Aggregate Margin Task Force: LATF Update

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Aggregate Margin Task Force
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Agenda

- Background on formation of this task force
- Objectives of the task force and underlying assumptions being made in the work
- Overview of conceptual goals of an aggregate margin
- Overview of primary industry methods and their use
- Pros and cons of methods considered
- Next steps

Background

- VM-20 requires the use of individual margins
- Concerns related to this approach include:
  - Lack of consideration of diversification across risks, which may result in overly conservative margins
  - Determining margins can be time-consuming and involve significant guesswork, as identified in the PBR impact study
  - Hard to assess degree of protection provided by the aggregate impact of individual margins
  - Complexity of process to set multiple individual margins using multiple approaches
  - Relationship between margins on policyholder assumptions and management actions (i.e., treatment of non-guaranteed elements)

Background

- The LRWG discussed an aggregate margin approach with LATF several years ago to address concerns with the individual margin approach. LATF decided not to move forward with an aggregate margin approach at that time.
- Concern with the use of aggregate margins was a major conclusion of the 2011 NAIC VM-20 Impact Study
  - Margins were difficult to determine
  - Resulted in a total margin in the reserve that many felt was too high
- Proposal submitted to LATF in early 2012 to replace the individual margin approach with an new aggregate margin approach. LATF decided to defer the analysis of possible aggregate margin approaches until after NAIC adoption of the Valuation Manual due to timing concerns.
- LATF formed a subgroup in late 2012 to review aggregate margin approaches

Background

- Academy Aggregate Margin Task Force formed in Sept 2012
- Includes a range of individuals with background in PBR as well risk margins used in other settings (fair value, IFRS, Solvency II) and representatives from industry, consulting, and regulatory community
- Began work with research on goals of solvency framework, past analysis of margins for use in PBR as well as margins used in other global frameworks – see below for references
  - IAA: http://www.actuaries.org/LIBRARY/Papers/IAA_Measurement_of_Liabilities_2009-public.pdf (focus on section 6.11)
  - SOA: *www.soa.org/files/research/projects/research-analysis-life-annuity.pdf* - (focus on pages 14-20)
  - NAIC_Solvency_Framework: http://www.naic.org/documents/committees_e_us_solvency_framework.pdf

Objectives of Aggregate Margin Task Force

- Review and research various alternative aggregate margin approaches
- Provide an analysis of the pros and cons of each alternative
- Provide a recommendation for a specific aggregate margin approach, along with reasons to support the recommendation

Work is to identify a conceptual framework – subsequent work will be needed to define implementation specifics

Goals of the Aggregate Margin

- Provides adequate policyholder protection
- Covers all material risks that are directly related to the policies for which reserves are established
- Reasonably practical to implement
- Auditable and reasonably transparent
- Considers current and evolving approaches for evaluation of risk in a reserve framework

Assumptions Underlying the Work

- Margin will be added to an "anticipated experience" reserve with no implicit or explicit margins
  - Practically speaking, if the starting point reserve does have some implicit margins, the task force will provide views on how the aggregate margin could be adjusted to avoid double counting
- Margin is meant to be used for the reported reserve, and not as a cap or floor used in conjunction with an individual margin approach

"Anticipated Experience" Reserve

- Also referred to as "best estimate" or "current estimate"
- Expected (mean) value of relevant cash flows, discounted for the time value of money
- Include the expected effect of all contractual options and guarantees, and all relevant contract features, cash flows and risks
- Need to be consistent with the scope and objective of the purpose for which the estimates are being made

IAA Discussions on Risk Margins

Alternate views of Risk Margin:

- Reward for bearing risk, measured in terms of the inherent uncertainty in the estimation of insurance liabilities and in the future financial return from the contract
- The amount to cover adverse deviation that can be expected in normal circumstances (with capital to cover adverse deviation in more unusual circumstances)

IAA Discussions on Risk Margins

Desirable characteristics of risk margins:

- The less is known about the current estimate and its trend, the higher the risk margin should be
- Risks with low frequency and high severity will have higher risk margins than risks with high frequency and low severity
- For similar risks, contracts that persist over a longer timeframe will have higher risk margins than those of shorter duration
- Risks with a wide probability distribution will have higher risk margins than those risks with a narrower distribution
- To the extent that emerging experience reduces uncertainty, risk margins will decrease, and visa versa

Background

- 2009 Research Report by the SOA analyzed potential risk margin approaches within a PBR framework
- Considered consistency with PBR goals, the desire in VM-20 for a "prudent estimate," as well as 4 types of uncertainties to be covered by a risk margin
  - Random fluctuation in individual risks
  - Mis-estimate of mean
  - Inappropriate trend assumptions
  - Assumed relationship between risk factors

Aggregate Margin Approaches

- Percentage Add-On
- Confidence Interval
- Cost of Capital

Viewed as potential approaches for use in PBR and therefore analyzed in detail as part of Task Force's work

- "Pure" Exit Value
- Discount Rate Adjustment

Discarded early in our work and not evaluated in detail. Pure exit value viewed as too volatile and inappropriate due to consideration of insurer's own credit standing. Discount rate adjustment not transparent, creating challenges in assessing adequacy of margin

Percentage Add-On

- Margin determined by applying a prescribed fixed percentage to the anticipated experience reserve to determine an aggregate margin that reflects the underlying risks of the policies
- The prescribed percentage will vary depending on a high-level assessment of the risks underlying the policies
- These percentages could be as simple as a 3-factor "High/Medium/Low" approach, or a more complex table look-up based on multiple factors such riskiness and mix of asset portfolio, level of policy guarantees, mix of product types (ULSG, term, WL, etc), rigor of underwriting practices, etc

Confidence Interval

- This approach involves projecting future net losses under multiple scenarios that cover the universe of possible outcomes considering all material risks
- Once a distribution of outcomes is determined, a point on the distribution (the confidence level) is then selected to determine the total reserve amount (the difference between the mean, or expected, outcome and the outcome at this confidence level is the margin)
- The Conditional Tail Expectation (CTE) is a modified confidence interval approach. It calculates the mean of the losses of a defined tail of a distribution. For example, CTE(70) is the mean of the highest 30% of the distribution
- In terms of differentiating between reserves and capital, a different confidence level is used for reserves versus capital

Cost of Capital

- The cost of capital method is based on the concept that the margins for uncertainty should reflect the cost of holding capital to back the underlying risks being modeled (or valued)
- Theoretically, such a margin would be sufficient to compensate another insurance company to take on the risks in the event the policyholder obligations were not met
- Under this method the probability level for reserve adequacy depends greatly on the remaining length of the contract (i.e., higher margins for longer contracts)
- Margin equals the present value of the "opportunity cost" of holding sufficient capital to protect (with a high degree of confidence) against the risk of adverse deviation

SOA – Comparison of Methods

Summary of findings from SOA Research Project:

Aggregate* Margin Method Evaluated	Consistent w/PBR Goals?	Considers diversif-ication	Ease of Imple-mentation	Good Calculation Accuracy	Relatively Free From Manipulation
Factor-Based	No	No	Yes	No	No
Stress Testing	Yes	Yes	Yes	Maybe	No
Confidence Interval/Quantile	Maybe	Maybe	No	Maybe	Yes
Cost of Capital	No	Yes	Yes	Yes	No
Exit Value	No	Yes	Maybe	Maybe	Maybe

Source: Analysis of Methods for Determining Margins for Uncertainty under a Principle-Based Framework for Life Insurance and Annuity Products, Society of Actuaries, 2009

* Table summarizes aggregate margins only – additional methods were evaluated that apply to individual assumption margins only but are not discussed here

IAA - Comparison of Methods

Issue	Cost of Capital	CTE& Std Dev	Conf Level	Disc. Rate	Explicit Assump
Complies with desirable characteristics	1	2**	2	3	4*
Consistency across classes of business	1	2	3	3	4*
Ease of calculation	4	3	3***	2	1*
Disclosure	1	1	1	1	1
Market Consistent – theory	1	2	3	4	4*
Market Consistent - practice	unknown				

Source: Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins, International Actuarial Association, 2009

Rank shown on stand alone basis.

* As implementation method, explicit assumption ranking would be close to target method

** Standard deviation method is more often used in pricing than confidence levels

***Among quantile methods, confidence level risk margins might be easier to determine than CTE or Std Dev risk margins.

IAA Conclusions

- Cost of capital method (without simplification) is the most risk sensitive and is the method most closely related to pricing risk in other industries
- CTE approaches are conceptually more sound than confidence level approaches, with the differences being significant for products with more skewed risk distributions
- Explicit assumptions and discount approaches could be used as approximations for other methods

Pros and Cons of Approaches Considered

Method	Pros	Cons
Cost of Capital	• Adequate policyholder protection through liability transfer • Consistency with global market views on margins for risk • Ability to leverage existing frameworks for determining capital	• Complex to apply, so some simplifications will be needed • Does not directly quantify sufficiency of margin to cover obligations in a runoff scenario
Confidence Interval	• Direct quantification of sufficiency of margin to cover obligations in a runoff scenario • Consistency with existing US principle-based approaches	• Complex to apply, so some simplifications will be needed
Percentage Add-On	• Simple to apply	• Does not quantify sufficiency of margin to cover obligations in a runoff scenario • May not appropriately capture risks

Next Steps

- Develop examples demonstrating pattern of margins for sample products
- Include conceptual discussion of some key implementation considerations as part of analysis
- Work with LATF aggregate margin subgroup to finalize analysis and make recommendation
- Present conceptual recommendation and rationale at August meeting
- Ultimately, work will be needed to develop detailed implementation approach

Key Implementation Considerations

- Practicality, auditability and transparency
- Pattern of margin runoff
- Extent of surplus strain
- Alignment of approaches for reserves and capital
- Approach for allocation of margin to the product level
- Stress testing of resulting reserve for adequacy
- Responsiveness to market conditions (“dynamic-ness”)
- Definition of best estimate/anticipated experience