P/C Risk-Based Capital: State and International Solvency Regulation

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Presented by the American Academy of Actuaries
Property and Casualty Risk-Based Capital Committee
Presenters

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- Speakers:
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Agenda

- Introduction: Risk-Based Capital and Solvency Regulation
  Alex Krutov and Allan Kaufman

- U.S. Solvency Modernization Initiative
  Terri Vaughan

- Solvency II: Towards a Risk Based System
  Gabriel Bernardino

- IAIS Recent Developments
  Yoshihiro Kawai

- P/C Risk-Based Capital: Actuarial Observations
  Allan Kaufman and Alex Krutov
Introduction: Risk-Based Capital and Solvency Regulation

Alex Krutov and Allan Kaufman
Primary goals of solvency regulation are:
- to protect the interests of insurance policyholders
- to facilitate an efficient marketplace for insurance products

The two primary goals
- may be conflicting
- require finding proper balance between the two

Solvency regulatory regime can include the following components:
- Minimum capital requirements
- Risk-focused financial examinations
- Authority given to regulators to take preventive or corrective measures
- Standardized financial reporting
- Regulatory approval of significant transactions that may affect solvency
- Other
Importance of Risk-Based Capital and Solvency Regulation

- High level of insolvencies and large insolvencies put significant strain on both:
  - the insurance industry
  - the policyholders

- The recent financial crisis highlighted the need for adequate capitalization and supervision of financial institutions
  - Infrequent “tail events” are of significant importance
  - While the P/C insurance industry is not a likely source of systemic risk affecting the whole economy, it can be severely affected by such crisis events
  - The crisis showed the need to provide a proper safety cushion in solvency capital requirements and to continually reassess the efficacy of the regulations
  - Additional risk is introduced by the solvency regulations differing significantly from one jurisdiction to another
Impact of Changes in Solvency Capital Requirements

- Capital standards more strongly related to risk typically lead to:
  - insolvencies at the level closer to the one considered acceptable
  - smoother functioning of the insurance markets

- Changes to or introduction of new capital requirements may necessitate significant adjustments on the part of the industry
  - Some companies could find themselves inadequately capitalized and decide to:
    - slow down growth or even reduce premium volume
    - employ stricter underwriting standards
    - change the product mix
    - raise additional capital from investors (equity, surplus notes or certain hybrids)
    - utilize reinsurance mechanisms (directly reduce risk or obtain surplus relief)
    - make use of insurance securitization (insurance-linked securities)
    - engage in an M&A transaction (sale of book of business or whole entity)
    - take other action
Challenges of Determining Proper Risk-Based Capital Requirements

- Risk-based capital requirements that are *too low* could lead to a high expected level of insolvencies, resulting in:
  - harm to policyholders of insolvent companies
  - negative effect on the policyholders of other companies through potential
    - guarantee fund assessments
    - higher insurance rates
  - possible unavailability of insurance coverage

- Capital requirements that are *too strict* lead to expected insolvency levels below the optimum and result in:
  - capital flowing out of the industry and potentially producing higher insurance rates
  - possible unavailability of insurance coverage due to decreased competition
Challenges of Determining Proper Risk-Based Capital Requirements

- Capital requirements not properly reflecting true risk levels can result in:
  - creating wrong incentives for insurance companies
  - potential for regulatory arbitrage
  - regulators not being aware of the true risk magnitude and/or lacking the authority for timely intervention

- Mapping risk charges to actual risks is very challenging
  - It is impossible to capture every single risk
  - Standard formula by definition cannot fully capture risks
  - Internal modeling, while very appealing, may be difficult to implement and requires making numerous assumptions
  - Choosing a risk measure (or measures) and calibrating an RBC formula to a certain level of the risk measure is a difficult but very useful task
Risk-Based Capital and Solvency Regulation in the United States

- Risk-Based Capital (RBC) regulation was introduced by the NAIC almost 20 years ago

- RBC transformed insurance solvency regulation
  - RBC regulation for the first time used formalized solvency capital requirements based on actual risk level
  - Over the years, some updates have been made to the RBC formula

- The NAIC is considering changes to RBC as part of the Solvency Modernization Initiative (SMI)
Risk-Based Capital and Solvency Regulation Outside the U.S.

- European Union
  - Current regulation is often limited and inconsistent among countries
  - Solvency II is an extensive and far-reaching regulatory change aimed at making solvency regulations
    - risk based
    - uniform across the EU

- Other countries
  - Solvency regulation currently differs significantly from one jurisdiction to another
  - Some countries have developed or are developing RBC frameworks that use Solvency II- or NAIC-type approaches (Switzerland, Bermuda, etc.)
  - A number of countries are considering other approaches
U.S. Solvency Modernization Initiative

Terri M. Vaughan
CEO, National Association of Insurance Commissioners
American Academy of Actuaries, May 2011
What is the SMI?

- Critically review the U.S. Regulatory Solvency Framework
  - Principles and “whys” of our system
  - International developments
  - IAIS insurance core principles, IMF FSAP
  - Financial crisis

The U.S. Solvency Framework

- National System of state-based financial regulation
  - All states meet the uniform requirements of accreditation program
  - Peer review of regulatory powers and quality implementation (accreditation, Financial Analysis Working Group)
  - Extensive collaboration and communication

- A model of multijurisdictional supervision
  - Importance of checks and balances
  - Relationship between home and host supervisor.
  - Attention to efficiency
SMI Focus Areas

- Capital Requirements
- Governance & Risk Management
- Group Supervision
- Statutory Accounting & Financial Reporting
- Reinsurance
Governance and Risk Management

- State governance statutes and case law.
- White Paper on U.S. Corporate Governance Principles
- Own Risk and Solvency Assessment “ORSA”
  1. The company’s or group’s risk management process and risk mitigation
  2. Stress Tests
  3. Prospective Solvency Assessment (3-5 years)
  4. Group Capital
- ERM Interim Meeting
Capital Requirements

- RBC “Story” – weakly capitalized companies
- RBC Improvements
  - Add missing risk charges
  - Re-think the correlation (e.g. square root formula)
- Partial Internal models for RBC
  - The cost/benefit of full internal models to replace RBC entirely, especially when it comes to regulatory prior approval, does not currently pass U.S. regulatory scrutiny.
- Group capital; ORSA
Statutory Accounting & Financial Reporting

• Valuation (Life Insurance Principles-Based Reserving)
  • 2011 Impact Study
  • Standard Valuation Model Law
  • Valuation Manual
• Future of Statutory Accounting
  • International accounting standards development
  • SEC’s expected decisions
  • IAIS valuation standards
  • At present this discussion is on hold, pending further developments.
Reinsurance

- Reinsurance Regulatory Modernization Framework
  - Conceptual framework – consider collateralization regarding unauthorized reinsurers & the design of the U.S. reinsurance regulatory framework
- State reinsurance collateral reforms
- Revisions to Reinsurance Model Laws
Group Solvency

- Lesson learned from the financial crisis:
  - Holding company Enterprise risk
  - “Windows and Walls”
- Holding Company Model Act and Regulation Dec. 2010
- IAIS ComFrame for the supervision of internationally active groups
- Current activity:
  - Accreditation changes for the new models
  - Holding company best practices & reporting requirements
  - Supervisory Colleges
SMI Roadmap

• We continue to expect all major policy decisions to be adopted by December 2012.
• The RBC changes are going to take many years, but we need to get the “story” right.
• ERM Symposium is being held July 21.
• We’ve already made major changes
  ■ Adoption of Standard Valuation Law
  ■ Adoption of Group Holding Company Model Act and Regulation
• 2011 – Expect significant SMI activity.
SMI Information

NAIC Website  [www.naic.org]

- Solvency Modernization Initiative button
- Consultation papers
- Links to Task Forces & Working Groups
- Updates
Solvency II
Towards a risk based system

Gabriel Bernardino
EIOPA Chairman
American Academy of Actuaries Webinar
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Towards a single rulebook
Crucial step to achieve a single market

Fourteen existing Directives on insurance and reinsurance supervision, insurance groups and winding-up

+ Solvency II

Codification & Recast

Codification, Recast & New Articles

= 1 Directive on insurance and reinsurance supervision
Reminding ourselves of the objectives and opportunities of Solvency II

• **Objectives:**
  - Deepen the integration of the internal market (Single Market)
  - Enhance protection of policyholders
  - Improve international competitiveness of EU insurers
  - Achieve “better regulation”

• **Opportunities:**
  - Better match between supervisory framework and internal risk management
  - Harmonised supervision and reporting requirements within the EEA
  - Improved group supervision
  - Convergence of supervision in the EEA
The foundation of Solvency II

**Supervision of solo undertakings and groups**

**Pillar 1**
Quantitative Requirements
- Technical provisions
- MCR and SCR – SF/IM
- Prudent person investment rule
- Own funds

**Pillar 2**
Qualitative requirements
- Internal control and risk management (incl. ORSA)
- Supervisory review process (qualit. & quant - Add-ons)

**Pillar 3**
Reporting and disclosure
- Supervisory reporting
- Public disclosure
- Market discipline

- Total balance sheet approach
- Market-consistent valuation
- Approval of internal models

- Focus on firm’s responsibility
- Convergence of supervisory practices

- Better risk-based information
- Increased transparency

- Harmonized Valuation standards

- Convergence of supervisory practices

- Harmonized supervisory reporting
Valuation of assets and liabilities for solvency purposes

- Defines basis of solvency assessment

- Solvency II follows an economic approach:
  - Economic market-consistent valuation of all assets and liabilities
  - Consistent across assets and liabilities

- Shall support economic assessment and consistent measurement of risks
Own funds

- Own funds = excess of assets over liabilities, aka “net asset value” or available capital resources

- Shock absorber against adverse losses

- Shall ensure that the insurer is able to meet its obligations to policyholders when they are due

- Distinguish the quantity and the quality (loss absorbing capacity) of the own funds
Required regulatory capital

• Capital which insurer is required to hold should be sufficient to ensure that, in adversity, an insurer’s obligations to policyholders will continue to be met
• Applies at solo and group level
• Calculated via standard formula or (full or partial) internal model
• Solvency II aims for risk-based and economic determination of required capital
  ✓ **SCR** - Solvency Capital Requirement: defined such that assets exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon
  ✓ **MCR** – Minimum Capital Requirement: lowest level, triggers strongest supervisory actions
Overall approach to solvency assessment

The Solvency II balance sheet

- Assets
- Technical provisions
- Best estimate (discounted)
- Risk margin
- Own funds
  - Basic
  - Ancillary
- Own funds

American Academy of Actuaries
P/C Risk-Based Capital: State and International Solvency Regulation Webinar
May 2011
Technical Provisions

Components of technical provisions

- Risk margin for non-replicable risk components
- Best estimate (discounted)
- Market value of corresponding assets for replicable risk components
Internal Models Framework

**internal model** (in the wider risk management sense)

- actions / steering
- internal risk control functions
- reporting / monitoring

**actuarial model** (in the narrow sense)

- risk exposure data
- risk driver data

- forecasts for P&L distributions

**SCR** (regulatory capital)

- SCR estimate
- adjusted SCR

- Pillar-2 adjustment

**use test**

- statistical quality test
Recognition of diversification effects

- Risk 1
- Risk 2
- Overall risk
- Diversification effect

Individual risks | Aggregation | Overall risk | Diversification effect

Div.
What did we learn from QIS5?

- Feasibility
- Impact
- Preparation
Lessons from QIS5

**Complexity**
- Solvency II is a major overhaul of valuation of balance sheet and calculation of the capital requirements
- Simplify where impact is not material *(proportionality)*

**Need to spend time to understand the requirements and how they will be implemented operationally**
- Pillar II and Pillar III (ORSA, Governance, disclosure)
- Training, Human resources
- IT, Data collection

**Impact**
- Overall financial position remains comfortable
- But need for smooth transition – transitional measures
  - Hybrids, Third country equivalence, discount rate
What is EIOPA doing?

1. **Working groups with the industry and the EC**
   - Calibration of the non-life and health risks
   - Calibration of the Catastrophe risk
   - Expected profits in future premiums and contract boundaries

2. **Technical standards**
   - Reporting to supervisors
   - USP approval process
   - Discount rate
   - Contract boundaries
   - Integration techniques on partial internal models
   - ...

3. **Guidelines**
   - ORSA
   - Actuarial guidelines
   - Intra-group transactions and risk concentrations
   - Functioning of the supervisory colleges
   - ...

IAIS Recent Development

Yoshi Kawai
Secretary General, International Association of Insurance Supervisors
Overview

Financial stability and insurance supervision

ComFrame
Financial stability and insurance supervision

FSB’s framework for SIFIs (systemically important financial institutions)

Capacity to resolve national and global SIFIs
A requirement of higher loss absorbency capacity
Increased intensity of SIFI supervision
More robust core market infrastructures
Financial stability and insurance supervision

Insurance supervision

Role of traditional insurance is fundamentally different compared to banks
Financial stability and insurance supervision

Possible insurers’ activities likely to cause systemic impact

- Insurers departing from typical insurance activities
- Inter-linkages of a typical insurer to other financial institutions
- Loss of difficult-to-substitute product of an insurer/reinsurer
Financial stability and insurance supervision

How to assess systemic importance of insurers

Divergence from traditional insurance model into finance type business

Extent to which divergence from their core insurance activities has created dependencies and inter-linkages with other financial institutions
Enhanced insurance supervision

Two key projects: **ComFrame** and **Revision of Insurance Core Principles**

Group-wide supervision

Converged supervisory and regulatory approaches

Reducing the potential for regulatory arbitrage

Macro-prudential surveillance
ComFrame

Financial stability and insurance supervision

ComFrame
ComFrame

Develop methods of operating group-wide supervision of Internationally Active Insurance Groups (IAIGs)

Establish a comprehensive framework for supervisors to address group-wide activities and risks

Foster global convergence of regulatory and supervisory measures and approaches
ComFrame

1st Year
(∼ 2011.06.30)

Development of
Priority A Elements

2nd Year
(∼ 2012.06.30)

Development of
Priority B Elements

feeds into the development of other elements

3rd Year
(∼ 2013.06.30)

Development of
Priority C Elements

Concept Paper will go out to consultation at the end of the 1st year

(subsequent years)

impact assessment

2nd impact assessment (or more if deemed necessary)
Property/Casualty Risk-Based Capital Actuarial Observations

Allan Kaufman and Alex Krutov
Introduction

The purpose of this presentation is to:

- Outline key elements of current NAIC P/C RBC system
- Identify possible improvements to P/C RBC

Just because it can be improved it does not mean it is broken
RBC – Only Part of the Regulatory Regime

- Solvency regulatory regime can include the following components:
  - Minimum capital requirements
  - Risk-focused financial examinations
  - Authority given to regulators to take preventive or corrective measures
  - Standardized financial reporting and disclosure
  - Regulatory approval of significant transactions that may affect solvency
  - Other
The NAIC Risk-Based Capital system consists of two main components:

1. Risk-based capital formula that establishes a hypothetical minimum capital level compared to a company’s actual capital level, and
2. Risk-based capital model law that grants automatic authority to the state insurance regulator to take specific actions based on the level of impairment.

The primary goals of the NAIC P/C RBC system are:

- to protect the interests of policyholders and society by providing a capital adequacy standard related to risk, and
- to give regulators the authority to enforce compliance
NAIC P/C RBC Approach

- The RBC formula created a benchmark for all insurance companies
  - A prescribed formula not involving any elements of internal company modeling is used. The prescribed formula is consistently applied to all companies.
  - The formula focuses on common material risks and does not attempt to capture every single risk exposure of an insurance company.
  - Data inputs are generally based on the audited financial statements.
  - Specific risks are quantified and corresponding capital risk charges calculated.
  - Total Risk-Based Capital is calculated based on the individual risk charges taking into account diversification benefits.
The RBC calculation determines a minimum amount of capital below which company or regulatory action is required.

Note: The simplified summary is provided for illustrative purposes. A detailed description of the calculations can be found in the most recent NAIC Property and Casualty Risk-Based Capital Report Including Overview and Instructions for Companies.
Main risk categories in the P/C RBC formula

- $R_0$: Asset Risk – Affiliated Insurance Companies
- $R_1$: Asset Risk – Fixed Income
- $R_2$: Asset Risk – Equity
- $R_3$: Credit/Reinsurance Risk
- $R_4$: Underwriting Risk – Reserves
- $R_5$: Underwriting Risk – Premiums
Subsidiary and Asset Risks
R0, R1 and R2

- Subsidiary risk measured by subsidiary RBC, where available, and selected factors otherwise
- Factors by type of asset
- Concentration and diversification charges – usually small for P/C
Credit Risk
R3

- Main component is for reinsurance credit risk – “10 percent factor”
- Factors for other credit risks
Reserve and Premiums Risks
R4, R5

- Factors by line of business applied to reserves (R4) and premiums (R5)
- Factors adjusted for a company’s own experience
- Diversification credit – “70 percent rule”
- Credit for investment income
- Credit for loss sensitive contracts
- Charge for excess growth (R5)
Combined RBC

Risks combined through correlation relationship:

\[ Total \, RBC = R_0 + \sqrt{R_1^2 + R_2^2 + R_3^2 + R_4^2 + R_5^2} \]

This produces CAL level of RBC
Origin of Gaps in the RBC Formula

- Excluded intentionally
- A risk that is not recognized but should be
- A risk outside “data window” from which the risk impact is measured
- Risks that are reflected, but do not sufficiently consider variations between companies

Levels of Practicality

Risks might be classified according to whether:

- We know how to measure them
- We are unsure of how to measure them, and analysis is required to determine whether a solution can be developed.
- We currently do not believe they can be properly quantified
Historical Considerations

- Simplified legal basis for regulatory action
- New regulatory arrangement
- All data was to come from the Annual Statement
- Ease of calculation was important
- The basis and the results needed to be understandable and transparent to insurance executives and regulators
- Incent the right behavior and not the opposite
- P/C modeling much less mature than now
Identified Priority Risks

- R5, R3 – Catastrophe Risk
- R3 – Credit for Reinsurance
- R4 and R5 – Underwriting (Reserve and Premium) Risk – Investment Income Offset
- R0, R1, R2 – Relationship between Life and P/C risk factors for assets and treatment of subsidiaries and affiliates
- All – Specification of Risk Levels
Catastrophe Risk – R3, R5

Current Treatment

- Assumes equivalent reinsurance protections for all companies
- Implicit in net loss ratio charge
- No consideration of catastrophe reinsurance credit risk
Historical Considerations

- Status of Cat Modeling 20 years ago
- Desire for RBC based on accounting data
- Net basis for modeling
Desirable Changes

- Measure gross and net risk using cat model
- Broad definition of cats
  - Hurricane, earthquake, regional storms, terrorism, residual market cat costs, implications for all lines, including workers’ compensation, etc.
- Consider credit risk on catastrophe reinsurance protection
Credit for Reinsurance Ceded – R3

Current Treatment

- Multiple considerations in 10 percent charge
  - Credit Risk
  - Extent of risk transfer
  - Mis-estimation of reinsurance ceded amounts
  - Potential for reinsurance coverage disputes
  - Avoiding incentives for over/under reinsurance

- All reinsurance is equal in risk transfer and reinsurance security
Credit for Reinsurance Ceded – R3

Historical Considerations

- Keep it simple
- Avoid creating unwarranted incentives/disincentives
- Desire for RBC to be based on accounting data
- Reinsurance was significant factor in 1980s insolvencies
Desirable changes

- Consider each of the components
- Model the extent of risk transfer
- Consider credit quality of counterparties and diversification
Current Treatment

- Interest discount for investment income offset is based on 5 percent return even though available yields are much lower.
Underwriting (Reserve and Premium) Risk – R4, R5

Historical Considerations

- The 5 percent return was set when returns were 7 percent or more
Desirable Changes

- Adjust the investment income offset over time
Asset Factors – R0, R1, R2

Current Treatment

- There are stock and bond factors that are the same for life, health and P&C
- There are selected factors for non-U.S. based insurers and other types of insurers for whom RBC is not available. No statistical basis for those factors.
Historical Considerations

- There was no RBC equivalent for non-U.S. based insurers, and some concerns about quality of some non-U.S. financial reporting and regulation

- A view that assets are assets and should be treated the same regardless of relationship to liabilities*

*There are some existing important exceptions
Desirable Changes

- Review the non-U.S. based reinsurer charge
- Clarify the basis for P&C asset factors relative to life and health factors
Increased Precision in Specification of Risk Level (All)

Current Treatment

- As previously discussed:
  - Risks are arranged in particular groups
  - Correlation formula is applied to those risk groupings
- Individual charges and the combined charge are not calibrated to transparent risk tolerance, specific risk metric or time horizon
- Difficult to compare adequacy of charges across risk areas or across jurisdictions internationally
Increased Precision in Specification of Risk Level (All)

Desirable Changes

- Extent of possible specification may be limited. To extent possible, desirable steps include:
  - Specify risk level for each risk area
  - Consider whether the studies underlying known tolerances should be reviewed
  - Prepare a roadmap for long term improvement
  - Consider the risk levels associated with CAL, RAL, ACL and MCL levels of RBC
  - If regulators select a target, assess the degree to which the improved formula meets that target
Q & A