99.5 Percent Value at Risk Measure over a One-Year Time Horizon

Presentation to the National Association of Insurance Commissioners ComFrame Development and Analysis (G) Working Group

August 15, 2015
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Objective

Discuss the practical implications of employing a defined capital standard based on a 99.5 percent confidence interval (i.e., value at risk (VaR)) over a one-year period in the context of the International Association of Insurance Supervisors’ (IAIS) proposed insurance capital standard (ICS)
Agenda

- Definition of VaR
- Current VaR Practices
- Benefits and Limitations of VaR
- Basis for 99.5 Percent
- Basis for a One-Year Horizon
- 99.5 Percent VaR/One-Year Under the ICS Market-Adjusted Methodology
**Definition of VaR**

- VaR measures the amount of potential loss over a given time period
  - 99.5 percent VaR applied to a company means that it wants to be 99.5 percent certain that it has enough assets to pay its obligations over a set time horizon
  - VaR is a model-based approach and is generally developed from a combination of historical data and expert judgment

- The VaR measure can be used on individual risks or on multiple risks in aggregate
Current VaR Practices

- VaR is commonly used in the non-insurance financial services industry, typically for short time horizons (i.e., days, not years)
  - Banks, trading desks, hedge funds use VaR on a daily basis to manage risk exposures
- Some insurers establish internal economic risk and/or capital measures based on VaR principles
- Used by some insurance regulatory solvency frameworks outside of North America
  - Includes the multi-jurisdictional Solvency II framework, which will be effective throughout the European Union in 2016
Current VaR Practices

- Not all U.S. capital requirements are based on VaR measures, although some risks are calibrated using confidence intervals (percentiles)
- Depending on the objective, companies use multiple metrics for management purposes
Benefits and Limitations of VaR

■ Benefits of VaR (compared to Tail-VaR and other related metrics)
  ■ Easy to understand and communicate
  ■ Not reliant on estimates of the far tail
  ■ Need to calculate only one point in the tail

■ Limitations of VaR
  ■ Sufficient data about severe extreme events may not exist
  ■ VaR treats some very different risks as being “the same”
    ■ Poor measure for “fat tail” risks where remote events have large impacts (i.e., does not provide the size of the bet)
Basis for 99.5 Percent

CEIOPS (Committee of European Insurance and Occupational Pensions) initially recommended this 99.5 percent confidence level, as it was believed to “roughly correspond to a secure financial strength ("BBB")”

Source: Consultation Paper on Regulatory Capital Requirements and Overarching Accounting/Valuation Issues for the Solvency Modernization Initiative, NAIC, 2009

S&P’s capital framework incorporates higher percentiles for corporate bonds rated AA and higher:

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.9</td>
<td>AAA</td>
</tr>
<tr>
<td>99.4</td>
<td>A</td>
</tr>
<tr>
<td>99.7</td>
<td>AA</td>
</tr>
<tr>
<td>97.2</td>
<td>BBB</td>
</tr>
</tbody>
</table>

Setting VaR at 99.5 percent, or any other level, is the regulators’ decision, based on judgment.
Basis for One-Year Horizon

- Basic assumptions—insurer should:
  - Have sufficient assets for at least one year of operations
  - Be able to transfer assets and liabilities after one year

- Consistent with:
  - Financial reporting and solvency surveillance cycle
  - Insurer’s ongoing ability to manage capital and risk


- Misperceptions:
  - Does not mean that whatever happens beyond the one-year horizon is irrelevant
    - When determining impacts, all future years are taken into account by deciding transfer values for assets and liabilities
    - Transfer values are problematic for long-duration liabilities and obligations with no transfer or exit potential

Underlying concepts

- 99.5 percent VaR means that, after one year of adverse experience (at the 99.5 percent level), assets are sufficient to cover liabilities, allowing for transfer to another insurer at market-adjusted value.

- One-year horizon (if applied to all elements) assumes that companies can:
  - Liquidate assets and liabilities at year-end; and
  - Source and distribute capital each year.