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# LRWG Report to LHATF

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# Agenda for LRWG session

- 1. Review and discuss the updated drafts of Model Regulation and Actuarial Guidelines.**
- 2. Discuss three critical issues that need resolution in order to adopt the LRWG proposal:**
  - Definition of “Accumulated Deficiency” for GPVAD calculation
  - Quantifying the aggregate impact of assumption Margins
  - Policyholder Behavior assumptions when data is lacking
- 3. Review next steps and outstanding items.**
- 4. LHATF vote to expose for comment the updated drafts of the Model Regulation and Guidelines**



# Summary of Changes to Draft Model Regulation

1. Modified the scope to exclude Credit Life, Industrial Life, Pre-need and Final expense policies (Section 3.B.), and added possible definitions for these four product categories in a drafting note.
2. Moved the option for the commissioner to exempt a form/product from the PBR regulation to a drafting note (Section 3).
3. Revised the definition of “Accumulated Deficiency” for the GPVAD calculation from “Working Reserve less accumulated assets” to equal “the negative of the accumulated assets”. As a result of this change the concept of a Working Reserve is no longer needed, and has been dropped (Section 5).



# Summary of Changes to Draft Model Regulation

4. Changes dealing with Margin requirements
  - Moved the section on general Margin requirements in Guideline PBR-VAL (Section III) to the Model Regulation (Section 7.B)
  - Made several modifications to the new combined section to improve the wording, and to put greater emphasis on the importance of the impact of the aggregate Margin on the Reported Reserve as opposed to the Margins on each assumption.
  - A drafting note has been added to suggest that LHATF consider defining a prescribed minimum for the aggregate Margin.
5. Added additional guidance on determining the Margin Ratio (Section 7.B.7.)



# Summary of Changes to Draft Model Regulation

6. Expanded the requirements for setting margins on Non-Guaranteed Elements (Section 7.J.) and moved all of NGE requirements to the Model Regulation.
7. Moved all of the requirements dealing with the stochastic modeling exclusion to the Model Regulation, and expanded the list of acceptable approaches to demonstrate the appropriateness of the exclusion to include non-stochastic approaches (Section 7.H.5.).
8. Added the requirement to prescribe a "best estimate" assumption for assumptions that are prescribed in order to quantify the impact of Margins on the reserve.
9. Clarified that the requirement to quantify the impact of Margins on the Reported Reserve will apply to four categories of Risk Factors: mortality, policyholder behavior, expenses, and asset returns (Section 7.B.5.).



# Summary of Changes to Draft Model Regulation

10. Net Spreads (after default costs and investment expenses) on reinvestment assets are now proposed to be prescribed rather than being based on the actuary's Prudent Best Estimate and subject to an aggregate cap (Section 7.C.5.).
11. Incorporated the treatment of fraternal benefits to be similar to FIT for fraternal companies.
12. Other
  - Expanded the requirements regarding the selection of Starting Assets (Section 7.E.1.).
  - Added the definitions of "Projection Year", "Projection Start Date" and "Starting Assets"
  - Changed the term "NGE Re-determination Margin" to "NGE Spread".



# Summary of Changes to **Draft Actuarial Guideline PBR-VAL**

1. Section III on general considerations has been re-written to clarify:
  - which Risk Factors are prescribed
  - which Risk Factors must be modeled stochastically,
  - the required level of granularity when setting assumptions.
  
2. The Policyholder Behavior Assumption section (Section V) has been significantly re-organized and shortened to remove “educational” material, and to recognize that much of the guidance in this section would be more appropriately placed in a new PBR ASOP.



# Summary of Changes to Draft Actuarial Guideline PBR-VAL

3. The Mortality Assumption section (Section IV) has been modified to:
- Revise the wording to improve consistency of terms, and to clarify the description of the approach.
  - Revise the description of the credibility method to more accurately describe the Canadian Normalization method.
  - Move the requirement to modify the mortality rates for impaired lives arising from policyholder behavior (e.g., higher mortality at the end of a level term period) to just before the selection of the Valuation Table, rather than after the selection of the Valuation Table.
  - Define the “best estimate” assumption in order to quantify the impact of the mortality Margin.
  - Streamline the requirements dealing with determining the mortality Margin, recognizing that some of these requirements would be more appropriately placed in a new PBR ASOP.





# Summary of Changes to **Draft** Actuarial Guideline PBR-VAL

4. Expanded the description of the requirements to determine asset default assumptions (Section VII.B.).
5. The prescribed ultimate Treasury rates for the Deterministic Reserve have been removed since they are expected to change under the recalibrated C3 P1 interest rate generator (Section VII.D.1.).
6. Defined the prescribed path of equity returns for the Deterministic Reserve (both GA returns and SA returns):
  - Equals the 10-year Treasury rate plus a prescribed net spread
  - The path will grade from the current 10-year Treasury rate to a prescribed 10-year Treasury rate (plus a prescribed spread)



# Critical Issues Needing Resolution

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1. Definition of “Accumulated Deficiency” for GPVAD calculation
2. Quantifying the aggregate impact of assumption Margins
3. Policyholder behavior assumptions when data is lacking



# Definition of “Accumulated Deficiency” for GPVAD calculation

## Objectives of this Discussion:

1. Provide an Overview
2. Definition of “Deficiency”
3. LRWG Recommendation



# Overview

The APPM Preamble states that Statutory Accounting Principles are:

"conservative in some respects but not unreasonably conservative over the span of economic cycles, or in recognition of the primary statutory responsibility to regulate for financial solvency. SAP attempts to determine at the financial statement date an insurer's ability to satisfy its obligation to its policyholders and creditors."



# Overview

International Association of Insurance Supervisors (IAIS) (*Common Structure for the Assessment of Insurer Solvency*) Supporting Principles 8 states:

“The purpose of capital is to ensure that, despite adverse conditions, policy claims and obligations will still be met as they fall due and the required technical provisions\* remain covered over a predefined period, to a required level of safety.”

\* Note: The LRWG interprets “technical provisions” in the above to include statutory reserves.



# Overview

Does this mean:

- The objective of reserves is to have an amount on hand to cover future cash obligations until the expiration of the policy?
- The objective of capital is to cover adverse conditions as well as future balance sheet obligations over a specified period of time?



# LRWG Recommendation

## Definition of Deficiency:

- Under the GPVAD method, the deficiency in any year equals:

$$\text{Deficiency} = 0 - \text{Accumulated Assets}$$

- Objective is that the Reported Reserve is sufficient to cover future cash obligations.



# Implications of the LRWG Recommendation

1. The GPVAD methodology adequately addresses intermediate cash flow deficiencies.
2. Addresses concerns raised over positive cash flows arising in later years that offset cash flow deficiencies arising in earlier years.
3. Results in the reserve equal to the maximum Gross Premium Reserves.
4. Results in a consistent method for all life products whether or not they have cash values.





# Implications (Continued)

5. No “working reserve” is needed.
6. Purpose of reserves is to adequately cover future cash obligations.
7. Recommendation is consistent with APPM Preamble.



# Rationale against a Working Reserve equal to the Cash Value

1. LRWG has concluded the purpose of reserves is to adequately cover future cash obligations.
2. The CTE reserve approach provides adequate conservatism in the methodology.
3. For a company issuing policies, such as whole life policies, where the reserve is typically equal to the cash value, reserves can increase above current levels due solely to a cash value working reserve when a portion of invested assets are equities.
4. The reserve methodology is consistent across product types whether these products have cash values or not.



# Aggregate Impact of Margins

## Guiding Principles:

1. The LRWG believes that the overriding objective of achieving a proper level of conservatism for statutory reporting purposes is on the resulting reserve level itself, not on the individual aspects of the reserve calculation.
2. Thus, under a principles-based approach, the emphasis should be placed on the appropriateness of the aggregate impact of all assumption margins on the reserve, rather than on the appropriateness of the individual margins on each assumption.
3. This emphasis on the aggregate margin does not diminish or eliminate the need for appropriate margins on each assumption. But the aggregate impact of all margins on the reported reserve should be the primary focus when assessing the level of conservatism in the resulting reserve.



# Aggregate Impact of Margins

## Proposal:

1. Given the difficulties of assessing the appropriateness of the aggregate impact of all margins (for both the actuary and the regulator) the LRWG would like to explore with LHATF the idea of establishing a prescribed minimum level of the aggregate margin.
2. Proposal: all companies would be required to establish margins on each assumption that in aggregate is at least equal to a prescribed minimum.
3. The LRWG has proposed a method to quantify the aggregate impact of all margins using the metric called the “Margin Ratio” which relates the aggregate margin to the required capital level using a cost of capital approach. The prescribed minimum would be defined in terms of a minimum percentage for the Margin Ratio.
4. The following slides provide an example of how the Margin Ratio could be calculated.



# Aggregate Impact of Margins

$$\text{Margin Ratio} = \frac{\text{reported reserve} - \text{best estimate}}{\text{present value of RBC}}$$

*Best estimate* is a deterministic reserve calculated with all valuation margins removed.

## *Present value of RBC*

- requires projection of RBC each future year over the lifetime of the business being valued
- discount rate is same as used for reserve



# Aggregate Impact of Margins

To calculate the denominator of the Margin Ratio, RBC is projected using a simple factor-based formula, tailored by the company to approximate its statutory RBC at the company action level. Example:

C-1 = 1.3% of assets

C-2 = .0009 x (net amount at risk)

C-3 = 1.15% of reserve

C-4 = 3.08% of premium

$RBC = .85 \times (C-1 + C-2 + C-3 + C-4)$

Factors are applied to year-end amounts each future year in the projection used to calculate the best-estimate liability.

Factor-based approximation to RBC for each block of business would be subject to peer review.



# Aggregate Impact of Margins

Example:

$$\begin{aligned}\text{Margin ratio} &= \frac{\text{reported reserve} - \text{best estimate}}{\text{present value of RBC}} \\ &= \frac{\text{reported reserve} - \text{best estimate}}{(RBC_0 \times v^0) + (RBC_1 \times v^1) + (RBC_2 \times v^2) \dots + (RBC_{64} \times v^{64})} \\ &= \frac{28,798 - 25,793}{(879 \times 1.000) + (910 \times .939) + (938 \times .883) \dots + (2 \times .044)} \\ &= .158\end{aligned}$$



# Policyholder Behavior Assumptions when data is lacking

## Guiding Principles:

1. Unless there is clear evidence to the contrary, anticipated policyholder behavior assumptions should be consistent with relevant and credible past experience and reasonable future expectations.
2. Where relevant data do not exist, the actuary should determine what action will maximize the financial value of the policy from the point of view of the policyholder (i.e. lapse the policy, persist, take out a loan, etc.).
3. The actuary should then use judgment to estimate the percentage of policyholders who will take that action.





# Policyholder Behavior Assumptions when data is lacking

## Guidance:

1. Since some policyholders may act to maximize the financial value of the policy, the actuary should not assume that the percentage who maximize the financial value of the policy is zero.
2. However, since some policyholders may place value on factors other than maximizing the policy's financial value (for example, convenience of level premiums, personal budget choices, etc.) and since the policy's full economic value to the policyholder depends not only on its currently realizable value but also on factors not available for analysis (such as the health of the insured and the financial circumstances of the beneficiaries and policyholder) it is reasonable for the actuary to assume that the percentage who maximize the financial value of the policy is less than 100.



# Next Steps and Outstanding Items

- We believe the LRWG proposal is close to being “done” from an actuarial perspective – we believe it is close to being ready for final adoption by LHATF after exposure
- Once adopted, we anticipate the new reserve requirements will be placed in the new Valuation Manual that is under development.
- Needed “tweaks” and refinements after adoption can be implemented via the process to update the Valuation Manual (the process to update the Manual is also under way).
- Implementation date and transition rules need to be addressed by the NAIC (outside the scope of the LRWG).



# Next Steps and Outstanding Items

- Remaining items needing attention:
  1. Establish the CTE level.
  2. Update the requirements on modeling hedges.
  3. Finalize the deterministic interest rate and equity scenarios and the calibration standards for the stochastic scenarios.
  4. Establish the prescribed net spreads on reinvestment assets.
  5. Incorporate needed modifications resulting from discussions with Treasury.
  6. Perform additional product modeling and analysis.
  7. Incorporate comments by others outside the LRWG.
  8. Use of Actuarial Guidelines in LRWG proposal.



# Action Item:

Vote to expose for comment the updated versions of:

1. Model Regulation for Principles-based Approach for Life Insurance Reserves
2. Actuarial Guideline on requirements for setting valuation assumptions for PBA life insurance reserves (AG PBR-VAL)
3. Actuarial Guideline on disclosure requirements for PBA life insurance reserves (AG DIS)

