

*2009 Winter National Meeting
San Francisco, CA*

**Joint NAIC/IAIS Meeting
NAIC International Solvency (EX) Working Group
and IAIS Solvency & Actuarial Issues Subcommittee**
December 3, 2009
9 a.m – noon
Hotel Nikko–Nikko Ballroom II–3rd Floor

ROLL CALL

Christina Urias, Chair			
Steve Ferguson	Arizona	Ann Frohman	Nebraska
Mel Anderson	Arkansas	Bob Kasinow/Ray Conover	New Jersey
Louis Quan	California	Alan Seeley	New Mexico
Gennet Purcell	District of Columbia	Lou Felice/Joseph Fritsch	New York
Ray Spudeck	Florida	Mary Miller	Ohio
Jim Armstrong	Iowa	Alfred W. Gross	Virginia
Jaki Gardner	Minnesota	Peter Medley	Wisconsin

AGENDA

1. Working Group Consideration of October 28, 2009, Conference Call Minutes
2. Working Group Consideration to Expose Consultation Papers
 - Discuss Comment Deadline (March 1, 2010)
 - Discuss Interim Meeting (March 11-12, Phoenix)
3. U.S. Risk-Focused Surveillance – Mary Miller (US Ohio)
4. Presentations & Discussion – ERM/ORSA Implementation Around the World
 - IAIS Standards and Guidance – Trevor Cooke (UK)
 - Australia – Helen Rowell
 - Canada – Bernard Dupont
 - Switzerland – Thorston Pfeiffer
 - United Kingdom – Rob Curtis
5. Any Other Matters Brought Before the Committee

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Draft: 11/10/09

International Solvency (EX) Working Group
Conference Call
October 28, 2009

The International Solvency (EX) Working Group of the Solvency Modernization Initiative (EX) Task Force met via conference call Oct. 28, 2009. The following Working Group members participated: Christina Urias, Chair (AZ); Louis Quan and Ronald Dalquist (CA); Philip Barlow (DC); Nic Ancheta (FL); Jim Armstrong (IA); Dan Kosmicki and Jim Nixon (NE); Robert Kasinow (NJ); Lou Felice (NY); Mary Miller (OH); and Alfred W. Gross (VA).

1. IAIS Solvency Subcommittee Documents

Director Urias said the International Association of Insurance Supervisors (IAIS) Solvency and Actuarial Issues Subcommittee released numerous papers for comment on the topics of enterprise risk management (ERM), investments, internal models and capital adequacy. She said that most of these papers had been adopted previously in some version, but were now modified to expand application from single-entity supervision to group supervision. Other significant changes included incorporation of a previously adopted asset/liability management paper into the ERM paper and combination of the capital structure and capital resources papers into a combined capital adequacy paper. She said comments are due to the IAIS by Nov. 2.

The Task Force discussed numerous overarching issues that related to the IAIS work, as well as individual comments submitted by U.S. regulators regarding the drafting of the papers. Upon a motion by Ms. Miller and second by Mr. Felice, comments on the ERM papers were adopted to be submitted to the IAIS ([Attachment X-A1](#)). Upon motion by Mr. Nixon and second by Ms. Miller, comments on the investment papers were adopted to be submitted to the IAIS ([Attachment X-A2](#)). Upon motion by Mr. Kasinow and second by Mr. Felice, comments on the internal models papers were adopted to be submitted to the IAIS ([Attachment X-A3](#)). Upon subsequent e-mail vote, comments on the capital adequacy papers were adopted to be submitted to the IAIS ([Attachment X-A4](#)).

Having no further business, the International Solvency (EX) Working Group adjourned.

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**Consultation Paper on
Regulatory Capital Requirements and Overarching Accounting/Valuation Issues
for the Solvency Modernization Initiative**

Solvency Modernization Initiative

1. The NAIC's Solvency Modernization Initiative (SMI) is a critical self-examination to update the United States' insurance solvency regulation framework and includes a review of international developments regarding insurance supervision, banking supervision, and international accounting standards and their potential use in U.S. insurance regulation.
2. While U.S. insurance solvency regulation is updated on a continual basis, the SMI will focus on five key solvency areas: capital requirements, international accounting, insurance valuation, reinsurance, and group regulatory issues. The SMI scope includes the entire U.S. financial regulatory system and all aspects relative to the financial condition of a company; the scope is not limited to evaluation of solvency alone.
3. The initiative includes the following:
 - Articulation of the U.S. solvency framework and principles.
 - Study of other sectors' and other countries' solvency and accounting initiatives and the tools that are used and proposed.
 - Creation of a new reinsurance regulatory framework.
 - Movement to principle-based reserving for life insurance products.
 - Enhancement of group supervision.
 - Ultimately, implementation of new ideas to incorporate into the U.S. solvency system.
4. The mission of the Solvency Modernization Initiative (EX) Task Force is to coordinate all NAIC efforts to successfully accomplish the Solvency Modernization Initiative. At these initial stages of the SMI, the Task Force and its working groups are gathering intelligence for eventual dissemination to the NAIC committees, task forces and working groups that will be charged to implement the SMI. An SMI Roadmap is being developed by the International Solvency (EX) Working Group of the SMI Task Force to identify the charges to NAIC committees, task forces, and working groups and deadlines for completion.

Goal of this Exposure Document: Comment Submission

5. A first working draft of the SMI Roadmap was released by the International Solvency (EX) Working Group of the Solvency Modernization Initiative (EX) Task Force on September 20, 2009. As part of the research needed to make recommendations for implementation of SMI, an exposure document on capital requirements was requested to be released for comment.
6. This consultation document concentrates on the capital requirements focus area of the SMI. Because of interconnectivity of capital requirements with the accounting and valuation, some overarching accounting/valuation issues are also explored. In this way, three of the five SMI focus areas are addressed in this paper.



7. Comments should be addressed to Director Christina Urias, Chair of the International Solvency (EX) Working Group, and sent to Kris DeFrain, NAIC staff, at kdefrain@naic.org. Comments should be submitted by March 1, 2010. Comment submissions may address individual or all questions in this document. All comments received by March 1 will be incorporated into a document for discussion at an interim meeting to potentially be held March 11-12 in Phoenix. Please note that comments must be submitted in writing by the deadline for consideration at the interim meeting.
8. Upon deliberation, the next step in the Solvency Modernization Initiative process will be more extensive development of the SMI Roadmap. The Roadmap will be discussed at the NAIC's Spring National Meeting, March 26-29, 2010.

Overview of SMI's Focus Area: Regulatory Capital Requirements

9. Two significant tools of regulatory intervention are the *Risk-Based Capital (RBC) for Insurers Model Act* (#312) and the *Model Regulation to Define Standards and Commissioner's Authority for Companies Deemed to Be in Hazardous Financial Condition* (#385). The Accreditation Program requires both of these to be adopted in substantially similar form.¹
10. The RBC is intended to be used solely to monitor the solvency of insurers and the need for possible corrective action with respect to insurers.² The RBC calculation generally uses a standardized formula to determine a minimum amount of capital for an insurer that is appropriate for its overall business operations. The RBC amount explicitly considers the size and risk profile of the insurer, providing for higher RBC charges for riskier assets or for riskier lines of business. Different intervention levels exist within the RBC system, ranging from a company action level to a mandatory control level. The degree of action depends upon the relative capital weakness as determined by the RBC result and the existence of any mitigating or compounding issues.
11. “The NAIC’s Hazardous Financial Condition Model Regulation, which has been adopted in substantially similar form in all states, provides the regulatory authority to address risky behaviors and characteristics exhibited by insurers. The regulation identifies a number of general factors that may indicate the need to take action, and provides the regulator with the authority to intervene in a variety of ways, including requiring the insurer to hold additional capital.”³ Notably, the Hazardous Financial Condition regulations implemented by states do not require low RBC results for supervisors to take action.
12. This paper focuses on the RBC aspects of U.S. solvency regulation, as opposed to the Hazardous Financial Condition Model Regulation; however, it is important to recognize that

1 The Health Organizations Model Act (Volume II-315) applies to Health insurance companies. This Model Act is not currently an NAIC accreditation standard but well over 30 U.S. insurance jurisdictions have adopted statutes, regulations or bulletins that are substantially similar to the NAIC Model Act 315.

2 NAIC Risk-Based Capital (RBC) for Insurers Model Act (#312), October 2007, page 11.

3 “The Implications of Solvency II for U.S. Insurance Regulation,” Therese M. Vaughan, Networks Financial Institute at Indiana State University, February 2009, pg 9.



RBC is not the only intervention tool available to regulators. The following issues are to be addressed in this paper:

- RBC factors, calibration, and “safety level”
- RBC use of partial models or introduction of full internal models with relevant safeguards
- Economic capital evaluation/discussions
- International Accounting and the impact on capital requirements
- Group capital requirements

Purpose of Regulatory Capital Requirements – Goals of a Regulatory Solvency System

13. For regulatory capital requirements, an IAIS standard is that the “solvency regime should be open and transparent as to the regulatory capital requirements that apply. It should be explicit about the objectives of the regulatory capital requirements and the bases on which they are determined.”⁴ The SMI should specify the purpose of regulatory capital requirements and the goals of a regulatory solvency system.
14. According to the IAIS, “[t]he purpose of supervising insurers is to maintain efficient, fair, safe and stable insurance markets for the benefit and protection of policyholders. Capital adequacy and solvency regimes is [sic] one of the most important elements in the supervision of insurance companies.”⁵
15. After requested by the IAIS, the International Actuarial Association (IAA) performed work on supervisory solvency assessment. The IAA said, “An effectively defined capital requirement serves several purposes:
 - provides a rainy day fund, so when bad things happen, there is money to cover them
 - motivates a company to avoid undesirable levels of risk (from a policyholder perspective)
 - promotes a risk measurement and management culture within a company, to the extent that the capital requirements are a function of actual economic risk
 - provides a tool for supervisors to assume control of a failed or failing company
 - alerts supervisors to emerging trends in the market
 - ensures that the insurance portfolio of a troubled insurer can be transferred to another carrier with high certainty.”⁶
16. Regulatory regimes could establish capital requirements so high as to have a zero-failure regime. However, in balancing the costs of such a system, most insurance regulatory regimes around the world accept a non-zero failure system with expectations of some insurance company failures. According to the IAA, “It is impossible for capital requirements, by themselves, to totally prevent failures. The establishment of extremely conservative capital requirements, well beyond economic capital levels,⁷ would have the impact of discouraging the deployment of insurer capital in the jurisdiction.”⁷

⁴ International Association of Insurance Supervisors, “Standard on the Structure of Regulatory Capital Requirements,” October 2008.

⁵ International Association of Insurance Supervisors, Principles on Capital Adequacy and Solvency, January 2002, page 3.

⁶ International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg 9.

⁷ International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg 5.



17. The Financial Condition (E) Committee exposed a first draft of a paper describing the current U.S. solvency framework and principles. In that paper, the regulatory mission of U.S. insurance regulation is identified:

US Insurance Regulatory Mission: To protect the interests of the policyholder and those who rely on the insurance coverage provided to the policyholder first and foremost, while also facilitating an effective and efficient market place for insurance products.
18. This mission emphasizes the key focus of U.S. insurance regulation on policyholder protection. The U.S. risk-based capital (RBC) was developed with this policyholder protection as its key aim. RBC is a minimum capital requirement and has not been intended to be an evaluation of the economic or target capital requirement.
19. What is notably not included in the mission statement is a focus on financial stability. At the London Summit, G20 leaders set out actions to strengthen transparency and accountability, enhance sound regulation, promote integrity in financial markets, and reinforce international cooperation. In the G20 Leaders' Statement, the G20 reinforced its promotion of global financial stability: "G-20 members will set out their medium-term policy frameworks and will work together to assess the collective implications of our national policy frameworks for the level and pattern of global growth, and to identify potential risks to financial stability."⁸
20. There are a number of drivers of capital held by an insurance company: regulators, rating agencies, market participants, etc. Rating agencies have a role in assessing insurers and have a substantial volume of credit rating and default data available. To determine the purpose of regulatory capital requirements, one should consider different drivers of capital held.

Questions:

- 1) **What is the purpose of regulatory capital requirements?**
- 2) **What is the driver of capital levels held by companies? What determines how much capital a company actually holds (e.g., rating agencies, market, regulation, etc.)?**
- 3) **Do rating agencies' motivations and output differ from regulators'?**
- 4) **Should the US Regulatory Mission be modified to include evaluation of economic or target capital? ...to include financial stability?**

Risk-Based Capital (RBC): Calibration, Factors, Square-Root Formula

21. The RBC is deemed by U.S. regulators to be an effective solvency regulatory tool and, with some potential adjustments, is anticipated to remain a key component of the U.S. solvency system.

⁸ G20 "Leaders' Statement, The Pittsburgh Summit, September 24-25, 2009," pg. 23.



Calibration (“Safety Level”) and Solvency Control Levels

22. The U.S. RBC currently has four action and control levels:
- | | |
|--------------------------|------------|
| Company Action Level | (200% ACL) |
| Regulatory Action Level | (150% ACL) |
| Authorized Control Level | (100%) |
| Mandatory Control Level | (70% ACL) |
23. As noted in the November 27, 1991 “Report of the Industry Advisory Committee to the Life Risk-Based Capital Working Group,” the RBC formula is not based on a specific calibration. Rather, an objective of the formula was as “an early warning tool to identify possibly weakly capitalized companies for the purpose of further regulatory action.”
24. An issue identified for the SMI is the calibration of the RBC, or whether the action and control levels are established at the appropriate levels of capital, called “safety levels.” The IAIS says, “Regulatory capital requirements should be established at a level such that the amount of capital that an insurer is required to hold should be sufficient to ensure that, in adversity, an insurer’s obligations to policyholders will continue to be met as they fall due.” While the IAIS does not establish the level for regulators to adopt, it does require that regimes establish their capital requirements such that there is a specified level of safety over a defined time horizon.
25. The IAIS identifies two ladders of intervention in its capital requirements standard:⁹
- PCR: The regulatory capital requirements in a solvency regime should establish a solvency control level that defines the level above which the supervisor would not require action to increase the capital resources held or reduce the risks undertaken by the insurer. This is referred to as the Prescribed Capital Requirement (PCR). The PCR should be defined such that assets will exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon.
 - MCR: The regulatory capital requirements in a solvency regime should establish a solvency control level that defines the supervisory intervention point at which the supervisor would invoke its strongest actions, if further capital is not made available. This is referred to as the Minimum Capital Requirement (MCR). The solvency regime should establish a minimum bound on the MCR below which no insurer is regarded to be viable to operate effectively.
26. Internationally, some countries have established their PCR¹⁰ at an economic capital level. The Solvency II PCR (called the Solvency Capital Requirement—SCR) is 99.5% Value at Risk¹¹

⁹ IAIS “Standard on the Structure of Regulatory Capital Requirements,” October 2008.

¹⁰ Australia calls their level of assessment an MCR but that is compared to others’ PCR.

¹¹ CEA definitions: **Value-at-Risk (VaR)** is the loss at a predefined confidence level (e.g., 99.5%). Thus if the company holds a capital of VaR, it will remain solvent (in the sense of having assets at least as great as its regulatory liabilities) with probability of the confidence level (e.g., 99.5%) and be insolvent with probability of one minus the confidence level (e.g., 0.5%). **Tail Value-at-Risk (TVaR)** is the expected value of the loss in those cases where it exceeds the predefined confidence level. It is sometimes also called Conditional Tail Expectation (CTE), Expected Shortfall (ES) or Expected Tail Loss. Thus the TVaR is equal to the average loss a company will suffer in case of (extreme) situations where losses exceed the predefined confidence level (of 99.5%). Another way to explain VaR and



over a one-year time horizon. CEIOPS initially recommended this 99.5% confidence level, as it was believed to “roughly correspond to a secure financial strength (‘BBB’) rating of an insurance undertaking.”¹² The NAIC’s Life and Health Actuarial Task Force has endorsed a Conditional Tail Expectation (CTE) methodology, which is similar to the IAA’s endorsement of the Tail Value at Risk (TVaR).¹³ The CEA Insurers of Europe compared VaR and TVar.¹⁴ The CEA said a 99.5% VaR is equivalent to a 98.7% TVaR; and the 99.0% TVar used by some jurisdictions would be equated to a 99.62% VaR.¹⁵

27. A particular confidence level must be accompanied by the time horizon of the assessment. In Solvency II, the time horizon is one year. The IAA has recommended that when “formulating a capital requirement in a particular jurisdiction, a supervisor must take into account the time horizon between the date as of which company financial statements are prepared and the expected date by which a supervisor could take control of the insurer if this was deemed to be necessary. Since this time horizon depends upon local business practices, the supervisor’s resources, legislation and the legal system, this horizon will vary from one jurisdiction to another. However, it would be rare to assume this time horizon could be considerably shorter than one year. … A reasonable period for the solvency assessment time horizon, for purposes of determining an insurer’s current financial position (Pillar I capital requirements), is about one year. This assessment time horizon should not be confused with the need to consider, in such an assessment, the full term of all of the assets and obligations of the insurer.”¹⁶
28. For Solvency II, the CEA noted that the amount of required capital must be sufficient with a high level of confidence to meet all obligations for the time horizon as well as the present value at the end of the time horizon of the remaining future obligations (e.g., best estimate value with a moderate level of confidence such as 75%).

RBC Factors

29. Some of the RBC factors are updated annually, but the SMI might include a comprehensive review of the factors utilized in the RBC. As well, the detail within the formula might be assessed. For example, instead of a limited number of groupings of assets with substantial changes in capital charge from one category to the next, should there be more of a continuum of factors? Should there be more categories to define the quality designations of bonds (1 being highest quality with a minimal factor, and 6 being lowest quality with the highest factor)?

TVaR, is by looking at for example 10,000 (simulated) losses. VaR would be set equal to the 50th largest loss (assuming a confidence level of 99.5%). TVaR would be calculated as the average of the 50 largest losses.

¹² CEIOPS-DOC-08/07, “Advice to the European Commission in the Framework of the Solvency II project on Pillar I issues – further advice,” March 2007, page 18.

¹³ “One risk measure that exhibits several desirable properties for various (but not all) risks is Tail Value at Risk (also called TVaR, TailVar, Conditional Tail Expectation, CTE or even Policyholders’ Expected Shortfall). In many situations, this risk measure is better suited to insurance than Value at Risk (VaR), a risk measure commonly used in banking, since it is common in insurance for their risk event distributions to be skewed.” International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg. 5.

¹⁴ “CEA Working Paper on the risk measures Var and TailVaR,” November 2006.

¹⁵ The relationships assume a Normal distribution. The CEA noted that the relationship will vary depending on the underlying distribution and parameter setting for the various risks. “The differences can become more pronounced in case of more ‘skewed’ distributions which are more typical in insurance.”

¹⁶ International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg 5.



Square-Root Formula

30. The RBC formulas apply a covariance calculation to determine the appropriate risk-based capital.¹⁷ Simply stated, the covariance calculation reduces the aggregate amount of RBC because it is unlikely that all of the risk components will be impaired simultaneously. The covariance adjustment reflects the fact that the cumulative risk of several independent components is less than the sum of the individual risk. The formulas do not include the insurance affiliate equity investment risk and off-balance-sheet risk inside of the covariance adjustment. The covariance adjustment follows the steps of adding together items that are believed to be correlated, leaving the balance of risks that are not correlated. The covariance adjustment then squares these resulting groups, adds the resulting squares together and takes the square root of the sum of the squares. The covariance adjustment reduces the volatility of the smaller risks and increases the importance of the largest risks affected by the adjustment.¹⁸
31. Current CEIOPS advice to the European Commission recommends the use of correlation factors in the SCR standard formula to aggregate capital requirements on the modules for non-life underwriting risk, life underwriting risk, health underwriting risk, market risk, and counterparty default risk.¹⁹
32. For example, the correlation factors for market risk were recommended as follows:

	Interest rate	Equity	Property	Spread	Currency	Concentration
Interest rate	1.0					
Equity	0.5	1.0				
Property	0.5	.75	1.0			
Spread	0.5	.75	.75	1.0		
Currency	0.5	0.5	0.5	0.5	1.0	
Concentration	0.75	0.75	0.75	0.75	0.5	1.0

Questions:

- 5) What is a “total balance sheet” approach? How should that approach impact U.S. regulatory requirements?
- 6) What is the capital level at which companies cannot operate in the market? At what level of capital should regulators become concerned (PCR)? At what level of capital should regulators take over (MCR)? Compared to these levels, at what level is the U.S. solvency system (which includes conservative accounting and RBC)?

¹⁷ Life Covariance Calculation = C0 + C4a + Square Root of [(C1o + C3a)² + (C1cs + C3c)² + (C2)² + (C3b)² + (C4b)²]

P/C Covariance Calculation = R0 + Square Root of [(R1)² + (R2)² + (R3)² + (R4)² + (R5)²]

Health Covariance Calculation = H0 + Square Root of [(H1)² + (H2)² + (H3)² + (H4)²]

¹⁸ NAIC Capital Adequacy Task Force, “Risk-Based Capital General Overview,” July 15, 2009.

¹⁹ Consultation Paper No. 74, Draft CEIOPS Advice for Level 2 Implementing Measures on Solvency II: SCR STANDARD FORMULA, Article 109(1c) Correlations, November 2, 2009.



- 7) What mechanism should be used to determine solvency action and control levels? Are the multipliers that are currently used to define the solvency control levels appropriate?**
- 8) How should the U.S. define its RBC levels using statistical safety level and time horizon definitions? What is the appropriate risk measure?**
- 9) Does economic (or target) capital evaluation have a role in the U.S. solvency framework? If so, what? Should a company's own economic evaluation relate to regulatory requirements? Should a company's own economic evaluation impact RBC or be considered outside of RBC?**
- 10) Are the factors included in the RBC still appropriate?**
- 11) Are there areas of the RBC formula that should be modified in the approach (example: more categories of assets, treating assets more granularly, more stochastic analysis)?**
- 12) What is the appropriate methodology to consider interdependencies among risks (e.g., diversification)? Is the square-root covariance adjustment appropriate?**

Risks to be addressed: Quantitatively or Qualitatively

- 33. Regarding the RBC, the Capital Adequacy (E) Task Force says that “[a]s a generic formula, every single risk exposure of a company is not necessarily captured in the formula. The formula focuses on the material risks that are common for the particular insurance type. For example, interest rate risk is included in the Life RBC formula because the risk of losses due to changes in interest rate levels is a material risk for many life insurance products. Investment and other asset risks, on the other hand, are experienced by all insurers and so are included in all three formulas. Investment risk includes: default of principal and/or interest for bonds and mortgage loans, default and passed dividends for preferred stock, decrease in fair value for common stock and real estate. Other asset risks included in the formulas cover credit risk and concentration risk.”²⁰
- 34. “Separate risk-based capital models apply to Life companies, Property/Casualty companies and Health organizations. These different formulas reflect the differences in the economic environments facing these different companies. Some common risks identified in the RBC models include:
 - 1. Asset Risk – Affiliates
 - 2. Asset Risk-Other (including credit risk, interest rate risk, and market risk)
 - 3. Underwriting Risk or Insurance Risk
 - 4. Business Risk.
- 35. “Components of the Life risk-based capital formula include C0 – Asset Risk – Affiliates; C1 – Asset Risk – Other; C2 – Insurance Risk; C3 – Interest Rate Risk, Health Credit Risk, and Market Risk; C4 – Business Risk.

²⁰ NAIC Capital Adequacy Task Force, “Risk-Based Capital General Overview,” July 15, 2009, page 1.



36. "The Property/Casualty and Health formulas take a slightly different approach to each of these components to reflect the differences in risks associated with the different insurance types. Components of the Property/Casualty risk-based capital formula include R0 – Asset Risk – Subsidiary Insurance Companies; R1 – Asset Risk – Fixed Income; R2 – Asset Risk – Equity; R3 – Asset Risk – Credit; R4 – Underwriting Risk – Reserves; R5 – Underwriting Risk – Net Written Premium.
37. "Components of the Health risk-based capital formula include H0 – Asset Risk – Affiliates; H1 – Asset Risk – Other; H2 – Underwriting Risk; H3 – Credit Risk; H4 – Business Risk.

Asset Risk – Affiliate

38. "The asset risk-affiliate is the risk of default of assets for affiliated investments. The risk-based capital requirement of downstream insurance subsidiaries owned by the insurer is calculated based on the Total Risk-Based Capital after Covariance of the subsidiary and then prorated based on the percent of ownership. The RBC requirement for other subsidiaries (those affiliates not subject to RBC, such as, title insurers, mono-line financial guaranty insurers and mono-line mortgage guaranty insurers) is calculated based on a set factor. The parent company is required to hold an equivalent amount of risk-based capital to protect against financial downturns of affiliates. Off-balance sheet items are included in this risk component and these include noncontrolled assets, derivative instruments (for Life companies only), guarantees for affiliates, and contingent liabilities.

Asset Risk – Other

39. "The risk represents the potential for default of principal and interest or fluctuation in fair value of assets. Fixed income assets include bonds, collateral loans and mortgage loans, short-term investments, cash, and other long-term invested assets. Equity assets include unaffiliated common and preferred stock, real estate, and long-term assets. All insurance companies are subject to an asset concentration factor that reflects the additional risk of high concentrations in a single issuer.

Insurance Risk/Underwriting Risk

40. "Insurance risk for Life companies is the equivalent of the underwriting risk for Property/Casualty and Health companies. The life insurance risk factors calculate the surplus needed to provide for excess claims; both from random fluctuations and from inaccurate pricing for future level of claims (e.g., experience fluctuation risk). Property/casualty companies calculate underwriting risk for reserves and premiums. These calculations reflect the risk of pricing and reserving errors.
41. "Because reserves for various types of business possess different frequency and severity characteristics, the formula applies separate factors to each major line of business. These factors are adjusted for company experience and investment potential. The Underwriting Risk for Reserves and Premiums Written are calculated in much the same manner, by multiplying a set of factors times the reserves or the net written premiums. The predominant risk faced by Health companies is that medical expenses will exceed the premiums collected. The Health formula recognizes that larger blocks of business will have relatively less fluctuations; therefore, tiered factors are used to recognize the increased stability that comes with higher



volume. The Health formula also includes an adjustment to recognize the beneficial effect of managed care arrangements in decreasing the fluctuations in medical expenses. Managed-care credits reduce the base underwriting risk for each of the major lines of business. Property/Casualty and Health insurers also calculate excessive growth. This calculation recognizes that companies that grow rapidly may have greater reserve deficiencies.

Interest Rate Risk (Life Insurers Only)

42. “The interest rate risk encompasses the risk of losses due to changes in interest rate levels. The factors in this calculation represent the surplus necessary to provide for a lack of synchronization of asset and liability cash flows. The impact of interest rate change is greatest on those products where the guarantees are most in favor of the policyholders and where the policyholder is most likely to respond to changes in interest rates by withdrawing funds from the insurer. Therefore, risk categories vary by the withdrawal provision (i.e., whether there is substantial penalty for withdrawal).

Business Risk (Life & Health Insurers)

43. “Business Risk for Life insurers is based on premium income, annuity considerations and separate account liabilities. Also, included in business risk exposures is litigation, expenses relating to certain Accident and Health coverages and ASO and ASC expenses. However, Business Risk for Health insurers consists of the following sub-components: Administrative Expense Risk (variability of operating expenses), Non-Underwritten and Limited Risk (collectability of payments for administering third-party programs), Guaranty Fund Assessment Risk and Excessive Growth. These sub-components recognize that instability can result from poor controls on administrative expenses as well as from instability in medical expenses.”²¹
44. The IAIS *Standard on the Structure of Regulatory Capital Requirements*, October 2008, contains the following principles related to the establishment of regulatory capital requirements:

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

45. The IAA says that, in principle, “all significant types of risk should be considered (implicitly or explicitly) in solvency assessment. However, there may be valid reasons why certain risks do not lend themselves to quantification and can only be supervised under Pillar II.” They added that the types of insurer risk to be addressed within a Pillar I set of capital requirements are recommended to be underwriting, credit, market and operational risks.²²
46. Some countries—including Australia, Canada, Switzerland, and the EU countries—have stated that all risks should be considered in the solvency regime, whether through quantitative

²¹ NAIC Capital Adequacy Task Force, “Risk-Based Capital General Overview,” July 15, 2009, pages 2-3.

²² International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg 5.



or qualitative aspects. Canada, in its “Key Principles for the Future Direction of the Canadian Regulatory Capital Framework on Insurance,” has decided it needs to consider all risks, including Concentration, Liquidity, Operational, Business, Insurance, Market and Credit risks. Some risks that are not currently explicitly included in the U.S. RBC are catastrophe, operational, liquidity, credit spread, reputational, and/or foreign exchange risk.

47. While some risks do not lend themselves to being easily calculated, some countries are considering a flat percentage load at the end of their capital requirement calculation. For example, a capital requirement could be multiplied by a factor (e.g., 1.2) for operational and business risk.

Questions:

- 13) What risks should be added or excluded in the RBC calculation?**
- 14) For each missing risk, should the risk be treated quantitatively or qualitatively? Should some risks be accounted for quantitatively but with a judgmental factor (e.g., 10% for unidentified operational risks)?**
- 15) How should risk mitigation (e.g., reinsurance, hedging) be treated in the determination of capital requirements?**
- 16) Should there be off-balance-sheet items? If so, how should off-balance sheet items be considered in the solvency system?**

Partial or Full Internal Models

Use of Models in Insurance Regulation

48. Much has been written in the past couple of years about the failure of internal models in the financial arena, with significant focus on the failure of the risk metric (VaR) to measure extreme events and particular risks (e.g., liquidity). In 2008 Alan Greenspan said before Congress that models hadn’t been fitted to historic periods of stress, and such capital requirements were not as high as they should have been.
49. Some say that models should be utilized but care should be taken to not place over-reliance on them. Statisticians remind users of models that “[a]ll models are wrong, some are useful.”²³ The question to insurance regulators is whether there are models that are useful in insurance regulation. While RBC is a model and the requirement in the Standard Valuation Law for asset adequacy analysis is usually met for most life insurance companies by modeling economic scenarios, focus on the use of models in the SMI relates to whether regulators should allow companies to submit their own models to satisfy regulatory capital requirements.

²³George Box, the industrial statistician, is credited with the quote “All models are wrong, some are useful.”



50. The term “internal model” refers to a measurement system used by an insurer to quantify risk for purposes of determining capital needs. For purposes of this paper, an “internal model” would be used to determine regulatory capital needs, potentially as a replacement to the RBC formula. “Partial models” would allow insurer discretion in some way, and could be used to replace the calculation of one or more particular risks in the RBC with an insurer’s measurement or to allow modification to parameters.
51. “In the late 1990s, the NAIC began to introduce additional internal models-based components to its RBC system for life insurers. The first phase (known as C-3 Phase 1) specifically targeted interest rate risk for fixed annuities and was implemented December 31, 2000. On December 31, 2005, the NAIC implemented C-3 Phase 2, which introduced a new capital requirement for variable annuities. This was motivated in large part by the recognition that insurers were developing products with increasingly complex guarantees, and the risks embedded in these guarantees were not captured by the basic factor-based capital requirements. The extended and deep equity downturn in the early 2000s heightened the regulatory awareness of these risks, and led to the decision to superimpose an internal-models based approach on the factor-based capital requirements. Work is underway to develop a new RBC requirement for life products (C-3 Phase 3).”²⁴
52. Therese M. Vaughan, Ph.D. (NAIC CEO) recommends, “The use of internal models to establish regulatory capital requirements cannot and should not disappear. However, they must be used appropriately, with recognition of their significant limitations.”²⁵
53. The IAIS does not require that regimes allow the use of internal models for regulatory capital purposes. However, the IAIS Standard on the Structure of Regulatory Capital Requirements, October 2008, contains the following principles related to internal models used for regulatory capital requirements:
 10. In determining regulatory capital requirements, the solvency regime should allow a set of standardised and, if appropriate, other approved more tailored approaches such as the use of (partial or full) internal models.
 13. Where the supervisory regime allows the use of approved more tailored approaches such as internal models for the purpose of determining regulatory capital requirements, the target criteria should also be used by those approaches for that purpose to ensure broad consistency among all insurers within the regime.
54. The IAA recommends the use of “sophisticated risk measures” when risks are material and “one or more of the following conditions exist:
 - The risk in question is very important from a solvency perspective and cannot be adequately assessed through the use of simple risk measures.
 - There is sound technical theory for the risk to be assessed and the risk measure to be used.
 - Sufficient technical skills and professionalism are present among the staff.

²⁴ “The Implications of Solvency II for U.S. Insurance Regulation,” Therese M. Vaughan, Networks Financial Institute at Indiana State University, February 2009, pg 7.

²⁵ “The Implications of Solvency II for U.S. Insurance Regulation,” Therese M. Vaughan, Networks Financial Institute at Indiana State University, February 2009, pg 1.



- Relevant and sufficient data is present or the knowledge about the risks is otherwise reliable.
- The risk is actually managed in accordance with the risk measure used.
- Risk management practices are evident to a high degree.”²⁶

Use of Models for MCR

55. If the use of internal models is to be expanded for capital requirements, a question surfaces as to whether the MCR should be impacted by the internal model. An IAIS standard says, “The supervisory regime should also set out for which of the different levels of regulatory capital requirements—including the Prescribed Capital Requirement (PCR) and Minimum Capital Requirement (MCR)—the use of internal models is allowed. If internal models are allowed for determining the MCR, particular care should be taken to ensure that the strongest supervisory action that may be necessary if the MCR is breached can be enforced—for example, if the internal model is challenged in a court of law.”

Regulatory Approval of Models

56. Where internal models are allowed for regulatory capital purposes, the IAIS Standard on the Use of Internal Models for Regulatory Capital Purposes, October 2008, establishes the following requirements:

3. Where an insurer calculates its regulatory capital requirements using an internal model, the use of the internal model for that purpose should be subject to prior approval by the supervisor.
4. In constructing its internal model for regulatory capital purposes, an insurer should adopt risk modelling techniques and approaches appropriate to the nature, scale and complexity of the risks incorporated within its risk strategy and business objectives.
5. In reviewing an insurer’s internal model for regulatory capital purposes, the supervisor should require the insurer, as a minimum, to subject the model to three tests: ‘statistical quality test’, ‘calibration test’, and ‘use test’.
6. The onus should be placed on the insurer to demonstrate that the model is appropriate for regulatory capital purposes. The insurer should be able to demonstrate the results of each of the three tests.

Statistical quality test

7. An insurer should conduct a ‘statistical quality test’ which assesses the base quantitative methodology of the internal model. As part of this test process, the insurer should be able to demonstrate the appropriateness of this methodology, including the choice of model inputs and parameters, and should be able to justify the assumptions underlying the model.

²⁶ International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004, pg. 7.



8. The insurer should ensure that the determination of the regulatory capital requirement using an internal model addresses the overall risk position of the insurer as required by the solvency regime and that the underlying data used in the model is accurate and complete.

Calibration test

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

Use test and Governance

10. The insurer should ensure that the internal model, its methodologies and results, are fully embedded into the risk strategy and operational processes of the insurer (the ‘use test’).

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

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

Documentation

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

Ongoing validation and supervisory approval

14. The supervisor should require the insurer to monitor the performance of its internal model and regularly review and validate the ongoing appropriateness of the model’s specifications. The insurer should ensure and be able to demonstrate that the model remains fit for purpose for regulatory capital purposes in changing circumstances against the criteria of the statistical quality test, calibration test and use test.

15. The supervisor should be notified of material changes to the internal model made by the insurer for review and continued approval of the use of the model for regulatory capital purposes.

16. Internal model changes should be properly documented by the insurer.



Supervisory Reporting and Public Disclosure

57. The IAIS Standard on the Use of Internal Models for Regulatory Capital Purposes, October 2008, establishes the following requirements for supervisory reporting and public disclosure:

17. An insurer should provide information on its internal model for both supervisory reporting and public disclosure.

a. The supervisor should have the power to require an insurer to report information necessary for supervisory review and ongoing approval of an internal model, where appropriate. The information should include 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.

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

Questions:

17) Should internal models be allowed to determine capital requirements?

18) Should partial modeling allowing company discretion be utilized in the RBC? If so, how?

19) When modeling is used for capital requirement purposes, what safeguards should be considered to the modeling? What requirements should be established with modeling?

20) Which particular risks are more appropriately reflected by modeling? Which risks are effectively measured without extensive modeling, (e.g., risks where factor determination is credible and sufficient, non-material risks)?

21) Should the MCR be influenced by an internal model?

22) With implementation of internal models, does the use of a specified safety level and time horizon become imperative?

23) Even with limited use of modeling in the current RBC, should that modeling be subject to prior approval by the regulators? What should be designated and/or approved (e.g., the approach — 1,000 scenarios — and key considerations or parameters)?

24) What regulatory expertise is needed for model review? How should regulatory review of models be funded? For regulatory review of internal models, should there be a centralized review function?

25) What are the “level playing field” implications? What is the impact on small firms? How would a dual system of allowing internal model calculations by some firms impact the competitive marketplace?



Capital Add-ons

58. In Basel II for banking regulation, the following (Pillar 2 – Supervisory Review Process) principle applies:

Principle 3: Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.²⁷

59. Banks are typically required (or encouraged) to operate with a buffer, over and above the Pillar 1 standard in order to achieve a level of bank creditworthiness in markets (e.g., competitiveness), to allow for fluctuations in the requirements resulting from normal business activities (e.g., type and volume of activities, new risk exposures), to avoid having to raise capital in unfavorable time periods, and to cover risks that are not taken into account in Pillar 1.
60. It is expected under Basel II that an excess capital requirement would not be required for a bank with good internal systems and controls, a well-diversified risk profile and a business profile well covered by the Pillar 1 (Minimum Capital Requirements) capital requirements.
61. The EU's Solvency II is based on pillars similar to Basel II. Solvency II has a “capital add-on” that is similar to Basel II’s capital buffer. For Solvency II, supervisory authorities are given the power to impose a capital add-on to the Solvency Capital Requirement (or PCR in IAIS terms) under exceptional circumstances.
62. Capital add-ons can be used as an adjustment to the standard formula and to partial or full internal models. A capital add-on can be used when the standard approach does not adequately reflect the very specific risk profile of an undertaking, when the full or partial internal model has significant deficiencies, or when there are significant governance failures.
63. The capital add-on is “a last resort measure, when other supervisory measures are ineffective or inappropriate” and should only be kept as long as the circumstances under which it was imposed are not remedied. When the standard approach is used, the capital add-on can remain over consecutive years.²⁸
64. While the IAIS *Standard on the Structure of Regulatory Capital Requirements*, October 2008, doesn’t mention a capital add-on by name, the standard contains the following principle:

14. The solvency regime should be 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.

²⁷“International Convergence of Capital Measurement and Capital Standards: A Revised Framework,” Bank for International Settlements (BIS), June 2004.

²⁸ European Parliament legislative resolution of 22 April 2009 on the amended proposal for a directive of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (recast) [*Solvency II*].



65. The IAIS does mention a capital add-on in the IAIS Guidance paper on use of internal models for regulatory capital purposes, October 2008. This guidance says, “The supervisor should have the flexibility to impose additional capital requirements (capital add-ons) or take other supervisory action to address any perceived weaknesses in an internal model, either prior to approving the use of the model, as a condition on the use of the model or in the context of a review of the ongoing validity of an internal model for regulatory capital purposes.”
66. The *Risk-Based Capital (RBC) for Insurers Model Act* (#312) says, “An excess of capital over the amount produced by the risk-based capital requirements contained in the Act and the formulas, schedules and instructions referenced in this Act is desirable in the business of insurance. Accordingly, insurers should seek to maintain capital above the RBC levels required by this Act. Additional capital is used and useful in the insurance business and helps to secure an insurer against various risks inherent in, or affecting, the business of insurance and not accounted for or only partially measured by the risk-based capital requirements contained in this Act.”
67. No powers are included to require capital add-ons in the RBC itself.
68. The *Model Regulation to Define Standards and Commissioner’s Authority for Companies Deemed to be in Hazardous Financial Condition* (#385) allows a commissioner—if the commissioner determines that the continued operation of the insurer licensed to transact business in this state may be hazardous to its policyholders, creditors or the general public—to issue an order requiring the insurer to, among other things, increase the insurer’s capital and surplus.

Questions:

- 26) Are the powers in the *Model Regulation to Define Standards and Commissioner’s Authority for Companies Deemed to be in Hazardous Financial Condition*, effectively, capital add-ons?
- 27) Should capital add-ons be considered in the RBC? Is this a concept that would apply at the MCR level as well as the PCR level?
- 28) What should trigger capital add-ons?

Leverage Ratio

69. In banking regulation, risk-based capital requirements are being supplemented with a leverage ratio. The risk-based capital requirements will be “supplemented with a simple, transparent, non-risk based measure which is internationally comparable, properly takes into account off-balance sheet exposures, and can help contain the build-up of leverage in the banking system.”²⁹

²⁹ Progress Report on the Economic and Financial Actions of the London, Washington, and Pittsburgh G20 Summits, prepared by the UK Chair of the G20, St. Andrews, 7 November 2009, page 22

**Question:****29) Does the leverage ratio in banking have a place in insurance regulation? If so, where?****Scope of RBC Requirements and Proportionality**

70. The RBC applies to all life and property/casualty domestic insurers with limited exception (e.g., a property and casualty insurer who writes business only in the domestic state and has less than \$2 million in written premium might be excluded).
71. Some entities are excluded from RBC requirements. For example, title insurers, risk retention groups formed as captives, financial guaranty companies, and mortgage guaranty companies are excluded. In some states health insurers are excluded. (These companies are still required to hold minimum capital and surplus requirements established by the state.)
72. Solvency II capital requirements do not apply to all insurance undertakings. The following is from the Solvency II Framework Directive:
 - 4) It is appropriate that certain undertakings which provide insurance services are not covered by the system established by this Directive due to their size, their legal status, their nature – as being closely linked to public insurance systems – or the specific services they offer. It is further desirable to exclude certain institutions in several Member States whose business covers a very limited sector only and is restricted by law to a specific territory or to specified persons.
 - (4a) Very small insurance undertakings fulfilling certain conditions, including a level of gross premium income below EUR 5 million, are excluded from the scope of this Directive. However, all insurance and reinsurance undertakings which are already licensed under the current Directives should continue to be licensed when this Directive is implemented. Undertakings which are excluded from the scope of this Directive should be able to make use of the basic freedoms granted by the Treaty. Those undertakings have the option to seek authorisation under this Directive in order to benefit from the single license provided for by this Directive.
 - (4b) Member States may require undertakings that carry on the business of insurance and which are excluded from the scope of this Directive to register. Member States may also subject these undertakings to prudential and legal supervision.³⁰
73. The IAIS has accepted a principle of “proportionality,” that the implementation of capital requirements should be implemented in such a way as to be proportionate to the nature, scale, and complexity of risks. This concept is distinguished from that of looking at a small versus large company, but rather recognizing that even if a company is small, the risks might be so

³⁰ European Parliament legislative resolution of April 22, 2009, on the amended proposal for a directive of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (recast) [Solvency II].

large, that more attention should be placed on that small company than small companies with more simplistic risks.

74. This proportionality principle is also included in Solvency II: “The new solvency regime should not be too burdensome for small and medium-sized insurance undertakings. One of the tools to achieve this objective is a proper application of the proportionality principle. This principle should apply both to the requirements on the insurance and reinsurance undertakings and on the exercise of supervisory powers. (14b) In particular, the new solvency regime should not be too burdensome for insurance undertakings that specialise in providing specific types of insurance or providing services to specific customer segments, and it should recognise that specialising in this way can be a valuable tool for efficiently and effectively managing risk. In order to achieve this objective, as well as the proper application of the proportionality principle, provision should also be made to specifically allow undertakings to use their own data to calibrate the parameters in the underwriting risk modules of the standard formula of the Solvency Capital Requirement. (14c) The new solvency regime should also take account of the specific nature of captive insurance and reinsurance undertakings. As those undertakings only cover risks associated with the industrial or commercial group to which they belong, appropriate approaches should thus be provided in line with the principle of proportionality to reflect the nature, scale and complexity of their business. (14d) The supervision of reinsurance activity should take account of the special characteristics of reinsurance business, notably its global nature and the fact that the policyholders are themselves insurance or reinsurance undertakings.”³¹

Questions:

- 30) What changes should be made to RBC exclusions?**
- 31) If the U.S. solvency regime is expanded to explore economic capital, what exclusions should be made to those requirements, recognizing that those might be different from RBC exclusions?**
- 32) What capital requirements should be employed for insurance entities currently excluded from RBC?**
- 33) What proportionality considerations should be given in the U.S.?**

State Minimum Capital and Surplus Requirements

75. In addition to RBC, states require minimum capital and surplus requirements by line of business in order to maintain a license. These minimums vary significantly by state.

³¹ European Parliament legislative resolution of 22 April 2009 on the amended proposal for a directive of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (recast) [Solvency II]



Questions:

- 34) Is there a need to obtain uniformity in the minimum capital and surplus requirements by state? Should the NAIC recommend a best practice of minimum requirements?**

Stress Testing

76. Utilizing the extensive NAIC database, the NAIC can perform stress tests on both micro and macro levels. At present, insurance companies in the U.S. are not required to perform nor report stress test results to the regulators.
77. The G20 has stated, “We commit to conduct robust, transparent stress tests as needed.”³²
78. IAIS Insurance Core Principles,³³ upon which supervisory regimes are assessed in the Financial Sector Assessment Program (FSAP), state, “The supervisory authority requires insurers to recognise the range of risks that they face and assess and manage them effectively.” There is also the following advanced criteria: “The supervisory authority requires that insurers undertake regular stress testing for a range of adverse scenarios in order to assess the adequacy of capital resources in case technical provisions have to be increased.”
79. The IAIS has also issued some guidance on stress testing.
80. “The business of insurance is based on dealing with uncertainty. Therefore, an insurer needs to consider a wide range of possible outcomes that may affect its current and expected future financial position. Stress tests are a necessary risk management tool for both insurers and supervisors to ascertain whether insurers are financially flexible to absorb possible losses that could occur under various scenarios. All the effects of stress testing, both direct and indirect, on both sides of the balance sheet should be taken into account.
81. “The stress testing should address significant adverse threats to the future financial condition of the insurer, rather than just mildly uncomfortable possibilities, so as to truly test the insurer’s exposure and the sufficiency of its technical provisions and capital. To better inform the board and management of the insurer’s exposure to risks, it is useful to determine how adverse a risk must be for it to impair the insurer’s financial position. The insurer should use stress testing for strategic planning and for contingency planning.”
82. For the supervisory process, “The supervisor should receive the results of the most material stress tests and the critical assumptions underlying them, and have access to the results of all tests.”
83. “There are circumstances where the supervisor may develop standard stress tests and require insurers to perform such tests. One purpose of such testing is to measure the level of consistency in the testing done by the insurers and thus to enhance the confidence in the stress tests performed by the insurers. Such tests may be directed at a single insurer, selected

³² G20 Leaders’ Statement, The Pittsburgh Summit, Sept. 24–25, 2009, pg 7.

³³ IAIS, Insurance Core Principles, ICP 18 (Risk assessment and management)



insurers or all insurers. The criteria for scenarios used for standard stress tests should be developed such that the risk environment of each jurisdiction is duly taken into consideration.³⁴

84. "The IAA is currently researching whether to recommend the inclusion of stress testing, mostly through the use of scenario testing, in solvency regimes. At issue is whether supervisory capital requirements, based on internal models or past experience, would capture extreme risks sufficiently. In 2004 the IAA said, "[I]n practice, many aspects of risk are not well understood, particularly in the case of extreme events for which little history exists (and which are most important for solvency assessment)."³⁵
85. The Office of the Superintendent of Financial Institutions Canada recently issued a draft guideline on stress testing for consultation. In that it says, "OSFI reviews institutions' stress testing programs as part of the supervisory review process as described in the Supervisory Framework, and as part of its review of a deposit-taking institution's Internal Capital Adequacy Assessment Process (ICAAP). For insurers, one example of stress testing is Dynamic Capital Adequacy Testing (DCAT). OSFI expects to see evidence that stress testing is integrated into institutions' internal risk management processes. OSFI uses the results of institutions' stress testing programs as important information and integrates the results into its assessment of the inherent risks and risk controls and oversight of institutions' business activities."³⁶
86. In May 2009, the Basel Committee on Banking Supervision adopted *Principles for sound stress testing practices and supervision*. In that paper is the concept of a reverse stress test. "Reverse stress tests start from a known stress test outcome (such as breaching regulatory capital ratios, illiquidity or insolvency) and then asking what events could lead to such an outcome for the bank."³⁷
87. If scenario tests are required in the U.S., there are numerous issues to be considered:
 - Are the scenarios pre-set by regulators?
 - Do the scenarios vary from year to year?
 - To what extent do insurers themselves determine the scenarios?
 - Is the scenario analysis stochastic or deterministic?

Questions:

35) What stress tests should be performed by the NAIC?

36) What stress tests and reverse stress tests should be performed by companies? What should be required to be reported to the regulator?

³⁴ IAIS, Stress Testing by Insurers Guidance Paper, October 2003

³⁵ International Actuarial Association, "A Global Standard of Solvency Assessment," 2004

³⁶ OSFI, http://www.osfi-bsif.gc.ca/app/DocRepository/1/eng/guidelines/sound/guidelines/e18_e.pdf.

³⁷ Basel Committee on Banking Supervision, "Principles for sound stress testing practices and supervision," May 2009, page 14.



- 37) Should the regulator specify stress test scenarios to run? If so, which ones? How often should they be done?**

Supervisory reporting and public disclosure

88. The IAIS *Standard on the Structure of Regulatory Capital Requirements*, October 2008, contains the following principle:

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

89. At present, the RBC calculation is reported to supervisors only and is not publicly disclosed. Many of the inputs to the formula as well as the final two numbers needed to determine the RBC ratio are public information.

Questions:

- 38) Should the RBC calculation be publicly available?**

- 39) If internal models are allowed for capital requirement purposes, should information be publicly available?**

SMI Focus Areas: Insurance Valuation and International Accounting

International Accounting

90. The G20 said, “We call on our international accounting bodies to redouble their efforts to achieve a single set of high quality, global accounting standards within the context of their independent standard setting process, and complete their convergence project by June 2011.”³⁸ Earlier in the year at the G20’s London Summit, the G20 called on “the accounting standard setters to work urgently with supervisors and regulators to improve standards on valuation and provisioning and achieve a single set of high-quality global accounting standards.”

91. “At their joint meeting last week, the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) reaffirmed their commitment to improve International Financial Reporting Standards (IFRS) and U.S. generally accepted accounting principles (U.S. GAAP) and to bring about their convergence. The Boards also agreed to intensify their efforts to complete the major joint projects described in their 2006 Memorandum of Understanding (MoU), as updated in 2008. ... In the interest of timely and continued progress, the two Boards also committed to monthly joint meetings and to provide transparency and accountability by providing quarterly updates on their progress on convergence projects.”³⁹

³⁸ G20 Leaders’ Statement, The Pittsburgh Summit, Sept. 24–25, 2009, pg 9-10.

³⁹ FASB and IASB News Release, Nov. 5, 2009.



92. While not part of the MoU, the Boards are also working together on other projects, including insurance contracts. “The IASB published in 2007 a *Discussion Paper Preliminary Views on Insurance Contracts* and has been developing proposals on the basis of that discussion paper, in the light of comments received. In 2007, the FASB issued an Invitation to Comment containing the IASB’s discussion paper to solicit input on whether it should undertake a comparable project jointly with the IASB. In October 2008, the FASB added a project on insurance to its agenda and the Boards agreed to undertake it jointly. The Boards have begun discussing the project together and are aiming to publish together exposure drafts in Q2 2010 with a view to finalising a joint standard by mid 2011.”⁴⁰
93. U.S. insurance regulators have codified insurance accounting for regulatory reporting in the *Accounting Practices and Procedures Manual* (AP&P). The NAIC’s Statutory Accounting Principles (E) Working Group maintains codified statutory accounting principles by providing periodic updates to the guidance that address new statutory issues and new GAAP pronouncements as they develop. As FASB modifies their GAAP, the statutory accounting system requires the evaluation of GAAP for implementation in SAP.
94. Utilization of different accounting standards around the world can result in difficulty in the use of other countries’ capital requirements, especially for reinsurance supervision or group supervision. The IAA notes that “the application of a common set of capital requirements will likely produce different views of insurer strength for each accounting system used because of the different ways accounting systems can define liability and asset values. ... [T]hese definitions may create a hidden surplus or deficit which must be appropriately recognized for the purpose of solvency assessment.”⁴¹

Valuation: Market Consistency & Total Balance Sheet

95. The IAA recommends that “a proper assessment of an insurer’s true financial strength for solvency purposes requires appraisal of its total balance sheet on an integrated basis under a system that depends upon realistic values, consistent treatment of both assets and liabilities and does not generate a hidden surplus or deficit.”⁴²
96. The IAIS *Standard on the Structure of Regulatory Capital Requirements*, October 2008, contains the following principles related to regulatory capital requirements:
 1. A total balance sheet approach should be 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.
97. A total balance sheet is defined by the IAIS to “refer to the recognition of the interdependence between assets, liabilities, regulatory capital requirements and capital resources. A total balance sheet approach should also ensure that the impacts of relevant

⁴⁰ FASB and IASB Reaffirm Commitment to Memorandum of Understanding: A Joint Statement of the FASB and IASB, November 5, 2009, page 16.

⁴¹ International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004.

⁴² International Actuarial Association, “A Global Standard of Solvency Assessment,” 2004.



material risks on an insurer's overall financial position are appropriately and adequately recognized."

98. The IAIS is currently discussing standard and guidance papers on asset and liability valuation. An agreed standard is that the valuation should be an economic valuation; however, it is not yet decided whether the definition of economic valuation should require market consistency. The U.S. has stated that market consistency for regulatory capital purposes is theoretically desired, but consideration should be given to using the approach to be developed by the IASB, which might utilize some amortized values.
99. Many argue that using market-consistent values is the only way to obtain a realistic idea of the financial position of the firm; although a counterargument is that some of these market values can be estimated only approximately. Further, during times of financial crisis, asset and liability items become more correlated, and it would not be unusual for asset values to fall faster than liability values, resulting in adverse deviations in balance sheet results. Capital sufficiency would decline in these circumstances leading to procyclicality in capital requirements (i.e., insurers would experience capital shortfalls during economic downturns and excess capital during times of economic prosperity). Explicit counter-cyclical adjustments in such periods are one possible solution to this problem. Solvency II allows for use of "dampeners" in such conditions.

Capital Resources

100. Currently, U.S. insurance statutory accounting utilizes a method of nonadmitted assets.
101. Basel II utilizes a definition of eligible capital based upon a tiered approach. Capital, for supervisory purposes, is defined in two tiers in a way that will have the effect of requiring at least 50% of a bank's capital base to consist of a core element composed of equity capital and published reserves from post-tax retained earnings (Tier 1). The other elements of capital (Tier 2—supplementary capital)—including undisclosed reserves, revaluation reserves, general provisions/general loan-loss reserves, hybrid debt capital instruments, and subordinated term debt—will be admitted into Tier 2 limited to 100% of Tier 1. Each Tier 2 element may be included or not included by national authorities at their discretion in the light of their national accounting and supervisory regulations.
102. Banks may also, at the discretion of their national authority, employ a third tier of capital (Tier 3), consisting of short-term subordinated debt for the *sole* purpose of meeting a proportion of the capital requirements for market risks, subject to some conditions including that Tier 3 capital is limited to 250% of a bank's Tier 1 capital that is required to support market risks.
103. Switzerland utilizes a concept of tied assets. Direct insurance companies are required to secure the claims arising from insurance contracts and, thus, must cover their actuarial provisions with a certain amount of tied assets held in Switzerland. Tied assets therefore constitute liability protection for all policyholders, ensuring that their claims arising from insurance contacts will be satisfied before the claims of all other creditors. The tied assets covering the technical obligations must be invested according to special rules, including that the investments are appropriate to the complexity and financial situation of the insurer



and that the investment can be valued without difficulty and is highly liquid. Some exceptions apply, but they are compensated with stricter qualitative requirements.⁴³

Questions:

- 40) Should the valuation of all assets, liabilities, and capital resources for regulatory capital purposes be completed on a market-consistent or some other basis?**
- 41) Should the SMI wait for FASB and IASB to determine valuation requirements for public financial reporting prior to determining valuation for regulatory solvency purposes?**
- 42) Should valuation differ between public financial reporting (GAAP) and supervisory financial reporting (SAP)?**
- 43) How should procyclicality be addressed? What counter-cyclical adjustments should be made?**
- 44) Should capital resource requirements utilize a tiering structure of capital? Should there be tied assets? If so, how?**

GROUP CAPITAL

Definition of a Group for Supervisory Purposes

104. The IAIS Principles on Group-Wide Supervision, October 2008, focuses on groups whose main activity is insurance and, thus, encompasses unregulated entities, banks, insurance companies, etc.

Group Capital Assessment

105. “In the early 2000s, the NAIC developed a comprehensive guidance paper on insurance holding company oversight. In conjunction with this effort, the NAIC developed a ‘lead state’ framework under which a state or states were designated as ‘lead’ for various group solvency oversight work. A lead regulator has been appointed for all insurance groups, and the choice of lead regulator is left to the discretion of the group of domestic regulators that supervise entities in the group. The role of the lead state is to coordinate and ensure proper communication is occurring for analysis, examination and other solvency and market regulatory issues (e.g., Holding Company transactions, international coordination and communication), and at times addressing public perceptions and concerns.”⁴⁴
106. The IAIS’ Insurance Core Principle (ICP) 17 on group-wide supervision says, “The supervisory authority supervises its insurers on a solo and a group-wide basis.” Essential

⁴³Switzerland, Federal Law of 17 December 2004 on the Supervision of Insurance Undertakings (Insurance Supervision Act, ISA)

⁴⁴“The Implications of Solvency II for U.S. Insurance Regulation,” Therese M. Vaughan, Networks Financial Institute at Indiana State University, February 2009, pg 10.

criteria for this principle says that “at a minimum, group-wide supervision of insurers which are part of insurance groups or financial conglomerates includes, as a supplement to solo supervision, at a group level, and intermediate level as appropriate, adequate policies on and supervisory oversight of” capital adequacy.⁴⁵ IAIS group-wide supervision principles expand upon ICP 17 with the principle, “Capital adequacy should be assessed on a group-wide basis.”⁴⁶

107. The IAIS has grouped methodologies to assess a surplus of assets at a group level into two categories: aggregation (or legal entity) methods and consolidation methods. The methods would, in general, be expected to produce similar results in practice. “Aggregation methods determine excesses or deficits of capital at the level of each entity in the group on a solo basis and then aggregate those amounts to determine the surplus (or deficit) at a group level. An advantage of aggregation methods is that they give more straight forward access to the distribution of capital within the group, and the issues of fungibility of capital and transferability of assets may be more readily manageable. ... On the other hand, it may be difficult to ensure that all entities within the group have been properly taken into account in the calculation. Specific evaluation of, and appropriate adjustment for, accounting differences and intra-group transactions may also be required under these methods. Consolidation methods start with a consolidated group financial statement, calculate a capital requirement at the group level and then analyse the over-all capital adequacy of the group by comparing the capital requirement to group capital resources. An aspect of consolidation methods is that intra-group transactions are already eliminated in the consolidated capital resources and the inclusion of all entities in the determination is clear. Therefore, additional analysis of the distribution of capital within the group, and the fungibility of that capital, is also necessary to verify that the amount and distribution is adequate. In addition when capital is inadequate, this analysis can provide information about the entity or entities within the group which should be required to provide or hold additional capital.”⁴⁷
108. Switzerland employs an aggregation approach. Solvency II allows both the consolidation and aggregation methods. Australia utilizes a consolidation method. Different approaches are taken for unregulated entities within the groups.
109. While the consolidated approach is generally understood as a re-assessment of capital needs on a consolidated basis, the aggregation method requires an example.
110. Switzerland utilizes the following aggregation approach, summarized from a presentation by Thomas Luder, FINMA’s Head of Swiss Solvency Test (SST) – Insurance Risk, May 14, 2009:
 - The SST considers all group members (i.e., the legal entities) individually but fully allowing for their mutual interactions. Effects of the group on individual entities are part of the model. [This is why a legal entity approach is a group model. It is fundamentally more than a collection of traditional solo requirements.]

⁴⁵ IAIS - Insurance Core Principles and Methodology, October 2003, pages 30-31.

⁴⁶ IAIS Principles on group-wide supervision, October 2008, pg 6.

⁴⁷ IAIS Issues paper on group-wide solvency assessment and supervision, 5 March 2009, pg. 29.



- Effects from intragroup transactions on available capital and required capital have to be modeled. These effects are taken into account in the form of **capital and risk transfer instruments** (CRTI), or legally binding documents that define in which situation and how much capital flows from whom to whom. Examples of CRTI are reinsurance agreements, financial guarantees, hybrid instruments, and intra-group loans.
- Regarding intra-group creation of capital, the SST for groups does not try to eliminate effects of circular structures beforehand. However, transactions are valued on a market-consistent basis.
- Diversification is granted in the parent's capital requirements given that subsidiaries are assets of a parent. There is diversification between these assets unless the values of all subsidiaries would move in parallel. CRTIs share risks amongst the group; therefore, CRTI credit in the subsidiary requirements can be viewed as diversification credit.
- No Summation of requirements for the total group is required, although it might be requested by FINMA.

Entity	Available Capital	Required Capital: SCR	Required Capital: MCR (*)
Parent	ACP	SCRP	MCRP
SubsidiaryS1	AC1	SCR1	MCR1
SubsidiaryS2	AC2	SCR2	MCR2
SubsidiaryS3	AC3	SCR3	MCR3

Group Support

111. Group capital supervision typically still requires each legal entity to maintain its full capital requirement. There was a concept of group support introduced in European Union discussions for Solvency II. In group support, a legal entity would only be required to maintain its lowest capital requirement, or MCR, if the group issues a legally enforceable parental guaranty. Another group support concept is that of capital risk transfer instruments or legally binding group support declarations (GSD).

Ring-Fencing

112. Generally, “ring-fencing” is the legal walling off of certain assets or liabilities within a corporation. For supervision, “ring-fencing” can include walling off an insurance company to protect the assets of the insurance company from the parent holding company. The Holding Company Model Act requires disclosure of pertinent information relating to changes in control of an insurer and disclosure by an insurer of material transactions and relationships between the insurer and its affiliates, including certain dividends to shareholders paid by the insurer. The act also provides standards governing material transactions between an insurer and its affiliates.



113. Not all countries have supervisory ring-fencing powers.

Questions:

- 45) For group capital assessment, what should the definition of a group be?**
- 46) What are the benefits of group capital assessment? Drawbacks?**
- 47) What are the benefits of group capital quantification of regulatory requirements? Drawbacks?**
- 48) Should consolidated financial statements be required?**
- 49) What methodologies of calculation should be considered (e.g., consolidation vs. aggregation)?**
- 50) How should unregulated entities and non-insurance entities be considered? Do insurance regulators have the expertise to determine the risks of non-insurance entities?**
- 51) Should diversification credits be applied at the group level?**
- 52) Should group support be implemented? If so, how would fungibility issues be addressed?**
- 53) Should the NAIC consider an approach to group-wide capital requirements that span international jurisdictions?**

Regulatory Arbitrage

114. The G20 is “committed to take action at the national and international level to raise standards together so that our national authorities implement global standards consistently in a way that ensures a level playing field and avoids fragmentation of markets, protectionism, and regulatory arbitrage.”⁴⁸
115. Therese M. Vaughan said that regulatory arbitrage exists “where financial institutions find ways to ‘game the system’ and have a tendency to stifle evolution in a dynamic marketplace. ... Equally important, there is increasing recognition that internal models don’t necessarily solve the problem of regulatory arbitrage.”⁴⁹
116. Alan Greenspan said, “Regulatory capital arbitrage ... is not necessarily undesirable. In many cases, regulatory capital arbitrage acts as a safety valve for attenuating the adverse effects of those regulatory capital requirements that are well in excess of the levels warranted by a specific activity’s underlying economic risk. Absent such arbitrage, a

⁴⁸ G20 Leaders’ Statement, The Pittsburgh Summit, Sept. 24–25, 2009, pg 7.

⁴⁹ “The Implications of Solvency II for U.S. Insurance Regulation,” Therese M. Vaughan, Networks Financial Institute at Indiana State University, February 2009, pg 13 and 16.



regulatory capital requirement that is inappropriately high for the economic risk of a particular activity could cause a bank to exit that relatively low-risk business by preventing the bank from earning an acceptable rate of return on its capital. That is, arbitrage may appropriately lower the effective capital requirements against some safe activities that banks would otherwise be forced to drop by the effects of regulation. It is clear that our major banks have become quite efficient at engaging in such desirable forms of regulatory capital arbitrage, through securitization and other devices. However, such arbitrage is not costless and therefore not without implications for resource allocation.”⁵⁰

Question:

54) What considerations should be made regarding regulatory arbitrage?

Systemic Risk

- 117. The G20 has committed to amendment of regulatory systems to identify and account for macro-prudential risks across the financial system to limit the build up of systemic risk. The Financial Stability Board (FSB) has been asked to work with the Bank for International Settlements (BIS) and international standard setters to develop macro-prudential tools. The FSB and its members are developing quantitative tools and indicators to monitor and assess the build-up of macro-prudential risks in the financial system. These tools aim to improve the identification and assessment of systemically important components of the financial sector and the assessment of how risks evolve over time.
- 118. The FSB has been asked to consider possible measures, including more intensive supervision and specific additional capital, liquidity and other prudential requirements, but under consideration that the prudential standards be commensurate with the costs of failures.
- 119. The FSB expects to propose measures to address the “too big to fail” problems associated with systemically important financial institutions by the end of October 2010.
- 120. Insurers for whom there is concern of being too big to fail or too interconnected to fail could be required to submit a “wind-down plan.” Financial Services Authority chairman Adair Turner suggested that systemically important businesses such as large banks, brokers and insurers could write their own “living will.” The living will would be a plan to govern the way a business would be broken up and the assets managed in the event of its demise.⁵¹

Questions:

55) Should the U.S. insurance solvency system be adjusted for systemic risk regulation? If so, how?

⁵⁰ Alan Greenspan, The Role of Capital in Optimal Banking Supervision and Regulation, FRBNY Economic Policy Review, October 1998, pg. 165-166.

⁵¹ “In the event of my death, the concept of a ‘living will’,” Christian Doherty, Financial Director, 19 Oct 2009.

**56) Should wind-down plans be incorporated? If so, how?****Studies**

121. There are numerous studies that be performed in the SMI process. The following are some additional studies not already mentioned:

- Reasons for past insolvencies.
- The role of RBC in identifying troubled firms.
- The role of reinsurance, especially, in past and future potential insolvencies, especially on the insolvencies of primary insurers.
- How risk mitigation is recognized in the RBC formula (e.g., hedging activity through derivatives and reinsurance).
- Counter-cyclical measures.

Question:**57) What further studies regarding capital requirements should be performed and who should perform the studies?****Impact Studies and Implementation**

122. With implementation of the Swiss Solvency Test, Switzerland required some field tests on the new requirements. The European Union, with cooperation of the industry, has performed significant quantitative impact studies for Solvency II.

123. Some new supervisory systems have been implemented or are proposed to be implemented in parallel with former systems, for a limited period of time. In this way, a cautious approach is taken to adoption of significantly new requirements.

Questions:**58) Should quantitative impact studies be performed in SMI?****59) Should SMI revisions be phased in?**



Other Issues

124. The SMI is an extensive review of the entire insurance solvency regulatory system. For purposes of this paper, discussion topics are limited to capital requirements and overarching accounting/valuation issues.

Question:

- 60) What additional capital requirement or overarching accounting/valuation issues should be considered in the SMI?**

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Australian ERM Requirements

NAIC International Solvency Meeting

3 December 2009

Helen Rowell

Australian ERM Requirements



APRA

- Current ERM requirements
- Challenges in implementation of ERM
- Future direction

Current ERM Requirements (non-life)



- Risk Management Prudential Standard (GPS 220)
Consistent with IAIS ERM & ORSA requirements
Requires insurers to have “a risk management framework to manage the risks arising from its business”
- Framework must include:
 - Board approved written Risk Management Strategy
 - Risk management policies & procedures
 - Clearly defined responsibilities and controls
 - Effective and comprehensive periodic independent review of framework
 - Business plan (3 year rolling period) which includes capital management
- Annual declaration by Board
Attests (inter alia) to compliance with RMS and that it is operating effectively

Current ERM Requirements (non-life)



- Essentially the same ERM requirements apply at solo and Group level
Insurers may rely on group risk management framework and functions as long as adequately addresses each insurer's risks
- Financial Condition Report
 - Prepared by appointed actuary
 - Comments on adequacy of insurer's RMF
 - Also addresses capital requirements (current and projected)

Challenges in implementation of ERM



- Requirements introduced for non-life insurers in 2002
 - Major change for industry
 - Variation in “quality” of implementation
 - Significant improvement in overall standard of risk management
- Similar requirements introduced for life insurers in 2006
 - Less of a step change?
 - FCR requirement in place for over 30 years
 - Group requirements yet to be implemented
- Assessment of RMF
Supervisory review challenging - involves qualitative judgements

- **Areas for improvement:**
 - Embedding and maintenance of risk culture (in some insurers)
 - Review of effectiveness of RMF vs. compliance with it
 - Articulation of risk appetite essential to set foundation
 - Assessment of own capital requirements and targets reflecting risk appetite
 - Stress and scenario testing - severity of stresses; which risks/scenarios?
 - Balance between documentation and effectiveness of implementation

- Internal Capital Adequacy Assessment Process

Introduced for banks (Basel II)

Will be proposing for insurers to emphasise “assessment” aspect and enhance focus on capital management

- Stress testing

Do insurers need enhanced guidance?

Such testing must be stressful!

Has to be both gross (in particular) and net of remediation

- Continued focus on ERM in supervisory reviews

Risk culture; effectiveness of independent review



Office of the Superintendent of
Financial Institutions Canada

Bureau du surintendant des
institutions financières Canada

OSFI Dynamic Capital Adequacy Testing (DCAT)

NAIC International Solvency Working Group

December 3, 2009



OSFI
BSIF

Canada

Agenda

- DCAT background
- What is DCAT?
- DCAT process
- Modeling
- Reporting
- Opinion
- Financial crisis
- Strengthened risk management
- Summary



DCAT background

- **Report on the future financial condition of the insurance company**
- **Required of the Appointed Actuary under direction of Superintendent**
 - Section 368/630 of the Insurance Companies Act
- **Governed by Canadian Institute of Actuaries (CIA) Standards of Practice**
 - SOP Section 2520



What is DCAT?

- **Process for making an annual investigation into insurer's recent and current financial position**
- **Project trends of capital position under variety of future scenarios**
 - Life insurance – 5 years
 - General (P&C) insurance – at least 3 years
- **Inform management of implications of business plan on capital**



What is DCAT?

- **Identify risks and threats and suggest actions to take**
- **Provide input to the Board and senior management regarding the ongoing future management of the Company**
- **It is not a guarantee by the Appointed Actuary of the future solvency of the company**
- **It should not be used to discuss areas of opportunity**



DCAT process – Base scenario

- **Review of operations for recent years (usually 3) and financial position at end of each**
- **Develop base scenario using “realistic” assumptions to forecast insurers financial position over forecast period**
 - “Realistic” does not preclude assuming future capital injections if part of normal operating process for company
- **Base scenario should be “consistent” with business plan**
 - “Consistent” does not mean identical



DCAT process – Plausible adverse scenarios

- **Scenario of adverse, but plausible, assumptions about matters to which insurer's financial condition is sensitive**
- **Identify at least 3 plausible scenarios and carry out more detailed testing**
 - Consider ripple effects
 - Consider extraordinary management actions
- **Consider integrated scenarios**
 - Combine two or more (not necessarily) related adverse scenarios



Modeling

- **Model required to produce key elements of financial statements**
 - Base scenario used to validate model
- **Model should consider corporate structure**
 - Legal entity level (capital infusions, shareholder dividend payments, income taxes, investment of surplus etc.)
 - Management decision level (business units, geographical areas, product lines, investment segments)



Reporting

- **Inform board of directors and management of company's financial health**
 - Within 12 months of fiscal year-end
- **OSFI receives a copy of each report**
 - Actuarial Division and Supervision compare and assess reports
- **Report should be comprehensible with more emphasis on being interpretative than statistical**
 - Make recommendations
 - Progress on past recommendations

Reporting

- **Results:**
 - Range of outcomes
 - Trends
- **Reasonableness of:**
 - Base scenario
 - Adverse scenarios
 - Assumptions (business growth, reinvestments etc.)
 - Management actions
- **Management and boards should be aware and in control of the risks to which they are exposed**



Opinion

- CIA SOP and OSFI require Appointed Actuary to provide a signed opinion on the insurer's future financial condition in the report
- SOP 2530
 - “The insurer’s financial condition is satisfactory if throughout the forecast period it is able to meet all its future obligations under the base scenario and all plausible adverse scenarios, and under the base scenario it meets the minimum regulatory capital requirement.”



DCAT limitations revealed by financial crisis

- **The choice of scenarios to be tested is up to the actuary**
 - Actuaries may differ in their willingness to test and report on difficult scenarios
 - A lack of uniformity and complexity in the scenarios is a problem
- **DCAT is often regarded as a narrow professional compliance exercise and not an integral part of ERM**
 - Results may be discounted or ignored by management



Lessons learned from financial crisis

- Increasingly, crises are due to systemic inter-connected events
- Greater consideration needs to be given to extreme events
- Individual insurers can have difficulty identifying industry-wide contagion impacts
- Correlations between risks increase in the tail
- Improved risk management is required



Strengthened risk management

- **Stress testing (including DCAT) is an important risk management tool**
- **OSFI expects stronger ERM through stress testing**
 - Stress testing clearly documented and available for review
 - Ability to run stress tests frequently through the year
- **OSFI DCAT expectations**
 - Senior management engagement with DCAT
 - Risk management is more than risk identification
 - DCAT report experimentation



Strengthened risk management – Earlier DCAT stress testing

- OSFI has requested that the annual DCAT report be presented to Board no later than 6 months after year-end**
 - The frequency and timing of stress testing must be sufficient to support timely management action
 - DCAT should be an integral part of the risk management and strategic planning process
 - DCAT reports should be based on current financial data



Strengthened risk management – DCAT disclosure improved

- **DCAT reports should utilize better practices currently used by some insurers:**
 - Displaying the results of adverse scenario both before and after relevant management action
 - Including recommendations for risk mitigation
 - Including integrated scenarios
 - Including additional illustrative scenarios
 - Including additional years of financial projections to show ripple effects



Summary

- DCAT is best viewed as a tool to inform management and Board as to the risks inherent in company's operations
- DCAT requires a high degree of judgement by the Appointed Actuary
 - Need to be realistic in assessing plausible adverse scenarios and management reaction to them
- OSFI is outlining its expectations for stress testing to build on DCAT experience and lessons learned from the crisis





**Solvency Modernization Initiative
International Solvency (EX) Working Group**

**Consultation Paper on
Corporate Governance and Risk Management**

The NAIC's Solvency Modernization Initiative (SMI) was announced in June 2008 to encompass projects already under way at the NAIC, including a study of other financial supervisory modernization initiatives and solvency proposals in place or under development in other jurisdictions, including Australia, Canada, Switzerland and the EU. The initiative includes the following:

- Articulation of the U.S. solvency framework and principles.
- Study of other sectors' and other countries' solvency and accounting initiatives and the tools that are used and proposed.
- Creation of a new reinsurance regulatory framework.
- Movement to principle-based reserving for life insurance products.
- Enhancement of group supervision.
- Ultimately, implementation of new ideas to incorporate into the U.S. solvency system.

"Solvency" for purposes of the SMI is defined to mean "financial regulation" as opposed to "market regulation." The SMI scope includes aspects relative to the financial condition of a company and is not limited to evaluation of insolvency alone.

The mission of the Solvency Modernization Initiative (EX) Task Force is to coordinate all NAIC efforts to successfully accomplish the Solvency Modernization Initiative. At these initial stages of the SMI, the Task Force and its working groups are gathering intelligence for eventual dissemination to the NAIC committees and their task force and working group structures, who will be charged to implement the SMI. An SMI roadmap is being developed by the International Solvency (EX) Working Group of the SMI Task Force, which will eventually identify the charges to NAIC committees, task forces and working groups.

Goal of this Exposure Document: Comment Submission

A first working draft of the SMI roadmap was released Sept. 20, 2009. As part of the research needed to make recommendations for implementation of SMI, an exposure document on corporate governance and risk management was requested to be released for comment.

This consultation document concentrates on the consideration of corporate governance and risk management focus within the SMI. Because of the relationship between risk management and internal capital assessment, high-level issues surrounding the implementation of an Own Risk and Solvency Assessment are also explored in this paper. Additionally, two appendixes have been attached to this document outlining International Association of Insurance Supervisors principles and standards in areas relating to corporate governance and risk management that may warrant consideration.



Comments responding to the issues identified within this paper should be submitted by **March 1, 2010**. All comments received by March 1 will be incorporated into a document for discussion at an interim meeting to be held prior to the NAIC Spring National Meeting in late March 2010. Please note that comments must be submitted in writing by the deadline for consideration at the interim meeting.

Upon deliberation, the next step in the Solvency Modernization Initiative process will be more extensive development of the SMI Roadmap.

1. Corporate Governance

- 1.1. Corporate Governance can be defined as a framework of rules and practices by which a board of directors ensures accountability, fairness and transparency in an insurer's relationship with all its stakeholders. Historically, regulators have set only basic requirements for insurance companies in this area, as corporate governance has been seen as a company responsibility defined by corporate law. However, due to changes in the economic environment and a move toward principle-based regulation, a greater regulatory focus on corporate governance may be required. The SMI should consider ways to improve the corporate governance of insurers as indicated throughout this section of the document.
 - a) Due to the various ways that insurance company groups are organized, it will be important to consider how corporate governance principles should be applied in a group situation. The SMI should consider whether principles apply at the group level, to individual insurance entities, or to some combination of both.
- 1.2. The primary responsibility for implementing proper corporate governance principles rests with the insurer's Board of Directors. It is important that a fully functional, well-qualified and independent Board of Directors be established to ensure that corporate governance principles are effectively implemented.
 - a) The Board of Directors should be composed of a sufficient number of knowledgeable, independent and active members to properly fulfill its governance and oversight responsibilities. The Board should be composed to ensure that it can act independently of management through a thoughtful and diligent decision-making process. The process to elect members of the Board should be formal and transparent. The SMI should consider how these standards can be effectively implemented.
 - b) The Board of Directors and its committees should be governed by formal bylaws and charters to ensure that duties and responsibilities are effectively documented and communicated.
 - c) Members of the Board of Directors should possess the appropriate professional qualifications, knowledge and experience to enable sound and prudent management. Members of the Board of Directors should be of good repute and integrity in order to properly fulfill their obligations. The SMI should consider how these standards can be effectively implemented.



- d) Members of the Board should be guided by two basic principles, the duty of care and the duty of loyalty. Board members must have a sense of care and interest in the organization and willingness to place the organization goals above personal interests.
- 1.3. The corporate governance system implemented by the Board should include an adequate transparent organizational structure with a clear allocation and appropriate segregation of responsibilities, as well as an effective system for ensuring the transmission of information. Within this structure the Board of Directors should provide a significant level of strategic oversight in each of the following areas:
- a) Executive Oversight & Remuneration – The Board of Directors should be responsible for the appointment and compensation of the Chief Executive Officer and other key executive officers of the insurer. In addition, the Board should provide oversight to the overall compensation structure of the insurer. The nature and extent of Board oversight to be provided in this area should receive further attention and discussion from the SMI.
 - b) Strategic Planning and Risk Management – The Board of Directors should be regularly involved in formulating, reviewing and approving the strategic business plan governing the insurer. The Board should approve the corporate philosophy and mission. In addition, the Board should be directly involved in overseeing the insurer's process to identify, monitor and manage the risks the insurer faces. The nature and extent of Board oversight to be provided in this area should receive further discussion and attention from the SMI.
 - c) Audit Function – The Board of Directors should provide oversight to the insurer's audit function by establishing an Audit Committee to oversee the accounting and financial reporting processes of the insurer as well as the audits of financial statements of the insurer. Requirements for the Audit Committee have already been established for regulatory purposes in the *Annual Financial Reporting Model Regulation* (Model #205). However, requirements in this area stop short of requiring insurers to establish an internal audit function, which may require additional consideration from the SMI.
 - d) Actuarial Function – The Board of Directors should provide oversight to the actuarial function of the insurer by receiving and reviewing reports in this area on a regular basis, including the effectiveness of internal controls with respect to the reserve calculations. In addition, the Board should interact with senior management to resolve questions and collect additional information regarding the actuarial function as needed. Principles for Board oversight of the principle-based reserving function have been adopted for regulatory purposes in Section G of the Valuation Manual. However, the nature and extent of Board oversight of the overall actuarial function and in relation to all product types should receive further discussion and attention from the SMI.
 - e) Code of Conduct/Ethics – The Board of Directors is responsible for establishing the “Tone at the Top” of the insurer regarding the importance of ethical conduct throughout the organization. The Board should be actively involved in establishing and enforcing a code of conduct for the organization. Insurers are currently required to disclose whether the organization has a code of ethics that senior managers are subject to, but there are no other specific oversight requirements in this area. The nature and extent of Board



oversight to be provided in this area should receive further attention and discussion from the SMI.

- f) Regulatory Compliance – The Board of Directors, or a committee thereof, should be responsible for overseeing the process to ensure compliance with the applicable regulatory standards of the insurer. Currently, there are no specific expectations regarding Board oversight in this area. As such, the nature and extent of Board oversight to be provided in the area of regulatory compliance should receive further attention and discussion from the SMI.
 - g) Director Education and Performance Evaluation– Board members should complete an orientation program describing the obligations and responsibilities of Board members and receive continuing education on significant industry developments and risks on a regular basis. To ensure that an insurer’s Board of Directors is properly fulfilling its responsibilities, there should be a formal process to review the effectiveness of the overall Board as well as individual members. If the Board or an individual member is determined to be ineffective, procedures are in place to correct the situation. The nature and extent of Board education and evaluation requirements should receive further attention and discussion from the SMI.
 - h) Succession planning – To ensure that qualified Board members and senior management are available to govern the insurer on an ongoing basis, a succession plan should be in place enabling a seamless transition of qualified individuals when vacancies occur. The SMI should consider the extent of Board responsibilities in this area.
- 1.4. Although the primary responsibility for implementing proper corporate governance principles rests with the insurer’s Board of Directors, a critical role is also played by Senior Management in this process. As Senior Management is charged with the day-to-day management and oversight of the insurer, it is important that the individuals charged with this responsibility are capable to meet expectations in this area.
- a) Members of Senior Management should possess the appropriate professional qualifications, knowledge and experience to enable sound and prudent management. Senior Managers should be of good repute and integrity in order to properly fulfill their obligations. The SMI should consider how these standards can be effectively implemented.
 - b) Senior management should assume responsibility in establishing the “Tone at the Top” of the insurer regarding the importance of ethical conduct throughout the organization. Senior Management should be held accountable to meet ethical standards by signing and agreeing to a formal code of conduct that has been adopted by the Board.
- 1.5. Information regarding the corporate governance of insurers should be shared with the regulator on a regular basis and verified during the financial condition examination process. The SMI should consider what information should be shared in this area and with what frequency. In addition, the SMI should consider developing standards for regulatory review and use of this information in solvency monitoring.



2. Risk Management

- 2.1. Risk Management can be defined as a process implemented by an entity's board of directors and management that is applied in strategy setting across the enterprise—designed to identify potential events that may affect the entity and to manage risk to be within its risk appetite—to provide reasonable assurance regarding the achievement of entity objectives. An insurer's risk management function should limit the risks acceptable to the entity to ensure that it is able to continue to operate following an extreme loss event.
 - a) Due to the various ways that insurance company groups are organized, it will be important to consider how risk management principles should be applied in a group situation. The SMI should consider whether principles apply at the group level, to individual insurance entities, or some combination of both.
 - b) A critical element of any risk management process should be the performance of scenario analysis and stress testing. As risks are identified and analyzed, various scenarios should be considered to determine the potential impact of critical risks. The SMI should consider how and to what extent stress testing and scenario analysis should be included within an insurer's risk management processes.
- 2.2. Each insurer should adopt a formal risk management framework/function to ensure that the insurer is properly identifying, monitoring and managing the risks it faces. This risk management function should be sufficiently independent in order to avoid conflicts of interest and to objectively monitor risk origination. The SMI should consider what should be included within a risk management framework/function, how such a function may be independently maintained, as well as how proportionality may be appropriately reflected.
 - a) The day-to-day management and oversight of the risk management function should be provided by Senior Management. However, the Board of Directors should be involved in regular oversight of the insurer's risk management function. The SMI should consider how and when oversight should be provided by the Board of Directors in the risk management function.
- 2.3. In establishing a risk management function, an insurer should have a risk management policy that outlines the way in which the insurer manages each relevant and material category of risk, both strategically and operationally. The risk management policy should be transparent to various levels of management with a clear articulation and internal communication of the risk strategy. The policy should describe the linkage with the insurer's tolerance limits, regulatory capital requirements, economic capital, and the processes and methods for monitoring risk. The SMI should consider what should be included within a risk management policy as well as how often the policy should be updated and who should approve it.
- 2.4. In addition to establishing a risk management policy, an insurer should establish its own risk tolerances through the adoption of a formal risk tolerance statement. The statement should set out the insurer's overall quantitative and qualitative tolerance levels and define tolerance limits for each relevant and material category of risk, taking into account the relationships between risk categories. The insurer should then embed the risk tolerances into its ongoing



risk management efforts to assist in making appropriate risk management decisions. The SMI should consider what tolerances should be defined within a risk tolerance statement and how the statement should be incorporated into the insurer's risk management practices.

2.5. For a risk management function to be adequate for solvency purposes, it should include provisions for the quantification of risk for a sufficiently wide range of outcomes and be responsive to change using appropriate techniques. This measurement of risk should be supported by accurate documentation providing appropriately detailed descriptions and explanations of risks. The SMI should consider which categories of risks should be documented and what level of detail should be included within the documentation.

- a) Some of the typical categories of risk to be considered and documented within a risk management function should include underwriting risks, market risks, credit risks, operational risks (including disaster recovery/business continuity risks), liquidity risks (including asset-liability matching), legal risks, reinsurance risks and reserving risks.
- b) Another risk that may need to be considered is reputational risk, which is the risk that negative publicity—whether true or not—causes a decline in the customer base, costly litigation, revenue reductions, or other negative impact on insurer solvency.
- c) Another risk that may need to be considered is business contagion risk, which is the risk that problems arising from other affiliated businesses within the group could have a negative impact on the insurer's financial solvency.

2.6. The risk management function should be utilized by the insurer to determine the level of internal economic capital that should be held for solvency purposes. The quantification of risks as well as the scenario analysis and stress testing performed should be utilized by the insurer in making these decisions. To assist in this process, the insurer should perform an Own Risk and Solvency Assessment (ORSA). An ORSA is a tool that companies use to properly assess their own short and long term risks and the amount of own funds necessary to cover them.

- a) The ORSA should be performed on a regular basis, and the results of the assessment should be shared with Senior Management and the Board of Directors. The SMI should consider how often an ORSA should be performed, updated and the results reported to the Board of Directors.
- b) The ORSA should encompass all reasonably foreseeable and relevant material risks, including—at a minimum—underwriting, credit, market, operational and liquidity risks. The assessment should identify the relationship between risk management and the level and quality of financial resources needed and available. The SMI should consider which risks should be addressed within the ORSA and at what level of detail.
- c) As part of its ORSA, an insurer should analyze its ability to continue in business and the risk management and financial resources required to do so over a long time horizon. This continuity analysis should address a combination of quantitative and qualitative elements in the long-term business strategy of the insurer and include projections of the insurer's future financial position and analysis of the insurer's ability to meet future regulatory



- capital requirements. The SMI should determine what the time horizon may be and what specifically should be included within such a continuity analysis.
- 2.7. The risk management function should require that strategic decisions be made that are consistent with established risk management policies and tolerances after giving due consideration to the risks quantified and the amount of capital maintained for risk management purposes. Individuals responsible for strategic decisions should be subject to the oversight of and held accountable by the Board of Directors.
 - 2.8. Information regarding the risk management function of insurers should be shared with the regulator on a regular basis and verified during the financial condition examination process. In addition, the results of the ORSA should be shared with regulators and considered as a valuable input in the solvency assessment process. The SMI should consider what information should be shared with the regulator and how often, and standards should be developed for the regulatory review of risk management and ORSA information. In addition, the SMI should determine how risk management and ORSA information should be used within the solvency monitoring framework.



Standard and Guidance Paper on Enterprise Risk Management for Capital Adequacy and Solvency Purposes (October 2008)



Solvency & Actuarial Issues Subcommittee

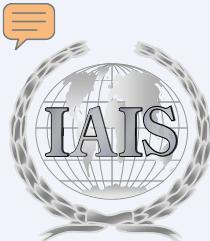
October 2008



Table of contents

1. Introduction
2. Governance and an Enterprise Risk Management framework
 - Governance and risk management
 - Risk Management Policy
 - Risk Tolerance Statement
3. Own Risk and Solvency Assessment (ORSA)
 - Economic and Regulatory Capital
 - Using an internal model for the ORSA
 - Continuity Analysis
4. Role of Supervision in risk management

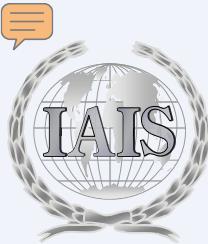
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Introduction

The Governance Block of the IAIS Framework for Insurance Supervision refers to:

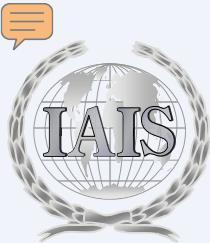
“governance processes and controls in areas such as the Board, directors, senior management and other organisational aspects, fit and proper testing of directors and management; administrative, organisation and internal controls, including **risk management**; compliance with legislative requirements; shareholder relationships; and the governance risks posed by group structures”



Introduction

- Sound governance is a pre-requisite for solvency regime to operate effectively
- **Enterprise risk management** is the process of identifying, assessing, measuring, controlling and mitigating risk in respect of the insurance enterprise as a whole
- Enterprise risk management underpins effective solvency assessment and capital management

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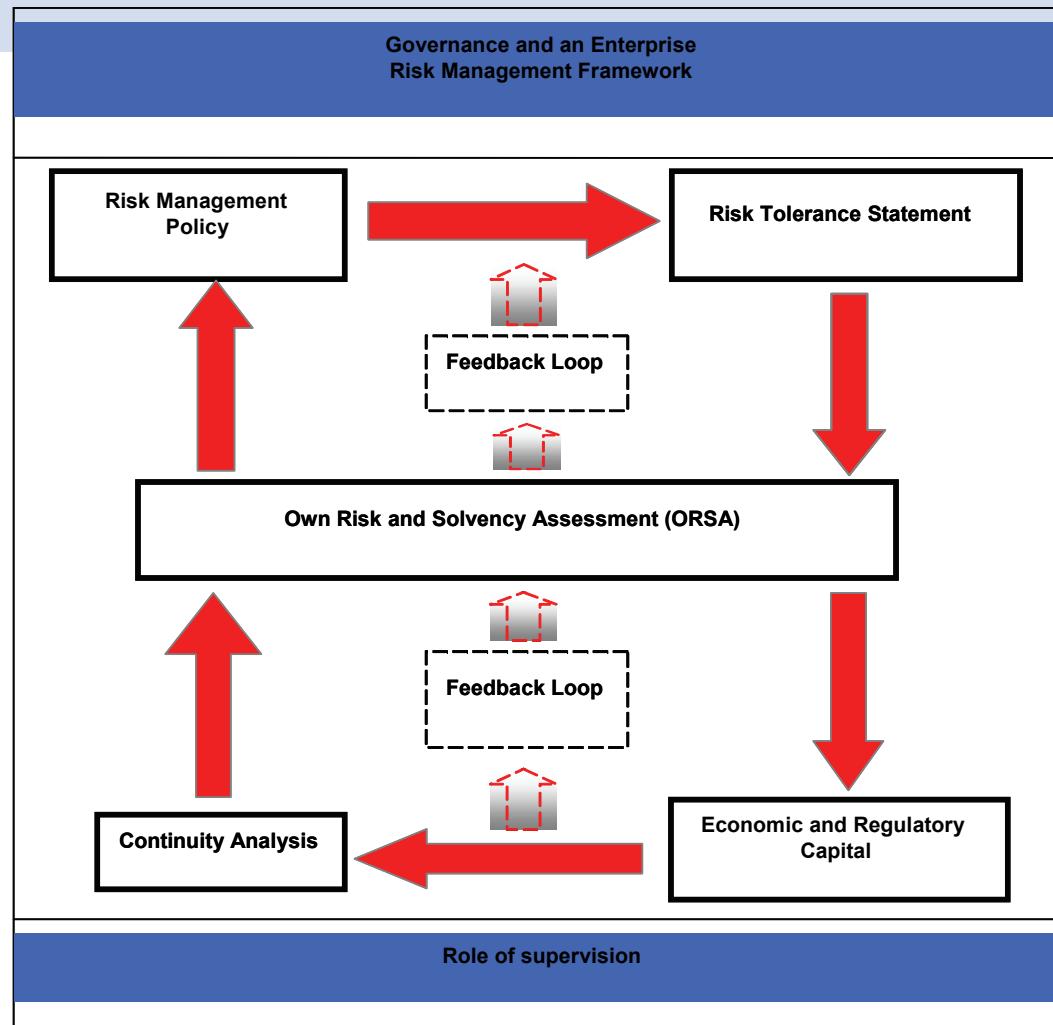


Introduction

- This standard and guidance focuses on the enterprise risk management framework around the determination of technical provisions and capital for an insurer as a single entity.
- It also discusses conceptual issues related to regulatory financial requirements
- The standard's 19 key requirements are based around a best practice enterprise risk management framework

Standard and Guidance Paper of Enterprise Risk Management for Capital Adequacy and Solvency Purposes (October 2008)

Introduction



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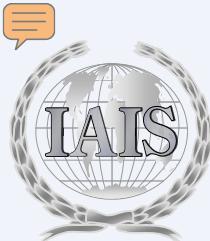


Governance and an Enterprise Risk Management framework

Governance and risk management

1. As part of its overall governance structure, an insurer should establish, and operate within, a sound Enterprise Risk Management (ERM) framework which is appropriate to the nature, scale and complexity of its business and risks
2. The ERM framework should be integrated with the insurer's business operations and culture, and address all reasonably foreseeable and relevant material risks faced by the insurer in accordance with a properly constructed risk management policy
3. The establishment and operation of the ERM framework should be led and overseen by the insurer's board and senior management

Standard and Guidance Paper of Enterprise Risk Management for Capital Adequacy and Solvency Purposes (October 2008)



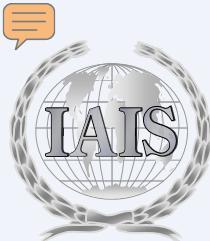
Governance and an Enterprise Risk Management framework

Risk identification and measurement

4. For it to be adequate for capital management and solvency purposes, the framework should include provision for the quantification of risk for a sufficiently wide range of outcomes using appropriate techniques

5. Measurement of risk should be supported by accurate documentation providing appropriately detailed descriptions and explanations of risks

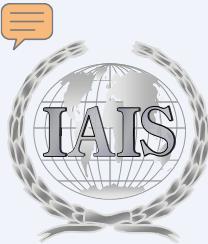
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Governance and an Enterprise Risk Management framework

Risk management policy

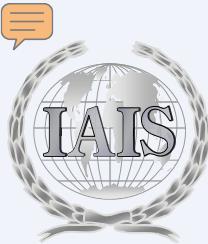
6. An insurer should have a risk management policy which outlines the way in which the insurer manages each relevant and material category of risk, both strategically and operationally
7. The policy should describe the linkage with the insurer's tolerance limits, regulatory capital requirements, economic capital and the processes and methods for monitoring risk



Governance and an Enterprise Risk Management framework

- **Economic Capital** is the capital needed by the insurer to satisfy its risk tolerance and business plans from an economic assessment of the insurer's risks, the relationship between them and the risk mitigation in place
- Techniques should be proportionate to the business and its risks
- Proportionality means that a complex economic capital model is not necessarily needed

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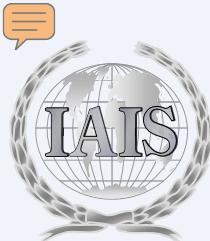


Governance and an Enterprise Risk Management framework

Risk tolerance statement

8. An insurer should establish and maintain a risk tolerance statement which sets out its overall quantitative and qualitative tolerance levels and defines tolerance limits for each relevant and material category of risk, taking into account the relationships between these risk categories
9. The risk tolerance levels should be based on the insurer's strategy and be actively applied within its ERM framework and risk management policy
10. The defined risk tolerance limits should be embedded in the insurer's ongoing operations via its risk management policies and procedures

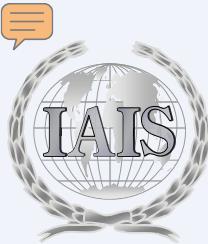
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Governance and an Enterprise Risk Management framework

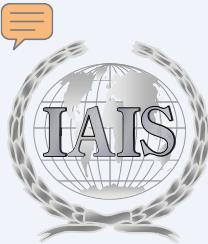
Risk responsiveness and feedback loop

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



Own Risk and Solvency Assessment (ORSA)

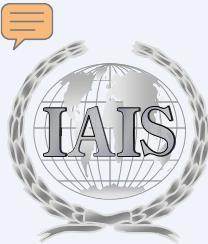
13. An insurer should regularly perform its own risk and solvency assessment (ORSA) to provide the board and senior management with an assessment of the adequacy of its risk management and current, and likely future, solvency position
14. The ORSA should encompass all reasonably foreseeable and relevant material risks including, as a minimum, underwriting, credit, market, operational and liquidity risks. The assessment should identify the relationship between risk management and the level and quality of financial resources needed and available



Own Risk and Solvency Assessment (ORSA)

Economic and Regulatory Capital

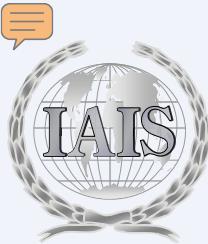
- As part of its ORSA an insurer should determine the overall financial resources it needs to manage its business given its own risk tolerance and business plans, and to demonstrate that supervisory requirements are met
16. The insurer's risk management actions should be based on consideration of its economic capital, regulatory capital requirements and financial resources



Own Risk and Solvency Assessment (ORSA)

Using an internal model for the ORSA

- Most useful if model supports assessment of all risks as well as economic capital determination
- Useful for current capital and continuity analysis
- Model based on insurers own modelling criteria, techniques and inputs and subject to its own governance
- No need for supervisory approval of model for ORSA
- Model useful for supervisory review as part of ORSA



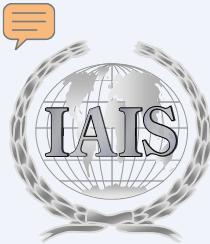
Own Risk and Solvency Assessment (ORSA)

Continuity Analysis

17. As part of its ORSA, an insurer should 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

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

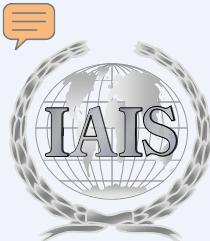
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Own Risk and Solvency Assessment (ORSA)

Continuity analysis is the process of ensuring sound, effective, and complete processes, strategies and systems to assess and maintain on an ongoing basis the amounts, types and distribution of financial resources to cover the nature and level of the risks to which an insurer is or might be exposed to and to enable it to identify and manage all reasonably foreseeable and relevant material risks.

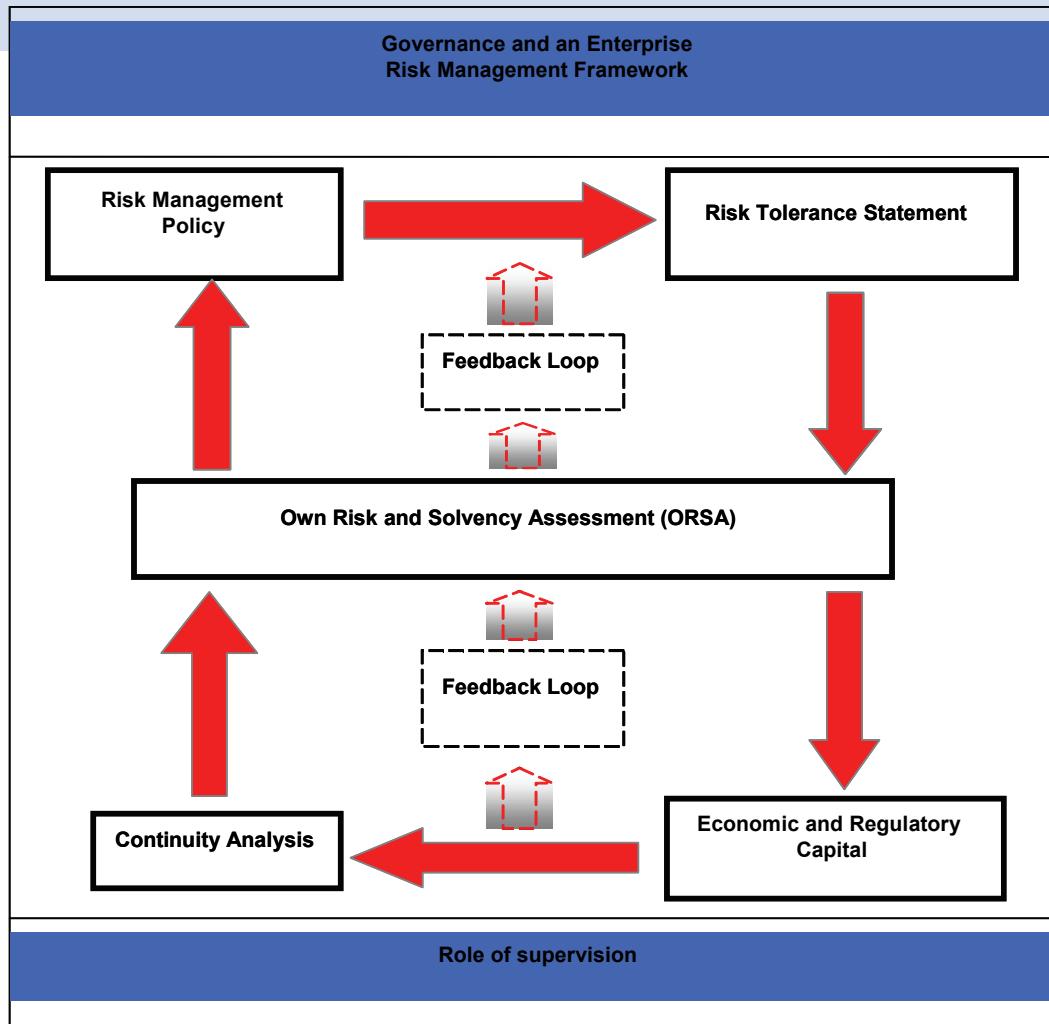
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Role of supervision in risk management

19. The supervisor should undertake reviews of an insurer's risk management processes and its financial condition. The supervisor should use its powers to require strengthening of the insurer's risk management, including solvency assessment and capital management processes, where necessary

Summary



Standard and Guidance Paper of Enterprise Risk Management for Capital Adequacy and Solvency Purposes (October 2008)



International Association of Insurance Supervisors (IAIS)

Questions & Answers

www.iaisweb.org

This presentation is prepared by the Solvency and Actuarial Issues Subcommittee

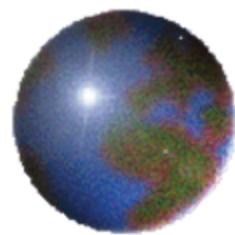
IAIS Secretariat - john.maroney@bis.org

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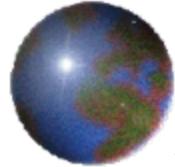


Understanding the Insurers Risk

**NAIC National Meeting
San Francisco 2009**



**Mary D. Miller FCAS, MAAA
Assistant Director, Product Regulation
and Actuarial Services
Ohio Department of Insurance**



Financial Analysis Overview

- Regulators have enhanced their solvency monitoring activities to facilitate more timely regulatory action against troubled insurers
- Financial analysis occurs every quarter on all multi-state insurers within each state
- States prioritize the review of their domiciliary companies to ensure potentially troubled companies are reviewed promptly
- Most states perform some limited analysis on foreign and alien insurers operating within their state



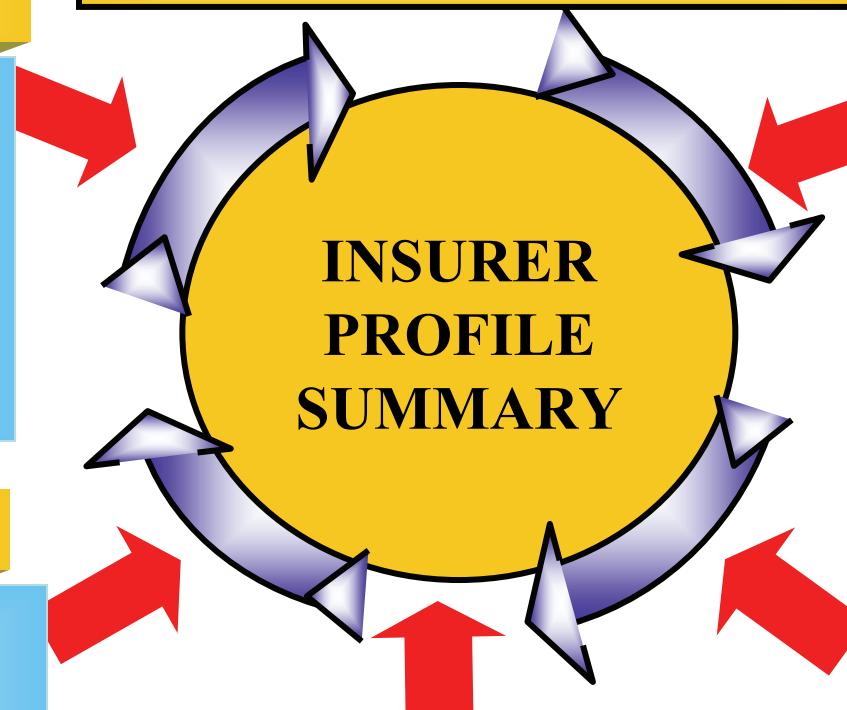
Risk-Focused Surveillance Cycle

Supervisory Plan

Develop Ongoing Supervision That Includes:

- Frequency of Exams
- Scope of Exams
- Meetings with Company Management
- Follow-Up on Recommendations
- Financial Analysis Monitoring

RISK-FOCUSED SURVEILLANCE CYCLE



Priority System

Company Priority Score Determined By:

- Department analysis and
- NAIC financial Analysis tools:
 - Scoring System
 - ATS Results
 - IRIS Ratios
- Exam Results

Examination

Risk-Focused Examination Seven Phase Process:

- Identify Key Functional Activities
- Identify/Assess Inherent Risk
- Identify & Evaluate Controls
- Determine Residual Risk
- Establish Procedures and Conduct Exam
- Update Supervisory Plan
- Exam Report//Mgmt Letter

Financial Analysis

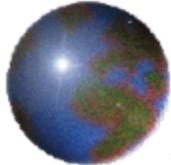
Financial Analysis includes:

- Risk Assessment Results
- Financial Analysis Handbook Process
- Ratio Analysis
- Actuarial Analysis
- Other Units (Market Regulation, Legal, etc.)
- Update with internal/external changes

Internal/External Changes

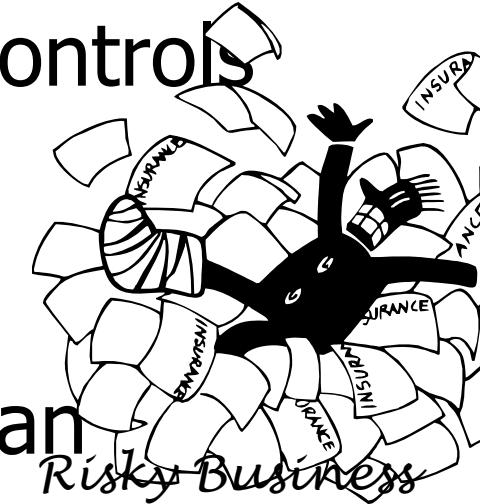
Consider Changes to:

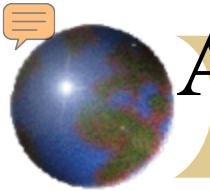
- NRSRO Ratings
- Ownership/Management/ Corporate Structure
- Business Strategy/Plan
- CPA Report or Auditor
- Legal or Regulatory Status



7 Phases

- Phase 1 Understand Company/Key Activities
- Phase 2 Inherent Risk
- Phase 3 Risk Mitigation Strategies/Controls
- Phase 4 Residual Risk
- Phase 5 Exam Procedures
- Phase 6 Prioritization/Supervisory Plan
- Phase 7 Exam Report/Management Letter





Assessment of Risk Management Framework & Practices

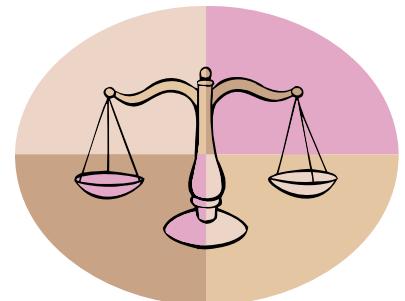
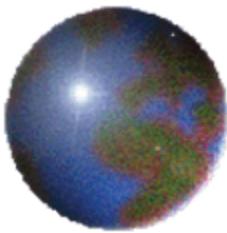
- Tone at the top
 - Audit/compliance relationships
- Adherence to Board policies and procedures
- Internal control environment

Scope of Exam

- What are the major risk area being considered in an exam?
- What are the major reasons insurer fail?

Annual Financial Reporting Model Regulation (Model Audit Rule)

- In effect in 2010
- 3 Major Components
 - Auditor Independence
 - Corporate Governance
 - Controls over Financial Reporting





Hazardous Financial Condition

- Model 385
- Requirement allow regulators to take action to require:
 - Corporate Governance
 - Company Business Plans
 - Restricting the Volume of Business being Accepted or Renewed
 - Increase Capital and Surplus
 - Limiting Certain Investments
 - Court Order:
 - Conservation
 - Rehabilitation
 - liquidation

Current UK Enterprise Risk Management practices



3 December 2009

IAIS Solvency Subcommittee/ NAIC International Solvency Working Group

Rob Curtis
Head, International Insurance Policy, UK FSA

Session Outline

- **UK FSA requirements**
- **Solvency 2**
- **Continuing challenges**
- **Final thoughts**

1. UK key requirements– senior management

Ensure that senior management are responsible and can provide leadership

- Ultimate responsibility for the management of prudential risks rests with a firm's governing body and relevant senior managers. In particular, these responsibilities should include:
 - (1) overseeing the establishment of an appropriate business plan and risk management strategy;
 - (2) overseeing the development of appropriate systems for the management of prudential risks;
 - (3) establishing adequate internal controls; and
 - (4) ensuring that the firm maintains adequate financial resources. [SYSC 14.1.11]*
- Firms should consider whether their systems and controls provide sufficient information to permit senior management to identify the crystallisation of risks in a timely manner so as to provide them with the opportunity to respond. [INSPRU 7.1.27]

*[] = FSA Handbook references

1. UK key requirements – prudential framework

Risk management policy – aim of risk management [GENPRU 1.2.30]

- A firm must have in place sound, effective and complete processes, strategies and systems:
 - (1) to assess and maintain on an ongoing basis the amounts, types and distribution of financial resources, capital resources and internal capital that it considers adequate to cover the nature and level of risks to which it is or might be exposed.
 - (2) that enable it to identify and manage the major sources of risks, including (where they are relevant to the firm given the nature and scale of its business), credit, market, liquidity, operational, insurance, concentration, residual, securitisation, business, interest rate and pension obligation risks.



1. UK key requirements – methods (a)

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Ensure effective use of stress and scenario testing [GENPRU 1.2.42]

- A firm must, for each of the major sources of risk (see slide 4), carry out stress tests and scenario analyses that are appropriate to the nature of those major sources of risk, as part of which the firm must:
 - (a) take reasonable steps to identify an appropriate range of realistic adverse circumstances and events in which the risk identified crystallises; and
 - (b) estimate the financial resources the firm would need in each of the circumstances and events considered, so that it is able to meet:
 - (i) its liabilities as they fall due; and
 - (ii) the capital resources requirement.
- Currently preparing a new policy statement on reverse stress testing which will require firms to identify and plan for scenarios that could threaten their survival.

1. UK key requirements – methods (b)



Ensure the firm's capital adequacy level is appropriate [INSPRU 7.1.15]

- Where a firm is carrying out an assessment of the adequacy of its overall financial resources in accordance with GENPRU 1.2, the assessment of the adequacy of the firm's capital resources must:
 - (1) reflect the firm's assets, liabilities, intra-group arrangements and future plans;
 - (2) be consistent with the firm's management practice, systems and controls;
 - (3) consider all material risks that may have an impact on the firm's ability to meet its liabilities to policyholders; and
 - (4) use a valuation basis that is consistent throughout the assessment.
- The FSA utilises its own privately reported capital/solvency regime for insurers based on a realistic balance sheet assessment for each individual firm, known as Individual Capital Adequacy Standards (ICAS).

1. UK key requirements – methods (c)

ICAS – Individual Capital Adequacy Standards [INSPRU 7.1]

- Firms must also measure their own capital assessment needs in relation to their own business strategy, risks and risk tolerance level, i.e. their economic capital.
- Separate risks elements need to be quantified – these include insurance, market, credit, operational, liquidity, strategic, governance and group risk, (clearly group risk will not apply to a stand-alone insurance firm).
- These risks are then aggregated into a combined capital figure – the firm's Individual Capital Assessment (ICA), which is submitted to the supervisor.
- The ICA includes an assessment comparable to a 99.5% confidence level over a one year timeframe that the value of assets exceeds the value of liabilities. (This compares to a calibration threshold of 99.9% in Basel 2).
- The firm must supply a written document:
 - i) explaining the results of the ICA and the appropriateness of the methodology and assumptions used; and
 - ii) identifying the major differences between the 99.5% assessment and any other assessments carried out by the firm using a different confidence level.
- FSA may then decide to give firms Individual Capital Guidance (ICG).



2. Solvency 2 – key requirement (ORSA)

Own risk and solvency assessment

Article 44 (level 1 text) – an insurer's own review of its solvency needs, economic capital and internal systems of governance.

- 1. As part of its risk management system every insurance or reinsurance undertaking shall conduct its own risk and solvency assessment. That assessment shall include at least the following:**
 - a) the overall solvency needs taking into account the specific risk profile, approved risk tolerance limits and the business strategy of the undertaking;**
 - b) the compliance, on a continuous basis, with the capital requirements and with the requirements regarding technical provisions;**
 - c) the significance with which the risk profile of the undertaking concerned deviates from the assumptions underlying the Solvency Capital Requirement, calculated with the standard formula or with its partial or full internal model.**
- 2. The undertaking concerned shall have in place processes, which enable it to properly identify and assess the risks it faces in the short and long term and to which it is or could be exposed . The undertaking shall demonstrate the methods used in this assessment .**
- 3. The own risk and solvency assessment shall be an integral part of the business strategy and shall be taken into account on an ongoing basis in the strategic decisions of the undertaking.**



3. Ongoing/outstanding challenges

FSA®

Whilst risk management practices have significantly improved, do firms currently conduct an effective ORSA? (not quite...)

Risk Appetite

- Whilst firms have documented their approach to risk management and have considered what their risk appetite is, they often do not fully apply it as a basis for improving business decision making, e.g. pricing.

Risk Assessment Process

- There needs to be greater consideration of governance processes and the qualitative as well as the quantitative aspects.
- Better incorporation at the group level – although there has been improvement and some consideration of fungibility, the focus is primarily at an individual entity level.

Senior management

- The understanding of senior managers still varies, in particular, there is a need for improved management Information.
- Cultural change still required at board level.

Risk Management Function

- This needs to play more than a co-ordinating role, i.e. it needs to challenge judgements rather than just aggregate risks from different entities within the group.
- There are inconsistencies in the ability to assess different risks – in particular a weakness in quantifying the impact of operational risk failures (although improving).



4. Final thoughts

- Despite considerable resistance to early reforms, UK insurers do now (on the whole) appreciate that robust risk management practices are of significant benefit to the firm and are not simply a compliance exercise.
- The ICAS regime is credited by UK insurers as having prepared them to weather the financial crisis, which they have done without government support .
- We anticipate that greater disclosure and public reporting will improve the quality of the assumptions and judgements underlying solvency calculations.
- Regulatory focus (especially given Solvency 2) will now be much more on the economic capital position of insurers rather than the statutory requirements and will involve internal models.



Questions?

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