

**Notice No. : MAS 126**  
**Issue Date : 2 April 2013**

Last revised on 5 March 2020

**ENTERPRISE RISK MANAGEMENT (“ERM”) FOR INSURERS**

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**Introduction**

1. This Notice is issued pursuant to section 64(2) of the Insurance Act (Cap. 142) (“the Act”) and comprises both mandatory requirements (Part I) and non-mandatory standards (Part II).
2. This Notice shall be read in conjunction with the provisions of the Act. It is not intended to override any provision of the Act.
3. This Notice applies to any licensed insurer (except a captive insurer or a marine mutual insurer).

[MAS Notice 126 (Amendment) 2013]

**Background**

4. MAS has issued a set of Guidelines on Risk Management Practices, with the objective of providing all financial institutions supervised by MAS with guidance on sound risk management practices. These Guidelines are organised by risk types and cover a range of risks and functions such as credit risk, market risk, internal controls, operational risks, insurance core activities such as product development, pricing and underwriting, and the role of an institution’s board of directors and senior management.
5. The ERM requirements and guidelines in this Notice set out how insurers are to identify and manage interdependencies between key risks, and how these are translated into management actions related to strategic and capital planning matters.
6. ERM is the process of identifying, assessing, measuring, monitoring, controlling and mitigating risks in respect of the insurer, the group which it belongs to and, if applicable the group which it is in control of. It involves the self-assessment of all reasonably foreseeable and relevant material risks that an insurer faces, and their inter-relationships, providing a link between ongoing operational management of risk and longer-term business goals and strategies.
7. Through ERM, an insurer can form a prospective view of its risk profile and capital needs, thus enabling its business strategy, risk management and capital allocation to be co-ordinated in order to achieve maximum financial efficiency and adequate protection of its policy owners.

**Definition**

8. In this Notice-

- (a) “appointed actuary” means a person appointed under section 31(1)(b) of the Act”;  
[MAS Notice 126 (Amendment) 2013]
- (b) “certifying actuary” means a person appointed under section 31(1)(c) of the Act”;  
[MAS Notice 126 (Amendment) 2013]
- (c) “continuity analysis” means an analysis of the insurer's ability to continue in business, whereby the risk management and financial resources required to do so is over a longer time horizon than typically used to determine regulatory capital and solvency requirements;
- (d) “economic capital” means the capital needed by the insurer to satisfy its risk tolerance and support its business plans and which is determined from an economic assessment of the insurer’s risks, the relationship of these risks and the risk mitigation in place;
- (da) “executive officer”, in relation to an insurer’s head office, means any person, by whatever name described, who –
  - i) is in the direct employment of, or acting for or by arrangement with, the head office; and
  - ii) is concerned with or takes part in the management of the head office on a day-to-day basis;[MAS Notice 126 (Amendment) 2015]
- (e) “group” means the group of companies, in accordance with the accounting standards made or formulated under the Accounting Standards Act, to which the insurer belongs;
- (f) “regulatory capital” means the level of capital required to satisfy the fund solvency and capital adequacy requirements as prescribed or specified in directions under section 18 of the Act; and
- (g) “Tier 1 insurer” has the same meaning as in regulation 4 of the Insurance (Corporate Governance) Regulations 2013.

[MAS Notice 126 (Amendment) 2013]

8A. Any references to a “board” or a “board of directors” in this Notice, other than in this paragraph, shall, in the case of a licensed insurer incorporated outside of Singapore, mean:

- (a) the board of directors of the insurer;
- (b) all executive officers of the insurer’s head office with oversight responsibilities for the insurer’s Singapore operations; or
- (c) any committee of the insurer’s head office or regional office, with oversight responsibilities for the insurer’s Singapore operations.

[MAS Notice 126 (Amendment) 2015]

9. The expressions used in this Notice shall, except where expressly defined in this Notice or where the context otherwise requires, have the same respective meanings as in the Act.

**Part I – Mandatory Requirements**

10. Diagram 1 illustrates the key features of an ERM framework and the various interactions amongst the key components.

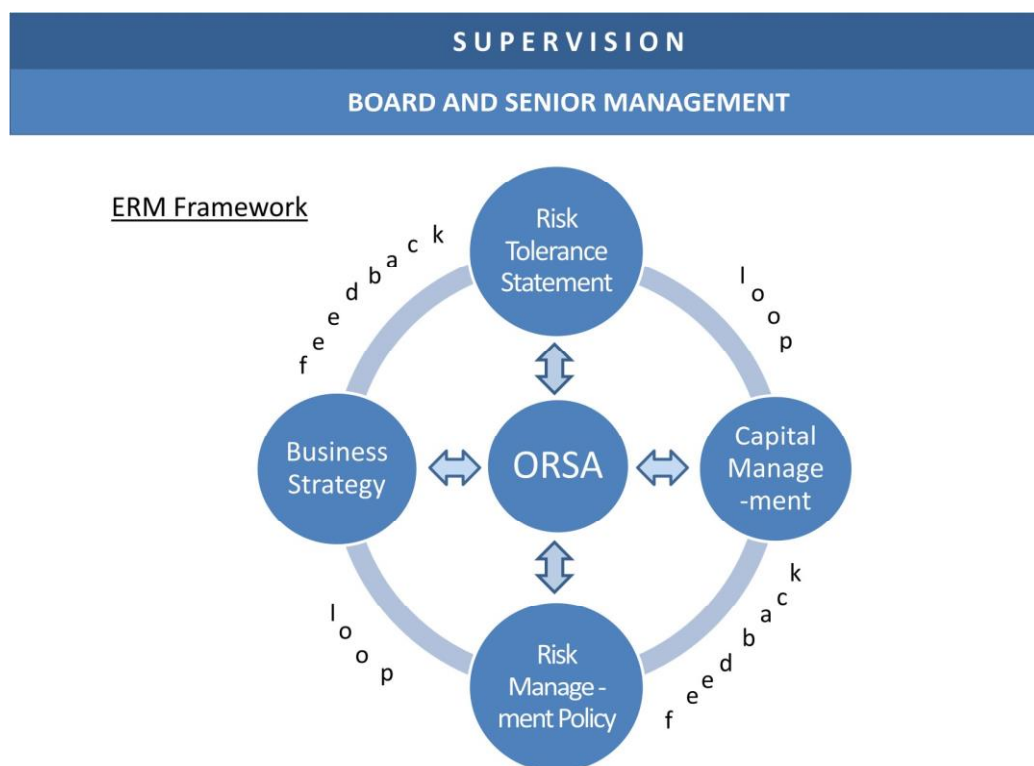


Diagram 1 : Key features of ERM framework

**Reliance on group’s ERM framework**

11. An insurer may adopt the ERM framework of the group, as long as the ERM framework fulfils the mandatory requirements spelt out in this Notice.

**Risk identification and Measurement**

12. An insurer shall establish an ERM framework which:
  - (a) provides for the identification and quantification of risks using techniques appropriate to the nature, scale and complexity of the risks the insurer bears; and
  - (b) addresses risk, solvency and capital management.
13. An insurer shall ensure that its ERM framework identifies and addresses all reasonably foreseeable and relevant material risks to which the insurer is, or is likely to become, exposed. Such risks shall include insurance risk, market risk, credit risk, operational risk and liquidity risk. Reasonably foreseeable and relevant material risks may also include, for example, legal risk and risk to the reputation of the insurer.
14. An insurer shall take into account “group risk” which arises as a consequence of being a member of a group. “Group risk” includes the risk that the insurer may be adversely affected by an occurrence (financial or non-financial) in another entity of the group it belongs to. It also includes the risk that the financial stability of the group as a whole or of any of the individual insurance entities within the group, being adversely affected by an event in any one of the entities in the group, a group-wide occurrence or an event external to the group. Group risk may also arise, for example, through contagion, leveraging, double or multiple gearing, concentrations, large exposures and complexity. Participations, loans, guarantees, risk transfers, liquidity, outsourcing arrangements and off-balance sheet exposures may all give rise to group risk. In managing its risks, the insurer shall consider the inter-relationships it has with other members of the group including aspects of control, influence and interdependence.
15. After identifying the risks, an insurer shall highlight material risks and possible key leading indicators to its senior management regularly but no less than once every quarter. For example, if liquidity risk was identified as a material risk, the insurer may decide to use certain macro-economic indicators as leading indicators, based on the assumption that an economic downturn may increase the probability of surrenders and thus increase liquidity risk. The insurer shall also update its board of directors and senior management of its risk profile regularly but no less than once a year.

16. Assumptions that are implicit in the solvency assessment of an insurer may not apply at the group level because of the legal separation of members of the group. An insurer's ERM framework shall take into account the constraints in its assumptions (e.g. fungibility of capital<sup>1</sup>), with regard to the group.
17. An insurer shall consider the causes of different risks and their impact, and assess the relationship between risk exposures. This includes assessing external risk factors which, if they were to crystallise, could pose a significant threat to its business. The insurer shall also recognise the limitations of the methods it uses to manage risks, the potential impact these limitations may have and adapt its risk management appropriately. These considerations and recognition of the limitations and their potential impact shall be properly documented by the insurer.
18. An insurer shall support the measurement of its risk with documentation that provides detailed descriptions and explanations of the risks covered, the measurement approaches used and the key assumptions made. Such documentation should be signed or verified by senior management.

### **Risk Management Policy**

19. An insurer shall have a risk management policy<sup>2</sup> which outlines how all relevant and material categories of risk are managed, both in the insurer's business strategy and its day-to-day operations.
20. The risk management policy of an insurer shall, at a minimum, cover the following areas:
  - (a) the insurer's policy for managing the risks to which it is exposed, including underwriting and investment risks;
  - (b) the insurer's policies towards risk retention, risk management strategies including reinsurance and the use of derivatives, diversification and assetliability management;
  - (c) the relationship between the insurer's risk tolerance limits, regulatory capital requirements, economic capital and the processes and methods for monitoring risk; and
  - (d) how the insurer's risk management is related to its corporate objectives and strategy, taking into account its current circumstances.

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<sup>1</sup> If the insurer has branches in different jurisdictions, or its parent is in a jurisdiction where restrictions on fungibility of capital apply or where there is ring-fencing of policies in participating funds, the assumption of full fungibility may not always be appropriate.

<sup>2</sup> For avoidance of doubt, an insurer may choose to fulfil the requirements for a "risk management policy" using a collection of individual policies.

21. An insurer shall ensure the policies relating to insurance risks pay particular attention to risk retention and risk transfer through reinsurance and other forms of risk transfer as appropriate to the insurer's risk profile and capital, as well as take into account the effectiveness of any risk transfer under scenarios of financial distress.
22. An insurer shall have a risk management policy which describes the relationship between pricing, product development and investment management. For example, the interest rate assumptions used in pricing need to take the investment strategy of the insurer into account. It shall also include a category of risk comprising all of the additional group risks the insurer faces as a result of its membership in a group.
23. Where an insurer uses its group's ERM framework, the insurer shall ensure that the risk management policy covers all the risks that are relevant and material to the insurer.
24. An insurer shall ensure that its risk management policy specifies a time horizon which is consistent with the nature of the insurer's risks as well as its business planning horizon.

#### **Risk Tolerance Statement**

25. An insurer shall establish and maintain a risk tolerance statement which defines its overall quantitative and qualitative risk tolerance limits, and which takes into account all relevant and material categories of risk and their inter-relationships.
26. An insurer shall incorporate its risk tolerance limits in the setting of its business strategy.
27. An insurer shall set out in its written policies and procedures that are communicated to its management, its defined risk tolerance limits for its daily operations so that management understands the level of risk to 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.

#### **Risk Responsiveness and Feedback Loop**

28. An insurer shall ensure that its ERM framework is responsive to changes in its risk profile, as a result of both internal and external events, as well as to the changing interests and reasonable expectations of policy owners and other stakeholders. The framework shall also include mechanisms to incorporate new risks and new information where necessary, at least once every quarter.
29. An insurer shall ensure that an effective system is in place to identify and monitor any breaches or potential breaches of the insurer's risk tolerance limits.

30. An insurer shall ensure that as part of its ERM framework, it has in place a feedback loop, which is a process to monitor and respond in a timely manner to changes in its risk profile.
31. An insurer shall ensure that it is able to obtain appropriate, reliable and good quality information about changes in the risk profile of the group that could materially affect the insurer.

### **Own Risk and Solvency Assessment**

32. An insurer shall perform its own risk and solvency assessment (“ORSA”), at a minimum, annually, to assess the adequacy of its risk management, and current and projected future solvency position with a time horizon which is consistent with that used in its business planning. When undertaking its ORSA, the insurer shall document the rationale, calculations and action plans arising from this assessment.
33. An insurer shall ensure that its board and senior management take responsibility for the ORSA.
34. An insurer shall design its ORSA such that it will:
  - (a) encompass all reasonably foreseeable and relevant material risks including, as a minimum, insurance, credit, market, operational and liquidity risks and additional risks arising due to membership of a group. The assessment shall identify the relationship between the risks identified as well as the level and quality of financial resources needed and can be made available;
  - (b) consider all material risks that may have an impact on its ability to meet its obligations to policy owners, including in that assessment a consideration of the impact of future changes in economic conditions or other external factors; and
  - (c) include all additional risks arising due to membership of the group, to the extent that those risks impact the insurer as appropriate to the nature, scale and complexity of those risks.

### **Economic and regulatory capital**

35. An insurer shall:
  - (a) determine, as part of its ORSA, the overall financial resources it needs to manage its business given its own risk tolerance and business plans, and to demonstrate that regulatory requirements are met;

- (b) base its risk management actions on consideration of its economic capital, regulatory capital requirements and financial resources, including its ORSA; and
- (c) assess the quality and adequacy of its capital resources to meet regulatory capital and economic capital requirements.

The insurer, based on its nature, scale and complexity, may justify adopting its regulatory capital, whether in entirety as, or to form the basis of, its economic capital.

36. As part of its ORSA, an insurer shall clearly distinguish between current capital needs and its projected future financial position, having regard for its longer-term business strategy and, in particular, new business plans. The insurer shall also assess the appropriateness of its capital resources in supporting its business strategy and enabling it to continue its operations.

#### Continuity Analysis and Stress Testing

37. An insurer shall undertake periodic, forward-looking continuity analysis that addresses a combination of quantitative and qualitative elements in the medium and longer-term business strategy of the insurer and includes projections of its future financial position and analysis of its ability to meet future regulatory capital requirements.
38. An insurer shall as part of its ORSA, analyse its ability to continue in business, and the risk management and financial resources required to do so, under a range of plausible adverse scenarios, over a time horizon needed for effective business planning.
39. In carrying out its continuity analysis, an insurer shall conduct stress testing for each relevant insurance fund maintained under section 17 of the Act by projecting the financial, economic capital and capital adequacy positions of the insurer under various scenarios, including:
- (a) its base scenario, based on its best estimates of risk factors; and
  - (b) stress scenarios, taking into account the most recent, relevant and material risks.
40. An insurer shall also apply reverse stress testing to identify scenarios that would be the likely cause of business failure and the actions necessary to manage this risk.

“Business failure” is defined as:

- (a) the insurer’s solvency position falling below any regulatory capital requirement; or



- (b) the insurer being wound up for any other reason.
41. As a result of continuity analysis, an insurer shall maintain contingency plans and procedures for use in a going<sup>3</sup> concern situation. Such plans shall identify the actions that the insurer is to take immediately to restore or improve the insurer's capital adequacy or cash flow position after some future stress scenario, and assess whether actions should be taken by the insurer in advance as precautionary measures. Subject to the nature, scale and complexity of the risks it bears, the insurer shall document whether it is necessary to have a contingency plan for use in a gone concern situation.
42. An insurer shall, as part of its continuity analysis, analyse the ongoing support from the group including the availability of financial support in adverse circumstances as well as the risks that may flow from the group to the insurer.

### ORSA Reports

43. An insurer which belongs to a group may make use of its group's ORSA report, provided the required details specific to the insurer, is clearly documented in the report.
44. A Tier 1 insurer shall lodge its first ORSA report which is approved by its board of directors –
- (a) in the case where it is licensed under section 8 of the Act on or before 31 December 2014, by 31 December 2014;
  - (b) in all other cases, by 31 December of the year in which it becomes licensed under section 8 of the Act.

[MAS Notice 126 (Amendment) 2015]

- 44A. Subject to paragraph 44, a Tier 1 insurer shall lodge its ORSA report annually with the Authority within 2 weeks from the date the ORSA report is approved by its board of directors.

[MAS Notice 126 (Amendment) 2015]

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<sup>3</sup> For the purposes of paragraph 41, a “going concern” refers to a situation where the financial condition is deemed appropriate by the insurer for normal business operations to be conducted. The insurer should take into consideration, amongst others, whether the fund solvency requirement and capital adequacy requirement specified in regulation 4(2)(a) and 4(3)(a) of the Insurance (Valuation and Capital) Regulations 2004 respectively and the capital add-on requirement imposed under Section 18(4) of the Insurance Act have been satisfied.

[MAS Notice 126 (Amendment) 2020]

45. An insurer which is not a Tier 1 insurer shall lodge its first ORSA report within 2 weeks from the date the ORSA report is approved by its board of director and in any case, no later than –
- (a) in the case where it is licensed under section 8 of the Act on or before 31 December 2014, 31 December 2015;
  - (b) in all other cases, 31 December of the year following the year in which it becomes licensed under section 8 of the Act.

[MAS Notice 126 (Amendment) 2013]

[MAS Notice 126 (Amendment) 2015]

- 45A. Regardless of when the first ORSA report was lodged, an insurer which is not a Tier 1 insurer shall lodge its subsequent ORSA reports with the Authority every third year from 2015, *i.e.* 2018, 2021, 2024 and so on, within 2 weeks from the date each subsequent ORSA report is approved by its board of directors.

[MAS Notice 126 (Amendment) 2015]

#### Submission of board of directors' deliberations on ORSA reports

46. An insurer shall submit to the Authority an extract of the minutes of the board of directors' meeting detailing the deliberations made by the board of directors on the ORSA report and the board of directors' approval of the ORSA report (the 'Extract of the minutes') at the time of lodgement of the ORSA report. If an insurer is unable to submit the extract of the minutes together with the ORSA report approved by its board of directors, the insurer shall undertake and confirm in writing to the Authority the date by which the Extract of minutes will be submitted to the Authority. The insurer shall submit the Extract of the minutes no later than 1 month from the date of lodgement of the ORSA report with the Authority.

## **Part II – Non-Mandatory Standards**

### **Compliance with non-mandatory standards**

47. The standards set out in Part II of this Notice are not mandatory in that failure by an insurer to comply with any of the standards does not of itself render the insurer to be in breach of this Notice. However, the Authority expects insurers to observe the standards set out in Part II of this Notice.
48. A failure by any insurer to comply with the non-mandatory standards does not of itself render the insurer liable to criminal proceedings but the Authority may take into account a failure to comply with these standards in considering whether to issue directions to the insurer.

## **Reliance on group's ERM framework**

49. If an insurer is using the group's ERM framework, the framework should take into account the particular circumstances and requirements of the insurer.

## **Risk Identification and Measurement**

### Causes of risk and the relationship between risks

50. In assessing the relationship between risk exposures, consideration should be given to correlations between risk events which could cause extreme losses to an insurer. Risks that show no strong dependence under normal economic conditions, such as catastrophe risks and market risks, could be more correlated in a stress scenario. For example, certain major trigger events, such as catastrophes, downgrades from rating agencies or other events that have an adverse impact on the insurer's reputation, can result, in a high level of claims, collateral calls or policy terminations, and hence lead to serious liquidity issues. The insurer should, in its policies and procedures, outline its options for responding to such trigger events.

### Measuring, analysing and modelling the level of risk

51. The level of risk is a combination of the impact that the risk will have on an insurer and the probability of that risk materialising. An insurer should regularly assess the level of risk that it bears using appropriate forward-looking quantitative techniques such as risk modelling<sup>4</sup>, stress testing, including reverse stress testing, and scenario analysis. An insurer should adopt the appropriate range of adverse circumstances and events, 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 these actions. An insurer should use risk measurement techniques in developing long-term business and contingency plans, where it is appropriate to the nature, scale and complexity of the insurer to do so.
52. Different approaches on assessment of the level of risk may be appropriate depending on the nature, scale and complexity of a risk and the availability of reliable data on the behaviour of that risk. For example, a low frequency but high impact risk where there is limited data, such as catastrophe risk, may require a different approach from a high frequency, low impact risk for which there is substantial amounts of data available. For example, stochastic risk modelling may be appropriate to measure some non-life catastrophe risks, whereas relative simple calculations may be appropriate in other circumstances.

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<sup>4</sup> "Modelling" in this context does not necessarily mean complex stochastic modelling. It can also include less sophisticated methods.

53. An insurer should base the measurement of its risks on a consistent economic assessment of the total balance sheet as appropriate to ensure that appropriate risk management actions are taken.
54. Where a risk is not readily quantifiable, an insurer should make a qualitative assessment that is appropriate to that risk and sufficiently detailed to be useful for risk management. The insurer should analyse the controls needed to manage such risks to ensure that its risk assessments are reliable and consider events that may result in high operational costs or operational failure. Such analysis is expected to inform the insurer's judgments in assessing the size of the risks and enhancing overall risk management.
55. An insurer should ensure that when carrying out its continuity analysis, it assesses its risk on a consistent basis, so that any variations in results can be readily explained. The insurer should use such analysis to prioritise its risk management.
56. Where models are used, an insurer should be mindful that, regardless of how sophisticated the models are, they cannot exactly replicate the real world. The use of models itself generates risk (modelling and parameter risks) which, if not explicitly quantified, should at least be acknowledged and understood by the insurer, including the board of directors and senior management.
57. An insurer may use stress testing and scenario analysis 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.
58. An insurer may use scenario analysis to facilitate communication on risk matters at various levels of the organisation. Such communication would enable the ERM framework to be better appreciated within the organisation and better integrate the framework with its business operations and culture.

#### Updates to the board of directors and senior management

59. When necessary, such as during financial distress, an insurer should update its board and senior management of its risk profile on a more frequent basis.

#### **Risk Responsiveness and Feedback Loop**

60. An insurer may include as new risks identified from its business, for example new acquisitions, new investment positions, or new business lines. An insurer may need to make changes to the ERM framework when there is new information from external sources, as a result of evolution of the environment affecting the nature and size of underlying risks, supervisory and legislative requirements, rating agency concerns (if applicable), political changes, major catastrophes or market turbulence.

61. An insurer should ensure that the feedback loop as described in paragraph 30 is effective, such that the board of directors and senior management can make risk management decisions using information that they can rely on, and that such decisions are implemented and their effects monitored and reported to the board of directors and senior management in a timely and sufficiently frequent manner. The insurer should also ensure that the monitoring processes of its feedback loop take into account reliable information and assess the risks using objective and defined criteria.

## **ORSA**

62. An insurer may make reference to the sample format and suggested content for the ORSA report outlined in Appendix A when drafting its ORSA report.
63. The ORSA undertaken by an insurer should be appropriate to the nature, scale and complexity of its risks. Where it is appropriate to the nature, scale and complexity to do so, the effectiveness of the ORSA process should be assured through internal or external independent review by a suitably experienced individual who reports directly to, or is a member of the board of directors.
64. Regular undertaking of ORSA by an insurer should provide relevant and timely information for its management and decision making processes. The insurer should regularly reassess the causes of risk and the extent to which particular risks are material. Material changes in the risk profile of the insurer should prompt it to undertake a new ORSA. Risk assessment should be done in conjunction with consideration of the effectiveness of applicable controls to mitigate the risks.
65. An insurer should consider scenarios in which its group splits or changes its structure in other ways. When an insurer assesses its current capital adequacy requirements and continuity analysis, the insurer should also include in its ORSA relevant possible changes in the group structure and integrity in adverse circumstances and the implications this could have for group risks, the existence of the group and the support or demands from the group to or on its members.

## Economic and Regulatory Capital

66. Although the amounts of economic capital and regulatory capital requirements and the methods used to determine them may differ, an insurer should be aware of, and be able to analyse and explain, these differences. Such analysis helps to embed regulatory requirements into an insurer's ORSA and risk and capital management, so as to ensure that obligations to policy owners continue to be met as they fall due.
67. If an insurer suffers losses that are absorbed by its available capital resources, it may need to raise new capital to meet ongoing regulatory capital requirements and to maintain its business strategies. An insurer cannot assume that capital will be readily available at the time it is needed. Therefore, an insurer should, when assessing its quality of capital, also consider the issue of re-capitalisation in its ORSA, especially

the ability of capital to absorb losses on a going-concern basis and the extent to which the capital instruments or structures that the insurer uses may facilitate or hinder future re-capitalisation. For example, if an insurer enters into a funding arrangement where future profits are cashed immediately, the reduced future earnings potential of the insurer may make it more difficult to raise capital resources in the future.

68. An insurer may use internal models to better assess the financial resources and calculation of regulatory capital requirements due to the range of risks and their scale and complexity.
69. Due to the nature, scale and complexity of an insurer's business and risks, it may decide not to perform economic capital calculations in its ORSA. Where economic capital calculations are not performed, the insurer should document clearly the reasons for not doing so in its ORSA report.

#### Continuity Analysis and Stress Testing

70. When conducting the continuity analysis, an insurer should take into consideration new business plans and product design and pricing, including embedded guarantees and options, and the assumptions appropriate given the way in which products are sold. The insurer's current premium levels and strategy for future premium levels are a key element in its continuity analysis. In order for continuity analysis to remain meaningful, an insurer should also consider changes in external factors such as possible future events including changes in the political or economic situation.
71. In performing its stress testing, an insurer should construct the base scenario in a manner that is consistent with the insurer's business plan. The base scenario should take into account the insurer's management and business philosophy and strategies such as marketing plans, sales objectives, investment policies, pricing philosophy, underwriting philosophy, reinsurance practices and its policy on allocation to participating policy owners and shareholders.
72. An insurer should also construct stress scenarios which clearly illustrate the extent to which one, or several, of its relevant and material risks, if realised, can affect its financial and capital position.
73. The following guidelines should be observed for the construction of projections under an insurer's continuity analysis and stress test scenarios:
  - (a) The projections should be comprehensive in scope and cover all key products and lines of business and all assets of the insurer that are material to the solvency of the insurer;
  - (b) Separate projections should be made for each insurance fund established and maintained by the insurer under the Act; and

- (c) Where the assets or liabilities of an insurance fund that are material to the solvency of the insurance fund have different inherent characteristics, the appointed actuary or certifying actuary, as the case may be, should make separate projections by major product lines and asset classes within the insurance fund.
74. Adequate checks should also be conducted on the appropriateness of any data or projections that form the bases for the ORSA report. If an insurer relies on any other person for any aspect of the data or projections, the insurer should be satisfied that the person relied on is qualified for such purposes. The nature and extent of the reliance on such person and his particulars should be disclosed in the ORSA report.
75. In constructing the stress test scenarios, an insurer should analyse its key risk exposure in the face of catastrophic events such as natural calamities, a severe economic recession or a major crash in the equity, property or bond market. The insurer should also take into consideration the prevailing environment, including the economic, medical, demographic, social and political situation at the relevant time.
76. As part of its continuity analysis, an insurer should analyse its ability to withstand continuous adverse developments over the period of projection. Such adverse developments should include persistent inflation, recession, falling stock markets and claims experience. In deriving the assumptions relating to the scenarios, the insurer should consider the differing nature of various assumptions as compared to others:
- (a) Some assumptions, such as mortality or renewal expenses in real terms, may reasonably be relied on as fairly stable or having a stable trend. However, attention should be paid to both the risk of sudden change (e.g. a new infectious disease) and the possibility of a change in the trend.
  - (b) Other assumptions, for example policy persistency, may need to be considered in the context of both historical experience and changes anticipated in the light of different operating methods now used by the insurer.
  - (c) Yet other assumptions may be highly uncertain and totally outside the control of the insurer. This is particularly true of investment conditions, the volatility of which may have significant implications for the financial condition of the insurer.
77. An insurer should also take into consideration the prevailing environment, including the economic, medical, demographic, social and political trends at the relevant time.
78. An insurer should specify the reasons for the choice and construction of the scenarios presented in the ORSA report. The insurer, as the case may be, should also include a brief description of the scenario in the ORSA report, for example, “financial crisis with adverse claims experience” and “decrease in new business and large terminations due to drop in confidence in the insurer”.

79. In conducting reverse stress testing, an insurer should determine the combination of risk factors that would most likely lead to business failure.
80. An insurer may use reverse stress testing, which identifies scenarios that are most likely to cause the insurer to fail, to enhance risk management. While some risk of failure is always present, such an approach may help to ensure adequate focus on the management actions that are appropriate to avoid undue risk of business failure. 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 any financial impacts arising from the risk of business failure may help in deciding the appropriate action to take.
81. During the analysis and construction of each scenario, an insurer should take into account links between the various key assumptions made.
82. An insurer should show in its ORSA report the impact on the insurer's financial condition if no management action is taken. In the ORSA report, the insurer should also demonstrate how, with appropriate and timely management action, it can maintain or regain a satisfactory financial condition under each scenario on a going concern basis. The target financial and capital adequacy positions should be consistent with its risk tolerance limits.
83. An insurer may propose in the ORSA several alternative courses of management action it could take to mitigate its financial loss in any given scenario. Rationale for each course of action, and the potential implications should be clearly described in the ORSA report. The ORSA report should illustrate the financial impact of each management action taken.
84. An insurer should ensure that the capital and cash flow projections (before and after stress scenarios) and the management actions included in their forecasts, are approved by senior management.
85. An insurer should also identify the key areas of concern noted from the stress test results and recommend risk management measures and the timeframe for implementing these measures. An assessment should be done on the adequacy of the mitigating measures, and where applicable, conduct further analysis to quantify the likely impact of such measures and set out the results of the analysis in the ORSA report.
86. These measures may include, but are not limited to, changing the asset mix, hedging investment risks wherever appropriate, changing the mix of new business, withdrawing from certain lines of business or revising reinsurance arrangements.

**Effective Date**

87. This Notice shall take effect on 1 January 2014.



**Notes on History of Amendments**

1. MAS Notice 126 (Amendment) 2013 with effect from 1 Jan 2014.
2. MAS Notice 126 (Amendment) 2015 with effect from 7 December 2015.
3. MAS Notice 126 (Amendment) 2020 with effect from 31 March 2020.

**Illustrative ORSA report template for an insurer**

<b>Section</b>		<b>Summary Description</b>
A	Executive Summary	<ul style="list-style-type: none"> <li>• Purpose of the report</li> <li>• Planning horizon captured in the report</li> <li>• Summary of the results of ORSA</li> <li>• Includes the key risks that threaten the financial strength of the insurer and the key mitigating actions identified</li> </ul>
B	ORSA Process	<ul style="list-style-type: none"> <li>• Summary of the ORSA process</li> <li>• Includes summary of the key risk management policies and comments on the effectiveness of these policies in managing its risk profile</li> <li>• Includes summary of key changes to its ORSA process and underlying assumptions</li> <li>• Includes details of principal assumptions and interdependencies between the various key assumptions</li> </ul>
C	Strategy and Risk tolerance	<ul style="list-style-type: none"> <li>• Summary of current business strategy and risk tolerance</li> <li>• Impact of the business strategy on the risk profile</li> <li>• Demonstrates link between strategy, risk and capital</li> </ul>
D	Risk Exposures	<ul style="list-style-type: none"> <li>• Risk tolerance statements and assessment of the current risk profile against defined tolerance</li> <li>• Assessment of risks which may not be quantified within the economic capital and regulatory capital review such as group, reputational and emerging risks</li> <li>• Assessment of the effectiveness of controls in place to mitigate against key risks</li> <li>• Summary of breaches on defined risk tolerance since last reporting and any impact to risk strategy and capital</li> </ul>
E	Business Projection and Stress Testing	<ul style="list-style-type: none"> <li>• Brief description of stress scenario</li> <li>• Includes the rationale for the choice and construction of the scenarios and the description of the assumptions</li> <li>• Potential risk, capital and solvency profile under various stressed conditions</li> <li>• Qualifications of results (if any)</li> </ul>
F	Capital Requirement	<ul style="list-style-type: none"> <li>• Summary of methodology to determine required capital (regulatory and economic)</li> <li>• Assessment of regulatory and economic capital needs based on the actual and potential risks faced</li> <li>• Analysis of key drivers of the change in the financial, economic and capital adequacy positions</li> </ul>

*Enterprise Risk Management for Insurers*

G	Solvency Assessment	<ul style="list-style-type: none"> <li>• Assessment of available funds to meet capital requirements, both now and based on future projections</li> <li>• Summary of capital management plans</li> <li>• Assessment of capital planning and adequacy</li> <li>• Includes the capital contingency plans where future funds may be insufficient to meet capital needs, and the timeframe for implementing these measures</li> <li>• Include assessment of contingent capital or access to additional funds (e.g. from parent company or Head office) post-event</li> <li>• Assessment of the effectiveness of capitals which are fungible or likely to be fungible</li> </ul>
H	Assurances	<ul style="list-style-type: none"> <li>• Comparison of actual experience (including the Capital Adequacy Requirement) vis-à-vis projection from the prior year</li> <li>• Comment on the suitability of current projection assumptions in light of past actual experience</li> <li>• Comment on the management actions taken in the previous period in response to the recommendations stated in the previous ORSA Report</li> <li>• Summary outcome of independent review of ORSA (if any)</li> <li>• Limitations and reliance</li> </ul>
I	Appendices and References	<ul style="list-style-type: none"> <li>• Includes detailed projection of the stress testing</li> </ul>