BERMUDA MONETARY AUTHORITY

DISCUSSION PAPER
ON THE OWN RISK AND SOLVENCY ASSESSMENT PROCESS

SEPTEMBER 2009

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FOREWORD

The Bermuda Monetary Authority ("the Authority") is continuing its programme of regulatory development for the Bermuda market place. The objective is a regulatory regime appropriate for the Bermuda market and recognised as meeting or exceeding international standards.

The International Association of Insurance Supervisors ("IAIS") has developed a number of papers setting out standards that leading regulators world-wide are expected to meet. One of the requirements relates to the need for insurers[1] to demonstrate clearly the link between capital adequacy, risk governance processes and strategic decision making. This is referred to as an *Own Risk and Solvency Assessment* ("ORSA").

The Bermuda market has been innovative in the development of sophisticated modelling techniques which make capital allocation and risk aggregation analysis central to the assumption of risk. It is expected that many insurers in Bermuda already have in place systems that, to a great extent, will meet the requirements of an ORSA.

The Authority sees the ORSA process as an opportunity to consolidate regulatory reporting requirements. It is envisaged that established management information systems will contain information that goes a long way to meeting regulatory requirements. The Authority will set out minimum requirements for an ORSA appropriate to the size and risk profile of insurers.

This paper introduces the ORSA concept to the Bermuda market, and describes how the Authority intends to implement this regulatory requirement in a way that both enables the Authority to more effectively carry out its duties and keep compliance costs to a minimum. The Authority will work with industry to develop an ORSA process which meets international regulatory requirements and reflects the unique characteristics of the Bermuda market, with the aim of releasing a consultation paper during the third quarter of 2010.

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[1] In this report, "insurer(s)" refers collectively to insurer(s) and reinsurer(s) unless otherwise specified.

0. PURPOSE AND EXECUTIVE SUMMARY

1. This discussion paper provides high level guidance on the Authority's proposed approach to the ORSA process. ORSA is defined as:

> "The entirety of the processes and procedures employed to identify, assess, monitor, manage, and report the short and long-term risks an insurer faces or may face and to determine the own funds necessary to ensure that the insurer's overall solvency needs[2] are met at all times"[3]. [4]

2. While the ORSA process is becoming a requirement of regulatory regimes worldwide, the concept is in its nascency. Currently, the level of detail of what an ORSA entails is limited to high-level guidance disseminated by the IAIS, Europe and some other regimes.

3. This paper discusses the philosophy underlying an ORSA with the objective of providing background to industry and to give a skeletal outline of the Authority's initial thoughts on what is involved in an ORSA process suitable for the Bermuda market. It is the intention of this paper to initiate discussion rather than prescribe requirements.

4. There are three attachments to this paper:

- attachment I summarises current perspectives on ORSA as promulgated by other regulators and the IAIS;
- attachment II provides a brief description of risks which may not be covered under a formulaic Enhanced Capital Requirement ("ECR") calculation; and
- attachment III describes the Authority's Supervisory Review Process ("SRP").

5. The Authority's intent is to use the ORSA process to consolidate regulatory reporting requirements and encourage sound risk management practices within the Bermuda market. The Authority is implementing an electronic reporting platform which will facilitate the use of an insurer's established management information systems to form the basis of regulatory reporting.

6. One tangible outcome from an ORSA process may be the imposition of a capital add-on, in addition to the capital determined by other regulatory guidelines. This paper describes the procedures and principles for determining any such need.

[2] "Overall solvency needs" refers both to regulatory capital requirements and internal capital needs.
[3] CEIOPS Issues Paper: *Own Risk and Solvency Assessment*, May 2008.
[4] Solvency cannot be "*ensured at all times*", but rather met with varying degrees of probability.

7. The Authority will consult with industry to develop an ORSA process which is both international best practice and suitable for the Bermuda market. It is expected that Classes 4 and 3Bs' existing management information systems will have established metrics and procedures to monitor risk exposure and aggregation, and appropriate controls and governance processes. Class 3A insurers will be able to use the Authority's guidelines to establish or develop an ORSA which is appropriate to their operations and risk profile.

8. Comments are welcome on all matters covered in this paper and should be sent to the Authority via e-mail addressed to Fadwa Sahly at fsahly@bma.bm, or by phone at 441 278 0287, no later than December 31st 2009. The Authority intends to publish a final version of this document on its website (**www.bma.bm**) on or before January 31st 2010.

1. INTRODUCTION

Bermuda Regulatory Developments

9. Reflecting international regulatory practice, the Authority's supervisory regime has both qualitative and quantitative components[5]. Insurers are required to maintain appropriate provisions for liabilities and adequate assets to support those obligations, uphold capital at a level that exceeds specified regulatory thresholds, and have in place governance and risk management techniques and procedures to monitor and manage risks. In addition, there are disclosure requirements[6] that all insurers have to meet.

10. The Authority has introduced the Bermuda Solvency Capital Requirement ("BSCR"), for determining certain insurers' regulatory capital requirements[7]. In tandem, the Insurance Act[8] has been amended to allow insurers the alternative of using an approved internal capital model to determine regulatory capital. The rationale for allowing the use of an internal model is to have a regulatory capital requirement that better reflects an insurer's particular business profile. An insurer's internal model must satisfy certain criteria to be approved for the determination of regulatory capital[9].

11. The Authority also evaluates, on an on going basis, insurers' adequacy of financial resources and control and governance framework. The Authority is developing a Code of Conduct setting out principles and standards relating to responsibilities of the Board of Directors ("Board") and senior managers, risk management and risk assessment practices, corporate governance, etc.

12. The Bermuda insurance sector, predominantly a wholesale market, is dominated by non-life reinsurers (particularly property catastrophe reinsurers) and high-attaching commercial liability insurers. The Authority intends to develop an ORSA process which reflects the unique characteristics of the Bermuda market.

Relationship between ECR, ORSA and SRP[10]

13. The BSCR formula determines a level of capital required to support a company's insurance, market, credit and operational risks. However, a standard formula will not

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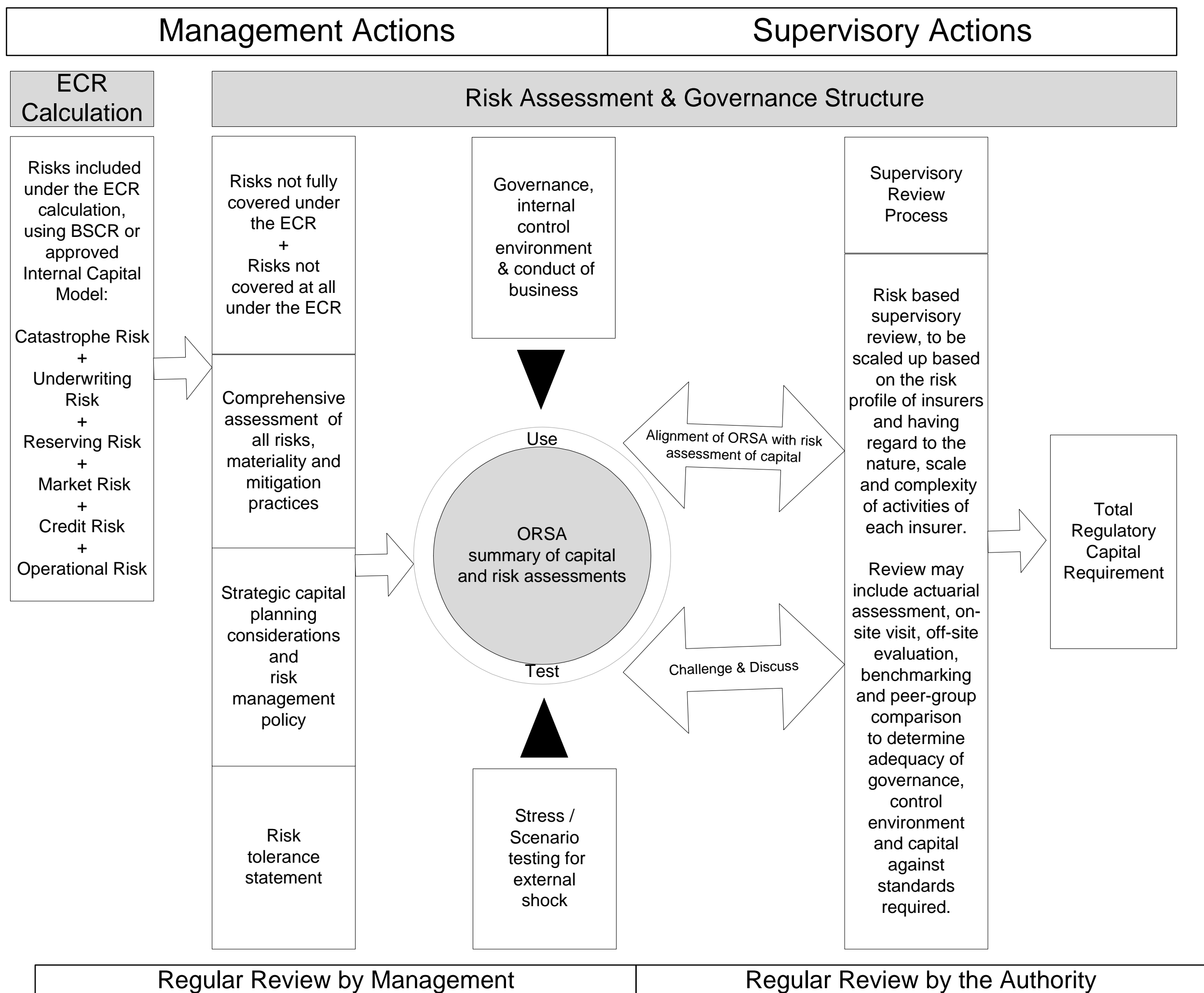
[5] This can be referred to as a "three pillar" structure, where Pillar I covers minimum financial requirements, Pillar II the supervisory review process and risk assessment framework, and Pillar III disclosure requirements.
[6] This covers disclosure both to the regulator and the public domain.
[7] Required regulatory capital is referred to as the Enhanced Capital Requirement, or ECR.
[8] *Insurance Act 1978*.
[9] The Authority published "Standards and Application Framework for the Use of Internal Capital Models for Regulatory Capital Purposes" in June 2009.
[10] Supervisory Review Process.

cover all the risks to which an insurer is exposed, or reflect any one company's particular risk profile. Even when an insurer is using an internal capital model, there are certain risks which may not be adequately addressed.

14. The Authority's SRP is the framework for reviewing and monitoring insurers' financial resources and control and governance framework. The intent is to make the ORSA central to the Authority's SRP and facilitate dialogue between insurers and the Authority which links the ECR measure to a comprehensive assessment of risks.

15. The ORSA process is an opportunity to align management and regulatory reporting. Ideally, any regulatory requirement makes commercial and/or prudential sense, and any information requested by the Authority can be met to a great extent from existing management information.

16. The following diagram illustrates how the Authority will use the ORSA and SRP to carry out its supervisory role in assessing insurers' ECR and other elements of risk exposure and mitigation.



2. THE ORSA PROCESS

Objective

17. A well-run insurer actively monitors material risks to which it is exposed, implements a company-specific relationship between risk and required capital, and has in place appropriate and effective governance structures and controls. The ORSA presents an opportunity for insurers to demonstrate that capital levels are commensurate with their risk profile and suitable risk management procedures are in place.

18. The Authority intends to integrate the ORSA into its standard SRP, with a long-term view of converging reporting requirements through the ORSA. The intent is to reduce reporting which is prepared solely for the regulator, whilst ensuring that all material risks, both at the solo entity level and group level for insurers which have subsidiaries or form part of a group, are appropriately captured and monitored. Reporting and procedural efficiencies will be gained for both the Authority and insurers.

19. The Authority is developing procedures to automate the initial review of electronically received information[11]. This will include procedures to aggregate homogenous data across companies, which will enable analysis to identify outliers. Such information will inform the SRP, and allow the Authority to develop benchmarks and provide feedback to the industry on market practice.

20. Based on the review of information received, the Authority will decide which insurers may be subject to a more intensive documentation request and/or supervisory review. So long as the Authority satisfies itself that there is an acceptable and justifiable relationship between risk profile, the amount of capital held and techniques employed by an insurer to manage and mitigate risks, and that risk management techniques are robust, any additional documentation request or supervisory review will be minimised. This approach is designed to optimise supervisory resources, whilst providing further incentive for insurers to prudently manage risks and promote a strong internal control culture and high governance standards.

21. In a follow up consultation paper to be issued in 2010, the Authority will set out guidelines of what would be expected to be included in an ORSA. Classes 4 and 3B insurers are expected to have in place management information systems which will incorporate most of what the Authority expects in an ORSA. Class 3A insurers will be able to use the Authority's guidelines to establish or develop an ORSA which is appropriate to their operations and risk profile. The Authority intends to work with industry to develop these guidelines, recognising the difference in size, business mix, complexity, and risk profile of different classes of insurers.

[11] This is discussed in Section 4 below.

Capital Add-ons

22. As part of the ORSA process, insurers need to perform a comprehensive assessment of the risks to which they are exposed, which will extend beyond the considerations underpinning the formulaic ECR requirement. [12]

23. In cases where the ECR capital calculation does not cover all material risks to which an insurer is exposed, the insurer's own assessment of the amount of capital needed for regulatory purposes requires regard to the various additional risks identified during the ORSA process. An outcome of the ORSA process, in such cases, may be for the insurer to propose an adjustment to its ECR, which is referred to as a "capital add-on".

24. The SRP is the framework that will guide the Authority in considering possible adjustments to required regulatory capital. During the SRP, the Authority will accept or contest suggested capital add-ons and insurers will have the opportunity to challenge such decision. The Authority intends to be transparent with insurers in the application of any capital adjustments and attachment III provides details regarding this process.

25. Capital add-ons will less likely be applied to insurers using an approved internal capital model rather than the BSCR to determine regulatory capital requirements, as the BSCR is a standardised calculation, calibrated using aggregated industry data, that is not tailored to individual risk situations.

[12] Attachment II to this paper sets out some risk categories which may not be captured by an ECR calculation.

Application to Groups

26. Consistent with the approach adopted for the approval of internal models for the determination of regulatory capital, the Authority proposes to apply the ORSA process at either a group or legal entity ("solo") level.

27. Where the Authority is group supervisor, the ORSA must be at the group level, and no solo ORSA is required.

28. Where the Authority is not group supervisor, the ORSA can be prepared at either the group or solo level, as long as all risks, both group and solo, are adequately captured. In such cases where the ORSA is prepared at the group level, the Authority will work with insurers to determine an appropriate approach for allocating capital to a legal entity, where modelling and capital assessment is not carried out at the legal entity level.

29. The Authority will work with each insurer to evaluate the appropriate entity or group level requirement, taking into consideration potential risks that may arise due to double gearing[13], inter-company transactions, associated unregulated entities and other aspects of a group structure. The preference is for the ORSA to be prepared consistent with how a group considers risks.

30. There will be a commensurate increase in the Authority's review process where an insurer is subject to group-wide supervision by the Authority. All group legal entities and parent companies, whether regulated or not and whether based in Bermuda or not, must be included within the ORSA assessment of group risk.

Reliance on Other Regulators

31. The Authority recognises the need to avoid unnecessary duplication in fulfilling its supervisory responsibilities. In cases where international groups are subject to equivalent consolidated supervision elsewhere, the Authority's approach will be to liaise and share relevant information with other supervisors[14] and seek to co-ordinate supervisory actions as much as possible.

32. Where appropriate and to the extent possible, the Authority will rely upon reports prepared for other regulators in considering ORSA requirements and associated supervisory actions.

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13 Used to describe situations where multiple companies are using shared capital to buffer against risk occurring in separate entities. For example, one entity may hold capital for regulatory purposes, which is issued by another entity within the same group and the issuer is also using the same capital for regulatory purposes. In that situation, capital of the group is geared up twice; first by the parent, and then a second time by the dependant.

14 The Authority is developing relationships with other regulators to facilitate the exchange of information, and participate in international supervisory colleges and as it progresses toward group supervision.

3. STRESS AND SCENARIO TESTING

33. Insurers should be capitalised so as to be able to withstand the impact of a combination of extreme but not inconceivable adverse events. A well-run insurer will have comprehensive stress and scenario testing procedures to monitor capital adequacy in adverse scenarios as part of its risk management framework. These include procedures to undertake, review and, where appropriate, react to the results of rigorous, forward-looking stress and scenario tests that identify possible events or cyclical changes in market conditions that could adversely impact an insurer's earnings, liability or asset values.

34. The Authority's current regulatory reporting includes a number of standardised stress tests, and both the BSCR and any internal capital model implicitly incorporate stress testing. These reporting requirements will carry on and be consolidated into the ORSA, and streamlined to reflect an insurer's existing stress and scenario testing framework.

35. As part of the ORSA, management must also set out what actions the insurer would realistically be able to take to mitigate the potential impact of adverse scenarios and over what time horizon such actions would take place. The analysis should include financial projections forward for an appropriate period based on business plans, possibly under more than one contingency, and incorporate detailed solvency calculations. Insurers should be able to demonstrate how they will be able to manage their business and capital in adverse circumstances and still meet minimum regulatory thresholds. An insurer's Board should assess the capital impact implied by stress and scenario tests and reconcile it to the insurer's risk appetite.

36. Where capital impairment can be significant under extreme but not inconceivable stress and scenario tests, the Authority may consider it appropriate for firms to hold additional capital.

37. Stress and scenario testing can also be used to validate, supplement and benchmark capital model output. For example, the relationship between an insurer's risk appetite and exposure, as measured by total sums insured, can be investigated using stress and scenario tests.

38. The impact of many stress and scenario tests, and the determination of statistics such as PMLs[15], are carried out using complex financial and exposure models. This means that important risk management procedures are dependent on the veracity of models and modelling procedures. No model fully reflects the complexity inherent in real world processes. Insurers are encouraged to develop risk management

[15] Probable maximum loss.

procedures, which rely on as few assumptions as possible, to assess and monitor model risk[16] and measure sensitivity to input assumptions.

39. The Authority also encourages insurers to consider the case where a single event or combination of events would result in an inability to meet commitments. Such an exercise can reveal vulnerability to a given set of circumstances and enable mitigating strategies to be put into place.

[16] Model risk is discussed in Attachment II to this paper and in the Authority's report on economic capital modelling released December 2008.

4. STREAMLINING REGULATORY PROCEDURES

40. The Authority's long-term aim is to consolidate regulatory reporting requirements and make the ORSA central to the supervisory review process and on-site programme.

41. The Authority is currently developing an electronic reporting facility using an XBRL[17] platform. XBRL is a language for the electronic communication of business and financial data that enables the separation of form and content. An XBRL platform will enable insurers to meet regulatory reporting requirements using internal company documents.

42. It is expected that many Bermuda insurers' existing management information systems will already have in place metrics and procedures to monitor risk exposure and aggregation and overview controls, systems and processes. It is envisaged that such documentation will contain much of the information needed to meet the ORSA requirements.

43. The Authority is developing procedures to automate the initial review of electronically received information. Procedures will be developed to combine data across companies into homogenous sets, which will then be analysed to recognise market trends and identify outliers. Such information will inform the SRP by providing a report on each company showing how it compares to its peers. It will also allow the Authority to develop benchmarks and provide feedback to the industry on market practice.

17 e**X**tensible **B**usiness **R**eporting **L**anguage.

5. PROPOSED TIME TABLE

44. The Authority proposes to apply the ORSA framework to Classes 4 and 3B for reporting dates on and after December 31st 2011, and Class 3A December 31st 2012.

45. The Authority will begin consulting on the ORSA process during the fourth quarter of 2009. Comments and views are welcome on all matters covered in this paper no later than December 31st 2009.

46. A consultation paper will be developed during the third quarter of 2010, to be published by January 31st 2011. This timing allows the Authority to incorporate both market feedback and overseas developments.

47. The first ORSA submission will be due April 30th 2012 for Classes 4 and 3B, and will consolidate other regulatory reporting requirements, incorporating aspects of the current BSCR, or approved internal capital model, stress and scenario testing and statutory financial return[18] submissions. The first ORSA submission will be due for Class 3A on April 30, 2013.

	2009		2010				2011				2012	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Market Consultation Process		→										
Publication of Final Discussion Paper			*									
Market Consultation Process						→						
Publication of Final Consultation Paper							*					
Legislative Process						→	→					
Market Communication	→	→	→	→	→	→	→	→	→	→		
First ORSA Submission											→	*

[18] The Authority has established a working group reviewing statutory financial returns and is considering moving to general purpose financial reporting.

6. CONCLUSION

48. An Own Risk and Solvency Assessment is an integral component of developing regulatory practice world-wide.

49. The Authority sees the ORSA process as an opportunity to consolidate and streamline reporting procedures and reduce compliance costs by basing regulatory reporting requirements on insurer's internal reporting, as long as certain minimum requirements are met. This will be facilitated by electronic filing via an XBRL platform. The ORSA process will set out minimum requirements appropriate to the size and risk profile of insurers.

50. The purpose of this paper is to initiate discussion with industry about consolidating reporting requirements. The Authority will then work with industry to develop the minimum requirements of an ORSA, with the aim of releasing a consultation paper during the third quarter of 2010.

Attachment I

KEY PRINCIPLES AND GUIDANCE OF ORSA

This attachment is adapted from current perspectives on ORSA as promulgated by other regulators and the IAIS. In some jurisdictions the term "ORSA" refers to a regulatory reporting requirement. In this paper "ORSA" refers to processes that a well-run insurer would be expected to have in place.

The Authority will consult with industry to develop guidelines on minimum requirements in an ORSA .

Minimum Standard Guidance

51. The ORSA should at least reflect the following[19]:

- The total solvency needs taking into account the specific risk profile, approved risk tolerance limits and the business strategy of the insurer. To that effect, the Authority will expect insurers to have in place processes that are proportionate to the nature, scale and complexity of the risks inherent to their business, and which enable them to properly identify and assess the risks faced in the short- and long-term, and to which they are or could be exposed. The insurer is to demonstrate the methods used in this assessment.

- The compliance, on a continuous basis, with the ECR, other regulatory capital and reserving requirements.

- The significance with which the risk profile of the insurer deviates from the assumptions underlying the ECR, calculated using the BSCR or internal model. When an internal model is used, the assessment should be performed together with the recalibration that transforms the internal risk numbers into the ECR risk measure and calibration.

Requirements for Board Level Governance and Management

52. The Board needs to be able to demonstrate to the Authority that it has appropriate processes in place for monitoring the company's risk profile and risk aggregation, the quantity and composition of capital, and that the control framework and strategic planning processes are appropriately integrated into the insurer's operations. Senior management should approve and regularly review the assumptions used in the ORSA, including any management actions, and the ORSA should be formally reviewed and

19 Adapted from article 44 of the "Directive of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance".

endorsed by the insurer's Board. Senior management must also be actively involved in the review and challenge of the ORSA.

53. The ORSA should include a description of how the insurer's risk appetite is defined and measured as well as details around limits imposed and how these limits are enforced throughout the business. Events that fall outside of the risk appetite should be identified and insurers need to demonstrate that senior management and the Board are cognisant of such occurrences and have clearly stated processes in place to identify and mitigate such events.

54. Insurers should consistently monitor adherence to their risk appetites and review them regularly. Insurers should also consider establishing a link between their risk appetites, the strategic direction of the firm and the management of solvency.

55. The ORSA should be forward-looking, taking into account the insurer's business plans and projections. It should demonstrate that insurers hold sufficient financial resources to be able to make planned investments and address longer term business strategies, in particular plans for new business. Long-term projections of the business, which are a key part of the insurer's financial planning, such as projections of business plans, economic balance sheet and profit and loss account, should feed into the ORSA in order to form an opinion on the future overall solvency needs and capital.

Use Test

56. An insurer's risk and solvency assessment should be central to the decision-making process and serve a critical role in the development, implementation and monitoring of management strategies. This is referred to as the "Use Test".

57. The ORSA should contain processes and reporting that enables insurers to monitor, manage and report on the individual and aggregate risks, to which the insurer is or could be exposed, as well as the dependencies between these risks. The ORSA should also serve a central role in terms of corporate governance, particularly as it relates to the risk management function and decision-making processes.

Frequency of ORSA

58. While insurers should establish their own frequency of the ORSA taking into account their own risk profile, the assessment must be performed no less frequently than on an annual basis, together with on going monitoring of the coverage of the ECR, and must be formally reviewed and endorsed by the Board at least annually. Insurers should be able to justify the adequacy of the frequency of their assessment.

59. Insurers shall carry out an ORSA following any significant change in risk and solvency profile.

Attachment II

RISK CATEGORIES

60. Insurers have a wide range of risks embedded in their business that could potentially pose a material risk unless properly identified and mitigated, including those risks arising out of any off-balance sheet activity. A comprehensive assessment of risks extends beyond the considerations underpinning a formulaic capital requirement such as the ECR.

61. An important control around the ORSA process relates to the need for independence between risk taking and risk assessment. This is facilitated by a clear definition of the Chief Risk Officer's role, and appropriate separation of that role from other duties.

62. In addition, guidelines and procedures should be in place which give due flexibility to risk takers (such as underwriters), whilst ensuring that robust internal controls and channels of accountability in place will allow any individual non-compliance with guidelines to become apparent in a timely manner, with a particular focus on higher position limits.[20]

Risks Not Fully Captured by the BSCR Formula

a) Different risk profile

63. The BSCR is a standardised calculation method, calibrated using aggregated industry data, which may not fully reflect the risk profile of a specific insurer. An ORSA process can complement the BSCR by considering how the insurer's risk profile compares to that implicitly assumed in the BSCR calculation.

b) Dependency structure not fully validated

64. The modelling of dependencies among different risk drivers can have a significant impact on estimated capital requirements. Parameterisation and methodologies for modelling dependency structures are currently determined primarily by judgement, and there often are no embedded procedures applied to test the fit of assumed distributions and parameters. In particular, processes that seem to move somewhat independently in the normal course of events, can move together under extreme circumstances[21].

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20 Such processes aim at detecting the rogue underwriter or "Nick Leeson" situations.
21 The Authority published the "Survey of Economic Capital Modelling Practices in the Bermuda Insurance Market" in December 2008, which discussed dependency structures in depth.

65. The Authority is taking a cautious stance to the recognition of diversification benefits, and will be looking for documentation of the process and analysis used to parameterise underlying dependency structures. The ORSA should set out the assumptions used by insurers to aggregate risk and determine diversification benefits.

c) Reliance on vendor models

66. The worldwide insurance market, and the Bermuda market in particular, has systemic exposure to reliance on vendor models which are almost universally used to assess catastrophe exposures. There is also systemic exposure to economic and other scenario generators which are used for modelling credit risk, interest rate risk, mortality, morbidity etc. If the vendor models underestimate potential losses arising from events, the industry as a whole may have capital levels impacted to a greater extent than expected[22].

67. The ORSA should set out the extent of such reliance and take into account what actions the management might take to mitigate such risk, including a description of procedures and analytics in place to monitor and quantify exposure to vendor models.

Missing Effectiveness of Risk Mitigation Techniques

68. Risk mitigation arrangements (such as guarantees or reinsurance) may not prove to be as effective or robust as anticipated. Whilst mitigation techniques may reduce some risks, they raise other risks, such as operational, counterparty, residual and liquidity risks. It is necessary to ascertain that these new risks are appropriately captured in the capital requirements.

Over-Reliance on Modelling

69. No model fully reflects the complexities inherent in real world processes. Modelling reinsurance is particularly problematic as data tend to be scanty.

70. Currently financial and insurance modelling is often built on unrealistic simplifying foundations that often assume, for example, linear relationships between risk categories and well-behaved (Gaussian) distributions of variables. Reinsurance is fundamentally a non-linear process where underlying distributions of individual risks and relationships between risks are essentially unknowable.

71. Over-reliance on modelling can lead to serious mis-estimation, usually under-estimation, of potential losses. There is a natural tendency, borne out by historical

22 The Authority published the “Survey of Economic Capital Modelling Practices in the Bermuda Insurance Market” in December 2008, which discussed vendor models in more depth.

evidence, to under-estimate the occurrence of extreme events. It is important that procedures are in place to mitigate limitations intrinsic to any modelling process.

72. The Authority expects insurers to have in place procedures and analytics for monitoring model risk which are reliant on as few input assumptions as possible. This can include suitable capital leverage guidelines based on aggregate information such as exposure, rather than modelled statistics such as PMLs. All material input assumptions, including the testing of zonal, peril and other risk categorisation dimensions both within and between classes of business, should be challenged. The Authority intends to work with industry to develop some simple metrics for assessing capital requirements which are independent of modelling.

Operating at a Different Confidence level

73. The Authority distinguishes between regulatory capital, economic capital, and held capital as follows:

- regulatory or statutory capital is as set by the regulators. In Bermuda, this is calculated using the BSCR or an approved internal capital model, which is calibrated at 99% TVAR[1] , over a one-year time horizon;
- economic capital is as determined by a company's management and as required to support the insurer's business objectives. Economic capital can be determined by reference to an internal capital model; and
- held capital is actual capital, in accounting terms, admitted assets less liabilities.

74. These different capital measures may reflect the same risk metric calibrated to a different level. An insurer may determine economic capital at a higher percentile to reflect management's assessment of capital needs and/or intention to maintain a higher level rating. The ORSA is expected to set out all three capital levels.

Operating at a Different Time Horizon

75. An ORSA should use parameters that best reflect an insurer's individual risk profile. For the purposes of an own assessment of capital needs, insurers may use a time horizon greater than the 12 month period used to calibrate the BSCR or internal capital model. In such a case, it may be good practice to quantify the effect of the different time horizon when comparing to the regulatory capital requirements.

[1] Tail Value-at-Risk ("TVAR") provides the average expected value of losses in those cases where they exceed the predefined confidence level. TVAR is considered to provide a better measure of risk than VAR, in that it is affected by the extreme values in the tail (while VAR is not), more relevant to the Bermuda market given the concentration of property catastrophe insurers and the long tail associated with such business lines.

Reputational Risk

76. The potential adverse impact of a loss through deterioration of reputation or standing is a significant risk to any insurer. Insurers should be aware of potential reputational risk as well as the relationship such risk may have with other material risks.

Strategic Risk

77. There is a material risk that strategic business decisions prove to be ill-founded or poorly executed. Examples of such risk include mergers and acquisitions, moving into new markets, business lines, or regions, changes to the operating model, or failing to anticipate or react to a more general shift in the economic environment, demographics, etc.

Liquidity Risk

78. Liquidity risk is not always mitigated simply by holding additional capital. An insurer should be able to demonstrate that it has considered potential challenges to liquidity, including the methodology and principles used to measure liquidity, contingency plans, access to new funding sources, and projected liquidity requirements.

Capital-Raising Risk

79. Many of the insurers in Bermuda are exposed to catastrophic loss which may severely impact capital levels. It is common after a significant catastrophic event for the industry as a whole to raise capital. Insurers need to manage the risks associated with such efforts and may wish to have an established path and relationships to facilitate any required capital-raising endeavours.

Group Risk

80. Additional considerations need to be addressed for insurers with multiple jurisdictional exposures. This includes risks related to unregulated entities within the group, implicit or explicit exposure to losses throughout the group (“contagion risk”), risks related to intercompany transactions and double gearing, the extent to which practical, legal, or regulatory barriers to the transfer of capital between group members exist, and other additional risks which individual members of a group face by virtue of their group membership.

Attachment III

SUPERVISORY REVIEW PROCESS

Key Principles of the SRP

81. The SRP is the risk-based approach to the Authority's review and evaluation of the strategies and processes that are established by insurers to comply with legislation and other regulatory requirements. The Authority performs a base level of review, which is scaled up based on the risk profile of each insurer.

82. Based on on-site and off-site work performed, and in-house and preliminary documentation received, the Authority decides which insurers might be subject to a more intensive supervisory review, with the frequency and intensity of reviews based upon the risk profile of each insurer and having regard to the nature, scale and complexity of its activities.

83. The SRP includes the assessment of the qualitative requirements relating to the system of governance and controls, the assessment of the risks which the insurer faces or may face in the future and the assessment of the ability of insurers to identify and assess material risks, taking into account the environment in which they operate.

During the SRP, the Authority's review will include an evaluation of the following:

- the system of governance and controls;
- technical provisions;
- capital requirements, including quality and quantity of capital;
- investment guidelines;
- underwriting guidelines; and
- where the insurer uses an internal capital model to determine regulatory capital, on-going compliance with the requirements for internal models.

84. The Authority is developing procedures to automate the initial review of electronically received information, which will form a significant element of the Class 3A SRP. For Classes 4 and 3B, the automated initial review is augmented by more in-depth assessments, analysis and review processes. Such practice allows for the aggregation of sector data, and a more sophisticated examination of outliers to inform the SRP. The Authority will then be in a position to develop benchmarks and provide feedback to the industry on market practice.

85. The Authority will look to assess the adequacy of the methods and practices designed to identify possible events or future changes in economic conditions that

could have adverse effects on the overall financial standing of insurers, including the ability of insurers to withstand those possible events or future changes.

Remedial Actions following the SRP

86. It is appropriate for the Authority to have a range of remedial actions if, as a result of its SRP, it becomes concerned that an insurer is not meeting required standards. Any remedial actions, and the reasons for them, will be communicated and discussed with management prior to being formally determined and may include one or more of the following:

- requiring corrections to be made for any deficiencies found in the governance, internal control, risk management or conduct of business processes and strategies;
- intensifying the monitoring of the insurer and/or requiring additional reporting;
- restricting the payment of dividends and/or restricting the distribution of capital;
- requiring a reduction in the risk profile;
- requiring the implementation of a satisfactory capital adequacy restoration plan; and
- requiring a capital add-on.

87. Requiring a capital add-on may only happen under exceptional circumstances following the SRP. The imposition of a capital add-on is exceptional in the sense that it should only be used as a last resort measure, when other supervisory measures are ineffective or inappropriate.

Possible Outcome of the SRP: Capital Add-ons[23]

88. A capital add-on can only be set following the SRP and after other remedial actions have been considered. Often the appropriate remedy to perceived weaknesses cannot be achieved simply by an increase in capital. Moreover, some of the required remedies (such as improving systems and controls) may take a period of time to implement. In such circumstances increased capital may be used as an interim measure to provide additional protection while permanent measures to improve the insurer's position are being put in place. Only when these measures have been put in place and have been seen by supervisors to be effective, will the Authority consider if an interim increase in capital requirements can be removed.

89. Capital add-ons may be imposed in cases where there are material deficiencies in the internal control or governance structure of insurers and these may impair the identification, measuring, monitoring and managing of risks and are not remedied within an appropriate time frame. In the case of such failures, a capital add-on should be imposed until the deficiencies have been rectified, if the sole application of other

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23 Adapted from the "Draft CEIOPS' Advice for Level 2 Implementing Measures on Solvency II: Capital Add-On", CEIOPS July 2009.

measures is unlikely to reduce the risks from failures. The capital add-on should be proportionate to the material risks arising from the deficiencies.

90. In addition, if the Authority concludes that the ECR for an individual insurer, calculated using the BSCR or an internal model, is not prudent enough compared to that company's risk profile, either because there are risks that are not captured by the ECR calculation or because the risks are insufficiently captured, the Authority may require the insurer to increase regulatory capital.

91. The communication of the application of a capital add-on will state the reasons and any conditions that may apply and will include at least the following:

- a brief outline of the deficiencies the Authority has identified and the reasons why the deviation from the risk profile of the insurer is considered significant;

- a brief description of why other measures would not be sufficient or why the Authority considers that other measures although sufficient, would not be considered to be in place in a timely manner; and

- particulars as to the proposed amount of the capital add-on, with details on how the amount was determined.

92. The communication will also include details of what needs to be done in order to withdraw the capital add-on.

Time Frame

93. To address any deficiency in controls or governance without setting a capital add-on, the Authority is proposing a maximum period of six months. Such period may be waived if the application of other measures is in itself unlikely to adequately ameliorate the deficiency.

94. The capital add-on shall apply during the submission year and until the next SRP, where the circumstances under which it was imposed will be reviewed.

95. When the decision to apply a capital add-on has been made by the Authority, and following communication of such application, insurers will have a period of 28 days from the day of the notice, to make written representation to the Authority.

96. Should the insurer accept the Authority's initial assessment, the Authority will issue a final decision 28 days from its initial notice and the adjustment or capital add-on will come into effect 90 days hence.

Appeal Process

97. In the exceptional cases where a capital add-on is set, and where an insurer chooses to appeal the Authority's decision, the following steps will occur:

- insurers will make a written representation to the Authority and present their views on the Authority's conclusions;

- the Risk Committee, comprising of risk, actuary, and supervisory staff members at the Authority, will consider such representation before completing its review and reaching a decision regarding the final determination of the minimum capital requirements;

- once a decision is reached, the insurer will be notified of the Authority's final decision and the capital add-on, if imposed, will come to effect 90 days from the date of the final decision; and

- the insurer may appeal to a tribunal[24], if it is aggrieved by the Authority's decision with respect to the capital add-on. Should the decision reached by the tribunal be in favour of the Authority, the adjustment will come in effect 90 days from the decision date.

24 Part VIIIA of the Insurance Act 1978.