup> CEIOPS will provide further details about the use of external model and data in another Consultation Paper to be published later in 2009.

- **technological environment** – supervisory authorities will evaluate the reliability and integration of systems, the functionality of the model and the quality of information provided by systems.
- 3.86. The iterative internal model assessment may include the following processes:
- Desk-based review of the information submitted by the undertaking as part of the application and any additional information provided by the undertaking or requested by the supervisory authorities;
  - On-site inspection(s) of the internal model and its use;
  - Requests for further information as appropriate;
  - Ad hoc conversations by phone and email to clarify points.
- 3.87. The assessment stage will conclude with a final evaluation and decision by supervisory authorities on the appropriateness of the full or partial internal model applied by the insurance undertaking or group to calculate the SCR. More details will be provided in the Decision section.

### **3.4.2 Specificities related to partial internal models**

- 3.88. In the case of partial internal model, supervisory approval shall only be given if the model complies with the requirements set out in Article 110 and the additional conditions set out in Article 111(1). Therefore, when assessing applications for partial internal models supervisory authorities should give special focus on whether:
- a) the reason for the limited scope of application of the model is properly justified by the undertaking;
  - b) the resulting Solvency Capital Requirement reflects more appropriately the risk profile of the undertaking and in particular meets the principles set out in subsection 1 of section 4 of the Level 1 text;
  - c) its design is consistent with the principles set out in the above-mentioned Subsection 1 so as to allow the partial internal model to be fully integrated into the Solvency Capital Requirement Standard Formula.
- 3.89. Undertakings shall justify the limited scope of the model, whereas supervisory authorities shall assess if these justifications are reasonable. There are many reasons to justify the limited scope of the model<sup>17</sup>, e.g.:
- partial internal models may be a transitory step towards a full internal model;

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<sup>17</sup> This list is not exhaustive.

- there may be a lack of reliable information to model other risks/business lines; and
  - the modelling of other risks/business lines may disproportionate for the nature, complexity and scale of the risks inherent in the business of the undertaking; partial internal models may encourage innovation and specialization to certain business areas; mergers and/or acquisitions.
- 3.90. Moreover, undertakings shall demonstrate that partial internal models reflect their risk profile more appropriately and that the resulting *SCR* meets the principles set out in the above mentioned subsection 1, namely going concern assumption, coverage of risks mentioned in Article 101(4), to take into account the effect of risk mitigation techniques provided that credit risk and other risks arising from the use of such techniques are properly reflected in the Solvency Capital Requirement and frequency of *SCR* calculation.
- 3.91. Both full and partial internal models do not need to follow a modular structure. However, CEIOPS recognises that for partial internal models applying a non modular structure or covering only certain business units may pose some constraints with respect to the integration of the partial model within the standard formula. In these circumstances, undertakings shall have to demonstrate that the partial internal model may be integrated within the standard formula in a consistent way.
- 3.92. The integration of partial internal models within the standard formula and the adaptations to be made to the standards set out in Articles 118 to 123 in order to take into account of the limited scope of the application of the partial internal model will be discussed in another Consultation Paper to be published later in 2009.

## **CEIOPS' Advice**

### **Assessment**

#### **General Provisions**

- 3.93. During the assessment supervisory authorities shall analyse and assess the information submitted by the (re)insurance undertakings as part of the application. This may also include supplementary information provided by the (re)insurance undertaking or requested by the supervisory authorities, in order to make a decision as to whether the (re)insurance undertaking is allowed to use the internal model to determine its capital requirements.
- 3.94. This process shall not only assess how the internal model meets the requirements set out in the Level 1 text in isolation, but it shall also consider any potential interrelation between these requirements. The review process shall therefore include the necessary steps and tools

to ensure supervisory authorities are able to satisfy themselves that these requirements are met or otherwise.

3.95. The assessment may be iterative with feedback to undertakings resulting in modifications to their models. If such changes and improvements to the model occur, the application has to be changed respectively. Depending on the dimension of such changes and improvements the following processes shall apply:

- **Minor modifications:** The supervisory authority will communicate the necessary modifications to the undertaking immediately and require it to install the modifications while setting a deadline. During this period, the 6-month period will be suspended and shall start to run again by the receipt of the new documentation. The supervisory authority will then inform the undertaking immediately on the new end of the new 6-month period.
- **Major modifications:** If major modifications become necessary, and are classified as so serious that any qualified third parties would have to evaluate them under reasonable circumstances as a new application, then the 6-month period will be stopped and will start to run anew the moment the supervisory authority receives the new application of the undertaking consistent with the rules for re-applying.

3.96. Where the internal model makes use of external models and data, as set out in Article 124 of the Level 1 text, the approval process shall also cover these components.

3.97. In summary, the assessment shall at least comprise a technical review of the model (i.e. its scope, design, build, integrity and applications), its coverage and ability to calculate the SCR for the undertaking, documentation, the risk management process, senior management role and their understanding of the model and shall be partly carried out by a set of on-site examinations. The issues that supervisory authorities are expected to assess may be broken down further into the following:

- scope of full and partial internal models and model coverage
- methodology and documentation;
- data quality;
- quantitative procedures;
- qualitative procedures;
- technological environment.

3.98. The internal model assessment may include the following processes:

- Desk-based review of the information submitted by the undertaking as part of the application and any additional information provided by the undertaking or requested by the supervisory authorities;
- On-site inspection(s) of the internal model and its use;

- Requests for further information as appropriate;
- Ad hoc conversations by phone and email to clarify points.

### **Specificities related to partial internal models**

3.99. When assessing undertakings' applications for partial internal models, supervisory authorities shall focus on whether the requirements set out in Article 111(1) of the Level 1 text are met. The undertaking shall demonstrate that the requirements set out in Article 111(1) are met.

3.100. The integration of partial internal models within the standard formula and the adaptations to be made to the standards set out in Articles 118 to 123 in order to take into account of the limited scope of the application of the partial internal model will be discussed in another Consultation Paper to be published later in 2009.

## **3.5 Decision making process**

### **3.5.1 General Provisions**

3.101. The decision making stage of the internal model approval process uses the outputs from the assessment of the model by the supervisory authorities to reach a decision on whether the model is appropriate to use to calculate the SCR, as described in Articles 100 and 101 of the Level 1 text.

3.102. The supervisory authorities' obligation to give a decision on the application for approval encompasses both whether to approve the application and whether to reject an application if it fails to meet the Level 1 text requirements for approval.

3.103. The various requirements that a model needs to comply with for model approval are set out in the Level 1 text. Amongst them:

- Article 100 requires that the internal model provides an appropriate SCR calculation
- Article 110 (5) sets out that the internal model should meet the tests as set out in Articles 118 to 123;
- Article 110 (5) sets out that the insurer has adequate systems for monitoring and managing risks;
- Article 113 sets out that the insurer has agreed a model change policy with the supervisory authorities; and
- Article 111 (1) sets specific provisions for partial internal models.

3.104. Some of these requirements will be further elaborated by another Consultation Paper to be published later in 2009.

3.105. The outputs from the assessment of the model process will set out whether the model at least complies with the requirements listed above.

3.106. Once the decision has been made by the supervisory authorities, the on-going compliance with the requirements is considered by the supervisory review process (SRP) described in Article 36.2.f. of the Level 1 text. Some elements of the SRP will be dependent on the nature of the decision made by the supervisory authorities, and is considered in this section of the consultation paper.

### ***Approval***

3.107. When the supervisory authorities have examined the application and assessed the model of the undertaking, and have considered that all

the requirements have been met, then the supervisory authorities shall approve the use of the internal model for calculation of the SCR.

3.108. If the application related to a partial model, the partial model shall be approved. Although, in some circumstances, supervisory authorities may require a transitional plan for the extension of the partial internal model.

3.109. An internal model may be approved for use to calculate the SCR from the date of the decision by the supervisory authorities.

3.110. An approval may or may not be subject to terms and conditions.

3.111. When considering possible terms and conditions supervisory authorities may take into account:

- how realistic is for the terms and conditions to be fulfilled by the undertaking by a particular date (if any); and
- whether compliance by the undertaking with those terms and conditions can be assessed in an objective and straightforward way.

3.112. Supervisory authorities shall review the ongoing compliance with these terms and conditions. If the undertaking does not comply, or cease to comply with these terms and conditions, the provisions set out in Article 116 of the Level 1 text shall be made to apply. In some circumstances, supervisory authorities may also require the model to incorporate an additional capital buffer to compensate for deficiencies.

3.113. CEIOPS envisages Level 3 standards and guidance on the subject of terms and conditions to enable further supervisory convergence in practice

3.114. In case of approval subject to terms and conditions, supervisory authorities may require the undertaking to submit a plan indicating the necessary steps to meet the terms and conditions attached to the decision or permission document. This plan may enable supervisory authorities to check the undertaking progress.

### ***Rejection***

3.115. If the assessment of the undertaking's application shows that the internal model has not met the requirements, then the supervisory authorities shall not grant the undertaking approval to calculate the SCR using a full or partial internal model, as described above. However, the undertaking shall be given the possibility to withdraw the application.

3.116. The supervisory authorities shall therefore reject the application. In this case (i.e. rejection) if the undertaking intends to use a partial or

full internal model in the future, it shall have to submit a new application for approval.

3.117. If the undertaking's application for approval to use a full or partial internal model to calculate the SCR is rejected, it shall use the standard formula to calculate the SCR.

3.118. As set out in Article 110 of the Level 1 text any decision by the supervisory authorities to reject the application for the use of an internal model shall be accompanied by the reasons. This gives an opportunity to supervisory authorities to indicate where an application has been deficient, for example, and to undertakings, if they wish, to rectify the failings in their application and internal model and re-apply for approval.

3.119. However, it is likely that an undertaking will need some time to rectify the deficiencies in its application and internal model. So, to mitigate the risk that undertakings re-apply before they have appropriately addressed the shortcomings in their application and model, CEIOPS recommends that supervisory authorities be allowed to enforce, on the basis of reasons communicated to the undertaking, a 'waiting period' before the undertaking can submit a new application.

3.120. The waiting period may apply also when the undertaking withdraws the application.

### ***'Limited approval'***

3.121. It is appropriate to consider under which circumstances supervisory authorities may decide to reject the undertaking's application for approval to use an internal model to calculate the SCR and subject to further discussions with the undertaking decide to limit the approval of the scope of the internal model to part(s) of the application.

3.122. For example, supervisory authorities may reject the undertaking's application for approval to use a full internal model to calculate the SCR and, after discussions with the undertakings, approve only those parts of the internal model that satisfy the Level 1 text requirements. In this case, the undertaking shall calculate the SCR by using the internal model only for those parts that have been approved by the supervisory authorities. Whereas, the standard formula shall be used to calculate the SCR for the business units and/or risk modules for which the internal model has not been approved.

3.123. Effectively, the parts of the model that are approved by the supervisory authorities will be a partial internal model, as referred to in Articles 110 and 111 of the Level 1 text.

3.124. However, supervisory authorities shall only grant this 'limited approval' if the parts of the model function indeed as a partial

internal model, that is, they comply with the specific provisions for partial internal models set out in Article 111(1) of the Level 1 text. Special attention should be paid with respect to compliance with the use test, the reason(s) for the limited scope of the model and dependencies with other risk modules/factors, as in this case the undertaking had originally applied for a broader scope internal model.

3.125. A 'limited approval' may be more efficient both for supervisory authorities and undertakings, than a new application for a broader scope internal model. However, supervisory authorities need to take into account the risk of cherry-picking. For example, undertakings may deliberately fail the requirements for those business units/risk modules where the risks assessed by an internal model provide a higher SCR, than that calculated by the standard approach. In these circumstances, supervisory authorities may mitigate this risk by requiring the undertaking to submit a realistic transitional plan to extend the scope of the approved internal model, as set out in Article 111(2) of the Level 1 text.

3.126. The integration of partial internal models into the standard formula will be covered extensively in another CEIOPS' consultation paper to be published later in 2009.

### ***Communication with the undertaking***

#### ***Approval***

3.127. The entire approval review process is complete when the relevant supervisory authority has confirmed that the procedures applied by the insurance undertaking or group are adequate for all the risk modules provided for in the implementation or project plan, within the scope of benchmarking and comparisons of estimates and result at the moment of the decision.

3.128. Supervisory authorities may together with the approval send a review report to the undertaking concerned.

3.129. Insurance or reinsurance undertakings that have applied for internal model approval, but have not yet received any official approval shall use the standard formula to calculate the SCR until approval has been granted.

3.130. Article 110(7) provides that, once their internal model has been approved by the supervisory authorities, insurance and reinsurance undertakings are required to provide an estimate of the SCR calculated according to the standard formula for the first two years. This should also be forwarded to the supervisory authorities as part of the information provided for supervisory purposes in Article 35.

3.131. The actual format of the approval document is left open by Article 110(4). CEIOPS considers that approval should be formally notified to the undertaking in the form of a decision or permission document.

The applicant undertaking may only use the internal model to calculate the regulatory SCR from the date it is approved by the supervisory authorities, or from the date set out in the decision or permission document from the supervisory authorities.

3.132. The decision or permission document shall at least indicate:

- the scope of application and the internal model coverage;
- terms and conditions attached to the use of the internal model, if any;
- notification requirements for on-going compliance;
- the approved policy for model changes and any other approved internal model governance policy;
- other requirements;
- transitional plan, if required;

### Rejection

3.133. Pursuant to Article 110(6), any decision by the supervisory authorities to reject the application for approval of an internal model shall be accompanied by the reasons.

3.134. Thus, if supervisory authorities reject the application, they shall provide reasons. This also applies to the case when the application for a full internal model has been rejected and supervisory authorities have limited the approval of the scope of the internal model to part(s) of the application.

### ***Disclosure of the model approval***

3.135. What level of disclosure shall be given to the decision approving the use of the internal model to calculate the solvency capital requirement?

3.136. Disclosure of the information contained in the decision or permission may enhance market discipline through greater transparency. For example, it may provide undertakings with incentives to foster sound risk management and internal modelling practices. In addition, high levels of disclosure may lead to an increase in convergence and harmonisation of practice by supervisory authorities within the EEA.

3.137. The Level 1 text explicitly supports transparency. More specifically, Article 30 deals with supervisory authorities transparency and accountability, whereas Chapter 4, Section 3 deals with public disclosure

3.138. It would be difficult to demonstrate that no one would be affected by the decision or permission. For this reason, CEIOPS considers that it would be necessary to publish this information. The benefits of disclosure accrue to a wide audience and accrue over time. For

example, if information about the scope of application of the model, its coverage, roll-out plans, conditions (even if these suggest or might be construed to suggest inherent weaknesses in the models) are not disclosed, by supervisory authorities there is the risk that the undisclosed information might be useful to persons whose dealings with the undertaking might likely be affected by the decision or permission document. They may be prevented from taking different decisions about the undertakings because the precise terms of the decision or permission were not known.

- 3.139. However, an appropriate balance has to be struck between the information that shall be disclosed and the need not to prejudice the commercial interest of the undertaking to an unreasonable degree.
- 3.140. Undertakings are often too keen to generically dismiss that there is a benefit from disclosing any information contained in a supervisory decision. Many undertakings are understandably reluctant to see information published which may reflect negatively on their risk management.
- 3.141. A potential concern is the reaction of the market if some of the details of the decision or permission were published. Especially in periods of market turbulence where the risk of irrational behaviour or misinterpretation of some information contained in the decision or permission document may be more significant.
- 3.142. To mitigate this risk, undertakings may be asked to submit to the supervisory authorities detailed reasons why the decision or permission or any part of it shall not be published and explain the extent to which its disclosure would be detrimental to their commercial interest to an unreasonable degree.
- 3.143. In deciding where the balance of disclosure shall be supervisory authorities shall take into account Pillar 3 considerations. For example, an argument that publication will lead to the release of information that prejudices the commercial interest of the undertaking to an unreasonable degree is unlikely to succeed if the information will be disclosed in any event (e.g. through Pillar 3 disclosures) because the relevant test will not be met (i.e. disclosing this information will not cause any prejudice).
- 3.144. Unless supervisory authorities are satisfied that it is inappropriate or unnecessary to do so, a decision or permission shall be disclosed by the supervisory authorities in such a way as they think most suitable for bringing the decision or permission to the attention of:
- those most likely to be affected by it, and
  - others who may likely to make an application for a similar decision

### **3.5.2 Specific issues related to partial internal models: transitional plan to extend the scope of the model (Article 111(2))**

- 3.145. When assessing and deciding on an application for the use of a partial internal model which only covers certain sub-modules of a specific risk module, or some of the business units of an insurance or reinsurance undertaking with respect to a specific risk module, or parts of both, supervisory authorities may require the insurance and reinsurance undertakings concerned to submit a realistic transitional plan to extend the scope of the model<sup>18</sup>.
- 3.146. Several reasons can lead the supervisory authority to require such a plan. For example, there may be concerns about cherry picking, or about the way the internal model is integrated in the standard formula.
- 3.147. The transitional plan shall set out the manner in which insurance and reinsurance undertakings plan to extend the scope of the model to other sub-modules or business units, in order to ensure that the model covers a predominant part of their insurance operations with respect to that specific risk module.
- 3.148. Generally, partial internal models according to Article 110 (2) shall cover risk modules or sub-modules as a whole and /or the adjustment referred to in Article 107. Partial modelling may also be applied for the whole business of insurance and reinsurance undertakings or major business units. Supervisory authorities may require a transitional plan to extend the sub module to a risk module, where the other sub modules cover material risk not modelled beforehand. If the supervisory authorities are satisfied that the undertaking is not "cherry picking" by applying for a partial internal model, then the partial internal model may be approved as a permanent solution.
- 3.149. If the supervisory authorities approve the application for a partial internal model subject to the undertaking submitting a transitional plan to expand the scope of the model, it shall explain to the undertaking the reasons for this decision and set the minimum scope that the internal model should cover after the implementation of the plan.

#### ***SCR calculated according to the internal model***

- 3.150. The key issues regarding the transitional plan to extend the scope of the model are the following:
- I. Transitional plan to extend the scope of the model

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<sup>18</sup> According to Article 117 of the Level 1 Text (significant deviations from the assumptions underlying the standard formula calculation), supervisory authority may also require the undertaking, by a decision stating the reasons, to use an internal model to calculate the SCR, or the relevant risk module thereof.

- i. Time frame;
- ii. Scope;
  - a) Extension of scope;
  - b) Measures to extend the scope;
  - c) Resources to extend the scope.
- iii. Supervisory assessment

II. Failure to implement the transitional plan to extend the scope of the model

3.151. The transitional plan to extend the scope of the model must be properly documented and shall be accompanied by a statement of the administrative or management body of the undertaking confirming that it is a true and fair summary of the topics covered.

*Timeframe*

3.152. Usually, extension of the scope of the model should be possible within a timeframe accepted by the supervisory authorities as appropriate, after discussion with the insurance or reinsurance undertaking.

3.153. The timeframe will depend on the situation of each insurance or reinsurance undertaking. Nevertheless, a number of variables could influence this decision, amongst other:

- The nature, scale and complexity of the risks inherent in the business of the insurance or reinsurance undertaking;
- Analysis of specific stress scenarios;
- The quality of the system of governance;
- The average time the supervisory authority considers to be generally required to implement the plan;
- The time the undertaking concerned would be expected to need to implement the plan.
- The internal model approval statement and roll plan in the case where the internal model is approved with conditions.

*Scope*

3.154. The undertaking shall clearly identify the extension of the scope of the model. This shall at least cover the minimum scope required by the supervisory authorities, and contain an indication of the risks,

sub-risk modules, risk modules as well as the business units to be covered.

- 3.155. Undertaking shall identify the necessary measures to extend the scope of the model as well as the respective timetable,
- 3.156. Insurance and reinsurance undertakings shall indicate in the transitional plan the resources necessary to implement the proposed measures. These may include, amongst other, human resources, IT resources, implementation tools, outsourcing, etc.
- 3.157. The transitional plan shall provide clear indications about the governance of the plan, including responsibilities for the implementation and monitoring the implementation.
- 3.158. Additionally, the transitional plan shall indicate the role of the administrative or management body, internal auditing, compliance function, risk management function, actuarial function and external parties in the implementation and/or control of the set of proposed measures.

#### *Supervisory assessment*

- 3.159. Supervisory authorities shall evaluate the transitional plan presented by the insurance or reinsurance undertaking, and may propose and discuss amendments when they are not fully satisfied with it.
- 3.160. The transitional plan shall be consistent with the time period agreed by the supervisory authorities and the insurance or reinsurance undertaking. It shall also cover the minimum scope required by the supervisory authorities. The transitional plan needs supervisory approval, notwithstanding with supervisory judgment, insurance and reinsurance undertakings are responsible for it and with this aim should be given a fair amount of flexibility.

#### ***Failure to implement the transitional plan***

- 3.161. If insurance or reinsurance undertakings fail to implement the transitional plan to extend the scope of the model, supervisory authority will be faced with several options:
- a) Extend the time period to implement the plan as it is;
  - b) Extend the time period to implement the plan but require amendments to it;
  - c) Impose a capital add-on where permitted under article 37 of the Level 1 Text;

d) As a final resort, require the insurance or reinsurance undertaking to fully revert to the standard formula.

3.162. The decision will depend on the situation of each insurance or reinsurance undertaking. Nevertheless, a number of variables could influence this decision:

- Impact of non compliance on policy holders protection;
- Impact on the assessment of the risk profile of the undertaking;
- The nature, scale and complexity of the risks inherent in the business of the insurance or reinsurance undertaking;
- Impact of non compliance on the level playing field between insurance and reinsurance undertakings;
- The average time the supervisory authority considers to be generally required to implement the necessary improvements.

### **CEIOPS' Advice**

#### **Approval**

3.163. When the supervisory authorities have examined the application and assessed the model of the undertaking, and have considered that all requirements have been met, then the supervisory authorities shall approve the use of the model for calculation of the SCR.

3.164. In this case, the undertaking shall use the internal model to calculate the SCR as soon as it is approved by the supervisory authorities, or from a later date as set out in the decision or permission document from the supervisory authorities.

3.165. The approval may or may not be subject to terms and conditions.

3.166. When determining terms and conditions supervisory authorities may take into account:

- how realistic is for the terms and conditions to be fulfilled by the undertaking by a particular date (if any); and
- whether compliance by the undertaking with those terms and conditions can be assessed in an objective and straightforward way (by the supervisory authorities).

3.167. In case of approval subject to terms and conditions, supervisory authorities may require the undertaking to submit a plan indicating the necessary steps to meet the terms and conditions attached to the decision or permission document.

3.168. CEIOPS envisages Level 3 standards and guidance on the subject of terms and conditions to enable further supervisory convergence in practice.

## **Rejection**

- 3.169. If the assessment of the undertaking's application shows that the internal model has not met the minimum requirements, the supervisory authorities shall not grant the undertaking approval to calculate the SCR using a full or partial internal model approval.
- 3.170. The supervisory authorities shall therefore reject the application. In this case (i.e. rejection) if the undertaking intends to use a partial or full internal model in the future, it shall have to submit a new application for approval.
- 3.171. If the undertaking's application for approval to use a full or partial internal model to calculate the SCR is rejected, it shall use the standard formula to calculate the SCR.
- 3.172. If supervisory authorities reject an undertaking's application for approval to use a full or partial internal model to calculate the SCR, they may enforce, on the basis of reasons communicated to the undertaking, a 'waiting period' before the undertaking can submit a new application. This period shall give the undertakings time to appropriately address the shortcomings in the original application.
- 3.173. The waiting period may apply also when the undertaking withdraws the application.

## **Rejection of the full internal model application and simultaneous approval of a partial internal model ('limited approval')**

- 3.174. Supervisory authorities may reject the undertaking's application for approval to use a full internal model and approve only those parts of the internal model that satisfy the Level 1 text requirements.
- 3.175. In this case, the undertaking shall calculate the SCR by using the internal model only for those parts that have been approved by the supervisory authorities. Whereas, the standard formula shall be used to calculate the SCR for the business units and/or risk modules for which the internal model has not been approved.
- 3.176. Supervisory authorities shall only grant this 'limited approval' if the parts of the model function indeed as a partial internal model, that is, they comply with the specific provisions for partial internal models set out in Article 111(1) of the Level 1 text.

### **Format of the decision or permission document**

3.177. The approval of the undertaking's application to calculate the SCR using a full or partial internal model is officially notified to the undertaking in the form of a decision or permission document.

3.178. The decision or permission document shall at least indicate:

- the scope of application and the internal model coverage;
- terms and conditions attached to the use of the internal model, if any;
- notification requirements for on-going compliance;
- the approved policy for model changes and any other approved internal model governance policy;
- other requirements;
- roll-out plan, if required;

### **Disclosure of the decision or permission**

3.179. Unless supervisory authorities are satisfied that it is inappropriate or unnecessary to do so, a decision or permission shall be disclosed by the supervisory authorities in such a way as they think most suitable for bringing the decision or permission to the attention of:

- those most likely to be affected by it, and
- others who may likely to make an application for a similar decision

3.180. In deciding whether it is inappropriate or unnecessary to disclose the decision or permission, supervisory authorities shall consider whether the disclosure would prejudice to an unreasonable degree the commercial interest of the undertaking concerned.

3.181. Undertakings shall justify why the decision or permission shall not be disclosed and how the undertaking's commercial interest would be prejudiced to an unreasonable degree.

### **Specificities related to partial internal models**

3.182. If the supervisory authorities approve the application for a partial internal model subject to the undertaking submitting a transitional plan to expand the scope of the model, it shall explain to the undertaking the reasons of this decision and set the minimum scope that the internal model should cover after the implementation of the plan.

3.183. The undertaking shall submit to supervisory approval the referred plan clearly identifying the time frame, extension of scope, the

measures to extend the scope and the respective resources. Supervisory authority shall evaluate the plan presented by the undertaking, and propose and discuss amendments in case they are not fully satisfied with it.

3.184. If the undertaking fails to implement the transitional plan to extend the scope of the model, the supervisory authority will be faced with several options:

- Extend the time period to implement the plan as it is;
- Extend the time period to implement the plan but require amendments to it;
- Impose a capital add-on where permitted under Article 37 of the Level 1 Text;
- As a final resort, require the insurance or reinsurance undertaking to fully revert to the standard formula.

Annex: **Examples of changes to the model**

Categories of changes	Examples	Classes of business	Major/Minor	Time required	Special characteristics/procedures
Parameter adjustments (= no change to the model)	Calibration of the ESG (economic scenario generator) (only the data are updated, the methods are unchanged when using new data)	All			
	New reserve triangle, method unchanged	Non life			
	New NatCat update	Non life			
	New NatCat update	Reinsurance			

Categories of changes	Examples	Classes of business	Major/Minor	Time required	Special characteristics/procedures
Changes to the model	Use of another ESG (also in units)	All			
	Use of another NatCat model (also in units)	All			
	Modelling of large claims with change of the large claim limit and selection of a new distribution (in major business units)	Non life			
	Change of the reinsurance model structure	Non life			
	Significant estimates (e.g. in the ESG) are changed	All			
	General model improvements	All			
	Provision for spreads	All			
	Modelling of previously unmodelled risks	All			
	Change to the of security model structure				
	Initial introduction of fast close and required adjustments				
	Changes to the model points due to the change in the aggregation procedure in Life/Health				
	Management rules (see below)				
	Change to the calibration deadline	All			
	Change to estimates for components	All			
Deduction of the portfolio at another point in time	All				
Portfolio adjustments (= no change to model)	New insurance products/assets, provided they can be adequately represented in the existing model structure	All			

Categories of changes	Examples	Classes of business	Major/Minor	Time required	Special characteristics/procedures
Legal changes	Integration of Minimum Allocation Ordinance change to the model)	Life			
	Change to the tax system, if not represented in existing model (= change to the model)	Life (all?)			
	Rebate rules	All			
	Change of the rules for minimum surrender values	Life			
Operational adjustments					
	Switch from internal to external data sources	All			
	New software version (without functional change)	All			
	Change of key processes (content: approval, validation, etc.; change of responsibilities not relevant)				
Management rules	Change of rules concerning the adjustment of profit sharing	Life			
	Change of rules concerning strategic asset allocation, reinsurance protection	All			
	Change of rules concerning dividend policies (dividends, distribution between policyholders and shareholders)	All			