Review of Life Mortality Risk-Based Capital (RBC)

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C-2 Work Group
American Academy of Actuaries

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C-2 Work Group

Work Group Purpose:

The C-2 Work Group was formed in 2017 to review the current National Association of Insurance Commissioners (NAIC) C-2 RBC requirement for life insurance. The group is reviewing assumptions and methodology and will recommend revisions, as appropriate, which may include structure and factor updates.

<table>
<thead>
<tr>
<th>In-Scope</th>
<th>Out-of-Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Insurance</td>
<td>Accident &amp; Health Insurance</td>
</tr>
<tr>
<td>Individual &amp; Industrial Life</td>
<td>Annuities*</td>
</tr>
<tr>
<td>Group &amp; Credit Life</td>
<td>*The group will consider interdependencies, if any, with the ongoing work regarding a longevity risk charge within RBC</td>
</tr>
</tbody>
</table>
RBC requirement is for risk in excess of that covered by statutory policy reserves. Reserves are assumed to cover moderately adverse risks.

Current Pre-Tax RBC Factors (used since 1993)*:

<table>
<thead>
<tr>
<th>Net Amount at Risk (NAR)</th>
<th>Individual &amp; Industrial Life C-2 factor per $1K of NAR</th>
<th>Group &amp; Credit Life C-2 factor per $1K of NAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>First $500M</td>
<td>2.30</td>
<td>1.80</td>
</tr>
<tr>
<td>Next $4.5B</td>
<td>1.50</td>
<td>1.20</td>
</tr>
<tr>
<td>Next $20B</td>
<td>1.20</td>
<td>0.90</td>
</tr>
<tr>
<td>Over $25B</td>
<td>0.90</td>
<td>0.80</td>
</tr>
</tbody>
</table>

* Statistical safety level was based on 95th percentile over 5 years for individual (over 3 years for group).

Life C-2 factors address mortality risks related to:

- **Volatility** – natural mortality deviation
- **Level** – base mortality rates
- **Trend** – mortality improvement
- **Catastrophe** – severe events
Original (1993) Factor Development

- Used readily available statutory annual statement information
- Net Amount of Risk was chosen as the exposure basis
  - Reasonable basis for mortality risk exposure
  - Decreasing factor approach reflects the decreasing volatility of larger blocks
  - Recognized expected claims as a desirable basis
    - Not available in statutory annual statement
    - Actual claims would produce too volatile of a requirement
C-2 Work Group Progress

- Reviewed methodology used in current factor development
  - Approximately replicated original 1993 factors

- Reviewed other capital regimes’ approaches for mortality risk
  - Including Solvency II, Canadian Life Insurance Capital Adequacy Test (LICAT), and the International Association of Insurance Supervisors (IAIS)

- Developing mortality risk distributions
  - Base mortality rates use unloaded 2017 Commissioners Standard Ordinary (CSO) Tables data
  - Updated catastrophe risk distribution calibrated from multiple models/other capital regimes; added terrorism scenario
  - Level and trend risk distributions in progress

- Created Monte Carlo Simulation Model
  - Have begun analyzing mortality risk with model output
C-2 Work Group Next Steps

- Finalize level and trend mortality risk distributions
- Analyze mortality risk with recommended assumptions
  - Will consider factor bases more granular than current approach, such as product type, underwriting, and in-force size
- Coordinate with the Academy Longevity Risk Task Force regarding any potential mortality risk covariance
- Based on current work progress, anticipate development and recommendation of a set of factors to be completed in the 2019–2020 time frame
Contact Information

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