13th Global Conference of Actuaries 2011

Emerging Risks... Daring Solutions

Insurance Supervision for Solvency - An IAIS Perspective

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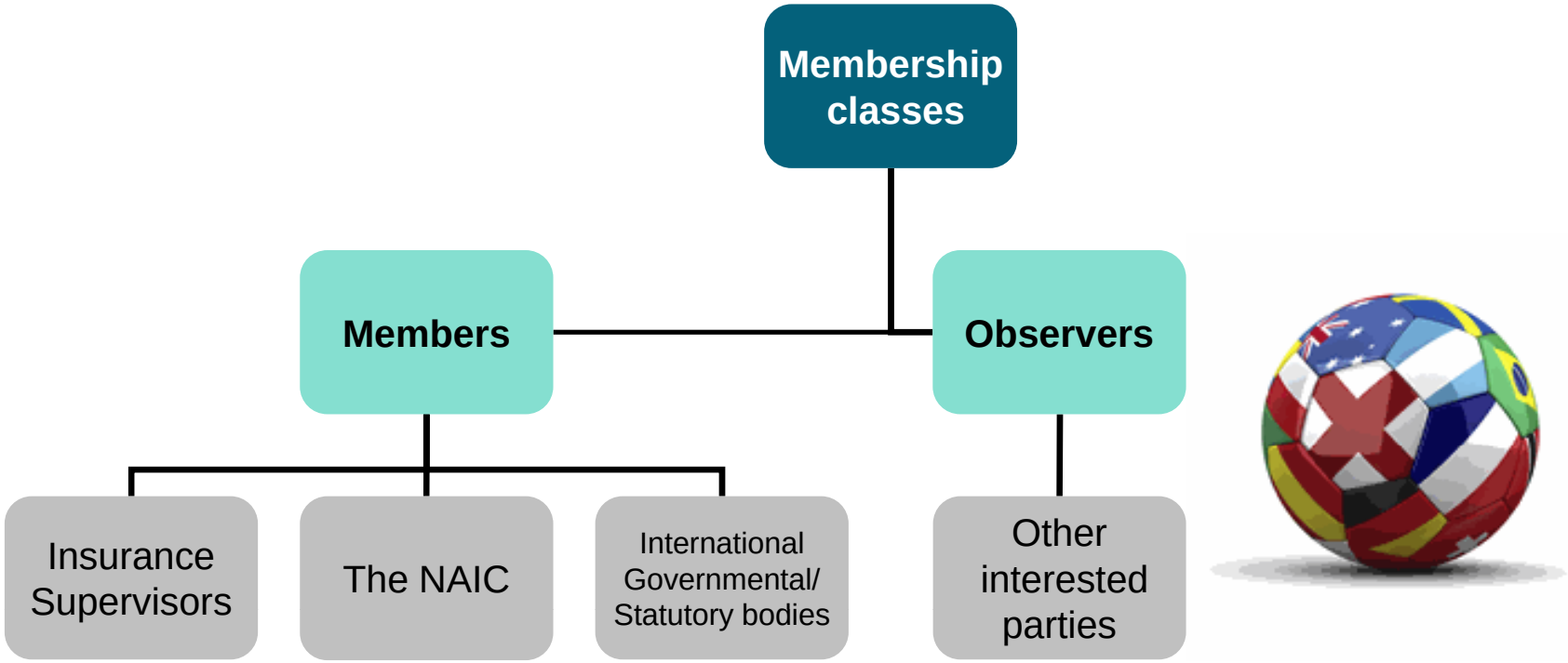
Agenda

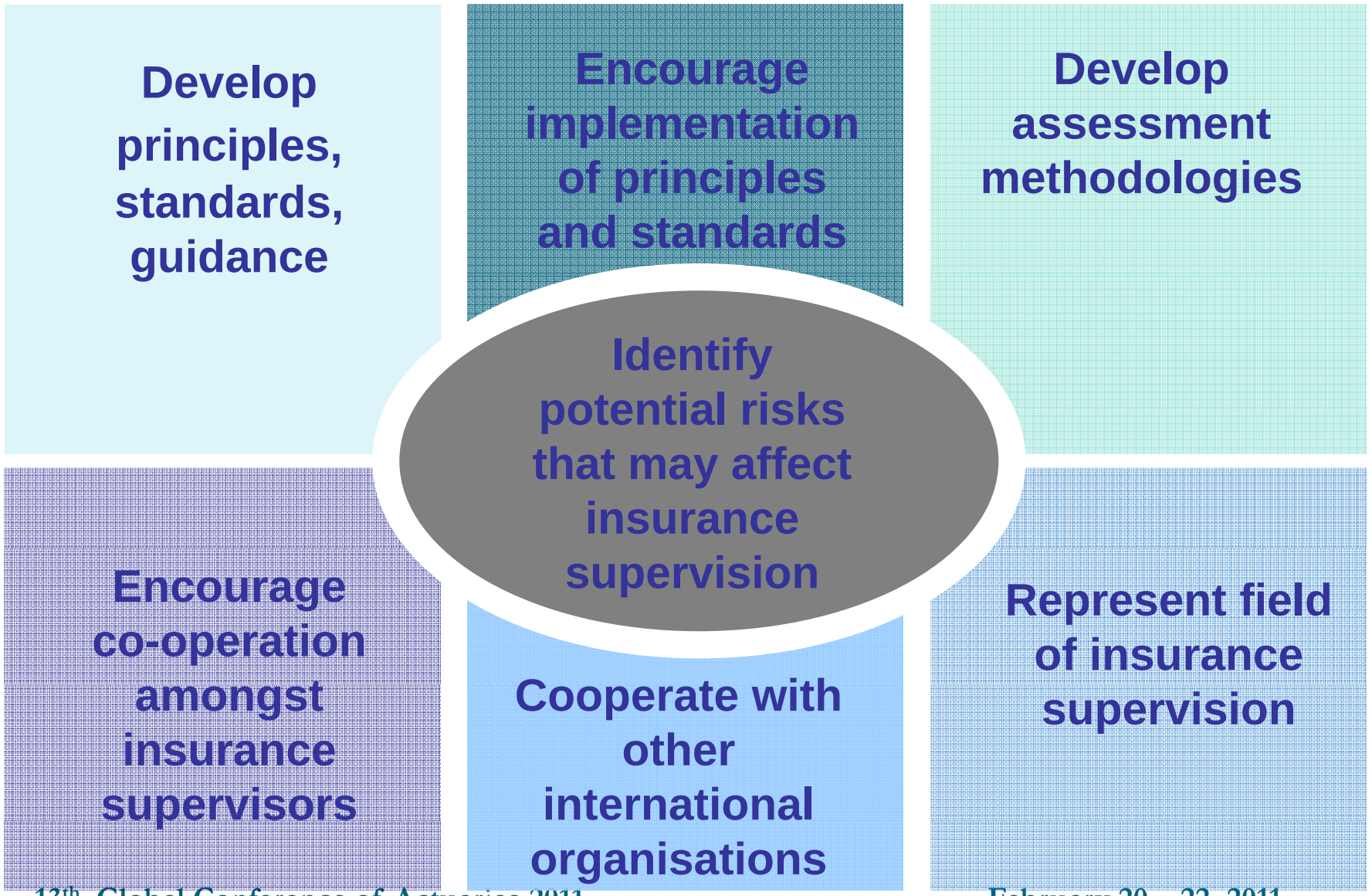
- Background of the International Association of Insurance Supervisors (IAIS)
- Insurance Core Principles (ICPs) for effective solvency supervision

IAIS: A Global Forum for Insurance Supervisors

- Founded in 1994
- Members from more than 190 jurisdictions in over 140 countries
- Over 120 Observers
- Hosted by the Bank for International Settlements (BIS)



What Does the IAIS Do?



Why Are International Standards Important?

Global Financial Stability

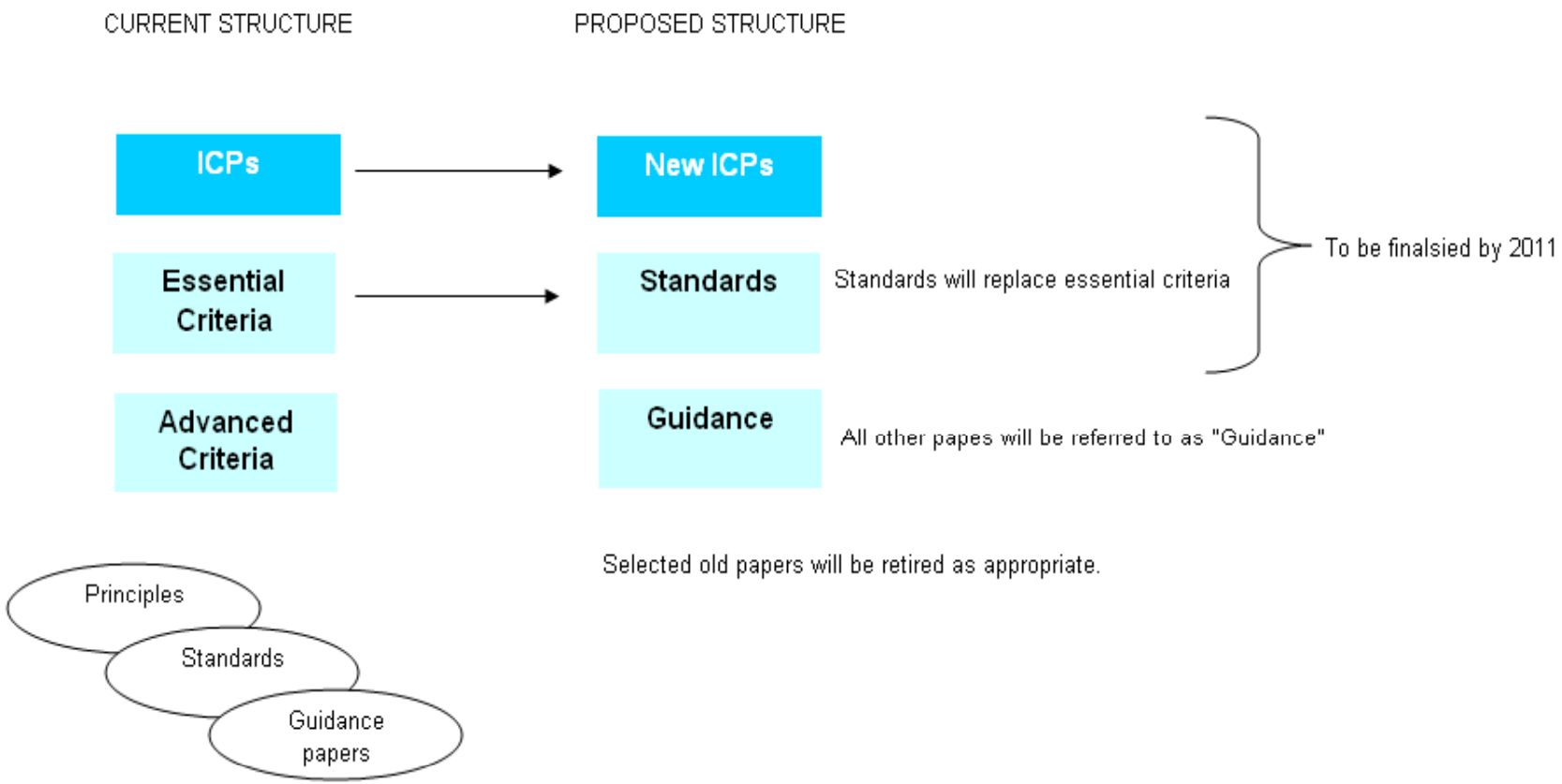
- **Policyholder protection**
- **Efficient, fair, safe and stable insurance markets**

Well-regulated insurance markets

Improved supervision

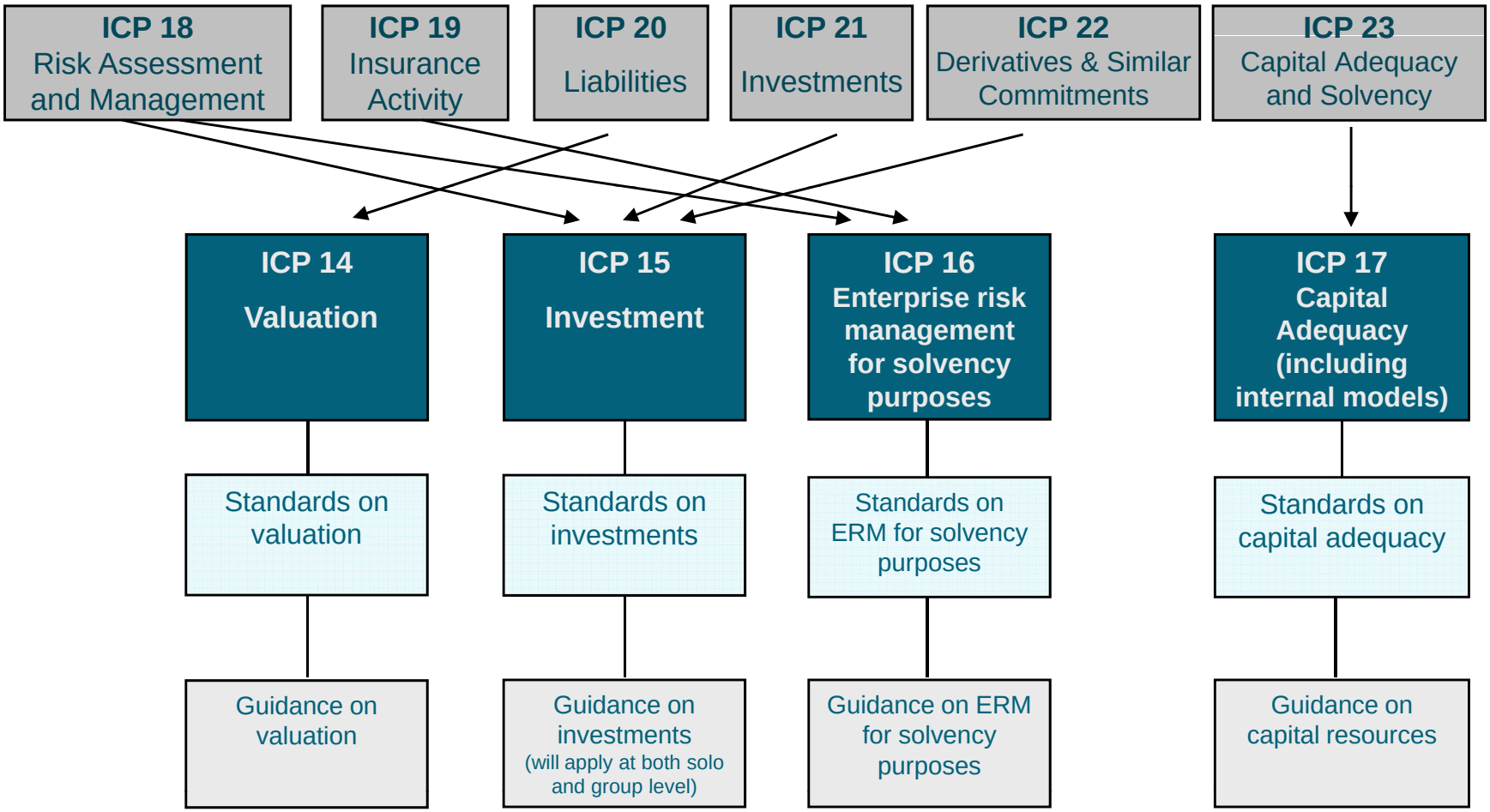
Insurance Core Principles

<u>Currently being revised</u> (with a completion date of 2011) to ensure they remain appropriate, comprehensive and current
(subject to final approval)



Solvency Related ICPs

Proposed structure of New ICPs (for both solo and groups)



Solvency ICPs

ICP 14 Valuation for Solvency Purposes

The supervisory regime establishes requirements for the valuation of assets and liabilities for solvency assessment purposes.

ICP 15 Investment for Solvency Purposes

The supervisory regime establishes requirements for solvency purposes on the investment activities of insurers in order to address the risks faced by insurers.

ICP 16 Enterprise Risk Management for Solvency Purposes

The supervisory regime establishes enterprise risk management requirements for solvency purposes that require insurers to address all relevant and material risks.

ICP 17 Capital Adequacy for Solvency Purposes

The supervisory regime establishes capital adequacy requirements for solvency purposes so that insurers can absorb significant unforeseen losses and to provide for degrees of supervisory intervention.

Standard on Capital Adequacy for Regulatory Solvency Purposes

Contents

Standard on Capital Adequacy for Regulatory Solvency Purposes

Application

This standard applies to insurance legal entities and insurance groups unless otherwise stated. The standard does not directly apply to non-insurance entities (regulated or unregulated) within an insurance group, but it does apply to insurance legal entities and insurance groups with regard to the risks posed to them by non-insurance entities.

1. Capital adequacy in context of a total balance sheet approach

1. The solvency regime requires that a total balance sheet approach is used in the assessment of solvency to recognise the interdependence between assets, liabilities, regulatory capital requirements and capital resources and to ensure that risks are appropriately recognised.

2. Establishing regulatory capital requirements

2. The solvency regime establishes regulatory capital requirements at a level sufficient to ensure that, in adversity, an insurer's obligations to policyholders will continue to be met as they fall due.

3. The solvency regime requires that insurers maintain capital resources to meet the regulatory capital requirements.

Standard on Capital Adequacy for Regulatory Solvency Purposes

3. Structure of regulatory capital requirements

3.1 Solvency control levels

4. The solvency regime includes solvency control levels which trigger different degrees of intervention by the supervisor with an appropriate degree of urgency.

5. The solvency regime ensures coherence between the solvency control levels established and the associated corrective action that may be at the disposal of the insurer and/or the supervisor.

3.2 Regulatory capital requirements as triggers for supervisory intervention

In the context of insurance legal entity capital adequacy assessment:

6. The regulatory capital requirements establish:

   i A solvency control level above which the supervisor does not intervene on capital adequacy grounds. This is referred to as the Prescribed Capital Requirement (PCR). The PCR is defined such that assets will exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon.

   ii A solvency control level at which, if breached, the supervisor would invoke its strongest actions, in the absence of appropriate corrective action by the insurance legal entity. This is referred to as the Minimum Capital Requirement (MCR). The MCR is subject to a minimum bound below which no insurer is regarded to be viable to operate effectively.

In the context of group-wide capital adequacy assessment:

7. The regulatory requirements establish solvency control levels that are appropriate in the context of the approach to group-wide capital adequacy assessment that is applied.

Standard on Capital Adequacy for Regulatory Solvency Purposes

3.3 Approaches to determining regulatory capital requirements

8. The solvency regime is open and transparent as to the regulatory capital requirements that apply. It is explicit about the objectives of the regulatory capital requirements and the bases on which they are determined.

9. In determining regulatory capital requirements, the solvency regime allows a set of standardised and, if appropriate, other approved more tailored approaches such as the use of (partial or full) internal models.

3.3.1 Risks to be addressed

10. The solvency regime addresses all relevant and material categories of risk.

11. The solvency regime is explicit as to where risks are addressed, whether solely in technical provisions, solely in regulatory capital requirements or, if addressed in both, as to the extent to which the risks are addressed in each. The regime is also explicit as to how risks and their aggregation are reflected in regulatory capital requirements.

3.3.2 Calibration of regulatory capital requirements

12. The solvency regime sets out appropriate target criteria for the calculation of regulatory capital requirements, which should underlie the calibration of a standardised approach.

Standard on Capital Adequacy for Regulatory Solvency Purposes

13. Where the solvency regime allows the use of approved more tailored approaches such as internal models for the purpose of determining regulatory capital requirements, the target criteria underlying the calibration of the standardised approach are also used by those approaches for that purpose to ensure broad consistency among all insurers within the regime.

14. The solvency regime is designed so that any variations to the regulatory capital requirement imposed by the supervisor are made within a transparent framework, are proportionate according to the target criteria and are only expected to be required in limited circumstances.

4. Determination and assessment of capital resources

15. The solvency regime defines the approach to determining the capital resources eligible to meet regulatory capital requirements and their value, consistent with a total balance sheet approach for solvency assessment and having regard to the quality and suitability of capital elements.

16. The solvency regime establishes criteria for assessing the quality and suitability of capital resources, having regard to their ability to absorb losses on both a going-concern and wind-up basis.

5. Supervisory reporting and public disclosure

17. The solvency regime is supported by appropriate public disclosure and additional confidential reporting to the supervisor

Standard on the Use of Internal Models for Regulatory Capital Purposes

Content

Application

1. General provisions on the use of an internal model to determine regulatory capital requirements
2. Initial validation and supervisory approval

   Statistical quality test

   Calibration test

   Use test and Governance

   Documentation
3. Ongoing validation and supervisory approval
4. Supervisory reporting and public disclosure

Standard on the Use of Internal Models for Regulatory Capital Purposes

Application

This standard applies to insurance legal entities and insurance groups unless otherwise stated. The standard does not directly apply to non-insurance entities (regulated or unregulated) within an insurance group but it does apply to insurance legal entities and insurance groups with regard to the risks posed to them by non-insurance entities.

Where a solvency regime allows the use of internal models to determine regulatory capital requirements:

1. General provisions on the use of an internal model to determine regulatory capital requirements

The solvency regime:

1. establishes appropriate modelling criteria to be used for the determination of regulatory capital requirements, which ensure broad consistency among all insurers within the regime.
2. identifies the different levels of regulatory capital requirements for which the use of internal models is allowed.

2. Initial validation and supervisory approval

The solvency regime requires:

3. prior supervisory approval for the insurer's use of an internal model for the purpose of calculating regulatory capital requirements

Standard on the Use of Internal Models for Regulatory Capital Purposes

4. the insurer to adopt risk modelling techniques and approaches appropriate to the nature, scale and complexity of its current risks and those risks incorporated within its risk strategy and business objectives in constructing its internal model for regulatory capital purposes.
5. the insurer to validate an internal model to be used for regulatory capital purposes by subjecting it, as a minimum, to three tests: 'statistical quality test', 'calibration test', and 'use test'.
6. the insurer to demonstrate to the supervisor that the model is appropriate for regulatory capital purposes and the results of each of the three tests.

Statistical quality test

7. the insurer to conduct a 'statistical quality test' which assesses the base quantitative methodology of the internal model, to demonstrate the appropriateness of this methodology, including the choice of model inputs and parameters, and to justify the assumptions underlying the model.
8. that the determination of the regulatory capital requirement using an internal model addresses the overall risk position of the insurer and that the underlying data used in the model is accurate and complete.

Standard on the Use of Internal Models for Regulatory Capital Purposes

Calibration test

9. the insurer to conduct a ‘calibration test' to demonstrate that the regulatory capital requirement determined by the internal model satisfies the specified modelling criteria.

Use test and Governance

10. the insurer to fully embed the internal model, its methodologies and results, into the insurer’s risk strategy and operational processes (the 'use test').

11. the insurer's board and senior management to have overall control of and responsibility for the construction and use of the internal model for risk management purposes, and ensure sufficient understanding of the model's construction at appropriate levels within the insurer's organisational structure. In particular, the solvency regime requires the insurer’s board and senior management to understand the consequences of the internal model's outputs and limitations for risk and capital management decisions.

12. the insurer to have adequate governance and internal controls in place with respect to the internal model.

Standard on the Use of Internal Models for Regulatory Capital Purposes

Documentation

13. the insurer to document the design, construction, and governance of the internal model, including an outline of the rationale and assumptions underlying its methodology. The solvency regime requires the documentation to be sufficient to demonstrate compliance with the regulatory validation requirements for internal models, including the three tests outlined above.

3. Ongoing validation and supervisory approval

The solvency regime requires:

14. the insurer to monitor the performance of its internal model and regularly review and validate the ongoing appropriateness of the model's specifications. The solvency regime requires the insurer to demonstrate that the model remains fit for regulatory capital purposes in changing circumstances against the criteria of the statistical quality test, calibration test and use test.

15. the insurer to notify the supervisor of material changes to the internal model made by it for review and continued approval of the use of the model for regulatory capital purposes.

16. the insurer to properly document Internal model changes.

Standard on the Use of Internal Models for Regulatory Capital Purposes

17. The insurer to report information necessary for supervisory review and ongoing approval of an internal model on a regular basis, as determined appropriate by the supervisor. The information includes details of how the model is embedded within the insurer's governance and operational processes and risk management strategy, as well as information on the risks assessed by the model and the capital assessment derived from its operation

4. Supervisory reporting and public disclosure

18. The solvency regime requires the insurer to provide information on its internal model for both supervisory reporting and public disclosure.

The supervisor considers the appropriate level of public disclosure having due regard to any proprietary or confidential information.

Standard on Enterprise Risk Management for Solvency Purposes

Contents

Application

1. Enterprise Risk Management framework
   - Risk identification and measurement
   - Risk management policy
   - Risk tolerance statement
   - Risk responsiveness and feedback loop
2. Own Risk and Solvency Assessment (ORSA)
3. Role of supervision in risk management

Standard on Enterprise Risk Management for Solvency Purposes

Application

This standard applies to insurance legal entities and insurance groups unless otherwise stated. The standard does not directly apply to non-insurance entities (regulated or unregulated) within an insurance group but it does apply to insurance legal entities and insurance groups with regard to the risks posed to them by non-insurance entities.

1. Enterprise Risk Management framework

Risk identification and measurement

The solvency regime requires:

1. The insurer's enterprise risk management framework to provide for the identification and quantification of risk under a sufficiently wide range of outcomes using techniques which are appropriate to the nature, scale and complexity of the risks the insurer bears and adequate for risk and capital management and for solvency purposes.
2. The insurer's measurement of risk to be supported by accurate documentation providing appropriately detailed descriptions and explanations of the risks covered, the measurement approaches used, and the key assumptions made.

Standard on Enterprise Risk Management for Solvency Purposes

Risk management policy

The solvency regime requires the insurer to have a risk management policy which:

3. outlines how all relevant and material categories of risk are managed, both in the insurer's business strategy and in its day-to-day operations.
4. describes the relationship between the insurer's tolerance limits, regulatory capital requirements, economic capital and the processes and methods for monitoring risk.
5. includes an explicit asset-liability management (ALM) policy which clearly specifies the nature, role and extent of ALM activities and their relationship with product development, pricing and investment management.
6. is reflected in an explicit investment policy which:
    a. specifies the nature, role and extent of the insurer's investment activities, and how the insurer complies with the regulatory investment requirements established in the solvency regime.
    b. establishes explicit risk management procedures within its investment policy with regard to more complex and less transparent classes of asset and investment in markets or instruments that are subject to less governance or regulation.
7. includes explicit policies in relation to underwriting risk.

Standard on Enterprise Risk Management for Solvency Purposes

Risk tolerance statement

The solvency regime requires the insurer:

8. to establish and maintain a risk tolerance statement which sets out its overall quantitative and qualitative risk tolerance levels and defines risk tolerance limits which take into account all relevant and material categories of risk and the relationships between them.
9. to make use of its risk tolerance levels in its business strategy.
10. to embed its defined risk tolerance limits in its day-to-day operations via its risk management policies and procedures.

Risk responsiveness and feedback loop

The solvency regime requires:

11. the insurer's ERM framework to be responsive to changes in its risk profile.
12. the insurer's ERM framework to incorporate a feedback loop, based on appropriate and good quality information, management processes and objective assessment, which enables it to take the necessary action in a timely manner in response to changes in its risk profile.

2. Own Risk and Solvency Assessment (ORSA)

The solvency regime requires:

13. the insurer regularly to perform its own risk and solvency assessment (ORSA) to assess the adequacy of its risk management and current, and likely future, solvency position.
14. the insurer's board and senior management to be responsible for the ORSA.

Standard on Enterprise Risk Management for Solvency Purposes

15. the insurer's ORSA to encompass all reasonably foreseeable and relevant material risks including, as a minimum, underwriting, credit, market, operational, liquidity risks and additional risks arising due to membership of a group. The assessment is required to identify the relationship between risk management and the level and quality of financial resources needed and available.

16. the insurer, as part of its ORSA, to determine the overall financial resources it needs to manage its business given its own risk tolerance and business plans, and to demonstrate that supervisory requirements are met.

17. the insurer to assess the quality and adequacy of its capital resources to meet regulatory capital requirements and any additional capital needs.

18. the insurer to base its risk management actions on consideration of its economic capital, regulatory capital requirements and financial resources, including its ORSA.

19. the insurer, as part of its ORSA, to analyse its ability to continue in business, and the risk management and financial resources required to do so over a longer time horizon than typically used to determine regulatory capital requirements.

20. the insurer's continuity analysis to address a combination of quantitative and qualitative elements in the medium and longer term business strategy of the insurer and include projections of its future financial position and analysis of its ability to meet future regulatory capital requirements.

3. Role of supervision in risk management

21. The supervisor undertakes reviews of an insurer's risk management processes and its financial condition, including the ORSA. Where necessary, the supervisor requires strengthening of the insurer's risk management, solvency assessment and capital management processes.

Standard on Regulatory Investment Requirements for Solvency Purposes

Contents

Standard on Regulatory Investment Requirements for Solvency Purposes

Application

This standard applies to insurance legal entities and insurance groups unless otherwise stated. The standard does not directly apply to non-insurance entities (regulated or unregulated) within an insurance group but it does apply to insurance legal entities and insurance groups with regard to the risks posed to them by non-insurance entities.

Where a solvency regime allows the use of internal models to determine regulatory capital requirements:

1. Basis of establishing regulatory investment requirements

The solvency regime:

1. establishes requirements that are applicable to the investment activities of the insurer.
2. is open and transparent as to the regulatory investment requirements that apply and is explicit about the objectives of those requirements.

2. Elements of regulatory investment requirements

3. The investment requirements address at a minimum, the:
   - Security;
   - Liquidity; and
   - Diversification;

   of an insurer's portfolio of investments as a whole.

Standard on Regulatory Investment Requirements for Solvency Purposes

The solvency regime:

4. requires the insurer to invest in a manner that is appropriate to the nature of its liabilities.
5. requires the insurer to invest only in assets whose risks it can properly assess and manage.
6. establishes quantitative and qualitative requirements, where appropriate, on the use of more complex and less transparent classes of assets and investment in markets or instruments that are subject to less governance or regulation.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Causes of risk and the relationship between risks

- In a high level of claims, collateral calls or policyholder terminations, especially from institutional counterparties or institutional policyholders and hence lead to serious liquidity issues. The ERM framework should adequately address the insurer's options for responding to such trigger events.

Measuring, analysing and modelling the level of risk

- The level of risk should be assessed regularly using appropriate forward-looking quantitative techniques such as risk modelling, stress testing and scenario analysis. Appropriate range of adverse circumstances and events should be considered, including those that pose a significant threat to the financial condition of the insurer, and management actions should be identified together with the appropriate timing of those actions. Risk measurement techniques should also be used in developing long-term business and contingency plans, where it is proportionate to do so.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Cont- *Measuring, analysing and modelling the level of risk*

- Stress testing measures the financial impact of stressing one or relatively few factors affecting the insurer. Scenario analysis considers the impact of a combination of circumstances which may reflect extreme historical scenarios which are analysed in the light of current conditions. Scenario analysis may be conducted deterministically using a range of specified scenarios or stochastically, using models to simulate many possible scenarios, to derive statistical distributions of the results.

- Stress testing and scenario analysis should be carried out by the insurer to validate and understand the limitations of its models. They may also be used to complement the use of models for risks that are difficult to model, or where the use of a model may not be appropriate from a cost-benefit perspective.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

cont- *Measuring, analysing and modelling the level of risk*

- Scenario analysis may be particularly useful as an aid to communication in relation to risk management between the board and senior management and other parts of the organisation thereby facilitating the integration of the insurer's ERM framework with its business operations and culture.

- Reverse stress testing, which identifies scenarios that are most likely to cause an insurer to fail, may also be used to enhance risk management. The focus of such reverse stress testing is on appropriate risk management actions rather than the assessment of financial adequacy and so may be largely qualitative in nature although broad assessment of associated financial impacts may help in deciding the appropriate action to take.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

cont- *Measuring, analysing and modelling the level of risk*

Additional guidance for insurance groups and insurance legal entities that are members of insurance groups

- Participations, loans, guarantees, risk transfers, liquidity, outsourcing arrangements, and off-balance sheet exposures may all give rise to group risk.
- The risks identified and the techniques that are appropriate and adequate for measuring them, including stress testing, scenario analysis, risk modelling and reverse stress testing, may differ at insurance group and insurance legal entity level.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Risk management policy

- To co-ordinate the management of risks associated with assets and liabilities, the insurer's risk management policy should include an explicit and proportionate ALM policy which sets out how the investment and liability strategies adopted by the insurer allow for the interaction between assets and liabilities, how the liability cash flows will be met by the cash inflows and how the economic valuation of assets and liabilities will change under an appropriate range of different scenarios.
- ALM does not imply that assets should be matched as closely as possible to liabilities but that mismatches are effectively managed.
- Not all ALM needs to use complex techniques. For example, simple, low risk or short term business may call for less complex ALM techniques.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Cont.- Risk management policy

- The ALM policy should recognise the interdependence between all of the insurer's assets and liabilities and take into account the correlation of risk between different asset classes as well as the correlations between different products and business lines, recognising that correlations may not be linear.
- The ALM framework should also take into account any off-balance sheet exposures that the insurer may have and the contingency that risks transferred may revert to the insurer.
- The insurer should give explicit attention within its ALM policy to risks arising from liabilities with substantially longer durations or other mismatches with assets available from the corresponding financial markets to ensure that they are effectively managed by holding adequate capital or having appropriate risk mitigation in place.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Cont.- *Risk management policy*

- For investment risks, the need for liquidity resulting from potential large-scale payments may further complicate an insurer's investment strategy.

- For complex investment strategies, aspects to consider in complex strategies include liquidity and responsiveness to sudden market movements. Stress testing, as well as contingency planning for stressed situations, is essential. Trial operation of procedures for sufficiently long periods may also be appropriate in advance of 'live' operation.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Risk tolerance statement

- The risk tolerance statement should define the insurer's 'tolerance limits' which the insurer is prepared to be exposed and the limits of risk to which they are able to expose the insurer as part of their work. Stress testing can also provide an insurer with a tool to help ascertain whether its tolerance limits remain suitable for its business.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Role of supervision in risk management

- Supervisors should require the results of the most material risk modelling, stress testing and scenario analysis and the key assumptions underlying them to be reported to them as appropriate and proportionate, and have access to all other results if requested.

- Where the supervisor considers that the insurer's response to the results of its risk modelling, stress testing and scenario testing are insufficient it should be able to direct the insurer to develop a more appropriate response. Supervisors should also consider available reverse stress test taken to manage the risk of business failure.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Cont.- Role of supervision in risk management

- While insurers should carry out stress testing and scenario analysis and risk modelling, supervisors may also develop prescribed or standard tests and require insurers to perform them when circumstances are appropriate.

- Such tests may be directed at selected insurers or all insurers. The criteria for scenarios used for standard tests should be developed as appropriate to the risk environment of insurers in each jurisdiction.

After Crisis Methods

Additional guidance material concerning the need for stronger **ERM** practices, in particular **stress & scenario testing, liquidity & asset liability management**

Cont.- Role of supervision in risk management

- Forward-looking stress testing, scenario analysis and risk modelling of future capital positions and cash flows whether are valuable tools for supervisors in assessing the financial condition of insurers.

- Such testing informs the discussion between supervisors and insurers on appropriate planning, risk management and management actions and enables supervisors to consider the dynamic position of insurers and form a high-level assessment of whether the insurer is adequately capitalised to withstand a range of standardised and bespoke stresses.