The Future of China’s Insurance Regulation

Haijing Wang FIA
Institute and Faculty of Actuaries
Email: haijing@outlook.com

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Agenda

- An outline of China’s Solvency I
- Technical Framework of C-ROSS
- Recent Development of C-ROSS
The Evolution of Solvency I

Before 2003

Exploring Period

Between 2003 and 2007

Establishing Period
- Solvency I technical Standard

Since 2008

Implementing Period
- Regulation Criteria and Regulation Mechanism
Five Dimension Model

1. Corporate Governance
   - Internal Audit
   - Internal Control

2. Asset & Liability
   - Assessment Criteria
   - Capital Requirements
   - Dynamic Solvency Testing

3. Solvency Report
   - Insurance Group
   - Information Disclosure
   - Seasonal Solvency Report
   - Audited Yearly Solvency Report
   - Seasonal Solvency Analysis
   - Insurance Company Financial Check

4. Regulation Interference
   - Bankruptcy Aid
   - Limit Investment Channels
   - Stop New Business
   - Stop New Branch
   - Forbid Dividend Distribution
   - Take Over
   - Other Measures

5. Internal Risk Management
   - Insurance Protection Fund
     - Quarterly Payment from Insurance Companies
     - Life and P&C Companies Pay Different Level

Other Measures:
- Take Over
- Other Measures

Regulation Interference:
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Asset & Liability:
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Solvency Report:
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Solvency Ratio

Own Fund
- Admissible Asset
- Technical Provision

Minimum Capital Requirement
- Non-life: $f(\text{Retain Premium}, \text{Claim})$
- Life: $f(\text{Reserve}, \text{Sum at Risk})$

Solvency Ratio
- Solvency Ratio = Actual Capital / Minimum Capital Requirement
# Regulation Measures

<table>
<thead>
<tr>
<th>Solvency Ratio</th>
<th>Under 100%</th>
<th>[100%, 150%)</th>
<th>Above 150%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification</strong></td>
<td>Inadequate</td>
<td>Adequate I</td>
<td>Adequate II</td>
</tr>
</tbody>
</table>
| **Regulatory Measures** | • Increase capital  
• Forbid dividend distribution  
• Limit the board and senior management remuneration package  
• Limit commercial advertisement  
• Limit new branch, new business type, new business  
• Insurance business transfer or reinsurance arrangement  
• Auction asset  
• Limit investment channel  
• Take Over  
• Bankruptcy and Liquidation  
• Other measures CIRC deems to be appropriate | Request submission and implementation of the rectification plan to bring the solvency ratio up to Adequate II level | No regulatory measures applied |
Historical Significance

- Established Solvency Regulation from Scratch
- Motivated a Capital Management Culture to the Insurers
- Secured the “Bottom Line” of Insurance Regulation
- Promoted a Sound Development of the Insurance Industry
Main Issues

Scientific Improvement to the System

• Solvency Capital Requirement Not Reflect the Risk of the Insurers
• Not Meet IAIS latest Insurance Core Principles
• Not Caparable with Other Regulation Framework Globally
• Regulation Measure Not Effective

Not Suitable for the Development of Insurance Industry

• Not Serve Strategic Goal of CRIC - Open up the Front, Regulate the Back
• Not Promote a Risk Management Culture in the Industry
• Lack of an Integrated Regulation Framework
Agenda

- An outline of China’s Solvency I
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- Recent Development of C-ROSS
Overall Goal

• Scientifically measure the risk of the company - capital requirement reflects the risk

• Promote effective capital requirement, enhance the competitiveness of the industry, effective mechanism to enhance the risk management framework across industry

• Proactively exploring the solvency regulation model for the emerging market, providing useful experience to other emerging countries

Core Principle

• Risk Oriented

• Own Characteristics

• Internationally Comparable
Conceptual Framework

Institutional Characteristics

Supervisory Pillars

Supervisory Foundation

One Supervision
Emerging Markets
Risk-Oriented with Value Consideration

Quantitative Capital Requirements
Qualitative Supervisory Requirements
Market Discipline Mechanism

Company Solvency Management
Three Pillar in a Snapshot

Quantifiable Risk
• Insurance Risk
• Market Risk
• Credit Risk

Regulation Measure
• Own Fund
• Minimum Capital
• Classification of Own Fund
• Stress Test
• Regulation Measure

Regulation Assessment
• Aggregated Solvency Ratio
• Core Solvency Ratio

Un-Quantifiable Risk
• Operation Risk
• Strategy Risk
• Reputation Risk
• Liquidity Risk

Regulation Measure
• Integrated Risk Rating (IRR)
• Solvency Aligned Risk Management Requirement and Assessment (SARMRA)
• Liquidity Risk
• Analysis and Examination

Regulation Assessment
Type I/II company according to IRR
• Control Risk Capital according to SARMRA

Market Discipline Mechanism

Risks Difficult to Regulation

Regulation Measure
• Insurance Company Information Disclosure
• Regulator Information Disclosure
• Credit Rating

Market-self Assessment
• … …
Risk Classification

Risks Difficult to Regulate → Regulated Risks

- Inherent Risk
- Control Risk
- System Risk

Quantifiable Risk
- Insurance Risk
- Credit Risk
- Market Risk

Un-Quantifiable Risk
- Strategy Risk
- Reputation Risk
- Operation Risk
- Liquidity Risk

Pillar I
Pillar II
Pillar III
Pillar I

- Own Fund
- Minimum Capital
- Solvency Ratio
- Stress Testing
- Regulatory Measures
Own Fund – Asset minus Liability

Asset Valuation

◆ Admissible Assets and Un-Admissible Assets
◆ Accounting Basis for Admissible Assets
◆ Admissible Asset value for the LT investment to subsidiary company is calculated by equity method

Liability Valuation

◆ Technical Provision = $BEL + Risk Margin
  > Non-life: same method and assumption as GAAP Reserve
  > Life: different method and assumption from GAAP Reserve
Own Fund Classification

Own Fund Classification Criteria

According to the ability of absorbing losses, own fund is classified into four categories under the technical standards:

• tier 1 core,
• tier 2 core,
• tier 1 ancillary,
• and Tier 2 ancillary
Minimum capital (MC) - Net Risk Model

Net risk contains three parts
* Inherent risk (IR)
* Control Risk
* System Risk (SR)

\[ MC(NR) = MC(IR, CR, SR) = MC(IR) + MC(CR) + MC(SR) = MC(QIR) + MC(Un-QIR) + MC(CR) + MC(SR) = MC(QIR) + MC(CR) + MC(SR) \]

Minimum Capital = MC(QIR) + MC(CR) + MC(SR)

1. QIR : Quantifiable Inherent risk
2. UN-QIR : Un-Quantifiable Inherent risk
3. NR: Net risk
4. MC : Minimum Capital
5. SR: System Risk
6. CR: Control Risk
Minimum Capital Calculation Method

Factor based method: Quantitative risk minimum capital (MC)

\[ MC = EX \times RF \]

EX : Risk exposure
RF : Risk factor

\[ RF = RF_0 \times (1 + K) \]

\[ K = \sum_{i=1}^{n} k_i = k_1 + k_2 + k_3 + \cdots + k_n \]

RF0 is the basic risk factor, K is the specific risk factor
Minimum Capital Calculation Method

Scenario based Method: Quantitative risk minimum capital (MC)

\[ MC = \text{Max}(\text{NAV}_{\text{base scenario}} - \text{NAV}_{\text{stressed scenario}}, 0) \]

NAV is net asset value;
base scenario is the assumption used to calculate BEL;
stressed scenario is the scenario used to calculate MC;
The correlation among risks is measured by correlation matrix

\[ MC_{market} = \sqrt{MC_{vector}^2 \times MC_{correlation matrix} \times MC_{vector}^T} \]

\[ MC_{vector} \text{ consists of } (MC_{interest rate}, MC_{equity price}, MC_{real estate}, MC_{overseas fixed revenue}) \]

\[ MC_{property insurance} = \sqrt{MC_{insurance}^2 + MC_{market}^2 + MC_{credit}^2 + 2\rho_1 \times MC_{insurance} \times MC_{market} + 2\rho_2 \times MC_{insurance} \times MC_{credit} + 2\rho_3 \times MC_{market} \times MC_{credit}} \]

\[ MC_{insurance} = \sqrt{MC_{premium\&reserve}^2 + 2\rho \times MC_{premium\&reserve} \times MC_{catastrophe} + MC_{catastrophe}^2} \]
Solvency Ratio

Core Solvency Ratio = \frac{\text{Core Capital}}{\text{Minimum Capital}}

Aggregated Solvency Ratio = \frac{\text{Core Capital} + \text{Ancillary Capital}}{\text{Minimum Capital}}
Stress testing

Definition
Forecast and Assessment of the solvency ratio of the insurance companies under different stressed scenarios.

Objective
Forecast: scientifically forecast future solvency ratio
Alert: identify the main risks that may cause solvency insufficiency
Prevent: management action and supervisory measures in advance

Testing scenarios
Mandatory Scenarios
Voluntary Scenarios
Reverse Scenarios
Regulatory measures

- Regulatory measures are instruments to enforce Pillar I regulation
- Regulatory measures are applicable to companies with aggregated solvency ratio or core solvency ratio less than 50%
- Regulation measures should be specific to the company’s own risk
- Regulatory measures include
  - Suspension new business
  - Take over
  - Restructure
  - Bankruptcy and liquidation
Pillar II

- Integrated risk rating (IRR, classified supervision)
- Solvency Aligned Risk Management Requirements and Assessment (SARMRA)
- Liquidity Risk Management
- Analysis and Inspection
- Regulatory Measures
CIRC comprehensively evaluates an insurer’s overall risk rating based on both quantitative result under Pillar I and qualitative risk assessments under Pillar II. Insurance companies are classified into four categories with different regulatory measures applied.
**Integrated Risk Rating (classified supervision)**

The evaluation results reflect an insurer's overall risk and the solvency sufficiency. A company is classified into four levels of risk with different regulatory measures.

<table>
<thead>
<tr>
<th>Category</th>
<th>Solvency Ratio</th>
<th>Qualitative Risk</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;=100%</td>
<td>Operation, Strategy, Reputation and Liquidity risks are immaterial</td>
<td>(80,100]</td>
</tr>
<tr>
<td>B</td>
<td>&gt;=100%</td>
<td>Operation, Strategy, Reputation and Liquidity risks are not material</td>
<td>(60,80]</td>
</tr>
<tr>
<td>C</td>
<td>&lt;100%</td>
<td>Operation, Strategy, Reputation and Liquidity risks are material</td>
<td>(40,60]</td>
</tr>
<tr>
<td>D</td>
<td>&lt;100%</td>
<td>Operation, Strategy, Reputation and Liquidity risks are significant</td>
<td>[0,40]</td>
</tr>
</tbody>
</table>
Integrated Risk Rating (classified supervision)

Different companies applicable to different regulatory measures according to IRR assessment result

- Market entry
- Product management
- The investment channel
- On-site inspection
Solvency Aligned Risk Management Requirement and Assessment (SARMRA)

\[ MC_{\text{control}} = Q \times MC_{\text{quantifiable inherent risks}} \]
\[ Q = -0.005 \times S + 0.4; \]
S is the scores achieved by the insurance company under SARMRA
Liquidity risk management

- Liquidity risk: Unable to obtain funds at a reasonable cost to fulfill its obligation
- Risk assessment method: Cashflow Stress Test:
- Liquidity risk management components:
  - Establish a liquidity risk management framework, clarify the responsibility, assessment and accountability
  - Establish a liquidity risk appetite framework, specify risk tolerance and limit
  - Daily cash flow management
  - Financing management, investment management
  - Business management
  - Reinsurance management
  - Liquidity risk monitoring, testing and contingency plans
- Regulatory measures
Inspection and analysis

- **Supervisory Inspection**
  - Regulator inspect the insurance company’s solvency result, including the data authenticity, methodology reasonableness, etc.
  - Integrated supervisory inspection system

- **Supervisory Analysis**
  - Regulator periodically analyzes the solvency and risk status of the insurance company
  - Comprehensive solvency analysis system
Insurance company’s public information disclosure

- Periodical public information disclosure
- Regular public information disclosure
  - Trading
  - Financing
  - Strategic Investment
  - Profit distribution
- Supervisory assessment: Insurance company’s public information disclosure is part of SARMRA assessment
Regulator’s public information disclosure

- Periodical public information disclosure
- Communication with different stakeholders
  - Customer
  - Analyst
  - Credit rating agency
  - Media
  - Other relevant stakeholders
Pillar III

Insurance company’s credit rating

- Rating subject’s qualification
- Rating Criteria
- Supervision and management
Pillar III

- Liquidity risk management
- Integrated risk rating (IRR)
- Solvency Ratio
- Stress Test
- Regulatory Measure
- Credit Rating
- Solvency aligned risk management requirements and assessment (SARMRA)
- Company information disclosure
- Regulator information disclosure

Quantifiable Risks
Supervise-able Risks
Overall Risks
Agenda

- An outline of China’s Solvency I
- Technical Framework of C-ROSS
- Recent Development of C-ROSS
Timeline of C-ROSS

April 2012
• Launch of the C-ROSS project

May 2013
• C-ROSS Conceptual framework published

March to Dec 2014
• Consultation on and refinement of technical standards
• Quantitative impact assessments
• Finalise standards

2015
• C-ROSS regime begins, with transitionary arrangements
# C-ROSS projects

### First Batch

1. Assess whether Solvency I is suitable for the insurance industry nowadays
2. Comparison and analysis of China’s Solvency I, Europe Solvency I, Solvency II and US RBS system
3. The Conceptual Framework
4. Underwriting risk for Non-life insurers
5. Underwriting risk and interest rate risk for Life insurers
6. Market risk

### Second Batch

1. Risk correlation
2. Valuation of asset and liability
3. Own fund and classification
4. Dynamic solvency testing
5. Comprehensive risk rating
6. Liquidity risk
7. ERM requirements and evaluation
8. Requirements of public information disclosure
9. Group supervision
Non-life QIS1 results: Solvency ratio

The number of Companies

<table>
<thead>
<tr>
<th>Solvency I</th>
<th>C-ROSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-100%</td>
<td>7</td>
</tr>
<tr>
<td>100%-150%</td>
<td>1</td>
</tr>
<tr>
<td>150%-200%</td>
<td>6</td>
</tr>
<tr>
<td>200%-250%</td>
<td>17</td>
</tr>
<tr>
<td>250%-300%</td>
<td>14</td>
</tr>
<tr>
<td>300%-350%</td>
<td>5</td>
</tr>
<tr>
<td>350%-400%</td>
<td>8</td>
</tr>
<tr>
<td>400%+</td>
<td>25</td>
</tr>
</tbody>
</table>

Solvency sufficiency ratio
Non-life QIS1 results: Own fund increase rate

The number of Companies

Own fund increase rate = (Own fund under QIS1/Own fund under Solvency I) - 100%
Non-life QIS1 results: MC increase rate

The number of Companies

<table>
<thead>
<tr>
<th>MC increase rate</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>-50%-0%</td>
<td>5</td>
</tr>
<tr>
<td>0%-50%</td>
<td>21</td>
</tr>
<tr>
<td>50%-100%</td>
<td>13</td>
</tr>
<tr>
<td>100-150%</td>
<td>6</td>
</tr>
<tr>
<td>150-500%</td>
<td>7</td>
</tr>
<tr>
<td>500%+</td>
<td>11</td>
</tr>
</tbody>
</table>

MC increase rate = \left(\frac{\text{Minimum Capital under QIS1}}{\text{Minimum Capital under Solvency I}}\right) - 100\%
Non-life QIS1 results: Minimum Capital Component

The minimum capital under Solvency I is 842.75
Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.